Disclaimer

The following report(s) provides findings from an FDA-initiated query using Sentinel. While Sentinel queries may be undertaken to assess potential medical product safety risks, they may also be initiated for various other reasons. Some examples include determining a rate or count of an identified health outcome of interest, examining medical product use, exploring the feasibility of future, more detailed analyses within Sentinel, and seeking to better understand Sentinel capabilities.

Data obtained through Sentinel are intended to complement other types of evidence such as preclinical studies, clinical trials, postmarket studies, and adverse event reports, all of which are used by FDA to inform regulatory decisions regarding medical product safety. The information contained in this report is provided as part of FDA's commitment to place knowledge acquired from Sentinel in the public domain as soon as possible. Any public health actions taken by FDA regarding products involved in Sentinel queries will continue to be communicated through existing channels.

FDA wants to emphasize that the fact that FDA has initiated a query involving a medical product and is reporting findings related to that query does not mean that FDA is suggesting health care practitioners should change their prescribing practices for the medical product or that patients taking the medical product should stop using it. Patients who have questions about the use of an identified medical product should contact their health care practitioners.

The following report contains a description of the request, request specifications, and results from the modular program run(s).

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Overview for Request: cder_mpl2p_wp055, Report 1 of 2

Request ID: cder_mpl2p_wp055_nsdp_v01

Request Description: In this report we examined the association between use of proton pump inhibitors (PPI) versus famotidine and development of COVID-19 related outcomes (1) hospitalization and 2) severe clinical course of COVID-19 defined as hospitalization with any one of the following: intubation, mechanical ventilation, ICU care or inpatient death) among patients with gastroesophageal reflux disease (GERD) in the Sentinel Distributed Database (SDD).

Sentinel Routine Querying Module: Cohort Identification and Descriptive Analysis (CIDA) module, version 13.1.2, with the Propensity Score Analysis (PSA) module and custom programming.

Data Source: We distributed this query to 12 Sentinel Data Partners on August 12, 2024. We included data from 6 Data Partners where the propensity score models converged. The Data Partners that were not included in the analysis lacked sufficient exposures to ensure propensity score model convergence.
This report is 1 of 2 and contains data from 5 Data Partners. These 5 Data Partners are a subset of the SDD and do not include patients with Medicare coverage. Report 2 only contains data from patients with Medicare fee-for-service coverage. The query period in both reports included data from April 1, 2020 through the latest available data (January 31, 2024 in Report 1 and June 30, 2023 in Report 2). Please see Appendix A for a list of dates of available data for each Data Partner.

Study Design and Analysis: This study used a retrospective, active comparator, new user cohort design. We identified individuals aged 18 years and older with incident use of PPIs and famotidine from April 1, 2020 through March 31, 2023 and evaluated the occurrence of various COVID-19-related outcomes. These individuals were required to have evidence of gastroesophageal reflux disease (GERD) diagnosis in the 3-months prior to cohort entry as well as no evidence of COVID-19 infection in the 6-months prior to cohort entry. We followed patients from their index dispensing until the earlier of the following: outcome of interest, death, treatment discontinuation or switching to another drug of interest, Data Partner end date, query end date, or disenrollment.
We then conducted the following Propensity Score (PS) analyses to adjust for confounding. We conducted all five analyses for the outcome of COVID-19 hospitalization and the first two analyses for the outcome of severe clinical course of COVID-19 infection.

- Inverse probability of treatment weighting (IPTW), estimating the average treatment effect among the treated (ATT) using PS estimated from a conventional user-specified model.
- IPTW, estimating the ATT effect using PS estimated via a high-dimensional (hdPS) approach.
- Overlap weighting, estimating the average treatment effect among the overlapping population (ATO) using hdPS.
- Propensity score fine stratification, estimating the ATT effect using hdPS.
- IPTW, estimating the average treatment effect among the population (ATE) using hdPS.

We evaluated the occurrence of COVID-19-related outcomes and estimated hazard ratios (HRs) and 95% confidence intervals (CIs) comparing PPI new users to famotidine new users. This is a Type 2 analysis using the PSA module with custom programming in the Query Request Package (QRP) documentation.

Exposures of Interest: We defined the exposures of interest (PPIs or famotidine) using pharmacy dispensing data. We defined incident use as no prior use of PPIs or any H2 receptor antagonist (H2RA) in the 183 days prior to the first qualifying dispensing of the exposure of interest. Only the first qualifying (index) dispensing in the query period for each member was included; cohort re-entry was not allowed. For a list of generic and brand drug names used to define the exposure drugs, please see Appendix AV. For a list of generic and brand drug names used to define the exposure washout criteria, please see Appendix AW.

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Outcomes of Interest: We defined two outcomes of interest:

1) inpatient hospitalization with COVID-19 (defined as a COVID-19 diagnosis in the inpatient care setting in any diagnosis position),

2) severe clinical course of COVID-19 infection - composite outcome of severe COVID-19 infection (defined as the presence of a mechanical ventilation procedure or ICU admission in the inpatient care setting during a COVID-19 hospitalization), or inpatient hospital death during a COVID-19 hospitalization (defined using custom programming as:

a) a COVID-19 diagnosis in the inpatient care setting in any diagnosis position, and

b) an inpatient encounter with a discharge disposition of "expired" in the same hospitalization).

We defined outcomes of interest using International Classification of Diseases, Tenth Revision, Clinical Modification diagnosis codes (ICD-10-CM); International Classification of Diseases, Tenth Revision, Procedure Coding System codes (ICD-10-PCS); Current Procedural Terminology, Fourth Edition (CPT-4) codes; Healthcare Common Procedure Coding System (HCPCS) codes; Current Procedural Terminology, Second Edition (CPT-2) codes; Current Procedural Terminology, Third Edition codes (CPT-3); and Revenue codes. Please see Appendix AX for the details of the codes used to define the outcomes in this report.

Cohort Eligibility Criteria: We required members to be enrolled in health plans with medical and drug coverage in the 183 days prior to their index date in order to be included in the cohort; a gap in coverage of up to 45 days was allowed and treated as continuous enrollment. The following age groups were included in the cohort: 18-49, 50-64, 65-74, 75+ years of age.

Inclusion/Exclusion Criteria : We also required evidence of a GERD diagnosis in the 90 days prior to the index dispensing using ICD-10-CM, CPT-2, CPT-3, CPT-4 and HCPCS codes. We excluded individuals with evidence of COVID-19 infection, defined using COVID-19 or SARS-CoV-2 diagnosis code or a positive SARS-CoV-2 nucleic acid amplification test (NAAT) laboratory test result, in the 183 days prior to index using ICD-10-CM diagnosis codes and laboratory codes. Please see Appendices AY and AZ for the diagnosis and procedure codes used to define GERD and COVID-19/SARS-CoV-2 diagnosis, and for the laboratory information used to define positive SARS-CoV-2 NAAT lab tests.

Follow-up Time: We created PPI and famotidine exposure episodes based on the number of days of product supplied per dispensing in the pharmacy dispensing data. We bridged together episodes less than or equal to 15 days apart and added 15 days to the end of each episode for a maximum episode duration of 184 days. These "modified as-treated" episodes are the periods of time during which we identified COVID-19-related outcomes.

For this analysis, we delayed the start of the outcome at-risk period by 1-day (in other words, instead of follow-up time starting on the day of index (Day 0), the beginning of the at-risk period occurred on Day 1). Individuals with outcomes that occurred on index date were excluded from the analysis.

Follow-up time continued until the first occurrence of any of the following: 1) occurrence of outcome; 2) death; 3) treatment discontinuation (up to a maximum episode duration of 184 days) or switching to another drug of interest (for PPI users - switching to any H2RA; for famotidine users - switching to PPIs or any other H2RA); 4) disenrollment from medical and/or pharmacy coverage; 5) the end of the data provided by each Data Partner; or 6) the end of the query period.

Note: The maximum episode duration of 184 days translates to a maximum follow-up time at risk for individuals in the study of 183 days or 6 months.

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Baseline Characteristics: We assessed the following demographic characteristics on the day of index: age, sex, race, Hispanic ethnicity, quarter-year of index and quartiles of Social Deprivation Index[1]. Additionally, we evaluated the following health characteristics in the 183 days prior to and including the day of index: combined comorbidity score[2], health service and drug utilization, diabetes, obesity, hypertension, hospitalized stroke/transient ischemic attack, coronary revascularization, atrial fibrillation, congestive heart failure, hospitalized acute myocardial infarction, other cerebrovascular disease, chronic obstructive pulmonary disease (COPD), asthma (without COPD), chronic liver disease, chronic kidney disease, any malignant neoplasm, hemiplegia, neurological/neurodegenerative conditions, dementia, depression, schizophrenia, rheumatic disorders, multiple sclerosis, Human Immunodeficiency Virus (HIV), coronary artery disease, immunodeficiency, smoking or nicotine use and hyperlipidemia using ICD-10-CM, ICD-10-PCS, and CPT-4 codes. We included a measure of frailty, defined using a claims-based frailty index[3] assessed over the same period.

We also evaluated the following medications in the 183 days prior to and including the day of index: angiotensin-converting enzyme inhibitors (ACEIs) and angiotensin II receptor blockers (ARBs), Non-steroidal anti-inflammatory drugs (NSAIDs), aspirin, antidepressants, statins, insulin, antidiabetic oral drugs, antihypertensive drugs, anticoagulants (oral and injectable), systemic glucocorticoids, acetaminophen, tumor necrosis Factor (TNF) inhibitors, immunosuppressants and inhaled corticosteroids. Additionally, we assessed for the dispensing or administration of COVID-19 vaccine in the same period.
Please see Appendix BA for the diagnoses and procedure codes (ICD-10-CM, ICD-10-PCS, CPT-2, CPT-3, CPT-4 and HCPCS and vaccine administered (CVX) codes and Appendix BB for the list of generic and brand drug names used to define the above characteristics and medication use.

Propensity Score Estimation:

We used two approches for estimating propensity scores (PS) for confounding adjustment:
• User-specified PS model: A conventional approach where we fit a logistic regression model to estimate the PS based on user-specified potential confounders listed in Appendix BD.
• High dimensional PS (hdPS) model: This approach included the same potential confounders as the user-specified PS model, in addition to using covariates at each Data Partner identified by the hdPS algorithm as proxy confounders using a data-driven approach. We considered the top 300 codes for inclusion (truncating ICD-10 codes to the 3rd level) in the [-183, -1] days around the index date from each data dimension (i.e., diagnosis, procedure and drug classes). Based on the strength of the relationship of the proxy confounder with both exposure and outcome, the algorithm selected the top 100 to include in the hdPS model. Please see Appendices B to W for the top 100 codes selected from each Data Partner for each of the specified analyses.
After PS estimation with both approaches as well as exclusion (i.e., trimming) of patients in non-overlapping regions of the PS distributions (for all analyses except overlap weighting), the PS was used to calculate the cohort balancing weights for each individual. The details of the weighting approaches are in the next section.

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Weighting:

We used weights to estimate the following effect estimates of interest. We conducted all five analyses for the outcome of COVID-19 hospitalization and the first two analyses for the outcome of severe clinical course of COVID-19 infection.

- Inverse probability of treatment weighting (IPTW), estimating the average treatment effect among the treated (ATT) using PS estimated from a conventional user-specified model.
- IPTW, estimating the ATT effect using PS estimated via a high-dimensional approach (i.e., hdPS).
- Overlap weighting, estimating the average treatment effect among the overlapping population (ATO) using hdPS.
- Propensity score fine stratification (50 strata), estimating the ATT effect using hdPS.
- IPTW, estimating the average treatment effect among the population (ATE) using hdPS.

We initially applied three candidate weight truncation percentile thresholds for the IPTW ATT and IPTW ATE weights to deal with potential extreme weights : 0% (no truncation), 1%, and 2.5%. Truncation was operationalized symmetrically, in that weights smaller than the weight at the specified percentile of the weight distribution were re-assigned the value of the weight at the specified percentile of the weight distribution, while weights larger than the weight at the (100 - specified percentile) of the weight distribution were re-assigned the value of the weight at the (100 - specified percentile) of the weight distribution. After a review of the distribution of IPT weights for the three truncation thresholds that was blinded to effect estimates, we applied the 1% percentile threshold to all analyses. We also included results of analyses with the 0% truncation threshold, as a sensitivity analysis.

Overlap weights and PS fine stratification weights did not require any truncation.

See Appendices X-AU for the distribution of weights for each of the weighting approaches in the overall population, as well as in each subgroup of interest.

Statistical Analysis: After receiving aggregate risk set-level data from each Data Partner, we used case-centered logistic regression to generate HRs and associated robust 95% CIs for analyses adjusted only for the Data Partner and the hybrid quasi-Newton least squared method to generate estimates for conditional fully-adjusted analyses.

Subgroup analyses for effect estimation included the following age groups: 18-49, 50-64, 65-74, 75+ years of age. Subgroups were formed out of the post-PS trimming population to ensure only those patients contributing to the overall analysis contributed to a subgroup analysis.

Additionally, in order to understand the potential heterogeneity of the effect estimates across all 6 Data Partners, we estimated a measure of statistical heterogeneity, the I^2, for the effect estimates in the overall population estimated using all weighting approaches (IPTW ATT, IPTW ATE, ATO, and PS fine stratification). This value is reported in the tables reporting the effect estimates.

Please see Appendices BC - BG for the specifications of the parameters used in this request and Appendix BH for a diagram detailing the design of this request.

Limitations: Algorithms to define exposures, outcomes, inclusion and exclusion criteria, and covariates are imperfect and may be misclassified. Therefore, data should be interpreted with this limitation in mind.

Notes: Please contact the Sentinel Operations Center (info@sentinelsystem.org) for questions and to provide comments/suggestions for future enhancements to this document. For more information on Sentinel's routine querying modules, please refer to the documentation (https://dev.sentinelsystem.org/projects/SENTINEL/repos/sentinel-routine-querying-tool-documentation/browse).

[1]The Social Deprivation Index score is a composite measure of zip code tabulation area (ZCTA)-level deprivation constructed from seven demographic and household characteristics collected in the American Community Survey, where higher values indication greater levels of deprivation. For this project, each patient's most recent geographic information is used. For more information, see Butler DC et al. Health Services Research. 2013;48(2pt1):539-559. doi:10.1111/j.1475-6773.2012.01449.x.

[2]The Combined Comorbidity Score is calculated based on comorbidities observed during a requester-defined window around the exposure episode start date. (Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A Combined Comorbidity Score Predicted Mortality in Elderly Patients Better Than Existing Scores. J Clin Epidemiol. 2011;64(7):749-759; Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and Validation of the Combined Comorbidity Score for ICD-10-CM. Med Care. 2017;55(12):1046-1051).

[3]Kim DH, Schneeweiss S, Glynn RJ, Lipsitz LA, Rockwood K, Avorn J. Measuring frailty in Medicare data: development and validation of a claims-based frailty index. J Gerontol A Biol Sci Med Sci. 2018;73(7)980-987.

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Glossary (CIDA) List of Terms to Define the Cohort Identification and Descriptive Analysis (CIDA) Found in this Report

Glossary (PSA) List of Terms to Define the Propensity Score Analysis (PSA) Found in this Report

Table 1a Aggregated Characteristics of Proton Pump Inhibitor New Users and Famotidine New Users in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024 (Outcome: COVID-19 Hospitalization)

Table 1b Aggregated Characteristics of Proton Pump Inhibitor New Users and Famotidine New Users in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024 (Outcome: Severe COVID-19 Outcome or Death)

Table 1c Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024 (Outcome: COVID-19 Hospitalization)

Table 1d Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years (Outcome: COVID-19 Hospitalization)

Table 1e Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 50-64 years (Outcome: COVID-19 Hospitalization)

Table 1f Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years (Outcome: COVID-19 Hospitalization)

Table 1g Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: ≥ 75 years (Outcome: COVID-19 Hospitalization)

Table 1h Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024 (Outcome: COVID-19 Hospitalization)

Table 1i Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years (Outcome: COVID-19 Hospitalization)

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Table 1j Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 50-64 years (Outcome: COVID-19 Hospitalization)

Table 1k Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years (Outcome: COVID-19 Hospitalization)

Table 1l Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: ≥ 75 years (Outcome: COVID-19 Hospitalization)

Table 1m Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment (Propensity Score Stratum Weighted, Trimmed, Percentiles: 50, Weight: Average Treatment Effect in the Treated (ATT)), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024 (Outcome: COVID-19 Hospitalization)

Table 1n Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment (Propensity Score Stratum Weighted, Trimmed, Percentiles: 50, Weight: Average Treatment Effect in the Treated (ATT)), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years (Outcome: COVID-19 Hospitalization)

Table 1o Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment (Propensity Score Stratum Weighted, Trimmed, Percentiles: 50, Weight: Average Treatment Effect in the Treated (ATT)), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 50-64 years (Outcome: COVID-19 Hospitalization)

Table 1p Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment (Propensity Score Stratum Weighted, Trimmed, Percentiles: 50, Weight: Average Treatment Effect in the Treated (ATT)), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years (Outcome: COVID-19 Hospitalization)

Table 1q Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment (Propensity Score Stratum Weighted, Trimmed, Percentiles: 50, Weight: Average Treatment Effect in the Treated (ATT)), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: ≥ 75 years (Outcome: COVID-19 Hospitalization)

Table 1r Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights (Overlap Weighted, Weight: ATO), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024 (Outcome: COVID-19 Hospitalization)

Table 1s Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights (Overlap Weighted, Weight: ATO), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years (Outcome: COVID-19 Hospitalization)

Table 1t Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights (Overlap Weighted, Weight: ATO), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 50-64 years (Outcome: COVID-19 Hospitalization)

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Table 1u Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights (Overlap Weighted, Weight: ATO), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years (Outcome: COVID-19 Hospitalization)

Table 1v Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights (Overlap Weighted, Weight: ATO), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: ≥ 75 years (Outcome: COVID-19 Hospitalization)

Table 1w Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATE Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect (ATE), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024 (Outcome: COVID-19 Hospitalization)

Table 1x Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATE Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect (ATE), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years (Outcome: COVID-19 Hospitalization)

Table 1y Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATE Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect (ATE), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 50-64 years (Outcome: COVID-19 Hospitalization)

Table 1z Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATE Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect (ATE), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years (Outcome: COVID-19 Hospitalization)

Table 1aa Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATE Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect (ATE), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: ≥ 75 years (Outcome: COVID-19 Hospitalization)

Table 1ab Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024 (Outcome: Severe COVID-19 Outcome or Death)

Table 1ac Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years (Outcome: Severe COVID-19 Outcome or Death)

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Table 1ad Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 50-64 years (Outcome: Severe COVID-19 Outcome or Death)

Table 1ae Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years (Outcome: Severe COVID-19 Outcome or Death)

Table 1af Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: ≥ 75 years (Outcome: Severe COVID-19 Outcome or Death)

Table 1ag Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024 (Outcome: Severe COVID-19 Outcome or Death)

Table 1ah Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years (Outcome: Severe COVID-19 Outcome or Death)

Table 1ai Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 50-64 years (Outcome: Severe COVID-19 Outcome or Death)

Table 1aj Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years (Outcome: Severe COVID-19 Outcome or Death)

Table 1ak Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: ≥ 75 years (Outcome: Severe COVID-19 Outcome or Death)

Table 2a Effect Estimates for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Analysis Type

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Table 2b Effect Estimates for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Analysis Type and Age Group

Table 3a Effect Estimates for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Analysis Type

Table 3b Effect Estimates for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Analysis Type and Age Group

Table 4a Effect Estimates for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Analysis Type

Table 4b Effect Estimates for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Analysis Type and Age Group

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Appendix AP Distribution of Inverse Probability of Treatment Weights After Trimming for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Weight: Average Treatment Effect in the Treated (ATT)

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Appendix AS Distribution of Inverse Probability of Treatment Weights After Trimming for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group, Weight: Average Treatment Effect in the Treated (ATT)

Appendix AT Distribution of Inverse Probability of Treatment Weights After Trimming for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Weight: Average Treatment Effect in the Treated (ATT)

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Appendix AV List of Generic and Brand Names of Medical Products Used to Define Exposures in this Request

Appendix AW List of Generic and Brand Names of Medical Products Used to Define Exposure Incidence Criteria in this Request

Appendix AX List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Revenue (RE) Codes Used to Define Outcomes in this Request

Appendix AY List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), and International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Inclusion Criteria in this Request

Appendix AZ List of SARS-CoV-2 Laboratory Tests Used to Define Exclusion Criteria in this Request

Appendix BA List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Appendix BB List of Generic and Brand Names of Medical Products Used to Define Covariates in this Request

Appendix BC Specifications Defining Parameters Used in this Request

Appendix BD Specifications Defining Baseline Characteristic Parameters Used in this Request

Appendix BE Specifications Defining Covariates Used in this Request

Appendix BF Specifications Defining Combo Parameters Used in this Request

Appendix BG Specifications Defining Risk Score and Utilization Metric Parameters Used in this Request

Appendix BH Design Diagram of Cohort Entry Requirements and Outcome Evaluation

Glossary of Terms for Analyses Using
Cohort Identification and Descriptive Analysis (CIDA) Module*

Amount Supplied - number of units (pills, tablets, vials) dispensed. Net amount per NDC per dispensing.
Blackout Period - number of days at the beginning of a treatment episode that events are to be ignored. If an event occurs during the blackout period, the episode is excluded.
Care Setting - type of medical encounter or facility where the exposure, event, or condition code was recorded. Possible care settings include: Inpatient Hospital Stay (IP), Non-Acute Institutional Stay (IS), Emergency Department (ED), Ambulatory Visit (AV), and Other Ambulatory Visit (OA). For laboratory results, possible care settings include: Emergency Department (E), Home (H), Inpatient (I), Outpatient (O), or Unknown or Missing (U). The Care Setting, along with the Principal Diagnosis Indicator (PDX), forms the Care Setting/PDX parameter.

- **Ambulatory Visit (AV) -** includes visits at outpatient clinics, same-day surgeries, urgent care visits, and other same-day ambulatory hospital encounters, but excludes emergency department encounters.
- **Emergency Department (ED) -** includes ED encounters that become inpatient stays (in which case inpatient stays would be a separate encounter). Excludes urgent care visits.
- **Inpatient Hospital Stay (IP) -** includes all inpatient stays, same-day hospital discharges, hospital transfers, and acute hospital care where the discharge is after the admission date.
- **Non-Acute Institutional Stay (IS) -** includes hospice, skilled nursing facility (SNF), rehab center, nursing home, residential, overnight non-hospital dialysis and other non-hospital stays.
- **Other Ambulatory Visit (OA) -** includes other non overnight AV encounters such as hospice visits, home health visits, skilled nursing facility visits, other non-hospital visits, as well as telemedicine, telephone and email consultations.

Charlson/Elixhauser Combined Comorbidity Score - calculated based on comorbidities observed during a requester-defined window around the exposure episode start date (e.g., in the 183 days prior to index).
Code Days - the minimum number of times the diagnosis must be found during the evaluation period in order to fulfill the algorithm to identify the corresponding patient characteristic.
Cohort Definition (drug/exposure) - indicates how the cohort will be defined: 01: Cohort includes only the first valid treatment episode during the query period; 02: Cohort includes all valid treatment episodes during the query period; 03: Cohort includes all valid treatment episodes during the query period until an event occurs.
Computed Start Marketing Date - represents the first observed dispensing date among all valid users within a GROUP (scenario) within each Data Partner site.
Days Supplied - number of days supplied for all dispensings in qualifying treatment episodes.
Eligible Members - number of members eligible for an incident treatment episode (defined by the drug/exposure and event washout periods) with drug and medical coverage during the query period.
Enrollment Gap - number of days allowed between two consecutive enrollment periods without breaking a “continuously enrolled” sequence.
Episodes - treatment episodes; length of episode is determined by days supplied in one dispensing or consecutive dispensings bridged by the episode gap.
Episode Gap - number of days allowed between two (or more) consecutive exposures (dispensings/procedures) to be considered the same treatment episode.
Event Deduplication - specifies how events are counted by the Modular Program (MP) algorithm: 0: Counts all occurrences of a health outcome of interest (HOI) during an exposure episode; 1: de-duplicates occurrences of the same HOI code and code type on the same day; 2: de-duplicates occurrences of the same HOI group on the same day (e.g., de-duplicates at the group level).
Exposure Episode Length - number of days after exposure initiation that is considered "exposed time."
Exposure Extension Period - number of days post treatment period in which the outcomes/events are counted for a treatment episode. Extensions are added after any episode gaps have been bridged.
Lookback Period - number of days wherein a member is required to have evidence of pre-existing condition (diagnosis/procedure/drug dispensing).
Maximum Episode Duration - truncates exposure episodes after a requester-specified number of exposed days. Applied after any gaps are bridged and extension days added to the length of the exposure episode.

Glossary of Terms for Analyses Using
Cohort Identification and Descriptive Analysis (CIDA) Module*

Member-Years - sum of all days of enrollment with medical and drug coverage in the query period preceded by an exposure washout period all divided by 365.25.
Minimum Days Supplied - specifies a minimum number of days in length of the days supplied for the episode to be considered.

Minimum Episode Duration - specifies a minimum number of days in length of the episode for it to be considered. Applied after any gaps are bridged and extension days added to the length of the exposure episode.
Monitoring Period - used to define time periods of interest for both sequential analysis and simple cohort characterization requests.
Principal Diagnosis (PDX) - diagnosis or condition established to be chiefly responsible for admission of the patient to the hospital. 'P' = principal diagnosis, 'S' = secondary diagnosis, 'X' = unspecified diagnosis, '.' = blank. Along with the Care Setting values, forms the Caresetting/PDX parameter.
Query Period - period in which the modular program looks for exposures and outcomes of interest.
Switch Evaluation Step Value - value used to differentiate evaluation step. Each switch pattern can support up to 2 evaluation steps (0 = switch pattern evaluation start; 1 = first evaluation; 2 = second evaluation).
Switch Gap Inclusion Indicator - indicator for whether gaps in treatment episodes that are included in a switch episode will be counted as part of the switch episode duration.
Switch Pattern Cohort Inclusion Date - indicates which date to use for inclusion into the switch pattern cohort of interest as well as optionally as the index date of the treatment episode initiating the switch pattern. Valid options are the product approval date, product marketing date, other requester defined date, or computed start marketing date.
Switch Pattern Cohort Inclusion Strategy - indicates how the switch pattern cohort inclusion date will be used: 01: used only as a switch cohort entry date. First treatment episode dispensing date is used as index for computing time to first switch; 02: used as switch cohort entry date and as initial switch step index date for computing time to first switch.

Treatment Episode Truncation Indicator - indicates whether the exposure episode will be truncated at the occurrence of a requester-specified code.
Washout Period (drug/exposure) - number of days a user is required to have no evidence of prior exposure (drug dispensing/procedure) and continuous drug and medical coverage prior to an incident treatment episode.
Washout Period (event/outcome) - number of days a user is required to have no evidence of a prior event (procedure/diagnosis) and continuous drug and medical coverage prior to an incident treatment episode.
Years at Risk - number of days supplied plus any episode gaps and exposure extension periods all divided by 365.25.

*all terms may not be used in this report

Glossary of Terms for Analyses Using
Propensity Score Analysis (PSA) Module*

Covariate - requester defined binary variable to include in the propensity score estimation model (e.g., diabetes, heart failure, etc.) during requester-defined lookback period. Requester may also choose to add any of the following categorical, continuous, or count metrics to the propensity score estimation model:

1. Age (continuous)
2. Sex
3. Time period (i.e., monitoring period for sequential analyses)
4. Year of exposure
5. Comorbidity score
6. Medical utilization – number of inpatient stays
7. Medical utilization – number of institutional stays
8. Medical utilization – number of emergency department visits
9. Medical utilization – number of outpatient visits
10. Health care utilization – number of other ambulatory encounters (e.g., telemedicine, email consults)
11. Drug utilization – number of dispensings
12. Drug utilization – number of unique generics dispensed
13. Drug Utilization – number of unique drug classes dispensed

Covariate Evaluation Window - specified number of days relative to index date to evaluate the occurrence of covariates of interest. Note: members are required to have continuous enrollment during the covariate evaluation window, regardless of the value included in the "Continuous enrollment before exposure" field.

Individual Level Data Return - program may return individual-level, de-identified datasets to the Sentinel Operations Center (SOC). While the datasets contain a single row per patient for each specified analysis, patient identifiers such as a patient ID are not included in the output. Individual-level datasets are returned to the SOC, aggregated, and used to calculate effect estimates via Cox (proportional hazards) regression.

Mahalanobis Distance - provides a measure of balance across all variables while accounting for their correlation.

Matching Caliper - maximum allowed difference in propensity scores between treatment and control patients. Requester may select any caliper (e.g., 0.01, 0.025, and 0.05).

Matching Ratio - patients in exposed and comparator groups are nearest neighbor matched by a 1:1 or 1:n (up to 10) matching ratio.

Matched Conditional and Unconditional Analysis - in a conditional matched analysis, a Cox model, stratified by Data Partner site and matched set, is run on the matched population. This can be done for both the both 1:1 and 1:n matched cohorts. In an unconditional analysis, a Cox model, stratified by Data Partner site only, is run on the matched population. This can be done for the 1:1 matched cohort only.

Propensity Score Stratification - option to stratify propensity scores based on requester-defined percentiles in the unmatched population. In a stratified analysis, a Cox model, stratified by Data Partner site, is run on the stratified population. Note that all patients identified in exposure and comparator cohorts are used in the analysis.

PSM Tool - performs effect estimation by comparing exposure propensity-score matched parallel new user cohorts. Propensity score estimation and matching are conducted within each Sentinel Data Partner site via distributed programming code; data are returned to the SOC, aggregated, and used to calculate effect estimates.

Risk-set Level Data Return - alternative to the patient-level data return approach. In this approach, the PSM tool will produce de-identified, risk-set level datasets instead of or in addition to individual-level output. Whereas each observation in the patient-level datasets represents one patient in the cohort, each observation in the risk set dataset represents one event. Risk sets are created at the Data Partner site, returned to the SOC, aggregated, and used to calculate effect estimates via case-centered logistic regression.

Subgroup Analysis - may be conducted using any requester-defined covariates. Subgroup analyses may be performed in the unmatched and the matched population.

Glossary of Terms for Analyses Using
Propensity Score Analysis (PSA) Module*

Zero Cell Correction - indicator for whether to screen variables with a zero correction added to each cell in the confounder/outcome 2x2 table. Recommended when the number of exposed outcomes is fewer than 150.

*all terms may not be used in this report

Table 1a. Aggregated Characteristics of Proton Pump Inhibitor New Users and Famotidine New Users in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024 (Outcome: COVID-19 Hospitalization)

	Medical Product				Characteristic Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Patient Characteristics	**Number/Mean**	**Percent/ Standard Deviation[1]**	**Number/Mean**	**Percent/ Standard Deviation[1]**	**Absolute Difference**	**Standardized Difference**
Unique patients	1,048,015	N/A	186,888	N/A	N/A	N/A
Demographic Characteristics	**Number/Mean**	**Percent/ Standard Deviation[1]**	**Number/Mean**	**Percent/ Standard Deviation[1]**	**Absolute Difference**	**Standardized Difference**
Age (years)	58.2	14.9	59.6	15.7	-1.468	-0.096
Age						
18-49 years	319,142	30.5%	52,687	28.2%	2.260	0.050
50-64 years	314,224	30.0%	49,203	26.3%	3.655	0.081
65-74 years	249,880	23.8%	48,073	25.7%	-1.880	-0.044
≥ 75 years	164,769	15.7%	36,925	19.8%	-4.036	-0.106
Sex						
Female	617,547	58.9%	119,542	64.0%	-5.039	-0.104
Male	430,468	41.1%	67,346	36.0%	5.039	0.104
Race[2]						
American Indian or Alaska Native	3,536	0.3%	677	0.4%	-0.025	-0.004
Asian	31,818	3.0%	6,340	3.4%	-0.356	-0.020
Black or African American	117,295	11.2%	24,167	12.9%	-1.739	-0.053
Multi-racial	16,112	1.5%	2,352	1.3%	0.279	0.024
Native Hawaiian or Other Pacific Islander	4,195	0.4%	941	0.5%	-0.103	-0.015
Unknown	275,379	26.3%	45,465	24.3%	1.949	0.045
White	599,680	57.2%	106,946	57.2%	-0.004	-0.000
Hispanic origin						
Yes	41,938	4.0%	8,154	4.4%	-0.361	-0.018
No	580,185	55.4%	107,937	57.8%	-2.395	-0.048
Unknown	425,892	40.6%	70,797	37.9%	2.756	0.056
Health Characteristics	**Number/Mean**	**Percent/ Standard Deviation[1]**	**Number/Mean**	**Percent/ Standard Deviation[1]**	**Absolute Difference**	**Standardized Difference**
Claims-Based frailty index[4]	0.1	0.0	0.1	0.1	-0.003	-0.060

Table 1a. Aggregated Characteristics of Proton Pump Inhibitor New Users and Famotidine New Users in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024 (Outcome: COVID-19 Hospitalization)

	Medical Product				Characteristic Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Claims-Based frailty index categories						
<=0.2	923,488	88.1%	162,228	86.8%	1.313	0.040
>0.2	124,527	11.9%	24,660	13.2%	-1.313	-0.040
Combined comorbidity score[5]	1.4	2.4	1.5	2.5	-0.118	-0.048
Diabetes	223,964	21.4%	41,622	22.3%	-0.901	-0.022
Obesity	283,073	27.0%	48,196	25.8%	1.222	0.028
Hypertension	552,920	52.8%	101,578	54.4%	-1.594	-0.032
Hospitalized Stroke/Transient Ischemic Attack	11,492	1.1%	2,723	1.5%	-0.360	-0.032
Coronary Revascularization	10,927	1.0%	2,219	1.2%	-0.145	-0.014
Atrial Fibrillation	64,211	6.1%	12,077	6.5%	-0.335	-0.014
Congestive Heart Failure	69,288	6.6%	13,534	7.2%	-0.630	-0.025
Hospitalized Acute Myocardial Infarction	12,037	1.1%	2,210	1.2%	-0.034	-0.003
Other Cerebrovascular Disease	50,502	4.8%	10,800	5.8%	-0.960	-0.043
Chronic Obstructive Pulmonary Disease	107,492	10.3%	19,727	10.6%	-0.299	-0.010
Asthma without COPD	102,996	9.8%	20,089	10.7%	-0.921	-0.030
Chronic Liver Disease	77,030	7.4%	12,055	6.5%	0.900	0.036
Chronic Kidney Disease	170,959	16.3%	33,679	18.0%	-1.708	-0.045
Any Malignant Neoplasm	133,837	12.8%	25,626	13.7%	-0.941	-0.028
Hemiplegia	11,505	1.1%	2,823	1.5%	-0.413	-0.036
Neurological/Neurodegenerative Conditions	6,065	0.6%	1,346	0.7%	-0.142	-0.018
Dementia	22,898	2.2%	5,365	2.9%	-0.686	-0.044
Depression	191,616	18.3%	34,396	18.4%	-0.121	-0.003
Schizophrenia	6,849	0.7%	1,512	0.8%	-0.156	-0.018
Rheumatic Disorders	26,133	2.5%	4,979	2.7%	-0.171	-0.011
Multiple Sclerosis	5,118	0.5%	923	0.5%	-0.006	-0.001
HIV/AIDS	3,024	0.3%	856	0.5%	-0.169	-0.028
Coronary Artery Disease	172,608	16.5%	33,213	17.8%	-1.302	-0.035
Immunodeficiency	109,325	10.4%	20,878	11.2%	-0.740	-0.024
Smoking or Nicotine Use	213,668	20.4%	36,947	19.8%	0.618	0.015
Hyperlipidemia	517,372	49.4%	96,101	51.4%	-2.055	-0.041

Table 1a. Aggregated Characteristics of Proton Pump Inhibitor New Users and Famotidine New Users in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024 (Outcome: COVID-19 Hospitalization)

	Medical Product				Characteristic Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Medical Product Use	Number/Mean	Percent/ Standard Deviation[1]	Number/Mean	Percent/ Standard Deviation[1]	Absolute Difference	Standardized Difference
Angiotensin Converting Enzyme Inhibitors/Angiotensin Receptor Blockers	361,272	34.5%	65,903	35.3%	-0.791	-0.017
Non-Steroidal Anti-Inflammatory Drugs	222,668	21.2%	38,162	20.4%	0.827	0.020
Aspirin	11,364	1.1%	2,381	1.3%	-0.190	-0.018
Antidepressants	333,792	31.8%	57,737	30.9%	0.956	0.021
Statins	384,777	36.7%	72,726	38.9%	-2.199	-0.045
Insulin	56,657	5.4%	10,446	5.6%	-0.183	-0.008
Anti-Diabetic Oral Drugs	155,286	14.8%	28,392	15.2%	-0.375	-0.010
Antihypertensive Drugs	394,931	37.7%	71,877	38.5%	-0.776	-0.016
Anticoagulants	69,594	6.6%	13,046	7.0%	-0.340	-0.014
Glucocorticoids	233,712	22.3%	42,993	23.0%	-0.704	-0.017
Acetaminophen	152,717	14.6%	25,564	13.7%	0.893	0.026
Tumor Necrosis Factor Inhibitors	6,278	0.6%	1,057	0.6%	0.033	0.004
Immunosuppressants	53,552	5.1%	10,663	5.7%	-0.596	-0.026
Inhaled Corticosteroids	80,537	7.7%	15,360	8.2%	-0.534	-0.020
COVID-19 Vaccine	268,944	25.7%	52,235	27.9%	-2.288	-0.052
Health Service Utilization Intensity Metrics	**Number/Mean**	**Percent/ Standard Deviation[1]**	**Number/Mean**	**Percent/ Standard Deviation[1]**	**Absolute Difference**	**Standardized Difference**
Mean number of ambulatory encounters	10.0	10.7	10.4	11.2	-0.472	-0.043
Mean number of emergency room encounters	0.5	1.5	0.6	1.6	-0.031	-0.020
Mean number of inpatient hospital encounters	0.2	0.5	0.2	0.5	0.003	0.005
Mean number of non-acute institutional encounters	0.0	0.3	0.0	0.3	-0.009	-0.032
Mean number of other ambulatory encounters	2.3	5.2	2.5	5.8	-0.259	-0.047
Mean number of filled prescriptions	14.0	12.4	14.4	12.5	-0.364	-0.029
Mean number of generics dispensed	7.4	4.6	7.6	4.6	-0.205	-0.044
Mean number of unique drug classes dispensed	7.0	4.2	7.2	4.2	-0.193	-0.046

Table 1a. Aggregated Characteristics of Proton Pump Inhibitor New Users and Famotidine New Users in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024 (Outcome: COVID-19 Hospitalization)

	Medical Product		Characteristic Balance
	Proton Pump Inhibitor New Users	Famotidine New Users	

[1]Value represents standard deviation where no % follows the value.

[2]Race data may not be completely populated at all Data Partners; therefore, data about race may be incomplete.

[3]The Social Deprivation Index score is a composite measure of zip code tabulation area (ZCTA)-level deprivation constructed from seven demographic and household characteristics collected in the American Community Survey, where higher values indication greater levels of deprivation. For this project, each patient's most recent geographic information is used. For more information, see Butler DC et al. Health Services Research. 2013;48(2pt1):539-559. doi:10.1111/j.1475-6773.2012.01449.x.

[4]Kim DH, Schneeweiss S, Glynn RJ, Lipsitz LA, Rockwood K, Avorn J. Measuring frailty in Medicare data: development and validation of a claims-based frailty index. J Gerontol A Biol Sci Med Sci. 2018;73(7)980-987.

[5]Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A combined comorbidity score predicted mortality in elderly patients better than existing scores. J Clin Epidemiol. 2011;64(7):749-759. Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and validation of the combined comorbidity score for ICD-10-CM. Med Care. 2017;55(12):1046-1051.

N/A: Not Applicable

Table 1b. Aggregated Characteristics of Proton Pump Inhibitor New Users and Famotidine New Users in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024 (Outcome: Severe COVID-19 Outcome or Death)

	Medical Product				Characteristic Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Patient Characteristics	**Number/Mean**	**Percent/ Standard Deviation[1]**	**Number/Mean**	**Percent/ Standard Deviation[1]**	**Absolute Difference**	**Standardized Difference**
Unique patients	1,048,102	N/A	186,914	N/A	N/A	N/A
Demographic Characteristics	**Number/Mean**	**Percent/ Standard Deviation[1]**	**Number/Mean**	**Percent/ Standard Deviation[1]**	**Absolute Difference**	**Standardized Difference**
Age (years)	58.2	14.9	59.6	15.7	-1.469	-0.096
Age						
18-49 years	319,149	30.5%	52,689	28.2%	2.261	0.050
50-64 years	314,244	30.0%	49,208	26.3%	3.656	0.081
65-74 years	249,904	23.8%	48,081	25.7%	-1.880	-0.044
≥ 75 years	164,805	15.7%	36,936	19.8%	-4.037	-0.106
Sex						
Female	617,600	58.9%	119,554	64.0%	-5.036	-0.104
Male	430,502	41.1%	67,360	36.0%	5.036	0.104
Race[2]						
American Indian or Alaska Native	3,536	0.3%	677	0.4%	-0.025	-0.004
Asian	31,818	3.0%	6,340	3.4%	-0.356	-0.020
Black or African American	117,310	11.2%	24,172	12.9%	-1.740	-0.053
Multi-racial	16,112	1.5%	2,352	1.3%	0.279	0.024
Native Hawaiian or Other Pacific Islander	4,195	0.4%	942	0.5%	-0.104	-0.015
Unknown	275,389	26.3%	45,470	24.3%	1.948	0.045
White	599,742	57.2%	106,961	57.2%	-0.003	-0.000
Hispanic origin						
Yes	41,939	4.0%	8,154	4.4%	-0.361	-0.018
No	580,259	55.4%	107,958	57.8%	-2.395	-0.048
Unknown	425,904	40.6%	70,802	37.9%	2.756	0.056
Health Characteristics	**Number/Mean**	**Percent/ Standard Deviation[1]**	**Number/Mean**	**Percent/ Standard Deviation[1]**	**Absolute Difference**	**Standardized Difference**
Claims-Based frailty index[4]	0.1	0.0	0.1	0.1	-0.003	-0.060

Table 1b. Aggregated Characteristics of Proton Pump Inhibitor New Users and Famotidine New Users in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024 (Outcome: Severe COVID-19 Outcome or Death)

	Medical Product				Characteristic Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Claims-Based frailty index categories						
<=0.2	923,512	88.1%	162,236	86.8%	1.316	0.040
>0.2	124,590	11.9%	24,678	13.2%	-1.316	-0.040
Combined comorbidity score[5]	1.4	2.4	1.5	2.5	-0.118	-0.048
Diabetes	224,000	21.4%	41,634	22.3%	-0.902	-0.022
Obesity	283,118	27.0%	48,204	25.8%	1.223	0.028
Hypertension	552,995	52.8%	101,601	54.4%	-1.596	-0.032
Hospitalized Stroke/Transient Ischemic Attack	11,505	1.1%	2,728	1.5%	-0.362	-0.032
Coronary Revascularization	10,928	1.0%	2,219	1.2%	-0.145	-0.014
Atrial Fibrillation	64,241	6.1%	12,085	6.5%	-0.336	-0.014
Congestive Heart Failure	69,327	6.6%	13,548	7.2%	-0.634	-0.025
Hospitalized Acute Myocardial Infarction	12,051	1.1%	2,210	1.2%	-0.033	-0.003
Other Cerebrovascular Disease	50,527	4.8%	10,809	5.8%	-0.962	-0.043
Chronic Obstructive Pulmonary Disease	107,522	10.3%	19,737	10.6%	-0.301	-0.010
Asthma without COPD	103,003	9.8%	20,092	10.7%	-0.922	-0.030
Chronic Liver Disease	77,043	7.4%	12,060	6.5%	0.899	0.035
Chronic Kidney Disease	171,008	16.3%	33,698	18.0%	-1.713	-0.045
Any Malignant Neoplasm	133,854	12.8%	25,633	13.7%	-0.943	-0.028
Hemiplegia	11,514	1.1%	2,829	1.5%	-0.415	-0.037
Neurological/Neurodegenerative Conditions	6,066	0.6%	1,346	0.7%	-0.141	-0.018
Dementia	22,923	2.2%	5,375	2.9%	-0.689	-0.044
Depression	191,653	18.3%	34,403	18.4%	-0.120	-0.003
Schizophrenia	6,852	0.7%	1,514	0.8%	-0.156	-0.018
Rheumatic Disorders	26,139	2.5%	4,980	2.7%	-0.170	-0.011
Multiple Sclerosis	5,120	0.5%	923	0.5%	-0.005	-0.001
HIV/AIDS	3,024	0.3%	856	0.5%	-0.169	-0.028
Coronary Artery Disease	172,646	16.5%	33,224	17.8%	-1.303	-0.035
Immunodeficiency	109,358	10.4%	20,887	11.2%	-0.741	-0.024
Smoking or Nicotine Use	213,708	20.4%	36,958	19.8%	0.617	0.015
Hyperlipidemia	517,433	49.4%	96,122	51.4%	-2.057	-0.041

Table 1b. Aggregated Characteristics of Proton Pump Inhibitor New Users and Famotidine New Users in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024 (Outcome: Severe COVID-19 Outcome or Death)

	Medical Product				Characteristic Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Medical Product Use	Number/Mean	Percent/ Standard Deviation[1]	Number/Mean	Percent/ Standard Deviation[1]	Absolute Difference	Standardized Difference
Angiotensin Converting Enzyme Inhibitors/Angiotensin Receptor Blockers	361,312	34.5%	65,913	35.3%	-0.791	-0.017
Non-Steroidal Anti-Inflammatory Drugs	222,688	21.2%	38,164	20.4%	0.829	0.020
Aspirin	11,365	1.1%	2,381	1.3%	-0.190	-0.018
Antidepressants	333,834	31.9%	57,747	30.9%	0.956	0.021
Statins	384,819	36.7%	72,744	38.9%	-2.203	-0.045
Insulin	56,673	5.4%	10,451	5.6%	-0.184	-0.008
Anti-Diabetic Oral Drugs	155,297	14.8%	28,397	15.2%	-0.376	-0.011
Antihypertensive Drugs	394,976	37.7%	71,887	38.5%	-0.775	-0.016
Anticoagulants	69,616	6.6%	13,055	7.0%	-0.342	-0.014
Glucocorticoids	233,731	22.3%	42,996	23.0%	-0.703	-0.017
Acetaminophen	152,739	14.6%	25,572	13.7%	0.892	0.026
Tumor Necrosis Factor Inhibitors	6,278	0.6%	1,057	0.6%	0.033	0.004
Immunosuppressants	53,557	5.1%	10,667	5.7%	-0.597	-0.026
Inhaled Corticosteroids	80,549	7.7%	15,362	8.2%	-0.534	-0.020
COVID-19 Vaccine	268,958	25.7%	52,241	27.9%	-2.288	-0.052
Health Service Utilization Intensity Metrics	**Number/Mean**	**Percent/ Standard Deviation[1]**	**Number/Mean**	**Percent/ Standard Deviation[1]**	**Absolute Difference**	**Standardized Difference**
Mean number of ambulatory encounters	10.0	10.7	10.4	11.2	-0.472	-0.043
Mean number of emergency room encounters	0.5	1.5	0.6	1.6	-0.031	-0.020
Mean number of inpatient hospital encounters	0.2	0.5	0.2	0.5	0.002	0.005
Mean number of non-acute institutional encounters	0.0	0.3	0.0	0.3	-0.009	-0.032
Mean number of other ambulatory encounters	2.3	5.2	2.5	5.8	-0.259	-0.047
Mean number of filled prescriptions	14.0	12.4	14.4	12.5	-0.365	-0.029
Mean number of generics dispensed	7.4	4.6	7.6	4.6	-0.205	-0.044
Mean number of unique drug classes dispensed	7.0	4.2	7.2	4.2	-0.193	-0.046

Table 1b. Aggregated Characteristics of Proton Pump Inhibitor New Users and Famotidine New Users in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024 (Outcome: Severe COVID-19 Outcome or Death)

	Medical Product		Characteristic Balance
	Proton Pump Inhibitor New Users	Famotidine New Users	

[1]Value represents standard deviation where no % follows the value.

[2]Race data may not be completely populated at all Data Partners; therefore, data about race may be incomplete.

[3]The Social Deprivation Index score is a composite measure of zip code tabulation area (ZCTA)-level deprivation constructed from seven demographic and household characteristics collected in the American Community Survey, where higher values indication greater levels of deprivation. For this project, each patient's most recent geographic information is used. For more information, see Butler DC et al. Health Services Research. 2013;48(2pt1):539-559. doi:10.1111/j.1475-6773.2012.01449.x.

[4]Kim DH, Schneeweiss S, Glynn RJ, Lipsitz LA, Rockwood K, Avorn J. Measuring frailty in Medicare data: development and validation of a claims-based frailty index. J Gerontol A Biol Sci Med Sci. 2018;73(7)980-987.

[5]Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A combined comorbidity score predicted mortality in elderly patients better than existing scores. J Clin Epidemiol. 2011;64(7):749-759. Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and validation of the combined comorbidity score for ICD-10-CM. Med Care. 2017;55(12):1046-1051.

N/A: Not Applicable

Table 1c. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024 (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Patient Characteristics[1,2]	Number/Mean	Percent/ Standard Deviation[3]	Number/Mean	Percent/ Standard Deviation[3]	Absolute Difference	Standardized Difference
Weighted patients	1,043,458	N/A	1,030,133	N/A	N/A	N/A
Demographic Characteristics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Age (years)[*]	58.2	14.9	58.2	15.3	-0.097	-0.006
Age[*]						
18-49 years	317,938	30.5%	311,514	30.2%	0.230	0.005
50-64 years	312,902	30.0%	307,186	29.8%	0.167	0.004
65-74 years	248,795	23.8%	247,608	24.0%	-0.193	-0.005
≥ 75 years	163,823	15.7%	163,826	15.9%	-0.203	-0.006
Sex[*]						
Female	614,546	58.9%	611,256	59.3%	-0.442	-0.009
Male	428,912	41.1%	418,877	40.7%	0.442	0.009
Race[4]						
American Indian or Alaska Native	3,521	0.3%	3,692	0.4%	-0.021	-0.004
Asian	31,636	3.0%	34,188	3.3%	-0.287	-0.016
Black or African American	116,630	11.2%	124,594	12.1%	-0.918	-0.029
Multi-racial	16,050	1.5%	15,004	1.5%	0.082	0.007
Native Hawaiian or Other Pacific Islander	4,169	0.4%	4,729	0.5%	-0.060	-0.009
Unknown	274,372	26.3%	267,821	26.0%	0.296	0.007
White	597,080	57.2%	580,105	56.3%	0.908	0.019
Hispanic origin						
Yes	41,712	4.0%	45,181	4.4%	-0.388	-0.019
No	577,336	55.3%	570,813	55.4%	-0.082	-0.002
Unknown	424,410	40.7%	414,140	40.2%	0.471	0.013
ZCTA Social Deprivation Index Score, National Quartile[*,5]						
Q1 (Least deprived)	267,436	25.6%	262,677	25.5%	0.130	0.003
Q2	271,457	26.0%	267,223	25.9%	0.074	0.002

Table 1c. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024 (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Q3	273,944	26.3%	270,702	26.3%	-0.025	-0.001
Q4 (Most deprived)	221,532	21.2%	220,641	21.4%	-0.188	-0.005
Unknown	9,089	0.9%	8,890	0.9%	0.008	0.001
Year-Quarter of Exposure*						
2020 Quarter 2	72,354	6.9%	69,838	6.8%	0.155	0.006
2020 Quarter 3	101,523	9.7%	93,227	9.0%	0.680	0.023
2020 Quarter 4	95,130	9.1%	94,784	9.2%	-0.084	-0.003
2021 Quarter 1	91,330	8.8%	90,828	8.8%	-0.065	-0.002
2021 Quarter 2	86,101	8.3%	85,570	8.3%	-0.055	-0.002
2021 Quarter 3	94,297	9.0%	93,998	9.1%	-0.088	-0.003
2021 Quarter 4	89,021	8.5%	88,906	8.6%	-0.099	-0.004
2022 Quarter 1	80,007	7.7%	79,782	7.7%	-0.077	-0.003
2022 Quarter 2	76,723	7.4%	76,262	7.4%	-0.050	-0.002
2022 Quarter 3	85,314	8.2%	85,343	8.3%	-0.109	-0.004
2022 Quarter 4	84,706	8.1%	84,783	8.2%	-0.112	-0.004
2023 Quarter 1	86,952	8.3%	86,810	8.4%	-0.094	-0.003
Health Characteristics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Claims-Based frailty index*,[6]	0.1	0.0	0.1	0.1	-0.000	-0.007
Claims-Based frailty index categories						
<=0.2	919,652	88.1%	907,013	88.0%	0.087	0.003
>0.2	123,806	11.9%	123,120	12.0%	-0.087	-0.003
Combined comorbidity score*,[7]	1.4	2.4	1.4	2.4	-0.014	-0.006
Diabetes*	222,959	21.4%	221,763	21.5%	-0.160	-0.004
Obesity*	281,794	27.0%	277,853	27.0%	0.033	0.001
Hypertension*	550,351	52.7%	544,916	52.9%	-0.155	-0.003
Hospitalized Stroke/Transient Ischemic Attack	11,433	1.1%	12,940	1.3%	-0.160	-0.015
Coronary Revascularization	10,875	1.0%	11,880	1.2%	-0.111	-0.011
Atrial Fibrillation*	63,880	6.1%	63,515	6.2%	-0.044	-0.002

Table 1c. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024 (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Congestive Heart Failure*	68,904	6.6%	68,917	6.7%	-0.087	-0.004
Hospitalized Acute Myocardial Infarction	11,982	1.1%	11,358	1.1%	0.046	0.004
Other Cerebrovascular Disease*	50,231	4.8%	50,629	4.9%	-0.101	-0.005
Chronic Obstructive Pulmonary Disease*	106,952	10.2%	106,528	10.3%	-0.091	-0.003
Asthma without COPD*	102,407	9.8%	102,330	9.9%	-0.119	-0.004
Chronic Liver Disease*	76,607	7.3%	74,081	7.2%	0.150	0.006
Chronic Kidney Disease*	170,137	16.3%	169,795	16.5%	-0.178	-0.005
Any Malignant Neoplasm*	133,181	12.8%	132,305	12.8%	-0.080	-0.002
Hemiplegia	11,463	1.1%	13,492	1.3%	-0.211	-0.019
Neurological/Neurodegenerative Conditions	6,032	0.6%	6,570	0.6%	-0.060	-0.008
Dementia*	22,784	2.2%	22,982	2.2%	-0.047	-0.003
Depression*	190,772	18.3%	188,900	18.3%	-0.055	-0.001
Schizophrenia	6,798	0.7%	8,556	0.8%	-0.179	-0.021
Rheumatic Disorders*	25,976	2.5%	25,901	2.5%	-0.025	-0.002
Multiple Sclerosis	5,092	0.5%	4,931	0.5%	0.009	0.001
HIV/AIDS	3,008	0.3%	5,011	0.5%	-0.198	-0.032
Coronary Artery Disease*	171,707	16.5%	170,690	16.6%	-0.114	-0.003
Immunodeficiency*	108,743	10.4%	108,162	10.5%	-0.078	-0.003
Smoking or Nicotine Use	212,684	20.4%	204,857	19.9%	0.496	0.013
Hyperlipidemia*	514,894	49.3%	510,851	49.6%	-0.246	-0.005
Medical Product Use	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Angiotensin Converting Enzyme Inhibitors/Angiotensin Receptor Blockers*	359,684	34.5%	355,500	34.5%	-0.040	-0.001
Non-Steroidal Anti-Inflammatory Drugs*	221,563	21.2%	219,140	21.3%	-0.039	-0.001
Aspirin	11,312	1.1%	13,556	1.3%	-0.232	-0.021
Antidepressants*	332,243	31.8%	328,251	31.9%	-0.024	-0.001
Statins*	383,019	36.7%	380,688	37.0%	-0.248	-0.005

Table 1c. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024 (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Insulin*	56,428	5.4%	56,166	5.5%	-0.045	-0.002
Anti-Diabetic Oral Drugs*	154,623	14.8%	153,614	14.9%	-0.094	-0.003
Antihypertensive Drugs*	393,175	37.7%	388,593	37.7%	-0.043	-0.001
Anticoagulants*	69,235	6.6%	69,032	6.7%	-0.066	-0.003
Glucocorticoids*	232,470	22.3%	231,429	22.5%	-0.187	-0.005
Acetaminophen	151,979	14.6%	140,304	13.6%	0.945	0.027
Tumor Necrosis Factor Inhibitors	6,249	0.6%	5,751	0.6%	0.041	0.005
Immunosuppressants*	53,273	5.1%	53,326	5.2%	-0.071	-0.003
Inhaled Corticosteroids*	80,115	7.7%	80,034	7.8%	-0.091	-0.003
COVID-19 Vaccine*	267,579	25.6%	267,517	26.0%	-0.326	-0.007
Health Service Utilization Intensity Metrics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Mean number of ambulatory encounters*	10.0	10.7	10.0	10.7	-0.068	-0.006
Mean number of emergency room encounters*	0.5	1.5	0.5	1.6	-0.007	-0.004
Mean number of inpatient hospital encounters	0.2	0.5	0.1	0.5	0.010	0.021
Mean number of non-acute institutional encounters*	0.0	0.3	0.0	0.3	-0.001	-0.005
Mean number of other ambulatory encounters*	2.3	5.2	2.3	5.4	-0.031	-0.006
Mean number of filled prescriptions*	14.0	12.4	14.1	12.4	-0.073	-0.006
Mean number of generics dispensed*	7.4	4.6	7.4	4.6	-0.036	-0.008
Mean number of unique drug classes dispensed*	7.0	4.2	7.1	4.2	-0.032	-0.008

Table 1c. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024 (Outcome: COVID-19 Hospitalization)

	Medical Product		Covariate Balance
	Proton Pump Inhibitor New Users	Famotidine New Users	

[*]Covariate included in the propensity score logistic regression model.

[1]Covariates in blue show (if displayed) a standardized difference greater than 0.1.

[2]Weighted patient characteristics tables facilitate the assessment of covariate balance after inverse probability weighting and should not be interpreted as a description of the unweighted population. Treated patients are assigned a weight of 1. Reference patients are weighted by their propensity score (PS) divided by 1 minus their PS.

[3]Value represents standard deviation where no % follows the value.

[4]Race data may not be completely populated at all Data Partners; therefore, data about race may be incomplete.

[5]The Social Deprivation Index score is a composite measure of zip code tabulation area (ZCTA)-level deprivation constructed from seven demographic and household characteristics collected in the American Community Survey, where higher values indication greater levels of deprivation. For this project, each patient's most recent geographic information is used. For more information, see Butler DC et al. Health Services Research. 2013;48(2pt1):539-559. doi:10.1111/j.1475-6773.2012.01449.x.

[6]Kim DH, Schneeweiss S, Glynn RJ, Lipsitz LA, Rockwood K, Avorn J. Measuring frailty in Medicare data: development and validation of a claims-based frailty index. J Gerontol A Biol Sci Med Sci. 2018;73(7)980-987.

[7]Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A combined comorbidity score predicted mortality in elderly patients better than existing scores. J Clin Epidemiol. 2011;64(7):749-759. Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and validation of the combined comorbidity score for ICD-10-CM. Med Care. 2017;55(12):1046-1051.

N/A: Not Applicable

Table 1d. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Patient Characteristics[1,2]	Number/Mean	Percent/ Standard Deviation[3]	Number/Mean	Percent/ Standard Deviation[3]	Absolute Difference	Standardized Difference
Weighted patients	317,863	N/A	313,120	N/A	N/A	N/A
Demographic Characteristics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Age (years)*	37.4	8.7	37.4	8.7	0.046	0.005
Age*						
18-49 years	317,863	100.0%	313,120	100.0%	0.000	NaN
50-64 years	0	0.0%	0	0.0%	NaN	NaN
65-74 years	0	0.0%	0	0.0%	NaN	NaN
≥ 75 years	0	0.0%	0	0.0%	NaN	NaN
Sex*						
Female	177,370	55.8%	176,147	56.3%	-0.455	-0.009
Male	140,493	44.2%	136,973	43.7%	0.455	0.009
Race[4]						
American Indian or Alaska Native	1,108	0.3%	1,089	0.3%	0.001	0.000
Asian	13,011	4.1%	14,461	4.6%	-0.525	-0.026
Black or African American	24,376	7.7%	26,269	8.4%	-0.721	-0.027
Multi-racial	8,398	2.6%	8,105	2.6%	0.054	0.003
Native Hawaiian or Other Pacific Islander	221	0.1%	287	0.1%	-0.022	-0.008
Unknown	132,141	41.6%	128,524	41.0%	0.525	0.011
White	138,608	43.6%	134,384	42.9%	0.688	0.014
Hispanic origin						
Yes	17,139	5.4%	17,769	5.7%	-0.283	-0.012
No	135,243	42.5%	134,616	43.0%	-0.444	-0.010
Unknown	165,481	52.1%	160,734	51.3%	0.727	0.016
ZCTA Social Deprivation Index Score, National Quartile*,5						
Q1 (Least deprived)	89,572	28.2%	87,834	28.1%	0.128	0.003

Table 1d. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Q2	82,264	25.9%	80,904	25.8%	0.042	0.001
Q3	79,467	25.0%	78,390	25.0%	-0.035	-0.001
Q4 (Most deprived)	62,402	19.6%	61,893	19.8%	-0.135	-0.003
Unknown	4,158	1.3%	4,099	1.3%	-0.001	-0.000
Year-Quarter of Exposure*						
2020 Quarter 2	24,600	7.7%	23,663	7.6%	0.182	0.007
2020 Quarter 3	32,248	10.1%	29,782	9.5%	0.634	0.021
2020 Quarter 4	29,179	9.2%	28,984	9.3%	-0.077	-0.003
2021 Quarter 1	28,236	8.9%	28,061	9.0%	-0.079	-0.003
2021 Quarter 2	25,744	8.1%	25,636	8.2%	-0.088	-0.003
2021 Quarter 3	27,740	8.7%	27,643	8.8%	-0.101	-0.004
2021 Quarter 4	24,949	7.8%	24,784	7.9%	-0.066	-0.002
2022 Quarter 1	24,000	7.6%	23,831	7.6%	-0.060	-0.002
2022 Quarter 2	22,685	7.1%	22,546	7.2%	-0.064	-0.002
2022 Quarter 3	26,448	8.3%	26,442	8.4%	-0.124	-0.004
2022 Quarter 4	25,265	7.9%	25,213	8.1%	-0.104	-0.004
2023 Quarter 1	26,769	8.4%	26,535	8.5%	-0.053	-0.002
Health Characteristics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Claims-Based frailty index*,[6]	0.1	0.0	0.1	0.0	-0.000	-0.003
Claims-Based frailty index categories						
<=0.2	309,844	97.5%	304,874	97.4%	0.111	0.007
>0.2	8,019	2.5%	8,245	2.6%	-0.111	-0.007
Combined comorbidity score*,[7]	0.6	1.3	0.6	1.3	-0.006	-0.004
Diabetes*	25,536	8.0%	25,168	8.0%	-0.004	-0.000
Obesity*	83,770	26.4%	82,292	26.3%	0.073	0.002
Hypertension*	70,873	22.3%	69,610	22.2%	0.065	0.002
Hospitalized Stroke/Transient Ischemic Attack	517	0.2%	587	0.2%	-0.025	-0.006
Coronary Revascularization	557	0.2%	641	0.2%	-0.029	-0.007

Table 1d. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Atrial Fibrillation*	1,788	0.6%	1,745	0.6%	0.005	0.001
Congestive Heart Failure*	2,519	0.8%	2,516	0.8%	-0.011	-0.001
Hospitalized Acute Myocardial Infarction	643	0.2%	650	0.2%	-0.005	-0.001
Other Cerebrovascular Disease*	1,835	0.6%	1,868	0.6%	-0.019	-0.003
Chronic Obstructive Pulmonary Disease*	4,371	1.4%	4,361	1.4%	-0.018	-0.002
Asthma without COPD*	32,444	10.2%	32,480	10.4%	-0.166	-0.005
Chronic Liver Disease*	17,596	5.5%	16,845	5.4%	0.156	0.007
Chronic Kidney Disease*	16,149	5.1%	16,169	5.2%	-0.083	-0.004
Any Malignant Neoplasm*	8,800	2.8%	8,745	2.8%	-0.024	-0.001
Hemiplegia	641	0.2%	825	0.3%	-0.062	-0.013
Neurological/Neurodegenerative Conditions	111	0.0%	112	0.0%	-0.001	-0.000
Dementia*	128	0.0%	130	0.0%	-0.001	-0.001
Depression*	52,037	16.4%	51,402	16.4%	-0.045	-0.001
Schizophrenia	2,309	0.7%	2,869	0.9%	-0.190	-0.021
Rheumatic Disorders*	3,534	1.1%	3,482	1.1%	-0.000	-0.000
Multiple Sclerosis	1,383	0.4%	1,347	0.4%	0.005	0.001
HIV/AIDS	937	0.3%	1,402	0.4%	-0.153	-0.025
Coronary Artery Disease*	6,980	2.2%	6,943	2.2%	-0.022	-0.001
Immunodeficiency*	19,923	6.3%	19,871	6.3%	-0.078	-0.003
Smoking or Nicotine Use	42,194	13.3%	40,369	12.9%	0.382	0.011
Hyperlipidemia*	64,091	20.2%	63,421	20.3%	-0.091	-0.002
Medical Product Use	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Angiotensin Converting Enzyme Inhibitors/Angiotensin Receptor Blockers*	42,085	13.2%	40,917	13.1%	0.172	0.005
Non-Steroidal Anti-Inflammatory Drugs*	60,388	19.0%	60,135	19.2%	-0.207	-0.005
Aspirin	2,444	0.8%	3,367	1.1%	-0.306	-0.032
Antidepressants*	95,395	30.0%	93,899	30.0%	0.023	0.001

Table 1d. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Statins*	29,358	9.2%	28,935	9.2%	-0.005	-0.000
Insulin*	7,704	2.4%	7,636	2.4%	-0.015	-0.001
Anti-Diabetic Oral Drugs*	19,851	6.2%	19,589	6.3%	-0.011	-0.000
Antihypertensive Drugs*	51,311	16.1%	50,061	16.0%	0.155	0.004
Anticoagulants*	4,363	1.4%	4,342	1.4%	-0.014	-0.001
Glucocorticoids*	63,098	19.9%	62,731	20.0%	-0.183	-0.005
Acetaminophen	34,734	10.9%	31,934	10.2%	0.729	0.024
Tumor Necrosis Factor Inhibitors	2,265	0.7%	2,019	0.6%	0.068	0.008
Immunosuppressants*	7,665	2.4%	7,628	2.4%	-0.025	-0.002
Inhaled Corticosteroids*	16,258	5.1%	16,318	5.2%	-0.097	-0.004
COVID-19 Vaccine*	72,269	22.7%	72,302	23.1%	-0.355	-0.008
Health Service Utilization Intensity Metrics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Mean number of ambulatory encounters*	7.7	9.1	7.8	9.1	-0.070	-0.008
Mean number of emergency room encounters*	0.4	1.1	0.4	1.0	-0.011	-0.010
Mean number of inpatient hospital encounters	0.1	0.4	0.1	0.3	0.007	0.019
Mean number of non-acute institutional encounters*	0.0	0.1	0.0	0.1	-0.000	-0.002
Mean number of other ambulatory encounters*	1.9	4.1	1.9	4.0	-0.029	-0.007
Mean number of filled prescriptions*	9.6	10.4	9.7	10.4	-0.047	-0.004
Mean number of generics dispensed*	5.5	4.1	5.5	4.1	-0.027	-0.007
Mean number of unique drug classes dispensed*	5.2	3.8	5.2	3.7	-0.023	-0.006

Table 1d. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years (Outcome: COVID-19 Hospitalization)

	Medical Product		Covariate Balance
	Proton Pump Inhibitor New Users	Famotidine New Users	

[*] Covariate included in the propensity score logistic regression model.

[1] Covariates in blue show (if displayed) a standardized difference greater than 0.1.

[2] Weighted patient characteristics tables facilitate the assessment of covariate balance after inverse probability weighting and should not be interpreted as a description of the unweighted population. Treated patients are assigned a weight of 1. Reference patients are weighted by their propensity score (PS) divided by 1 minus their PS.

[3] Value represents standard deviation where no % follows the value.

[4] Race data may not be completely populated at all Data Partners; therefore, data about race may be incomplete.

[5] The Social Deprivation Index score is a composite measure of zip code tabulation area (ZCTA)-level deprivation constructed from seven demographic and household characteristics collected in the American Community Survey, where higher values indication greater levels of deprivation. For this project, each patient's most recent geographic information is used. For more information, see Butler DC et al. Health Services Research. 2013;48(2pt1):539-559. doi:10.1111/j.1475-6773.2012.01449.x.

[6] Kim DH, Schneeweiss S, Glynn RJ, Lipsitz LA, Rockwood K, Avorn J. Measuring frailty in Medicare data: development and validation of a claims-based frailty index. J Gerontol A Biol Sci Med Sci. 2018;73(7)980-987.

[7] Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A combined comorbidity score predicted mortality in elderly patients better than existing scores. J Clin Epidemiol. 2011;64(7):749-759. Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and validation of the combined comorbidity score for ICD-10-CM. Med Care. 2017;55(12):1046-1051.

N/A: Not Applicable

Table 1e. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 50-64 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Patient Characteristics[1,2]	Number/Mean	Percent/ Standard Deviation[3]	Number/Mean	Percent/ Standard Deviation[3]	Absolute Difference	Standardized Difference
Weighted patients	312,834	N/A	308,878	N/A	N/A	N/A
Demographic Characteristics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Age (years)[*]	57.8	4.3	57.8	4.3	-0.019	-0.004
Age[*]						
18-49 years	0	0.0%	0	0.0%	NaN	NaN
50-64 years	312,834	100.0%	308,878	100.0%	0.000	NaN
65-74 years	0	0.0%	0	0.0%	NaN	NaN
≥ 75 years	0	0.0%	0	0.0%	NaN	NaN
Sex[*]						
Female	183,577	58.7%	182,556	59.1%	-0.421	-0.009
Male	129,257	41.3%	126,322	40.9%	0.421	0.009
Race[4]						
American Indian or Alaska Native	1,217	0.4%	1,401	0.5%	-0.065	-0.010
Asian	7,988	2.6%	9,105	2.9%	-0.394	-0.024
Black or African American	32,714	10.5%	35,079	11.4%	-0.900	-0.029
Multi-racial	6,007	1.9%	5,762	1.9%	0.055	0.004
Native Hawaiian or Other Pacific Islander	393	0.1%	384	0.1%	0.001	0.000
Unknown	101,012	32.3%	98,675	31.9%	0.343	0.007
White	163,503	52.3%	158,471	51.3%	0.960	0.019
Hispanic origin						
Yes	12,549	4.0%	14,162	4.6%	-0.574	-0.028
No	160,728	51.4%	158,753	51.4%	-0.019	-0.000
Unknown	139,557	44.6%	135,963	44.0%	0.592	0.014
ZCTA Social Deprivation Index Score, National Quartile[*,5]						
Q1 (Least deprived)	82,538	26.4%	81,051	26.2%	0.144	0.003

Table 1e. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 50-64 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Q2	79,894	25.5%	78,685	25.5%	0.064	0.001
Q3	81,752	26.1%	80,809	26.2%	-0.029	-0.001
Q4 (Most deprived)	65,981	21.1%	65,746	21.3%	-0.194	-0.005
Unknown	2,669	0.9%	2,587	0.8%	0.016	0.002
Year-Quarter of Exposure*						
2020 Quarter 2	22,852	7.3%	22,128	7.2%	0.141	0.005
2020 Quarter 3	30,396	9.7%	27,766	9.0%	0.727	0.025
2020 Quarter 4	28,673	9.2%	28,643	9.3%	-0.108	-0.004
2021 Quarter 1	27,687	8.9%	27,669	9.0%	-0.107	-0.004
2021 Quarter 2	25,309	8.1%	25,212	8.2%	-0.072	-0.003
2021 Quarter 3	27,326	8.7%	27,141	8.8%	-0.052	-0.002
2021 Quarter 4	26,221	8.4%	26,234	8.5%	-0.112	-0.004
2022 Quarter 1	24,232	7.7%	24,190	7.8%	-0.086	-0.003
2022 Quarter 2	23,258	7.4%	23,178	7.5%	-0.069	-0.003
2022 Quarter 3	25,530	8.2%	25,484	8.3%	-0.090	-0.003
2022 Quarter 4	25,685	8.2%	25,629	8.3%	-0.087	-0.003
2023 Quarter 1	25,665	8.2%	25,603	8.3%	-0.085	-0.003
Health Characteristics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Claims-Based frailty index*,[6]	0.1	0.0	0.1	0.0	-0.000	-0.005
Claims-Based frailty index categories						
<=0.2	284,697	91.0%	281,156	91.0%	-0.019	-0.001
>0.2	28,137	9.0%	27,722	9.0%	0.019	0.001
Combined comorbidity score*,[7]	1.0	2.1	1.0	2.1	-0.007	-0.003
Diabetes*	68,364	21.9%	67,825	22.0%	-0.105	-0.003
Obesity*	92,211	29.5%	91,159	29.5%	-0.037	-0.001
Hypertension*	165,899	53.0%	163,851	53.0%	-0.016	-0.000
Hospitalized Stroke/Transient Ischemic Attack	2,229	0.7%	2,829	0.9%	-0.203	-0.023
Coronary Revascularization	2,918	0.9%	3,238	1.0%	-0.115	-0.012

Table 1e. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 50-64 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Atrial Fibrillation*	10,244	3.3%	10,109	3.3%	0.002	0.000
Congestive Heart Failure*	13,283	4.2%	13,271	4.3%	-0.051	-0.003
Hospitalized Acute Myocardial Infarction	2,655	0.8%	2,640	0.9%	-0.006	-0.001
Other Cerebrovascular Disease*	9,712	3.1%	9,795	3.2%	-0.067	-0.004
Chronic Obstructive Pulmonary Disease*	28,956	9.3%	28,778	9.3%	-0.061	-0.002
Asthma without COPD*	32,736	10.5%	32,637	10.6%	-0.102	-0.003
Chronic Liver Disease*	26,657	8.5%	25,895	8.4%	0.137	0.005
Chronic Kidney Disease*	43,550	13.9%	43,369	14.0%	-0.120	-0.003
Any Malignant Neoplasm*	33,550	10.7%	33,274	10.8%	-0.048	-0.002
Hemiplegia	2,745	0.9%	3,234	1.0%	-0.170	-0.017
Neurological/Neurodegenerative Conditions	885	0.3%	974	0.3%	-0.032	-0.006
Dementia*	1,206	0.4%	1,219	0.4%	-0.009	-0.001
Depression*	57,340	18.3%	57,102	18.5%	-0.158	-0.004
Schizophrenia	2,720	0.9%	3,545	1.1%	-0.278	-0.028
Rheumatic Disorders*	8,839	2.8%	8,786	2.8%	-0.019	-0.001
Multiple Sclerosis	2,144	0.7%	2,076	0.7%	0.013	0.002
HIV/AIDS	1,377	0.4%	2,442	0.8%	-0.350	-0.045
Coronary Artery Disease*	37,996	12.1%	37,527	12.1%	-0.004	-0.000
Immunodeficiency*	33,195	10.6%	33,040	10.7%	-0.086	-0.003
Smoking or Nicotine Use	65,364	20.9%	63,839	20.7%	0.226	0.006
Hyperlipidemia*	158,325	50.6%	156,781	50.8%	-0.148	-0.003
Medical Product Use	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Angiotensin Converting Enzyme Inhibitors/Angiotensin Receptor Blockers*	111,438	35.6%	109,981	35.6%	0.016	0.000
Non-Steroidal Anti-Inflammatory Drugs*	78,295	25.0%	77,211	25.0%	0.030	0.001
Aspirin	6,672	2.1%	7,645	2.5%	-0.342	-0.023
Antidepressants*	106,845	34.2%	105,847	34.3%	-0.114	-0.002

Table 1e. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 50-64 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Statins*	116,254	37.2%	115,457	37.4%	-0.218	-0.005
Insulin*	19,275	6.2%	19,122	6.2%	-0.029	-0.001
Anti-Diabetic Oral Drugs*	49,633	15.9%	49,230	15.9%	-0.073	-0.002
Antihypertensive Drugs*	120,392	38.5%	118,861	38.5%	0.003	0.000
Anticoagulants*	14,817	4.7%	14,815	4.8%	-0.060	-0.003
Glucocorticoids*	78,370	25.1%	77,955	25.2%	-0.187	-0.004
Acetaminophen	52,270	16.7%	48,799	15.8%	0.910	0.025
Tumor Necrosis Factor Inhibitors	2,676	0.9%	2,478	0.8%	0.053	0.006
Immunosuppressants*	16,101	5.1%	16,056	5.2%	-0.051	-0.002
Inhaled Corticosteroids*	25,838	8.3%	25,799	8.4%	-0.093	-0.003
COVID-19 Vaccine*	83,830	26.8%	83,766	27.1%	-0.323	-0.007
Health Service Utilization Intensity Metrics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Mean number of ambulatory encounters*	9.8	10.8	9.8	10.8	-0.061	-0.006
Mean number of emergency room encounters*	0.4	1.4	0.4	1.5	-0.004	-0.003
Mean number of inpatient hospital encounters	0.1	0.5	0.1	0.5	0.006	0.012
Mean number of non-acute institutional encounters*	0.0	0.2	0.0	0.2	-0.001	-0.004
Mean number of other ambulatory encounters*	2.3	4.9	2.3	5.1	-0.024	-0.005
Mean number of filled prescriptions*	15.3	13.5	15.4	13.5	-0.091	-0.007
Mean number of generics dispensed*	7.7	4.8	7.7	4.8	-0.036	-0.007
Mean number of unique drug classes dispensed*	7.3	4.4	7.3	4.3	-0.033	-0.008

Table 1e. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 50-64 years (Outcome: COVID-19 Hospitalization)

	Medical Product		Covariate Balance
	Proton Pump Inhibitor New Users	Famotidine New Users	

[*]Covariate included in the propensity score logistic regression model.

[1]Covariates in blue show (if displayed) a standardized difference greater than 0.1.

[2]Weighted patient characteristics tables facilitate the assessment of covariate balance after inverse probability weighting and should not be interpreted as a description of the unweighted population. Treated patients are assigned a weight of 1. Reference patients are weighted by their propensity score (PS) divided by 1 minus their PS.

[3]Value represents standard deviation where no % follows the value.

[4]Race data may not be completely populated at all Data Partners; therefore, data about race may be incomplete.

[5]The Social Deprivation Index score is a composite measure of zip code tabulation area (ZCTA)-level deprivation constructed from seven demographic and household characteristics collected in the American Community Survey, where higher values indication greater levels of deprivation. For this project, each patient's most recent geographic information is used. For more information, see Butler DC et al. Health Services Research. 2013;48(2pt1):539-559. doi:10.1111/j.1475-6773.2012.01449.x.

[6]Kim DH, Schneeweiss S, Glynn RJ, Lipsitz LA, Rockwood K, Avorn J. Measuring frailty in Medicare data: development and validation of a claims-based frailty index. J Gerontol A Biol Sci Med Sci. 2018;73(7)980-987.

[7]Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A combined comorbidity score predicted mortality in elderly patients better than existing scores. J Clin Epidemiol. 2011;64(7):749-759. Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and validation of the combined comorbidity score for ICD-10-CM. Med Care. 2017;55(12):1046-1051.

N/A: Not Applicable

Table 1f. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Patient Characteristics[1,2]	Number/Mean	Percent/ Standard Deviation[3]	Number/Mean	Percent/ Standard Deviation[3]	Absolute Difference	Standardized Difference
Weighted patients	248,705	N/A	245,969	N/A	N/A	N/A
Demographic Characteristics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Age (years)*	69.7	2.8	69.8	2.8	-0.009	-0.003
Age*						
18-49 years	0	0.0%	0	0.0%	NaN	NaN
50-64 years	0	0.0%	0	0.0%	NaN	NaN
65-74 years	248,705	100.0%	245,969	100.0%	0.000	NaN
≥ 75 years	0	0.0%	0	0.0%	NaN	NaN
Sex*						
Female	151,491	60.9%	150,812	61.3%	-0.402	-0.008
Male	97,214	39.1%	95,157	38.7%	0.402	0.008
Race[4]						
American Indian or Alaska Native	729	0.3%	750	0.3%	-0.012	-0.002
Asian	7,455	3.0%	7,614	3.1%	-0.098	-0.006
Black or African American	39,391	15.8%	41,710	17.0%	-1.119	-0.031
Multi-racial	1,283	0.5%	958	0.4%	0.126	0.019
Native Hawaiian or Other Pacific Islander	2,026	0.8%	2,192	0.9%	-0.077	-0.008
Unknown	29,600	11.9%	30,048	12.2%	-0.315	-0.010
White	168,221	67.6%	162,696	66.1%	1.494	0.032
Hispanic origin						
Yes	8,688	3.5%	9,732	4.0%	-0.463	-0.024
No	164,901	66.3%	162,086	65.9%	0.407	0.015
Unknown	75,116	30.2%	74,151	30.1%	0.056	0.002
ZCTA Social Deprivation Index Score, National Quartile*,5						
Q1 (Least deprived)	55,020	22.1%	54,114	22.0%	0.122	0.003

Table 1f. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Q2	64,050	25.8%	63,185	25.7%	0.065	0.001
Q3	69,033	27.8%	68,281	27.8%	-0.003	-0.000
Q4 (Most deprived)	59,235	23.8%	59,064	24.0%	-0.195	-0.005
Unknown	1,367	0.5%	1,325	0.5%	0.011	0.002
Year-Quarter of Exposure[*]						
2020 Quarter 2	14,919	6.0%	14,672	6.0%	0.034	0.001
2020 Quarter 3	23,251	9.3%	21,271	8.6%	0.701	0.025
2020 Quarter 4	22,539	9.1%	22,585	9.2%	-0.120	-0.004
2021 Quarter 1	21,471	8.6%	21,414	8.7%	-0.073	-0.003
2021 Quarter 2	20,848	8.4%	20,819	8.5%	-0.081	-0.003
2021 Quarter 3	23,425	9.4%	23,402	9.5%	-0.095	-0.003
2021 Quarter 4	22,915	9.2%	22,820	9.3%	-0.064	-0.002
2022 Quarter 1	19,109	7.7%	19,044	7.7%	-0.059	-0.002
2022 Quarter 2	18,214	7.3%	18,150	7.4%	-0.055	-0.002
2022 Quarter 3	20,342	8.2%	20,323	8.3%	-0.083	-0.003
2022 Quarter 4	20,606	8.3%	20,552	8.4%	-0.070	-0.003
2023 Quarter 1	21,066	8.5%	20,917	8.5%	-0.034	-0.001
Health Characteristics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Claims-Based frailty index[*,6]	0.2	0.1	0.2	0.1	-0.000	-0.002
Claims-Based frailty index categories						
<=0.2	209,448	84.2%	207,245	84.3%	-0.041	-0.001
>0.2	39,257	15.8%	38,724	15.7%	0.041	0.001
Combined comorbidity score[*,7]	1.8	2.8	1.8	2.8	-0.002	-0.001
Diabetes[*]	76,623	30.8%	76,055	30.9%	-0.112	-0.002
Obesity[*]	71,737	28.8%	70,888	28.8%	0.024	0.001
Hypertension[*]	178,100	71.6%	176,284	71.7%	-0.058	-0.001
Hospitalized Stroke/Transient Ischemic Attack	3,716	1.5%	4,217	1.7%	-0.220	-0.018
Coronary Revascularization	4,043	1.6%	4,478	1.8%	-0.195	-0.015

Table 1f. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Atrial Fibrillation*	20,382	8.2%	20,004	8.1%	0.062	0.002
Congestive Heart Failure*	22,894	9.2%	22,731	9.2%	-0.036	-0.001
Hospitalized Acute Myocardial Infarction	4,060	1.6%	3,692	1.5%	0.131	0.011
Other Cerebrovascular Disease*	17,640	7.1%	17,567	7.1%	-0.049	-0.002
Chronic Obstructive Pulmonary Disease*	40,650	16.3%	40,081	16.3%	0.050	0.001
Asthma without COPD*	23,532	9.5%	23,451	9.5%	-0.072	-0.002
Chronic Liver Disease*	21,425	8.6%	20,814	8.5%	0.153	0.005
Chronic Kidney Disease*	57,062	22.9%	56,691	23.0%	-0.104	-0.002
Any Malignant Neoplasm*	46,127	18.5%	45,416	18.5%	0.083	0.002
Hemiplegia	4,024	1.6%	4,359	1.8%	-0.154	-0.012
Neurological/Neurodegenerative Conditions	2,013	0.8%	2,291	0.9%	-0.122	-0.013
Dementia*	5,159	2.1%	5,167	2.1%	-0.026	-0.002
Depression*	49,276	19.8%	48,656	19.8%	0.032	0.001
Schizophrenia	1,324	0.5%	1,544	0.6%	-0.095	-0.013
Rheumatic Disorders*	7,890	3.2%	7,855	3.2%	-0.021	-0.001
Multiple Sclerosis	1,114	0.4%	1,121	0.5%	-0.008	-0.001
HIV/AIDS	572	0.2%	1,009	0.4%	-0.180	-0.032
Coronary Artery Disease*	63,042	25.3%	62,278	25.3%	0.029	0.001
Immunodeficiency*	31,229	12.6%	30,937	12.6%	-0.021	-0.001
Smoking or Nicotine Use	64,411	25.9%	61,592	25.0%	0.858	0.020
Hyperlipidemia*	171,526	69.0%	169,938	69.1%	-0.122	-0.003
Medical Product Use	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Angiotensin Converting Enzyme Inhibitors/Angiotensin Receptor Blockers*	120,221	48.3%	118,939	48.4%	-0.017	-0.000
Non-Steroidal Anti-Inflammatory Drugs*	56,103	22.6%	55,367	22.5%	0.048	0.001
Aspirin	1,401	0.6%	1,534	0.6%	-0.060	-0.008

Table 1f. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Antidepressants*	79,740	32.1%	78,767	32.0%	0.039	0.001
Statins*	139,766	56.2%	138,573	56.3%	-0.140	-0.003
Insulin*	18,461	7.4%	18,308	7.4%	-0.020	-0.001
Anti-Diabetic Oral Drugs*	53,598	21.6%	53,048	21.6%	-0.016	-0.000
Antihypertensive Drugs*	128,257	51.6%	126,849	51.6%	-0.001	-0.000
Anticoagulants*	21,649	8.7%	21,242	8.6%	0.069	0.002
Glucocorticoids*	55,522	22.3%	55,212	22.4%	-0.122	-0.003
Acetaminophen	40,833	16.4%	37,765	15.4%	1.065	0.029
Tumor Necrosis Factor Inhibitors	951	0.4%	866	0.4%	0.030	0.005
Immunosuppressants*	16,176	6.5%	16,145	6.6%	-0.060	-0.002
Inhaled Corticosteroids*	22,847	9.2%	22,610	9.2%	-0.006	-0.000
COVID-19 Vaccine*	66,098	26.6%	65,958	26.8%	-0.239	-0.005
Health Service Utilization Intensity Metrics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Mean number of ambulatory encounters*	11.2	11.3	11.3	11.1	-0.041	-0.004
Mean number of emergency room encounters*	0.6	1.6	0.6	1.7	-0.001	-0.000
Mean number of inpatient hospital encounters	0.2	0.6	0.2	0.5	0.014	0.026
Mean number of non-acute institutional encounters*	0.0	0.3	0.1	0.3	-0.001	-0.003
Mean number of other ambulatory encounters*	2.1	5.4	2.2	5.6	-0.017	-0.003
Mean number of filled prescriptions*	15.9	12.4	15.9	12.2	-0.030	-0.002
Mean number of generics dispensed*	8.4	4.7	8.4	4.6	-0.014	-0.003
Mean number of unique drug classes dispensed*	8.0	4.3	8.0	4.2	-0.012	-0.003

Table 1f. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years (Outcome: COVID-19 Hospitalization)

	Medical Product		Covariate Balance
	Proton Pump Inhibitor New Users	Famotidine New Users	

[*]Covariate included in the propensity score logistic regression model.

[1]Covariates in blue show (if displayed) a standardized difference greater than 0.1.

[2]Weighted patient characteristics tables facilitate the assessment of covariate balance after inverse probability weighting and should not be interpreted as a description of the unweighted population. Treated patients are assigned a weight of 1. Reference patients are weighted by their propensity score (PS) divided by 1 minus their PS.

[3]Value represents standard deviation where no % follows the value.

[4]Race data may not be completely populated at all Data Partners; therefore, data about race may be incomplete.

[5]The Social Deprivation Index score is a composite measure of zip code tabulation area (ZCTA)-level deprivation constructed from seven demographic and household characteristics collected in the American Community Survey, where higher values indication greater levels of deprivation. For this project, each patient's most recent geographic information is used. For more information, see Butler DC et al. Health Services Research. 2013;48(2pt1):539-559. doi:10.1111/j.1475-6773.2012.01449.x.

[6]Kim DH, Schneeweiss S, Glynn RJ, Lipsitz LA, Rockwood K, Avorn J. Measuring frailty in Medicare data: development and validation of a claims-based frailty index. J Gerontol A Biol Sci Med Sci. 2018;73(7)980-987.

[7]Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A combined comorbidity score predicted mortality in elderly patients better than existing scores. J Clin Epidemiol. 2011;64(7):749-759. Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and validation of the combined comorbidity score for ICD-10-CM. Med Care. 2017;55(12):1046-1051.

N/A: Not Applicable

Table 1g. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: ≥ 75 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Patient Characteristics[1,2]	Number/Mean	Percent/ Standard Deviation[3]	Number/Mean	Percent/ Standard Deviation[3]	Absolute Difference	Standardized Difference
Weighted patients	163,716	N/A	161,919	N/A	N/A	N/A
Demographic Characteristics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Age (years)[*]	81.4	5.0	81.4	5.0	-0.014	-0.003
Age[*]						
18-49 years	0	0.0%	0	0.0%	NaN	NaN
50-64 years	0	0.0%	0	0.0%	NaN	NaN
65-74 years	0	0.0%	0	0.0%	NaN	NaN
≥ 75 years	163,716	100.0%	161,919	100.0%	0.000	NaN
Sex[*]						
Female	101,967	62.3%	101,517	62.7%	-0.413	-0.009
Male	61,749	37.7%	60,402	37.3%	0.413	0.009
Race[4]						
American Indian or Alaska Native	462	0.3%	438	0.3%	0.012	0.002
Asian	3,179	1.9%	3,305	2.0%	-0.099	-0.007
Black or African American	20,106	12.3%	21,638	13.4%	-1.082	-0.033
Multi-racial	351	0.2%	317	0.2%	0.019	0.004
Native Hawaiian or Other Pacific Islander	1,529	0.9%	1,856	1.1%	-0.212	-0.021
Unknown	11,567	7.1%	11,801	7.3%	-0.223	-0.009
White	126,522	77.3%	122,564	75.7%	1.587	0.038
Hispanic origin						
Yes	3,330	2.0%	3,833	2.4%	-0.333	-0.023
No	116,228	71.0%	114,426	70.7%	0.325	0.015
Unknown	44,158	27.0%	43,660	27.0%	0.008	0.000
ZCTA Social Deprivation Index Score, National Quartile[*,5]						

Table 1g. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: ≥ 75 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Q1 (Least deprived)	40,216	24.6%	39,631	24.5%	0.089	0.002
Q2	45,165	27.6%	44,535	27.5%	0.083	0.002
Q3	43,631	26.7%	43,176	26.7%	-0.015	-0.000
Q4 (Most deprived)	33,863	20.7%	33,771	20.9%	-0.173	-0.004
Unknown	841	0.5%	807	0.5%	0.016	0.003
Year-Quarter of Exposure*						
2020 Quarter 2	9,928	6.1%	9,771	6.0%	0.030	0.001
2020 Quarter 3	15,552	9.5%	14,542	9.0%	0.518	0.018
2020 Quarter 4	14,717	9.0%	14,633	9.0%	-0.048	-0.002
2021 Quarter 1	13,909	8.5%	13,873	8.6%	-0.072	-0.003
2021 Quarter 2	14,180	8.7%	14,149	8.7%	-0.077	-0.003
2021 Quarter 3	15,771	9.6%	15,725	9.7%	-0.078	-0.003
2021 Quarter 4	14,909	9.1%	14,857	9.2%	-0.069	-0.002
2022 Quarter 1	12,653	7.7%	12,589	7.8%	-0.046	-0.002
2022 Quarter 2	12,543	7.7%	12,512	7.7%	-0.066	-0.002
2022 Quarter 3	12,975	7.9%	12,930	8.0%	-0.060	-0.002
2022 Quarter 4	13,133	8.0%	13,000	8.0%	-0.007	-0.000
2023 Quarter 1	13,446	8.2%	13,338	8.2%	-0.024	-0.001
Health Characteristics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Claims-Based frailty index*,[6]	0.2	0.1	0.2	0.1	-0.000	-0.000
Claims-Based frailty index categories						
<=0.2	115,504	70.6%	114,758	70.9%	-0.322	-0.007
>0.2	48,212	29.4%	47,161	29.1%	0.322	0.007
Combined comorbidity score*,[7]	3.0	3.4	3.0	3.3	0.020	0.006
Diabetes*	52,311	32.0%	51,768	32.0%	-0.019	-0.000
Obesity*	33,942	20.7%	33,394	20.6%	0.108	0.003
Hypertension*	135,213	82.6%	133,824	82.6%	-0.059	-0.002

Table 1g. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: ≥ 75 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Hospitalized Stroke/Transient Ischemic Attack	4,940	3.0%	5,175	3.2%	-0.179	-0.010
Coronary Revascularization	3,343	2.0%	3,460	2.1%	-0.095	-0.007
Atrial Fibrillation*	31,376	19.2%	30,727	19.0%	0.188	0.005
Congestive Heart Failure*	30,084	18.4%	29,628	18.3%	0.078	0.002
Hospitalized Acute Myocardial Infarction	4,595	2.8%	4,369	2.7%	0.108	0.007
Other Cerebrovascular Disease*	20,991	12.8%	20,873	12.9%	-0.069	-0.002
Chronic Obstructive Pulmonary Disease*	32,883	20.1%	32,290	19.9%	0.144	0.004
Asthma without COPD*	13,637	8.3%	13,513	8.3%	-0.016	-0.001
Chronic Liver Disease*	10,816	6.6%	10,377	6.4%	0.198	0.008
Chronic Kidney Disease*	53,227	32.5%	52,543	32.5%	0.061	0.001
Any Malignant Neoplasm*	44,622	27.3%	44,106	27.2%	0.017	0.000
Hemiplegia	4,026	2.5%	4,802	3.0%	-0.507	-0.031
Neurological/Neurodegenerative Conditions	3,018	1.8%	3,115	1.9%	-0.080	-0.006
Dementia*	16,237	9.9%	16,164	10.0%	-0.065	-0.002
Depression*	31,967	19.5%	31,615	19.5%	0.001	0.000
Schizophrenia	426	0.3%	463	0.3%	-0.026	-0.005
Rheumatic Disorders*	5,692	3.5%	5,637	3.5%	-0.005	-0.000
Multiple Sclerosis	448	0.3%	418	0.3%	0.015	0.003
HIV/AIDS	122	0.1%	158	0.1%	-0.023	-0.008
Coronary Artery Disease*	63,548	38.8%	62,583	38.7%	0.165	0.003
Immunodeficiency*	24,277	14.8%	23,959	14.8%	0.032	0.001
Smoking or Nicotine Use	40,559	24.8%	39,016	24.1%	0.678	0.016
Hyperlipidemia*	120,749	73.8%	119,504	73.8%	-0.050	-0.001
Medical Product Use	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Angiotensin Converting Enzyme Inhibitors/Angiotensin Receptor Blockers*	85,783	52.4%	85,079	52.5%	-0.147	-0.003

Table 1g. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: ≥ 75 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Non-Steroidal Anti-Inflammatory Drugs*	26,716	16.3%	26,361	16.3%	0.038	0.001
Aspirin	782	0.5%	938	0.6%	-0.102	-0.014
Antidepressants*	50,089	30.6%	49,503	30.6%	0.022	0.000
Statins*	97,486	59.5%	96,473	59.6%	-0.035	-0.001
Insulin*	10,934	6.7%	10,789	6.7%	0.016	0.001
Anti-Diabetic Oral Drugs*	31,487	19.2%	31,139	19.2%	0.002	0.000
Antihypertensive Drugs*	93,014	56.8%	92,225	57.0%	-0.143	-0.003
Anticoagulants*	28,303	17.3%	27,795	17.2%	0.122	0.003
Glucocorticoids*	35,412	21.6%	35,069	21.7%	-0.028	-0.001
Acetaminophen	24,052	14.7%	21,782	13.5%	1.239	0.036
Tumor Necrosis Factor Inhibitors	355	0.2%	390	0.2%	-0.024	-0.005
Immunosuppressants*	13,288	8.1%	13,051	8.1%	0.057	0.002
Inhaled Corticosteroids*	15,135	9.2%	14,904	9.2%	0.040	0.001
COVID-19 Vaccine*	45,302	27.7%	45,065	27.8%	-0.161	-0.004
Health Service Utilization Intensity Metrics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Mean number of ambulatory encounters*	12.6	12.0	12.7	11.9	-0.027	-0.002
Mean number of emergency room encounters*	0.9	1.9	0.9	2.0	0.014	0.007
Mean number of inpatient hospital encounters	0.3	0.7	0.3	0.6	0.030	0.045
Mean number of non-acute institutional encounters*	0.1	0.4	0.1	0.4	0.001	0.002
Mean number of other ambulatory encounters*	3.2	6.9	3.2	7.2	0.002	0.000
Mean number of filled prescriptions*	17.1	12.2	17.1	12.1	-0.036	-0.003
Mean number of generics dispensed*	9.0	4.5	9.0	4.4	-0.009	-0.002
Mean number of unique drug classes dispensed*	8.6	4.1	8.6	4.1	-0.008	-0.002

Table 1g. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: ≥ 75 years (Outcome: COVID-19 Hospitalization)

	Medical Product		Covariate Balance
	Proton Pump Inhibitor New Users	Famotidine New Users	

[*]Covariate included in the propensity score logistic regression model.

[1]Covariates in blue show (if displayed) a standardized difference greater than 0.1.

[2]Weighted patient characteristics tables facilitate the assessment of covariate balance after inverse probability weighting and should not be interpreted as a description of the unweighted population. Treated patients are assigned a weight of 1. Reference patients are weighted by their propensity score (PS) divided by 1 minus their PS.

[3]Value represents standard deviation where no % follows the value.

[4]Race data may not be completely populated at all Data Partners; therefore, data about race may be incomplete.

[5]The Social Deprivation Index score is a composite measure of zip code tabulation area (ZCTA)-level deprivation constructed from seven demographic and household characteristics collected in the American Community Survey, where higher values indication greater levels of deprivation. For this project, each patient's most recent geographic information is used. For more information, see Butler DC et al. Health Services Research. 2013;48(2pt1):539-559. doi:10.1111/j.1475-6773.2012.01449.x.

[6]Kim DH, Schneeweiss S, Glynn RJ, Lipsitz LA, Rockwood K, Avorn J. Measuring frailty in Medicare data: development and validation of a claims-based frailty index. J Gerontol A Biol Sci Med Sci. 2018;73(7)980-987.

[7]Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A combined comorbidity score predicted mortality in elderly patients better than existing scores. J Clin Epidemiol. 2011;64(7):749-759. Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and validation of the combined comorbidity score for ICD-10-CM. Med Care. 2017;55(12):1046-1051.

N/A: Not Applicable

Table 1h. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024 (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Patient Characteristics[1,2]	Number/Mean	Percent/ Standard Deviation[3]	Number/Mean	Percent/ Standard Deviation[3]	Absolute Difference	Standardized Difference
Weighted patients	1,043,108	N/A	1,002,346	N/A	N/A	N/A
Demographic Characteristics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Age (years)*	58.2	14.9	58.1	15.3	0.055	0.004
Age*						
18-49 years	317,871	30.5%	306,167	30.5%	-0.072	-0.002
50-64 years	312,783	30.0%	299,712	29.9%	0.085	0.002
65-74 years	248,698	23.8%	239,664	23.9%	-0.068	-0.002
≥ 75 years	163,756	15.7%	156,803	15.6%	0.055	0.002
Sex*						
Female	614,414	58.9%	596,948	59.6%	-0.653	-0.013
Male	428,694	41.1%	405,397	40.4%	0.653	0.013
Race[4]						
American Indian or Alaska Native	3,520	0.3%	3,631	0.4%	-0.025	-0.004
Asian	31,622	3.0%	33,420	3.3%	-0.303	-0.017
Black or African American	116,606	11.2%	119,631	11.9%	-0.756	-0.024
Multi-racial	16,028	1.5%	14,686	1.5%	0.071	0.006
Native Hawaiian or Other Pacific Islander	4,169	0.4%	4,504	0.4%	-0.050	-0.008
Unknown	274,322	26.3%	262,651	26.2%	0.095	0.002
White	596,841	57.2%	563,823	56.3%	0.967	0.020
Hispanic origin						
Yes	41,704	4.0%	44,105	4.4%	-0.402	-0.020
No	577,215	55.3%	552,528	55.1%	0.213	0.006
Unknown	424,189	40.7%	405,713	40.5%	0.190	0.005
ZCTA Social Deprivation Index Score, National Quartile*,5						
Q1 (Least deprived)	267,332	25.6%	256,112	25.6%	0.077	0.002

Table 1h. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024 (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Q2	271,331	26.0%	259,600	25.9%	0.113	0.003
Q3	273,874	26.3%	263,062	26.2%	0.011	0.000
Q4 (Most deprived)	221,483	21.2%	214,968	21.4%	-0.213	-0.005
Unknown	9,088	0.9%	8,604	0.9%	0.013	0.002
Year-Quarter of Exposure*						
2020 Quarter 2	72,317	6.9%	68,496	6.8%	0.099	0.004
2020 Quarter 3	101,472	9.7%	92,848	9.3%	0.465	0.016
2020 Quarter 4	95,095	9.1%	91,944	9.2%	-0.056	-0.002
2021 Quarter 1	91,301	8.8%	88,105	8.8%	-0.037	-0.001
2021 Quarter 2	86,070	8.3%	82,950	8.3%	-0.024	-0.001
2021 Quarter 3	94,273	9.0%	91,321	9.1%	-0.073	-0.003
2021 Quarter 4	88,997	8.5%	86,258	8.6%	-0.074	-0.003
2022 Quarter 1	79,986	7.7%	77,419	7.7%	-0.056	-0.002
2022 Quarter 2	76,697	7.4%	73,897	7.4%	-0.020	-0.001
2022 Quarter 3	85,289	8.2%	82,743	8.3%	-0.079	-0.003
2022 Quarter 4	84,686	8.1%	82,115	8.2%	-0.074	-0.003
2023 Quarter 1	86,925	8.3%	84,251	8.4%	-0.072	-0.003
Health Characteristics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Claims-Based frailty index*,[6]	0.1	0.0	0.1	0.0	0.001	0.011
Claims-Based frailty index categories						
<=0.2	919,449	88.1%	887,407	88.5%	-0.388	-0.012
>0.2	123,659	11.9%	114,939	11.5%	0.388	0.012
Combined comorbidity score*,[7]	1.4	2.4	1.3	2.3	0.047	0.019
Diabetes*	222,851	21.4%	213,376	21.3%	0.076	0.002
Obesity*	281,713	27.0%	268,565	26.8%	0.213	0.005
Hypertension*	550,110	52.7%	525,739	52.5%	0.287	0.006
Hospitalized Stroke/Transient Ischemic Attack	11,414	1.1%	11,455	1.1%	-0.049	-0.005
Coronary Revascularization	10,861	1.0%	11,033	1.1%	-0.060	-0.006

Table 1h. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024 (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Atrial Fibrillation*	63,800	6.1%	58,880	5.9%	0.242	0.010
Congestive Heart Failure*	68,816	6.6%	63,563	6.3%	0.256	0.011
Hospitalized Acute Myocardial Infarction	11,951	1.1%	10,536	1.1%	0.095	0.009
Other Cerebrovascular Disease*	50,194	4.8%	47,804	4.8%	0.043	0.002
Chronic Obstructive Pulmonary Disease*	106,881	10.2%	101,101	10.1%	0.160	0.005
Asthma without COPD*	102,372	9.8%	99,674	9.9%	-0.130	-0.004
Chronic Liver Disease*	76,503	7.3%	69,268	6.9%	0.424	0.016
Chronic Kidney Disease*	169,961	16.3%	159,565	15.9%	0.375	0.010
Any Malignant Neoplasm*	133,100	12.8%	126,827	12.7%	0.107	0.003
Hemiplegia	11,455	1.1%	12,006	1.2%	-0.100	-0.009
Neurological/Neurodegenerative Conditions	6,029	0.6%	6,237	0.6%	-0.044	-0.006
Dementia*	22,770	2.2%	21,610	2.2%	0.027	0.002
Depression*	190,670	18.3%	182,656	18.2%	0.056	0.001
Schizophrenia	6,794	0.7%	7,755	0.8%	-0.122	-0.015
Rheumatic Disorders*	25,964	2.5%	24,981	2.5%	-0.003	-0.000
Multiple Sclerosis	5,089	0.5%	4,761	0.5%	0.013	0.002
HIV/AIDS	3,005	0.3%	4,780	0.5%	-0.189	-0.031
Coronary Artery Disease*	171,576	16.4%	161,461	16.1%	0.340	0.010
Immunodeficiency*	108,636	10.4%	102,541	10.2%	0.185	0.006
Smoking or Nicotine Use	212,494	20.4%	198,275	19.8%	0.590	0.015
Hyperlipidemia*	514,717	49.3%	494,507	49.3%	0.010	0.000
Medical Product Use	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Angiotensin Converting Enzyme Inhibitors/Angiotensin Receptor Blockers*	359,542	34.5%	343,790	34.3%	0.170	0.004
Non-Steroidal Anti-Inflammatory Drugs*	221,510	21.2%	214,085	21.4%	-0.123	-0.003
Aspirin	11,295	1.1%	12,796	1.3%	-0.194	-0.018
Antidepressants*	332,128	31.8%	318,699	31.8%	0.045	0.001

Table 1h. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024 (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Statins*	382,877	36.7%	368,147	36.7%	-0.023	-0.000
Insulin*	56,381	5.4%	53,489	5.3%	0.069	0.003
Anti-Diabetic Oral Drugs*	154,568	14.8%	148,546	14.8%	-0.002	-0.000
Antihypertensive Drugs*	393,010	37.7%	375,411	37.5%	0.224	0.005
Anticoagulants*	69,183	6.6%	64,701	6.5%	0.177	0.007
Glucocorticoids*	232,407	22.3%	225,841	22.5%	-0.251	-0.006
Acetaminophen	151,903	14.6%	142,853	14.3%	0.311	0.009
Tumor Necrosis Factor Inhibitors	6,248	0.6%	5,751	0.6%	0.025	0.003
Immunosuppressants*	53,237	5.1%	51,496	5.1%	-0.034	-0.002
Inhaled Corticosteroids*	80,098	7.7%	77,853	7.8%	-0.088	-0.003
COVID-19 Vaccine*	267,488	25.6%	259,838	25.9%	-0.280	-0.006
Health Service Utilization Intensity Metrics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Mean number of ambulatory encounters*	10.0	10.7	10.0	10.4	-0.008	-0.001
Mean number of emergency room encounters*	0.5	1.5	0.5	1.4	0.014	0.010
Mean number of inpatient hospital encounters	0.2	0.5	0.1	0.5	0.011	0.023
Mean number of non-acute institutional encounters*	0.0	0.3	0.0	0.3	0.002	0.006
Mean number of other ambulatory encounters*	2.3	5.2	2.3	5.2	0.004	0.001
Mean number of filled prescriptions*	14.0	12.4	14.0	12.4	0.012	0.001
Mean number of generics dispensed*	7.4	4.6	7.4	4.6	0.004	0.001
Mean number of unique drug classes dispensed*	7.0	4.2	7.0	4.2	0.005	0.001

Table 1h. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024 (Outcome: COVID-19 Hospitalization)

	Medical Product		Covariate Balance
	Proton Pump Inhibitor New Users	Famotidine New Users	

[*]Covariate included in the propensity score logistic regression model.

[1]Covariates in blue show (if displayed) a standardized difference greater than 0.1.

[2]Weighted patient characteristics tables facilitate the assessment of covariate balance after inverse probability weighting and should not be interpreted as a description of the unweighted population. Treated patients are assigned a weight of 1. Reference patients are weighted by their propensity score (PS) divided by 1 minus their PS.

[3]Value represents standard deviation where no % follows the value.

[4]Race data may not be completely populated at all Data Partners; therefore, data about race may be incomplete.

[5]The Social Deprivation Index score is a composite measure of zip code tabulation area (ZCTA)-level deprivation constructed from seven demographic and household characteristics collected in the American Community Survey, where higher values indication greater levels of deprivation. For this project, each patient's most recent geographic information is used. For more information, see Butler DC et al. Health Services Research. 2013;48(2pt1):539-559. doi:10.1111/j.1475-6773.2012.01449.x.

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[7]Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A combined comorbidity score predicted mortality in elderly patients better than existing scores. J Clin Epidemiol. 2011;64(7):749-759. Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and validation of the combined comorbidity score for ICD-10-CM. Med Care. 2017;55(12):1046-1051.

N/A: Not Applicable

Table 1i. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Patient Characteristics[1,2]	Number/Mean	Percent/ Standard Deviation[3]	Number/Mean	Percent/ Standard Deviation[3]	Absolute Difference	Standardized Difference
Weighted patients	317,625	N/A	307,554	N/A	N/A	N/A
Demographic Characteristics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Age (years)*	37.4	8.7	37.4	8.8	0.052	0.006
Age*						
18-49 years	317,625	100.0%	307,554	100.0%	0.000	NaN
50-64 years	0	0.0%	0	0.0%	NaN	NaN
65-74 years	0	0.0%	0	0.0%	NaN	NaN
≥ 75 years	0	0.0%	0	0.0%	NaN	NaN
Sex*						
Female	177,244	55.8%	172,978	56.2%	-0.440	-0.009
Male	140,381	44.2%	134,576	43.8%	0.440	0.009
Race[4]						
American Indian or Alaska Native	1,107	0.3%	1,053	0.3%	0.006	0.001
Asian	13,003	4.1%	14,168	4.6%	-0.513	-0.025
Black or African American	24,356	7.7%	25,367	8.2%	-0.580	-0.021
Multi-racial	8,389	2.6%	7,877	2.6%	0.080	0.005
Native Hawaiian or Other Pacific Islander	221	0.1%	271	0.1%	-0.019	-0.007
Unknown	132,067	41.6%	126,657	41.2%	0.398	0.008
White	138,482	43.6%	132,160	43.0%	0.628	0.013
Hispanic origin						
Yes	17,126	5.4%	17,435	5.7%	-0.277	-0.012
No	135,120	42.5%	131,852	42.9%	-0.331	-0.008
Unknown	165,379	52.1%	158,267	51.5%	0.607	0.014
ZCTA Social Deprivation Index Score, National Quartile*,5						
Q1 (Least deprived)	89,515	28.2%	86,586	28.2%	0.030	0.001

Table 1i. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Q2	82,194	25.9%	79,377	25.8%	0.068	0.002
Q3	79,406	25.0%	76,984	25.0%	-0.031	-0.001
Q4 (Most deprived)	62,367	19.6%	60,649	19.7%	-0.084	-0.002
Unknown	4,143	1.3%	3,959	1.3%	0.017	0.002
Year-Quarter of Exposure[*]						
2020 Quarter 2	24,586	7.7%	23,481	7.6%	0.106	0.004
2020 Quarter 3	32,213	10.1%	29,683	9.7%	0.490	0.016
2020 Quarter 4	29,151	9.2%	28,323	9.2%	-0.031	-0.001
2021 Quarter 1	28,220	8.9%	27,576	9.0%	-0.081	-0.003
2021 Quarter 2	25,721	8.1%	25,047	8.1%	-0.046	-0.002
2021 Quarter 3	27,712	8.7%	27,156	8.8%	-0.105	-0.004
2021 Quarter 4	24,936	7.9%	24,403	7.9%	-0.084	-0.003
2022 Quarter 1	23,992	7.6%	23,415	7.6%	-0.060	-0.002
2022 Quarter 2	22,666	7.1%	22,064	7.2%	-0.038	-0.001
2022 Quarter 3	26,426	8.3%	25,800	8.4%	-0.069	-0.002
2022 Quarter 4	25,248	7.9%	24,739	8.0%	-0.095	-0.003
2023 Quarter 1	26,754	8.4%	25,868	8.4%	0.012	0.000
Health Characteristics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Claims-Based frailty index[*,6]	0.1	0.0	0.1	0.0	0.000	0.002
Claims-Based frailty index categories						
<=0.2	309,641	97.5%	299,740	97.5%	0.027	0.002
>0.2	7,984	2.5%	7,814	2.5%	-0.027	-0.002
Combined comorbidity score[*,7]	0.6	1.3	0.6	1.3	0.003	0.003
Diabetes[*]	25,466	8.0%	24,262	7.9%	0.129	0.005
Obesity[*]	83,651	26.3%	79,455	25.8%	0.502	0.011
Hypertension[*]	70,771	22.3%	67,780	22.0%	0.243	0.006
Hospitalized Stroke/Transient Ischemic Attack	515	0.2%	527	0.2%	-0.009	-0.002
Coronary Revascularization	555	0.2%	639	0.2%	-0.033	-0.008

Table 1i. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Atrial Fibrillation*	1,794	0.6%	1,724	0.6%	0.004	0.001
Congestive Heart Failure*	2,509	0.8%	2,383	0.8%	0.015	0.002
Hospitalized Acute Myocardial Infarction	639	0.2%	607	0.2%	0.004	0.001
Other Cerebrovascular Disease*	1,835	0.6%	1,782	0.6%	-0.002	-0.000
Chronic Obstructive Pulmonary Disease*	4,363	1.4%	4,252	1.4%	-0.009	-0.001
Asthma without COPD*	32,413	10.2%	31,877	10.4%	-0.160	-0.005
Chronic Liver Disease*	17,515	5.5%	15,920	5.2%	0.338	0.015
Chronic Kidney Disease*	16,072	5.1%	15,459	5.0%	0.034	0.002
Any Malignant Neoplasm*	8,788	2.8%	8,577	2.8%	-0.022	-0.001
Hemiplegia	641	0.2%	737	0.2%	-0.038	-0.008
Neurological/Neurodegenerative Conditions	112	0.0%	118	0.0%	-0.003	-0.002
Dementia*	128	0.0%	138	0.0%	-0.004	-0.002
Depression*	51,938	16.4%	50,308	16.4%	-0.005	-0.000
Schizophrenia	2,309	0.7%	2,714	0.9%	-0.155	-0.018
Rheumatic Disorders*	3,537	1.1%	3,399	1.1%	0.008	0.001
Multiple Sclerosis	1,381	0.4%	1,300	0.4%	0.012	0.002
HIV/AIDS	936	0.3%	1,317	0.4%	-0.134	-0.022
Coronary Artery Disease*	6,956	2.2%	6,687	2.2%	0.016	0.001
Immunodeficiency*	19,867	6.3%	19,061	6.2%	0.057	0.002
Smoking or Nicotine Use	42,110	13.3%	39,821	12.9%	0.310	0.009
Hyperlipidemia*	64,034	20.2%	61,867	20.1%	0.044	0.001
Medical Product Use	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Angiotensin Converting Enzyme Inhibitors/Angiotensin Receptor Blockers*	42,037	13.2%	39,941	13.0%	0.248	0.007
Non-Steroidal Anti-Inflammatory Drugs*	60,349	19.0%	59,235	19.3%	-0.260	-0.007
Aspirin	2,440	0.8%	2,941	1.0%	-0.188	-0.020

Table 1i. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Antidepressants*	95,286	30.0%	92,199	30.0%	0.021	0.000
Statins*	29,328	9.2%	28,263	9.2%	0.044	0.002
Insulin*	7,672	2.4%	7,254	2.4%	0.057	0.004
Anti-Diabetic Oral Drugs*	19,823	6.2%	19,065	6.2%	0.042	0.002
Antihypertensive Drugs*	51,248	16.1%	48,907	15.9%	0.233	0.006
Anticoagulants*	4,362	1.4%	4,133	1.3%	0.030	0.003
Glucocorticoids*	63,066	19.9%	61,638	20.0%	-0.186	-0.005
Acetaminophen	34,650	10.9%	33,192	10.8%	0.117	0.004
Tumor Necrosis Factor Inhibitors	2,264	0.7%	2,028	0.7%	0.053	0.006
Immunosuppressants*	7,651	2.4%	7,461	2.4%	-0.017	-0.001
Inhaled Corticosteroids*	16,255	5.1%	16,057	5.2%	-0.103	-0.005
COVID-19 Vaccine*	72,217	22.7%	70,779	23.0%	-0.277	-0.007
Health Service Utilization Intensity Metrics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Mean number of ambulatory encounters*	7.7	9.1	7.8	9.0	-0.044	-0.005
Mean number of emergency room encounters*	0.4	1.2	0.4	1.1	-0.008	-0.008
Mean number of inpatient hospital encounters	0.1	0.4	0.1	0.3	0.008	0.022
Mean number of non-acute institutional encounters*	0.0	0.1	0.0	0.1	-0.000	-0.000
Mean number of other ambulatory encounters*	1.9	4.1	1.9	3.9	-0.007	-0.002
Mean number of filled prescriptions*	9.6	10.4	9.6	10.5	-0.025	-0.002
Mean number of generics dispensed*	5.5	4.1	5.5	4.1	-0.012	-0.003
Mean number of unique drug classes dispensed*	5.2	3.8	5.2	3.7	-0.010	-0.003

Table 1i. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years (Outcome: COVID-19 Hospitalization)

	Medical Product		Covariate Balance
	Proton Pump Inhibitor New Users	Famotidine New Users	

[*] Covariate included in the propensity score logistic regression model.

[1] Covariates in blue show (if displayed) a standardized difference greater than 0.1.

[2] Weighted patient characteristics tables facilitate the assessment of covariate balance after inverse probability weighting and should not be interpreted as a description of the unweighted population. Treated patients are assigned a weight of 1. Reference patients are weighted by their propensity score (PS) divided by 1 minus their PS.

[3] Value represents standard deviation where no % follows the value.

[4] Race data may not be completely populated at all Data Partners; therefore, data about race may be incomplete.

[5] The Social Deprivation Index score is a composite measure of zip code tabulation area (ZCTA)-level deprivation constructed from seven demographic and household characteristics collected in the American Community Survey, where higher values indication greater levels of deprivation. For this project, each patient's most recent geographic information is used. For more information, see Butler DC et al. Health Services Research. 2013;48(2pt1):539-559. doi:10.1111/j.1475-6773.2012.01449.x.

[6] Kim DH, Schneeweiss S, Glynn RJ, Lipsitz LA, Rockwood K, Avorn J. Measuring frailty in Medicare data: development and validation of a claims-based frailty index. J Gerontol A Biol Sci Med Sci. 2018;73(7)980-987.

[7] Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A combined comorbidity score predicted mortality in elderly patients better than existing scores. J Clin Epidemiol. 2011;64(7):749-759. Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and validation of the combined comorbidity score for ICD-10-CM. Med Care. 2017;55(12):1046-1051.

N/A: Not Applicable

Table 1j. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 50-64 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Patient Characteristics[1,2]	Number/Mean	Percent/ Standard Deviation[3]	Number/Mean	Percent/ Standard Deviation[3]	Absolute Difference	Standardized Difference
Weighted patients	312,551	N/A	301,763	N/A	N/A	N/A
Demographic Characteristics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Age (years)[*]	57.8	4.3	57.8	4.3	-0.012	-0.003
Age[*]						
18-49 years	0	0.0%	0	0.0%	NaN	NaN
50-64 years	312,551	100.0%	301,763	100.0%	0.000	NaN
65-74 years	0	0.0%	0	0.0%	NaN	NaN
≥ 75 years	0	0.0%	0	0.0%	NaN	NaN
Sex[*]						
Female	183,457	58.7%	179,213	59.4%	-0.692	-0.014
Male	129,094	41.3%	122,550	40.6%	0.692	0.014
Race[4]						
American Indian or Alaska Native	1,212	0.4%	1,374	0.5%	-0.067	-0.010
Asian	7,985	2.6%	8,823	2.9%	-0.369	-0.023
Black or African American	32,698	10.5%	33,825	11.2%	-0.747	-0.024
Multi-racial	5,996	1.9%	5,695	1.9%	0.031	0.002
Native Hawaiian or Other Pacific Islander	392	0.1%	383	0.1%	-0.001	-0.000
Unknown	100,945	32.3%	96,951	32.1%	0.169	0.004
White	163,323	52.3%	154,713	51.3%	0.985	0.020
Hispanic origin						
Yes	12,536	4.0%	13,886	4.6%	-0.591	-0.029
No	160,604	51.4%	154,516	51.2%	0.180	0.004
Unknown	139,411	44.6%	133,360	44.2%	0.411	0.010
ZCTA Social Deprivation Index Score, National Quartile[*,5]						
Q1 (Least deprived)	82,446	26.4%	79,173	26.2%	0.142	0.003

Table 1j. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 50-64 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Q2	79,824	25.5%	76,759	25.4%	0.103	0.002
Q3	81,675	26.1%	79,042	26.2%	-0.062	-0.001
Q4 (Most deprived)	65,938	21.1%	64,340	21.3%	-0.225	-0.006
Unknown	2,668	0.9%	2,450	0.8%	0.042	0.006
Year-Quarter of Exposure*						
2020 Quarter 2	22,808	7.3%	21,686	7.2%	0.111	0.004
2020 Quarter 3	30,378	9.7%	27,889	9.2%	0.477	0.016
2020 Quarter 4	28,655	9.2%	27,899	9.2%	-0.077	-0.003
2021 Quarter 1	27,662	8.9%	26,855	8.9%	-0.049	-0.002
2021 Quarter 2	25,282	8.1%	24,548	8.1%	-0.046	-0.002
2021 Quarter 3	27,308	8.7%	26,504	8.8%	-0.046	-0.002
2021 Quarter 4	26,208	8.4%	25,498	8.4%	-0.065	-0.002
2022 Quarter 1	24,215	7.7%	23,729	7.9%	-0.116	-0.004
2022 Quarter 2	23,232	7.4%	22,485	7.5%	-0.018	-0.001
2022 Quarter 3	25,490	8.2%	24,767	8.2%	-0.052	-0.002
2022 Quarter 4	25,667	8.2%	24,943	8.3%	-0.054	-0.002
2023 Quarter 1	25,646	8.2%	24,960	8.3%	-0.066	-0.002
Health Characteristics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Claims-Based frailty index*,[6]	0.1	0.0	0.1	0.0	0.000	0.007
Claims-Based frailty index categories						
<=0.2	284,514	91.0%	275,745	91.4%	-0.348	-0.013
>0.2	28,037	9.0%	26,018	8.6%	0.348	0.013
Combined comorbidity score*,[7]	1.0	2.1	1.0	2.0	0.026	0.013
Diabetes*	68,297	21.9%	65,747	21.8%	0.064	0.002
Obesity*	92,127	29.5%	88,508	29.3%	0.146	0.003
Hypertension*	165,689	53.0%	159,314	52.8%	0.217	0.004
Hospitalized Stroke/Transient Ischemic Attack	2,228	0.7%	2,419	0.8%	-0.089	-0.010
Coronary Revascularization	2,911	0.9%	2,884	1.0%	-0.024	-0.003

Table 1j. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 50-64 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Atrial Fibrillation*	10,210	3.3%	9,601	3.2%	0.085	0.005
Congestive Heart Failure*	13,240	4.2%	12,500	4.1%	0.094	0.005
Hospitalized Acute Myocardial Infarction	2,642	0.8%	2,384	0.8%	0.055	0.006
Other Cerebrovascular Disease*	9,704	3.1%	9,361	3.1%	0.003	0.000
Chronic Obstructive Pulmonary Disease*	28,902	9.2%	27,695	9.2%	0.069	0.002
Asthma without COPD*	32,727	10.5%	31,923	10.6%	-0.108	-0.004
Chronic Liver Disease*	26,513	8.5%	24,365	8.1%	0.408	0.015
Chronic Kidney Disease*	43,447	13.9%	41,194	13.7%	0.250	0.007
Any Malignant Neoplasm*	33,502	10.7%	32,330	10.7%	0.005	0.000
Hemiplegia	2,743	0.9%	2,815	0.9%	-0.055	-0.006
Neurological/Neurodegenerative Conditions	884	0.3%	930	0.3%	-0.025	-0.005
Dementia*	1,210	0.4%	1,207	0.4%	-0.013	-0.002
Depression*	57,271	18.3%	55,415	18.4%	-0.040	-0.001
Schizophrenia	2,724	0.9%	3,308	1.1%	-0.225	-0.023
Rheumatic Disorders*	8,824	2.8%	8,505	2.8%	0.005	0.000
Multiple Sclerosis	2,139	0.7%	2,019	0.7%	0.015	0.002
HIV/AIDS	1,372	0.4%	2,327	0.8%	-0.332	-0.043
Coronary Artery Disease*	37,930	12.1%	35,821	11.9%	0.265	0.008
Immunodeficiency*	33,080	10.6%	31,635	10.5%	0.100	0.003
Smoking or Nicotine Use	65,213	20.9%	61,849	20.5%	0.369	0.009
Hyperlipidemia*	158,191	50.6%	152,917	50.7%	-0.062	-0.001
Medical Product Use	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Angiotensin Converting Enzyme Inhibitors/Angiotensin Receptor Blockers*	111,339	35.6%	107,266	35.5%	0.076	0.002
Non-Steroidal Anti-Inflammatory Drugs*	78,247	25.0%	75,861	25.1%	-0.104	-0.002
Aspirin	6,660	2.1%	7,319	2.4%	-0.295	-0.020
Antidepressants*	106,749	34.2%	103,291	34.2%	-0.075	-0.002

Table 1j. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 50-64 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Statins*	116,166	37.2%	112,546	37.3%	-0.129	-0.003
Insulin*	19,239	6.2%	18,366	6.1%	0.069	0.003
Anti-Diabetic Oral Drugs*	49,597	15.9%	47,919	15.9%	-0.011	-0.000
Antihypertensive Drugs*	120,259	38.5%	115,754	38.4%	0.117	0.002
Anticoagulants*	14,795	4.7%	14,051	4.7%	0.077	0.004
Glucocorticoids*	78,323	25.1%	76,481	25.3%	-0.285	-0.007
Acetaminophen	52,207	16.7%	48,922	16.2%	0.491	0.013
Tumor Necrosis Factor Inhibitors	2,675	0.9%	2,484	0.8%	0.033	0.004
Immunosuppressants*	16,083	5.1%	15,661	5.2%	-0.044	-0.002
Inhaled Corticosteroids*	25,828	8.3%	25,270	8.4%	-0.111	-0.004
COVID-19 Vaccine*	83,756	26.8%	81,652	27.1%	-0.261	-0.006
Health Service Utilization Intensity Metrics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Mean number of ambulatory encounters*	9.8	10.8	9.8	10.6	-0.016	-0.002
Mean number of emergency room encounters*	0.4	1.4	0.4	1.4	0.009	0.006
Mean number of inpatient hospital encounters	0.1	0.5	0.1	0.5	0.009	0.019
Mean number of non-acute institutional encounters*	0.0	0.2	0.0	0.2	0.000	0.002
Mean number of other ambulatory encounters*	2.3	4.9	2.2	5.0	0.007	0.001
Mean number of filled prescriptions*	15.3	13.5	15.4	13.5	-0.033	-0.002
Mean number of generics dispensed*	7.7	4.8	7.7	4.8	-0.011	-0.002
Mean number of unique drug classes dispensed*	7.3	4.4	7.3	4.3	-0.010	-0.002

Table 1j. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 50-64 years (Outcome: COVID-19 Hospitalization)

	Medical Product		Covariate Balance
	Proton Pump Inhibitor New Users	Famotidine New Users	

[*]Covariate included in the propensity score logistic regression model.

[1]Covariates in blue show (if displayed) a standardized difference greater than 0.1.

[2]Weighted patient characteristics tables facilitate the assessment of covariate balance after inverse probability weighting and should not be interpreted as a description of the unweighted population. Treated patients are assigned a weight of 1. Reference patients are weighted by their propensity score (PS) divided by 1 minus their PS.

[3]Value represents standard deviation where no % follows the value.

[4]Race data may not be completely populated at all Data Partners; therefore, data about race may be incomplete.

[5]The Social Deprivation Index score is a composite measure of zip code tabulation area (ZCTA)-level deprivation constructed from seven demographic and household characteristics collected in the American Community Survey, where higher values indication greater levels of deprivation. For this project, each patient's most recent geographic information is used. For more information, see Butler DC et al. Health Services Research. 2013;48(2pt1):539-559. doi:10.1111/j.1475-6773.2012.01449.x.

[6]Kim DH, Schneeweiss S, Glynn RJ, Lipsitz LA, Rockwood K, Avorn J. Measuring frailty in Medicare data: development and validation of a claims-based frailty index. J Gerontol A Biol Sci Med Sci. 2018;73(7)980-987.

[7]Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A combined comorbidity score predicted mortality in elderly patients better than existing scores. J Clin Epidemiol. 2011;64(7):749-759. Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and validation of the combined comorbidity score for ICD-10-CM. Med Care. 2017;55(12):1046-1051.

N/A: Not Applicable

Table 1k. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Patient Characteristics[1,2]	Number/Mean	Percent/ Standard Deviation[3]	Number/Mean	Percent/ Standard Deviation[3]	Absolute Difference	Standardized Difference
Weighted patients	247,873	N/A	237,383	N/A	N/A	N/A
Demographic Characteristics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Age (years)*	69.7	2.8	69.7	2.8	-0.009	-0.003
Age*						
18-49 years	0	0.0%	0	0.0%	NaN	NaN
50-64 years	0	0.0%	0	0.0%	NaN	NaN
65-74 years	247,873	100.0%	237,383	100.0%	0.000	NaN
≥ 75 years	0	0.0%	0	0.0%	NaN	NaN
Sex*						
Female	151,118	61.0%	146,690	61.8%	-0.829	-0.017
Male	96,755	39.0%	90,693	38.2%	0.829	0.017
Race[4]						
American Indian or Alaska Native	725	0.3%	742	0.3%	-0.020	-0.004
Asian	7,433	3.0%	7,504	3.2%	-0.162	-0.009
Black or African American	39,304	15.9%	39,808	16.8%	-0.913	-0.025
Multi-racial	1,275	0.5%	913	0.4%	0.130	0.020
Native Hawaiian or Other Pacific Islander	2,024	0.8%	2,111	0.9%	-0.073	-0.008
Unknown	29,520	11.9%	28,998	12.2%	-0.307	-0.010
White	167,592	67.6%	157,308	66.3%	1.345	0.029
Hispanic origin						
Yes	8,676	3.5%	9,353	3.9%	-0.440	-0.023
No	164,362	66.3%	156,076	65.7%	0.560	0.021
Unknown	74,835	30.2%	71,954	30.3%	-0.120	-0.005
ZCTA Social Deprivation Index Score, National Quartile*,5						
Q1 (Least deprived)	54,841	22.1%	52,265	22.0%	0.108	0.003

Table 1k. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Q2	63,795	25.7%	60,853	25.6%	0.102	0.002
Q3	68,804	27.8%	65,716	27.7%	0.074	0.002
Q4 (Most deprived)	59,088	23.8%	57,281	24.1%	-0.292	-0.007
Unknown	1,345	0.5%	1,268	0.5%	0.009	0.001
Year-Quarter of Exposure[*]						
2020 Quarter 2	14,848	6.0%	14,167	6.0%	0.022	0.001
2020 Quarter 3	23,135	9.3%	21,195	8.9%	0.405	0.014
2020 Quarter 4	22,466	9.1%	21,737	9.2%	-0.094	-0.003
2021 Quarter 1	21,418	8.6%	20,558	8.7%	-0.020	-0.001
2021 Quarter 2	20,779	8.4%	19,964	8.4%	-0.027	-0.001
2021 Quarter 3	23,350	9.4%	22,646	9.5%	-0.120	-0.004
2021 Quarter 4	22,842	9.2%	21,949	9.2%	-0.031	-0.001
2022 Quarter 1	19,046	7.7%	18,311	7.7%	-0.030	-0.001
2022 Quarter 2	18,156	7.3%	17,391	7.3%	-0.002	-0.000
2022 Quarter 3	20,286	8.2%	19,597	8.3%	-0.071	-0.003
2022 Quarter 4	20,546	8.3%	19,810	8.3%	-0.056	-0.002
2023 Quarter 1	21,001	8.5%	20,057	8.4%	0.023	0.001
Health Characteristics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Claims-Based frailty index[*,6]	0.2	0.1	0.2	0.1	0.001	0.017
Claims-Based frailty index categories						
<=0.2	209,028	84.3%	201,652	84.9%	-0.619	-0.017
>0.2	38,845	15.7%	35,731	15.1%	0.619	0.017
Combined comorbidity score[*,7]	1.8	2.8	1.7	2.7	0.076	0.028
Diabetes[*]	76,281	30.8%	72,896	30.7%	0.066	0.001
Obesity[*]	71,418	28.8%	68,035	28.7%	0.152	0.003
Hypertension[*]	177,390	71.6%	169,299	71.3%	0.246	0.005
Hospitalized Stroke/Transient Ischemic Attack	3,675	1.5%	3,487	1.5%	0.014	0.001
Coronary Revascularization	4,000	1.6%	4,141	1.7%	-0.131	-0.010

Table 1k. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Atrial Fibrillation*	20,154	8.1%	18,405	7.8%	0.377	0.014
Congestive Heart Failure*	22,652	9.1%	20,749	8.7%	0.398	0.014
Hospitalized Acute Myocardial Infarction	3,986	1.6%	3,379	1.4%	0.185	0.015
Other Cerebrovascular Disease*	17,535	7.1%	16,464	6.9%	0.139	0.005
Chronic Obstructive Pulmonary Disease*	40,389	16.3%	37,730	15.9%	0.400	0.011
Asthma without COPD*	23,442	9.5%	22,571	9.5%	-0.051	-0.002
Chronic Liver Disease*	21,227	8.6%	19,194	8.1%	0.478	0.017
Chronic Kidney Disease*	56,601	22.8%	53,000	22.3%	0.508	0.012
Any Malignant Neoplasm*	45,897	18.5%	43,316	18.2%	0.269	0.007
Hemiplegia	4,001	1.6%	3,794	1.6%	0.016	0.001
Neurological/Neurodegenerative Conditions	2,002	0.8%	2,141	0.9%	-0.094	-0.010
Dementia*	5,122	2.1%	4,815	2.0%	0.038	0.003
Depression*	49,027	19.8%	46,504	19.6%	0.189	0.005
Schizophrenia	1,312	0.5%	1,372	0.6%	-0.049	-0.007
Rheumatic Disorders*	7,855	3.2%	7,521	3.2%	0.001	0.000
Multiple Sclerosis	1,110	0.4%	1,049	0.4%	0.006	0.001
HIV/AIDS	572	0.2%	926	0.4%	-0.159	-0.029
Coronary Artery Disease*	62,653	25.3%	58,482	24.6%	0.640	0.015
Immunodeficiency*	30,957	12.5%	28,854	12.2%	0.334	0.010
Smoking or Nicotine Use	63,951	25.8%	59,396	25.0%	0.779	0.018
Hyperlipidemia*	170,952	69.0%	163,914	69.1%	-0.083	-0.002
Medical Product Use	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Angiotensin Converting Enzyme Inhibitors/Angiotensin Receptor Blockers*	119,784	48.3%	114,620	48.3%	0.040	0.001
Non-Steroidal Anti-Inflammatory Drugs*	55,919	22.6%	53,620	22.6%	-0.028	-0.001
Aspirin	1,382	0.6%	1,403	0.6%	-0.033	-0.004
Antidepressants*	79,407	32.0%	75,613	31.9%	0.183	0.004

Table 1k. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Statins*	139,285	56.2%	133,562	56.3%	-0.072	-0.001
Insulin*	18,341	7.4%	17,361	7.3%	0.086	0.003
Anti-Diabetic Oral Drugs*	53,399	21.5%	51,091	21.5%	0.020	0.000
Antihypertensive Drugs*	127,747	51.5%	121,964	51.4%	0.159	0.003
Anticoagulants*	21,437	8.6%	19,656	8.3%	0.368	0.013
Glucocorticoids*	55,315	22.3%	53,174	22.4%	-0.084	-0.002
Acetaminophen	40,597	16.4%	37,849	15.9%	0.434	0.012
Tumor Necrosis Factor Inhibitors	947	0.4%	849	0.4%	0.024	0.004
Immunosuppressants*	16,075	6.5%	15,344	6.5%	0.021	0.001
Inhaled Corticosteroids*	22,768	9.2%	21,659	9.1%	0.061	0.002
COVID-19 Vaccine*	65,868	26.6%	63,681	26.8%	-0.253	-0.006
Health Service Utilization Intensity Metrics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Mean number of ambulatory encounters*	11.2	11.3	11.2	10.8	0.049	0.004
Mean number of emergency room encounters*	0.6	1.7	0.6	1.5	0.026	0.017
Mean number of inpatient hospital encounters	0.2	0.6	0.2	0.5	0.016	0.030
Mean number of non-acute institutional encounters*	0.0	0.3	0.0	0.3	0.002	0.007
Mean number of other ambulatory encounters*	2.1	5.4	2.1	5.4	0.032	0.006
Mean number of filled prescriptions*	15.9	12.4	15.8	12.1	0.080	0.006
Mean number of generics dispensed*	8.4	4.7	8.4	4.6	0.036	0.008
Mean number of unique drug classes dispensed*	8.0	4.3	7.9	4.2	0.034	0.008

Table 1k. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years (Outcome: COVID-19 Hospitalization)

	Medical Product		Covariate Balance
	Proton Pump Inhibitor New Users	Famotidine New Users	

[*]Covariate included in the propensity score logistic regression model.

[1]Covariates in blue show (if displayed) a standardized difference greater than 0.1.

[2]Weighted patient characteristics tables facilitate the assessment of covariate balance after inverse probability weighting and should not be interpreted as a description of the unweighted population. Treated patients are assigned a weight of 1. Reference patients are weighted by their propensity score (PS) divided by 1 minus their PS.

[3]Value represents standard deviation where no % follows the value.

[4]Race data may not be completely populated at all Data Partners; therefore, data about race may be incomplete.

[5]The Social Deprivation Index score is a composite measure of zip code tabulation area (ZCTA)-level deprivation constructed from seven demographic and household characteristics collected in the American Community Survey, where higher values indication greater levels of deprivation. For this project, each patient's most recent geographic information is used. For more information, see Butler DC et al. Health Services Research. 2013;48(2pt1):539-559. doi:10.1111/j.1475-6773.2012.01449.x.

[6]Kim DH, Schneeweiss S, Glynn RJ, Lipsitz LA, Rockwood K, Avorn J. Measuring frailty in Medicare data: development and validation of a claims-based frailty index. J Gerontol A Biol Sci Med Sci. 2018;73(7)980-987.

[7]Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A combined comorbidity score predicted mortality in elderly patients better than existing scores. J Clin Epidemiol. 2011;64(7):749-759. Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and validation of the combined comorbidity score for ICD-10-CM. Med Care. 2017;55(12):1046-1051.

N/A: Not Applicable

Table 1l. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: ≥ 75 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Patient Characteristics[1,2]	Number/Mean	Percent/ Standard Deviation[3]	Number/Mean	Percent/ Standard Deviation[3]	Absolute Difference	Standardized Difference
Weighted patients	163,050	N/A	153,301	N/A	N/A	N/A
Demographic Characteristics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Age (years)[*]	81.4	5.0	81.3	5.0	0.032	0.006
Age[*]						
18-49 years	0	0.0%	0	0.0%	NaN	NaN
50-64 years	0	0.0%	0	0.0%	NaN	NaN
65-74 years	0	0.0%	0	0.0%	NaN	NaN
≥ 75 years	163,050	100.0%	153,301	100.0%	0.000	NaN
Sex[*]						
Female	101,639	62.3%	96,670	63.1%	-0.723	-0.015
Male	61,411	37.7%	56,631	36.9%	0.723	0.015
Race[4]						
American Indian or Alaska Native	463	0.3%	418	0.3%	0.011	0.002
Asian	3,173	1.9%	3,199	2.1%	-0.141	-0.010
Black or African American	20,055	12.3%	20,363	13.3%	-0.983	-0.030
Multi-racial	348	0.2%	281	0.2%	0.030	0.007
Native Hawaiian or Other Pacific Islander	1,526	0.9%	1,733	1.1%	-0.194	-0.019
Unknown	11,500	7.1%	11,146	7.3%	-0.217	-0.009
White	125,985	77.3%	116,161	75.8%	1.495	0.035
Hispanic origin						
Yes	3,313	2.0%	3,592	2.3%	-0.311	-0.021
No	115,873	71.1%	108,197	70.6%	0.488	0.022
Unknown	43,864	26.9%	41,512	27.1%	-0.177	-0.009
ZCTA Social Deprivation Index Score, National Quartile[*,5]						
Q1 (Least deprived)	40,034	24.6%	37,498	24.5%	0.093	0.002

Table 1l. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: ≥ 75 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Q2	44,959	27.6%	42,086	27.5%	0.121	0.003
Q3	43,471	26.7%	40,812	26.6%	0.039	0.001
Q4 (Most deprived)	33,760	20.7%	32,148	21.0%	-0.265	-0.007
Unknown	826	0.5%	757	0.5%	0.013	0.002
Year-Quarter of Exposure[*]						
2020 Quarter 2	9,884	6.1%	9,147	6.0%	0.095	0.004
2020 Quarter 3	15,434	9.5%	14,018	9.1%	0.322	0.011
2020 Quarter 4	14,644	9.0%	13,881	9.1%	-0.073	-0.003
2021 Quarter 1	13,858	8.5%	13,146	8.6%	-0.076	-0.003
2021 Quarter 2	14,127	8.7%	13,397	8.7%	-0.075	-0.003
2021 Quarter 3	15,708	9.6%	14,842	9.7%	-0.047	-0.002
2021 Quarter 4	14,854	9.1%	14,059	9.2%	-0.061	-0.002
2022 Quarter 1	12,604	7.7%	11,822	7.7%	0.019	0.001
2022 Quarter 2	12,508	7.7%	11,829	7.7%	-0.045	-0.002
2022 Quarter 3	12,933	7.9%	12,230	8.0%	-0.046	-0.002
2022 Quarter 4	13,095	8.0%	12,280	8.0%	0.021	0.001
2023 Quarter 1	13,401	8.2%	12,650	8.3%	-0.033	-0.001
Health Characteristics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Claims-Based frailty index[*,6]	0.2	0.1	0.2	0.1	0.002	0.029
Claims-Based frailty index categories						
<=0.2	115,236	70.7%	110,299	71.9%	-1.274	-0.028
>0.2	47,814	29.3%	43,001	28.1%	1.274	0.028
Combined comorbidity score[*,7]	3.0	3.4	2.9	3.2	0.154	0.047
Diabetes[*]	52,050	31.9%	48,458	31.6%	0.313	0.007
Obesity[*]	33,773	20.7%	31,250	20.4%	0.329	0.008
Hypertension[*]	134,600	82.6%	125,963	82.2%	0.384	0.010
Hospitalized Stroke/Transient Ischemic Attack	4,891	3.0%	4,466	2.9%	0.086	0.005
Coronary Revascularization	3,320	2.0%	3,180	2.1%	-0.038	-0.003

Table 1l. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: ≥ 75 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Atrial Fibrillation*	31,086	19.1%	27,781	18.1%	0.944	0.024
Congestive Heart Failure*	29,823	18.3%	26,662	17.4%	0.899	0.024
Hospitalized Acute Myocardial Infarction	4,508	2.8%	3,919	2.6%	0.209	0.013
Other Cerebrovascular Disease*	20,857	12.8%	19,148	12.5%	0.301	0.009
Chronic Obstructive Pulmonary Disease*	32,680	20.0%	29,825	19.5%	0.588	0.015
Asthma without COPD*	13,593	8.3%	12,872	8.4%	-0.060	-0.002
Chronic Liver Disease*	10,718	6.6%	9,373	6.1%	0.460	0.019
Chronic Kidney Disease*	52,840	32.4%	47,806	31.2%	1.223	0.026
Any Malignant Neoplasm*	44,401	27.2%	41,190	26.9%	0.363	0.008
Hemiplegia	4,004	2.5%	4,206	2.7%	-0.288	-0.018
Neurological/Neurodegenerative Conditions	3,004	1.8%	2,837	1.9%	-0.008	-0.001
Dementia*	16,147	9.9%	14,809	9.7%	0.243	0.008
Depression*	31,837	19.5%	29,665	19.4%	0.175	0.004
Schizophrenia	425	0.3%	414	0.3%	-0.010	-0.002
Rheumatic Disorders*	5,665	3.5%	5,270	3.4%	0.037	0.002
Multiple Sclerosis	446	0.3%	382	0.2%	0.024	0.005
HIV/AIDS	120	0.1%	143	0.1%	-0.020	-0.007
Coronary Artery Disease*	63,174	38.7%	57,982	37.8%	0.923	0.019
Immunodeficiency*	24,137	14.8%	21,949	14.3%	0.486	0.014
Smoking or Nicotine Use	40,261	24.7%	36,642	23.9%	0.791	0.019
Hyperlipidemia*	120,231	73.7%	112,775	73.6%	0.174	0.004
Medical Product Use	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Angiotensin Converting Enzyme Inhibitors/Angiotensin Receptor Blockers*	85,424	52.4%	80,293	52.4%	0.015	0.000
Non-Steroidal Anti-Inflammatory Drugs*	26,582	16.3%	25,029	16.3%	-0.024	-0.001
Aspirin	770	0.5%	836	0.5%	-0.073	-0.010

Table 1l. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: ≥ 75 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Antidepressants*	49,874	30.6%	46,619	30.4%	0.178	0.004
Statins*	97,080	59.5%	91,154	59.5%	0.079	0.002
Insulin*	10,880	6.7%	9,956	6.5%	0.178	0.007
Anti-Diabetic Oral Drugs*	31,340	19.2%	29,242	19.1%	0.146	0.004
Antihypertensive Drugs*	92,621	56.8%	86,942	56.7%	0.092	0.002
Anticoagulants*	28,087	17.2%	25,386	16.6%	0.667	0.018
Glucocorticoids*	35,244	21.6%	33,199	21.7%	-0.041	-0.001
Acetaminophen	23,920	14.7%	20,565	13.4%	1.256	0.036
Tumor Necrosis Factor Inhibitors	354	0.2%	360	0.2%	-0.018	-0.004
Immunosuppressants*	13,224	8.1%	12,215	8.0%	0.143	0.005
Inhaled Corticosteroids*	15,067	9.2%	14,103	9.2%	0.041	0.001
COVID-19 Vaccine*	45,117	27.7%	42,628	27.8%	-0.136	-0.003
Health Service Utilization Intensity Metrics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Mean number of ambulatory encounters*	12.6	12.0	12.5	11.6	0.093	0.008
Mean number of emergency room encounters*	0.9	1.9	0.9	1.9	0.059	0.031
Mean number of inpatient hospital encounters	0.3	0.7	0.3	0.6	0.032	0.050
Mean number of non-acute institutional encounters*	0.1	0.4	0.1	0.4	0.010	0.024
Mean number of other ambulatory encounters*	3.1	6.8	3.0	6.9	0.098	0.014
Mean number of filled prescriptions*	17.1	12.3	17.0	12.0	0.108	0.009
Mean number of generics dispensed*	9.0	4.5	9.0	4.4	0.048	0.011
Mean number of unique drug classes dispensed*	8.6	4.1	8.5	4.1	0.044	0.011

Table 1l. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: ≥ 75 years (Outcome: COVID-19 Hospitalization)

	Medical Product		Covariate Balance
	Proton Pump Inhibitor New Users	Famotidine New Users	

[*]Covariate included in the propensity score logistic regression model.

[1]Covariates in blue (if displayed) show a standardized difference greater than 0.1.

[2]Weighted patient characteristics tables facilitate the assessment of covariate balance after inverse probability weighting and should not be interpreted as a description of the unweighted population. Treated patients are assigned a weight of 1. Reference patients are weighted by their propensity score (PS) divided by 1 minus their PS.

[3]Value represents standard deviation where no % follows the value.

[4]Race data may not be completely populated at all Data Partners; therefore, data about race may be incomplete.

[5]The Social Deprivation Index score is a composite measure of zip code tabulation area (ZCTA)-level deprivation constructed from seven demographic and household characteristics collected in the American Community Survey, where higher values indication greater levels of deprivation. For this project, each patient's most recent geographic information is used. For more information, see Butler DC et al. Health Services Research. 2013;48(2pt1):539-559. doi:10.1111/j.1475-6773.2012.01449.x.

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N/A: Not Applicable

Table 1m. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment (Propensity Score Stratum Weighted, Trimmed, Percentiles: 50, Weight: Average Treatment Effect in the Treated (ATT)), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024 (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Patient Characteristics[1,2]	Number/Mean	Percent/ Standard Deviation[3]	Number/Mean	Percent/ Standard Deviation[3]	Absolute Difference	Standardized Difference
Weighted patients	1,043,108	N/A	181,963	N/A	N/A	N/A
Demographic Characteristics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Age (years)[*]	58.2	14.9	58.4	15.1	-0.272	-0.018
Age[*]						
18-49 years	317,871	30.5%	54,214	29.8%	0.679	0.016
50-64 years	312,783	30.0%	54,659	30.0%	-0.053	-0.001
65-74 years	248,698	23.8%	44,093	24.2%	-0.390	-0.010
≥ 75 years	163,756	15.7%	28,997	15.9%	-0.237	-0.007
Sex[*]						
Female	614,414	58.9%	107,195	58.9%	-0.008	-0.000
Male	428,694	41.1%	74,768	41.1%	0.008	0.000
Race[4]						
American Indian or Alaska Native	3,520	0.3%	659	0.4%	-0.025	-0.004
Asian	31,622	3.0%	5,977	3.3%	-0.253	-0.015
Black or African American	116,606	11.2%	22,012	12.1%	-0.918	-0.029
Multi-racial	16,028	1.5%	2,544	1.4%	0.138	0.012
Native Hawaiian or Other Pacific Islander	4,169	0.4%	873	0.5%	-0.080	-0.012
Unknown	274,322	26.3%	46,706	25.7%	0.631	0.015
White	596,841	57.2%	103,191	56.7%	0.508	0.010
Hispanic origin						
Yes	41,704	4.0%	7,838	4.3%	-0.310	-0.016
No	577,215	55.3%	103,594	56.9%	-1.595	-0.043
Unknown	424,189	40.7%	70,531	38.8%	1.905	0.051
ZCTA Social Deprivation Index Score, National Quartile[*,5]						

Table 1m. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment (Propensity Score Stratum Weighted, Trimmed, Percentiles: 50, Weight: Average Treatment Effect in the Treated (ATT)), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024 (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Q1 (Least deprived)	267,332	25.6%	46,050	25.3%	0.321	0.007
Q2	271,331	26.0%	47,072	25.9%	0.143	0.003
Q3	273,874	26.3%	47,832	26.3%	-0.031	-0.001
Q4 (Most deprived)	221,483	21.2%	38,748	21.3%	-0.061	-0.002
Unknown	9,088	0.9%	2,262	1.2%	-0.372	-0.049
Year-Quarter of Exposure*						
2020 Quarter 2	72,317	6.9%	12,793	7.0%	-0.098	-0.004
2020 Quarter 3	101,472	9.7%	17,869	9.8%	-0.092	-0.003
2020 Quarter 4	95,095	9.1%	16,650	9.2%	-0.034	-0.001
2021 Quarter 1	91,301	8.8%	15,819	8.7%	0.059	0.002
2021 Quarter 2	86,070	8.3%	14,921	8.2%	0.051	0.002
2021 Quarter 3	94,273	9.0%	16,509	9.1%	-0.035	-0.001
2021 Quarter 4	88,997	8.5%	15,419	8.5%	0.058	0.002
2022 Quarter 1	79,986	7.7%	13,913	7.6%	0.022	0.001
2022 Quarter 2	76,697	7.4%	13,335	7.3%	0.024	0.001
2022 Quarter 3	85,289	8.2%	14,911	8.2%	-0.018	-0.001
2022 Quarter 4	84,686	8.1%	14,750	8.1%	0.012	0.000
2023 Quarter 1	86,925	8.3%	15,074	8.3%	0.049	0.002
Health Characteristics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Claims-Based frailty index*,6	0.1	0.0	0.1	0.1	-0.001	-0.023
Claims-Based frailty index categories						
<=0.2	919,449	88.1%	159,548	87.7%	0.463	0.015
>0.2	123,659	11.9%	22,415	12.3%	-0.463	-0.015
Combined comorbidity score*,7	1.4	2.4	1.4	2.5	-0.049	-0.020
Diabetes*	222,851	21.4%	39,790	21.9%	-0.503	-0.012
Obesity*	281,713	27.0%	49,361	27.1%	-0.120	-0.003
Hypertension*	550,110	52.7%	96,986	53.3%	-0.562	-0.012

Table 1m. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment (Propensity Score Stratum Weighted, Trimmed, Percentiles: 50, Weight: Average Treatment Effect in the Treated (ATT)), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024 (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Hospitalized Stroke/Transient Ischemic Attack	11,414	1.1%	2,314	1.3%	-0.177	-0.016
Coronary Revascularization	10,861	1.0%	2,102	1.2%	-0.114	-0.011
Atrial Fibrillation*	63,800	6.1%	11,421	6.3%	-0.160	-0.007
Congestive Heart Failure*	68,816	6.6%	12,431	6.8%	-0.234	-0.010
Hospitalized Acute Myocardial Infarction	11,951	1.1%	2,140	1.2%	-0.030	-0.003
Other Cerebrovascular Disease*	50,194	4.8%	9,168	5.0%	-0.226	-0.011
Chronic Obstructive Pulmonary Disease*	106,881	10.2%	19,392	10.7%	-0.411	-0.014
Asthma without COPD*	102,372	9.8%	18,131	10.0%	-0.150	-0.005
Chronic Liver Disease*	76,503	7.3%	13,390	7.4%	-0.024	-0.001
Chronic Kidney Disease*	169,961	16.3%	30,288	16.6%	-0.351	-0.010
Any Malignant Neoplasm*	133,100	12.8%	23,772	13.1%	-0.304	-0.009
Hemiplegia	11,455	1.1%	2,391	1.3%	-0.216	-0.020
Neurological/Neurodegenerative Conditions	6,029	0.6%	1,168	0.6%	-0.064	-0.008
Dementia*	22,770	2.2%	4,166	2.3%	-0.107	-0.007
Depression*	190,670	18.3%	34,077	18.7%	-0.448	-0.012
Schizophrenia	6,794	0.7%	1,453	0.8%	-0.147	-0.017
Rheumatic Disorders*	25,964	2.5%	4,691	2.6%	-0.089	-0.006
Multiple Sclerosis	5,089	0.5%	895	0.5%	-0.004	-0.001
HIV/AIDS	3,005	0.3%	898	0.5%	-0.206	-0.033
Coronary Artery Disease*	171,576	16.4%	30,700	16.9%	-0.423	-0.012
Immunodeficiency*	108,636	10.4%	19,443	10.7%	-0.270	-0.009
Smoking or Nicotine Use	212,494	20.4%	37,658	20.7%	-0.324	-0.008
Hyperlipidemia*	514,717	49.3%	90,609	49.8%	-0.451	-0.009
Medical Product Use	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Angiotensin Converting Enzyme Inhibitors/Angiotensin Receptor Blockers*	359,542	34.5%	63,276	34.8%	-0.306	-0.007

Table 1m. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment (Propensity Score Stratum Weighted, Trimmed, Percentiles: 50, Weight: Average Treatment Effect in the Treated (ATT)), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024 (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Non-Steroidal Anti-Inflammatory Drugs*	221,510	21.2%	38,886	21.4%	-0.135	-0.003
Aspirin	11,295	1.1%	2,319	1.3%	-0.191	-0.018
Antidepressants*	332,128	31.8%	58,753	32.3%	-0.448	-0.010
Statins*	382,877	36.7%	67,673	37.2%	-0.485	-0.010
Insulin*	56,381	5.4%	10,121	5.6%	-0.157	-0.007
Anti-Diabetic Oral Drugs*	154,568	14.8%	27,395	15.1%	-0.237	-0.007
Antihypertensive Drugs*	393,010	37.7%	69,187	38.0%	-0.346	-0.007
Anticoagulants*	69,183	6.6%	12,315	6.8%	-0.136	-0.005
Glucocorticoids*	232,407	22.3%	40,617	22.3%	-0.041	-0.001
Acetaminophen	151,903	14.6%	26,949	14.8%	-0.247	-0.007
Tumor Necrosis Factor Inhibitors	6,248	0.6%	1,034	0.6%	0.031	0.004
Immunosuppressants*	53,237	5.1%	9,545	5.2%	-0.142	-0.006
Inhaled Corticosteroids*	80,098	7.7%	14,282	7.8%	-0.170	-0.006
COVID-19 Vaccine*	267,488	25.6%	46,444	25.5%	0.120	0.003
Health Service Utilization Intensity Metrics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Mean number of ambulatory encounters*	10.0	10.7	10.1	10.7	-0.178	-0.017
Mean number of emergency room encounters*	0.5	1.5	0.6	1.5	-0.029	-0.019
Mean number of inpatient hospital encounters	0.2	0.5	0.2	0.5	-0.008	-0.015
Mean number of non-acute institutional encounters*	0.0	0.3	0.0	0.3	-0.004	-0.016
Mean number of other ambulatory encounters*	2.3	5.2	2.4	5.5	-0.137	-0.026
Mean number of filled prescriptions*	14.0	12.4	14.2	12.5	-0.202	-0.016
Mean number of generics dispensed*	7.4	4.6	7.5	4.6	-0.096	-0.021
Mean number of unique drug classes dispensed*	7.0	4.2	7.1	4.2	-0.087	-0.020

Table 1m. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment (Propensity Score Stratum Weighted, Trimmed, Percentiles: 50, Weight: Average Treatment Effect in the Treated (ATT)), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024 (Outcome: COVID-19 Hospitalization)

	Medical Product		Covariate Balance
	Proton Pump Inhibitor New Users	Famotidine New Users	

[*]Covariate included in the propensity score logistic regression model.

[1]Covariates in blue show (if displayed) a standardized difference greater than 0.1.

[2]Weighted patient characteristics tables facilitate the assessment of covariate balance after propensity score (PS) stratum weighting and should not be interpreted as a description of the unweighted population. Treated patients are assigned a weight of 1, and control patients are weighted by the proportion of the total treated patient population included in their PS stratum divided by the proportion of the total control patient population included in their PS stratum.

[3]Value represents standard deviation where no % follows the value.

[4]Race data may not be completely populated at all Data Partners; therefore, data about race may be incomplete.

[5]The Social Deprivation Index score is a composite measure of zip code tabulation area (ZCTA)-level deprivation constructed from seven demographic and household characteristics collected in the American Community Survey, where higher values indication greater levels of deprivation. For this project, each patient's most recent geographic information is used. For more information, see Butler DC et al. Health Services Research. 2013;48(2pt1):539-559. doi:10.1111/j.1475-6773.2012.01449.x.

[6]Kim DH, Schneeweiss S, Glynn RJ, Lipsitz LA, Rockwood K, Avorn J. Measuring frailty in Medicare data: development and validation of a claims-based frailty index. J Gerontol A Biol Sci Med Sci. 2018;73(7)980-987.

[7]Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A combined comorbidity score predicted mortality in elderly patients better than existing scores. J Clin Epidemiol. 2011;64(7):749-759. Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and validation of the combined comorbidity score for ICD-10-CM. Med Care. 2017;55(12):1046-1051.

N/A: Not Applicable

Table 1n. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment (Propensity Score Stratum Weighted, Trimmed, Percentiles: 50, Weight: Average Treatment Effect in the Treated (ATT)), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Patient Characteristics[1,2]	Number/Mean	Percent/ Standard Deviation[3]	Number/Mean	Percent/ Standard Deviation[3]	Absolute Difference	Standardized Difference
Weighted patients	317,625	N/A	51,365	N/A	N/A	N/A
Demographic Characteristics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Age (years)[*]	37.4	8.7	37.5	8.8	-0.101	-0.012
Age[*]						
18-49 years	317,625	100.0%	51,365	100.0%	0.000	NaN
50-64 years	0	0.0%	0	0.0%	NaN	NaN
65-74 years	0	0.0%	0	0.0%	NaN	NaN
≥ 75 years	0	0.0%	0	0.0%	NaN	NaN
Sex[*]						
Female	177,244	55.8%	28,626	55.7%	0.071	0.001
Male	140,381	44.2%	22,739	44.3%	-0.071	-0.001
Race[4]						
American Indian or Alaska Native	1,107	0.3%	182	0.4%	-0.005	-0.001
Asian	13,003	4.1%	2,328	4.5%	-0.438	-0.022
Black or African American	24,356	7.7%	4,225	8.2%	-0.557	-0.021
Multi-racial	8,389	2.6%	1,160	2.3%	0.383	0.026
Native Hawaiian or Other Pacific Islander	221	0.1%	47	0.1%	-0.023	-0.008
Unknown	132,067	41.6%	21,111	41.1%	0.479	0.010
White	138,482	43.6%	22,312	43.4%	0.161	0.003
Hispanic origin						
Yes	17,126	5.4%	2,781	5.4%	-0.023	-0.001
No	135,120	42.5%	23,250	45.3%	-2.723	-0.062
Unknown	165,379	52.1%	25,334	49.3%	2.746	0.061
ZCTA Social Deprivation Index Score, National Quartile[*,5]						
Q1 (Least deprived)	89,515	28.2%	14,452	28.1%	0.046	0.001

Table 1n. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment (Propensity Score Stratum Weighted, Trimmed, Percentiles: 50, Weight: Average Treatment Effect in the Treated (ATT)), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Q2	82,194	25.9%	13,212	25.7%	0.155	0.004
Q3	79,406	25.0%	12,834	25.0%	0.013	0.000
Q4 (Most deprived)	62,367	19.6%	9,929	19.3%	0.305	0.008
Unknown	4,143	1.3%	937	1.8%	-0.519	-0.063
Year-Quarter of Exposure*						
2020 Quarter 2	24,586	7.7%	4,007	7.8%	-0.060	-0.002
2020 Quarter 3	32,213	10.1%	5,203	10.1%	0.012	0.000
2020 Quarter 4	29,151	9.2%	4,777	9.3%	-0.122	-0.004
2021 Quarter 1	28,220	8.9%	4,593	8.9%	-0.056	-0.002
2021 Quarter 2	25,721	8.1%	4,147	8.1%	0.025	0.001
2021 Quarter 3	27,712	8.7%	4,501	8.8%	-0.038	-0.001
2021 Quarter 4	24,936	7.9%	4,039	7.9%	-0.012	-0.000
2022 Quarter 1	23,992	7.6%	3,842	7.5%	0.074	0.003
2022 Quarter 2	22,666	7.1%	3,670	7.1%	-0.009	-0.000
2022 Quarter 3	26,426	8.3%	4,265	8.3%	0.016	0.001
2022 Quarter 4	25,248	7.9%	4,072	7.9%	0.022	0.001
2023 Quarter 1	26,754	8.4%	4,250	8.3%	0.149	0.005
Health Characteristics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Claims-Based frailty index*,6	0.1	0.0	0.1	0.0	-0.000	-0.008
Claims-Based frailty index categories						
<=0.2	309,641	97.5%	50,005	97.4%	0.133	0.009
>0.2	7,984	2.5%	1,360	2.6%	-0.133	-0.009
Combined comorbidity score*,7	0.6	1.3	0.6	1.3	-0.005	-0.004
Diabetes*	25,466	8.0%	4,126	8.0%	-0.015	-0.001
Obesity*	83,651	26.3%	13,492	26.3%	0.070	0.002
Hypertension*	70,771	22.3%	11,543	22.5%	-0.192	-0.005
Hospitalized Stroke/Transient Ischemic Attack	515	0.2%	91	0.2%	-0.015	-0.004
Coronary Revascularization	555	0.2%	111	0.2%	-0.041	-0.009

Table 1n. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment (Propensity Score Stratum Weighted, Trimmed, Percentiles: 50, Weight: Average Treatment Effect in the Treated (ATT)), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Atrial Fibrillation*	1,794	0.6%	297	0.6%	-0.012	-0.002
Congestive Heart Failure*	2,509	0.8%	411	0.8%	-0.009	-0.001
Hospitalized Acute Myocardial Infarction	639	0.2%	103	0.2%	0.001	0.000
Other Cerebrovascular Disease*	1,835	0.6%	291	0.6%	0.011	0.002
Chronic Obstructive Pulmonary Disease*	4,363	1.4%	721	1.4%	-0.030	-0.003
Asthma without COPD*	32,413	10.2%	5,250	10.2%	-0.015	-0.001
Chronic Liver Disease*	17,515	5.5%	2,825	5.5%	0.015	0.001
Chronic Kidney Disease*	16,072	5.1%	2,613	5.1%	-0.027	-0.001
Any Malignant Neoplasm*	8,788	2.8%	1,447	2.8%	-0.051	-0.003
Hemiplegia	641	0.2%	124	0.2%	-0.040	-0.009
Neurological/Neurodegenerative Conditions	112	0.0%	20	0.0%	-0.005	-0.002
Dementia*	128	0.0%	22	0.0%	-0.003	-0.002
Depression*	51,938	16.4%	8,537	16.6%	-0.268	-0.007
Schizophrenia	2,309	0.7%	464	0.9%	-0.177	-0.020
Rheumatic Disorders*	3,537	1.1%	571	1.1%	0.002	0.000
Multiple Sclerosis	1,381	0.4%	221	0.4%	0.005	0.001
HIV/AIDS	936	0.3%	216	0.4%	-0.125	-0.021
Coronary Artery Disease*	6,956	2.2%	1,138	2.2%	-0.026	-0.002
Immunodeficiency*	19,867	6.3%	3,199	6.2%	0.028	0.001
Smoking or Nicotine Use	42,110	13.3%	6,829	13.3%	-0.038	-0.001
Hyperlipidemia*	64,034	20.2%	10,349	20.1%	0.012	0.000
Medical Product Use	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Angiotensin Converting Enzyme Inhibitors/Angiotensin Receptor Blockers*	42,037	13.2%	6,833	13.3%	-0.069	-0.002
Non-Steroidal Anti-Inflammatory Drugs*	60,349	19.0%	9,843	19.2%	-0.162	-0.004
Aspirin	2,440	0.8%	513	1.0%	-0.231	-0.025
Antidepressants*	95,286	30.0%	15,601	30.4%	-0.372	-0.008

Table 1n. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment (Propensity Score Stratum Weighted, Trimmed, Percentiles: 50, Weight: Average Treatment Effect in the Treated (ATT)), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Statins*	29,328	9.2%	4,757	9.3%	-0.028	-0.001
Insulin*	7,672	2.4%	1,234	2.4%	0.012	0.001
Anti-Diabetic Oral Drugs*	19,823	6.2%	3,235	6.3%	-0.057	-0.002
Antihypertensive Drugs*	51,248	16.1%	8,348	16.3%	-0.117	-0.003
Anticoagulants*	4,362	1.4%	724	1.4%	-0.036	-0.003
Glucocorticoids*	63,066	19.9%	10,173	19.8%	0.051	0.001
Acetaminophen	34,650	10.9%	5,757	11.2%	-0.300	-0.010
Tumor Necrosis Factor Inhibitors	2,264	0.7%	336	0.7%	0.059	0.007
Immunosuppressants*	7,651	2.4%	1,245	2.4%	-0.015	-0.001
Inhaled Corticosteroids*	16,255	5.1%	2,648	5.2%	-0.037	-0.002
COVID-19 Vaccine*	72,217	22.7%	11,672	22.7%	0.013	0.000
Health Service Utilization Intensity Metrics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Mean number of ambulatory encounters*	7.7	9.1	7.8	9.1	-0.066	-0.007
Mean number of emergency room encounters*	0.4	1.2	0.4	1.1	-0.007	-0.006
Mean number of inpatient hospital encounters	0.1	0.4	0.1	0.4	0.002	0.004
Mean number of non-acute institutional encounters*	0.0	0.1	0.0	0.1	0.000	0.001
Mean number of other ambulatory encounters*	1.9	4.1	2.0	4.0	-0.129	-0.032
Mean number of filled prescriptions*	9.6	10.4	9.7	10.5	-0.072	-0.007
Mean number of generics dispensed*	5.5	4.1	5.5	4.1	-0.029	-0.007
Mean number of unique drug classes dispensed*	5.2	3.8	5.2	3.7	-0.028	-0.007

Table 1n. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment (Propensity Score Stratum Weighted, Trimmed, Percentiles: 50, Weight: Average Treatment Effect in the Treated (ATT)), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years (Outcome: COVID-19 Hospitalization)

	Medical Product		Covariate Balance
	Proton Pump Inhibitor New Users	Famotidine New Users	

[*]Covariate included in the propensity score logistic regression model.

[1]Covariates in blue show (if displayed) a standardized difference greater than 0.1.

[2]Weighted patient characteristics tables facilitate the assessment of covariate balance after propensity score (PS) stratum weighting and should not be interpreted as a description of the unweighted population. Treated patients are assigned a weight of 1, and control patients are weighted by the proportion of the total treated patient population included in their PS stratum divided by the proportion of the total control patient population included in their PS stratum.

[3]Value represents standard deviation where no % follows the value.

[4]Race data may not be completely populated at all Data Partners; therefore, data about race may be incomplete.

[5]The Social Deprivation Index score is a composite measure of zip code tabulation area (ZCTA)-level deprivation constructed from seven demographic and household characteristics collected in the American Community Survey, where higher values indication greater levels of deprivation. For this project, each patient's most recent geographic information is used. For more information, see Butler DC et al. Health Services Research. 2013;48(2pt1):539-559. doi:10.1111/j.1475-6773.2012.01449.x.

[6]Kim DH, Schneeweiss S, Glynn RJ, Lipsitz LA, Rockwood K, Avorn J. Measuring frailty in Medicare data: development and validation of a claims-based frailty index. J Gerontol A Biol Sci Med Sci. 2018;73(7)980-987.

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N/A: Not Applicable

Table 1o. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment (Propensity Score Stratum Weighted, Trimmed, Percentiles: 50, Weight: Average Treatment Effect in the Treated (ATT)), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 50-64 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Patient Characteristics[1,2]	Number/Mean	Percent/ Standard Deviation[3]	Number/Mean	Percent/ Standard Deviation[3]	Absolute Difference	Standardized Difference
Weighted patients	312,317	N/A	47,700	N/A	N/A	N/A
Demographic Characteristics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Age (years)*	57.8	4.3	57.8	4.3	-0.010	-0.002
Age*						
18-49 years	0	0.0%	0	0.0%	NaN	NaN
50-64 years	312,317	100.0%	47,700	100.0%	0.000	NaN
65-74 years	0	0.0%	0	0.0%	NaN	NaN
≥ 75 years	0	0.0%	0	0.0%	NaN	NaN
Sex*						
Female	183,328	58.7%	28,004	58.7%	-0.010	-0.000
Male	128,989	41.3%	19,696	41.3%	0.010	0.000
Race[4]						
American Indian or Alaska Native	1,209	0.4%	220	0.5%	-0.073	-0.011
Asian	7,979	2.6%	1,401	2.9%	-0.382	-0.024
Black or African American	32,690	10.5%	5,358	11.2%	-0.766	-0.025
Multi-racial	5,991	1.9%	784	1.6%	0.275	0.021
Native Hawaiian or Other Pacific Islander	392	0.1%	71	0.1%	-0.023	-0.006
Unknown	100,895	32.3%	15,236	31.9%	0.364	0.008
White	163,161	52.2%	24,631	51.6%	0.606	0.012
Hispanic origin						
Yes	12,530	4.0%	2,123	4.5%	-0.439	-0.022
No	160,471	51.4%	25,581	53.6%	-2.249	-0.055
Unknown	139,316	44.6%	19,995	41.9%	2.688	0.065
ZCTA Social Deprivation Index Score, National Quartile*,5						

Table 1o. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment (Propensity Score Stratum Weighted, Trimmed, Percentiles: 50, Weight: Average Treatment Effect in the Treated (ATT)), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 50-64 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Q1 (Least deprived)	82,351	26.4%	12,416	26.0%	0.338	0.008
Q2	79,776	25.5%	12,151	25.5%	0.071	0.002
Q3	81,648	26.1%	12,558	26.3%	-0.184	-0.004
Q4 (Most deprived)	65,922	21.1%	10,026	21.0%	0.089	0.002
Unknown	2,620	0.8%	550	1.2%	-0.313	-0.041
Year-Quarter of Exposure*						
2020 Quarter 2	22,797	7.3%	3,525	7.4%	-0.092	-0.004
2020 Quarter 3	30,355	9.7%	4,724	9.9%	-0.184	-0.006
2020 Quarter 4	28,632	9.2%	4,372	9.2%	0.002	0.000
2021 Quarter 1	27,643	8.9%	4,192	8.8%	0.062	0.002
2021 Quarter 2	25,252	8.1%	3,849	8.1%	0.017	0.001
2021 Quarter 3	27,281	8.7%	4,152	8.7%	0.031	0.001
2021 Quarter 4	26,183	8.4%	3,936	8.3%	0.132	0.005
2022 Quarter 1	24,201	7.7%	3,734	7.8%	-0.079	-0.003
2022 Quarter 2	23,215	7.4%	3,536	7.4%	0.021	0.001
2022 Quarter 3	25,479	8.2%	3,876	8.1%	0.032	0.001
2022 Quarter 4	25,647	8.2%	3,899	8.2%	0.038	0.001
2023 Quarter 1	25,632	8.2%	3,906	8.2%	0.019	0.001
Health Characteristics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Claims-Based frailty index*,6	0.1	0.0	0.1	0.0	-0.001	-0.012
Claims-Based frailty index categories						
<=0.2	284,305	91.0%	43,400	91.0%	0.046	0.002
>0.2	28,012	9.0%	4,300	9.0%	-0.046	-0.002
Combined comorbidity score*,7	1.0	2.1	1.0	2.1	-0.023	-0.011
Diabetes*	68,260	21.9%	10,520	22.1%	-0.200	-0.005
Obesity*	92,061	29.5%	14,061	29.5%	-0.001	-0.000
Hypertension*	165,576	53.0%	25,359	53.2%	-0.149	-0.003

Table 1o. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment (Propensity Score Stratum Weighted, Trimmed, Percentiles: 50, Weight: Average Treatment Effect in the Treated (ATT)), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 50-64 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Hospitalized Stroke/Transient Ischemic Attack	2,225	0.7%	412	0.9%	-0.151	-0.017
Coronary Revascularization	2,909	0.9%	463	1.0%	-0.038	-0.004
Atrial Fibrillation*	10,190	3.3%	1,613	3.4%	-0.119	-0.007
Congestive Heart Failure*	13,226	4.2%	2,105	4.4%	-0.178	-0.009
Hospitalized Acute Myocardial Infarction	2,636	0.8%	395	0.8%	0.015	0.002
Other Cerebrovascular Disease*	9,700	3.1%	1,515	3.2%	-0.071	-0.004
Chronic Obstructive Pulmonary Disease*	28,885	9.2%	4,530	9.5%	-0.247	-0.009
Asthma without COPD*	32,696	10.5%	5,035	10.6%	-0.087	-0.003
Chronic Liver Disease*	26,456	8.5%	4,029	8.4%	0.024	0.001
Chronic Kidney Disease*	43,411	13.9%	6,676	14.0%	-0.097	-0.003
Any Malignant Neoplasm*	33,465	10.7%	5,153	10.8%	-0.088	-0.003
Hemiplegia	2,742	0.9%	472	1.0%	-0.111	-0.012
Neurological/Neurodegenerative Conditions	883	0.3%	149	0.3%	-0.030	-0.006
Dementia*	1,210	0.4%	199	0.4%	-0.029	-0.005
Depression*	57,217	18.3%	8,946	18.8%	-0.434	-0.011
Schizophrenia	2,724	0.9%	535	1.1%	-0.249	-0.025
Rheumatic Disorders*	8,815	2.8%	1,353	2.8%	-0.015	-0.001
Multiple Sclerosis	2,137	0.7%	329	0.7%	-0.006	-0.001
HIV/AIDS	1,371	0.4%	369	0.8%	-0.334	-0.043
Coronary Artery Disease*	37,910	12.1%	5,803	12.2%	-0.027	-0.001
Immunodeficiency*	33,024	10.6%	5,090	10.7%	-0.096	-0.003
Smoking or Nicotine Use	65,141	20.9%	10,013	21.0%	-0.134	-0.003
Hyperlipidemia*	158,103	50.6%	24,088	50.5%	0.123	0.002
Medical Product Use	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Angiotensin Converting Enzyme Inhibitors/Angiotensin Receptor Blockers*	111,269	35.6%	17,071	35.8%	-0.161	-0.003

Table 1o. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment (Propensity Score Stratum Weighted, Trimmed, Percentiles: 50, Weight: Average Treatment Effect in the Treated (ATT)), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 50-64 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Non-Steroidal Anti-Inflammatory Drugs*	78,209	25.0%	11,960	25.1%	-0.032	-0.001
Aspirin	6,647	2.1%	1,174	2.5%	-0.334	-0.022
Antidepressants*	106,647	34.1%	16,594	34.8%	-0.642	-0.014
Statins*	116,092	37.2%	17,808	37.3%	-0.163	-0.003
Insulin*	19,228	6.2%	2,994	6.3%	-0.120	-0.005
Anti-Diabetic Oral Drugs*	49,564	15.9%	7,639	16.0%	-0.145	-0.004
Antihypertensive Drugs*	120,170	38.5%	18,477	38.7%	-0.258	-0.005
Anticoagulants*	14,774	4.7%	2,296	4.8%	-0.082	-0.004
Glucocorticoids*	78,280	25.1%	11,979	25.1%	-0.050	-0.001
Acetaminophen	52,171	16.7%	7,947	16.7%	0.043	0.001
Tumor Necrosis Factor Inhibitors	2,669	0.9%	384	0.8%	0.050	0.005
Immunosuppressants*	16,053	5.1%	2,494	5.2%	-0.088	-0.004
Inhaled Corticosteroids*	25,802	8.3%	4,014	8.4%	-0.153	-0.006
COVID-19 Vaccine*	83,667	26.8%	12,699	26.6%	0.167	0.004
Health Service Utilization Intensity Metrics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Mean number of ambulatory encounters*	9.8	10.8	9.9	10.7	-0.087	-0.008
Mean number of emergency room encounters*	0.4	1.4	0.4	1.5	-0.007	-0.005
Mean number of inpatient hospital encounters	0.1	0.5	0.1	0.5	-0.002	-0.005
Mean number of non-acute institutional encounters*	0.0	0.2	0.0	0.2	-0.001	-0.004
Mean number of other ambulatory encounters*	2.2	4.9	2.4	5.3	-0.123	-0.024
Mean number of filled prescriptions*	15.3	13.5	15.5	13.6	-0.178	-0.013
Mean number of generics dispensed*	7.7	4.8	7.8	4.8	-0.077	-0.016
Mean number of unique drug classes dispensed*	7.3	4.4	7.3	4.4	-0.069	-0.016

Table 1o. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment (Propensity Score Stratum Weighted, Trimmed, Percentiles: 50, Weight: Average Treatment Effect in the Treated (ATT)), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 50-64 years (Outcome: COVID-19 Hospitalization)

	Medical Product		Covariate Balance
	Proton Pump Inhibitor New Users	Famotidine New Users	

[*]Covariate included in the propensity score logistic regression model.

[1]Covariates in blue show (if displayed) a standardized difference greater than 0.1.

[2]Weighted patient characteristics tables facilitate the assessment of covariate balance after propensity score (PS) stratum weighting and should not be interpreted as a description of the unweighted population. Treated patients are assigned a weight of 1, and control patients are weighted by the proportion of the total treated patient population included in their PS stratum divided by the proportion of the total control patient population included in their PS stratum.

[3]Value represents standard deviation where no % follows the value.

[4]Race data may not be completely populated at all Data Partners; therefore, data about race may be incomplete.

[5]The Social Deprivation Index score is a composite measure of zip code tabulation area (ZCTA)-level deprivation constructed from seven demographic and household characteristics collected in the American Community Survey, where higher values indication greater levels of deprivation. For this project, each patient's most recent geographic information is used. For more information, see Butler DC et al. Health Services Research. 2013;48(2pt1):539-559. doi:10.1111/j.1475-6773.2012.01449.x.

[6]Kim DH, Schneeweiss S, Glynn RJ, Lipsitz LA, Rockwood K, Avorn J. Measuring frailty in Medicare data: development and validation of a claims-based frailty index. J Gerontol A Biol Sci Med Sci. 2018;73(7)980-987.

[7]Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A combined comorbidity score predicted mortality in elderly patients better than existing scores. J Clin Epidemiol. 2011;64(7):749-759. Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and validation of the combined comorbidity score for ICD-10-CM. Med Care. 2017;55(12):1046-1051.

N/A: Not Applicable

Table 1p. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment (Propensity Score Stratum Weighted, Trimmed, Percentiles: 50, Weight: Average Treatment Effect in the Treated (ATT)), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years (Outcome: COVID-19 Hospitalization)

	Medical Product		Covariate Balance
	Proton Pump Inhibitor New Users	Famotidine New Users	

Table 1q. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment (Propensity Score Stratum Weighted, Trimmed, Percentiles: 50, Weight: Average Treatment Effect in the Treated (ATT)), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: ≥ 75 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Patient Characteristics[1,2]	Number/Mean	Percent/ Standard Deviation[3]	Number/Mean	Percent/ Standard Deviation[3]	Absolute Difference	Standardized Difference
Weighted patients	162,928	N/A	35,912	N/A	N/A	N/A
Demographic Characteristics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Age (years)*	81.4	5.0	81.3	5.0	0.036	0.007
Age*						
18-49 years	0	0.0%	0	0.0%	NaN	NaN
50-64 years	0	0.0%	0	0.0%	NaN	NaN
65-74 years	0	0.0%	0	0.0%	NaN	NaN
≥ 75 years	162,928	100.0%	35,912	100.0%	0.000	NaN
Sex*						
Female	101,563	62.3%	22,417	62.4%	-0.085	-0.002
Male	61,365	37.7%	13,495	37.6%	0.085	0.002
Race[4]						
American Indian or Alaska Native	463	0.3%	94	0.3%	0.023	0.004
Asian	3,163	1.9%	763	2.1%	-0.182	-0.013
Black or African American	20,049	12.3%	4,657	13.0%	-0.663	-0.020
Multi-racial	334	0.2%	81	0.2%	-0.022	-0.005
Native Hawaiian or Other Pacific Islander	1,526	0.9%	376	1.0%	-0.112	-0.011
Unknown	11,498	7.1%	2,638	7.3%	-0.289	-0.012
White	125,895	77.3%	27,302	76.0%	1.245	0.030
Hispanic origin						
Yes	3,308	2.0%	819	2.3%	-0.250	-0.017
No	115,792	71.1%	25,050	69.8%	1.315	0.060
Unknown	43,828	26.9%	10,043	28.0%	-1.064	-0.055
ZCTA Social Deprivation Index Score, National Quartile*,5						
Q1 (Least deprived)	39,987	24.5%	8,816	24.5%	-0.005	-0.000

Table 1q. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment (Propensity Score Stratum Weighted, Trimmed, Percentiles: 50, Weight: Average Treatment Effect in the Treated (ATT)), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: ≥ 75 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Q2	44,927	27.6%	9,870	27.5%	0.092	0.002
Q3	43,447	26.7%	9,452	26.3%	0.348	0.008
Q4 (Most deprived)	33,741	20.7%	7,491	20.9%	-0.151	-0.004
Unknown	826	0.5%	284	0.8%	-0.284	-0.044
Year-Quarter of Exposure[*]						
2020 Quarter 2	9,874	6.1%	2,170	6.0%	0.019	0.001
2020 Quarter 3	15,410	9.5%	3,364	9.4%	0.090	0.003
2020 Quarter 4	14,638	9.0%	3,287	9.2%	-0.168	-0.006
2021 Quarter 1	13,846	8.5%	3,054	8.5%	-0.007	-0.000
2021 Quarter 2	14,120	8.7%	3,129	8.7%	-0.047	-0.002
2021 Quarter 3	15,698	9.6%	3,512	9.8%	-0.144	-0.005
2021 Quarter 4	14,848	9.1%	3,276	9.1%	-0.008	-0.000
2022 Quarter 1	12,598	7.7%	2,777	7.7%	-0.001	-0.000
2022 Quarter 2	12,496	7.7%	2,773	7.7%	-0.053	-0.002
2022 Quarter 3	12,923	7.9%	2,837	7.9%	0.031	0.001
2022 Quarter 4	13,087	8.0%	2,852	7.9%	0.091	0.003
2023 Quarter 1	13,390	8.2%	2,881	8.0%	0.196	0.007
Health Characteristics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Claims-Based frailty index[*,6]	0.2	0.1	0.2	0.1	-0.000	-0.002
Claims-Based frailty index categories						
<=0.2	115,147	70.7%	25,460	70.9%	-0.221	-0.005
>0.2	47,781	29.3%	10,452	29.1%	0.221	0.005
Combined comorbidity score[*,7]	3.0	3.4	3.0	3.4	0.001	0.000
Diabetes[*]	52,019	31.9%	11,485	32.0%	-0.053	-0.001
Obesity[*]	33,758	20.7%	7,371	20.5%	0.195	0.005
Hypertension[*]	134,497	82.5%	29,578	82.4%	0.186	0.005
Hospitalized Stroke/Transient Ischemic Attack	4,885	3.0%	1,151	3.2%	-0.206	-0.012
Coronary Revascularization	3,318	2.0%	792	2.2%	-0.168	-0.012

Table 1q. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment (Propensity Score Stratum Weighted, Trimmed, Percentiles: 50, Weight: Average Treatment Effect in the Treated (ATT)), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: ≥ 75 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Atrial Fibrillation*	31,052	19.1%	6,906	19.2%	-0.171	-0.004
Congestive Heart Failure*	29,799	18.3%	6,522	18.2%	0.130	0.003
Hospitalized Acute Myocardial Infarction	4,504	2.8%	1,017	2.8%	-0.066	-0.004
Other Cerebrovascular Disease*	20,846	12.8%	4,630	12.9%	-0.098	-0.003
Chronic Obstructive Pulmonary Disease*	32,659	20.0%	7,188	20.0%	0.030	0.001
Asthma without COPD*	13,583	8.3%	3,067	8.5%	-0.204	-0.007
Chronic Liver Disease*	10,710	6.6%	2,370	6.6%	-0.026	-0.001
Chronic Kidney Disease*	52,800	32.4%	11,427	31.8%	0.589	0.013
Any Malignant Neoplasm*	44,361	27.2%	9,958	27.7%	-0.503	-0.011
Hemiplegia	4,001	2.5%	1,035	2.9%	-0.425	-0.026
Neurological/Neurodegenerative Conditions	3,004	1.8%	678	1.9%	-0.044	-0.003
Dementia*	16,134	9.9%	3,581	10.0%	-0.070	-0.002
Depression*	31,816	19.5%	6,997	19.5%	0.044	0.001
Schizophrenia	424	0.3%	91	0.3%	0.006	0.001
Rheumatic Disorders*	5,658	3.5%	1,282	3.6%	-0.098	-0.005
Multiple Sclerosis	446	0.3%	96	0.3%	0.007	0.001
HIV/AIDS	120	0.1%	34	0.1%	-0.020	-0.007
Coronary Artery Disease*	63,139	38.8%	13,917	38.8%	-0.001	-0.000
Immunodeficiency*	24,122	14.8%	5,383	15.0%	-0.185	-0.005
Smoking or Nicotine Use	40,224	24.7%	8,897	24.8%	-0.085	-0.002
Hyperlipidemia*	120,156	73.7%	26,349	73.4%	0.377	0.009
Medical Product Use	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Angiotensin Converting Enzyme Inhibitors/Angiotensin Receptor Blockers*	85,370	52.4%	18,707	52.1%	0.307	0.006
Non-Steroidal Anti-Inflammatory Drugs*	26,576	16.3%	5,824	16.2%	0.095	0.003
Aspirin	765	0.5%	227	0.6%	-0.162	-0.022
Antidepressants*	49,838	30.6%	11,004	30.6%	-0.054	-0.001

Table 1q. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment (Propensity Score Stratum Weighted, Trimmed, Percentiles: 50, Weight: Average Treatment Effect in the Treated (ATT)), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: ≥ 75 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Statins*	97,015	59.5%	21,321	59.4%	0.175	0.004
Insulin*	10,869	6.7%	2,382	6.6%	0.039	0.002
Anti-Diabetic Oral Drugs*	31,322	19.2%	6,886	19.2%	0.050	0.001
Antihypertensive Drugs*	92,560	56.8%	20,302	56.5%	0.277	0.006
Anticoagulants*	28,069	17.2%	6,208	17.3%	-0.060	-0.002
Glucocorticoids*	35,227	21.6%	7,887	22.0%	-0.341	-0.008
Acetaminophen	23,902	14.7%	5,003	13.9%	0.739	0.021
Tumor Necrosis Factor Inhibitors	354	0.2%	81	0.2%	-0.009	-0.002
Immunosuppressants*	13,207	8.1%	2,954	8.2%	-0.120	-0.004
Inhaled Corticosteroids*	15,052	9.2%	3,320	9.2%	-0.007	-0.000
COVID-19 Vaccine*	45,071	27.7%	10,199	28.4%	-0.736	-0.017
Health Service Utilization Intensity Metrics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Mean number of ambulatory encounters*	12.6	12.0	12.8	12.0	-0.223	-0.019
Mean number of emergency room encounters*	0.9	1.9	0.9	2.0	-0.022	-0.011
Mean number of inpatient hospital encounters	0.3	0.7	0.3	0.7	-0.010	-0.015
Mean number of non-acute institutional encounters*	0.1	0.4	0.1	0.4	-0.000	-0.001
Mean number of other ambulatory encounters*	3.1	6.8	3.3	7.1	-0.155	-0.022
Mean number of filled prescriptions*	17.1	12.3	17.1	12.1	-0.008	-0.001
Mean number of generics dispensed*	9.0	4.5	9.0	4.5	-0.027	-0.006
Mean number of unique drug classes dispensed*	8.6	4.1	8.6	4.1	-0.026	-0.006

Table 1q. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment (Propensity Score Stratum Weighted, Trimmed, Percentiles: 50, Weight: Average Treatment Effect in the Treated (ATT)), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: ≥ 75 years (Outcome: COVID-19 Hospitalization)

	Medical Product		Covariate Balance
	Proton Pump Inhibitor New Users	Famotidine New Users	

[*]Covariate included in the propensity score logistic regression model.

[1]Covariates in blue show (if displayed) a standardized difference greater than 0.1.

[2]Weighted patient characteristics tables facilitate the assessment of covariate balance after propensity score (PS) stratum weighting and should not be interpreted as a description of the unweighted population. Treated patients are assigned a weight of 1, and control patients are weighted by the proportion of the total treated patient population included in their PS stratum divided by the proportion of the total control patient population included in their PS stratum.

[3]Value represents standard deviation where no % follows the value.

[4]Race data may not be completely populated at all Data Partners; therefore, data about race may be incomplete.

[5]The Social Deprivation Index score is a composite measure of zip code tabulation area (ZCTA)-level deprivation constructed from seven demographic and household characteristics collected in the American Community Survey, where higher values indication greater levels of deprivation. For this project, each patient's most recent geographic information is used. For more information, see Butler DC et al. Health Services Research. 2013;48(2pt1):539-559. doi:10.1111/j.1475-6773.2012.01449.x.

[6]Kim DH, Schneeweiss S, Glynn RJ, Lipsitz LA, Rockwood K, Avorn J. Measuring frailty in Medicare data: development and validation of a claims-based frailty index. J Gerontol A Biol Sci Med Sci. 2018;73(7)980-987.

[7]Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A combined comorbidity score predicted mortality in elderly patients better than existing scores. J Clin Epidemiol. 2011;64(7):749-759. Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and validation of the combined comorbidity score for ICD-10-CM. Med Care. 2017;55(12):1046-1051.

N/A: Not Applicable

Table 1r. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights (Overlap Weighted, Weight: ATO), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024 (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Patient Characteristics[1]	Number/Mean	Percent/ Standard Deviation[2]	Number/Mean	Percent/ Standard Deviation[2]	Absolute Difference	Standardized Difference
Weighted patients	152,274	N/A	152,274	N/A	N/A	N/A
Demographic Characteristics	**Number/Mean**	**Percent/ Standard Deviation[2]**	**Number/Mean**	**Percent/ Standard Deviation[2]**	**Absolute Difference**	**Standardized Difference**
Age (years)*	59.3	15.3	59.3	15.6	0.000	0.000
Age*						
18-49 years	43,649	28.7%	43,649	28.7%	-0.000	-0.000
50-64 years	40,926	26.9%	40,926	26.9%	-0.000	-0.000
65-74 years	38,864	25.5%	38,864	25.5%	0.000	0.000
≥ 75 years	28,835	18.9%	28,835	18.9%	0.000	0.000
Sex*						
Female	96,094	63.1%	96,094	63.1%	-0.000	-0.000
Male	56,180	36.9%	56,180	36.9%	0.000	0.000
Race[3]						
American Indian or Alaska Native	521	0.3%	552	0.4%	-0.020	-0.003
Asian	4,735	3.1%	5,114	3.4%	-0.249	-0.014
Black or African American	18,287	12.0%	19,318	12.7%	-0.677	-0.021
Multi-racial	2,011	1.3%	1,924	1.3%	0.057	0.005
Native Hawaiian or Other Pacific Islander	664	0.4%	754	0.5%	-0.059	-0.009
Unknown	37,796	24.8%	37,553	24.7%	0.160	0.004
White	88,259	58.0%	87,058	57.2%	0.789	0.016
Hispanic origin						
Yes	6,053	4.0%	6,603	4.3%	-0.361	-0.018
No	87,367	57.4%	87,338	57.4%	0.018	0.000
Unknown	58,855	38.7%	58,332	38.3%	0.343	0.009
ZCTA Social Deprivation Index Score, National Quartile*,4						
Q1 (Least deprived)	37,291	24.5%	37,291	24.5%	-0.000	-0.000
Q2	38,628	25.4%	38,628	25.4%	0.000	0.000

Table 1r. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights (Overlap Weighted, Weight: ATO), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024 (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Q3	39,834	26.2%	39,834	26.2%	0.000	0.000
Q4 (Most deprived)	34,822	22.9%	34,822	22.9%	0.000	0.000
Unknown	1,698	1.1%	1,698	1.1%	-0.000	-0.000
Year-Quarter of Exposure*						
2020 Quarter 2	9,025	5.9%	9,025	5.9%	-0.000	-0.000
2020 Quarter 3	11,337	7.4%	11,337	7.4%	-0.000	-0.000
2020 Quarter 4	13,897	9.1%	13,897	9.1%	0.000	0.000
2021 Quarter 1	13,854	9.1%	13,854	9.1%	-0.000	-0.000
2021 Quarter 2	13,076	8.6%	13,076	8.6%	0.000	0.000
2021 Quarter 3	14,291	9.4%	14,291	9.4%	0.000	0.000
2021 Quarter 4	13,692	9.0%	13,692	9.0%	0.000	0.000
2022 Quarter 1	12,229	8.0%	12,229	8.0%	-0.000	-0.000
2022 Quarter 2	11,578	7.6%	11,578	7.6%	0.000	0.000
2022 Quarter 3	12,982	8.5%	12,982	8.5%	-0.000	-0.000
2022 Quarter 4	12,933	8.5%	12,933	8.5%	-0.000	-0.000
2023 Quarter 1	13,377	8.8%	13,377	8.8%	-0.000	-0.000
Health Characteristics	**Number/Mean**	**Percent/ Standard Deviation[2]**	**Number/Mean**	**Percent/ Standard Deviation[2]**	**Absolute Difference**	**Standardized Difference**
Claims-Based frailty index*,[5]	0.1	0.1	0.1	0.1	0.000	0.000
Claims-Based frailty index categories						
<=0.2	132,717	87.2%	132,781	87.2%	-0.042	-0.001
>0.2	19,557	12.8%	19,493	12.8%	0.042	0.001
Combined comorbidity score*,[6]	1.5	2.5	1.5	2.4	0.000	0.000
Diabetes*	33,629	22.1%	33,629	22.1%	0.000	0.000
Obesity*	39,496	25.9%	39,496	25.9%	0.000	0.000
Hypertension*	82,158	54.0%	82,158	54.0%	0.000	0.000
Hospitalized Stroke/Transient Ischemic Attack	1,960	1.3%	2,114	1.4%	-0.101	-0.009
Coronary Revascularization	1,657	1.1%	1,777	1.2%	-0.079	-0.007
Atrial Fibrillation*	9,649	6.3%	9,649	6.3%	0.000	0.000
Congestive Heart Failure*	10,719	7.0%	10,719	7.0%	0.000	0.000

Table 1r. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights (Overlap Weighted, Weight: ATO), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024 (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Hospitalized Acute Myocardial Infarction	1,772	1.2%	1,748	1.1%	0.015	0.001
Other Cerebrovascular Disease*	8,443	5.5%	8,443	5.5%	0.000	0.000
Chronic Obstructive Pulmonary Disease*	15,908	10.4%	15,908	10.4%	0.000	0.000
Asthma without COPD*	16,078	10.6%	16,078	10.6%	0.000	0.000
Chronic Liver Disease*	9,863	6.5%	9,863	6.5%	0.000	0.000
Chronic Kidney Disease*	26,776	17.6%	26,776	17.6%	0.000	0.000
Any Malignant Neoplasm*	20,532	13.5%	20,532	13.5%	0.000	0.000
Hemiplegia	1,988	1.3%	2,196	1.4%	-0.137	-0.012
Neurological/Neurodegenerative Conditions	998	0.7%	1,066	0.7%	-0.045	-0.005
Dementia*	4,143	2.7%	4,143	2.7%	0.000	0.000
Depression*	27,985	18.4%	27,985	18.4%	0.000	0.000
Schizophrenia	1,052	0.7%	1,227	0.8%	-0.115	-0.013
Rheumatic Disorders*	3,973	2.6%	3,973	2.6%	0.000	0.000
Multiple Sclerosis	774	0.5%	746	0.5%	0.019	0.003
HIV/AIDS	430	0.3%	707	0.5%	-0.182	-0.030
Coronary Artery Disease*	26,493	17.4%	26,493	17.4%	0.000	0.000
Immunodeficiency*	16,659	10.9%	16,659	10.9%	0.000	0.000
Smoking or Nicotine Use	30,343	19.9%	30,164	19.8%	0.118	0.003
Hyperlipidemia*	77,614	51.0%	77,614	51.0%	0.000	0.000
Medical Product Use	**Number/Mean**	**Percent/ Standard Deviation[2]**	**Number/Mean**	**Percent/ Standard Deviation[2]**	**Absolute Difference**	**Standardized Difference**
Angiotensin Converting Enzyme Inhibitors/Angiotensin Receptor Blockers*	53,416	35.1%	53,416	35.1%	0.000	0.000
Non-Steroidal Anti-Inflammatory Drugs*	31,303	20.6%	31,303	20.6%	-0.000	-0.000
Aspirin	1,619	1.1%	1,915	1.3%	-0.195	-0.018
Antidepressants*	47,295	31.1%	47,295	31.1%	0.000	0.000
Statins*	58,652	38.5%	58,652	38.5%	0.000	0.000
Insulin*	8,443	5.5%	8,443	5.5%	0.000	0.000
Anti-Diabetic Oral Drugs*	23,060	15.1%	23,060	15.1%	0.000	0.000

Table 1r. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights (Overlap Weighted, Weight: ATO), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024 (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Antihypertensive Drugs*	58,273	38.3%	58,272	38.3%	0.000	0.000
Anticoagulants*	10,456	6.9%	10,456	6.9%	0.000	0.000
Glucocorticoids*	34,724	22.8%	34,724	22.8%	0.000	0.000
Acetaminophen	21,140	13.9%	20,933	13.7%	0.136	0.004
Tumor Necrosis Factor Inhibitors	919	0.6%	860	0.6%	0.039	0.005
Immunosuppressants*	8,483	5.6%	8,483	5.6%	0.000	0.000
Inhaled Corticosteroids*	12,350	8.1%	12,350	8.1%	0.000	0.000
COVID-19 Vaccine*	41,844	27.5%	41,843	27.5%	-0.000	-0.000
Health Service Utilization Intensity Metrics	**Number/Mean**	**Percent/ Standard Deviation[2]**	**Number/Mean**	**Percent/ Standard Deviation[2]**	**Absolute Difference**	**Standardized Difference**
Mean number of ambulatory encounters*	10.3	11.3	10.3	11.0	0.000	0.000
Mean number of emergency room encounters*	0.6	1.6	0.6	1.5	0.000	0.000
Mean number of inpatient hospital encounters	0.1	0.5	0.1	0.5	-0.004	-0.008
Mean number of non-acute institutional encounters*	0.0	0.3	0.0	0.3	0.000	0.000
Mean number of other ambulatory encounters*	2.5	5.7	2.5	5.6	0.000	0.000
Mean number of filled prescriptions*	14.3	12.6	14.3	12.5	0.000	0.000
Mean number of generics dispensed*	7.5	4.7	7.5	4.6	0.000	0.000
Mean number of unique drug classes dispensed*	7.2	4.3	7.2	4.2	0.000	0.000

Table 1r. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights (Overlap Weighted, Weight: ATO), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024 (Outcome: COVID-19 Hospitalization)

	Medical Product		Covariate Balance
	Proton Pump Inhibitor New Users	Famotidine New Users	

*Covariate included in the propensity score logistic regression model.

[1]Covariates in blue show (if displayed) a standardized difference greater than 0.1.

[2]Value represents standard deviation where no % follows the value.

[3]Race data may not be completely populated at all Data Partners; therefore, data about race may be incomplete.

[4]The Social Deprivation Index score is a composite measure of zip code tabulation area (ZCTA)-level deprivation constructed from seven demographic and household characteristics collected in the American Community Survey, where higher values indication greater levels of deprivation. For this project, each patient's most recent geographic information is used. For more information, see Butler DC et al. Health Services Research. 2013;48(2pt1):539-559. doi:10.1111/j.1475-6773.2012.01449.x.

[5]Kim DH, Schneeweiss S, Glynn RJ, Lipsitz LA, Rockwood K, Avorn J. Measuring frailty in Medicare data: development and validation of a claims-based frailty index. J Gerontol A Biol Sci Med Sci. 2018;73(7)980-987.

[6]Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A combined comorbidity score predicted mortality in elderly patients better than existing scores. J Clin Epidemiol. 2011;64(7):749-759. Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and validation of the combined comorbidity score for ICD-10-CM. Med Care. 2017;55(12):1046-1051.

N/A: Not Applicable

Table 1s. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights (Overlap Weighted, Weight: ATO), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Patient Characteristics[1]	Number/Mean	Percent/ Standard Deviation[2]	Number/Mean	Percent/ Standard Deviation[2]	Absolute Difference	Standardized Difference
Weighted patients	43,274	N/A	43,273	N/A	N/A	N/A
Demographic Characteristics	**Number/Mean**	**Percent/ Standard Deviation[2]**	**Number/Mean**	**Percent/ Standard Deviation[2]**	**Absolute Difference**	**Standardized Difference**
Age (years)*	36.5	8.8	36.5	8.9	-0.000	-0.000
Age*						
18-49 years	43,274	100.0%	43,273	100.0%	0.000	NaN
50-64 years	0	0.0%	0	0.0%	NaN	NaN
65-74 years	0	0.0%	0	0.0%	NaN	NaN
≥ 75 years	0	0.0%	0	0.0%	NaN	NaN
Sex*						
Female	26,090	60.3%	26,090	60.3%	0.000	0.000
Male	17,183	39.7%	17,183	39.7%	-0.000	-0.000
Race[3]						
American Indian or Alaska Native	157	0.4%	157	0.4%	-0.000	-0.000
Asian	1,810	4.2%	2,014	4.7%	-0.473	-0.023
Black or African American	3,527	8.2%	3,754	8.7%	-0.524	-0.019
Multi-racial	1,026	2.4%	1,008	2.3%	0.042	0.003
Native Hawaiian or Other Pacific Islander	34	0.1%	41	0.1%	-0.018	-0.006
Unknown	17,817	41.2%	17,631	40.7%	0.430	0.009
White	18,903	43.7%	18,668	43.1%	0.543	0.011
Hispanic origin						
Yes	2,323	5.4%	2,452	5.7%	-0.299	-0.013
No	19,472	45.0%	19,612	45.3%	-0.323	-0.007
Unknown	21,478	49.6%	21,209	49.0%	0.622	0.014
ZCTA Social Deprivation Index Score, National Quartile*,4						
Q1 (Least deprived)	11,657	26.9%	11,657	26.9%	0.000	0.000
Q2	10,915	25.2%	10,915	25.2%	0.000	0.000

Table 1s. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights (Overlap Weighted, Weight: ATO), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Q3	10,808	25.0%	10,808	25.0%	0.000	0.000
Q4 (Most deprived)	9,155	21.2%	9,154	21.2%	-0.000	-0.000
Unknown	739	1.7%	739	1.7%	-0.000	-0.000
Year-Quarter of Exposure*						
2020 Quarter 2	2,744	6.3%	2,744	6.3%	0.000	0.000
2020 Quarter 3	3,377	7.8%	3,377	7.8%	0.000	0.000
2020 Quarter 4	3,741	8.6%	3,741	8.6%	0.000	0.000
2021 Quarter 1	3,864	8.9%	3,863	8.9%	-0.000	-0.000
2021 Quarter 2	3,590	8.3%	3,590	8.3%	-0.000	-0.000
2021 Quarter 3	3,921	9.1%	3,921	9.1%	-0.000	-0.000
2021 Quarter 4	3,600	8.3%	3,600	8.3%	-0.000	-0.000
2022 Quarter 1	3,543	8.2%	3,543	8.2%	-0.000	-0.000
2022 Quarter 2	3,188	7.4%	3,188	7.4%	-0.000	-0.000
2022 Quarter 3	3,859	8.9%	3,859	8.9%	0.000	0.000
2022 Quarter 4	3,820	8.8%	3,820	8.8%	0.000	0.000
2023 Quarter 1	4,027	9.3%	4,027	9.3%	-0.000	-0.000
Health Characteristics	**Number/Mean**	**Percent/ Standard Deviation[2]**	**Number/Mean**	**Percent/ Standard Deviation[2]**	**Absolute Difference**	**Standardized Difference**
Claims-Based frailty index*,[5]	0.1	0.0	0.1	0.0	0.000	0.000
Claims-Based frailty index categories						
<=0.2	42,122	97.3%	42,099	97.3%	0.051	0.003
>0.2	1,152	2.7%	1,174	2.7%	-0.051	-0.003
Combined comorbidity score*,[6]	0.6	1.3	0.6	1.3	0.000	0.000
Diabetes*	3,327	7.7%	3,327	7.7%	0.000	0.000
Obesity*	10,709	24.7%	10,709	24.7%	0.000	0.000
Hypertension*	8,912	20.6%	8,912	20.6%	0.000	0.000
Hospitalized Stroke/Transient Ischemic Attack	82	0.2%	90	0.2%	-0.018	-0.004
Coronary Revascularization	73	0.2%	84	0.2%	-0.026	-0.006
Atrial Fibrillation*	223	0.5%	223	0.5%	0.000	0.000
Congestive Heart Failure*	361	0.8%	361	0.8%	0.000	0.000

Table 1s. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights (Overlap Weighted, Weight: ATO), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Hospitalized Acute Myocardial Infarction	86	0.2%	84	0.2%	0.003	0.001
Other Cerebrovascular Disease*	310	0.7%	310	0.7%	-0.000	-0.000
Chronic Obstructive Pulmonary Disease*	613	1.4%	613	1.4%	0.000	0.000
Asthma without COPD*	4,993	11.5%	4,993	11.5%	0.000	0.000
Chronic Liver Disease*	2,012	4.6%	2,011	4.6%	0.000	0.000
Chronic Kidney Disease*	2,234	5.2%	2,234	5.2%	0.000	0.000
Any Malignant Neoplasm*	1,253	2.9%	1,253	2.9%	0.000	0.000
Hemiplegia	109	0.3%	129	0.3%	-0.048	-0.009
Neurological/Neurodegenerative Conditions	14	0.0%	15	0.0%	-0.000	-0.000
Dementia*	22	0.1%	22	0.1%	-0.000	-0.000
Depression*	7,086	16.4%	7,086	16.4%	0.000	0.000
Schizophrenia	349	0.8%	405	0.9%	-0.130	-0.014
Rheumatic Disorders*	486	1.1%	486	1.1%	0.000	0.000
Multiple Sclerosis	202	0.5%	191	0.4%	0.025	0.004
HIV/AIDS	133	0.3%	189	0.4%	-0.131	-0.021
Coronary Artery Disease*	897	2.1%	897	2.1%	0.000	0.000
Immunodeficiency*	2,837	6.6%	2,837	6.6%	0.000	0.000
Smoking or Nicotine Use	5,540	12.8%	5,478	12.7%	0.144	0.004
Hyperlipidemia*	8,269	19.1%	8,269	19.1%	0.000	0.000
Medical Product Use	**Number/Mean**	**Percent/ Standard Deviation[2]**	**Number/Mean**	**Percent/ Standard Deviation[2]**	**Absolute Difference**	**Standardized Difference**
Angiotensin Converting Enzyme Inhibitors/Angiotensin Receptor Blockers*	5,033	11.6%	5,033	11.6%	0.000	0.000
Non-Steroidal Anti-Inflammatory Drugs*	8,355	19.3%	8,355	19.3%	0.000	0.000
Aspirin	344	0.8%	448	1.0%	-0.240	-0.025
Antidepressants*	12,759	29.5%	12,759	29.5%	0.000	0.000
Statins*	3,700	8.5%	3,700	8.5%	-0.000	-0.000
Insulin*	1,035	2.4%	1,035	2.4%	0.000	0.000
Anti-Diabetic Oral Drugs*	2,588	6.0%	2,588	6.0%	0.000	0.000

Table 1s. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights (Overlap Weighted, Weight: ATO), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Antihypertensive Drugs*	6,315	14.6%	6,314	14.6%	0.000	0.000
Anticoagulants*	570	1.3%	570	1.3%	0.000	0.000
Glucocorticoids*	8,904	20.6%	8,904	20.6%	0.000	0.000
Acetaminophen	4,490	10.4%	4,497	10.4%	-0.018	-0.001
Tumor Necrosis Factor Inhibitors	314	0.7%	292	0.7%	0.052	0.006
Immunosuppressants*	1,111	2.6%	1,111	2.6%	0.000	0.000
Inhaled Corticosteroids*	2,418	5.6%	2,418	5.6%	-0.000	-0.000
COVID-19 Vaccine*	10,703	24.7%	10,703	24.7%	-0.000	-0.000
Health Service Utilization Intensity Metrics	**Number/Mean**	**Percent/ Standard Deviation[2]**	**Number/Mean**	**Percent/ Standard Deviation[2]**	**Absolute Difference**	**Standardized Difference**
Mean number of ambulatory encounters*	8.0	9.7	8.0	9.5	0.000	0.000
Mean number of emergency room encounters*	0.4	1.4	0.4	1.2	0.000	0.000
Mean number of inpatient hospital encounters	0.1	0.4	0.1	0.4	0.003	0.008
Mean number of non-acute institutional encounters*	0.0	0.2	0.0	0.1	-0.000	-0.000
Mean number of other ambulatory encounters*	2.2	4.7	2.2	4.5	0.000	0.000
Mean number of filled prescriptions*	9.7	10.6	9.7	10.5	0.000	0.000
Mean number of generics dispensed*	5.5	4.2	5.5	4.1	0.000	0.000
Mean number of unique drug classes dispensed*	5.3	3.8	5.3	3.8	0.000	0.000

Table 1s. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights (Overlap Weighted, Weight: ATO), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years (Outcome: COVID-19 Hospitalization)

	Medical Product		Covariate Balance
	Proton Pump Inhibitor New Users	Famotidine New Users	

[*]Covariate included in the propensity score logistic regression model.

[1]Covariates in blue show (if displayed) a standardized difference greater than 0.1.

[2]Value represents standard deviation where no % follows the value.

[3]Race data may not be completely populated at all Data Partners; therefore, data about race may be incomplete.

[4]The Social Deprivation Index score is a composite measure of zip code tabulation area (ZCTA)-level deprivation constructed from seven demographic and household characteristics collected in the American Community Survey, where higher values indication greater levels of deprivation. For this project, each patient's most recent geographic information is used. For more information, see Butler DC et al. Health Services Research. 2013;48(2pt1):539-559. doi:10.1111/j.1475-6773.2012.01449.x.

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[6]Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A combined comorbidity score predicted mortality in elderly patients better than existing scores. J Clin Epidemiol. 2011;64(7):749-759. Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and validation of the combined comorbidity score for ICD-10-CM. Med Care. 2017;55(12):1046-1051.

N/A: Not Applicable

Table 1t. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights (Overlap Weighted, Weight: ATO), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 50-64 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Patient Characteristics[1]	Number/Mean	Percent/ Standard Deviation[2]	Number/Mean	Percent/ Standard Deviation[2]	Absolute Difference	Standardized Difference
Weighted patients	40,805	N/A	40,805	N/A	N/A	N/A
Demographic Characteristics	**Number/Mean**	**Percent/ Standard Deviation[2]**	**Number/Mean**	**Percent/ Standard Deviation[2]**	**Absolute Difference**	**Standardized Difference**
Age (years)*	58.0	4.2	58.0	4.3	0.000	0.000
Age*						
18-49 years	0	0.0%	0	0.0%	NaN	NaN
50-64 years	40,805	100.0%	40,805	100.0%	0.000	NaN
65-74 years	0	0.0%	0	0.0%	NaN	NaN
≥ 75 years	0	0.0%	0	0.0%	NaN	NaN
Sex*						
Female	25,302	62.0%	25,302	62.0%	-0.000	-0.000
Male	15,503	38.0%	15,503	38.0%	0.000	0.000
Race[3]						
American Indian or Alaska Native	163	0.4%	190	0.5%	-0.064	-0.010
Asian	1,065	2.6%	1,227	3.0%	-0.397	-0.024
Black or African American	4,610	11.3%	4,876	11.9%	-0.652	-0.021
Multi-racial	687	1.7%	681	1.7%	0.014	0.001
Native Hawaiian or Other Pacific Islander	55	0.1%	54	0.1%	0.001	0.000
Unknown	12,959	31.8%	12,885	31.6%	0.181	0.004
White	21,265	52.1%	20,891	51.2%	0.917	0.018
Hispanic origin						
Yes	1,650	4.0%	1,872	4.6%	-0.544	-0.027
No	21,937	53.8%	21,920	53.7%	0.042	0.001
Unknown	17,217	42.2%	17,012	41.7%	0.502	0.012
ZCTA Social Deprivation Index Score, National Quartile*,4						
Q1 (Least deprived)	10,272	25.2%	10,272	25.2%	-0.000	-0.000
Q2	10,015	24.5%	10,015	24.5%	-0.000	-0.000

Table 1t. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights (Overlap Weighted, Weight: ATO), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 50-64 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Q3	10,621	26.0%	10,621	26.0%	0.000	0.000
Q4 (Most deprived)	9,465	23.2%	9,465	23.2%	0.000	0.000
Unknown	431	1.1%	431	1.1%	-0.000	-0.000
Year-Quarter of Exposure*						
2020 Quarter 2	2,580	6.3%	2,580	6.3%	0.000	0.000
2020 Quarter 3	3,042	7.5%	3,042	7.5%	0.000	0.000
2020 Quarter 4	3,833	9.4%	3,833	9.4%	-0.000	-0.000
2021 Quarter 1	3,760	9.2%	3,760	9.2%	-0.000	-0.000
2021 Quarter 2	3,365	8.2%	3,365	8.2%	0.000	0.000
2021 Quarter 3	3,674	9.0%	3,674	9.0%	-0.000	-0.000
2021 Quarter 4	3,611	8.8%	3,611	8.8%	0.000	0.000
2022 Quarter 1	3,289	8.1%	3,289	8.1%	-0.000	-0.000
2022 Quarter 2	3,094	7.6%	3,094	7.6%	0.000	0.000
2022 Quarter 3	3,507	8.6%	3,507	8.6%	0.000	0.000
2022 Quarter 4	3,499	8.6%	3,499	8.6%	-0.000	-0.000
2023 Quarter 1	3,552	8.7%	3,552	8.7%	-0.000	-0.000
Health Characteristics	**Number/Mean**	**Percent/ Standard Deviation[2]**	**Number/Mean**	**Percent/ Standard Deviation[2]**	**Absolute Difference**	**Standardized Difference**
Claims-Based frailty index*,[5]	0.1	0.0	0.1	0.0	0.000	0.000
Claims-Based frailty index categories						
<=0.2	36,844	90.3%	36,912	90.5%	-0.169	-0.006
>0.2	3,961	9.7%	3,892	9.5%	0.169	0.006
Combined comorbidity score*,[6]	1.1	2.2	1.1	2.1	0.000	0.000
Diabetes*	9,098	22.3%	9,098	22.3%	0.000	0.000
Obesity*	11,903	29.2%	11,903	29.2%	0.000	0.000
Hypertension*	21,576	52.9%	21,576	52.9%	0.000	0.000
Hospitalized Stroke/Transient Ischemic Attack	374	0.9%	421	1.0%	-0.114	-0.012
Coronary Revascularization	411	1.0%	432	1.1%	-0.052	-0.005
Atrial Fibrillation*	1,321	3.2%	1,321	3.2%	0.000	0.000
Congestive Heart Failure*	1,803	4.4%	1,803	4.4%	0.000	0.000

Table 1t. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights (Overlap Weighted, Weight: ATO), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 50-64 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Hospitalized Acute Myocardial Infarction	376	0.9%	355	0.9%	0.052	0.006
Other Cerebrovascular Disease*	1,493	3.7%	1,493	3.7%	0.000	0.000
Chronic Obstructive Pulmonary Disease*	3,894	9.5%	3,894	9.5%	0.000	0.000
Asthma without COPD*	4,706	11.5%	4,706	11.5%	0.000	0.000
Chronic Liver Disease*	3,208	7.9%	3,208	7.9%	0.000	0.000
Chronic Kidney Disease*	6,024	14.8%	6,024	14.8%	0.000	0.000
Any Malignant Neoplasm*	4,554	11.2%	4,554	11.2%	0.000	0.000
Hemiplegia	455	1.1%	492	1.2%	-0.091	-0.009
Neurological/Neurodegenerative Conditions	123	0.3%	133	0.3%	-0.025	-0.005
Dementia*	199	0.5%	199	0.5%	0.000	0.000
Depression*	7,576	18.6%	7,576	18.6%	0.000	0.000
Schizophrenia	386	0.9%	487	1.2%	-0.248	-0.024
Rheumatic Disorders*	1,241	3.0%	1,241	3.0%	0.000	0.000
Multiple Sclerosis	312	0.8%	292	0.7%	0.047	0.006
HIV/AIDS	186	0.5%	329	0.8%	-0.350	-0.044
Coronary Artery Disease*	5,093	12.5%	5,093	12.5%	0.000	0.000
Immunodeficiency*	4,618	11.3%	4,618	11.3%	0.000	0.000
Smoking or Nicotine Use	8,539	20.9%	8,562	21.0%	-0.055	-0.001
Hyperlipidemia*	20,955	51.4%	20,955	51.4%	0.000	0.000
Medical Product Use	**Number/Mean**	**Percent/ Standard Deviation[2]**	**Number/Mean**	**Percent/ Standard Deviation[2]**	**Absolute Difference**	**Standardized Difference**
Angiotensin Converting Enzyme Inhibitors/Angiotensin Receptor Blockers*	14,306	35.1%	14,306	35.1%	0.000	0.000
Non-Steroidal Anti-Inflammatory Drugs*	10,114	24.8%	10,114	24.8%	-0.000	-0.000
Aspirin	894	2.2%	1,019	2.5%	-0.307	-0.020
Antidepressants*	13,763	33.7%	13,763	33.7%	0.000	0.000
Statins*	15,493	38.0%	15,493	38.0%	0.000	0.000
Insulin*	2,587	6.3%	2,587	6.3%	0.000	0.000
Anti-Diabetic Oral Drugs*	6,574	16.1%	6,574	16.1%	0.000	0.000

Table 1t. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights (Overlap Weighted, Weight: ATO), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 50-64 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Antihypertensive Drugs*	15,426	37.8%	15,426	37.8%	0.000	0.000
Anticoagulants*	1,969	4.8%	1,969	4.8%	0.000	0.000
Glucocorticoids*	10,726	26.3%	10,726	26.3%	0.000	0.000
Acetaminophen	6,772	16.6%	6,622	16.2%	0.368	0.010
Tumor Necrosis Factor Inhibitors	374	0.9%	351	0.9%	0.057	0.006
Immunosuppressants*	2,339	5.7%	2,339	5.7%	0.000	0.000
Inhaled Corticosteroids*	3,644	8.9%	3,644	8.9%	0.000	0.000
COVID-19 Vaccine*	11,624	28.5%	11,624	28.5%	-0.000	-0.000
Health Service Utilization Intensity Metrics	**Number/Mean**	**Percent/ Standard Deviation[2]**	**Number/Mean**	**Percent/ Standard Deviation[2]**	**Absolute Difference**	**Standardized Difference**
Mean number of ambulatory encounters*	10.1	11.4	10.1	11.2	0.000	0.000
Mean number of emergency room encounters*	0.5	1.5	0.5	1.6	0.000	0.000
Mean number of inpatient hospital encounters	0.1	0.5	0.1	0.5	-0.001	-0.002
Mean number of non-acute institutional encounters*	0.0	0.2	0.0	0.2	0.000	0.000
Mean number of other ambulatory encounters*	2.4	5.2	2.4	5.4	0.000	0.000
Mean number of filled prescriptions*	15.6	13.7	15.6	13.6	0.000	0.000
Mean number of generics dispensed*	7.8	4.9	7.8	4.8	0.000	0.000
Mean number of unique drug classes dispensed*	7.4	4.4	7.4	4.4	0.000	0.000

Table 1t. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights (Overlap Weighted, Weight: ATO), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 50-64 years (Outcome: COVID-19 Hospitalization)

	Medical Product		Covariate Balance
	Proton Pump Inhibitor New Users	Famotidine New Users	

[*]Covariate included in the propensity score logistic regression model.

[1]Covariates in blue show (if displayed) a standardized difference greater than 0.1.

[2]Value represents standard deviation where no % follows the value.

[3]Race data may not be completely populated at all Data Partners; therefore, data about race may be incomplete.

[4]The Social Deprivation Index score is a composite measure of zip code tabulation area (ZCTA)-level deprivation constructed from seven demographic and household characteristics collected in the American Community Survey, where higher values indication greater levels of deprivation. For this project, each patient's most recent geographic information is used. For more information, see Butler DC et al. Health Services Research. 2013;48(2pt1):539-559. doi:10.1111/j.1475-6773.2012.01449.x.

[5]Kim DH, Schneeweiss S, Glynn RJ, Lipsitz LA, Rockwood K, Avorn J. Measuring frailty in Medicare data: development and validation of a claims-based frailty index. J Gerontol A Biol Sci Med Sci. 2018;73(7)980-987.

[6]Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A combined comorbidity score predicted mortality in elderly patients better than existing scores. J Clin Epidemiol. 2011;64(7):749-759. Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and validation of the combined comorbidity score for ICD-10-CM. Med Care. 2017;55(12):1046-1051.

N/A: Not Applicable

Table 1u. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights (Overlap Weighted, Weight: ATO), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Patient Characteristics[1]	Number/Mean	Percent/ Standard Deviation[2]	Number/Mean	Percent/ Standard Deviation[2]	Absolute Difference	Standardized Difference
Weighted patients	38,715	N/A	38,715	N/A	N/A	N/A
Demographic Characteristics	**Number/Mean**	**Percent/ Standard Deviation[2]**	**Number/Mean**	**Percent/ Standard Deviation[2]**	**Absolute Difference**	**Standardized Difference**
Age (years)*	69.8	2.8	69.8	2.8	0.000	0.000
Age*						
18-49 years	0	0.0%	0	0.0%	NaN	NaN
50-64 years	0	0.0%	0	0.0%	NaN	NaN
65-74 years	38,715	100.0%	38,715	100.0%	0.000	NaN
≥ 75 years	0	0.0%	0	0.0%	NaN	NaN
Sex*						
Female	25,055	64.7%	25,055	64.7%	-0.000	-0.000
Male	13,660	35.3%	13,660	35.3%	0.000	0.000
Race[3]						
American Indian or Alaska Native	114	0.3%	121	0.3%	-0.018	-0.003
Asian	1,235	3.2%	1,245	3.2%	-0.026	-0.001
Black or African American	6,417	16.6%	6,711	17.3%	-0.758	-0.020
Multi-racial	206	0.5%	152	0.4%	0.139	0.021
Native Hawaiian or Other Pacific Islander	313	0.8%	337	0.9%	-0.061	-0.007
Unknown	4,653	12.0%	4,743	12.3%	-0.232	-0.007
White	25,777	66.6%	25,406	65.6%	0.958	0.020
Hispanic origin						
Yes	1,404	3.6%	1,552	4.0%	-0.381	-0.020
No	25,454	65.7%	25,325	65.4%	0.332	0.012
Unknown	11,857	30.6%	11,838	30.6%	0.049	0.002
ZCTA Social Deprivation Index Score, National Quartile*,4						
Q1 (Least deprived)	8,224	21.2%	8,224	21.2%	-0.000	-0.000
Q2	9,775	25.2%	9,775	25.2%	0.000	0.000

Table 1u. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights (Overlap Weighted, Weight: ATO), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Q3	10,674	27.6%	10,674	27.6%	0.000	0.000
Q4 (Most deprived)	9,764	25.2%	9,764	25.2%	0.000	0.000
Unknown	278	0.7%	278	0.7%	-0.000	-0.000
Year-Quarter of Exposure*						
2020 Quarter 2	2,067	5.3%	2,067	5.3%	-0.000	-0.000
2020 Quarter 3	2,748	7.1%	2,748	7.1%	-0.000	-0.000
2020 Quarter 4	3,606	9.3%	3,606	9.3%	0.000	0.000
2021 Quarter 1	3,544	9.2%	3,544	9.2%	-0.000	-0.000
2021 Quarter 2	3,425	8.8%	3,425	8.8%	0.000	0.000
2021 Quarter 3	3,770	9.7%	3,770	9.7%	0.000	0.000
2021 Quarter 4	3,730	9.6%	3,730	9.6%	-0.000	-0.000
2022 Quarter 1	3,060	7.9%	3,060	7.9%	-0.000	-0.000
2022 Quarter 2	2,956	7.6%	2,956	7.6%	0.000	0.000
2022 Quarter 3	3,222	8.3%	3,222	8.3%	0.000	0.000
2022 Quarter 4	3,264	8.4%	3,264	8.4%	-0.000	-0.000
2023 Quarter 1	3,321	8.6%	3,321	8.6%	0.000	0.000
Health Characteristics	**Number/Mean**	**Percent/ Standard Deviation[2]**	**Number/Mean**	**Percent/ Standard Deviation[2]**	**Absolute Difference**	**Standardized Difference**
Claims-Based frailty index*,[5]	0.2	0.1	0.2	0.1	0.000	0.000
Claims-Based frailty index categories						
<=0.2	32,651	84.3%	32,661	84.4%	-0.027	-0.001
>0.2	6,064	15.7%	6,053	15.6%	0.027	0.001
Combined comorbidity score*,[6]	1.8	2.8	1.8	2.7	0.000	0.000
Diabetes*	12,075	31.2%	12,075	31.2%	0.000	0.000
Obesity*	10,982	28.4%	10,982	28.4%	0.000	0.000
Hypertension*	27,712	71.6%	27,712	71.6%	0.000	0.000
Hospitalized Stroke/Transient Ischemic Attack	651	1.7%	681	1.8%	-0.077	-0.006
Coronary Revascularization	603	1.6%	679	1.8%	-0.196	-0.015
Atrial Fibrillation*	2,989	7.7%	2,989	7.7%	0.000	0.000
Congestive Heart Failure*	3,480	9.0%	3,480	9.0%	0.000	0.000

Table 1u. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights (Overlap Weighted, Weight: ATO), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Hospitalized Acute Myocardial Infarction	587	1.5%	567	1.5%	0.051	0.004
Other Cerebrovascular Disease*	2,884	7.4%	2,884	7.4%	0.000	0.000
Chronic Obstructive Pulmonary Disease*	5,974	15.4%	5,974	15.4%	0.000	0.000
Asthma without COPD*	3,866	10.0%	3,866	10.0%	0.000	0.000
Chronic Liver Disease*	2,991	7.7%	2,991	7.7%	0.000	0.000
Chronic Kidney Disease*	9,101	23.5%	9,101	23.5%	0.000	0.000
Any Malignant Neoplasm*	6,996	18.1%	6,996	18.1%	0.000	0.000
Hemiplegia	701	1.8%	711	1.8%	-0.025	-0.002
Neurological/Neurodegenerative Conditions	324	0.8%	360	0.9%	-0.092	-0.010
Dementia*	876	2.3%	875	2.3%	0.000	0.000
Depression*	7,461	19.3%	7,461	19.3%	0.000	0.000
Schizophrenia	225	0.6%	243	0.6%	-0.047	-0.006
Rheumatic Disorders*	1,255	3.2%	1,255	3.2%	0.000	0.000
Multiple Sclerosis	179	0.5%	181	0.5%	-0.004	-0.001
HIV/AIDS	91	0.2%	156	0.4%	-0.168	-0.030
Coronary Artery Disease*	9,640	24.9%	9,640	24.9%	0.000	0.000
Immunodeficiency*	4,872	12.6%	4,871	12.6%	0.000	0.000
Smoking or Nicotine Use	9,420	24.3%	9,428	24.4%	-0.022	-0.001
Hyperlipidemia*	26,999	69.7%	26,999	69.7%	0.000	0.000
Medical Product Use	**Number/Mean**	**Percent/ Standard Deviation[2]**	**Number/Mean**	**Percent/ Standard Deviation[2]**	**Absolute Difference**	**Standardized Difference**
Angiotensin Converting Enzyme Inhibitors/Angiotensin Receptor Blockers*	18,726	48.4%	18,725	48.4%	0.000	0.000
Non-Steroidal Anti-Inflammatory Drugs*	8,427	21.8%	8,427	21.8%	-0.000	-0.000
Aspirin	220	0.6%	241	0.6%	-0.055	-0.007
Antidepressants*	11,949	30.9%	11,949	30.9%	0.000	0.000
Statins*	22,172	57.3%	22,171	57.3%	0.000	0.000
Insulin*	2,919	7.5%	2,919	7.5%	0.000	0.000
Anti-Diabetic Oral Drugs*	8,417	21.7%	8,417	21.7%	0.000	0.000

Table 1u. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights (Overlap Weighted, Weight: ATO), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Antihypertensive Drugs*	19,926	51.5%	19,926	51.5%	0.000	0.000
Anticoagulants*	3,174	8.2%	3,174	8.2%	0.000	0.000
Glucocorticoids*	8,776	22.7%	8,776	22.7%	0.000	0.000
Acetaminophen	5,925	15.3%	5,888	15.2%	0.095	0.003
Tumor Necrosis Factor Inhibitors	159	0.4%	143	0.4%	0.043	0.007
Immunosuppressants*	2,639	6.8%	2,639	6.8%	0.000	0.000
Inhaled Corticosteroids*	3,631	9.4%	3,631	9.4%	0.000	0.000
COVID-19 Vaccine*	10,975	28.3%	10,975	28.3%	-0.000	-0.000
Health Service Utilization Intensity Metrics	**Number/Mean**	**Percent/ Standard Deviation[2]**	**Number/Mean**	**Percent/ Standard Deviation[2]**	**Absolute Difference**	**Standardized Difference**
Mean number of ambulatory encounters*	11.3	11.7	11.3	11.2	0.000	0.000
Mean number of emergency room encounters*	0.6	1.7	0.6	1.6	0.000	0.000
Mean number of inpatient hospital encounters	0.2	0.5	0.2	0.5	-0.005	-0.009
Mean number of non-acute institutional encounters*	0.1	0.3	0.1	0.3	0.000	0.000
Mean number of other ambulatory encounters*	2.2	5.6	2.2	5.7	0.000	0.000
Mean number of filled prescriptions*	15.9	12.6	15.9	12.3	0.000	0.000
Mean number of generics dispensed*	8.4	4.7	8.4	4.6	0.000	0.000
Mean number of unique drug classes dispensed*	8.0	4.3	8.0	4.2	0.000	0.000

Table 1u. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights (Overlap Weighted, Weight: ATO), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years (Outcome: COVID-19 Hospitalization)

	Medical Product		Covariate Balance
	Proton Pump Inhibitor New Users	Famotidine New Users	

[*] Covariate included in the propensity score logistic regression model.

[1] Covariates in blue show (if displayed) a standardized difference greater than 0.1.

[2] Value represents standard deviation where no % follows the value.

[3] Race data may not be completely populated at all Data Partners; therefore, data about race may be incomplete.

[4] The Social Deprivation Index score is a composite measure of zip code tabulation area (ZCTA)-level deprivation constructed from seven demographic and household characteristics collected in the American Community Survey, where higher values indication greater levels of deprivation. For this project, each patient's most recent geographic information is used. For more information, see Butler DC et al. Health Services Research. 2013;48(2pt1):539-559. doi:10.1111/j.1475-6773.2012.01449.x.

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[6] Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A combined comorbidity score predicted mortality in elderly patients better than existing scores. J Clin Epidemiol. 2011;64(7):749-759. Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and validation of the combined comorbidity score for ICD-10-CM. Med Care. 2017;55(12):1046-1051.

N/A: Not Applicable

Table 1v. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights (Overlap Weighted, Weight: ATO), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: ≥ 75 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Patient Characteristics[1]	Number/Mean	Percent/ Standard Deviation[2]	Number/Mean	Percent/ Standard Deviation[2]	Absolute Difference	Standardized Difference
Weighted patients	28,730	N/A	28,730	N/A	N/A	N/A
Demographic Characteristics	**Number/Mean**	**Percent/ Standard Deviation[2]**	**Number/Mean**	**Percent/ Standard Deviation[2]**	**Absolute Difference**	**Standardized Difference**
Age (years)*	81.6	5.2	81.6	5.2	0.000	0.000
Age*						
18-49 years	0	0.0%	0	0.0%	NaN	NaN
50-64 years	0	0.0%	0	0.0%	NaN	NaN
65-74 years	0	0.0%	0	0.0%	NaN	NaN
≥ 75 years	28,730	100.0%	28,730	100.0%	0.000	NaN
Sex*						
Female	19,077	66.4%	19,077	66.4%	-0.000	-0.000
Male	9,654	33.6%	9,653	33.6%	0.000	0.000
Race[3]						
American Indian or Alaska Native	81	0.3%	80	0.3%	0.002	0.000
Asian	573	2.0%	602	2.1%	-0.098	-0.007
Black or African American	3,650	12.7%	3,894	13.6%	-0.850	-0.025
Multi-racial	67	0.2%	60	0.2%	0.024	0.005
Native Hawaiian or Other Pacific Islander	262	0.9%	319	1.1%	-0.197	-0.020
Unknown	2,080	7.2%	2,122	7.4%	-0.146	-0.006
White	22,017	76.6%	21,653	75.4%	1.265	0.030
Hispanic origin						
Yes	616	2.1%	691	2.4%	-0.262	-0.018
No	20,160	70.2%	20,074	69.9%	0.297	0.013
Unknown	7,955	27.7%	7,965	27.7%	-0.035	-0.002
ZCTA Social Deprivation Index Score, National Quartile*,4						
Q1 (Least deprived)	6,954	24.2%	6,954	24.2%	-0.000	-0.000
Q2	7,744	27.0%	7,744	27.0%	0.000	0.000

Table 1v. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights (Overlap Weighted, Weight: ATO), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: ≥ 75 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Q3	7,555	26.3%	7,555	26.3%	0.000	0.000
Q4 (Most deprived)	6,277	21.8%	6,277	21.8%	0.000	0.000
Unknown	201	0.7%	201	0.7%	-0.000	-0.000
Year-Quarter of Exposure*						
2020 Quarter 2	1,584	5.5%	1,584	5.5%	0.000	0.000
2020 Quarter 3	2,118	7.4%	2,118	7.4%	-0.000	-0.000
2020 Quarter 4	2,649	9.2%	2,649	9.2%	-0.000	-0.000
2021 Quarter 1	2,612	9.1%	2,612	9.1%	-0.000	-0.000
2021 Quarter 2	2,631	9.2%	2,631	9.2%	-0.000	-0.000
2021 Quarter 3	2,854	9.9%	2,854	9.9%	-0.000	-0.000
2021 Quarter 4	2,687	9.4%	2,687	9.4%	-0.000	-0.000
2022 Quarter 1	2,284	7.9%	2,284	7.9%	-0.000	-0.000
2022 Quarter 2	2,284	7.9%	2,284	7.9%	0.000	0.000
2022 Quarter 3	2,333	8.1%	2,333	8.1%	0.000	0.000
2022 Quarter 4	2,294	8.0%	2,294	8.0%	-0.000	-0.000
2023 Quarter 1	2,402	8.4%	2,402	8.4%	0.000	0.000
Health Characteristics	**Number/Mean**	**Percent/ Standard Deviation[2]**	**Number/Mean**	**Percent/ Standard Deviation[2]**	**Absolute Difference**	**Standardized Difference**
Claims-Based frailty index*,[5]	0.2	0.1	0.2	0.1	0.000	0.000
Claims-Based frailty index categories						
<=0.2	20,499	71.4%	20,512	71.4%	-0.044	-0.001
>0.2	8,231	28.6%	8,219	28.6%	0.044	0.001
Combined comorbidity score*,[6]	2.9	3.2	2.9	3.2	0.000	0.000
Diabetes*	8,961	31.2%	8,961	31.2%	0.000	0.000
Obesity*	5,690	19.8%	5,690	19.8%	0.000	0.000
Hypertension*	23,621	82.2%	23,620	82.2%	0.000	0.000
Hospitalized Stroke/Transient Ischemic Attack	848	3.0%	892	3.1%	-0.153	-0.009
Coronary Revascularization	535	1.9%	570	2.0%	-0.120	-0.009
Atrial Fibrillation*	5,054	17.6%	5,053	17.6%	0.000	0.000
Congestive Heart Failure*	4,998	17.4%	4,998	17.4%	0.000	0.000

Table 1v. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights (Overlap Weighted, Weight: ATO), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: ≥ 75 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Hospitalized Acute Myocardial Infarction	706	2.5%	727	2.5%	-0.072	-0.005
Other Cerebrovascular Disease*	3,703	12.9%	3,703	12.9%	0.000	0.000
Chronic Obstructive Pulmonary Disease*	5,349	18.6%	5,349	18.6%	0.000	0.000
Asthma without COPD*	2,414	8.4%	2,414	8.4%	0.000	0.000
Chronic Liver Disease*	1,600	5.6%	1,600	5.6%	0.000	0.000
Chronic Kidney Disease*	9,258	32.2%	9,257	32.2%	0.000	0.000
Any Malignant Neoplasm*	7,628	26.5%	7,628	26.5%	0.000	0.000
Hemiplegia	721	2.5%	838	2.9%	-0.405	-0.025
Neurological/Neurodegenerative Conditions	541	1.9%	549	1.9%	-0.028	-0.002
Dementia*	3,014	10.5%	3,014	10.5%	0.000	0.000
Depression*	5,685	19.8%	5,685	19.8%	0.000	0.000
Schizophrenia	80	0.3%	83	0.3%	-0.009	-0.002
Rheumatic Disorders*	969	3.4%	969	3.4%	0.000	0.000
Multiple Sclerosis	80	0.3%	76	0.3%	0.013	0.002
HIV/AIDS	22	0.1%	28	0.1%	-0.020	-0.007
Coronary Artery Disease*	10,731	37.4%	10,731	37.4%	0.000	0.000
Immunodeficiency*	4,217	14.7%	4,217	14.7%	0.000	0.000
Smoking or Nicotine Use	6,486	22.6%	6,560	22.8%	-0.256	-0.006
Hyperlipidemia*	21,126	73.5%	21,126	73.5%	0.000	0.000
Medical Product Use	**Number/Mean**	**Percent/ Standard Deviation[2]**	**Number/Mean**	**Percent/ Standard Deviation[2]**	**Absolute Difference**	**Standardized Difference**
Angiotensin Converting Enzyme Inhibitors/Angiotensin Receptor Blockers*	15,145	52.7%	15,145	52.7%	0.000	0.000
Non-Steroidal Anti-Inflammatory Drugs*	4,296	15.0%	4,296	15.0%	0.000	0.000
Aspirin	142	0.5%	168	0.6%	-0.091	-0.012
Antidepressants*	8,579	29.9%	8,579	29.9%	0.000	0.000
Statins*	17,082	59.5%	17,082	59.5%	0.000	0.000
Insulin*	1,841	6.4%	1,841	6.4%	0.000	0.000
Anti-Diabetic Oral Drugs*	5,382	18.7%	5,382	18.7%	0.000	0.000

Table 1v. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights (Overlap Weighted, Weight: ATO), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: ≥ 75 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Antihypertensive Drugs*	16,366	57.0%	16,366	57.0%	0.000	0.000
Anticoagulants*	4,671	16.3%	4,671	16.3%	0.000	0.000
Glucocorticoids*	6,159	21.4%	6,159	21.4%	-0.000	-0.000
Acetaminophen	4,073	14.2%	3,753	13.1%	1.112	0.032
Tumor Necrosis Factor Inhibitors	63	0.2%	69	0.2%	-0.020	-0.004
Immunosuppressants*	2,331	8.1%	2,331	8.1%	0.000	0.000
Inhaled Corticosteroids*	2,591	9.0%	2,591	9.0%	-0.000	-0.000
COVID-19 Vaccine*	8,322	29.0%	8,322	29.0%	-0.000	-0.000
Health Service Utilization Intensity Metrics	**Number/Mean**	**Percent/ Standard Deviation[2]**	**Number/Mean**	**Percent/ Standard Deviation[2]**	**Absolute Difference**	**Standardized Difference**
Mean number of ambulatory encounters*	12.6	12.4	12.6	12.0	0.000	0.000
Mean number of emergency room encounters*	0.8	1.9	0.8	1.8	0.000	0.000
Mean number of inpatient hospital encounters	0.3	0.6	0.3	0.6	-0.007	-0.011
Mean number of non-acute institutional encounters*	0.1	0.4	0.1	0.4	0.000	0.000
Mean number of other ambulatory encounters*	3.1	7.0	3.1	7.1	0.000	0.000
Mean number of filled prescriptions*	17.1	12.5	17.1	12.3	0.000	0.000
Mean number of generics dispensed*	8.9	4.4	8.9	4.4	0.000	0.000
Mean number of unique drug classes dispensed*	8.5	4.1	8.5	4.1	0.000	0.000

Table 1v. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights (Overlap Weighted, Weight: ATO), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: ≥ 75 years (Outcome: COVID-19 Hospitalization)

	Medical Product		Covariate Balance
	Proton Pump Inhibitor New Users	Famotidine New Users	

[*]Covariate included in the propensity score logistic regression model.

[1]Covariates in blue show (if displayed) a standardized difference greater than 0.1.

[2]Value represents standard deviation where no % follows the value.

[3]Race data may not be completely populated at all Data Partners; therefore, data about race may be incomplete.

[4]The Social Deprivation Index score is a composite measure of zip code tabulation area (ZCTA)-level deprivation constructed from seven demographic and household characteristics collected in the American Community Survey, where higher values indication greater levels of deprivation. For this project, each patient's most recent geographic information is used. For more information, see Butler DC et al. Health Services Research. 2013;48(2pt1):539-559. doi:10.1111/j.1475-6773.2012.01449.x.

[5]Kim DH, Schneeweiss S, Glynn RJ, Lipsitz LA, Rockwood K, Avorn J. Measuring frailty in Medicare data: development and validation of a claims-based frailty index. J Gerontol A Biol Sci Med Sci. 2018;73(7)980-987.

[6]Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A combined comorbidity score predicted mortality in elderly patients better than existing scores. J Clin Epidemiol. 2011;64(7):749-759. Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and validation of the combined comorbidity score for ICD-10-CM. Med Care. 2017;55(12):1046-1051.

N/A: Not Applicable

Table 1w. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATE Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect (ATE), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024 (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Patient Characteristics[1,2]	Number/Mean	Percent/ Standard Deviation[3]	Number/Mean	Percent/ Standard Deviation[3]	Absolute Difference	Standardized Difference
Weighted patients	1,225,304	N/A	1,184,283	N/A	N/A	N/A
Demographic Characteristics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Age (years)[*]	58.4	15.0	58.3	15.4	0.042	0.003
Age[*]						
18-49 years	369,227	30.1%	357,540	30.2%	-0.057	-0.001
50-64 years	360,599	29.4%	347,423	29.3%	0.093	0.002
65-74 years	295,663	24.1%	286,569	24.2%	-0.068	-0.002
≥ 75 years	199,815	16.3%	192,751	16.3%	0.032	0.001
Sex[*]						
Female	730,737	59.6%	713,098	60.2%	-0.576	-0.012
Male	494,567	40.4%	471,185	39.8%	0.576	0.012
Race[4]						
American Indian or Alaska Native	4,147	0.3%	4,291	0.4%	-0.024	-0.004
Asian	37,299	3.0%	39,546	3.3%	-0.295	-0.017
Black or African American	138,810	11.3%	143,014	12.1%	-0.747	-0.024
Multi-racial	18,377	1.5%	16,936	1.4%	0.070	0.006
Native Hawaiian or Other Pacific Islander	4,976	0.4%	5,420	0.5%	-0.052	-0.008
Unknown	318,875	26.0%	306,875	25.9%	0.112	0.003
White	702,819	57.4%	668,200	56.4%	0.936	0.019
Hispanic origin						
Yes	48,926	4.0%	51,973	4.4%	-0.396	-0.020
No	682,449	55.7%	657,587	55.5%	0.170	0.005
Unknown	493,929	40.3%	474,723	40.1%	0.225	0.006
ZCTA Social Deprivation Index Score, National Quartile[*,5]						
Q1 (Least deprived)	311,523	25.4%	300,271	25.4%	0.069	0.002

Table 1w. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATE Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect (ATE), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024 (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Q2	317,310	25.9%	305,533	25.8%	0.097	0.002
Q3	321,468	26.2%	310,581	26.2%	0.011	0.000
Q4 (Most deprived)	263,722	21.5%	257,109	21.7%	-0.187	-0.005
Unknown	11,281	0.9%	10,788	0.9%	0.010	0.001
Year-Quarter of Exposure[*]						
2020 Quarter 2	82,816	6.8%	78,969	6.7%	0.091	0.004
2020 Quarter 3	114,450	9.3%	105,793	8.9%	0.407	0.014
2020 Quarter 4	111,706	9.1%	108,524	9.2%	-0.047	-0.002
2021 Quarter 1	107,968	8.8%	104,767	8.8%	-0.035	-0.001
2021 Quarter 2	101,807	8.3%	98,682	8.3%	-0.024	-0.001
2021 Quarter 3	111,469	9.1%	108,482	9.2%	-0.063	-0.002
2021 Quarter 4	105,522	8.6%	102,764	8.7%	-0.065	-0.002
2022 Quarter 1	94,708	7.7%	92,131	7.8%	-0.050	-0.002
2022 Quarter 2	90,622	7.4%	87,804	7.4%	-0.018	-0.001
2022 Quarter 3	100,903	8.2%	98,332	8.3%	-0.068	-0.002
2022 Quarter 4	100,277	8.2%	97,666	8.2%	-0.063	-0.002
2023 Quarter 1	103,056	8.4%	100,368	8.5%	-0.064	-0.002
Health Characteristics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Claims-Based frailty index[*,6]	0.1	0.1	0.1	0.0	0.000	0.009
Claims-Based frailty index categories						
<=0.2	1,077,327	87.9%	1,045,348	88.3%	-0.345	-0.011
>0.2	147,977	12.1%	138,934	11.7%	0.345	0.011
Combined comorbidity score[*,7]	1.4	2.4	1.4	2.4	0.040	0.017
Diabetes[*]	263,619	21.5%	253,949	21.4%	0.071	0.002
Obesity[*]	328,708	26.8%	315,442	26.6%	0.191	0.004
Hypertension[*]	649,283	53.0%	624,623	52.7%	0.247	0.005
Hospitalized Stroke/Transient Ischemic Attack	13,933	1.1%	14,127	1.2%	-0.056	-0.005
Coronary Revascularization	12,900	1.1%	13,198	1.1%	-0.062	-0.006

Table 1w. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATE Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect (ATE), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024 (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Atrial Fibrillation*	75,641	6.2%	70,634	6.0%	0.209	0.009
Congestive Heart Failure*	82,067	6.7%	76,714	6.5%	0.220	0.009
Hospitalized Acute Myocardial Infarction	14,156	1.2%	12,686	1.1%	0.084	0.008
Other Cerebrovascular Disease*	60,772	5.0%	58,297	4.9%	0.037	0.002
Chronic Obstructive Pulmonary Disease*	126,171	10.3%	120,273	10.2%	0.141	0.005
Asthma without COPD*	121,938	10.0%	119,141	10.1%	-0.109	-0.004
Chronic Liver Disease*	88,200	7.2%	80,898	6.8%	0.367	0.014
Chronic Kidney Disease*	202,986	16.6%	192,393	16.2%	0.321	0.009
Any Malignant Neoplasm*	158,113	12.9%	151,730	12.8%	0.092	0.003
Hemiplegia	13,986	1.1%	14,774	1.2%	-0.106	-0.010
Neurological/Neurodegenerative Conditions	7,267	0.6%	7,551	0.6%	-0.045	-0.006
Dementia*	28,071	2.3%	26,867	2.3%	0.022	0.002
Depression*	224,354	18.3%	216,197	18.3%	0.055	0.001
Schizophrenia	8,080	0.7%	9,239	0.8%	-0.121	-0.014
Rheumatic Disorders*	30,790	2.5%	29,778	2.5%	-0.002	-0.000
Multiple Sclerosis	6,026	0.5%	5,659	0.5%	0.014	0.002
HIV/AIDS	3,519	0.3%	5,620	0.5%	-0.187	-0.030
Coronary Artery Disease*	204,012	16.6%	193,725	16.4%	0.292	0.008
Immunodeficiency*	129,028	10.5%	122,791	10.4%	0.162	0.005
Smoking or Nicotine Use	248,953	20.3%	234,361	19.8%	0.528	0.013
Hyperlipidemia*	608,392	49.7%	587,943	49.6%	0.007	0.000
Medical Product Use	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Angiotensin Converting Enzyme Inhibitors/Angiotensin Receptor Blockers*	423,888	34.6%	408,009	34.5%	0.143	0.003
Non-Steroidal Anti-Inflammatory Drugs*	258,699	21.1%	251,137	21.2%	-0.093	-0.002
Aspirin	13,248	1.1%	15,090	1.3%	-0.193	-0.018
Antidepressants*	388,564	31.7%	374,950	31.7%	0.051	0.001

Table 1w. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATE Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect (ATE), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024 (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Statins*	453,934	37.0%	439,028	37.1%	-0.025	-0.001
Insulin*	66,651	5.4%	63,696	5.4%	0.061	0.003
Anti-Diabetic Oral Drugs*	182,370	14.9%	176,258	14.9%	0.000	0.000
Antihypertensive Drugs*	463,212	37.8%	445,452	37.6%	0.190	0.004
Anticoagulants*	81,983	6.7%	77,405	6.5%	0.155	0.006
Glucocorticoids*	274,207	22.4%	267,463	22.6%	-0.206	-0.005
Acetaminophen	177,142	14.5%	167,683	14.2%	0.298	0.009
Tumor Necrosis Factor Inhibitors	7,351	0.6%	6,775	0.6%	0.028	0.004
Immunosuppressants*	63,661	5.2%	61,846	5.2%	-0.027	-0.001
Inhaled Corticosteroids*	95,075	7.8%	92,761	7.8%	-0.073	-0.003
COVID-19 Vaccine*	318,240	26.0%	310,481	26.2%	-0.245	-0.006
Health Service Utilization Intensity Metrics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Mean number of ambulatory encounters*	10.0	10.9	10.0	10.6	-0.002	-0.000
Mean number of emergency room encounters*	0.5	1.5	0.5	1.5	0.014	0.009
Mean number of inpatient hospital encounters	0.2	0.5	0.1	0.5	0.009	0.019
Mean number of non-acute institutional encounters*	0.0	0.3	0.0	0.3	0.001	0.005
Mean number of other ambulatory encounters*	2.3	5.3	2.3	5.3	0.006	0.001
Mean number of filled prescriptions*	14.1	12.5	14.0	12.4	0.014	0.001
Mean number of generics dispensed*	7.4	4.6	7.4	4.6	0.005	0.001
Mean number of unique drug classes dispensed*	7.0	4.2	7.0	4.2	0.005	0.001

Table 1w. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATE Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect (ATE), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024 (Outcome: COVID-19 Hospitalization)

	Medical Product		Covariate Balance
	Proton Pump Inhibitor New Users	Famotidine New Users	

[*]Covariate included in the propensity score logistic regression model.

[1]Covariates in blue show a (if displayed) standardized difference greater than 0.1.

[2]Weighted patient characteristics tables facilitate the assessment of covariate balance after inverse probability weighting and should not be interpreted as a description of the unweighted population. Treated patients are weighted by the inverse of their propensity score (PS), while reference patients are weighted by the inverse of 1 minus their PS.

[3]Value represents standard deviation where no % follows the value.

[4]Race data may not be completely populated at all Data Partners; therefore, data about race may be incomplete.

[5]The Social Deprivation Index score is a composite measure of zip code tabulation area (ZCTA)-level deprivation constructed from seven demographic and household characteristics collected in the American Community Survey, where higher values indication greater levels of deprivation. For this project, each patient's most recent geographic information is used. For more information, see Butler DC et al. Health Services Research. 2013;48(2pt1):539-559. doi:10.1111/j.1475-6773.2012.01449.x.

[6]Kim DH, Schneeweiss S, Glynn RJ, Lipsitz LA, Rockwood K, Avorn J. Measuring frailty in Medicare data: development and validation of a claims-based frailty index. J Gerontol A Biol Sci Med Sci. 2018;73(7)980-987.

[7]Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A combined comorbidity score predicted mortality in elderly patients better than existing scores. J Clin Epidemiol. 2011;64(7):749-759. Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and validation of the combined comorbidity score for ICD-10-CM. Med Care. 2017;55(12):1046-1051.

N/A: Not Applicable

Table 1x. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATE Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect (ATE), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Patient Characteristics[1,2]	Number/Mean	Percent/ Standard Deviation[3]	Number/Mean	Percent/ Standard Deviation[3]	Absolute Difference	Standardized Difference
Weighted patients	369,054	N/A	358,843	N/A	N/A	N/A
Demographic Characteristics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Age (years)[*]	37.3	8.7	37.2	8.8	0.050	0.006
Age[*]						
18-49 years	369,054	100.0%	358,843	100.0%	0.000	NaN
50-64 years	0	0.0%	0	0.0%	NaN	NaN
65-74 years	0	0.0%	0	0.0%	NaN	NaN
≥ 75 years	0	0.0%	0	0.0%	NaN	NaN
Sex[*]						
Female	208,806	56.6%	204,414	57.0%	-0.386	-0.008
Male	160,248	43.4%	154,428	43.0%	0.386	0.008
Race[4]						
American Indian or Alaska Native	1,294	0.4%	1,240	0.3%	0.005	0.001
Asian	15,155	4.1%	16,568	4.6%	-0.511	-0.025
Black or African American	28,633	7.8%	29,878	8.3%	-0.568	-0.021
Multi-racial	9,592	2.6%	9,060	2.5%	0.074	0.005
Native Hawaiian or Other Pacific Islander	263	0.1%	321	0.1%	-0.018	-0.006
Unknown	153,127	41.5%	147,469	41.1%	0.396	0.008
White	160,989	43.6%	154,307	43.0%	0.621	0.013
Hispanic origin						
Yes	19,889	5.4%	20,349	5.7%	-0.282	-0.012
No	158,497	42.9%	155,308	43.3%	-0.334	-0.008
Unknown	190,668	51.7%	183,186	51.0%	0.615	0.014
ZCTA Social Deprivation Index Score, National Quartile[*,5]						
Q1 (Least deprived)	103,228	28.0%	100,259	27.9%	0.031	0.001

Table 1x. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATE Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect (ATE), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Q2	95,094	25.8%	92,248	25.7%	0.060	0.001
Q3	92,225	25.0%	89,774	25.0%	-0.028	-0.001
Q4 (Most deprived)	73,411	19.9%	71,660	20.0%	-0.078	-0.002
Unknown	5,097	1.4%	4,902	1.4%	0.015	0.002
Year-Quarter of Exposure[*]						
2020 Quarter 2	27,744	7.5%	26,625	7.4%	0.098	0.004
2020 Quarter 3	36,071	9.8%	33,527	9.3%	0.431	0.015
2020 Quarter 4	33,546	9.1%	32,702	9.1%	-0.023	-0.001
2021 Quarter 1	32,806	8.9%	32,146	9.0%	-0.069	-0.002
2021 Quarter 2	29,995	8.1%	29,306	8.2%	-0.039	-0.001
2021 Quarter 3	32,401	8.8%	31,823	8.9%	-0.089	-0.003
2021 Quarter 4	29,246	7.9%	28,707	8.0%	-0.075	-0.003
2022 Quarter 1	28,255	7.7%	27,666	7.7%	-0.054	-0.002
2022 Quarter 2	26,462	7.2%	25,850	7.2%	-0.034	-0.001
2022 Quarter 3	31,056	8.4%	30,419	8.5%	-0.062	-0.002
2022 Quarter 4	29,867	8.1%	29,341	8.2%	-0.084	-0.003
2023 Quarter 1	31,606	8.6%	30,730	8.6%	0.000	0.000
Health Characteristics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Claims-Based frailty index[*,6]	0.1	0.0	0.1	0.0	0.000	0.003
Claims-Based frailty index categories						
<=0.2	359,621	97.4%	349,596	97.4%	0.021	0.001
>0.2	9,433	2.6%	9,247	2.6%	-0.021	-0.001
Combined comorbidity score[*,7]	0.6	1.3	0.6	1.3	0.004	0.003
Diabetes[*]	29,449	8.0%	28,208	7.9%	0.119	0.004
Obesity[*]	96,319	26.1%	92,047	25.7%	0.448	0.010
Hypertension[*]	81,265	22.0%	78,198	21.8%	0.228	0.006
Hospitalized Stroke/Transient Ischemic Attack	619	0.2%	641	0.2%	-0.011	-0.003
Coronary Revascularization	643	0.2%	738	0.2%	-0.031	-0.007

Table 1x. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATE Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect (ATE), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Atrial Fibrillation*	2,064	0.6%	1,985	0.6%	0.006	0.001
Congestive Heart Failure*	2,959	0.8%	2,824	0.8%	0.015	0.002
Hospitalized Acute Myocardial Infarction	745	0.2%	708	0.2%	0.005	0.001
Other Cerebrovascular Disease*	2,238	0.6%	2,176	0.6%	0.000	0.000
Chronic Obstructive Pulmonary Disease*	5,105	1.4%	4,985	1.4%	-0.006	-0.001
Asthma without COPD*	38,539	10.4%	37,943	10.6%	-0.131	-0.004
Chronic Liver Disease*	19,876	5.4%	18,251	5.1%	0.300	0.013
Chronic Kidney Disease*	18,792	5.1%	18,140	5.1%	0.037	0.002
Any Malignant Neoplasm*	10,322	2.8%	10,086	2.8%	-0.014	-0.001
Hemiplegia	787	0.2%	904	0.3%	-0.038	-0.008
Neurological/Neurodegenerative Conditions	129	0.0%	135	0.0%	-0.003	-0.001
Dementia*	159	0.0%	166	0.0%	-0.003	-0.002
Depression*	60,430	16.4%	58,725	16.4%	0.009	0.000
Schizophrenia	2,739	0.7%	3,202	0.9%	-0.150	-0.017
Rheumatic Disorders*	4,123	1.1%	3,977	1.1%	0.009	0.001
Multiple Sclerosis	1,624	0.4%	1,530	0.4%	0.014	0.002
HIV/AIDS	1,097	0.3%	1,543	0.4%	-0.133	-0.022
Coronary Artery Disease*	8,040	2.2%	7,746	2.2%	0.020	0.001
Immunodeficiency*	23,312	6.3%	22,477	6.3%	0.053	0.002
Smoking or Nicotine Use	48,717	13.2%	46,300	12.9%	0.298	0.009
Hyperlipidemia*	73,765	20.0%	71,541	19.9%	0.051	0.001
Medical Product Use	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Angiotensin Converting Enzyme Inhibitors/Angiotensin Receptor Blockers*	47,878	13.0%	45,759	12.8%	0.221	0.007
Non-Steroidal Anti-Inflammatory Drugs*	70,353	19.1%	69,148	19.3%	-0.207	-0.005
Aspirin	2,869	0.8%	3,497	1.0%	-0.197	-0.021
Antidepressants*	110,441	29.9%	107,263	29.9%	0.034	0.001

Table 1x. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATE Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect (ATE), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Statins*	33,669	9.1%	32,575	9.1%	0.045	0.002
Insulin*	8,924	2.4%	8,494	2.4%	0.051	0.003
Anti-Diabetic Oral Drugs*	22,900	6.2%	22,116	6.2%	0.042	0.002
Antihypertensive Drugs*	58,634	15.9%	56,255	15.7%	0.211	0.006
Anticoagulants*	5,058	1.4%	4,812	1.3%	0.030	0.003
Glucocorticoids*	73,729	20.0%	72,238	20.1%	-0.153	-0.004
Acetaminophen	40,038	10.8%	38,501	10.7%	0.119	0.004
Tumor Necrosis Factor Inhibitors	2,640	0.7%	2,375	0.7%	0.054	0.006
Immunosuppressants*	9,003	2.4%	8,798	2.5%	-0.012	-0.001
Inhaled Corticosteroids*	19,196	5.2%	18,965	5.3%	-0.084	-0.004
COVID-19 Vaccine*	85,111	23.1%	83,621	23.3%	-0.241	-0.006
Health Service Utilization Intensity Metrics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Mean number of ambulatory encounters*	7.8	9.3	7.8	9.1	-0.027	-0.003
Mean number of emergency room encounters*	0.4	1.2	0.4	1.1	-0.005	-0.004
Mean number of inpatient hospital encounters	0.1	0.4	0.1	0.3	0.007	0.021
Mean number of non-acute institutional encounters*	0.0	0.1	0.0	0.1	-0.000	-0.000
Mean number of other ambulatory encounters*	2.0	4.2	2.0	4.1	-0.001	-0.000
Mean number of filled prescriptions*	9.6	10.5	9.7	10.5	-0.012	-0.001
Mean number of generics dispensed*	5.5	4.1	5.5	4.1	-0.006	-0.002
Mean number of unique drug classes dispensed*	5.2	3.8	5.2	3.7	-0.006	-0.002

Table 1x. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATE Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect (ATE), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years (Outcome: COVID-19 Hospitalization)

	Medical Product		Covariate Balance
	Proton Pump Inhibitor New Users	Famotidine New Users	

[*]Covariate included in the propensity score logistic regression model.

[1]Covariates in blue show (if displayed) a standardized difference greater than 0.1.

[2]Weighted patient characteristics tables facilitate the assessment of covariate balance after inverse probability weighting and should not be interpreted as a description of the unweighted population. Treated patients are weighted by the inverse of their propensity score (PS), while reference patients are weighted by the inverse of 1 minus their PS.

[3]Value represents standard deviation where no % follows the value.

[4]Race data may not be completely populated at all Data Partners; therefore, data about race may be incomplete.

[5]The Social Deprivation Index score is a composite measure of zip code tabulation area (ZCTA)-level deprivation constructed from seven demographic and household characteristics collected in the American Community Survey, where higher values indication greater levels of deprivation. For this project, each patient's most recent geographic information is used. For more information, see Butler DC et al. Health Services Research. 2013;48(2pt1):539-559. doi:10.1111/j.1475-6773.2012.01449.x.

[6]Kim DH, Schneeweiss S, Glynn RJ, Lipsitz LA, Rockwood K, Avorn J. Measuring frailty in Medicare data: development and validation of a claims-based frailty index. J Gerontol A Biol Sci Med Sci. 2018;73(7)980-987.

[7]Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A combined comorbidity score predicted mortality in elderly patients better than existing scores. J Clin Epidemiol. 2011;64(7):749-759. Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and validation of the combined comorbidity score for ICD-10-CM. Med Care. 2017;55(12):1046-1051.

N/A: Not Applicable

Table 1y. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATE Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect (ATE), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 50-64 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Patient Characteristics[1,2]	Number/Mean	Percent/ Standard Deviation[3]	Number/Mean	Percent/ Standard Deviation[3]	Absolute Difference	Standardized Difference
Weighted patients	360,311	N/A	349,451	N/A	N/A	N/A
Demographic Characteristics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Age (years)*	57.9	4.3	57.9	4.3	-0.011	-0.002
Age*						
18-49 years	0	0.0%	0	0.0%	NaN	NaN
50-64 years	360,311	100.0%	349,451	100.0%	0.000	NaN
65-74 years	0	0.0%	0	0.0%	NaN	NaN
≥ 75 years	0	0.0%	0	0.0%	NaN	NaN
Sex*						
Female	213,289	59.2%	208,996	59.8%	-0.611	-0.012
Male	147,022	40.8%	140,454	40.2%	0.611	0.012
Race[4]						
American Indian or Alaska Native	1,404	0.4%	1,597	0.5%	-0.067	-0.010
Asian	9,237	2.6%	10,269	2.9%	-0.375	-0.023
Black or African American	38,171	10.6%	39,603	11.3%	-0.739	-0.024
Multi-racial	6,791	1.9%	6,479	1.9%	0.031	0.002
Native Hawaiian or Other Pacific Islander	456	0.1%	447	0.1%	-0.001	-0.000
Unknown	116,027	32.2%	111,930	32.0%	0.172	0.004
White	188,225	52.2%	179,127	51.3%	0.980	0.020
Hispanic origin						
Yes	14,468	4.0%	16,076	4.6%	-0.585	-0.029
No	186,465	51.8%	180,324	51.6%	0.149	0.004
Unknown	159,378	44.2%	153,051	43.8%	0.436	0.011
ZCTA Social Deprivation Index Score, National Quartile*,5						
Q1 (Least deprived)	94,362	26.2%	91,076	26.1%	0.126	0.003

Table 1y. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATE Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect (ATE), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 50-64 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Q2	91,466	25.4%	88,381	25.3%	0.094	0.002
Q3	94,084	26.1%	91,429	26.2%	-0.052	-0.001
Q4 (Most deprived)	77,192	21.4%	75,574	21.6%	-0.203	-0.005
Unknown	3,208	0.9%	2,990	0.9%	0.035	0.005
Year-Quarter of Exposure[*]						
2020 Quarter 2	25,762	7.1%	24,635	7.0%	0.100	0.004
2020 Quarter 3	33,808	9.4%	31,306	9.0%	0.424	0.015
2020 Quarter 4	33,152	9.2%	32,385	9.3%	-0.066	-0.002
2021 Quarter 1	32,086	8.9%	31,277	9.0%	-0.045	-0.002
2021 Quarter 2	29,229	8.1%	28,492	8.2%	-0.041	-0.002
2021 Quarter 3	31,627	8.8%	30,816	8.8%	-0.041	-0.001
2021 Quarter 4	30,467	8.5%	29,755	8.5%	-0.059	-0.002
2022 Quarter 1	28,077	7.8%	27,581	7.9%	-0.100	-0.004
2022 Quarter 2	26,860	7.5%	26,108	7.5%	-0.016	-0.001
2022 Quarter 3	29,619	8.2%	28,889	8.3%	-0.047	-0.002
2022 Quarter 4	29,785	8.3%	29,055	8.3%	-0.048	-0.002
2023 Quarter 1	29,838	8.3%	29,152	8.3%	-0.061	-0.002
Health Characteristics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Claims-Based frailty index[*,6]	0.1	0.0	0.1	0.0	0.000	0.006
Claims-Based frailty index categories						
<=0.2	327,469	90.9%	318,753	91.2%	-0.330	-0.012
>0.2	32,842	9.1%	30,698	8.8%	0.330	0.012
Combined comorbidity score[*,7]	1.0	2.1	1.0	2.1	0.024	0.011
Diabetes[*]	79,054	21.9%	76,457	21.9%	0.061	0.002
Obesity[*]	106,071	29.4%	102,425	29.3%	0.128	0.003
Hypertension[*]	191,014	53.0%	184,575	52.8%	0.195	0.004
Hospitalized Stroke/Transient Ischemic Attack	2,706	0.8%	2,946	0.8%	-0.092	-0.010
Coronary Revascularization	3,411	0.9%	3,406	1.0%	-0.028	-0.003

Table 1y. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATE Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect (ATE), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 50-64 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Atrial Fibrillation*	11,783	3.3%	11,158	3.2%	0.077	0.004
Congestive Heart Failure*	15,419	4.3%	14,650	4.2%	0.087	0.004
Hospitalized Acute Myocardial Infarction	3,108	0.9%	2,812	0.8%	0.058	0.006
Other Cerebrovascular Disease*	11,540	3.2%	11,182	3.2%	0.003	0.000
Chronic Obstructive Pulmonary Disease*	33,533	9.3%	32,297	9.2%	0.065	0.002
Asthma without COPD*	38,342	10.6%	37,520	10.7%	-0.096	-0.003
Chronic Liver Disease*	30,276	8.4%	28,107	8.0%	0.360	0.013
Chronic Kidney Disease*	50,685	14.1%	48,392	13.8%	0.219	0.006
Any Malignant Neoplasm*	38,906	10.8%	37,711	10.8%	0.006	0.000
Hemiplegia	3,315	0.9%	3,432	1.0%	-0.062	-0.006
Neurological/Neurodegenerative Conditions	1,031	0.3%	1,089	0.3%	-0.026	-0.005
Dementia*	1,460	0.4%	1,450	0.4%	-0.010	-0.002
Depression*	66,211	18.4%	64,310	18.4%	-0.027	-0.001
Schizophrenia	3,189	0.9%	3,890	1.1%	-0.228	-0.023
Rheumatic Disorders*	10,300	2.9%	9,979	2.9%	0.003	0.000
Multiple Sclerosis	2,513	0.7%	2,365	0.7%	0.021	0.003
HIV/AIDS	1,592	0.4%	2,716	0.8%	-0.335	-0.043
Coronary Artery Disease*	44,001	12.2%	41,863	12.0%	0.232	0.007
Immunodeficiency*	38,619	10.7%	37,138	10.6%	0.091	0.003
Smoking or Nicotine Use	75,302	20.9%	71,932	20.6%	0.315	0.008
Hyperlipidemia*	182,806	50.7%	177,485	50.8%	-0.054	-0.001
Medical Product Use	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Angiotensin Converting Enzyme Inhibitors/Angiotensin Receptor Blockers*	128,070	35.5%	123,954	35.5%	0.073	0.002
Non-Steroidal Anti-Inflammatory Drugs*	90,060	25.0%	87,640	25.1%	-0.084	-0.002
Aspirin	7,727	2.1%	8,522	2.4%	-0.294	-0.020
Antidepressants*	122,870	34.1%	119,353	34.2%	-0.053	-0.001

Table 1y. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATE Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect (ATE), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 50-64 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Statins*	134,399	37.3%	130,740	37.4%	-0.112	-0.002
Insulin*	22,326	6.2%	21,433	6.1%	0.063	0.003
Anti-Diabetic Oral Drugs*	57,334	15.9%	55,634	15.9%	-0.008	-0.000
Antihypertensive Drugs*	138,309	38.4%	133,751	38.3%	0.112	0.002
Anticoagulants*	17,149	4.8%	16,382	4.7%	0.072	0.003
Glucocorticoids*	91,006	25.3%	89,122	25.5%	-0.246	-0.006
Acetaminophen	60,176	16.7%	56,676	16.2%	0.482	0.013
Tumor Necrosis Factor Inhibitors	3,121	0.9%	2,897	0.8%	0.037	0.004
Immunosuppressants*	18,907	5.2%	18,467	5.3%	-0.037	-0.002
Inhaled Corticosteroids*	30,165	8.4%	29,586	8.5%	-0.095	-0.003
COVID-19 Vaccine*	97,499	27.1%	95,370	27.3%	-0.232	-0.005
Health Service Utilization Intensity Metrics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Mean number of ambulatory encounters*	9.8	10.9	9.8	10.7	-0.012	-0.001
Mean number of emergency room encounters*	0.4	1.4	0.4	1.4	0.008	0.006
Mean number of inpatient hospital encounters	0.1	0.5	0.1	0.5	0.008	0.017
Mean number of non-acute institutional encounters*	0.0	0.2	0.0	0.2	0.000	0.002
Mean number of other ambulatory encounters*	2.3	5.0	2.3	5.0	0.008	0.002
Mean number of filled prescriptions*	15.4	13.5	15.4	13.6	-0.024	-0.002
Mean number of generics dispensed*	7.7	4.8	7.7	4.8	-0.008	-0.002
Mean number of unique drug classes dispensed*	7.3	4.4	7.3	4.3	-0.007	-0.002

Table 1y. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATE Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect (ATE), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 50-64 years (Outcome: COVID-19 Hospitalization)

	Medical Product		Covariate Balance
	Proton Pump Inhibitor New Users	Famotidine New Users	

[*]Covariate included in the propensity score logistic regression model.

[1]Covariates in blue show (if displayed) a standardized difference greater than 0.1.

[2]Weighted patient characteristics tables facilitate the assessment of covariate balance after inverse probability weighting and should not be interpreted as a description of the unweighted population. Treated patients are weighted by the inverse of their propensity score (PS), while reference patients are weighted by the inverse of 1 minus their PS.

[3]Value represents standard deviation where no % follows the value.

[4]Race data may not be completely populated at all Data Partners; therefore, data about race may be incomplete.

[5]The Social Deprivation Index score is a composite measure of zip code tabulation area (ZCTA)-level deprivation constructed from seven demographic and household characteristics collected in the American Community Survey, where higher values indication greater levels of deprivation. For this project, each patient's most recent geographic information is used. For more information, see Butler DC et al. Health Services Research. 2013;48(2pt1):539-559. doi:10.1111/j.1475-6773.2012.01449.x.

[6]Kim DH, Schneeweiss S, Glynn RJ, Lipsitz LA, Rockwood K, Avorn J. Measuring frailty in Medicare data: development and validation of a claims-based frailty index. J Gerontol A Biol Sci Med Sci. 2018;73(7)980-987.

[7]Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A combined comorbidity score predicted mortality in elderly patients better than existing scores. J Clin Epidemiol. 2011;64(7):749-759. Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and validation of the combined comorbidity score for ICD-10-CM. Med Care. 2017;55(12):1046-1051.

N/A: Not Applicable

Table 1z. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATE Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect (ATE), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Patient Characteristics[1,2]	Number/Mean	Percent/ Standard Deviation[3]	Number/Mean	Percent/ Standard Deviation[3]	Absolute Difference	Standardized Difference
Weighted patients	294,798	N/A	284,256	N/A	N/A	N/A
Demographic Characteristics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Age (years)*	69.8	2.8	69.8	2.8	-0.008	-0.003
Age*						
18-49 years	0	0.0%	0	0.0%	NaN	NaN
50-64 years	0	0.0%	0	0.0%	NaN	NaN
65-74 years	294,798	100.0%	284,256	100.0%	0.000	NaN
≥ 75 years	0	0.0%	0	0.0%	NaN	NaN
Sex*						
Female	181,801	61.7%	177,327	62.4%	-0.713	-0.015
Male	112,997	38.3%	106,929	37.6%	0.713	0.015
Race[4]						
American Indian or Alaska Native	864	0.3%	889	0.3%	-0.019	-0.004
Asian	8,944	3.0%	9,019	3.2%	-0.139	-0.008
Black or African American	47,149	16.0%	47,986	16.9%	-0.887	-0.024
Multi-racial	1,530	0.5%	1,103	0.4%	0.131	0.020
Native Hawaiian or Other Pacific Islander	2,401	0.8%	2,516	0.9%	-0.071	-0.008
Unknown	35,161	11.9%	34,737	12.2%	-0.293	-0.009
White	198,749	67.4%	188,006	66.1%	1.279	0.027
Hispanic origin						
Yes	10,381	3.5%	11,237	4.0%	-0.432	-0.023
No	195,183	66.2%	186,716	65.7%	0.523	0.019
Unknown	89,233	30.3%	86,302	30.4%	-0.091	-0.004
ZCTA Social Deprivation Index Score, National Quartile*,5						
Q1 (Least deprived)	64,718	22.0%	62,144	21.9%	0.091	0.002

Table 1z. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATE Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect (ATE), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Q2	75,586	25.6%	72,635	25.6%	0.087	0.002
Q3	81,713	27.7%	78,618	27.7%	0.061	0.001
Q4 (Most deprived)	71,056	24.1%	69,211	24.3%	-0.245	-0.006
Unknown	1,725	0.6%	1,648	0.6%	0.005	0.001
Year-Quarter of Exposure[*]						
2020 Quarter 2	17,294	5.9%	16,607	5.8%	0.024	0.001
2020 Quarter 3	26,307	8.9%	24,358	8.6%	0.355	0.013
2020 Quarter 4	26,855	9.1%	26,113	9.2%	-0.077	-0.003
2021 Quarter 1	25,761	8.7%	24,900	8.8%	-0.021	-0.001
2021 Quarter 2	24,976	8.5%	24,157	8.5%	-0.026	-0.001
2021 Quarter 3	27,940	9.5%	27,224	9.6%	-0.099	-0.003
2021 Quarter 4	27,390	9.3%	26,501	9.3%	-0.032	-0.001
2022 Quarter 1	22,761	7.7%	22,030	7.8%	-0.029	-0.001
2022 Quarter 2	21,765	7.4%	21,004	7.4%	-0.006	-0.000
2022 Quarter 3	24,202	8.2%	23,500	8.3%	-0.058	-0.002
2022 Quarter 4	24,512	8.3%	23,769	8.4%	-0.047	-0.002
2023 Quarter 1	25,032	8.5%	24,093	8.5%	0.015	0.001
Health Characteristics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Claims-Based frailty index[*,6]	0.2	0.1	0.2	0.1	0.001	0.015
Claims-Based frailty index categories						
<=0.2	248,432	84.3%	241,080	84.8%	-0.539	-0.015
>0.2	46,366	15.7%	43,175	15.2%	0.539	0.015
Combined comorbidity score[*,7]	1.8	2.8	1.7	2.7	0.066	0.024
Diabetes[*]	91,033	30.9%	87,586	30.8%	0.067	0.001
Obesity[*]	84,703	28.7%	81,299	28.6%	0.132	0.003
Hypertension[*]	211,036	71.6%	202,878	71.4%	0.215	0.005
Hospitalized Stroke/Transient Ischemic Attack	4,526	1.5%	4,360	1.5%	0.001	0.000
Coronary Revascularization	4,747	1.6%	4,973	1.7%	-0.139	-0.011

Table 1z. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATE Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect (ATE), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Atrial Fibrillation*	23,808	8.1%	22,036	7.8%	0.324	0.012
Congestive Heart Failure*	26,944	9.1%	25,008	8.8%	0.342	0.012
Hospitalized Acute Myocardial Infarction	4,723	1.6%	4,080	1.4%	0.167	0.014
Other Cerebrovascular Disease*	21,139	7.2%	20,041	7.1%	0.120	0.005
Chronic Obstructive Pulmonary Disease*	47,619	16.2%	44,927	15.8%	0.348	0.010
Asthma without COPD*	28,194	9.6%	27,312	9.6%	-0.044	-0.002
Chronic Liver Disease*	24,836	8.4%	22,782	8.0%	0.410	0.015
Chronic Kidney Disease*	67,861	23.0%	64,190	22.6%	0.438	0.010
Any Malignant Neoplasm*	54,386	18.4%	51,781	18.2%	0.232	0.006
Hemiplegia	4,904	1.7%	4,698	1.7%	0.011	0.001
Neurological/Neurodegenerative Conditions	2,401	0.8%	2,583	0.9%	-0.094	-0.010
Dementia*	6,233	2.1%	5,918	2.1%	0.032	0.002
Depression*	58,085	19.7%	55,526	19.5%	0.169	0.004
Schizophrenia	1,598	0.5%	1,676	0.6%	-0.048	-0.006
Rheumatic Disorders*	9,391	3.2%	9,050	3.2%	0.002	0.000
Multiple Sclerosis	1,330	0.5%	1,271	0.4%	0.004	0.001
HIV/AIDS	683	0.2%	1,116	0.4%	-0.161	-0.029
Coronary Artery Disease*	74,415	25.2%	70,206	24.7%	0.545	0.013
Immunodeficiency*	36,969	12.5%	34,823	12.3%	0.290	0.009
Smoking or Nicotine Use	75,334	25.6%	70,757	24.9%	0.663	0.015
Hyperlipidemia*	203,756	69.1%	196,657	69.2%	-0.066	-0.001
Medical Product Use	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Angiotensin Converting Enzyme Inhibitors/Angiotensin Receptor Blockers*	142,496	48.3%	137,300	48.3%	0.035	0.001
Non-Steroidal Anti-Inflammatory Drugs*	66,032	22.4%	63,718	22.4%	-0.017	-0.000
Aspirin	1,654	0.6%	1,707	0.6%	-0.039	-0.005
Antidepressants*	93,838	31.8%	89,998	31.7%	0.170	0.004

Table 1z. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATE Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect (ATE), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Statins*	166,295	56.4%	160,525	56.5%	-0.062	-0.001
Insulin*	21,938	7.4%	20,939	7.4%	0.075	0.003
Anti-Diabetic Oral Drugs*	63,643	21.6%	61,310	21.6%	0.020	0.000
Antihypertensive Drugs*	151,922	51.5%	146,103	51.4%	0.136	0.003
Anticoagulants*	25,308	8.6%	23,503	8.3%	0.317	0.011
Glucocorticoids*	66,007	22.4%	63,836	22.5%	-0.067	-0.002
Acetaminophen	47,734	16.2%	44,912	15.8%	0.392	0.011
Tumor Necrosis Factor Inhibitors	1,144	0.4%	1,023	0.4%	0.028	0.005
Immunosuppressants*	19,342	6.6%	18,594	6.5%	0.020	0.001
Inhaled Corticosteroids*	27,203	9.2%	26,091	9.2%	0.049	0.002
COVID-19 Vaccine*	79,377	26.9%	77,169	27.1%	-0.222	-0.005
Health Service Utilization Intensity Metrics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Mean number of ambulatory encounters*	11.3	11.4	11.2	10.9	0.047	0.004
Mean number of emergency room encounters*	0.6	1.7	0.6	1.5	0.023	0.014
Mean number of inpatient hospital encounters	0.2	0.6	0.2	0.5	0.013	0.024
Mean number of non-acute institutional encounters*	0.1	0.3	0.0	0.3	0.002	0.006
Mean number of other ambulatory encounters*	2.2	5.5	2.1	5.5	0.029	0.005
Mean number of filled prescriptions*	15.9	12.4	15.8	12.2	0.070	0.006
Mean number of generics dispensed*	8.4	4.7	8.4	4.6	0.032	0.007
Mean number of unique drug classes dispensed*	8.0	4.3	7.9	4.2	0.030	0.007

Table 1z. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATE Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect (ATE), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years (Outcome: COVID-19 Hospitalization)

	Medical Product		Covariate Balance
	Proton Pump Inhibitor New Users	Famotidine New Users	

[*]Covariate included in the propensity score logistic regression model.

[1]Covariates in blue show (if displayed) a standardized difference greater than 0.1.

[2]Weighted patient characteristics tables facilitate the assessment of covariate balance after inverse probability weighting and should not be interpreted as a description of the unweighted population. Treated patients are weighted by the inverse of their propensity score (PS), while reference patients are weighted by the inverse of 1 minus their PS.

[3]Value represents standard deviation where no % follows the value.

[4]Race data may not be completely populated at all Data Partners; therefore, data about race may be incomplete.

[5]The Social Deprivation Index score is a composite measure of zip code tabulation area (ZCTA)-level deprivation constructed from seven demographic and household characteristics collected in the American Community Survey, where higher values indication greater levels of deprivation. For this project, each patient's most recent geographic information is used. For more information, see Butler DC et al. Health Services Research. 2013;48(2pt1):539-559. doi:10.1111/j.1475-6773.2012.01449.x.

[6]Kim DH, Schneeweiss S, Glynn RJ, Lipsitz LA, Rockwood K, Avorn J. Measuring frailty in Medicare data: development and validation of a claims-based frailty index. J Gerontol A Biol Sci Med Sci. 2018;73(7)980-987.

[7]Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A combined comorbidity score predicted mortality in elderly patients better than existing scores. J Clin Epidemiol. 2011;64(7):749-759. Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and validation of the combined comorbidity score for ICD-10-CM. Med Care. 2017;55(12):1046-1051.

N/A: Not Applicable

Table 1aa. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATE Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect (ATE), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: ≥ 75 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Patient Characteristics[1,2]	Number/Mean	Percent/ Standard Deviation[3]	Number/Mean	Percent/ Standard Deviation[3]	Absolute Difference	Standardized Difference
Weighted patients	198,989	N/A	189,208	N/A	N/A	N/A
Demographic Characteristics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Age (years)*	81.4	5.1	81.4	5.0	0.022	0.004
Age*						
18-49 years	0	0.0%	0	0.0%	NaN	NaN
50-64 years	0	0.0%	0	0.0%	NaN	NaN
65-74 years	0	0.0%	0	0.0%	NaN	NaN
≥ 75 years	198,989	100.0%	189,208	100.0%	0.000	NaN
Sex*						
Female	125,816	63.2%	120,821	63.9%	-0.629	-0.013
Male	73,173	36.8%	68,387	36.1%	0.629	0.013
Race[4]						
American Indian or Alaska Native	564	0.3%	519	0.3%	0.009	0.002
Asian	3,897	2.0%	3,954	2.1%	-0.131	-0.009
Black or African American	24,642	12.4%	25,249	13.3%	-0.961	-0.029
Multi-racial	439	0.2%	362	0.2%	0.029	0.007
Native Hawaiian or Other Pacific Islander	1,850	0.9%	2,129	1.1%	-0.195	-0.019
Unknown	14,114	7.1%	13,810	7.3%	-0.206	-0.008
White	153,482	77.1%	143,185	75.7%	1.455	0.034
Hispanic origin						
Yes	4,091	2.1%	4,463	2.4%	-0.303	-0.021
No	141,048	70.9%	133,231	70.4%	0.467	0.021
Unknown	53,850	27.1%	51,513	27.2%	-0.164	-0.009
ZCTA Social Deprivation Index Score, National Quartile*,5						
Q1 (Least deprived)	48,705	24.5%	46,163	24.4%	0.078	0.002

Table 1aa. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATE Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect (ATE), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: ≥ 75 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Q2	54,582	27.4%	51,706	27.3%	0.102	0.002
Q3	52,882	26.6%	50,215	26.5%	0.036	0.001
Q4 (Most deprived)	41,692	21.0%	40,071	21.2%	-0.226	-0.006
Unknown	1,127	0.6%	1,053	0.6%	0.010	0.002
Year-Quarter of Exposure[*]						
2020 Quarter 2	11,818	5.9%	11,083	5.9%	0.081	0.003
2020 Quarter 3	17,949	9.0%	16,534	8.7%	0.281	0.010
2020 Quarter 4	17,968	9.0%	17,202	9.1%	-0.062	-0.002
2021 Quarter 1	17,172	8.6%	16,456	8.7%	-0.068	-0.002
2021 Quarter 2	17,459	8.8%	16,723	8.8%	-0.064	-0.002
2021 Quarter 3	19,296	9.7%	18,426	9.7%	-0.042	-0.001
2021 Quarter 4	18,240	9.2%	17,426	9.2%	-0.044	-0.002
2022 Quarter 1	15,479	7.8%	14,699	7.8%	0.010	0.000
2022 Quarter 2	15,383	7.7%	14,701	7.8%	-0.039	-0.001
2022 Quarter 3	15,862	8.0%	15,155	8.0%	-0.038	-0.001
2022 Quarter 4	15,954	8.0%	15,142	8.0%	0.015	0.001
2023 Quarter 1	16,410	8.2%	15,661	8.3%	-0.031	-0.001
Health Characteristics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Claims-Based frailty index[*,6]	0.2	0.1	0.2	0.1	0.002	0.024
Claims-Based frailty index categories						
<=0.2	140,755	70.7%	135,830	71.8%	-1.054	-0.023
>0.2	58,234	29.3%	53,378	28.2%	1.054	0.023
Combined comorbidity score[*,7]	3.0	3.3	2.9	3.2	0.127	0.038
Diabetes[*]	63,241	31.8%	59,630	31.5%	0.265	0.006
Obesity[*]	40,821	20.5%	38,303	20.2%	0.271	0.007
Hypertension[*]	164,167	82.5%	155,497	82.2%	0.317	0.008
Hospitalized Stroke/Transient Ischemic Attack	5,978	3.0%	5,607	3.0%	0.041	0.002
Coronary Revascularization	3,985	2.0%	3,889	2.1%	-0.053	-0.004

Table 1aa. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATE Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect (ATE), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: ≥ 75 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Atrial Fibrillation*	37,387	18.8%	34,059	18.0%	0.788	0.020
Congestive Heart Failure*	36,106	18.1%	32,932	17.4%	0.740	0.019
Hospitalized Acute Myocardial Infarction	5,396	2.7%	4,830	2.6%	0.159	0.010
Other Cerebrovascular Disease*	25,552	12.8%	23,823	12.6%	0.250	0.007
Chronic Obstructive Pulmonary Disease*	39,308	19.8%	36,441	19.3%	0.494	0.012
Asthma without COPD*	16,636	8.4%	15,904	8.4%	-0.045	-0.002
Chronic Liver Disease*	12,679	6.4%	11,327	6.0%	0.385	0.016
Chronic Kidney Disease*	64,551	32.4%	59,506	31.5%	0.989	0.021
Any Malignant Neoplasm*	53,933	27.1%	50,703	26.8%	0.306	0.007
Hemiplegia	4,931	2.5%	5,275	2.8%	-0.310	-0.019
Neurological/Neurodegenerative Conditions	3,689	1.9%	3,532	1.9%	-0.013	-0.001
Dementia*	20,027	10.1%	18,676	9.9%	0.193	0.006
Depression*	39,001	19.6%	36,826	19.5%	0.136	0.003
Schizophrenia	528	0.3%	520	0.3%	-0.009	-0.002
Rheumatic Disorders*	6,875	3.5%	6,480	3.4%	0.030	0.002
Multiple Sclerosis	547	0.3%	479	0.3%	0.022	0.004
HIV/AIDS	148	0.1%	178	0.1%	-0.020	-0.007
Coronary Artery Disease*	76,588	38.5%	71,366	37.7%	0.770	0.016
Immunodeficiency*	29,470	14.8%	27,268	14.4%	0.398	0.011
Smoking or Nicotine Use	48,288	24.3%	44,755	23.7%	0.613	0.014
Hyperlipidemia*	146,649	73.7%	139,163	73.6%	0.147	0.003
Medical Product Use	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Angiotensin Converting Enzyme Inhibitors/Angiotensin Receptor Blockers*	104,413	52.5%	99,270	52.5%	0.006	0.000
Non-Steroidal Anti-Inflammatory Drugs*	31,826	16.0%	30,263	16.0%	-0.001	-0.000
Aspirin	954	0.5%	1,052	0.6%	-0.077	-0.011
Antidepressants*	60,581	30.4%	57,305	30.3%	0.158	0.003

Table 1aa. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATE Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect (ATE), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: ≥ 75 years (Outcome: COVID-19 Hospitalization)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Statins*	118,458	59.5%	112,507	59.5%	0.068	0.001
Insulin*	13,182	6.6%	12,251	6.5%	0.150	0.006
Anti-Diabetic Oral Drugs*	38,035	19.1%	35,935	19.0%	0.122	0.003
Antihypertensive Drugs*	113,136	56.9%	107,437	56.8%	0.073	0.001
Anticoagulants*	33,922	17.0%	31,206	16.5%	0.554	0.015
Glucocorticoids*	42,941	21.6%	40,876	21.6%	-0.024	-0.001
Acetaminophen	29,002	14.6%	25,230	13.3%	1.240	0.036
Tumor Necrosis Factor Inhibitors	433	0.2%	447	0.2%	-0.019	-0.004
Immunosuppressants*	16,162	8.1%	15,147	8.0%	0.117	0.004
Inhaled Corticosteroids*	18,306	9.2%	17,337	9.2%	0.036	0.001
COVID-19 Vaccine*	55,659	28.0%	53,145	28.1%	-0.117	-0.003
Health Service Utilization Intensity Metrics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Mean number of ambulatory encounters*	12.6	12.1	12.6	11.7	0.082	0.007
Mean number of emergency room encounters*	0.9	1.9	0.9	1.9	0.050	0.026
Mean number of inpatient hospital encounters	0.3	0.7	0.3	0.6	0.026	0.040
Mean number of non-acute institutional encounters*	0.1	0.4	0.1	0.4	0.008	0.020
Mean number of other ambulatory encounters*	3.2	6.9	3.1	6.9	0.081	0.012
Mean number of filled prescriptions*	17.1	12.3	17.0	12.1	0.090	0.007
Mean number of generics dispensed*	9.0	4.5	9.0	4.4	0.041	0.009
Mean number of unique drug classes dispensed*	8.6	4.1	8.5	4.1	0.038	0.009

Table 1aa. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATE Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect (ATE), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: ≥ 75 years (Outcome: COVID-19 Hospitalization)

	Medical Product		Covariate Balance
	Proton Pump Inhibitor New Users	Famotidine New Users	

[*]Covariate included in the propensity score logistic regression model.

[1]Covariates in blue show (if displayed) a standardized difference greater than 0.1.

[2]Weighted patient characteristics tables facilitate the assessment of covariate balance after inverse probability weighting and should not be interpreted as a description of the unweighted population. Treated patients are weighted by the inverse of their propensity score (PS), while reference patients are weighted by the inverse of 1 minus their PS.

[3]Value represents standard deviation where no % follows the value.

[4]Race data may not be completely populated at all Data Partners; therefore, data about race may be incomplete.

[5]The Social Deprivation Index score is a composite measure of zip code tabulation area (ZCTA)-level deprivation constructed from seven demographic and household characteristics collected in the American Community Survey, where higher values indication greater levels of deprivation. For this project, each patient's most recent geographic information is used. For more information, see Butler DC et al. Health Services Research. 2013;48(2pt1):539-559. doi:10.1111/j.1475-6773.2012.01449.x.

[6]Kim DH, Schneeweiss S, Glynn RJ, Lipsitz LA, Rockwood K, Avorn J. Measuring frailty in Medicare data: development and validation of a claims-based frailty index. J Gerontol A Biol Sci Med Sci. 2018;73(7)980-987.

[7]Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A combined comorbidity score predicted mortality in elderly patients better than existing scores. J Clin Epidemiol. 2011;64(7):749-759. Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and validation of the combined comorbidity score for ICD-10-CM. Med Care. 2017;55(12):1046-1051.

N/A: Not Applicable

Table 1ab. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024 (Outcome: Severe COVID-19 Outcome or Death)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Patient Characteristics[1,2]	Number/Mean	Percent/ Standard Deviation[3]	Number/Mean	Percent/ Standard Deviation[3]	Absolute Difference	Standardized Difference
Weighted patients	1,043,544	N/A	1,030,228	N/A	N/A	N/A
Demographic Characteristics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Age (years)[*]	58.2	14.9	58.3	15.3	-0.097	-0.006
Age[*]						
18-49 years	317,945	30.5%	311,519	30.2%	0.230	0.005
50-64 years	312,922	30.0%	307,215	29.8%	0.166	0.004
65-74 years	248,819	23.8%	247,631	24.0%	-0.193	-0.005
≥ 75 years	163,858	15.7%	163,864	15.9%	-0.204	-0.006
Sex[*]						
Female	614,598	58.9%	611,312	59.3%	-0.442	-0.009
Male	428,946	41.1%	418,916	40.7%	0.442	0.009
Race[4]						
American Indian or Alaska Native	3,521	0.3%	3,692	0.4%	-0.021	-0.004
Asian	31,636	3.0%	34,187	3.3%	-0.287	-0.016
Black or African American	116,644	11.2%	124,613	12.1%	-0.918	-0.029
Multi-racial	16,050	1.5%	15,013	1.5%	0.081	0.007
Native Hawaiian or Other Pacific Islander	4,169	0.4%	4,733	0.5%	-0.060	-0.009
Unknown	274,381	26.3%	267,840	26.0%	0.295	0.007
White	597,143	57.2%	580,151	56.3%	0.910	0.019
Hispanic origin						
Yes	41,713	4.0%	45,180	4.4%	-0.388	-0.019
No	577,410	55.3%	570,876	55.4%	-0.081	-0.002
Unknown	424,421	40.7%	414,172	40.2%	0.469	0.013
ZCTA Social Deprivation Index Score, National Quartile[*,5]						
Q1 (Least deprived)	267,458	25.6%	262,698	25.5%	0.131	0.003

Table 1ab. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024 (Outcome: Severe COVID-19 Outcome or Death)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Q2	271,481	26.0%	267,258	25.9%	0.074	0.002
Q3	273,964	26.3%	270,715	26.3%	-0.024	-0.001
Q4 (Most deprived)	221,552	21.2%	220,667	21.4%	-0.189	-0.005
Unknown	9,089	0.9%	8,890	0.9%	0.008	0.001
Year-Quarter of Exposure[*]						
2020 Quarter 2	72,359	6.9%	69,851	6.8%	0.154	0.006
2020 Quarter 3	101,527	9.7%	93,229	9.0%	0.680	0.023
2020 Quarter 4	95,142	9.1%	94,798	9.2%	-0.084	-0.003
2021 Quarter 1	91,337	8.8%	90,834	8.8%	-0.064	-0.002
2021 Quarter 2	86,107	8.3%	85,576	8.3%	-0.055	-0.002
2021 Quarter 3	94,306	9.0%	94,008	9.1%	-0.088	-0.003
2021 Quarter 4	89,025	8.5%	88,911	8.6%	-0.099	-0.004
2022 Quarter 1	80,015	7.7%	79,792	7.7%	-0.077	-0.003
2022 Quarter 2	76,735	7.4%	76,274	7.4%	-0.050	-0.002
2022 Quarter 3	85,321	8.2%	85,351	8.3%	-0.109	-0.004
2022 Quarter 4	84,711	8.1%	84,785	8.2%	-0.112	-0.004
2023 Quarter 1	86,959	8.3%	86,818	8.4%	-0.094	-0.003
Health Characteristics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Claims-Based frailty index[*,6]	0.1	0.0	0.1	0.1	-0.000	-0.007
Claims-Based frailty index categories						
<=0.2	919,674	88.1%	907,036	88.0%	0.088	0.003
>0.2	123,870	11.9%	123,192	12.0%	-0.088	-0.003
Combined comorbidity score[*,7]	1.4	2.4	1.4	2.4	-0.014	-0.006
Diabetes[*]	222,995	21.4%	221,809	21.5%	-0.161	-0.004
Obesity[*]	281,839	27.0%	277,905	27.0%	0.033	0.001
Hypertension[*]	550,425	52.7%	545,000	52.9%	-0.155	-0.003
Hospitalized Stroke/Transient Ischemic Attack	11,447	1.1%	12,960	1.3%	-0.161	-0.015
Coronary Revascularization	10,876	1.0%	11,878	1.2%	-0.111	-0.011

Table 1ab. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024 (Outcome: Severe COVID-19 Outcome or Death)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Atrial Fibrillation*	63,911	6.1%	63,542	6.2%	-0.043	-0.002
Congestive Heart Failure*	68,943	6.6%	68,961	6.7%	-0.087	-0.004
Hospitalized Acute Myocardial Infarction	11,996	1.1%	11,354	1.1%	0.047	0.005
Other Cerebrovascular Disease*	50,257	4.8%	50,655	4.9%	-0.101	-0.005
Chronic Obstructive Pulmonary Disease*	106,983	10.3%	106,558	10.3%	-0.091	-0.003
Asthma without COPD*	102,414	9.8%	102,340	9.9%	-0.120	-0.004
Chronic Liver Disease*	76,620	7.3%	74,102	7.2%	0.150	0.006
Chronic Kidney Disease*	170,187	16.3%	169,848	16.5%	-0.178	-0.005
Any Malignant Neoplasm*	133,199	12.8%	132,332	12.8%	-0.081	-0.002
Hemiplegia	11,473	1.1%	13,514	1.3%	-0.212	-0.020
Neurological/Neurodegenerative Conditions	6,033	0.6%	6,568	0.6%	-0.059	-0.008
Dementia*	22,809	2.2%	23,008	2.2%	-0.048	-0.003
Depression*	190,809	18.3%	188,941	18.3%	-0.055	-0.001
Schizophrenia	6,801	0.7%	8,563	0.8%	-0.179	-0.021
Rheumatic Disorders*	25,982	2.5%	25,908	2.5%	-0.025	-0.002
Multiple Sclerosis	5,094	0.5%	4,931	0.5%	0.010	0.001
HIV/AIDS	3,008	0.3%	5,010	0.5%	-0.198	-0.032
Coronary Artery Disease*	171,746	16.5%	170,727	16.6%	-0.114	-0.003
Immunodeficiency*	108,777	10.4%	108,197	10.5%	-0.078	-0.003
Smoking or Nicotine Use	212,725	20.4%	204,901	19.9%	0.496	0.013
Hyperlipidemia*	514,955	49.3%	510,922	49.6%	-0.246	-0.005
Medical Product Use	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Angiotensin Converting Enzyme Inhibitors/Angiotensin Receptor Blockers*	359,725	34.5%	355,545	34.5%	-0.040	-0.001
Non-Steroidal Anti-Inflammatory Drugs*	221,583	21.2%	219,167	21.3%	-0.040	-0.001
Aspirin	11,313	1.1%	13,563	1.3%	-0.232	-0.021
Antidepressants*	332,285	31.8%	328,294	31.9%	-0.024	-0.001

Table 1ab. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024 (Outcome: Severe COVID-19 Outcome or Death)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Statins*	383,061	36.7%	380,739	37.0%	-0.249	-0.005
Insulin*	56,444	5.4%	56,182	5.5%	-0.044	-0.002
Anti-Diabetic Oral Drugs*	154,634	14.8%	153,632	14.9%	-0.094	-0.003
Antihypertensive Drugs*	393,221	37.7%	388,642	37.7%	-0.043	-0.001
Anticoagulants*	69,258	6.6%	69,054	6.7%	-0.066	-0.003
Glucocorticoids*	232,489	22.3%	231,450	22.5%	-0.187	-0.005
Acetaminophen	152,001	14.6%	140,341	13.6%	0.944	0.027
Tumor Necrosis Factor Inhibitors	6,249	0.6%	5,750	0.6%	0.041	0.005
Immunosuppressants*	53,278	5.1%	53,332	5.2%	-0.071	-0.003
Inhaled Corticosteroids*	80,127	7.7%	80,044	7.8%	-0.091	-0.003
COVID-19 Vaccine*	267,593	25.6%	267,531	26.0%	-0.325	-0.007
Health Service Utilization Intensity Metrics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Mean number of ambulatory encounters*	10.0	10.7	10.0	10.7	-0.069	-0.006
Mean number of emergency room encounters*	0.5	1.5	0.5	1.6	-0.007	-0.004
Mean number of inpatient hospital encounters	0.2	0.5	0.1	0.5	0.010	0.021
Mean number of non-acute institutional encounters*	0.0	0.3	0.0	0.3	-0.001	-0.005
Mean number of other ambulatory encounters*	2.3	5.2	2.3	5.4	-0.031	-0.006
Mean number of filled prescriptions*	14.0	12.4	14.1	12.4	-0.073	-0.006
Mean number of generics dispensed*	7.4	4.6	7.4	4.6	-0.036	-0.008
Mean number of unique drug classes dispensed*	7.0	4.2	7.1	4.2	-0.033	-0.008

Table 1ab. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024 (Outcome: Severe COVID-19 Outcome or Death)

	Medical Product		Covariate Balance
	Proton Pump Inhibitor New Users	Famotidine New Users	

[*]Covariate included in the propensity score logistic regression model.

[1]Covariates in blue show (if displayed) a standardized difference greater than 0.1.

[2]Weighted patient characteristics tables facilitate the assessment of covariate balance after inverse probability weighting and should not be interpreted as a description of the unweighted population. Treated patients are assigned a weight of 1. Reference patients are weighted by their propensity score (PS) divided by 1 minus their PS.

[3]Value represents standard deviation where no % follows the value.

[4]Race data may not be completely populated at all Data Partners; therefore, data about race may be incomplete.

[5]The Social Deprivation Index score is a composite measure of zip code tabulation area (ZCTA)-level deprivation constructed from seven demographic and household characteristics collected in the American Community Survey, where higher values indication greater levels of deprivation. For this project, each patient's most recent geographic information is used. For more information, see Butler DC et al. Health Services Research. 2013;48(2pt1):539-559. doi:10.1111/j.1475-6773.2012.01449.x.

[6]Kim DH, Schneeweiss S, Glynn RJ, Lipsitz LA, Rockwood K, Avorn J. Measuring frailty in Medicare data: development and validation of a claims-based frailty index. J Gerontol A Biol Sci Med Sci. 2018;73(7)980-987.

[7]Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A combined comorbidity score predicted mortality in elderly patients better than existing scores. J Clin Epidemiol. 2011;64(7):749-759. Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and validation of the combined comorbidity score for ICD-10-CM. Med Care. 2017;55(12):1046-1051.

N/A: Not Applicable

Table 1ac. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years (Outcome: Severe COVID-19 Outcome or Death)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Patient Characteristics[1,2]	Number/Mean	Percent/ Standard Deviation[3]	Number/Mean	Percent/ Standard Deviation[3]	Absolute Difference	Standardized Difference
Weighted patients	317,870	N/A	313,131	N/A	N/A	N/A
Demographic Characteristics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Age (years)*	37.4	8.7	37.4	8.7	0.047	0.005
Age*						
18-49 years	317,870	100.0%	313,131	100.0%	0.000	NaN
50-64 years	0	0.0%	0	0.0%	NaN	NaN
65-74 years	0	0.0%	0	0.0%	NaN	NaN
≥ 75 years	0	0.0%	0	0.0%	NaN	NaN
Sex*						
Female	177,374	55.8%	176,153	56.3%	-0.455	-0.009
Male	140,496	44.2%	136,978	43.7%	0.455	0.009
Race[4]						
American Indian or Alaska Native	1,108	0.3%	1,090	0.3%	0.001	0.000
Asian	13,011	4.1%	14,461	4.6%	-0.525	-0.026
Black or African American	24,376	7.7%	26,270	8.4%	-0.721	-0.027
Multi-racial	8,398	2.6%	8,105	2.6%	0.054	0.003
Native Hawaiian or Other Pacific Islander	221	0.1%	287	0.1%	-0.022	-0.008
Unknown	132,142	41.6%	128,524	41.0%	0.526	0.011
White	138,614	43.6%	134,395	42.9%	0.687	0.014
Hispanic origin						
Yes	17,139	5.4%	17,769	5.7%	-0.283	-0.012
No	135,248	42.5%	134,616	43.0%	-0.442	-0.010
Unknown	165,483	52.1%	160,746	51.3%	0.725	0.016
ZCTA Social Deprivation Index Score, National Quartile*,5						
Q1 (Least deprived)	89,574	28.2%	87,848	28.1%	0.125	0.003

Table 1ac. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years (Outcome: Severe COVID-19 Outcome or Death)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Q2	82,267	25.9%	80,906	25.8%	0.043	0.001
Q3	79,469	25.0%	78,385	25.0%	-0.032	-0.001
Q4 (Most deprived)	62,402	19.6%	61,893	19.8%	-0.134	-0.003
Unknown	4,158	1.3%	4,099	1.3%	-0.001	-0.000
Year-Quarter of Exposure[*]						
2020 Quarter 2	24,600	7.7%	23,664	7.6%	0.182	0.007
2020 Quarter 3	32,248	10.1%	29,784	9.5%	0.633	0.021
2020 Quarter 4	29,179	9.2%	28,985	9.3%	-0.077	-0.003
2021 Quarter 1	28,237	8.9%	28,061	9.0%	-0.078	-0.003
2021 Quarter 2	25,746	8.1%	25,639	8.2%	-0.088	-0.003
2021 Quarter 3	27,743	8.7%	27,646	8.8%	-0.101	-0.004
2021 Quarter 4	24,950	7.8%	24,785	7.9%	-0.066	-0.002
2022 Quarter 1	24,000	7.6%	23,831	7.6%	-0.060	-0.002
2022 Quarter 2	22,686	7.1%	22,547	7.2%	-0.064	-0.002
2022 Quarter 3	26,448	8.3%	26,441	8.4%	-0.124	-0.004
2022 Quarter 4	25,265	7.9%	25,213	8.1%	-0.104	-0.004
2023 Quarter 1	26,768	8.4%	26,534	8.5%	-0.053	-0.002
Health Characteristics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Claims-Based frailty index[*,6]	0.1	0.0	0.1	0.0	-0.000	-0.003
Claims-Based frailty index categories						
<=0.2	309,849	97.5%	304,893	97.4%	0.107	0.007
>0.2	8,021	2.5%	8,238	2.6%	-0.107	-0.007
Combined comorbidity score[*,7]	0.6	1.3	0.6	1.3	-0.005	-0.004
Diabetes[*]	25,538	8.0%	25,171	8.0%	-0.004	-0.000
Obesity[*]	83,775	26.4%	82,289	26.3%	0.076	0.002
Hypertension[*]	70,876	22.3%	69,616	22.2%	0.065	0.002
Hospitalized Stroke/Transient Ischemic Attack	518	0.2%	587	0.2%	-0.025	-0.006
Coronary Revascularization	557	0.2%	641	0.2%	-0.029	-0.007

Table 1ac. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years (Outcome: Severe COVID-19 Outcome or Death)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Atrial Fibrillation*	1,789	0.6%	1,738	0.6%	0.008	0.001
Congestive Heart Failure*	2,520	0.8%	2,517	0.8%	-0.011	-0.001
Hospitalized Acute Myocardial Infarction	645	0.2%	650	0.2%	-0.005	-0.001
Other Cerebrovascular Disease*	1,836	0.6%	1,869	0.6%	-0.019	-0.003
Chronic Obstructive Pulmonary Disease*	4,372	1.4%	4,362	1.4%	-0.018	-0.002
Asthma without COPD*	32,445	10.2%	32,481	10.4%	-0.166	-0.005
Chronic Liver Disease*	17,597	5.5%	16,857	5.4%	0.153	0.007
Chronic Kidney Disease*	16,151	5.1%	16,161	5.2%	-0.080	-0.004
Any Malignant Neoplasm*	8,801	2.8%	8,747	2.8%	-0.025	-0.001
Hemiplegia	642	0.2%	826	0.3%	-0.062	-0.013
Neurological/Neurodegenerative Conditions	111	0.0%	112	0.0%	-0.001	-0.000
Dementia*	128	0.0%	130	0.0%	-0.001	-0.001
Depression*	52,040	16.4%	51,417	16.4%	-0.049	-0.001
Schizophrenia	2,309	0.7%	2,870	0.9%	-0.190	-0.021
Rheumatic Disorders*	3,534	1.1%	3,482	1.1%	-0.000	-0.000
Multiple Sclerosis	1,383	0.4%	1,347	0.4%	0.005	0.001
HIV/AIDS	937	0.3%	1,401	0.4%	-0.153	-0.025
Coronary Artery Disease*	6,982	2.2%	6,944	2.2%	-0.021	-0.001
Immunodeficiency*	19,926	6.3%	19,864	6.3%	-0.075	-0.003
Smoking or Nicotine Use	42,197	13.3%	40,369	12.9%	0.383	0.011
Hyperlipidemia*	64,093	20.2%	63,422	20.3%	-0.091	-0.002
Medical Product Use	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Angiotensin Converting Enzyme Inhibitors/Angiotensin Receptor Blockers*	42,085	13.2%	40,909	13.1%	0.175	0.005
Non-Steroidal Anti-Inflammatory Drugs*	60,390	19.0%	60,131	19.2%	-0.205	-0.005
Aspirin	2,444	0.8%	3,367	1.1%	-0.307	-0.032
Antidepressants*	95,398	30.0%	93,916	30.0%	0.019	0.000

Table 1ac. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years (Outcome: Severe COVID-19 Outcome or Death)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Statins*	29,360	9.2%	28,936	9.2%	-0.004	-0.000
Insulin*	7,704	2.4%	7,635	2.4%	-0.015	-0.001
Anti-Diabetic Oral Drugs*	19,851	6.2%	19,590	6.3%	-0.011	-0.000
Antihypertensive Drugs*	51,311	16.1%	50,065	16.0%	0.153	0.004
Anticoagulants*	4,365	1.4%	4,336	1.4%	-0.012	-0.001
Glucocorticoids*	63,098	19.9%	62,731	20.0%	-0.183	-0.005
Acetaminophen	34,737	10.9%	31,932	10.2%	0.730	0.024
Tumor Necrosis Factor Inhibitors	2,265	0.7%	2,019	0.6%	0.068	0.008
Immunosuppressants*	7,665	2.4%	7,627	2.4%	-0.024	-0.002
Inhaled Corticosteroids*	16,259	5.1%	16,320	5.2%	-0.097	-0.004
COVID-19 Vaccine*	72,269	22.7%	72,301	23.1%	-0.354	-0.008
Health Service Utilization Intensity Metrics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Mean number of ambulatory encounters*	7.7	9.1	7.8	9.1	-0.070	-0.008
Mean number of emergency room encounters*	0.4	1.2	0.4	1.0	-0.011	-0.010
Mean number of inpatient hospital encounters	0.1	0.4	0.1	0.3	0.007	0.019
Mean number of non-acute institutional encounters*	0.0	0.1	0.0	0.1	-0.000	-0.002
Mean number of other ambulatory encounters*	1.9	4.1	1.9	4.0	-0.029	-0.007
Mean number of filled prescriptions*	9.6	10.4	9.7	10.4	-0.048	-0.005
Mean number of generics dispensed*	5.5	4.1	5.5	4.1	-0.027	-0.007
Mean number of unique drug classes dispensed*	5.2	3.8	5.2	3.7	-0.024	-0.006

Table 1ac. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years (Outcome: Severe COVID-19 Outcome or Death)

	Medical Product		Covariate Balance
	Proton Pump Inhibitor New Users	Famotidine New Users	

[*] Covariate included in the propensity score logistic regression model.

[1] Covariates in blue show (if displayed) a standardized difference greater than 0.1.

[2] Weighted patient characteristics tables facilitate the assessment of covariate balance after inverse probability weighting and should not be interpreted as a description of the unweighted population. Treated patients are assigned a weight of 1. Reference patients are weighted by their propensity score (PS) divided by 1 minus their PS.

[3] Value represents standard deviation where no % follows the value.

[4] Race data may not be completely populated at all Data Partners; therefore, data about race may be incomplete.

[5] The Social Deprivation Index score is a composite measure of zip code tabulation area (ZCTA)-level deprivation constructed from seven demographic and household characteristics collected in the American Community Survey, where higher values indication greater levels of deprivation. For this project, each patient's most recent geographic information is used. For more information, see Butler DC et al. Health Services Research. 2013;48(2pt1):539-559. doi:10.1111/j.1475-6773.2012.01449.x.

[6] Kim DH, Schneeweiss S, Glynn RJ, Lipsitz LA, Rockwood K, Avorn J. Measuring frailty in Medicare data: development and validation of a claims-based frailty index. J Gerontol A Biol Sci Med Sci. 2018;73(7)980-987.

[7] Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A combined comorbidity score predicted mortality in elderly patients better than existing scores. J Clin Epidemiol. 2011;64(7):749-759. Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and validation of the combined comorbidity score for ICD-10-CM. Med Care. 2017;55(12):1046-1051.

N/A: Not Applicable

Table 1ad. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 50-64 years (Outcome: Severe COVID-19 Outcome or Death)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Patient Characteristics[1,2]	Number/Mean	Percent/ Standard Deviation[3]	Number/Mean	Percent/ Standard Deviation[3]	Absolute Difference	Standardized Difference
Weighted patients	312,854	N/A	308,884	N/A	N/A	N/A
Demographic Characteristics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Age (years)[*]	57.8	4.3	57.8	4.3	-0.019	-0.004
Age[*]						
18-49 years	0	0.0%	0	0.0%	NaN	NaN
50-64 years	312,854	100.0%	308,884	100.0%	0.000	NaN
65-74 years	0	0.0%	0	0.0%	NaN	NaN
≥ 75 years	0	0.0%	0	0.0%	NaN	NaN
Sex[*]						
Female	183,586	58.7%	182,553	59.1%	-0.420	-0.009
Male	129,268	41.3%	126,331	40.9%	0.420	0.009
Race[4]						
American Indian or Alaska Native	1,217	0.4%	1,401	0.5%	-0.065	-0.010
Asian	7,988	2.6%	9,104	2.9%	-0.394	-0.024
Black or African American	32,718	10.5%	35,083	11.4%	-0.900	-0.029
Multi-racial	6,007	1.9%	5,769	1.9%	0.052	0.004
Native Hawaiian or Other Pacific Islander	393	0.1%	384	0.1%	0.001	0.000
Unknown	101,015	32.3%	98,681	31.9%	0.341	0.007
White	163,516	52.3%	158,461	51.3%	0.965	0.019
Hispanic origin						
Yes	12,549	4.0%	14,162	4.6%	-0.574	-0.028
No	160,746	51.4%	158,755	51.4%	-0.016	-0.000
Unknown	139,559	44.6%	135,967	44.0%	0.589	0.014
ZCTA Social Deprivation Index Score, National Quartile[*,5]						
Q1 (Least deprived)	82,545	26.4%	81,045	26.2%	0.147	0.003

Table 1ad. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 50-64 years (Outcome: Severe COVID-19 Outcome or Death)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Q2	79,899	25.5%	78,692	25.5%	0.063	0.001
Q3	81,756	26.1%	80,810	26.2%	-0.030	-0.001
Q4 (Most deprived)	65,985	21.1%	65,750	21.3%	-0.195	-0.005
Unknown	2,669	0.9%	2,587	0.8%	0.015	0.002
Year-Quarter of Exposure*						
2020 Quarter 2	22,855	7.3%	22,132	7.2%	0.140	0.005
2020 Quarter 3	30,399	9.7%	27,765	9.0%	0.728	0.025
2020 Quarter 4	28,678	9.2%	28,647	9.3%	-0.108	-0.004
2021 Quarter 1	27,688	8.9%	27,669	9.0%	-0.108	-0.004
2021 Quarter 2	25,311	8.1%	25,213	8.2%	-0.072	-0.003
2021 Quarter 3	27,326	8.7%	27,132	8.8%	-0.050	-0.002
2021 Quarter 4	26,222	8.4%	26,235	8.5%	-0.112	-0.004
2022 Quarter 1	24,234	7.7%	24,191	7.8%	-0.086	-0.003
2022 Quarter 2	23,259	7.4%	23,180	7.5%	-0.070	-0.003
2022 Quarter 3	25,531	8.2%	25,487	8.3%	-0.090	-0.003
2022 Quarter 4	25,685	8.2%	25,629	8.3%	-0.087	-0.003
2023 Quarter 1	25,666	8.2%	25,604	8.3%	-0.085	-0.003
Health Characteristics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Claims-Based frailty index*,6	0.1	0.0	0.1	0.0	-0.000	-0.005
Claims-Based frailty index categories						
<=0.2	284,705	91.0%	281,145	91.0%	-0.017	-0.001
>0.2	28,149	9.0%	27,740	9.0%	0.017	0.001
Combined comorbidity score*,7	1.0	2.1	1.0	2.1	-0.007	-0.003
Diabetes*	68,375	21.9%	67,837	22.0%	-0.107	-0.003
Obesity*	92,223	29.5%	91,167	29.5%	-0.037	-0.001
Hypertension*	165,915	53.0%	163,858	53.0%	-0.016	-0.000
Hospitalized Stroke/Transient Ischemic Attack	2,230	0.7%	2,835	0.9%	-0.205	-0.023
Coronary Revascularization	2,918	0.9%	3,238	1.0%	-0.116	-0.012

Table 1ad. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 50-64 years (Outcome: Severe COVID-19 Outcome or Death)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Atrial Fibrillation*	10,250	3.3%	10,112	3.3%	0.003	0.000
Congestive Heart Failure*	13,293	4.2%	13,285	4.3%	-0.052	-0.003
Hospitalized Acute Myocardial Infarction	2,657	0.8%	2,640	0.9%	-0.005	-0.001
Other Cerebrovascular Disease*	9,717	3.1%	9,800	3.2%	-0.067	-0.004
Chronic Obstructive Pulmonary Disease*	28,961	9.3%	28,780	9.3%	-0.060	-0.002
Asthma without COPD*	32,738	10.5%	32,638	10.6%	-0.102	-0.003
Chronic Liver Disease*	26,661	8.5%	25,901	8.4%	0.137	0.005
Chronic Kidney Disease*	43,562	13.9%	43,381	14.0%	-0.120	-0.004
Any Malignant Neoplasm*	33,551	10.7%	33,276	10.8%	-0.049	-0.002
Hemiplegia	2,748	0.9%	3,238	1.0%	-0.170	-0.017
Neurological/Neurodegenerative Conditions	884	0.3%	973	0.3%	-0.033	-0.006
Dementia*	1,206	0.4%	1,221	0.4%	-0.010	-0.002
Depression*	57,347	18.3%	57,099	18.5%	-0.155	-0.004
Schizophrenia	2,722	0.9%	3,554	1.2%	-0.280	-0.028
Rheumatic Disorders*	8,840	2.8%	8,788	2.8%	-0.020	-0.001
Multiple Sclerosis	2,145	0.7%	2,076	0.7%	0.013	0.002
HIV/AIDS	1,377	0.4%	2,442	0.8%	-0.350	-0.045
Coronary Artery Disease*	38,001	12.1%	37,532	12.2%	-0.004	-0.000
Immunodeficiency*	33,199	10.6%	33,047	10.7%	-0.087	-0.003
Smoking or Nicotine Use	65,375	20.9%	63,849	20.7%	0.226	0.006
Hyperlipidemia*	158,336	50.6%	156,791	50.8%	-0.150	-0.003
Medical Product Use	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Angiotensin Converting Enzyme Inhibitors/Angiotensin Receptor Blockers*	111,449	35.6%	109,990	35.6%	0.014	0.000
Non-Steroidal Anti-Inflammatory Drugs*	78,302	25.0%	77,219	25.0%	0.029	0.001
Aspirin	6,672	2.1%	7,641	2.5%	-0.341	-0.023
Antidepressants*	106,854	34.2%	105,844	34.3%	-0.112	-0.002

Table 1ad. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 50-64 years (Outcome: Severe COVID-19 Outcome or Death)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Statins*	116,263	37.2%	115,466	37.4%	-0.220	-0.005
Insulin*	19,281	6.2%	19,127	6.2%	-0.029	-0.001
Anti-Diabetic Oral Drugs*	49,636	15.9%	49,233	15.9%	-0.073	-0.002
Antihypertensive Drugs*	120,404	38.5%	118,874	38.5%	0.001	0.000
Anticoagulants*	14,821	4.7%	14,816	4.8%	-0.059	-0.003
Glucocorticoids*	78,374	25.1%	77,959	25.2%	-0.188	-0.004
Acetaminophen	52,274	16.7%	48,816	15.8%	0.905	0.025
Tumor Necrosis Factor Inhibitors	2,676	0.9%	2,477	0.8%	0.053	0.006
Immunosuppressants*	16,102	5.1%	16,057	5.2%	-0.052	-0.002
Inhaled Corticosteroids*	25,840	8.3%	25,799	8.4%	-0.093	-0.003
COVID-19 Vaccine*	83,836	26.8%	83,770	27.1%	-0.323	-0.007
Health Service Utilization Intensity Metrics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Mean number of ambulatory encounters*	9.8	10.8	9.8	10.8	-0.060	-0.006
Mean number of emergency room encounters*	0.4	1.4	0.4	1.5	-0.004	-0.003
Mean number of inpatient hospital encounters	0.1	0.5	0.1	0.5	0.006	0.012
Mean number of non-acute institutional encounters*	0.0	0.2	0.0	0.2	-0.001	-0.004
Mean number of other ambulatory encounters*	2.3	4.9	2.3	5.1	-0.024	-0.005
Mean number of filled prescriptions*	15.3	13.5	15.4	13.5	-0.091	-0.007
Mean number of generics dispensed*	7.7	4.8	7.7	4.8	-0.036	-0.007
Mean number of unique drug classes dispensed*	7.3	4.4	7.3	4.3	-0.033	-0.008

Table 1ad. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 50-64 years (Outcome: Severe COVID-19 Outcome or Death)

	Medical Product		Covariate Balance
	Proton Pump Inhibitor New Users	Famotidine New Users	

[*]Covariate included in the propensity score logistic regression model.

[1]Covariates in blue show (if displayed) a standardized difference greater than 0.1.

[2]Weighted patient characteristics tables facilitate the assessment of covariate balance after inverse probability weighting and should not be interpreted as a description of the unweighted population. Treated patients are assigned a weight of 1. Reference patients are weighted by their propensity score (PS) divided by 1 minus their PS.

[3]Value represents standard deviation where no % follows the value.

[4]Race data may not be completely populated at all Data Partners; therefore, data about race may be incomplete.

[5]The Social Deprivation Index score is a composite measure of zip code tabulation area (ZCTA)-level deprivation constructed from seven demographic and household characteristics collected in the American Community Survey, where higher values indication greater levels of deprivation. For this project, each patient's most recent geographic information is used. For more information, see Butler DC et al. Health Services Research. 2013;48(2pt1):539-559. doi:10.1111/j.1475-6773.2012.01449.x.

[6]Kim DH, Schneeweiss S, Glynn RJ, Lipsitz LA, Rockwood K, Avorn J. Measuring frailty in Medicare data: development and validation of a claims-based frailty index. J Gerontol A Biol Sci Med Sci. 2018;73(7)980-987.

[7]Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A combined comorbidity score predicted mortality in elderly patients better than existing scores. J Clin Epidemiol. 2011;64(7):749-759. Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and validation of the combined comorbidity score for ICD-10-CM. Med Care. 2017;55(12):1046-1051.

N/A: Not Applicable

Table 1ae. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years (Outcome: Severe COVID-19 Outcome or Death)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Patient Characteristics[1,2]	Number/Mean	Percent/ Standard Deviation[3]	Number/Mean	Percent/ Standard Deviation[3]	Absolute Difference	Standardized Difference
Weighted patients	248,733	N/A	245,987	N/A	N/A	N/A
Demographic Characteristics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Age (years)*	69.7	2.8	69.8	2.8	-0.009	-0.003
Age*						
18-49 years	0	0.0%	0	0.0%	NaN	NaN
50-64 years	0	0.0%	0	0.0%	NaN	NaN
65-74 years	248,733	100.0%	245,987	100.0%	0.000	NaN
≥ 75 years	0	0.0%	0	0.0%	NaN	NaN
Sex*						
Female	151,508	60.9%	150,824	61.3%	-0.402	-0.008
Male	97,225	39.1%	95,163	38.7%	0.402	0.008
Race[4]						
American Indian or Alaska Native	729	0.3%	750	0.3%	-0.012	-0.002
Asian	7,455	3.0%	7,613	3.1%	-0.098	-0.006
Black or African American	39,395	15.8%	41,712	17.0%	-1.119	-0.030
Multi-racial	1,284	0.5%	958	0.4%	0.127	0.019
Native Hawaiian or Other Pacific Islander	2,026	0.8%	2,192	0.9%	-0.077	-0.008
Unknown	29,601	11.9%	30,047	12.2%	-0.314	-0.010
White	168,243	67.6%	162,714	66.1%	1.492	0.032
Hispanic origin						
Yes	8,689	3.5%	9,731	4.0%	-0.463	-0.024
No	164,924	66.3%	162,102	65.9%	0.407	0.015
Unknown	75,120	30.2%	74,154	30.1%	0.056	0.002
ZCTA Social Deprivation Index Score, National Quartile*,5						
Q1 (Least deprived)	55,024	22.1%	54,120	22.0%	0.121	0.003

Table 1ae. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years (Outcome: Severe COVID-19 Outcome or Death)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Q2	64,059	25.8%	63,193	25.7%	0.064	0.001
Q3	69,040	27.8%	68,279	27.8%	-0.000	-0.000
Q4 (Most deprived)	59,243	23.8%	59,070	24.0%	-0.196	-0.005
Unknown	1,367	0.5%	1,325	0.5%	0.011	0.002
Year-Quarter of Exposure*						
2020 Quarter 2	14,920	6.0%	14,675	6.0%	0.033	0.001
2020 Quarter 3	23,251	9.3%	21,266	8.6%	0.702	0.025
2020 Quarter 4	22,542	9.1%	22,588	9.2%	-0.120	-0.004
2021 Quarter 1	21,473	8.6%	21,416	8.7%	-0.073	-0.003
2021 Quarter 2	20,850	8.4%	20,818	8.5%	-0.081	-0.003
2021 Quarter 3	23,428	9.4%	23,405	9.5%	-0.096	-0.003
2021 Quarter 4	22,917	9.2%	22,820	9.3%	-0.063	-0.002
2022 Quarter 1	19,111	7.7%	19,042	7.7%	-0.058	-0.002
2022 Quarter 2	18,220	7.3%	18,157	7.4%	-0.056	-0.002
2022 Quarter 3	20,344	8.2%	20,325	8.3%	-0.084	-0.003
2022 Quarter 4	20,607	8.3%	20,552	8.4%	-0.070	-0.003
2023 Quarter 1	21,070	8.5%	20,923	8.5%	-0.035	-0.001
Health Characteristics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Claims-Based frailty index*,6	0.2	0.1	0.2	0.1	-0.000	-0.002
Claims-Based frailty index categories						
<=0.2	209,459	84.2%	207,250	84.3%	-0.042	-0.001
>0.2	39,274	15.8%	38,736	15.7%	0.042	0.001
Combined comorbidity score*,7	1.8	2.8	1.8	2.8	-0.002	-0.001
Diabetes*	76,631	30.8%	76,067	30.9%	-0.115	-0.002
Obesity*	71,749	28.8%	70,896	28.8%	0.025	0.001
Hypertension*	178,124	71.6%	176,296	71.7%	-0.057	-0.001
Hospitalized Stroke/Transient Ischemic Attack	3,719	1.5%	4,228	1.7%	-0.224	-0.018
Coronary Revascularization	4,043	1.6%	4,476	1.8%	-0.194	-0.015

Table 1ae. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years (Outcome: Severe COVID-19 Outcome or Death)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Atrial Fibrillation*	20,389	8.2%	20,012	8.1%	0.062	0.002
Congestive Heart Failure*	22,903	9.2%	22,739	9.2%	-0.036	-0.001
Hospitalized Acute Myocardial Infarction	4,062	1.6%	3,689	1.5%	0.133	0.011
Other Cerebrovascular Disease*	17,645	7.1%	17,566	7.1%	-0.047	-0.002
Chronic Obstructive Pulmonary Disease*	40,660	16.3%	40,083	16.3%	0.052	0.001
Asthma without COPD*	23,535	9.5%	23,454	9.5%	-0.073	-0.002
Chronic Liver Disease*	21,432	8.6%	20,814	8.5%	0.155	0.006
Chronic Kidney Disease*	57,078	22.9%	56,708	23.1%	-0.106	-0.003
Any Malignant Neoplasm*	46,130	18.5%	45,417	18.5%	0.083	0.002
Hemiplegia	4,028	1.6%	4,371	1.8%	-0.157	-0.012
Neurological/Neurodegenerative Conditions	2,013	0.8%	2,290	0.9%	-0.122	-0.013
Dementia*	5,164	2.1%	5,171	2.1%	-0.026	-0.002
Depression*	49,285	19.8%	48,664	19.8%	0.031	0.001
Schizophrenia	1,326	0.5%	1,543	0.6%	-0.094	-0.012
Rheumatic Disorders*	7,892	3.2%	7,856	3.2%	-0.021	-0.001
Multiple Sclerosis	1,114	0.4%	1,121	0.5%	-0.008	-0.001
HIV/AIDS	572	0.2%	1,010	0.4%	-0.180	-0.032
Coronary Artery Disease*	63,054	25.4%	62,289	25.3%	0.028	0.001
Immunodeficiency*	31,242	12.6%	30,949	12.6%	-0.021	-0.001
Smoking or Nicotine Use	64,426	25.9%	61,605	25.0%	0.858	0.020
Hyperlipidemia*	171,548	69.0%	169,950	69.1%	-0.120	-0.003
Medical Product Use	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Angiotensin Converting Enzyme Inhibitors/Angiotensin Receptor Blockers*	120,233	48.3%	118,943	48.4%	-0.015	-0.000
Non-Steroidal Anti-Inflammatory Drugs*	56,107	22.6%	55,373	22.5%	0.046	0.001
Aspirin	1,402	0.6%	1,533	0.6%	-0.060	-0.008
Antidepressants*	79,754	32.1%	78,781	32.0%	0.038	0.001

Table 1ae. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years (Outcome: Severe COVID-19 Outcome or Death)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Statins*	139,779	56.2%	138,584	56.3%	-0.141	-0.003
Insulin*	18,465	7.4%	18,313	7.4%	-0.021	-0.001
Anti-Diabetic Oral Drugs*	53,602	21.6%	53,053	21.6%	-0.017	-0.000
Antihypertensive Drugs*	128,272	51.6%	126,855	51.6%	0.000	0.000
Anticoagulants*	21,654	8.7%	21,240	8.6%	0.071	0.003
Glucocorticoids*	55,532	22.3%	55,214	22.4%	-0.120	-0.003
Acetaminophen	40,837	16.4%	37,765	15.4%	1.065	0.029
Tumor Necrosis Factor Inhibitors	951	0.4%	866	0.4%	0.030	0.005
Immunosuppressants*	16,180	6.5%	16,145	6.6%	-0.058	-0.002
Inhaled Corticosteroids*	22,850	9.2%	22,614	9.2%	-0.007	-0.000
COVID-19 Vaccine*	66,106	26.6%	65,963	26.8%	-0.239	-0.005
Health Service Utilization Intensity Metrics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Mean number of ambulatory encounters*	11.2	11.3	11.3	11.1	-0.036	-0.003
Mean number of emergency room encounters*	0.6	1.6	0.6	1.7	-0.001	-0.000
Mean number of inpatient hospital encounters	0.2	0.6	0.2	0.5	0.014	0.026
Mean number of non-acute institutional encounters*	0.0	0.3	0.1	0.3	-0.001	-0.003
Mean number of other ambulatory encounters*	2.1	5.4	2.2	5.6	-0.017	-0.003
Mean number of filled prescriptions*	15.9	12.4	15.9	12.2	-0.030	-0.002
Mean number of generics dispensed*	8.4	4.7	8.4	4.6	-0.014	-0.003
Mean number of unique drug classes dispensed*	8.0	4.3	8.0	4.2	-0.012	-0.003

Table 1ae. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years (Outcome: Severe COVID-19 Outcome or Death)

	Medical Product		Covariate Balance
	Proton Pump Inhibitor New Users	Famotidine New Users	

[*]Covariate included in the propensity score logistic regression model.

[1]Covariates in blue show (if displayed) a standardized difference greater than 0.1.

[2]Weighted patient characteristics tables facilitate the assessment of covariate balance after inverse probability weighting and should not be interpreted as a description of the unweighted population. Treated patients are assigned a weight of 1. Reference patients are weighted by their propensity score (PS) divided by 1 minus their PS.

[3]Value represents standard deviation where no % follows the value.

[4]Race data may not be completely populated at all Data Partners; therefore, data about race may be incomplete.

[5]The Social Deprivation Index score is a composite measure of zip code tabulation area (ZCTA)-level deprivation constructed from seven demographic and household characteristics collected in the American Community Survey, where higher values indication greater levels of deprivation. For this project, each patient's most recent geographic information is used. For more information, see Butler DC et al. Health Services Research. 2013;48(2pt1):539-559. doi:10.1111/j.1475-6773.2012.01449.x.

[6]Kim DH, Schneeweiss S, Glynn RJ, Lipsitz LA, Rockwood K, Avorn J. Measuring frailty in Medicare data: development and validation of a claims-based frailty index. J Gerontol A Biol Sci Med Sci. 2018;73(7)980-987.

[7]Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A combined comorbidity score predicted mortality in elderly patients better than existing scores. J Clin Epidemiol. 2011;64(7):749-759. Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and validation of the combined comorbidity score for ICD-10-CM. Med Care. 2017;55(12):1046-1051.

N/A: Not Applicable

Table 1af. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: ≥ 75 years (Outcome: Severe COVID-19 Outcome or Death)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Patient Characteristics[1,2]	Number/Mean	Percent/ Standard Deviation[3]	Number/Mean	Percent/ Standard Deviation[3]	Absolute Difference	Standardized Difference
Weighted patients	163,748	N/A	161,937	N/A	N/A	N/A
Demographic Characteristics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Age (years)[*]	81.4	5.0	81.4	5.0	-0.013	-0.003
Age[*]						
18-49 years	0	0.0%	0	0.0%	NaN	NaN
50-64 years	0	0.0%	0	0.0%	NaN	NaN
65-74 years	0	0.0%	0	0.0%	NaN	NaN
≥ 75 years	163,748	100.0%	161,937	100.0%	0.000	NaN
Sex[*]						
Female	101,993	62.3%	101,526	62.7%	-0.409	-0.008
Male	61,755	37.7%	60,410	37.3%	0.409	0.008
Race[4]						
American Indian or Alaska Native	462	0.3%	438	0.3%	0.012	0.002
Asian	3,179	1.9%	3,304	2.0%	-0.099	-0.007
Black or African American	20,115	12.3%	21,644	13.4%	-1.082	-0.033
Multi-racial	350	0.2%	316	0.2%	0.018	0.004
Native Hawaiian or Other Pacific Islander	1,529	0.9%	1,861	1.1%	-0.216	-0.021
Unknown	11,571	7.1%	11,803	7.3%	-0.222	-0.009
White	126,542	77.3%	122,570	75.7%	1.588	0.038
Hispanic origin						
Yes	3,330	2.0%	3,834	2.4%	-0.334	-0.023
No	116,256	71.0%	114,448	70.7%	0.322	0.015
Unknown	44,162	27.0%	43,655	27.0%	0.011	0.001
ZCTA Social Deprivation Index Score, National Quartile[*,5]						
Q1 (Least deprived)	40,226	24.6%	39,638	24.5%	0.088	0.002

Table 1af. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: ≥ 75 years (Outcome: Severe COVID-19 Outcome or Death)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Q2	45,170	27.6%	44,536	27.5%	0.083	0.002
Q3	43,638	26.6%	43,181	26.7%	-0.016	-0.000
Q4 (Most deprived)	33,873	20.7%	33,774	20.9%	-0.171	-0.004
Unknown	841	0.5%	807	0.5%	0.015	0.003
Year-Quarter of Exposure[*]						
2020 Quarter 2	9,929	6.1%	9,772	6.0%	0.029	0.001
2020 Quarter 3	15,552	9.5%	14,532	9.0%	0.524	0.018
2020 Quarter 4	14,723	9.0%	14,640	9.0%	-0.049	-0.002
2021 Quarter 1	13,912	8.5%	13,873	8.6%	-0.071	-0.003
2021 Quarter 2	14,182	8.7%	14,152	8.7%	-0.078	-0.003
2021 Quarter 3	15,775	9.6%	15,727	9.7%	-0.078	-0.003
2021 Quarter 4	14,910	9.1%	14,857	9.2%	-0.069	-0.002
2022 Quarter 1	12,656	7.7%	12,593	7.8%	-0.048	-0.002
2022 Quarter 2	12,546	7.7%	12,516	7.7%	-0.067	-0.003
2022 Quarter 3	12,978	7.9%	12,930	8.0%	-0.059	-0.002
2022 Quarter 4	13,136	8.0%	13,003	8.0%	-0.008	-0.000
2023 Quarter 1	13,449	8.2%	13,342	8.2%	-0.026	-0.001
Health Characteristics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Claims-Based frailty index[*,6]	0.2	0.1	0.2	0.1	-0.000	-0.000
Claims-Based frailty index categories						
<=0.2	115,504	70.5%	114,757	70.9%	-0.328	-0.007
>0.2	48,244	29.5%	47,179	29.1%	0.328	0.007
Combined comorbidity score[*,7]	3.0	3.4	3.0	3.3	0.020	0.006
Diabetes[*]	52,324	32.0%	51,771	32.0%	-0.016	-0.000
Obesity[*]	33,958	20.7%	33,412	20.6%	0.105	0.003
Hypertension[*]	135,243	82.6%	133,841	82.7%	-0.058	-0.002
Hospitalized Stroke/Transient Ischemic Attack	4,949	3.0%	5,172	3.2%	-0.172	-0.010
Coronary Revascularization	3,344	2.0%	3,459	2.1%	-0.094	-0.007

Table 1af. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: ≥ 75 years (Outcome: Severe COVID-19 Outcome or Death)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Atrial Fibrillation*	31,392	19.2%	30,733	19.0%	0.193	0.005
Congestive Heart Failure*	30,103	18.4%	29,642	18.3%	0.079	0.002
Hospitalized Acute Myocardial Infarction	4,604	2.8%	4,365	2.7%	0.116	0.007
Other Cerebrovascular Disease*	21,005	12.8%	20,883	12.9%	-0.068	-0.002
Chronic Obstructive Pulmonary Disease*	32,898	20.1%	32,295	19.9%	0.148	0.004
Asthma without COPD*	13,639	8.3%	13,508	8.3%	-0.012	-0.000
Chronic Liver Disease*	10,817	6.6%	10,378	6.4%	0.197	0.008
Chronic Kidney Disease*	53,247	32.5%	52,560	32.5%	0.061	0.001
Any Malignant Neoplasm*	44,634	27.3%	44,113	27.2%	0.017	0.000
Hemiplegia	4,030	2.5%	4,806	3.0%	-0.507	-0.031
Neurological/Neurodegenerative Conditions	3,019	1.8%	3,114	1.9%	-0.079	-0.006
Dementia*	16,255	9.9%	16,181	10.0%	-0.065	-0.002
Depression*	31,985	19.5%	31,619	19.5%	0.007	0.000
Schizophrenia	426	0.3%	462	0.3%	-0.025	-0.005
Rheumatic Disorders*	5,695	3.5%	5,639	3.5%	-0.004	-0.000
Multiple Sclerosis	449	0.3%	419	0.3%	0.016	0.003
HIV/AIDS	122	0.1%	158	0.1%	-0.023	-0.008
Coronary Artery Disease*	63,567	38.8%	62,597	38.7%	0.165	0.003
Immunodeficiency*	24,293	14.8%	23,971	14.8%	0.033	0.001
Smoking or Nicotine Use	40,574	24.8%	39,013	24.1%	0.687	0.016
Hyperlipidemia*	120,773	73.8%	119,514	73.8%	-0.047	-0.001
Medical Product Use	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Angiotensin Converting Enzyme Inhibitors/Angiotensin Receptor Blockers*	85,801	52.4%	85,085	52.5%	-0.144	-0.003
Non-Steroidal Anti-Inflammatory Drugs*	26,723	16.3%	26,364	16.3%	0.039	0.001
Aspirin	782	0.5%	937	0.6%	-0.101	-0.014
Antidepressants*	50,106	30.6%	49,508	30.6%	0.027	0.001

Table 1af. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: ≥ 75 years (Outcome: Severe COVID-19 Outcome or Death)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Statins*	97,502	59.5%	96,475	59.6%	-0.032	-0.001
Insulin*	10,939	6.7%	10,793	6.7%	0.015	0.001
Anti-Diabetic Oral Drugs*	31,490	19.2%	31,140	19.2%	0.001	0.000
Antihypertensive Drugs*	93,033	56.8%	92,229	57.0%	-0.139	-0.003
Anticoagulants*	28,313	17.3%	27,798	17.2%	0.125	0.003
Glucocorticoids*	35,418	21.6%	35,073	21.7%	-0.029	-0.001
Acetaminophen	24,062	14.7%	21,787	13.5%	1.240	0.036
Tumor Necrosis Factor Inhibitors	355	0.2%	389	0.2%	-0.024	-0.005
Immunosuppressants*	13,290	8.1%	13,049	8.1%	0.058	0.002
Inhaled Corticosteroids*	15,141	9.2%	14,901	9.2%	0.045	0.002
COVID-19 Vaccine*	45,303	27.7%	45,065	27.8%	-0.163	-0.004
Health Service Utilization Intensity Metrics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Mean number of ambulatory encounters*	12.6	12.0	12.7	11.9	-0.027	-0.002
Mean number of emergency room encounters*	0.9	1.9	0.9	2.0	0.014	0.007
Mean number of inpatient hospital encounters	0.3	0.7	0.3	0.6	0.030	0.046
Mean number of non-acute institutional encounters*	0.1	0.4	0.1	0.4	0.001	0.002
Mean number of other ambulatory encounters*	3.2	6.9	3.2	7.2	0.002	0.000
Mean number of filled prescriptions*	17.1	12.2	17.1	12.0	-0.030	-0.002
Mean number of generics dispensed*	9.0	4.5	9.0	4.4	-0.008	-0.002
Mean number of unique drug classes dispensed*	8.6	4.1	8.6	4.1	-0.008	-0.002

Table 1af. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: ≥ 75 years (Outcome: Severe COVID-19 Outcome or Death)

	Medical Product		Covariate Balance
	Proton Pump Inhibitor New Users	Famotidine New Users	

[*]Covariate included in the propensity score logistic regression model.

[1]Covariates in blue show (if displayed) a standardized difference greater than 0.1.

[2]Weighted patient characteristics tables facilitate the assessment of covariate balance after inverse probability weighting and should not be interpreted as a description of the unweighted population. Treated patients are assigned a weight of 1. Reference patients are weighted by their propensity score (PS) divided by 1 minus their PS.

[3]Value represents standard deviation where no % follows the value.

[4]Race data may not be completely populated at all Data Partners; therefore, data about race may be incomplete.

[5]The Social Deprivation Index score is a composite measure of zip code tabulation area (ZCTA)-level deprivation constructed from seven demographic and household characteristics collected in the American Community Survey, where higher values indication greater levels of deprivation. For this project, each patient's most recent geographic information is used. For more information, see Butler DC et al. Health Services Research. 2013;48(2pt1):539-559. doi:10.1111/j.1475-6773.2012.01449.x.

[6]Kim DH, Schneeweiss S, Glynn RJ, Lipsitz LA, Rockwood K, Avorn J. Measuring frailty in Medicare data: development and validation of a claims-based frailty index. J Gerontol A Biol Sci Med Sci. 2018;73(7)980-987.

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N/A: Not Applicable

Table 1ag. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024 (Outcome: Severe COVID-19 Outcome or Death)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Patient Characteristics[1,2]	Number/Mean	Percent/ Standard Deviation[3]	Number/Mean	Percent/ Standard Deviation[3]	Absolute Difference	Standardized Difference
Weighted patients	1,042,961	N/A	1,002,802	N/A	N/A	N/A
Demographic Characteristics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Age (years)[*]	58.1	14.9	58.1	15.3	0.055	0.004
Age[*]						
18-49 years	317,866	30.5%	306,437	30.6%	-0.081	-0.002
50-64 years	312,758	30.0%	299,739	29.9%	0.097	0.002
65-74 years	248,619	23.8%	239,767	23.9%	-0.072	-0.002
≥ 75 years	163,718	15.7%	156,858	15.6%	0.055	0.002
Sex[*]						
Female	614,347	58.9%	597,420	59.6%	-0.671	-0.014
Male	428,614	41.1%	405,382	40.4%	0.671	0.014
Race[4]						
American Indian or Alaska Native	3,519	0.3%	3,646	0.4%	-0.026	-0.004
Asian	31,614	3.0%	33,357	3.3%	-0.295	-0.017
Black or African American	116,601	11.2%	119,323	11.9%	-0.719	-0.023
Multi-racial	16,029	1.5%	14,693	1.5%	0.072	0.006
Native Hawaiian or Other Pacific Islander	4,168	0.4%	4,484	0.4%	-0.047	-0.007
Unknown	274,315	26.3%	262,857	26.2%	0.089	0.002
White	596,715	57.2%	564,442	56.3%	0.927	0.019
Hispanic origin						
Yes	41,704	4.0%	44,087	4.4%	-0.398	-0.020
No	577,025	55.3%	553,024	55.1%	0.178	0.005
Unknown	424,232	40.7%	405,691	40.5%	0.220	0.006
ZCTA Social Deprivation Index Score, National Quartile[*,5]						
Q1 (Least deprived)	267,298	25.6%	256,012	25.5%	0.099	0.002

Table 1ag. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024 (Outcome: Severe COVID-19 Outcome or Death)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Q2	271,310	26.0%	259,669	25.9%	0.119	0.003
Q3	273,830	26.3%	263,284	26.3%	0.000	0.000
Q4 (Most deprived)	221,458	21.2%	215,228	21.5%	-0.229	-0.006
Unknown	9,065	0.9%	8,609	0.9%	0.011	0.002
Year-Quarter of Exposure[*]						
2020 Quarter 2	72,292	6.9%	68,474	6.8%	0.103	0.004
2020 Quarter 3	101,451	9.7%	92,950	9.3%	0.458	0.016
2020 Quarter 4	95,092	9.1%	91,951	9.2%	-0.052	-0.002
2021 Quarter 1	91,288	8.8%	88,063	8.8%	-0.029	-0.001
2021 Quarter 2	86,056	8.3%	82,984	8.3%	-0.024	-0.001
2021 Quarter 3	94,254	9.0%	91,395	9.1%	-0.077	-0.003
2021 Quarter 4	88,983	8.5%	86,309	8.6%	-0.075	-0.003
2022 Quarter 1	79,976	7.7%	77,415	7.7%	-0.052	-0.002
2022 Quarter 2	76,697	7.4%	74,001	7.4%	-0.026	-0.001
2022 Quarter 3	85,274	8.2%	82,764	8.3%	-0.077	-0.003
2022 Quarter 4	84,675	8.1%	82,181	8.2%	-0.076	-0.003
2023 Quarter 1	86,923	8.3%	84,316	8.4%	-0.074	-0.003
Health Characteristics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Claims-Based frailty index[*,6]	0.1	0.0	0.1	0.0	0.001	0.011
Claims-Based frailty index categories						
<=0.2	919,383	88.2%	887,845	88.5%	-0.385	-0.012
>0.2	123,578	11.8%	114,957	11.5%	0.385	0.012
Combined comorbidity score[*,7]	1.4	2.4	1.3	2.3	0.046	0.019
Diabetes[*]	222,794	21.4%	213,395	21.3%	0.082	0.002
Obesity[*]	281,660	27.0%	268,677	26.8%	0.213	0.005
Hypertension[*]	549,975	52.7%	525,859	52.4%	0.293	0.006
Hospitalized Stroke/Transient Ischemic Attack	11,415	1.1%	11,491	1.1%	-0.051	-0.005
Coronary Revascularization	10,852	1.0%	11,111	1.1%	-0.067	-0.007

Table 1ag. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024 (Outcome: Severe COVID-19 Outcome or Death)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Atrial Fibrillation*	63,744	6.1%	58,852	5.9%	0.243	0.010
Congestive Heart Failure*	68,774	6.6%	63,500	6.3%	0.262	0.011
Hospitalized Acute Myocardial Infarction	11,947	1.1%	10,555	1.1%	0.093	0.009
Other Cerebrovascular Disease*	50,186	4.8%	47,722	4.8%	0.053	0.003
Chronic Obstructive Pulmonary Disease*	106,814	10.2%	101,142	10.1%	0.155	0.005
Asthma without COPD*	102,339	9.8%	99,675	9.9%	-0.127	-0.004
Chronic Liver Disease*	76,447	7.3%	69,330	6.9%	0.416	0.016
Chronic Kidney Disease*	169,864	16.3%	159,601	15.9%	0.371	0.010
Any Malignant Neoplasm*	133,029	12.8%	126,869	12.7%	0.103	0.003
Hemiplegia	11,456	1.1%	11,966	1.2%	-0.095	-0.009
Neurological/Neurodegenerative Conditions	6,026	0.6%	6,224	0.6%	-0.043	-0.006
Dementia*	22,777	2.2%	21,592	2.2%	0.031	0.002
Depression*	190,630	18.3%	182,653	18.2%	0.064	0.002
Schizophrenia	6,794	0.7%	7,782	0.8%	-0.125	-0.015
Rheumatic Disorders*	25,957	2.5%	24,969	2.5%	-0.001	-0.000
Multiple Sclerosis	5,088	0.5%	4,751	0.5%	0.014	0.002
HIV/AIDS	3,006	0.3%	4,760	0.5%	-0.186	-0.030
Coronary Artery Disease*	171,486	16.4%	161,431	16.1%	0.344	0.010
Immunodeficiency*	108,569	10.4%	102,552	10.2%	0.183	0.006
Smoking or Nicotine Use	212,394	20.4%	198,542	19.8%	0.566	0.014
Hyperlipidemia*	514,609	49.3%	494,647	49.3%	0.015	0.000
Medical Product Use	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Angiotensin Converting Enzyme Inhibitors/Angiotensin Receptor Blockers*	359,487	34.5%	343,932	34.3%	0.171	0.004
Non-Steroidal Anti-Inflammatory Drugs*	221,481	21.2%	214,369	21.4%	-0.141	-0.003
Aspirin	11,296	1.1%	12,861	1.3%	-0.199	-0.018
Antidepressants*	332,073	31.8%	318,717	31.8%	0.057	0.001

Table 1ag. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024 (Outcome: Severe COVID-19 Outcome or Death)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Statins*	382,790	36.7%	368,142	36.7%	-0.009	-0.000
Insulin*	56,371	5.4%	53,489	5.3%	0.071	0.003
Anti-Diabetic Oral Drugs*	154,532	14.8%	148,525	14.8%	0.006	0.000
Antihypertensive Drugs*	392,930	37.7%	375,553	37.5%	0.224	0.005
Anticoagulants*	69,151	6.6%	64,674	6.4%	0.181	0.007
Glucocorticoids*	232,384	22.3%	225,909	22.5%	-0.247	-0.006
Acetaminophen	151,839	14.6%	143,036	14.3%	0.295	0.008
Tumor Necrosis Factor Inhibitors	6,246	0.6%	5,775	0.6%	0.023	0.003
Immunosuppressants*	53,215	5.1%	51,465	5.1%	-0.030	-0.001
Inhaled Corticosteroids*	80,083	7.7%	77,808	7.8%	-0.081	-0.003
COVID-19 Vaccine*	267,445	25.6%	260,015	25.9%	-0.286	-0.007
Health Service Utilization Intensity Metrics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Mean number of ambulatory encounters*	10.0	10.7	10.0	10.5	-0.008	-0.001
Mean number of emergency room encounters*	0.5	1.5	0.5	1.4	0.014	0.010
Mean number of inpatient hospital encounters	0.2	0.5	0.1	0.5	0.011	0.022
Mean number of non-acute institutional encounters*	0.0	0.3	0.0	0.3	0.002	0.007
Mean number of other ambulatory encounters*	2.3	5.2	2.3	5.2	0.004	0.001
Mean number of filled prescriptions*	14.0	12.4	14.0	12.4	0.010	0.001
Mean number of generics dispensed*	7.4	4.6	7.4	4.6	0.003	0.001
Mean number of unique drug classes dispensed*	7.0	4.2	7.0	4.2	0.004	0.001

Table 1ag. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024 (Outcome: Severe COVID-19 Outcome or Death)

	Medical Product		Covariate Balance
	Proton Pump Inhibitor New Users	Famotidine New Users	

[*]Covariate included in the propensity score logistic regression model.

[1]Covariates in blue show (if displayed) a standardized difference greater than 0.1.

[2]Weighted patient characteristics tables facilitate the assessment of covariate balance after inverse probability weighting and should not be interpreted as a description of the unweighted population. Treated patients are assigned a weight of 1. Reference patients are weighted by their propensity score (PS) divided by 1 minus their PS.

[3]Value represents standard deviation where no % follows the value.

[4]Race data may not be completely populated at all Data Partners; therefore, data about race may be incomplete.

[5]The Social Deprivation Index score is a composite measure of zip code tabulation area (ZCTA)-level deprivation constructed from seven demographic and household characteristics collected in the American Community Survey, where higher values indication greater levels of deprivation. For this project, each patient's most recent geographic information is used. For more information, see Butler DC et al. Health Services Research. 2013;48(2pt1):539-559. doi:10.1111/j.1475-6773.2012.01449.x.

[6]Kim DH, Schneeweiss S, Glynn RJ, Lipsitz LA, Rockwood K, Avorn J. Measuring frailty in Medicare data: development and validation of a claims-based frailty index. J Gerontol A Biol Sci Med Sci. 2018;73(7)980-987.

[7]Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A combined comorbidity score predicted mortality in elderly patients better than existing scores. J Clin Epidemiol. 2011;64(7):749-759. Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and validation of the combined comorbidity score for ICD-10-CM. Med Care. 2017;55(12):1046-1051.

N/A: Not Applicable

Table 1ah. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years (Outcome: Severe COVID-19 Outcome or Death)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Patient Characteristics[1,2]	Number/Mean	Percent/ Standard Deviation[3]	Number/Mean	Percent/ Standard Deviation[3]	Absolute Difference	Standardized Difference
Weighted patients	317,572	N/A	307,203	N/A	N/A	N/A
Demographic Characteristics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Age (years)*	37.4	8.7	37.4	8.8	0.043	0.005
Age*						
18-49 years	317,572	100.0%	307,203	100.0%	0.000	NaN
50-64 years	0	0.0%	0	0.0%	NaN	NaN
65-74 years	0	0.0%	0	0.0%	NaN	NaN
≥ 75 years	0	0.0%	0	0.0%	NaN	NaN
Sex*						
Female	177,247	55.8%	172,820	56.3%	-0.443	-0.009
Male	140,325	44.2%	134,383	43.7%	0.443	0.009
Race[4]						
American Indian or Alaska Native	1,108	0.3%	1,071	0.3%	0.000	0.000
Asian	12,998	4.1%	14,059	4.6%	-0.484	-0.024
Black or African American	24,353	7.7%	25,312	8.2%	-0.571	-0.021
Multi-racial	8,376	2.6%	7,847	2.6%	0.083	0.005
Native Hawaiian or Other Pacific Islander	220	0.1%	286	0.1%	-0.024	-0.008
Unknown	132,067	41.6%	126,452	41.2%	0.424	0.009
White	138,450	43.6%	132,176	43.0%	0.571	0.012
Hispanic origin						
Yes	17,129	5.4%	17,401	5.7%	-0.271	-0.012
No	135,156	42.6%	131,926	42.9%	-0.385	-0.009
Unknown	165,287	52.0%	157,876	51.4%	0.656	0.015
ZCTA Social Deprivation Index Score, National Quartile*,5						
Q1 (Least deprived)	89,495	28.2%	86,526	28.2%	0.015	0.000

Table 1ah. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years (Outcome: Severe COVID-19 Outcome or Death)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Q2	82,174	25.9%	79,130	25.8%	0.118	0.003
Q3	79,419	25.0%	77,029	25.1%	-0.066	-0.002
Q4 (Most deprived)	62,344	19.6%	60,610	19.7%	-0.098	-0.002
Unknown	4,140	1.3%	3,908	1.3%	0.032	0.004
Year-Quarter of Exposure[*]						
2020 Quarter 2	24,584	7.7%	23,444	7.6%	0.110	0.004
2020 Quarter 3	32,215	10.1%	29,637	9.6%	0.497	0.017
2020 Quarter 4	29,150	9.2%	28,297	9.2%	-0.032	-0.001
2021 Quarter 1	28,206	8.9%	27,415	8.9%	-0.042	-0.001
2021 Quarter 2	25,719	8.1%	25,089	8.2%	-0.068	-0.003
2021 Quarter 3	27,710	8.7%	27,114	8.8%	-0.100	-0.004
2021 Quarter 4	24,926	7.8%	24,261	7.9%	-0.048	-0.002
2022 Quarter 1	23,982	7.6%	23,378	7.6%	-0.058	-0.002
2022 Quarter 2	22,660	7.1%	22,084	7.2%	-0.053	-0.002
2022 Quarter 3	26,427	8.3%	25,774	8.4%	-0.068	-0.002
2022 Quarter 4	25,244	7.9%	24,751	8.1%	-0.108	-0.004
2023 Quarter 1	26,749	8.4%	25,959	8.5%	-0.027	-0.001
Health Characteristics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Claims-Based frailty index[*,6]	0.1	0.0	0.1	0.0	0.000	0.000
Claims-Based frailty index categories						
<=0.2	309,613	97.5%	299,368	97.4%	0.044	0.003
>0.2	7,959	2.5%	7,835	2.6%	-0.044	-0.003
Combined comorbidity score[*,7]	0.6	1.3	0.6	1.3	0.002	0.002
Diabetes[*]	25,484	8.0%	24,359	7.9%	0.095	0.004
Obesity[*]	83,666	26.3%	79,554	25.9%	0.449	0.010
Hypertension[*]	70,766	22.3%	67,907	22.1%	0.178	0.004
Hospitalized Stroke/Transient Ischemic Attack	512	0.2%	511	0.2%	-0.005	-0.001
Coronary Revascularization	550	0.2%	630	0.2%	-0.032	-0.007

Table 1ah. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years (Outcome: Severe COVID-19 Outcome or Death)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Atrial Fibrillation*	1,785	0.6%	1,684	0.5%	0.014	0.002
Congestive Heart Failure*	2,491	0.8%	2,342	0.8%	0.022	0.003
Hospitalized Acute Myocardial Infarction	635	0.2%	624	0.2%	-0.003	-0.001
Other Cerebrovascular Disease*	1,828	0.6%	1,754	0.6%	0.005	0.001
Chronic Obstructive Pulmonary Disease*	4,347	1.4%	4,248	1.4%	-0.014	-0.001
Asthma without COPD*	32,386	10.2%	31,834	10.4%	-0.164	-0.005
Chronic Liver Disease*	17,518	5.5%	15,960	5.2%	0.321	0.014
Chronic Kidney Disease*	16,044	5.1%	15,483	5.0%	0.012	0.001
Any Malignant Neoplasm*	8,777	2.8%	8,517	2.8%	-0.009	-0.001
Hemiplegia	637	0.2%	733	0.2%	-0.038	-0.008
Neurological/Neurodegenerative Conditions	111	0.0%	114	0.0%	-0.002	-0.001
Dementia*	127	0.0%	130	0.0%	-0.002	-0.001
Depression*	51,947	16.4%	50,363	16.4%	-0.037	-0.001
Schizophrenia	2,306	0.7%	2,750	0.9%	-0.169	-0.019
Rheumatic Disorders*	3,538	1.1%	3,402	1.1%	0.007	0.001
Multiple Sclerosis	1,379	0.4%	1,300	0.4%	0.011	0.002
HIV/AIDS	936	0.3%	1,294	0.4%	-0.126	-0.021
Coronary Artery Disease*	6,954	2.2%	6,658	2.2%	0.022	0.002
Immunodeficiency*	19,840	6.2%	19,113	6.2%	0.026	0.001
Smoking or Nicotine Use	42,066	13.2%	39,717	12.9%	0.318	0.009
Hyperlipidemia*	64,039	20.2%	61,966	20.2%	-0.006	-0.000
Medical Product Use	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Angiotensin Converting Enzyme Inhibitors/Angiotensin Receptor Blockers*	42,055	13.2%	39,974	13.0%	0.231	0.007
Non-Steroidal Anti-Inflammatory Drugs*	60,348	19.0%	59,325	19.3%	-0.309	-0.008
Aspirin	2,439	0.8%	2,947	1.0%	-0.191	-0.021
Antidepressants*	95,286	30.0%	92,165	30.0%	0.003	0.000

Table 1ah. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years (Outcome: Severe COVID-19 Outcome or Death)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Statins*	29,334	9.2%	28,305	9.2%	0.023	0.001
Insulin*	7,679	2.4%	7,326	2.4%	0.033	0.002
Anti-Diabetic Oral Drugs*	19,835	6.2%	19,103	6.2%	0.027	0.001
Antihypertensive Drugs*	51,243	16.1%	48,961	15.9%	0.198	0.005
Anticoagulants*	4,356	1.4%	4,139	1.3%	0.024	0.002
Glucocorticoids*	63,048	19.9%	61,678	20.1%	-0.224	-0.006
Acetaminophen	34,672	10.9%	32,959	10.7%	0.189	0.006
Tumor Necrosis Factor Inhibitors	2,263	0.7%	2,033	0.7%	0.051	0.006
Immunosuppressants*	7,643	2.4%	7,476	2.4%	-0.027	-0.002
Inhaled Corticosteroids*	16,243	5.1%	16,100	5.2%	-0.126	-0.006
COVID-19 Vaccine*	72,200	22.7%	70,632	23.0%	-0.257	-0.006
Health Service Utilization Intensity Metrics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Mean number of ambulatory encounters*	7.7	9.1	7.8	9.0	-0.049	-0.005
Mean number of emergency room encounters*	0.4	1.2	0.4	1.1	-0.009	-0.008
Mean number of inpatient hospital encounters	0.1	0.4	0.1	0.3	0.008	0.022
Mean number of non-acute institutional encounters*	0.0	0.1	0.0	0.1	-0.000	-0.002
Mean number of other ambulatory encounters*	1.9	4.1	1.9	3.9	-0.013	-0.003
Mean number of filled prescriptions*	9.6	10.4	9.7	10.5	-0.040	-0.004
Mean number of generics dispensed*	5.5	4.1	5.5	4.1	-0.020	-0.005
Mean number of unique drug classes dispensed*	5.2	3.8	5.2	3.7	-0.018	-0.005

Table 1ah. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years (Outcome: Severe COVID-19 Outcome or Death)

	Medical Product		Covariate Balance
	Proton Pump Inhibitor New Users	Famotidine New Users	

[*]Covariate included in the propensity score logistic regression model.

[1]Covariates in blue show (if displayed) a standardized difference greater than 0.1.

[2]Weighted patient characteristics tables facilitate the assessment of covariate balance after inverse probability weighting and should not be interpreted as a description of the unweighted population. Treated patients are assigned a weight of 1. Reference patients are weighted by their propensity score (PS) divided by 1 minus their PS.

[3]Value represents standard deviation where no % follows the value.

[4]Race data may not be completely populated at all Data Partners; therefore, data about race may be incomplete.

[5]The Social Deprivation Index score is a composite measure of zip code tabulation area (ZCTA)-level deprivation constructed from seven demographic and household characteristics collected in the American Community Survey, where higher values indication greater levels of deprivation. For this project, each patient's most recent geographic information is used. For more information, see Butler DC et al. Health Services Research. 2013;48(2pt1):539-559. doi:10.1111/j.1475-6773.2012.01449.x.

[6]Kim DH, Schneeweiss S, Glynn RJ, Lipsitz LA, Rockwood K, Avorn J. Measuring frailty in Medicare data: development and validation of a claims-based frailty index. J Gerontol A Biol Sci Med Sci. 2018;73(7)980-987.

[7]Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A combined comorbidity score predicted mortality in elderly patients better than existing scores. J Clin Epidemiol. 2011;64(7):749-759. Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and validation of the combined comorbidity score for ICD-10-CM. Med Care. 2017;55(12):1046-1051.

N/A: Not Applicable

Table 1ai. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 50-64 years (Outcome: Severe COVID-19 Outcome or Death)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Patient Characteristics[1,2]	Number/Mean	Percent/ Standard Deviation[3]	Number/Mean	Percent/ Standard Deviation[3]	Absolute Difference	Standardized Difference
Weighted patients	312,623	N/A	302,414	N/A	N/A	N/A
Demographic Characteristics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Age (years)[*]	57.8	4.3	57.8	4.3	-0.010	-0.002
Age[*]						
18-49 years	0	0.0%	0	0.0%	NaN	NaN
50-64 years	312,623	100.0%	302,414	100.0%	0.000	NaN
65-74 years	0	0.0%	0	0.0%	NaN	NaN
≥ 75 years	0	0.0%	0	0.0%	NaN	NaN
Sex[*]						
Female	183,466	58.7%	179,383	59.3%	-0.631	-0.013
Male	129,157	41.3%	123,031	40.7%	0.631	0.013
Race[4]						
American Indian or Alaska Native	1,215	0.4%	1,389	0.5%	-0.071	-0.011
Asian	7,978	2.6%	8,853	2.9%	-0.376	-0.023
Black or African American	32,708	10.5%	33,776	11.2%	-0.706	-0.023
Multi-racial	5,997	1.9%	5,759	1.9%	0.014	0.001
Native Hawaiian or Other Pacific Islander	392	0.1%	384	0.1%	-0.002	-0.000
Unknown	100,966	32.3%	97,159	32.1%	0.168	0.004
White	163,367	52.3%	155,092	51.3%	0.972	0.020
Hispanic origin						
Yes	12,544	4.0%	13,882	4.6%	-0.578	-0.029
No	160,648	51.4%	155,036	51.3%	0.121	0.003
Unknown	139,431	44.6%	133,496	44.1%	0.457	0.011
ZCTA Social Deprivation Index Score, National Quartile[*,5]						
Q1 (Least deprived)	82,457	26.4%	79,477	26.3%	0.095	0.002

Table 1ai. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 50-64 years (Outcome: Severe COVID-19 Outcome or Death)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Q2	79,842	25.5%	76,960	25.4%	0.091	0.002
Q3	81,712	26.1%	79,178	26.2%	-0.044	-0.001
Q4 (Most deprived)	65,949	21.1%	64,313	21.3%	-0.171	-0.004
Unknown	2,663	0.9%	2,486	0.8%	0.030	0.004
Year-Quarter of Exposure[*]						
2020 Quarter 2	22,822	7.3%	21,744	7.2%	0.110	0.004
2020 Quarter 3	30,396	9.7%	27,776	9.2%	0.538	0.018
2020 Quarter 4	28,660	9.2%	27,874	9.2%	-0.050	-0.002
2021 Quarter 1	27,673	8.9%	26,995	8.9%	-0.075	-0.003
2021 Quarter 2	25,287	8.1%	24,644	8.1%	-0.061	-0.002
2021 Quarter 3	27,305	8.7%	26,601	8.8%	-0.062	-0.002
2021 Quarter 4	26,206	8.4%	25,548	8.4%	-0.065	-0.002
2022 Quarter 1	24,218	7.7%	23,774	7.9%	-0.115	-0.004
2022 Quarter 2	23,239	7.4%	22,498	7.4%	-0.006	-0.000
2022 Quarter 3	25,505	8.2%	24,908	8.2%	-0.078	-0.003
2022 Quarter 4	25,665	8.2%	25,028	8.3%	-0.066	-0.002
2023 Quarter 1	25,647	8.2%	25,023	8.3%	-0.071	-0.003
Health Characteristics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Claims-Based frailty index[*,6]	0.1	0.0	0.1	0.0	0.000	0.006
Claims-Based frailty index categories						
<=0.2	284,559	91.0%	276,255	91.4%	-0.327	-0.012
>0.2	28,064	9.0%	26,158	8.6%	0.327	0.012
Combined comorbidity score[*,7]	1.0	2.1	1.0	2.0	0.026	0.013
Diabetes[*]	68,320	21.9%	65,993	21.8%	0.032	0.001
Obesity[*]	92,155	29.5%	88,664	29.3%	0.159	0.004
Hypertension[*]	165,751	53.0%	159,792	52.8%	0.181	0.004
Hospitalized Stroke/Transient Ischemic Attack	2,232	0.7%	2,473	0.8%	-0.104	-0.012
Coronary Revascularization	2,913	0.9%	2,881	1.0%	-0.021	-0.002

Table 1ai. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 50-64 years (Outcome: Severe COVID-19 Outcome or Death)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Atrial Fibrillation*	10,216	3.3%	9,635	3.2%	0.082	0.005
Congestive Heart Failure*	13,254	4.2%	12,522	4.1%	0.099	0.005
Hospitalized Acute Myocardial Infarction	2,654	0.8%	2,362	0.8%	0.068	0.008
Other Cerebrovascular Disease*	9,714	3.1%	9,397	3.1%	0.000	0.000
Chronic Obstructive Pulmonary Disease*	28,914	9.2%	27,741	9.2%	0.076	0.003
Asthma without COPD*	32,715	10.5%	31,946	10.6%	-0.099	-0.003
Chronic Liver Disease*	26,551	8.5%	24,425	8.1%	0.416	0.015
Chronic Kidney Disease*	43,476	13.9%	41,415	13.7%	0.212	0.006
Any Malignant Neoplasm*	33,499	10.7%	32,313	10.7%	0.030	0.001
Hemiplegia	2,750	0.9%	2,937	1.0%	-0.092	-0.010
Neurological/Neurodegenerative Conditions	885	0.3%	953	0.3%	-0.032	-0.006
Dementia*	1,212	0.4%	1,207	0.4%	-0.011	-0.002
Depression*	57,279	18.3%	55,578	18.4%	-0.056	-0.001
Schizophrenia	2,729	0.9%	3,284	1.1%	-0.213	-0.022
Rheumatic Disorders*	8,829	2.8%	8,562	2.8%	-0.007	-0.000
Multiple Sclerosis	2,141	0.7%	2,012	0.7%	0.020	0.002
HIV/AIDS	1,374	0.4%	2,328	0.8%	-0.330	-0.043
Coronary Artery Disease*	37,943	12.1%	35,960	11.9%	0.246	0.008
Immunodeficiency*	33,096	10.6%	31,769	10.5%	0.081	0.003
Smoking or Nicotine Use	65,246	20.9%	62,064	20.5%	0.348	0.009
Hyperlipidemia*	158,214	50.6%	153,271	50.7%	-0.074	-0.001
Medical Product Use	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Angiotensin Converting Enzyme Inhibitors/Angiotensin Receptor Blockers*	111,370	35.6%	107,579	35.6%	0.051	0.001
Non-Steroidal Anti-Inflammatory Drugs*	78,268	25.0%	75,894	25.1%	-0.060	-0.001
Aspirin	6,658	2.1%	7,365	2.4%	-0.306	-0.020
Antidepressants*	106,767	34.2%	103,404	34.2%	-0.041	-0.001

Table 1ai. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 50-64 years (Outcome: Severe COVID-19 Outcome or Death)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Statins*	116,191	37.2%	112,808	37.3%	-0.136	-0.003
Insulin*	19,258	6.2%	18,452	6.1%	0.058	0.002
Anti-Diabetic Oral Drugs*	49,602	15.9%	48,079	15.9%	-0.032	-0.001
Antihypertensive Drugs*	120,298	38.5%	116,121	38.4%	0.082	0.002
Anticoagulants*	14,801	4.7%	14,188	4.7%	0.043	0.002
Glucocorticoids*	78,322	25.1%	76,579	25.3%	-0.269	-0.006
Acetaminophen	52,217	16.7%	48,911	16.2%	0.529	0.014
Tumor Necrosis Factor Inhibitors	2,674	0.9%	2,493	0.8%	0.031	0.003
Immunosuppressants*	16,080	5.1%	15,686	5.2%	-0.043	-0.002
Inhaled Corticosteroids*	25,829	8.3%	25,274	8.4%	-0.095	-0.003
COVID-19 Vaccine*	83,767	26.8%	81,939	27.1%	-0.300	-0.007
Health Service Utilization Intensity Metrics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Mean number of ambulatory encounters*	9.8	10.8	9.8	10.6	-0.009	-0.001
Mean number of emergency room encounters*	0.4	1.4	0.4	1.5	0.006	0.004
Mean number of inpatient hospital encounters	0.1	0.5	0.1	0.5	0.008	0.018
Mean number of non-acute institutional encounters*	0.0	0.2	0.0	0.2	0.000	0.001
Mean number of other ambulatory encounters*	2.3	4.9	2.3	4.9	0.001	0.000
Mean number of filled prescriptions*	15.3	13.5	15.4	13.5	-0.027	-0.002
Mean number of generics dispensed*	7.7	4.8	7.7	4.8	-0.008	-0.002
Mean number of unique drug classes dispensed*	7.3	4.4	7.3	4.3	-0.007	-0.002

Table 1ai. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 50-64 years (Outcome: Severe COVID-19 Outcome or Death)

	Medical Product		Covariate Balance
	Proton Pump Inhibitor New Users	Famotidine New Users	

[*]Covariate included in the propensity score logistic regression model.

[1]Covariates in blue show (if displayed) a standardized difference greater than 0.1.

[2]Weighted patient characteristics tables facilitate the assessment of covariate balance after inverse probability weighting and should not be interpreted as a description of the unweighted population. Treated patients are assigned a weight of 1. Reference patients are weighted by their propensity score (PS) divided by 1 minus their PS.

[3]Value represents standard deviation where no % follows the value.

[4]Race data may not be completely populated at all Data Partners; therefore, data about race may be incomplete.

[5]The Social Deprivation Index score is a composite measure of zip code tabulation area (ZCTA)-level deprivation constructed from seven demographic and household characteristics collected in the American Community Survey, where higher values indication greater levels of deprivation. For this project, each patient's most recent geographic information is used. For more information, see Butler DC et al. Health Services Research. 2013;48(2pt1):539-559. doi:10.1111/j.1475-6773.2012.01449.x.

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N/A: Not Applicable

Table 1aj. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years (Outcome: Severe COVID-19 Outcome or Death)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Patient Characteristics[1,2]	Number/Mean	Percent/ Standard Deviation[3]	Number/Mean	Percent/ Standard Deviation[3]	Absolute Difference	Standardized Difference
Weighted patients	248,028	N/A	237,365	N/A	N/A	N/A
Demographic Characteristics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Age (years)[*]	69.7	2.8	69.7	2.8	-0.007	-0.002
Age[*]						
18-49 years	0	0.0%	0	0.0%	NaN	NaN
50-64 years	0	0.0%	0	0.0%	NaN	NaN
65-74 years	248,028	100.0%	237,365	100.0%	0.000	NaN
≥ 75 years	0	0.0%	0	0.0%	NaN	NaN
Sex[*]						
Female	151,188	61.0%	146,648	61.8%	-0.826	-0.017
Male	96,840	39.0%	90,717	38.2%	0.826	0.017
Race[4]						
American Indian or Alaska Native	728	0.3%	743	0.3%	-0.020	-0.004
Asian	7,437	3.0%	7,501	3.2%	-0.162	-0.009
Black or African American	39,332	15.9%	39,826	16.8%	-0.921	-0.025
Multi-racial	1,268	0.5%	891	0.4%	0.136	0.021
Native Hawaiian or Other Pacific Islander	2,025	0.8%	2,105	0.9%	-0.070	-0.008
Unknown	29,525	11.9%	28,930	12.2%	-0.284	-0.009
White	167,713	67.6%	157,369	66.3%	1.320	0.028
Hispanic origin						
Yes	8,675	3.5%	9,297	3.9%	-0.419	-0.022
No	164,579	66.4%	156,132	65.8%	0.578	0.021
Unknown	74,774	30.1%	71,935	30.3%	-0.158	-0.006
ZCTA Social Deprivation Index Score, National Quartile[*,5]						
Q1 (Least deprived)	54,847	22.1%	52,265	22.0%	0.094	0.002

Table 1aj. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years (Outcome: Severe COVID-19 Outcome or Death)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Q2	63,850	25.7%	60,915	25.7%	0.080	0.002
Q3	68,857	27.8%	65,674	27.7%	0.094	0.002
Q4 (Most deprived)	59,133	23.8%	57,237	24.1%	-0.272	-0.006
Unknown	1,341	0.5%	1,273	0.5%	0.004	0.001
Year-Quarter of Exposure[*]						
2020 Quarter 2	14,864	6.0%	14,172	6.0%	0.023	0.001
2020 Quarter 3	23,154	9.3%	21,194	8.9%	0.406	0.014
2020 Quarter 4	22,480	9.1%	21,807	9.2%	-0.124	-0.004
2021 Quarter 1	21,423	8.6%	20,554	8.7%	-0.022	-0.001
2021 Quarter 2	20,791	8.4%	19,994	8.4%	-0.041	-0.001
2021 Quarter 3	23,356	9.4%	22,563	9.5%	-0.089	-0.003
2021 Quarter 4	22,853	9.2%	21,970	9.3%	-0.042	-0.001
2022 Quarter 1	19,056	7.7%	18,262	7.7%	-0.011	-0.000
2022 Quarter 2	18,174	7.3%	17,390	7.3%	0.001	0.000
2022 Quarter 3	20,306	8.2%	19,592	8.3%	-0.067	-0.002
2022 Quarter 4	20,557	8.3%	19,789	8.3%	-0.049	-0.002
2023 Quarter 1	21,014	8.5%	20,079	8.5%	0.013	0.000
Health Characteristics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Claims-Based frailty index[*,6]	0.2	0.1	0.2	0.1	0.001	0.018
Claims-Based frailty index categories						
<=0.2	209,093	84.3%	201,691	85.0%	-0.669	-0.019
>0.2	38,935	15.7%	35,674	15.0%	0.669	0.019
Combined comorbidity score[*,7]	1.8	2.8	1.7	2.7	0.079	0.029
Diabetes[*]	76,348	30.8%	72,872	30.7%	0.081	0.002
Obesity[*]	71,476	28.8%	68,001	28.6%	0.169	0.004
Hypertension[*]	177,531	71.6%	169,292	71.3%	0.256	0.006
Hospitalized Stroke/Transient Ischemic Attack	3,671	1.5%	3,591	1.5%	-0.033	-0.003
Coronary Revascularization	4,005	1.6%	4,096	1.7%	-0.111	-0.009

Table 1aj. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years (Outcome: Severe COVID-19 Outcome or Death)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Atrial Fibrillation*	20,195	8.1%	18,354	7.7%	0.410	0.015
Congestive Heart Failure*	22,702	9.2%	20,732	8.7%	0.419	0.015
Hospitalized Acute Myocardial Infarction	4,002	1.6%	3,360	1.4%	0.198	0.016
Other Cerebrovascular Disease*	17,563	7.1%	16,411	6.9%	0.167	0.007
Chronic Obstructive Pulmonary Disease*	40,451	16.3%	37,766	15.9%	0.399	0.011
Asthma without COPD*	23,454	9.5%	22,565	9.5%	-0.050	-0.002
Chronic Liver Disease*	21,245	8.6%	19,127	8.1%	0.508	0.018
Chronic Kidney Disease*	56,698	22.9%	52,972	22.3%	0.543	0.013
Any Malignant Neoplasm*	45,922	18.5%	43,328	18.3%	0.261	0.007
Hemiplegia	4,005	1.6%	3,861	1.6%	-0.012	-0.001
Neurological/Neurodegenerative Conditions	2,005	0.8%	2,132	0.9%	-0.090	-0.010
Dementia*	5,136	2.1%	4,828	2.0%	0.037	0.003
Depression*	49,059	19.8%	46,490	19.6%	0.194	0.005
Schizophrenia	1,318	0.5%	1,363	0.6%	-0.043	-0.006
Rheumatic Disorders*	7,861	3.2%	7,514	3.2%	0.004	0.000
Multiple Sclerosis	1,107	0.4%	1,041	0.4%	0.008	0.001
HIV/AIDS	572	0.2%	941	0.4%	-0.166	-0.030
Coronary Artery Disease*	62,709	25.3%	58,526	24.7%	0.626	0.015
Immunodeficiency*	31,001	12.5%	28,880	12.2%	0.332	0.010
Smoking or Nicotine Use	64,046	25.8%	59,386	25.0%	0.803	0.019
Hyperlipidemia*	171,073	69.0%	163,847	69.0%	-0.054	-0.001
Medical Product Use	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Angiotensin Converting Enzyme Inhibitors/Angiotensin Receptor Blockers*	119,867	48.3%	114,571	48.3%	0.060	0.001
Non-Steroidal Anti-Inflammatory Drugs*	55,954	22.6%	53,623	22.6%	-0.031	-0.001
Aspirin	1,387	0.6%	1,405	0.6%	-0.033	-0.004
Antidepressants*	79,462	32.0%	75,654	31.9%	0.165	0.004

Table 1aj. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years (Outcome: Severe COVID-19 Outcome or Death)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Statins*	139,368	56.2%	133,560	56.3%	-0.077	-0.002
Insulin*	18,359	7.4%	17,325	7.3%	0.103	0.004
Anti-Diabetic Oral Drugs*	53,428	21.5%	51,136	21.5%	-0.002	-0.000
Antihypertensive Drugs*	127,830	51.5%	121,921	51.4%	0.174	0.003
Anticoagulants*	21,482	8.7%	19,594	8.3%	0.406	0.015
Glucocorticoids*	55,358	22.3%	53,271	22.4%	-0.123	-0.003
Acetaminophen	40,636	16.4%	37,871	16.0%	0.429	0.012
Tumor Necrosis Factor Inhibitors	948	0.4%	843	0.4%	0.027	0.004
Immunosuppressants*	16,090	6.5%	15,372	6.5%	0.011	0.000
Inhaled Corticosteroids*	22,775	9.2%	21,685	9.1%	0.047	0.002
COVID-19 Vaccine*	65,869	26.6%	63,696	26.8%	-0.277	-0.006
Health Service Utilization Intensity Metrics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Mean number of ambulatory encounters*	11.2	11.3	11.2	10.8	0.049	0.004
Mean number of emergency room encounters*	0.6	1.7	0.6	1.5	0.027	0.017
Mean number of inpatient hospital encounters	0.2	0.6	0.2	0.5	0.017	0.032
Mean number of non-acute institutional encounters*	0.0	0.3	0.0	0.3	0.002	0.008
Mean number of other ambulatory encounters*	2.1	5.4	2.1	5.4	0.042	0.008
Mean number of filled prescriptions*	15.9	12.4	15.8	12.1	0.077	0.006
Mean number of generics dispensed*	8.4	4.7	8.4	4.6	0.036	0.008
Mean number of unique drug classes dispensed*	8.0	4.3	7.9	4.2	0.034	0.008

Table 1aj. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years (Outcome: Severe COVID-19 Outcome or Death)

	Medical Product		Covariate Balance
	Proton Pump Inhibitor New Users	Famotidine New Users	

[*]Covariate included in the propensity score logistic regression model.

[1]Covariates in blue show (if displayed) a standardized difference greater than 0.1.

[2]Weighted patient characteristics tables facilitate the assessment of covariate balance after inverse probability weighting and should not be interpreted as a description of the unweighted population. Treated patients are assigned a weight of 1. Reference patients are weighted by their propensity score (PS) divided by 1 minus their PS.

[3]Value represents standard deviation where no % follows the value.

[4]Race data may not be completely populated at all Data Partners; therefore, data about race may be incomplete.

[5]The Social Deprivation Index score is a composite measure of zip code tabulation area (ZCTA)-level deprivation constructed from seven demographic and household characteristics collected in the American Community Survey, where higher values indication greater levels of deprivation. For this project, each patient's most recent geographic information is used. For more information, see Butler DC et al. Health Services Research. 2013;48(2pt1):539-559. doi:10.1111/j.1475-6773.2012.01449.x.

[6]Kim DH, Schneeweiss S, Glynn RJ, Lipsitz LA, Rockwood K, Avorn J. Measuring frailty in Medicare data: development and validation of a claims-based frailty index. J Gerontol A Biol Sci Med Sci. 2018;73(7)980-987.

[7]Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A combined comorbidity score predicted mortality in elderly patients better than existing scores. J Clin Epidemiol. 2011;64(7):749-759. Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and validation of the combined comorbidity score for ICD-10-CM. Med Care. 2017;55(12):1046-1051.

N/A: Not Applicable

Table 1ak. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: ≥ 75 years (Outcome: Severe COVID-19 Outcome or Death)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Patient Characteristics[1,2]	Number/Mean	Percent/ Standard Deviation[3]	Number/Mean	Percent/ Standard Deviation[3]	Absolute Difference	Standardized Difference
Weighted patients	163,241	N/A	153,104	N/A	N/A	N/A
Demographic Characteristics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Age (years)[*]	81.4	5.0	81.3	5.0	0.035	0.007
Age[*]						
18-49 years	0	0.0%	0	0.0%	NaN	NaN
50-64 years	0	0.0%	0	0.0%	NaN	NaN
65-74 years	0	0.0%	0	0.0%	NaN	NaN
≥ 75 years	163,241	100.0%	153,104	100.0%	0.000	NaN
Sex[*]						
Female	101,754	62.3%	96,605	63.1%	-0.764	-0.016
Male	61,487	37.7%	56,499	36.9%	0.764	0.016
Race[4]						
American Indian or Alaska Native	462	0.3%	423	0.3%	0.007	0.001
Asian	3,170	1.9%	3,194	2.1%	-0.144	-0.010
Black or African American	20,089	12.3%	20,328	13.3%	-0.971	-0.029
Multi-racial	345	0.2%	295	0.2%	0.018	0.004
Native Hawaiian or Other Pacific Islander	1,526	0.9%	1,724	1.1%	-0.191	-0.019
Unknown	11,512	7.1%	11,108	7.3%	-0.203	-0.008
White	126,137	77.3%	116,033	75.8%	1.484	0.035
Hispanic origin						
Yes	3,317	2.0%	3,588	2.3%	-0.312	-0.021
No	115,896	71.0%	108,074	70.6%	0.409	0.019
Unknown	44,028	27.0%	41,442	27.1%	-0.097	-0.005
ZCTA Social Deprivation Index Score, National Quartile[*,5]						
Q1 (Least deprived)	40,087	24.6%	37,412	24.4%	0.121	0.003

Table 1ak. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: ≥ 75 years (Outcome: Severe COVID-19 Outcome or Death)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Q2	45,022	27.6%	41,954	27.4%	0.178	0.004
Q3	43,497	26.6%	40,766	26.6%	0.020	0.000
Q4 (Most deprived)	33,799	20.7%	32,234	21.1%	-0.349	-0.009
Unknown	836	0.5%	738	0.5%	0.030	0.005
Year-Quarter of Exposure*						
2020 Quarter 2	9,889	6.1%	9,160	6.0%	0.075	0.003
2020 Quarter 3	15,471	9.5%	13,969	9.1%	0.354	0.012
2020 Quarter 4	14,680	9.0%	13,879	9.1%	-0.072	-0.003
2021 Quarter 1	13,864	8.5%	13,109	8.6%	-0.069	-0.002
2021 Quarter 2	14,141	8.7%	13,382	8.7%	-0.078	-0.003
2021 Quarter 3	15,725	9.6%	14,797	9.7%	-0.032	-0.001
2021 Quarter 4	14,874	9.1%	14,039	9.2%	-0.058	-0.002
2022 Quarter 1	12,623	7.7%	11,808	7.7%	0.021	0.001
2022 Quarter 2	12,519	7.7%	11,836	7.7%	-0.062	-0.002
2022 Quarter 3	12,931	7.9%	12,237	8.0%	-0.071	-0.003
2022 Quarter 4	13,115	8.0%	12,250	8.0%	0.033	0.001
2023 Quarter 1	13,409	8.2%	12,640	8.3%	-0.041	-0.002
Health Characteristics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Claims-Based frailty index*,6	0.2	0.1	0.2	0.1	0.002	0.031
Claims-Based frailty index categories						
<=0.2	115,302	70.6%	110,203	72.0%	-1.346	-0.030
>0.2	47,939	29.4%	42,902	28.0%	1.346	0.030
Combined comorbidity score*,7	3.0	3.4	2.9	3.2	0.160	0.048
Diabetes*	52,109	31.9%	48,448	31.6%	0.278	0.006
Obesity*	33,831	20.7%	31,234	20.4%	0.324	0.008
Hypertension*	134,775	82.6%	125,807	82.2%	0.391	0.010
Hospitalized Stroke/Transient Ischemic Attack	4,901	3.0%	4,432	2.9%	0.108	0.006
Coronary Revascularization	3,324	2.0%	3,174	2.1%	-0.037	-0.003

Table 1ak. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: ≥ 75 years (Outcome: Severe COVID-19 Outcome or Death)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Atrial Fibrillation*	31,172	19.1%	27,671	18.1%	1.023	0.026
Congestive Heart Failure*	29,902	18.3%	26,586	17.4%	0.953	0.025
Hospitalized Acute Myocardial Infarction	4,532	2.8%	3,885	2.5%	0.239	0.015
Other Cerebrovascular Disease*	20,902	12.8%	19,108	12.5%	0.324	0.010
Chronic Obstructive Pulmonary Disease*	32,716	20.0%	29,867	19.5%	0.534	0.013
Asthma without COPD*	13,604	8.3%	12,850	8.4%	-0.060	-0.002
Chronic Liver Disease*	10,740	6.6%	9,312	6.1%	0.497	0.020
Chronic Kidney Disease*	52,937	32.4%	47,719	31.2%	1.261	0.027
Any Malignant Neoplasm*	44,443	27.2%	41,125	26.9%	0.365	0.008
Hemiplegia	4,010	2.5%	4,174	2.7%	-0.270	-0.017
Neurological/Neurodegenerative Conditions	3,007	1.8%	2,771	1.8%	0.032	0.002
Dementia*	16,184	9.9%	14,761	9.6%	0.273	0.009
Depression*	31,892	19.5%	29,667	19.4%	0.160	0.004
Schizophrenia	424	0.3%	403	0.3%	-0.004	-0.001
Rheumatic Disorders*	5,670	3.5%	5,289	3.5%	0.019	0.001
Multiple Sclerosis	448	0.3%	380	0.2%	0.026	0.005
HIV/AIDS	122	0.1%	142	0.1%	-0.018	-0.006
Coronary Artery Disease*	63,259	38.8%	57,865	37.8%	0.957	0.020
Immunodeficiency*	24,163	14.8%	21,955	14.3%	0.462	0.013
Smoking or Nicotine Use	40,349	24.7%	36,536	23.9%	0.854	0.020
Hyperlipidemia*	120,382	73.7%	112,624	73.6%	0.185	0.004
Medical Product Use	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Angiotensin Converting Enzyme Inhibitors/Angiotensin Receptor Blockers*	85,521	52.4%	80,141	52.3%	0.045	0.001
Non-Steroidal Anti-Inflammatory Drugs*	26,622	16.3%	25,061	16.4%	-0.060	-0.002
Aspirin	774	0.5%	828	0.5%	-0.067	-0.009
Antidepressants*	49,938	30.6%	46,613	30.4%	0.146	0.003

Table 1ak. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: ≥ 75 years (Outcome: Severe COVID-19 Outcome or Death)

	Medical Product				Covariate Balance	
	Proton Pump Inhibitor New Users		Famotidine New Users			
Statins*	97,186	59.5%	91,055	59.5%	0.063	0.001
Insulin*	10,894	6.7%	9,928	6.5%	0.189	0.008
Anti-Diabetic Oral Drugs*	31,376	19.2%	29,202	19.1%	0.147	0.004
Antihypertensive Drugs*	92,728	56.8%	86,764	56.7%	0.134	0.003
Anticoagulants*	28,152	17.2%	25,335	16.5%	0.698	0.019
Glucocorticoids*	35,278	21.6%	33,232	21.7%	-0.094	-0.002
Acetaminophen	23,959	14.7%	21,169	13.8%	0.851	0.024
Tumor Necrosis Factor Inhibitors	355	0.2%	365	0.2%	-0.021	-0.004
Immunosuppressants*	13,235	8.1%	12,225	8.0%	0.123	0.005
Inhaled Corticosteroids*	15,085	9.2%	14,109	9.2%	0.026	0.001
COVID-19 Vaccine*	45,158	27.7%	42,509	27.8%	-0.102	-0.002
Health Service Utilization Intensity Metrics	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Number/Mean**	**Percent/ Standard Deviation[3]**	**Absolute Difference**	**Standardized Difference**
Mean number of ambulatory encounters*	12.6	12.0	12.5	11.6	0.098	0.008
Mean number of emergency room encounters*	0.9	1.9	0.9	1.9	0.065	0.034
Mean number of inpatient hospital encounters	0.3	0.7	0.3	0.6	0.034	0.053
Mean number of non-acute institutional encounters*	0.1	0.4	0.1	0.4	0.011	0.026
Mean number of other ambulatory encounters*	3.1	6.8	3.0	6.8	0.104	0.015
Mean number of filled prescriptions*	17.1	12.3	17.0	12.0	0.104	0.009
Mean number of generics dispensed*	9.0	4.5	9.0	4.4	0.045	0.010
Mean number of unique drug classes dispensed*	8.6	4.1	8.5	4.1	0.041	0.010

Table 1ak. Weighted Characteristics of Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation (Inverse Probability of Treatment Weighted, Trimmed, Weight: Average Treatment Effect in the Treated (ATT), Truncation: 1%), in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: ≥ 75 years (Outcome: Severe COVID-19 Outcome or Death)

	Medical Product		Covariate Balance
	Proton Pump Inhibitor New Users	Famotidine New Users	

[*]Covariate included in the propensity score logistic regression model.

[1]Covariates in blue show (if displayed) a standardized difference greater than 0.1.

[2]Weighted patient characteristics tables facilitate the assessment of covariate balance after inverse probability weighting and should not be interpreted as a description of the unweighted population. Treated patients are assigned a weight of 1. Reference patients are weighted by their propensity score (PS) divided by 1 minus their PS.

[3]Value represents standard deviation where no % follows the value.

[4]Race data may not be completely populated at all Data Partners; therefore, data about race may be incomplete.

[5]The Social Deprivation Index score is a composite measure of zip code tabulation area (ZCTA)-level deprivation constructed from seven demographic and household characteristics collected in the American Community Survey, where higher values indication greater levels of deprivation. For this project, each patient's most recent geographic information is used. For more information, see Butler DC et al. Health Services Research. 2013;48(2pt1):539-559. doi:10.1111/j.1475-6773.2012.01449.x.

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[7]Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A combined comorbidity score predicted mortality in elderly patients better than existing scores. J Clin Epidemiol. 2011;64(7):749-759. Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and validation of the combined comorbidity score for ICD-10-CM. Med Care. 2017;55(12):1046-1051.

N/A: Not Applicable

Table 2a. Effect Estimates for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Analysis Type

Medical Product	Number of New Users	Person Years at Risk	Average Person Days at Risk	Average Person Years at Risk	Number of Events	Incidence Rate per 1,000 Person Years	Risk per 1,000 New Users	Hazard Ratio (95% Confidence Interval)[1]	Wald P-Value
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	96.45	0.26	*****	18.67	4.93	0.93 (0.87, 1.00)	0.05
Famotidine New Users	*****	*****	83.42	0.23	*****	20.57	4.70		
Inverse Probability of Treatment Weighted Analysis; Unweighted, Trimmed									
Proton Pump Inhibitor New Users	*****	*****	96.45	0.26	*****	18.67	4.93	N/A	N/A
Famotidine New Users	*****	*****	83.42	0.23	*****	20.57	4.70		
Inverse Probability of Treatment Weighted Analysis[2]; Weight = ATT, Trimmed[3]									
Proton Pump Inhibitor New Users	1,043,458	275,529.38	96.45	0.26	5,144	18.67	4.93	0.98 (0.91, 1.06)	N/A
Famotidine New Users	1,043,389	237,547.20	83.16	0.23	4,579	19.28	4.39		

[1]The I^2 metric for statistical heterogeneity across 6 Data Partners and its corresponding 95% confidence interval for this effect estimate is (0%) (95% CI - 0.0%, 23.5%).

[2]All values in this section are weighted.

[3]ATT = Average Treatment Effect in the Treated.

*****Data are not presented in these cells due to a small sample size or to assure a small cell cannot be recalculated through the cells presented.

N/A: Not Applicable

Table 2b. Effect Estimates for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Analysis Type and Age Group

Medical Product	Number of New Users	Person Years at Risk	Average Person Days at Risk	Average Person Years at Risk	Number of Events	Incidence Rate per 1,000 Person Years	Risk per 1,000 New Users	Hazard Ratio (95% Confidence Interval)	Wald P-Value
COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with User-Specified PS with IPTW ATT Adjustment, No Truncation									
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	96.45	0.26	*****	18.67	4.93	0.93 (0.87, 1.00)	0.05
Famotidine New Users	*****	*****	83.42	0.23	*****	20.57	4.70		
Inverse Probability of Treatment Weighted Analysis; Unweighted, Trimmed									
Proton Pump Inhibitor New Users	*****	*****	96.45	0.26	*****	18.67	4.93	N/A	N/A
Famotidine New Users	*****	*****	83.42	0.23	*****	20.57	4.70		
Inverse Probability of Treatment Weighted Analysis[1]; Weight = ATT, Trimmed[2]									
Proton Pump Inhibitor New Users	1,043,458	275,529.38	96.45	0.26	5,144	18.67	4.93	0.98 (0.91, 1.06)	N/A
Famotidine New Users	1,043,389	237,547.20	83.16	0.23	4,579	19.28	4.39		
COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with User-Specified PS with IPTW ATT Adjustment, No Truncation, Age Group: 18-49 years									
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	83.10	0.23	*****	6.30	1.43	0.96 (0.74, 1.25)	0.762
Famotidine New Users	*****	*****	69.51	0.19	*****	6.65	1.26		
Inverse Probability of Treatment Weighted Analysis; Unweighted, Trimmed									
Proton Pump Inhibitor New Users	*****	*****	83.10	0.23	*****	6.31	1.43	N/A	N/A
Famotidine New Users	*****	*****	69.52	0.19	*****	6.65	1.26		
Inverse Probability of Treatment Weighted Analysis[1]; Weight = ATT, Trimmed[2]									
Proton Pump Inhibitor New Users	317,863	72,315.81	83.10	0.23	456	6.31	1.43	0.94 (0.71, 1.24)	N/A
Famotidine New Users	317,950	61,871.65	71.08	0.19	421	6.81	1.32		
COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with User-Specified PS with IPTW ATT Adjustment, No Truncation, Age Group: 50-64 years									
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	97.26	0.27	*****	14.41	3.84	0.99 (0.84, 1.17)	0.922
Famotidine New Users	*****	*****	83.38	0.23	*****	14.69	3.35		
Inverse Probability of Treatment Weighted Analysis; Unweighted, Trimmed									
Proton Pump Inhibitor New Users	*****	*****	97.26	0.27	*****	14.38	3.83	N/A	N/A
Famotidine New Users	*****	*****	83.39	0.23	*****	14.69	3.35		

Table 2b. Effect Estimates for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Analysis Type and Age Group

Medical Product	Number of New Users	Person Years at Risk	Average Person Days at Risk	Average Person Years at Risk	Number of Events	Incidence Rate per 1,000 Person Years	Risk per 1,000 New Users	Hazard Ratio (95% Confidence Interval)	Wald P-Value
Inverse Probability of Treatment Weighted Analysis [1] ; Weight = ATT, Trimmed [2]									
Proton Pump Inhibitor New Users	312,834	83,303.34	97.26	0.27	1,198	14.38	3.83	1.02 (0.86, 1.21)	N/A
Famotidine New Users	312,826	71,831.92	83.87	0.23	1,013	14.10	3.24		
COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with User-Specified PS with IPTW ATT Adjustment, No Truncation, Age Group: 65-74 years									
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	106.38	0.29	*****	21.38	6.23	0.97 (0.85, 1.10)	0.607
Famotidine New Users	*****	*****	91.74	0.25	*****	22.24	5.58		
Inverse Probability of Treatment Weighted Analysis; Unweighted, Trimmed									
Proton Pump Inhibitor New Users	*****	*****	106.39	0.29	*****	21.38	6.23	N/A	N/A
Famotidine New Users	*****	*****	91.74	0.25	*****	22.15	5.56		
Inverse Probability of Treatment Weighted Analysis [1] ; Weight = ATT, Trimmed [2]									
Proton Pump Inhibitor New Users	248,705	72,441.85	106.39	0.29	1,549	21.38	6.23	1.00 (0.88, 1.14)	N/A
Famotidine New Users	248,725	62,508.66	91.79	0.25	1,365	21.84	5.49		
COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with User-Specified PS with IPTW ATT Adjustment, No Truncation, Age Group: ≥ 75 years									
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	105.70	0.29	*****	40.88	11.83	1.02 (0.91, 1.14)	0.763
Famotidine New Users	*****	*****	92.50	0.25	*****	40.41	10.23		
Inverse Probability of Treatment Weighted Analysis; Unweighted, Trimmed									
Proton Pump Inhibitor New Users	*****	*****	105.71	0.29	*****	40.82	11.81	N/A	N/A
Famotidine New Users	*****	*****	92.49	0.25	*****	40.41	10.23		
Inverse Probability of Treatment Weighted Analysis [1] ; Weight = ATT, Trimmed [2]									
Proton Pump Inhibitor New Users	163,716	47,382.59	105.71	0.29	1,934	40.82	11.81	0.98 (0.87, 1.10)	N/A
Famotidine New Users	163,838	41,310.27	92.09	0.25	1,745	42.23	10.65		

[1]All values in this section are weighted.

[2]ATT = Average Treatment Effect in the Treated.

*****Data are not presented in these cells due to a small sample size or to assure a small cell cannot be recalculated through the cells presented.

Table 2b. Effect Estimates for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Analysis Type and Age Group

Medical Product	Number of New Users	Person Years at Risk	Average Person Days at Risk	Average Person Years at Risk	Number of Events	Incidence Rate per 1,000 Person Years	Risk per 1,000 New Users	Hazard Ratio (95% Confidence Interval)	Wald P-Value

N/A: Not Applicable

Table 3a. Effect Estimates for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Analysis Type

Medical Product	Number of New Users	Person Years at Risk	Average Person Days at Risk	Average Person Years at Risk	Number of Events	Incidence Rate per 1,000 Person Years	Risk per 1,000 New Users	Hazard Ratio (95% Confidence Interval)[1]	Wald P-Value
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	96.45	0.26	*****	18.67	4.93	0.93 (0.87, 1.00)	0.05
Famotidine New Users	*****	*****	83.42	0.23	*****	20.57	4.70		
Inverse Probability of Treatment Weighted Analysis; Unweighted, Trimmed									
Proton Pump Inhibitor New Users	*****	*****	96.45	0.26	*****	18.67	4.93	N/A	N/A
Famotidine New Users	*****	*****	83.42	0.23	*****	20.57	4.70		
Inverse Probability of Treatment Weighted Analysis[2]; Weight = ATT, Trimmed[3]									
Proton Pump Inhibitor New Users	1,043,458	275,529.38	96.45	0.26	5,144	18.67	4.93	0.98 (0.91, 1.06)	N/A
Famotidine New Users	1,030,133	234,499.45	83.15	0.23	4,516	19.26	4.38		

[1]The I^2 metric for statistical heterogeneity across 6 Data Partners and its corresponding 95% confidence interval for this effect estimate is (0%) (95% CI 0.0%, 18.3%).

[2]All values in this section are weighted.

[3]ATT = Average Treatment Effect in the Treated.

*****Data are not presented in these cells due to a small sample size or to assure a small cell cannot be recalculated through the cells presented.
N/A: Not Applicable

Table 3b. Effect Estimates for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Analysis Type and Age Group

Medical Product	Number of New Users	Person Years at Risk	Average Person Days at Risk	Average Person Years at Risk	Number of Events	Incidence Rate per 1,000 Person Years	Risk per 1,000 New Users	Hazard Ratio (95% Confidence Interval)	Wald P-Value
COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with User-Specified PS with IPTW ATT Adjustment, 1% Truncation									
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	96.45	0.26	*****	18.67	4.93	0.93 (0.87, 1.00)	0.05
Famotidine New Users	*****	*****	83.42	0.23	*****	20.57	4.70		
Inverse Probability of Treatment Weighted Analysis; Unweighted, Trimmed									
Proton Pump Inhibitor New Users	*****	*****	96.45	0.26	*****	18.67	4.93	N/A	N/A
Famotidine New Users	*****	*****	83.42	0.23	*****	20.57	4.70		
Inverse Probability of Treatment Weighted Analysis[1]; Weight = ATT, Trimmed[2]									
Proton Pump Inhibitor New Users	1,043,458	275,529.38	96.45	0.26	5,144	18.67	4.93	0.98 (0.91, 1.06)	N/A
Famotidine New Users	1,030,133	234,499.45	83.15	0.23	4,516	19.26	4.38		
COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with User-Specified PS with IPTW ATT Adjustment, 1% Truncation, Age Group: 18-49 years									
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	83.10	0.23	*****	6.30	1.43	0.96 (0.74, 1.25)	0.762
Famotidine New Users	*****	*****	69.51	0.19	*****	6.65	1.26		
Inverse Probability of Treatment Weighted Analysis; Unweighted, Trimmed									
Proton Pump Inhibitor New Users	*****	*****	83.10	0.23	*****	6.31	1.43	N/A	N/A
Famotidine New Users	*****	*****	69.52	0.19	*****	6.65	1.26		
Inverse Probability of Treatment Weighted Analysis[1]; Weight = ATT, Trimmed[2]									
Proton Pump Inhibitor New Users	317,863	72,315.81	83.10	0.23	456	6.31	1.43	0.95 (0.72, 1.25)	N/A
Famotidine New Users	313,120	60,819.25	70.94	0.19	410	6.74	1.31		
COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with User-Specified PS with IPTW ATT Adjustment, 1% Truncation, Age Group: 50-64 years									
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	97.26	0.27	*****	14.41	3.84	0.99 (0.84, 1.17)	0.922
Famotidine New Users	*****	*****	83.38	0.23	*****	14.69	3.35		
Inverse Probability of Treatment Weighted Analysis; Unweighted, Trimmed									
Proton Pump Inhibitor New Users	*****	*****	97.26	0.27	*****	14.38	3.83	N/A	N/A
Famotidine New Users	*****	*****	83.39	0.23	*****	14.69	3.35		
Inverse Probability of Treatment Weighted Analysis[1]; Weight = ATT, Trimmed[2]									

Table 3b. Effect Estimates for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Analysis Type and Age Group

Medical Product	Number of New Users	Person Years at Risk	Average Person Days at Risk	Average Person Years at Risk	Number of Events	Incidence Rate per 1,000 Person Years	Risk per 1,000 New Users	Hazard Ratio (95% Confidence Interval)	Wald P-Value
Proton Pump Inhibitor New Users	312,834	83,303.34	97.26	0.27	1,198	14.38	3.83	1.03 (0.87, 1.22)	N/A
Famotidine New Users	308,878	70,877.08	83.81	0.23	997	14.06	3.23		
COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with User-Specified PS with IPTW ATT Adjustment, 1% Truncation, Age Group: 65-74 years									
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	106.38	0.29	*****	21.38	6.23	0.97 (0.85, 1.10)	0.607
Famotidine New Users	*****	*****	91.74	0.25	*****	22.24	5.58		
Inverse Probability of Treatment Weighted Analysis; Unweighted, Trimmed									
Proton Pump Inhibitor New Users	*****	*****	106.39	0.29	*****	21.38	6.23	N/A	N/A
Famotidine New Users	*****	*****	91.74	0.25	*****	22.15	5.56		
Inverse Probability of Treatment Weighted Analysis[1]; Weight = ATT, Trimmed[2]									
Proton Pump Inhibitor New Users	248,705	72,441.85	106.39	0.29	1,549	21.38	6.23	1.00 (0.87, 1.14)	N/A
Famotidine New Users	245,969	61,805.70	91.78	0.25	1,353	21.90	5.50		
COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with User-Specified PS with IPTW ATT Adjustment, 1% Truncation, Age Group: ≥ 75 years									
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	105.70	0.29	*****	40.88	11.83	1.02 (0.91, 1.14)	0.763
Famotidine New Users	*****	*****	92.50	0.25	*****	40.41	10.23		
Inverse Probability of Treatment Weighted Analysis; Unweighted, Trimmed									
Proton Pump Inhibitor New Users	*****	*****	105.71	0.29	*****	40.82	11.81	N/A	N/A
Famotidine New Users	*****	*****	92.49	0.25	*****	40.41	10.23		
Inverse Probability of Treatment Weighted Analysis[1]; Weight = ATT, Trimmed[2]									
Proton Pump Inhibitor New Users	163,716	47,382.59	105.71	0.29	1,934	40.82	11.81	0.99 (0.89, 1.11)	N/A
Famotidine New Users	161,919	40,863.63	92.18	0.25	1,706	41.75	10.54		

[1]All values in this section are weighted.

[2]ATT = Average Treatment Effect in the Treated.

*****Data are not presented in these cells due to a small sample size or to assure a small cell cannot be recalculated through the cells presented.

N/A: Not Applicable

Table 4a. Effect Estimates for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment using hdPS, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Analysis Type

Medical Product	Number of New Users	Person Years at Risk	Average Person Days at Risk	Average Person Years at Risk	Number of Events	Incidence Rate per 1,000 Person Years	Risk per 1,000 New Users	Hazard Ratio (95% Confidence Interval)[1]	Wald P-Value
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	96.45	0.26	*****	18.67	4.93	0.93 (0.87, 1.00)	0.05
Famotidine New Users	*****	*****	83.42	0.23	*****	20.57	4.70		
Inverse Probability of Treatment Weighted Analysis; Unweighted, Trimmed									
Proton Pump Inhibitor New Users	*****	*****	96.45	0.26	*****	18.64	4.92	N/A	N/A
Famotidine New Users	*****	*****	83.42	0.23	*****	20.52	4.69		
Inverse Probability of Treatment Weighted Analysis[2]; Weight = ATT, Trimmed[3]									
Proton Pump Inhibitor New Users	1,043,108	275,441.40	96.45	0.26	5,135	18.64	4.92	0.97 (0.89, 1.06)	N/A
Famotidine New Users	1,043,022	236,533.07	82.83	0.23	4,597	19.43	4.41		

[1]The I^2 metric for statistical heterogeneity across 6 Data Partners and its corresponding 95% confidence interval for this effect estimate is (0%) (95% CI 0.0%, 72.2%).

[2]All values in this section are weighted.

[3]ATT = Average Treatment Effect in the Treated.

*****Data are not presented in these cells due to a small sample size or to assure a small cell cannot be recalculated through the cells presented.

N/A: Not Applicable

Table 4b. Effect Estimates for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment using hdPS, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Analysis Type and Age Group

Medical Product	Number of New Users	Person Years at Risk	Average Person Days at Risk	Average Person Years at Risk	Number of Events	Incidence Rate per 1,000 Person Years	Risk per 1,000 New Users	Hazard Ratio (95% Confidence Interval)	Wald P-Value
COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, No Truncation									
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	96.45	0.26	*****	18.67	4.93	0.93 (0.87, 1.00)	0.05
Famotidine New Users	*****	*****	83.42	0.23	*****	20.57	4.70		
Inverse Probability of Treatment Weighted Analysis; Unweighted, Trimmed									
Proton Pump Inhibitor New Users	*****	*****	96.45	0.26	*****	18.64	4.92	N/A	N/A
Famotidine New Users	*****	*****	83.42	0.23	*****	20.52	4.69		
Inverse Probability of Treatment Weighted Analysis[1]; Weight = ATT, Trimmed[2]									
Proton Pump Inhibitor New Users	1,043,108	275,441.40	96.45	0.26	5,135	18.64	4.92	0.97 (0.89, 1.06)	N/A
Famotidine New Users	1,043,022	236,533.07	82.83	0.23	4,597	19.43	4.41		
COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, No Truncation, Age Group: 18-49 years									
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	83.10	0.23	*****	6.26	1.43	0.97 (0.74, 1.26)	0.802
Famotidine New Users	*****	*****	69.51	0.19	*****	6.54	1.25		
Inverse Probability of Treatment Weighted Analysis; Unweighted, Trimmed									
Proton Pump Inhibitor New Users	*****	*****	83.10	0.23	*****	6.20	1.41	N/A	N/A
Famotidine New Users	*****	*****	69.52	0.19	*****	6.44	1.23		
Inverse Probability of Treatment Weighted Analysis[1]; Weight = ATT, Trimmed[2]									
Proton Pump Inhibitor New Users	317,625	72,267.93	83.10	0.23	448	6.20	1.41	1.04 (0.76, 1.42)	N/A
Famotidine New Users	318,324	61,891.50	71.02	0.19	378	6.11	1.19		
COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, No Truncation, Age Group: 50-64 years									
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	97.26	0.27	*****	14.38	3.83	0.99 (0.84, 1.17)	0.899
Famotidine New Users	*****	*****	83.39	0.23	*****	14.69	3.35		
Inverse Probability of Treatment Weighted Analysis; Unweighted, Trimmed									
Proton Pump Inhibitor New Users	*****	*****	97.26	0.27	*****	14.31	3.81	N/A	N/A
Famotidine New Users	*****	*****	83.39	0.23	*****	14.60	3.33		
Inverse Probability of Treatment Weighted Analysis[1]; Weight = ATT, Trimmed[2]									
Proton Pump Inhibitor New Users	312,551	83,230.58	97.26	0.27	1,191	14.31	3.81	1.06 (0.89, 1.27)	N/A
Famotidine New Users	312,531	71,512.23	83.58	0.23	966	13.50	3.09		

Table 4b. Effect Estimates for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment using hdPS, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Analysis Type and Age Group

Medical Product	Number of New Users	Person Years at Risk	Average Person Days at Risk	Average Person Years at Risk	Number of Events	Incidence Rate per 1,000 Person Years	Risk per 1,000 New Users	Hazard Ratio (95% Confidence Interval)	Wald P-Value
COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, No Truncation, Age Group: 65-74 years									
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	106.39	0.29	*****	21.38	6.23	0.97 (0.85, 1.11)	0.649
Famotidine New Users	*****	*****	91.74	0.25	*****	22.15	5.56		
Inverse Probability of Treatment Weighted Analysis; Unweighted, Trimmed									
Proton Pump Inhibitor New Users	*****	*****	106.41	0.29	*****	21.23	6.18	N/A	N/A
Famotidine New Users	*****	*****	91.75	0.25	*****	22.07	5.54		
Inverse Probability of Treatment Weighted Analysis[1]; Weight = ATT, Trimmed[2]									
Proton Pump Inhibitor New Users	247,873	72,214.60	106.41	0.29	1,533	21.23	6.18	0.94 (0.78, 1.12)	N/A
Famotidine New Users	248,169	62,091.81	91.39	0.25	1,445	23.27	5.82		
COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, No Truncation, Age Group: ≥ 75 years									
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	105.70	0.29	*****	40.83	11.82	1.02 (0.91, 1.14)	0.783
Famotidine New Users	*****	*****	92.50	0.25	*****	40.42	10.23		
Inverse Probability of Treatment Weighted Analysis; Unweighted, Trimmed									
Proton Pump Inhibitor New Users	*****	*****	105.74	0.29	*****	40.59	11.75	N/A	N/A
Famotidine New Users	*****	*****	92.51	0.25	*****	40.46	10.25		
Inverse Probability of Treatment Weighted Analysis[1]; Weight = ATT, Trimmed[2]									
Proton Pump Inhibitor New Users	163,050	47,201.79	105.74	0.29	1,916	40.59	11.75	0.95 (0.82, 1.10)	N/A
Famotidine New Users	163,366	41,091.81	91.87	0.25	1,780	43.31	10.89		

[1]All values in this section are weighted.

[2]ATT = Average Treatment Effect in the Treated.

*****Data are not presented in these cells due to a small sample size or to assure a small cell cannot be recalculated through the cells presented.

N/A: Not Applicable

Table 5a. Effect Estimates for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment using hdPS, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Analysis Type

Medical Product	Number of New Users	Person Years at Risk	Average Person Days at Risk	Average Person Years at Risk	Number of Events	Incidence Rate per 1,000 Person Years	Risk per 1,000 New Users	Hazard Ratio (95% Confidence Interval)[1]	Wald P-Value
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	96.45	0.26	*****	18.67	4.93	0.93 (0.87, 1.00)	0.05
Famotidine New Users	*****	*****	83.42	0.23	*****	20.57	4.70		
Inverse Probability of Treatment Weighted Analysis; Unweighted, Trimmed									
Proton Pump Inhibitor New Users	*****	*****	96.45	0.26	*****	18.64	4.92	N/A	N/A
Famotidine New Users	*****	*****	83.42	0.23	*****	20.52	4.69		
Inverse Probability of Treatment Weighted Analysis[2]; Weight = ATT, Trimmed[3]									
Proton Pump Inhibitor New Users	1,043,108	275,441.40	96.45	0.26	5,135	18.64	4.92	1.02 (0.94, 1.10)	N/A
Famotidine New Users	1,002,346	227,971.68	83.07	0.23	4,221	18.52	4.21		

[1]The I^2 metric for statistical heterogeneity across 6 Data Partners and its corresponding 95% confidence interval for this effect estimate is (0%) (95% CI 0.0%, 59.8%).

[2]All values in this section are weighted.

[3]ATT = Average Treatment Effect in the Treated.

*****Data are not presented in these cells due to a small sample size or to assure a small cell cannot be recalculated through the cells presented.

N/A: Not Applicable

Table 5b. Effect Estimates for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment using hdPS, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Analysis Type and Age Group

Medical Product	Number of New Users	Person Years at Risk	Average Person Days at Risk	Average Person Years at Risk	Number of Events	Incidence Rate per 1,000 Person Years	Risk per 1,000 New Users	Hazard Ratio (95% Confidence Interval)	Wald P-Value
COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation									
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	96.45	0.26	*****	18.67	4.93	0.93 (0.87, 1.00)	0.05
Famotidine New Users	*****	*****	83.42	0.23	*****	20.57	4.70		
Inverse Probability of Treatment Weighted Analysis; Unweighted, Trimmed									
Proton Pump Inhibitor New Users	*****	*****	96.45	0.26	*****	18.64	4.92	N/A	N/A
Famotidine New Users	*****	*****	83.42	0.23	*****	20.52	4.69		
Inverse Probability of Treatment Weighted Analysis[1]; Weight = ATT, Trimmed[2]									
Proton Pump Inhibitor New Users	1,043,108	275,441.40	96.45	0.26	5,135	18.64	4.92	1.02 (0.94, 1.10)	N/A
Famotidine New Users	1,002,346	227,971.68	83.07	0.23	4,221	18.52	4.21		
COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation, Age Group: 18-49 years									
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	83.10	0.23	*****	6.26	1.43	0.97 (0.74, 1.26)	0.802
Famotidine New Users	*****	*****	69.51	0.19	*****	6.54	1.25		
Inverse Probability of Treatment Weighted Analysis; Unweighted, Trimmed									
Proton Pump Inhibitor New Users	*****	*****	83.10	0.23	*****	6.20	1.41	N/A	N/A
Famotidine New Users	*****	*****	69.52	0.19	*****	6.44	1.23		
Inverse Probability of Treatment Weighted Analysis[1]; Weight = ATT, Trimmed[2]									
Proton Pump Inhibitor New Users	317,625	72,267.93	83.10	0.23	448	6.20	1.41	1.09 (0.82, 1.47)	N/A
Famotidine New Users	307,554	59,735.23	70.94	0.19	344	5.77	1.12		
COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation, Age Group: 50-64 years									
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	97.26	0.27	*****	14.38	3.83	0.99 (0.84, 1.17)	0.899
Famotidine New Users	*****	*****	83.39	0.23	*****	14.69	3.35		
Inverse Probability of Treatment Weighted Analysis; Unweighted, Trimmed									
Proton Pump Inhibitor New Users	*****	*****	97.26	0.27	*****	14.31	3.81	N/A	N/A
Famotidine New Users	*****	*****	83.39	0.23	*****	14.60	3.33		
Inverse Probability of Treatment Weighted Analysis[1]; Weight = ATT, Trimmed[2]									
Proton Pump Inhibitor New Users	312,551	83,230.58	97.26	0.27	1,191	14.31	3.81	1.07 (0.90, 1.27)	N/A
Famotidine New Users	301,763	69,186.80	83.74	0.23	927	13.39	3.07		

Table 5b. Effect Estimates for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment using hdPS, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Analysis Type and Age Group

Medical Product	Number of New Users	Person Years at Risk	Average Person Days at Risk	Average Person Years at Risk	Number of Events	Incidence Rate per 1,000 Person Years	Risk per 1,000 New Users	Hazard Ratio (95% Confidence Interval)	Wald P-Value
COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation, Age Group: 65-74 years									
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	106.39	0.29	*****	21.38	6.23	0.97 (0.85, 1.11)	0.649
Famotidine New Users	*****	*****	91.74	0.25	*****	22.15	5.56		
Inverse Probability of Treatment Weighted Analysis; Unweighted, Trimmed									
Proton Pump Inhibitor New Users	*****	*****	106.41	0.29	*****	21.23	6.18	N/A	N/A
Famotidine New Users	*****	*****	91.75	0.25	*****	22.07	5.54		
Inverse Probability of Treatment Weighted Analysis[1]; Weight = ATT, Trimmed[2]									
Proton Pump Inhibitor New Users	247,873	72,214.60	106.41	0.29	1,533	21.23	6.18	1.05 (0.92, 1.21)	N/A
Famotidine New Users	237,383	59,695.25	91.85	0.25	1,231	20.63	5.19		
COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation, Age Group: ≥ 75 years									
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	105.70	0.29	*****	40.83	11.82	1.02 (0.91, 1.14)	0.783
Famotidine New Users	*****	*****	92.50	0.25	*****	40.42	10.23		
Inverse Probability of Treatment Weighted Analysis; Unweighted, Trimmed									
Proton Pump Inhibitor New Users	*****	*****	105.74	0.29	*****	40.59	11.75	N/A	N/A
Famotidine New Users	*****	*****	92.51	0.25	*****	40.46	10.25		
Inverse Probability of Treatment Weighted Analysis[1]; Weight = ATT, Trimmed[2]									
Proton Pump Inhibitor New Users	163,050	47,201.79	105.74	0.29	1,916	40.59	11.75	1.02 (0.91, 1.15)	N/A
Famotidine New Users	153,301	38,770.53	92.37	0.25	1,559	40.20	10.17		

[1]All values in this section are weighted.

[2]ATT = Average Treatment Effect in the Treated.

*****Data are not presented in these cells due to a small sample size or to assure a small cell cannot be recalculated through the cells presented.

N/A: Not Applicable

Table 6a. Effect Estimates for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Analysis Type

Medical Product	Number of New Users	Person Years at Risk	Average Person Days at Risk	Average Person Years at Risk	Number of Events	Incidence Rate per 1,000 Person Years	Risk per 1,000 New Users	Hazard Ratio (95% Confidence Interval)[1]	Wald P-Value
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	96.45	0.26	*****	18.67	4.93	0.93 (0.87, 1.00)	0.05
Famotidine New Users	*****	*****	83.42	0.23	*****	20.57	4.70		
Propensity Score Stratum Adjusted Analysis; Unweighted, Trimmed									
Proton Pump Inhibitor New Users	*****	*****	96.45	0.26	*****	18.64	4.92	N/A	N/A
Famotidine New Users	*****	*****	83.42	0.23	*****	20.52	4.69		
Propensity Score Stratum Adjusted Analysis[2]; Weight = ATT, Trimmed[3]									
Proton Pump Inhibitor New Users	1,043,108	275,441.40	96.45	0.26	5,135	18.64	4.92	0.96 (0.88, 1.05)	N/A
Famotidine New Users	181,963	41,360.81	83.02	0.23	820	19.82	4.51		

[1]The I^2 metric for statistical heterogeneity across 6 Data Partners and its corresponding 95% confidence interval for this effect estimate is (0%) (95% CI 0.0%, 73.5%).

[2]All values in this section are weighted.

[3]ATT = Average Treatment Effect in the Treated.

*****Data are not presented in these cells due to a small sample size or to assure a small cell cannot be recalculated through the cells presented.

N/A: Not Applicable

Table 6b. Effect Estimates for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Analysis Type and Age Group

Medical Product	Number of New Users	Person Years at Risk	Average Person Days at Risk	Average Person Years at Risk	Number of Events	Incidence Rate per 1,000 Person Years	Risk per 1,000 New Users	Hazard Ratio (95% Confidence Interval)	Wald P-Value
COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment									
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	96.45	0.26	*****	18.67	4.93	0.93 (0.87, 1.00)	0.05
Famotidine New Users	*****	*****	83.42	0.23	*****	20.57	4.70		
Propensity Score Stratum Adjusted Analysis; Unweighted, Trimmed									
Proton Pump Inhibitor New Users	*****	*****	96.45	0.26	*****	18.64	4.92	N/A	N/A
Famotidine New Users	*****	*****	83.42	0.23	*****	20.52	4.69		
Propensity Score Stratum Adjusted Analysis; Weight = ATT, Trimmed[2]									
Proton Pump Inhibitor New Users	1,043,108	275,441.40	96.45	0.26	5,135	18.64	4.92	0.96 (0.88, 1.05)	N/A
Famotidine New Users	181,963	41,360.81	83.02	0.23	820	19.82	4.51		
COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment, Age Group: 18-49 years									
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	83.10	0.23	*****	6.26	1.43	0.97 (0.74, 1.26)	0.802
Famotidine New Users	*****	*****	69.51	0.19	*****	6.54	1.25		
Propensity Score Stratum Adjusted Analysis; Unweighted, Trimmed									
Proton Pump Inhibitor New Users	*****	*****	83.10	0.23	*****	6.20	1.41	N/A	N/A
Famotidine New Users	*****	*****	69.52	0.19	*****	6.44	1.23		
Propensity Score Stratum Adjusted Analysis; Weight = ATT, Trimmed[2]									
Proton Pump Inhibitor New Users	317,625	72,267.93	83.10	0.23	448	6.20	1.41	1.03 (0.76, 1.39)	N/A
Famotidine New Users	51,365	9,997.84	71.09	0.19	61	6.10	1.19		
COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment, Age Group: 50-64 years									
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	97.26	0.27	*****	14.38	3.83	0.99 (0.84, 1.17)	0.899
Famotidine New Users	*****	*****	83.39	0.23	*****	14.69	3.35		
Propensity Score Stratum Adjusted Analysis; Unweighted, Trimmed									
Proton Pump Inhibitor New Users	*****	*****	97.26	0.27	*****	14.31	3.81	N/A	N/A
Famotidine New Users	*****	*****	83.39	0.23	*****	14.60	3.33		
Propensity Score Stratum Adjusted Analysis; Weight = ATT, Trimmed[2]									
Proton Pump Inhibitor New Users	312,317	83,166.39	97.26	0.27	1,188	14.28	3.80	1.07 (0.89, 1.28)	N/A
Famotidine New Users	47,700	10,932.72	83.71	0.23	147	13.46	3.09		

Table 6b. Effect Estimates for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Analysis Type and Age Group

Medical Product	Number of New Users	Person Years at Risk	Average Person Days at Risk	Average Person Years at Risk	Number of Events	Incidence Rate per 1,000 Person Years	Risk per 1,000 New Users	Hazard Ratio (95% Confidence Interval)	Wald P-Value
COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment, Age Group: 65-74 years									
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	106.39	0.29	*****	21.38	6.23	0.97 (0.85, 1.11)	0.649
Famotidine New Users	*****	*****	91.74	0.25	*****	22.15	5.56		
Propensity Score Stratum Adjusted Analysis; Unweighted, Trimmed									
Proton Pump Inhibitor New Users	*****	*****	106.41	0.29	*****	21.23	6.18	N/A	N/A
Famotidine New Users	*****	*****	91.75	0.25	*****	22.07	5.54		
Propensity Score Stratum Adjusted Analysis; Weight = ATT, Trimmed[2]									
Proton Pump Inhibitor New Users	247,749	72,174.64	106.41	0.29	1,532	21.23	6.18	0.94 (0.79, 1.12)	N/A
Famotidine New Users	46,890	11,737.07	91.43	0.25	265	22.62	5.66		
COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment, Age Group: ≥ 75 years									
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	105.70	0.29	*****	40.83	11.82	1.02 (0.91, 1.14)	0.783
Famotidine New Users	*****	*****	92.50	0.25	*****	40.42	10.23		
Propensity Score Stratum Adjusted Analysis; Unweighted, Trimmed									
Proton Pump Inhibitor New Users	*****	*****	105.74	0.29	*****	40.59	11.75	N/A	N/A
Famotidine New Users	*****	*****	92.51	0.25	*****	40.46	10.25		
Propensity Score Stratum Adjusted Analysis; Weight = ATT, Trimmed[2]									
Proton Pump Inhibitor New Users	162,928	47,167.13	105.74	0.29	1,916	40.62	11.76	0.91 (0.77, 1.08)	N/A
Famotidine New Users	35,912	9,029.22	91.83	0.25	403	44.68	11.23		

[1]All values in this section are weighted.

[2]ATT = Average Treatment Effect in the Treated.

*****Data are not presented in these cells due to a small sample size or to assure a small cell cannot be recalculated through the cells presented.

N/A: Not Applicable

Table 7a. Effect Estimates for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Analysis Type

Medical Product	Number of New Users	Person Years at Risk	Average Person Days at Risk	Average Person Years at Risk	Number of Events	Incidence Rate per 1,000 Person Years	Risk per 1,000 New Users	Hazard Ratio (95% Confidence Interval)[1]	Wald P-Value
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	96.45	0.26	*****	18.67	4.93	0.93 (0.87, 1.00)	0.05
Famotidine New Users	*****	*****	83.42	0.23	*****	20.57	4.70		
Overlap Weighted Analysis; Unweighted									
Proton Pump Inhibitor New Users	*****	*****	96.45	0.26	*****	18.67	4.93	N/A	N/A
Famotidine New Users	*****	*****	83.42	0.23	*****	20.57	4.70		
Overlap Weighted Analysis[2]									
Proton Pump Inhibitor New Users	152,274	40,367.64	96.83	0.27	785	19.44	5.15	0.98 (0.91, 1.06)	N/A
Famotidine New Users	152,274	34,758.17	83.37	0.23	697	20.06	4.58		

[1]The I^2 metric for statistical heterogeneity across 6 Data Partners and its corresponding 95% confidence interval for this effect estimate is (0%) (95% CI 0.0%, 59.2%).

[2]All values in this section are weighted.

*****Data are not presented in these cells due to a small sample size or to assure a small cell cannot be recalculated through the cells presented.

N/A: Not Applicable

Table 7b. Effect Estimates for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Analysis Type and Age Group

Medical Product	Number of New Users	Person Years at Risk	Average Person Days at Risk	Average Person Years at Risk	Number of Events	Incidence Rate per 1,000 Person Years	Risk per 1,000 New Users	Hazard Ratio (95% Confidence Interval)	Wald P-Value
COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights									
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	96.45	0.26	*****	18.67	4.93	0.93 (0.87, 1.00)	0.05
Famotidine New Users	*****	*****	83.42	0.23	*****	20.57	4.70		
Overlap Weighted Analysis; Unweighted									
Proton Pump Inhibitor New Users	*****	*****	96.45	0.26	*****	18.67	4.93	N/A	N/A
Famotidine New Users	*****	*****	83.42	0.23	*****	20.57	4.70		
Overlap Weighted Analysis [1]									
Proton Pump Inhibitor New Users	152,274	40,367.64	96.83	0.27	785	19.44	5.15	0.98 (0.91, 1.06)	N/A
Famotidine New Users	152,274	34,758.17	83.37	0.23	697	20.06	4.58		
COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights, Age Group: 18-49 years									
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	83.10	0.23	*****	6.30	1.43	0.96 (0.74, 1.25)	0.762
Famotidine New Users	*****	*****	69.51	0.19	*****	6.65	1.26		
Overlap Weighted Analysis; Unweighted									
Proton Pump Inhibitor New Users	*****	*****	83.10	0.23	*****	6.30	1.43	N/A	N/A
Famotidine New Users	*****	*****	69.51	0.19	*****	6.65	1.26		
Overlap Weighted Analysis [1]									
Proton Pump Inhibitor New Users	43,274	9,717.77	82.02	0.22	64	6.54	1.47	1.10 (0.84, 1.44)	N/A
Famotidine New Users	43,273	8,271.28	69.81	0.19	50	6.07	1.16		
COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights, Age Group: 50-64 years									
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	97.26	0.27	*****	14.42	3.84	0.99 (0.84, 1.17)	0.93
Famotidine New Users	*****	*****	83.38	0.23	*****	14.69	3.35		
Overlap Weighted Analysis; Unweighted									
Proton Pump Inhibitor New Users	*****	*****	97.26	0.27	*****	14.42	3.84	N/A	N/A
Famotidine New Users	*****	*****	83.38	0.23	*****	14.69	3.35		
Overlap Weighted Analysis [1]									
Proton Pump Inhibitor New Users	40,805	10,871.45	97.31	0.27	164	15.06	4.01	1.06 (0.90, 1.25)	N/A
Famotidine New Users	40,805	9,325.18	83.47	0.23	133	14.28	3.26		

Table 7b. Effect Estimates for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Analysis Type and Age Group

Medical Product	Number of New Users	Person Years at Risk	Average Person Days at Risk	Average Person Years at Risk	Number of Events	Incidence Rate per 1,000 Person Years	Risk per 1,000 New Users	Hazard Ratio (95% Confidence Interval)	Wald P-Value
COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights, Age Group: 65-74 years									
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	106.38	0.29	*****	21.38	6.23	0.97 (0.85, 1.10)	0.607
Famotidine New Users	*****	*****	91.73	0.25	*****	22.24	5.58		
Overlap Weighted Analysis; Unweighted									
Proton Pump Inhibitor New Users	*****	*****	106.38	0.29	*****	21.38	6.23	N/A	N/A
Famotidine New Users	*****	*****	91.73	0.25	*****	22.24	5.58		
Overlap Weighted Analysis [1]									
Proton Pump Inhibitor New Users	38,715	11,272.36	106.35	0.29	232	20.62	6.00	0.97 (0.85, 1.11)	N/A
Famotidine New Users	38,715	9,730.61	91.80	0.25	211	21.70	5.45		
COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights, Age Group: ≥ 75 years									
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	105.70	0.29	*****	40.88	11.83	1.02 (0.91, 1.14)	0.763
Famotidine New Users	*****	*****	92.50	0.25	*****	40.41	10.23		
Overlap Weighted Analysis; Unweighted									
Proton Pump Inhibitor New Users	*****	*****	105.70	0.29	*****	40.88	11.83	N/A	N/A
Famotidine New Users	*****	*****	92.50	0.25	*****	40.41	10.23		
Overlap Weighted Analysis [1]									
Proton Pump Inhibitor New Users	28,730	8,343.20	106.07	0.29	319	38.25	11.11	0.96 (0.86, 1.08)	N/A
Famotidine New Users	28,730	7,276.62	92.51	0.25	293	40.22	10.19		

[1]All values in this section are weighted.

*****Data are not presented in these cells due to a small sample size or to assure a small cell cannot be recalculated through the cells presented.

N/A: Not Applicable

Table 8a. Effect Estimates for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with IPTW ATE Adjustment using hdPS, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Analysis Type

Medical Product	Number of New Users	Person Years at Risk	Average Person Days at Risk	Average Person Years at Risk	Number of Events	Incidence Rate per 1,000 Person Years	Risk per 1,000 New Users	Hazard Ratio (95% Confidence Interval)[1]	Wald P-Value
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	96.45	0.26	*****	18.67	4.93	0.93 (0.87, 1.00)	0.05
Famotidine New Users	*****	*****	83.42	0.23	*****	20.57	4.70		
Inverse Probability of Treatment Weighted Analysis; Unweighted, Trimmed									
Proton Pump Inhibitor New Users	*****	*****	96.45	0.26	*****	18.64	4.92	N/A	N/A
Famotidine New Users	*****	*****	83.42	0.23	*****	20.52	4.69		
Inverse Probability of Treatment Weighted Analysis[2]; Weight = ATE, Trimmed[3]									
Proton Pump Inhibitor New Users	1,225,142	323,708.52	96.51	0.26	6,101	18.85	4.98	0.98 (0.90, 1.06)	N/A
Famotidine New Users	1,224,985	278,092.90	82.92	0.23	5,450	19.60	4.45		

[1]The I^2 metric for statistical heterogeneity across 6 Data Partners and its corresponding 95% confidence interval for this effect estimate is (0%) (95% CI 0.0%, 72.3%).

[2]All values in this section are weighted.

[3]ATE = Average Treatment Effect.

*****Data are not presented in these cells due to a small sample size or to assure a small cell cannot be recalculated through the cells presented.

N/A: Not Applicable

Table 8b. Effect Estimates for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with IPTW ATE Adjustment using hdPS, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Analysis Type and Age Group

Medical Product	Number of New Users	Person Years at Risk	Average Person Days at Risk	Average Person Years at Risk	Number of Events	Incidence Rate per 1,000 Person Years	Risk per 1,000 New Users	Hazard Ratio (95% Confidence Interval)	Wald P-Value
COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, No Truncation									
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	96.45	0.26	*****	18.67	4.93	0.93 (0.87, 1.00)	0.05
Famotidine New Users	*****	*****	83.42	0.23	*****	20.57	4.70		
Inverse Probability of Treatment Weighted Analysis; Unweighted, Trimmed									
Proton Pump Inhibitor New Users	*****	*****	96.45	0.26	*****	18.64	4.92	N/A	N/A
Famotidine New Users	*****	*****	83.42	0.23	*****	20.52	4.69		
Inverse Probability of Treatment Weighted Analysis[1]; Weight = ATE, Trimmed[2]									
Proton Pump Inhibitor New Users	1,225,142	323,708.52	96.51	0.26	6,101	18.85	4.98	0.98 (0.90, 1.06)	N/A
Famotidine New Users	1,224,985	278,092.90	82.92	0.23	5,450	19.60	4.45		
COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, No Truncation, Age Group: 18-49 years									
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	83.10	0.23	*****	6.26	1.43	0.97 (0.74, 1.26)	0.802
Famotidine New Users	*****	*****	69.51	0.19	*****	6.54	1.25		
Inverse Probability of Treatment Weighted Analysis; Unweighted, Trimmed									
Proton Pump Inhibitor New Users	*****	*****	83.10	0.23	*****	6.20	1.41	N/A	N/A
Famotidine New Users	*****	*****	69.52	0.19	*****	6.44	1.23		
Inverse Probability of Treatment Weighted Analysis[1]; Weight = ATE, Trimmed[2]									
Proton Pump Inhibitor New Users	369,019	83,770.39	82.91	0.23	531	6.34	1.44	1.05 (0.78, 1.42)	N/A
Famotidine New Users	369,689	71,668.11	70.81	0.19	441	6.16	1.19		
COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, No Truncation, Age Group: 50-64 years									
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	97.26	0.27	*****	14.38	3.83	0.99 (0.84, 1.17)	0.899
Famotidine New Users	*****	*****	83.39	0.23	*****	14.69	3.35		
Inverse Probability of Treatment Weighted Analysis; Unweighted, Trimmed									
Proton Pump Inhibitor New Users	*****	*****	97.26	0.27	*****	14.31	3.81	N/A	N/A
Famotidine New Users	*****	*****	83.39	0.23	*****	14.60	3.33		
Inverse Probability of Treatment Weighted Analysis[1]; Weight = ATE, Trimmed[2]									
Proton Pump Inhibitor New Users	360,262	95,934.23	97.26	0.27	1,387	14.45	3.85	1.06 (0.89, 1.27)	N/A
Famotidine New Users	360,231	82,402.74	83.55	0.23	1,125	13.65	3.12		

Table 8b. Effect Estimates for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with IPTW ATE Adjustment using hdPS, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Analysis Type and Age Group

Medical Product	Number of New Users	Person Years at Risk	Average Person Days at Risk	Average Person Years at Risk	Number of Events	Incidence Rate per 1,000 Person Years	Risk per 1,000 New Users	Hazard Ratio (95% Confidence Interval)	Wald P-Value
COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, No Truncation, Age Group: 65-74 years									
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	106.39	0.29	*****	21.38	6.23	0.97 (0.85, 1.11)	0.649
Famotidine New Users	*****	*****	91.74	0.25	*****	22.15	5.56		
Inverse Probability of Treatment Weighted Analysis; Unweighted, Trimmed									
Proton Pump Inhibitor New Users	*****	*****	106.41	0.29	*****	21.23	6.18	N/A	N/A
Famotidine New Users	*****	*****	91.75	0.25	*****	22.07	5.54		
Inverse Probability of Treatment Weighted Analysis[1]; Weight = ATE, Trimmed[2]									
Proton Pump Inhibitor New Users	294,767	85,852.15	106.38	0.29	1,817	21.17	6.17	0.94 (0.79, 1.12)	N/A
Famotidine New Users	295,059	73,870.32	91.44	0.25	1,705	23.08	5.78		
COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, No Truncation, Age Group: ≥ 75 years									
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	105.70	0.29	*****	40.83	11.82	1.02 (0.91, 1.14)	0.783
Famotidine New Users	*****	*****	92.50	0.25	*****	40.42	10.23		
Inverse Probability of Treatment Weighted Analysis; Unweighted, Trimmed									
Proton Pump Inhibitor New Users	*****	*****	105.74	0.29	*****	40.59	11.75	N/A	N/A
Famotidine New Users	*****	*****	92.51	0.25	*****	40.46	10.25		
Inverse Probability of Treatment Weighted Analysis[1]; Weight = ATE, Trimmed[2]									
Proton Pump Inhibitor New Users	198,977	57,625.38	105.78	0.29	2,316	40.19	11.64	0.95 (0.83, 1.09)	N/A
Famotidine New Users	199,278	50,187.07	91.99	0.25	2,148	42.80	10.78		

[1]All values in this section are weighted.

[2]ATE = Average Treatment Effect.

*****Data are not presented in these cells due to a small sample size or to assure a small cell cannot be recalculated through the cells presented.

N/A: Not Applicable

Table 9a. Effect Estimates for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with IPTW ATE Adjustment using hdPS, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Analysis Type

Medical Product	Number of New Users	Person Years at Risk	Average Person Days at Risk	Average Person Years at Risk	Number of Events	Incidence Rate per 1,000 Person Years	Risk per 1,000 New Users	Hazard Ratio (95% Confidence Interval)[1]	Wald P-Value
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	96.45	0.26	*****	18.67	4.93	0.93 (0.87, 1.00)	0.05
Famotidine New Users	*****	*****	83.42	0.23	*****	20.57	4.70		
Inverse Probability of Treatment Weighted Analysis; Unweighted, Trimmed									
Proton Pump Inhibitor New Users	*****	*****	96.45	0.26	*****	18.64	4.92	N/A	N/A
Famotidine New Users	*****	*****	83.42	0.23	*****	20.52	4.69		
Inverse Probability of Treatment Weighted Analysis[2]; Weight = ATE, Trimmed[3]									
Proton Pump Inhibitor New Users	1,225,304	323,748.92	96.51	0.26	6,104	18.85	4.98	1.01 (0.94, 1.09)	N/A
Famotidine New Users	1,184,283	269,527.03	83.13	0.23	5,073	18.82	4.28		

[1]The I^2 metric for statistical heterogeneity across 6 Data Partners and its corresponding 95% confidence interval for this effect estimate is (0%) (95% CI 0.0%, 63.2%).

[2]All values in this section are weighted.

[3]ATE = Average Treatment Effect.

*****Data are not presented in these cells due to a small sample size or to assure a small cell cannot be recalculated through the cells presented.

N/A: Not Applicable

Table 9b. Effect Estimates for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with IPTW ATE Adjustment using hdPS, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Analysis Type and Age Group

Medical Product	Number of New Users	Person Years at Risk	Average Person Days at Risk	Average Person Years at Risk	Number of Events	Incidence Rate per 1,000 Person Years	Risk per 1,000 New Users	Hazard Ratio (95% Confidence Interval)	Wald P-Value
COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, 1% Truncation									
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	96.45	0.26	*****	18.67	4.93	0.93 (0.87, 1.00)	0.05
Famotidine New Users	*****	*****	83.42	0.23	*****	20.57	4.70		
Inverse Probability of Treatment Weighted Analysis; Unweighted, Trimmed									
Proton Pump Inhibitor New Users	*****	*****	96.45	0.26	*****	18.64	4.92	N/A	N/A
Famotidine New Users	*****	*****	83.42	0.23	*****	20.52	4.69		
Inverse Probability of Treatment Weighted Analysis[1]; Weight = ATE, Trimmed[2]									
Proton Pump Inhibitor New Users	1,225,304	323,748.92	96.51	0.26	6,104	18.85	4.98	1.01 (0.94, 1.09)	N/A
Famotidine New Users	1,184,283	269,527.03	83.13	0.23	5,073	18.82	4.28		
COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, 1% Truncation, Age Group: 18-49 years									
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	83.10	0.23	*****	6.26	1.43	0.97 (0.74, 1.26)	0.802
Famotidine New Users	*****	*****	69.51	0.19	*****	6.54	1.25		
Inverse Probability of Treatment Weighted Analysis; Unweighted, Trimmed									
Proton Pump Inhibitor New Users	*****	*****	83.10	0.23	*****	6.20	1.41	N/A	N/A
Famotidine New Users	*****	*****	69.52	0.19	*****	6.44	1.23		
Inverse Probability of Treatment Weighted Analysis[1]; Weight = ATE, Trimmed[2]									
Proton Pump Inhibitor New Users	369,054	83,778.62	82.92	0.23	531	6.34	1.44	1.10 (0.83, 1.47)	N/A
Famotidine New Users	358,843	69,499.04	70.74	0.19	407	5.85	1.13		
COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, 1% Truncation, Age Group: 50-64 years									
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	97.26	0.27	*****	14.38	3.83	0.99 (0.84, 1.17)	0.899
Famotidine New Users	*****	*****	83.39	0.23	*****	14.69	3.35		
Inverse Probability of Treatment Weighted Analysis; Unweighted, Trimmed									
Proton Pump Inhibitor New Users	*****	*****	97.26	0.27	*****	14.31	3.81	N/A	N/A
Famotidine New Users	*****	*****	83.39	0.23	*****	14.60	3.33		
Inverse Probability of Treatment Weighted Analysis[1]; Weight = ATE, Trimmed[2]									
Proton Pump Inhibitor New Users	360,311	95,945.60	97.26	0.27	1,387	14.46	3.85	1.07 (0.90, 1.27)	N/A
Famotidine New Users	349,451	80,075.05	83.70	0.23	1,085	13.55	3.10		

Table 9b. Effect Estimates for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with IPTW ATE Adjustment using hdPS, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Analysis Type and Age Group

Medical Product	Number of New Users	Person Years at Risk	Average Person Days at Risk	Average Person Years at Risk	Number of Events	Incidence Rate per 1,000 Person Years	Risk per 1,000 New Users	Hazard Ratio (95% Confidence Interval)	Wald P-Value
COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, 1% Truncation, Age Group: 65-74 years									
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	106.39	0.29	*****	21.38	6.23	0.97 (0.85, 1.11)	0.649
Famotidine New Users	*****	*****	91.74	0.25	*****	22.15	5.56		
Inverse Probability of Treatment Weighted Analysis; Unweighted, Trimmed									
Proton Pump Inhibitor New Users	*****	*****	106.41	0.29	*****	21.23	6.18	N/A	N/A
Famotidine New Users	*****	*****	91.75	0.25	*****	22.07	5.54		
Inverse Probability of Treatment Weighted Analysis[1]; Weight = ATE, Trimmed[2]									
Proton Pump Inhibitor New Users	294,798	85,859.92	106.38	0.29	1,818	21.17	6.17	1.04 (0.90, 1.19)	N/A
Famotidine New Users	284,256	71,469.74	91.83	0.25	1,491	20.87	5.25		
COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, 1% Truncation, Age Group: ≥ 75 years									
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	105.70	0.29	*****	40.83	11.82	1.02 (0.91, 1.14)	0.783
Famotidine New Users	*****	*****	92.50	0.25	*****	40.42	10.23		
Inverse Probability of Treatment Weighted Analysis; Unweighted, Trimmed									
Proton Pump Inhibitor New Users	*****	*****	105.74	0.29	*****	40.59	11.75	N/A	N/A
Famotidine New Users	*****	*****	92.51	0.25	*****	40.46	10.25		
Inverse Probability of Treatment Weighted Analysis[1]; Weight = ATE, Trimmed[2]									
Proton Pump Inhibitor New Users	198,989	57,628.59	105.78	0.29	2,316	40.19	11.64	1.01 (0.90, 1.14)	N/A
Famotidine New Users	189,208	47,864.53	92.40	0.25	1,926	40.23	10.18		

[1]All values in this section are weighted.

[2]ATE = Average Treatment Effect.

*****Data are not presented in these cells due to a small sample size or to assure a small cell cannot be recalculated through the cells presented.

N/A: Not Applicable

Table 10a. Effect Estimates for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Analysis Type

Medical Product	Number of New Users	Person Years at Risk	Average Person Days at Risk	Average Person Years at Risk	Number of Events	Incidence Rate per 1,000 Person Years	Risk per 1,000 New Users	Hazard Ratio (95% Confidence Interval)[1]	Wald P-Value
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	96.63	0.26	*****	6.25	1.65	1.01 (0.89, 1.15)	0.846
Famotidine New Users	*****	*****	83.59	0.23	*****	6.29	1.44		
Inverse Probability of Treatment Weighted Analysis; Unweighted, Trimmed									
Proton Pump Inhibitor New Users	*****	*****	96.63	0.26	*****	6.25	1.65	N/A	N/A
Famotidine New Users	*****	*****	83.59	0.23	*****	6.29	1.44		
Inverse Probability of Treatment Weighted Analysis[2]; Weight = ATT, Trimmed[3]									
Proton Pump Inhibitor New Users	1,043,544	276,080.35	96.63	0.26	1,726	6.25	1.65	1.05 (0.92, 1.21)	N/A
Famotidine New Users	1,043,490	238,012.44	83.31	0.23	1,422	5.97	1.36		

[1]The I^2 metric for statistical heterogeneity across 6 Data Partners and its corresponding 95% confidence interval for this effect estimate is (0%) (95% CI 0.0%, 73.8%).

[2]All values in this section are weighted.

[3]ATT = Average Treatment Effect in the Treated.

*****Data are not presented in these cells due to a small sample size or to assure a small cell cannot be recalculated through the cells presented.

N/A: Not Applicable

Table 10b. Effect Estimates for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Analysis Type and Age Group

Medical Product	Number of New Users	Person Years at Risk	Average Person Days at Risk	Average Person Years at Risk	Number of Events	Incidence Rate per 1,000 Person Years	Risk per 1,000 New Users	Hazard Ratio (95% Confidence Interval)	Wald P-Value
Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with User-Specified PS with IPTW ATT Adjustment, No Truncation									
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	96.63	0.26	*****	6.25	1.65	1.01 (0.89, 1.15)	0.846
Famotidine New Users	*****	*****	83.59	0.23	*****	6.29	1.44		
Inverse Probability of Treatment Weighted Analysis; Unweighted, Trimmed									
Proton Pump Inhibitor New Users	*****	*****	96.63	0.26	*****	6.25	1.65	N/A	N/A
Famotidine New Users	*****	*****	83.59	0.23	*****	6.29	1.44		
Inverse Probability of Treatment Weighted Analysis[1]; Weight = ATT, Trimmed[2]									
Proton Pump Inhibitor New Users	1,043,544	276,080.35	96.63	0.26	1,726	6.25	1.65	1.05 (0.92, 1.21)	N/A
Famotidine New Users	1,043,490	238,012.44	83.31	0.23	1,422	5.97	1.36		
Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with User-Specified PS with IPTW ATT Adjustment, No Truncation, Age Group: 18-49 years									
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	83.16	0.23	*****	1.69	0.38	1.39 (0.77, 2.52)	0.276
Famotidine New Users	*****	*****	69.56	0.19	*****	1.23	0.23		
Inverse Probability of Treatment Weighted Analysis; Unweighted, Trimmed									
Proton Pump Inhibitor New Users	*****	*****	83.16	0.23	*****	1.69	0.38	N/A	N/A
Famotidine New Users	*****	*****	69.56	0.19	*****	1.23	0.23		
Inverse Probability of Treatment Weighted Analysis[1]; Weight = ATT, Trimmed[2]									
Proton Pump Inhibitor New Users	317,870	72,371.34	83.16	0.23	122	1.69	0.38	1.52 (0.80, 2.88)	N/A
Famotidine New Users	317,965	61,912.39	71.12	0.19	67	1.08	0.21		
Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with User-Specified PS with IPTW ATT Adjustment, No Truncation, Age Group: 50-64 years									
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	97.40	0.27	*****	4.94	1.32	1.03 (0.78, 1.37)	0.829
Famotidine New Users	*****	*****	83.50	0.23	*****	4.86	1.11		
Inverse Probability of Treatment Weighted Analysis; Unweighted, Trimmed									
Proton Pump Inhibitor New Users	*****	*****	97.40	0.27	*****	4.94	1.32	N/A	N/A
Famotidine New Users	*****	*****	83.51	0.23	*****	4.86	1.11		
Inverse Probability of Treatment Weighted Analysis[1]; Weight = ATT, Trimmed[2]									

Table 10b. Effect Estimates for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Analysis Type and Age Group

Medical Product	Number of New Users	Person Years at Risk	Average Person Days at Risk	Average Person Years at Risk	Number of Events	Incidence Rate per 1,000 Person Years	Risk per 1,000 New Users	Hazard Ratio (95% Confidence Interval)	Wald P-Value
Proton Pump Inhibitor New Users	312,854	83,431.56	97.40	0.27	412	4.94	1.32	1.05 (0.78, 1.40)	N/A
Famotidine New Users	312,832	71,926.72	83.98	0.23	339	4.71	1.08		
Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with User-Specified PS with IPTW ATT Adjustment, No Truncation, Age Group: 65-74 years									
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	106.61	0.29	*****	7.55	2.20	1.03 (0.82, 1.30)	0.773
Famotidine New Users	*****	*****	91.94	0.25	*****	7.37	1.85		
Inverse Probability of Treatment Weighted Analysis; Unweighted, Trimmed									
Proton Pump Inhibitor New Users	*****	*****	106.61	0.29	*****	7.55	2.20	N/A	N/A
Famotidine New Users	*****	*****	91.95	0.25	*****	7.28	1.83		
Inverse Probability of Treatment Weighted Analysis[1]; Weight = ATT, Trimmed[2]									
Proton Pump Inhibitor New Users	248,733	72,602.31	106.61	0.29	548	7.55	2.20	1.07 (0.85, 1.35)	N/A
Famotidine New Users	248,734	62,657.53	92.01	0.25	451	7.20	1.81		
Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with User-Specified PS with IPTW ATT Adjustment, No Truncation, Age Group: ≥ 75 years									
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	106.14	0.29	*****	13.53	3.93	1.13 (0.92, 1.38)	0.24
Famotidine New Users	*****	*****	92.84	0.25	*****	12.03	3.06		
Inverse Probability of Treatment Weighted Analysis; Unweighted, Trimmed									
Proton Pump Inhibitor New Users	*****	*****	106.15	0.29	*****	13.47	3.91	N/A	N/A
Famotidine New Users	*****	*****	92.84	0.25	*****	12.03	3.06		
Inverse Probability of Treatment Weighted Analysis[1]; Weight = ATT, Trimmed[2]									
Proton Pump Inhibitor New Users	163,748	47,587.45	106.15	0.29	641	13.47	3.91	1.05 (0.85, 1.30)	N/A
Famotidine New Users	163,856	41,469.64	92.44	0.25	537	12.94	3.28		

[1]All values in this section are weighted.

[2]ATT = Average Treatment Effect in the Treated.

*****Data are not presented in these cells due to a small sample size or to assure a small cell cannot be recalculated through the cells presented.

N/A: Not Applicable

Table 11a. Effect Estimates for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Analysis Type

Medical Product	Number of New Users	Person Years at Risk	Average Person Days at Risk	Average Person Years at Risk	Number of Events	Incidence Rate per 1,000 Person Years	Risk per 1,000 New Users	Hazard Ratio (95% Confidence Interval)[1]	Wald P-Value
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	96.63	0.26	*****	6.25	1.65	1.01 (0.89, 1.15)	0.846
Famotidine New Users	*****	*****	83.59	0.23	*****	6.29	1.44		
Inverse Probability of Treatment Weighted Analysis; Unweighted, Trimmed									
Proton Pump Inhibitor New Users	*****	*****	96.63	0.26	*****	6.25	1.65	N/A	N/A
Famotidine New Users	*****	*****	83.59	0.23	*****	6.29	1.44		
Inverse Probability of Treatment Weighted Analysis[2]; Weight = ATT, Trimmed[3]									
Proton Pump Inhibitor New Users	1,043,544	276,080.35	96.63	0.26	1,726	6.25	1.65	1.06 (0.93, 1.21)	N/A
Famotidine New Users	1,030,228	234,957.92	83.30	0.23	1,396	5.94	1.36		

[1]The I^2 metric for statistical heterogeneity across 6 Data Partners and its corresponding 95% confidence interval for this effect estimate is (0%) (95% CI 0.0%, 72.0%).

[2]All values in this section are weighted.

[3]ATT = Average Treatment Effect in the Treated.

*****Data are not presented in these cells due to a small sample size or to assure a small cell cannot be recalculated through the cells presented.

N/A: Not Applicable

Table 11b. Effect Estimates for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Analysis Type and Age Group

Medical Product	Number of New Users	Person Years at Risk	Average Person Days at Risk	Average Person Years at Risk	Number of Events	Incidence Rate per 1,000 Person Years	Risk per 1,000 New Users	Hazard Ratio (95% Confidence Interval)	Wald P-Value
Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with User-Specified PS with IPTW ATT Adjustment, 1% Truncation									
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	96.63	0.26	*****	6.25	1.65	1.01 (0.89, 1.15)	0.846
Famotidine New Users	*****	*****	83.59	0.23	*****	6.29	1.44		
Inverse Probability of Treatment Weighted Analysis; Unweighted, Trimmed									
Proton Pump Inhibitor New Users	*****	*****	96.63	0.26	*****	6.25	1.65	N/A	N/A
Famotidine New Users	*****	*****	83.59	0.23	*****	6.29	1.44		
Inverse Probability of Treatment Weighted Analysis[1]; Weight = ATT, Trimmed[2]									
Proton Pump Inhibitor New Users	1,043,544	276,080.35	96.63	0.26	1,726	6.25	1.65	1.06 (0.93, 1.21)	N/A
Famotidine New Users	1,030,228	234,957.92	83.30	0.23	1,396	5.94	1.36		
Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with User-Specified PS with IPTW ATT Adjustment, 1% Truncation, Age Group: 18-49 years									
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	83.16	0.23	*****	1.69	0.38	1.39 (0.77, 2.52)	0.276
Famotidine New Users	*****	*****	69.56	0.19	*****	1.23	0.23		
Inverse Probability of Treatment Weighted Analysis; Unweighted, Trimmed									
Proton Pump Inhibitor New Users	*****	*****	83.16	0.23	*****	1.69	0.38	N/A	N/A
Famotidine New Users	*****	*****	69.56	0.19	*****	1.23	0.23		
Inverse Probability of Treatment Weighted Analysis[1]; Weight = ATT, Trimmed[2]									
Proton Pump Inhibitor New Users	317,870	72,371.34	83.16	0.23	122	1.69	0.38	1.49 (0.79, 2.84)	N/A
Famotidine New Users	313,131	60,859.01	70.99	0.19	67	1.10	0.21		
Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with User-Specified PS with IPTW ATT Adjustment, 1% Truncation, Age Group: 50-64 years									
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	97.40	0.27	*****	4.94	1.32	1.03 (0.78, 1.37)	0.829
Famotidine New Users	*****	*****	83.50	0.23	*****	4.86	1.11		
Inverse Probability of Treatment Weighted Analysis; Unweighted, Trimmed									
Proton Pump Inhibitor New Users	*****	*****	97.40	0.27	*****	4.94	1.32	N/A	N/A
Famotidine New Users	*****	*****	83.51	0.23	*****	4.86	1.11		
Inverse Probability of Treatment Weighted Analysis[1]; Weight = ATT, Trimmed[2]									

Table 11b. Effect Estimates for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Analysis Type and Age Group

Medical Product	Number of New Users	Person Years at Risk	Average Person Days at Risk	Average Person Years at Risk	Number of Events	Incidence Rate per 1,000 Person Years	Risk per 1,000 New Users	Hazard Ratio (95% Confidence Interval)	Wald P-Value
Proton Pump Inhibitor New Users	312,854	83,431.56	97.40	0.27	412	4.94	1.32	1.04 (0.77, 1.39)	N/A
Famotidine New Users	308,884	70,969.71	83.92	0.23	339	4.77	1.10		
Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with User-Specified PS with IPTW ATT Adjustment, 1% Truncation, Age Group: 65-74 years									
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	106.61	0.29	*****	7.55	2.20	1.03 (0.82, 1.30)	0.773
Famotidine New Users	*****	*****	91.94	0.25	*****	7.37	1.85		
Inverse Probability of Treatment Weighted Analysis; Unweighted, Trimmed									
Proton Pump Inhibitor New Users	*****	*****	106.61	0.29	*****	7.55	2.20	N/A	N/A
Famotidine New Users	*****	*****	91.95	0.25	*****	7.28	1.83		
Inverse Probability of Treatment Weighted Analysis[1]; Weight = ATT, Trimmed[2]									
Proton Pump Inhibitor New Users	248,733	72,602.31	106.61	0.29	548	7.55	2.20	1.07 (0.85, 1.35)	N/A
Famotidine New Users	245,987	61,954.48	91.99	0.25	446	7.20	1.81		
Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with User-Specified PS with IPTW ATT Adjustment, 1% Truncation, Age Group: ≥ 75 years									
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	106.14	0.29	*****	13.53	3.93	1.13 (0.92, 1.38)	0.24
Famotidine New Users	*****	*****	92.84	0.25	*****	12.03	3.06		
Inverse Probability of Treatment Weighted Analysis; Unweighted, Trimmed									
Proton Pump Inhibitor New Users	*****	*****	106.15	0.29	*****	13.47	3.91	N/A	N/A
Famotidine New Users	*****	*****	92.84	0.25	*****	12.03	3.06		
Inverse Probability of Treatment Weighted Analysis[1]; Weight = ATT, Trimmed[2]									
Proton Pump Inhibitor New Users	163,748	47,587.45	106.15	0.29	641	13.47	3.91	1.07 (0.87, 1.31)	N/A
Famotidine New Users	161,937	41,021.74	92.53	0.25	523	12.75	3.23		

[1]All values in this section are weighted.

[2]ATT = Average Treatment Effect in the Treated.

*****Data are not presented in these cells due to a small sample size or to assure a small cell cannot be recalculated through the cells presented.

N/A: Not Applicable

Table 12a. Effect Estimates for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment using hdPS, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Analysis Type

Medical Product	Number of New Users	Person Years at Risk	Average Person Days at Risk	Average Person Years at Risk	Number of Events	Incidence Rate per 1,000 Person Years	Risk per 1,000 New Users	Hazard Ratio (95% Confidence Interval)[1]	Wald P-Value
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	96.63	0.26	*****	6.25	1.65	1.01 (0.89, 1.15)	0.846
Famotidine New Users	*****	*****	83.59	0.23	*****	6.29	1.44		
Inverse Probability of Treatment Weighted Analysis; Unweighted, Trimmed									
Proton Pump Inhibitor New Users	*****	*****	96.63	0.26	*****	6.22	1.65	N/A	N/A
Famotidine New Users	*****	*****	83.59	0.23	*****	6.27	1.43		
Inverse Probability of Treatment Weighted Analysis[2]; Weight = ATT, Trimmed[3]									
Proton Pump Inhibitor New Users	1,042,961	275,926.86	96.63	0.26	1,717	6.22	1.65	1.02 (0.84, 1.23)	N/A
Famotidine New Users	1,044,576	237,311.83	82.98	0.23	1,468	6.18	1.41		

[1]The I^2 metric for statistical heterogeneity across 6 Data Partners and its corresponding 95% confidence interval for this effect estimate is 35.1% (95% CI 0.0%, 75.7%).

[2]All values in this section are weighted.

[3]ATT = Average Treatment Effect in the Treated.

*****Data are not presented in these cells due to a small sample size or to assure a small cell cannot be recalculated through the cells presented.

N/A: Not Applicable

Table 12b. Effect Estimates for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment using hdPS, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Analysis Type and Age Group

Medical Product	Number of New Users	Person Years at Risk	Average Person Days at Risk	Average Person Years at Risk	Number of Events	Incidence Rate per 1,000 Person Years	Risk per 1,000 New Users	Hazard Ratio (95% Confidence Interval)	Wald P-Value
Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, No Truncation									
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	96.63	0.26	*****	6.25	1.65	1.01 (0.89, 1.15)	0.846
Famotidine New Users	*****	*****	83.59	0.23	*****	6.29	1.44		
Inverse Probability of Treatment Weighted Analysis; Unweighted, Trimmed									
Proton Pump Inhibitor New Users	*****	*****	96.63	0.26	*****	6.22	1.65	N/A	N/A
Famotidine New Users	*****	*****	83.59	0.23	*****	6.27	1.43		
Inverse Probability of Treatment Weighted Analysis [1] ; Weight = ATT, Trimmed [2]									
Proton Pump Inhibitor New Users	1,042,961	275,926.86	96.63	0.26	1,717	6.22	1.65	1.02 (0.84, 1.23)	N/A
Famotidine New Users	1,044,576	237,311.83	82.98	0.23	1,468	6.18	1.41		
Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, No Truncation, Age Group: 18-49 years									
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	83.16	0.23	*****	1.66	0.38	1.36 (0.75, 2.46)	0.313
Famotidine New Users	*****	*****	69.56	0.19	*****	1.23	0.23		
Inverse Probability of Treatment Weighted Analysis; Unweighted, Trimmed									
Proton Pump Inhibitor New Users	*****	*****	83.16	0.23	*****	1.58	0.36	N/A	N/A
Famotidine New Users	*****	*****	69.56	0.19	*****	1.02	0.19		
Inverse Probability of Treatment Weighted Analysis [1] ; Weight = ATT, Trimmed [2]									
Proton Pump Inhibitor New Users	317,572	72,308.75	83.16	0.23	114	1.58	0.36	1.58 (0.74, 3.38)	N/A
Famotidine New Users	318,323	61,889.02	71.01	0.19	60	0.96	0.19		
Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, No Truncation, Age Group: 50-64 years									
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	97.40	0.27	*****	4.89	1.30	1.02 (0.77, 1.36)	0.882
Famotidine New Users	*****	*****	83.50	0.23	*****	4.86	1.11		
Inverse Probability of Treatment Weighted Analysis; Unweighted, Trimmed									
Proton Pump Inhibitor New Users	*****	*****	97.41	0.27	*****	4.86	1.30	N/A	N/A

Table 12b. Effect Estimates for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment using hdPS, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Analysis Type and Age Group

Medical Product	Number of New Users	Person Years at Risk	Average Person Days at Risk	Average Person Years at Risk	Number of Events	Incidence Rate per 1,000 Person Years	Risk per 1,000 New Users	Hazard Ratio (95% Confidence Interval)	Wald P-Value
Famotidine New Users	*****	*****	83.50	0.23	*****	4.86	1.11	N/A	N/A
Inverse Probability of Treatment Weighted Analysis[1]; Weight = ATT, Trimmed[2]									
Proton Pump Inhibitor New Users	312,623	83,370.94	97.41	0.27	405	4.86	1.30	1.02 (0.71, 1.47)	N/A
Famotidine New Users	312,650	71,646.21	83.70	0.23	340	4.74	1.09		
Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, No Truncation, Age Group: 65-74 years									
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	106.61	0.29	*****	7.55	2.20	1.05 (0.83, 1.31)	0.698
Famotidine New Users	*****	*****	91.94	0.25	*****	7.28	1.83		
Inverse Probability of Treatment Weighted Analysis; Unweighted, Trimmed									
Proton Pump Inhibitor New Users	*****	*****	106.63	0.29	*****	7.47	2.18	N/A	N/A
Famotidine New Users	*****	*****	91.96	0.25	*****	7.28	1.83		
Inverse Probability of Treatment Weighted Analysis[1]; Weight = ATT, Trimmed[2]									
Proton Pump Inhibitor New Users	248,028	72,410.15	106.63	0.29	541	7.47	2.18	1.07 (0.79, 1.44)	N/A
Famotidine New Users	248,608	62,364.20	91.62	0.25	448	7.18	1.80		
Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, No Truncation, Age Group: ≥ 75 years									
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	106.14	0.29	*****	13.47	3.92	1.12 (0.92, 1.37)	0.263
Famotidine New Users	*****	*****	92.85	0.25	*****	12.03	3.06		
Inverse Probability of Treatment Weighted Analysis; Unweighted, Trimmed									
Proton Pump Inhibitor New Users	*****	*****	106.16	0.29	*****	13.32	3.87	N/A	N/A
Famotidine New Users	*****	*****	92.85	0.25	*****	11.93	3.03		
Inverse Probability of Treatment Weighted Analysis[1]; Weight = ATT, Trimmed[2]									
Proton Pump Inhibitor New Users	163,241	47,447.04	106.16	0.29	632	13.32	3.87	0.94 (0.72, 1.23)	N/A
Famotidine New Users	163,653	41,167.89	91.88	0.25	588	14.29	3.59		

[1]All values in this section are weighted.

[2]ATT = Average Treatment Effect in the Treated.

*****Data are not presented in these cells due to a small sample size or to assure a small cell cannot be recalculated through the cells presented.

Table 12b. Effect Estimates for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment using hdPS, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Analysis Type and Age Group

Medical Product	Number of New Users	Person Years at Risk	Average Person Days at Risk	Average Person Years at Risk	Number of Events	Incidence Rate per 1,000 Person Years	Risk per 1,000 New Users	Hazard Ratio (95% Confidence Interval)	Wald P-Value

N/A: Not Applicable

Table 13a. Effect Estimates for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment using hdPS, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Analysis Type

Medical Product	Number of New Users	Person Years at Risk	Average Person Days at Risk	Average Person Years at Risk	Number of Events	Incidence Rate per 1,000 Person Years	Risk per 1,000 New Users	Hazard Ratio (95% Confidence Interval)[1]	Wald P-Value
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	96.63	0.26	*****	6.25	1.65	1.01 (0.89, 1.15)	0.846
Famotidine New Users	*****	*****	83.59	0.23	*****	6.29	1.44		
Inverse Probability of Treatment Weighted Analysis; Unweighted, Trimmed									
Proton Pump Inhibitor New Users	*****	*****	96.63	0.26	*****	6.22	1.65	N/A	N/A
Famotidine New Users	*****	*****	83.59	0.23	*****	6.27	1.43		
Inverse Probability of Treatment Weighted Analysis[2]; Weight = ATT, Trimmed[3]									
Proton Pump Inhibitor New Users	1,042,961	275,926.86	96.63	0.26	1,717	6.22	1.65	1.11 (0.97, 1.28)	N/A
Famotidine New Users	1,002,802	228,506.93	83.23	0.23	1,283	5.61	1.28		

[1]The I^2 metric for statistical heterogeneity across 6 Data Partners and its corresponding 95% confidence interval for this effect estimate is 25.0% (95% CI 0.0%, 69.9%).

[2]All values in this section are weighted.

[3]ATT = Average Treatment Effect in the Treated.

*****Data are not presented in these cells due to a small sample size or to assure a small cell cannot be recalculated through the cells presented.

N/A: Not Applicable

Table 13b. Effect Estimates for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment using hdPS, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Analysis Type and Age Group

Medical Product	Number of New Users	Person Years at Risk	Average Person Days at Risk	Average Person Years at Risk	Number of Events	Incidence Rate per 1,000 Person Years	Risk per 1,000 New Users	Hazard Ratio (95% Confidence Interval)	Wald P-Value
Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation									
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	96.63	0.26	*****	6.25	1.65	1.01 (0.89, 1.15)	0.846
Famotidine New Users	*****	*****	83.59	0.23	*****	6.29	1.44		
Inverse Probability of Treatment Weighted Analysis; Unweighted, Trimmed									
Proton Pump Inhibitor New Users	*****	*****	96.63	0.26	*****	6.22	1.65	N/A	N/A
Famotidine New Users	*****	*****	83.59	0.23	*****	6.27	1.43		
Inverse Probability of Treatment Weighted Analysis[1]; Weight = ATT, Trimmed[2]									
Proton Pump Inhibitor New Users	1,042,961	275,926.86	96.63	0.26	1,717	6.22	1.65	1.11 (0.97, 1.28)	N/A
Famotidine New Users	1,002,802	228,506.93	83.23	0.23	1,283	5.61	1.28		
Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation, Age Group: 18-49 years									
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	83.16	0.23	*****	1.66	0.38	1.36 (0.75, 2.46)	0.313
Famotidine New Users	*****	*****	69.56	0.19	*****	1.23	0.23		
Inverse Probability of Treatment Weighted Analysis; Unweighted, Trimmed									
Proton Pump Inhibitor New Users	*****	*****	83.16	0.23	*****	1.58	0.36	N/A	N/A
Famotidine New Users	*****	*****	69.56	0.19	*****	1.02	0.19		
Inverse Probability of Treatment Weighted Analysis[1]; Weight = ATT, Trimmed[2]									
Proton Pump Inhibitor New Users	317,572	72,308.75	83.16	0.23	114	1.58	0.36	1.61 (0.78, 3.35)	N/A
Famotidine New Users	307,203	59,710.51	70.99	0.19	57	0.95	0.18		
Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation, Age Group: 50-64 years									
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	97.40	0.27	*****	4.89	1.30	1.02 (0.77, 1.36)	0.882
Famotidine New Users	*****	*****	83.50	0.23	*****	4.86	1.11		
Inverse Probability of Treatment Weighted Analysis; Unweighted, Trimmed									
Proton Pump Inhibitor New Users	*****	*****	97.41	0.27	*****	4.86	1.30	N/A	N/A
Famotidine New Users	*****	*****	83.50	0.23	*****	4.86	1.11		
Inverse Probability of Treatment Weighted Analysis[1]; Weight = ATT, Trimmed[2]									

Table 13b. Effect Estimates for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment using hdPS, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Analysis Type and Age Group

Medical Product	Number of New Users	Person Years at Risk	Average Person Days at Risk	Average Person Years at Risk	Number of Events	Incidence Rate per 1,000 Person Years	Risk per 1,000 New Users	Hazard Ratio (95% Confidence Interval)	Wald P-Value
Proton Pump Inhibitor New Users	312,623	83,370.94	97.41	0.27	405	4.86	1.30	1.11 (0.82, 1.51)	N/A
Famotidine New Users	302,414	69,439.88	83.87	0.23	301	4.34	1.00		
Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation, Age Group: 65-74 years									
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	106.61	0.29	*****	7.55	2.20	1.05 (0.83, 1.31)	0.698
Famotidine New Users	*****	*****	91.94	0.25	*****	7.28	1.83		
Inverse Probability of Treatment Weighted Analysis; Unweighted, Trimmed									
Proton Pump Inhibitor New Users	*****	*****	106.63	0.29	*****	7.47	2.18	N/A	N/A
Famotidine New Users	*****	*****	91.96	0.25	*****	7.28	1.83		
Inverse Probability of Treatment Weighted Analysis[1]; Weight = ATT, Trimmed[2]									
Proton Pump Inhibitor New Users	248,028	72,410.15	106.63	0.29	541	7.47	2.18	1.16 (0.91, 1.48)	N/A
Famotidine New Users	237,365	59,809.94	92.03	0.25	391	6.55	1.65		
Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation, Age Group: ≥ 75 years									
Site-Adjusted Analysis, Unweighted									
Proton Pump Inhibitor New Users	*****	*****	106.14	0.29	*****	13.47	3.92	1.12 (0.92, 1.37)	0.263
Famotidine New Users	*****	*****	92.85	0.25	*****	12.03	3.06		
Inverse Probability of Treatment Weighted Analysis; Unweighted, Trimmed									
Proton Pump Inhibitor New Users	*****	*****	106.16	0.29	*****	13.32	3.87	N/A	N/A
Famotidine New Users	*****	*****	92.85	0.25	*****	11.93	3.03		
Inverse Probability of Treatment Weighted Analysis[1]; Weight = ATT, Trimmed[2]									
Proton Pump Inhibitor New Users	163,241	47,447.04	106.16	0.29	632	13.32	3.87	1.05 (0.85, 1.30)	N/A
Famotidine New Users	153,104	38,855.12	92.69	0.25	496	12.76	3.24		

[1]All values in this section are weighted.

[2]ATT = Average Treatment Effect in the Treated.

*****Data are not presented in these cells due to a small sample size or to assure a small cell cannot be recalculated through the cells presented.

N/A: Not Applicable

Table 14. Summary of Patient-Level Cohort Attrition in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024

	COVID-19 Hospitalization among Proton Pump Inhibitor (PPI) and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation				COVID-19 Hospitalization among PPI and Famotidine New Users with IPTW ATT Adjustment using hdPS, 1% Truncation			
	PPI New Users		Famotidine New Users		PPI New Users		Famotidine New Users	
	Remaining	Excluded	Remaining	Excluded	Remaining	Excluded	Remaining	Excluded
Members meeting enrollment and demographic requirements								
Enrolled at any point during the query period	90,505,183	N/A	90,505,183	N/A	90,505,183	N/A	90,505,183	N/A
Had required coverage type (medical and/or drug coverage)	56,505,332	33,999,851	56,505,332	33,999,851	56,505,332	33,999,851	56,505,332	33,999,851
Enrolled during specified age range	48,450,122	8,055,210	48,450,122	8,055,210	48,450,122	8,055,210	48,450,122	8,055,210
Had requestable medical charts	48,450,122	0	48,450,122	0	48,450,122	0	48,450,122	0
Met demographic requirements (sex, race, and Hispanic origin)	48,425,788	24,334	48,425,788	24,334	48,425,788	24,334	48,425,788	24,334
Members with a valid index event								
Had any cohort-defining claim during the query period	6,492,644	41,933,144	1,600,919	46,824,869	6,492,644	41,933,144	1,600,919	46,824,869
Claim recorded during specified age range	6,475,981	16,663	1,593,226	7,693	6,475,981	16,663	1,593,226	7,693
Episode defining index claim recorded during the query period	4,837,651	1,638,330	1,436,289	156,937	4,837,651	1,638,330	1,436,289	156,937
Members with required pre-index history								
Had sufficient pre-index continuous enrollment	2,891,015	1,946,636	1,056,518	379,771	2,891,015	1,946,636	1,056,518	379,771
Met inclusion and exclusion criteria[1]	1,049,826	1,841,189	187,216	869,302	1,049,826	1,841,189	187,216	869,302
Evidence of COVID-19 diagnosis code	N/A	200,611	N/A	90,852	N/A	200,611	N/A	90,852
Evidence of COVID-19 positive lab result	N/A	40,290	N/A	17,971	N/A	40,290	N/A	17,971
Evidence of H2 Receptor Antagonists (H2RA)	N/A	234,285	N/A	N/A	N/A	234,285	N/A	N/A
Evidence of PPI or H2RA	N/A	N/A	N/A	427,687	N/A	N/A	N/A	427,687
No evidence of Gastroesophageal Reflux Disease	N/A	1,645,795	N/A	598,485	N/A	1,645,795	N/A	598,485
Met event incidence criteria	1,049,826	0	187,216	0	1,049,826	0	187,216	0
Had sufficient post-index continuous enrollment	1,049,826	0	187,216	0	1,049,826	0	187,216	0

Table 14. Summary of Patient-Level Cohort Attrition in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024

	COVID-19 Hospitalization among Proton Pump Inhibitor (PPI) and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation				COVID-19 Hospitalization among PPI and Famotidine New Users with IPTW ATT Adjustment using hdPS, 1% Truncation			
	PPI New Users		Famotidine New Users		PPI New Users		Famotidine New Users	
	Remaining	Excluded	Remaining	Excluded	Remaining	Excluded	Remaining	Excluded
Had index episode longer than blackout period	1,048,113	1,713	186,920	296	1,048,113	1,713	186,920	296
Did not have an event during blackout period	1,048,015	98	186,888	32	1,048,015	98	186,888	32
Final cohort								
Number of members	1,048,015	N/A	186,888	N/A	1,048,015	N/A	186,888	N/A
Number of episodes	1,048,015	N/A	186,888	N/A	1,048,015	N/A	186,888	N/A
Members meeting comparative cohort eligibility requirements								
Excluded due to same-day inititon of both exposure groups	1,048,015	0	186,888	0	1,048,015	0	186,888	0
Excluded due to prior initiation of other exposure group	*****	*****	*****	*****	*****	*****	*****	*****
Excluded due to propensity score trimming	*****	*****	*****	*****	*****	*****	*****	*****
Excluded due to lack of treatment heterogeneity in stratum	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Included in comparative analysis	1,043,458	0	181,984	0	1,043,108	0	181,963	0
Additional information								
Number of events in comparative analysis	*****	N/A	*****	N/A	*****	N/A	*****	N/A
Number of patients with a truncated inverse probability of treatment weight	0	N/A	12,260	N/A	0	N/A	12,359	N/A

Table 14. Summary of Patient-Level Cohort Attrition in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024

	COVID-19 Hospitalization among PPI and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment				COVID-19 Hospitalization among PPI and Famotidine New Users with hdPS-Generated Overlap Weights			
	PPI New Users		Famotidine New Users		PPI New Users		Famotidine New Users	
	Remaining	Excluded	Remaining	Excluded	Remaining	Excluded	Remaining	Excluded
Members meeting enrollment and demographic requirements								
Enrolled at any point during the query period	90,505,183	N/A	90,505,183	N/A	90,505,183	N/A	90,505,183	N/A
Had required coverage type (medical and/or drug coverage)	56,505,332	33,999,851	56,505,332	33,999,851	56,505,332	33,999,851	56,505,332	33,999,851
Enrolled during specified age range	48,450,122	8,055,210	48,450,122	8,055,210	48,450,122	8,055,210	48,450,122	8,055,210
Had requestable medical charts	48,450,122	0	48,450,122	0	48,450,122	0	48,450,122	0
Met demographic requirements (sex, race, and Hispanic origin)	48,425,788	24,334	48,425,788	24,334	48,425,788	24,334	48,425,788	24,334
Members with a valid index event								
Had any cohort-defining claim during the query period	6,492,644	41,933,144	1,600,919	46,824,869	6,492,644	41,933,144	1,600,919	46,824,869
Claim recorded during specified age range	6,475,981	16,663	1,593,226	7,693	6,475,981	16,663	1,593,226	7,693
Episode defining index claim recorded during the query period	4,837,651	1,638,330	1,436,289	156,937	4,837,651	1,638,330	1,436,289	156,937
Members with required pre-index history								
Had sufficient pre-index continuous enrollment	2,891,015	1,946,636	1,056,518	379,771	2,891,015	1,946,636	1,056,518	379,771
Met inclusion and exclusion criteria[1]	1,049,826	1,841,189	187,216	869,302	1,049,826	1,841,189	187,216	869,302
Evidence of COVID-19 diagnosis code	N/A	200,611	N/A	90,852	N/A	200,611	N/A	90,852
Evidence of COVID-19 positive lab result	N/A	40,290	N/A	17,971	N/A	40,290	N/A	17,971
Evidence of H2 Receptor Antagonists (H2RA)	N/A	234,285	N/A	N/A	N/A	234,285	N/A	N/A
Evidence of PPI or H2RA	N/A	N/A	N/A	427,687	N/A	N/A	N/A	427,687
No evidence of Gastroesophageal Reflux Disease	N/A	1,645,795	N/A	598,485	N/A	1,645,795	N/A	598,485
Met event incidence criteria	1,049,826	0	187,216	0	1,049,826	0	187,216	0
Had sufficient post-index continuous enrollment	1,049,826	0	187,216	0	1,049,826	0	187,216	0

Table 14. Summary of Patient-Level Cohort Attrition in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024

	COVID-19 Hospitalization among PPI and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment				COVID-19 Hospitalization among PPI and Famotidine New Users with hdPS-Generated Overlap Weights			
	PPI New Users		Famotidine New Users		PPI New Users		Famotidine New Users	
	Remaining	Excluded	Remaining	Excluded	Remaining	Excluded	Remaining	Excluded
Had index episode longer than blackout period	1,048,113	1,713	186,920	296	1,048,113	1,713	186,920	296
Did not have an event during blackout period	1,048,015	98	186,888	32	1,048,015	98	186,888	32
Final cohort								
Number of members	1,048,015	N/A	186,888	N/A	1,048,015	N/A	186,888	N/A
Number of episodes	1,048,015	N/A	186,888	N/A	1,048,015	N/A	186,888	N/A
Members meeting comparative cohort eligibility requirements								
Excluded due to same-day initition of both exposure groups	1,048,015	0	186,888	0	1,048,015	0	186,888	0
Excluded due to prior initiation of other exposure group	*****	*****	*****	*****	*****	*****	*****	*****
Excluded due to propensity score trimming	*****	*****	*****	*****	N/A	N/A	N/A	N/A
Excluded due to lack of treatment heterogeneity in stratum	1,043,108	0	181,963	0	N/A	N/A	N/A	N/A
Included in comparative analysis	1,043,108	0	181,963	0	*****	0	*****	0
Additional information								
Number of events in comparative analysis	*****	N/A	*****	N/A	*****	N/A	*****	N/A
Number of patients with a truncated inverse probability of treatment weight	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 14. Summary of Patient-Level Cohort Attrition in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024

	COVID-19 Hospitalization among PPI and Famotidine New Users with hdPS with IPTW ATE Adjustment, 1% Truncation				Severe COVID-19 Outcome or Death among PPI and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation			
	PPI New Users		Famotidine New Users		PPI New Users		Famotidine New Users	
	Remaining	Excluded	Remaining	Excluded	Remaining	Excluded	Remaining	Excluded
Members meeting enrollment and demographic requirements								
Enrolled at any point during the query period	90,505,183	N/A	90,505,183	N/A	90,505,183	N/A	90,505,183	N/A
Had required coverage type (medical and/or drug coverage)	56,505,332	33,999,851	56,505,332	33,999,851	56,505,332	33,999,851	56,505,332	33,999,851
Enrolled during specified age range	48,450,122	8,055,210	48,450,122	8,055,210	48,450,122	8,055,210	48,450,122	8,055,210
Had requestable medical charts	48,450,122	0	48,450,122	0	48,450,122	0	48,450,122	0
Met demographic requirements (sex, race, and Hispanic origin)	48,425,788	24,334	48,425,788	24,334	48,425,788	24,334	48,425,788	24,334
Members with a valid index event								
Had any cohort-defining claim during the query period	6,492,644	41,933,144	1,600,919	46,824,869	6,492,644	41,933,144	1,600,919	46,824,869
Claim recorded during specified age range	6,475,981	16,663	1,593,226	7,693	6,475,981	16,663	1,593,226	7,693
Episode defining index claim recorded during the query period	4,837,651	1,638,330	1,436,289	156,937	4,837,651	1,638,330	1,436,289	156,937
Members with required pre-index history								
Had sufficient pre-index continuous enrollment	2,891,015	1,946,636	1,056,518	379,771	2,891,015	1,946,636	1,056,518	379,771
Met inclusion and exclusion criteria[1]	1,049,826	1,841,189	187,216	869,302	1,049,826	1,841,189	187,216	869,302
Evidence of COVID-19 diagnosis code	N/A	200,611	N/A	90,852	N/A	200,611	N/A	90,852
Evidence of COVID-19 positive lab result	N/A	40,290	N/A	17,971	N/A	40,290	N/A	17,971
Evidence of H2 Receptor Antagonists (H2RA)	N/A	234,285	N/A	N/A	N/A	234,285	N/A	N/A
Evidence of PPI or H2RA	N/A	N/A	N/A	427,687	N/A	N/A	N/A	427,687
No evidence of Gastroesophageal Reflux Disease	N/A	1,645,795	N/A	598,485	N/A	1,645,795	N/A	598,485
Met event incidence criteria	1,049,826	0	187,216	0	1,049,826	0	187,216	0

Table 14. Summary of Patient-Level Cohort Attrition in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024

	COVID-19 Hospitalization among PPI and Famotidine New Users with hdPS with IPTW ATE Adjustment, 1% Truncation				Severe COVID-19 Outcome or Death among PPI and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation			
	PPI New Users		Famotidine New Users		PPI New Users		Famotidine New Users	
	Remaining	Excluded	Remaining	Excluded	Remaining	Excluded	Remaining	Excluded
Had sufficient post-index continuous enrollment	1,049,826	0	187,216	0	1,049,826	0	187,216	0
Had index episode longer than blackout period	1,048,113	1,713	186,920	296	1,048,113	1,713	186,920	296
Did not have an event during blackout period	1,048,015	98	186,888	32	1,048,102	11	186,914	6
Final cohort								
Number of members	1,048,015	N/A	186,888	N/A	1,048,102	N/A	186,914	N/A
Number of episodes	1,048,015	N/A	186,888	N/A	1,048,102	N/A	186,914	N/A
Members meeting comparative cohort eligibility requirements								
Excluded due to same-day initition of both exposure groups	1,048,015	0	186,888	0	1,048,102	0	186,914	0
Excluded due to prior initiation of other exposure group	*****	*****	*****	*****	*****	*****	*****	*****
Excluded due to propensity score trimming	*****	*****	*****	*****	*****	*****	*****	*****
Excluded due to lack of treatment heterogeneity in stratum	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Included in comparative analysis	1,043,108	0	181,963	0	1,043,544	0	182,012	0
Additional information								
Number of events in comparative analysis	*****	N/A	*****	N/A	*****	N/A	*****	N/A
Number of patients with a truncated inverse probability of treatment weight	12,251	N/A	12,251	N/A	0	N/A	12,259	N/A

Table 14. Summary of Patient-Level Cohort Attrition in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024

	Severe COVID-19 Outcome or Death among PPI and Famotidine New Users with IPTW ATT Adjustment using hdPS, 1% Truncation			
	PPI New Users		Famotidine New Users	
	Remaining	Excluded	Remaining	Excluded
Members meeting enrollment and demographic requirements				
Enrolled at any point during the query period	90,505,183	N/A	90,505,183	N/A
Had required coverage type (medical and/or drug coverage)	56,505,332	33,999,851	56,505,332	33,999,851
Enrolled during specified age range	48,450,122	8,055,210	48,450,122	8,055,210
Had requestable medical charts	48,450,122	0	48,450,122	0
Met demographic requirements (sex, race, and Hispanic origin)	48,425,788	24,334	48,425,788	24,334
Members with a valid index event				
Had any cohort-defining claim during the query period	6,492,644	41,933,144	1,600,919	46,824,869
Claim recorded during specified age range	6,475,981	16,663	1,593,226	7,693
Episode defining index claim recorded during the query period	4,837,651	1,638,330	1,436,289	156,937
Members with required pre-index history				
Had sufficient pre-index continuous enrollment	2,891,015	1,946,636	1,056,518	379,771
Met inclusion and exclusion criteria[1]	1,049,826	1,841,189	187,216	869,302
Evidence of COVID-19 diagnosis code	N/A	200,611	N/A	90,852
Evidence of COVID-19 positive lab result	N/A	40,290	N/A	17,971
Evidence of H2 Receptor Antagonists (H2RA)	N/A	234,285	N/A	N/A
Evidence of PPI or H2RA	N/A	N/A	N/A	427,687
No evidence of Gastroesophageal Reflux Disease	N/A	1,645,795	N/A	598,485
Met event incidence criteria	1,049,826	0	187,216	0
Had sufficient post-index continuous enrollment	1,049,826	0	187,216	0
Had index episode longer than blackout period	1,048,113	1,713	186,920	296
Did not have an event during blackout period	1,048,102	11	186,914	6
Final cohort				
Number of members	1,048,102	N/A	186,914	N/A
Number of episodes	1,048,102	N/A	186,914	N/A
Members meeting comparative cohort eligibility requirements				
Excluded due to same-day initition of both exposure groups	1,048,102	0	186,914	0
Excluded due to prior initiation of other exposure group	*****	*****	*****	*****
Excluded due to propensity score trimming	*****	*****	*****	*****
Excluded due to lack of treatment heterogeneity in stratum	N/A	N/A	N/A	N/A
Included in comparative analysis	1,042,961	0	182,011	0

Table 14. Summary of Patient-Level Cohort Attrition in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024

	Severe COVID-19 Outcome or Death among PPI and Famotidine New Users with IPTW ATT Adjustment using hdPS, 1% Truncation			
	PPI New Users		Famotidine New Users	
	Remaining	Excluded	Remaining	Excluded
Additional information				
Number of events in comparative analysis	*****	N/A	*****	N/A
Number of patients with a truncated inverse probability of treatment weight	0	N/A	12,354	N/A

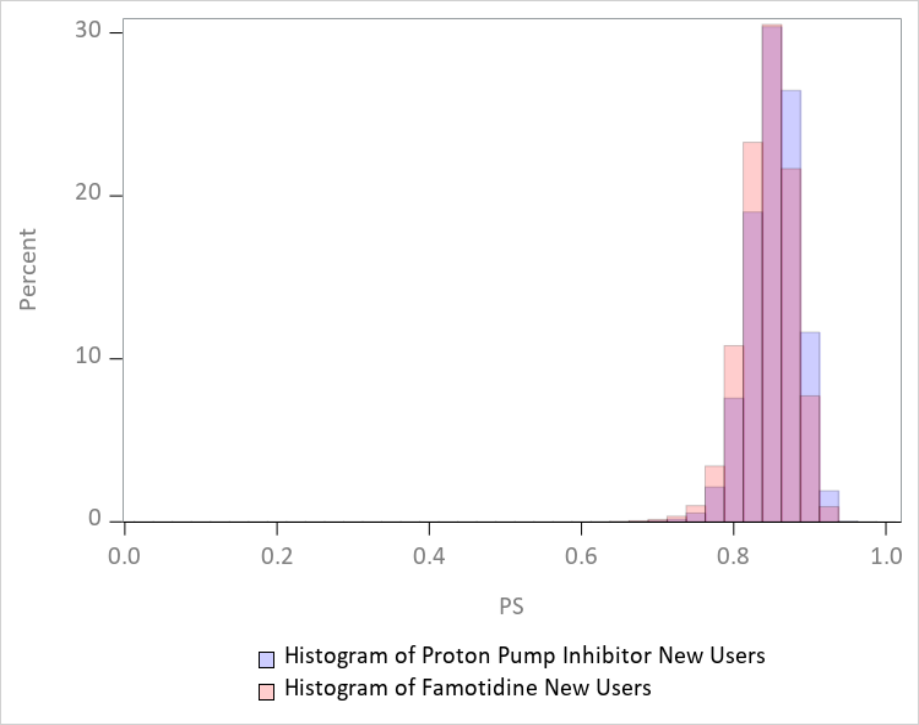
[1]Patients can meet multiple inclusion and/or exclusion criteria; therefore, the total number of patients excluded overall may not equal the sum of all patients in each criterion.

*****Data are not presented in these cells due to a small sample size or to assure a small cell cannot be recalculated through the cells presented.

N/A: Not Applicable

Figure 1a. Histograms Depicting Propensity Score Distributions Before and After Adjustment for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024

Unweighted Propensity Score Distribution Before Trimming



Unweighted Propensity Score Distribution After Trimming

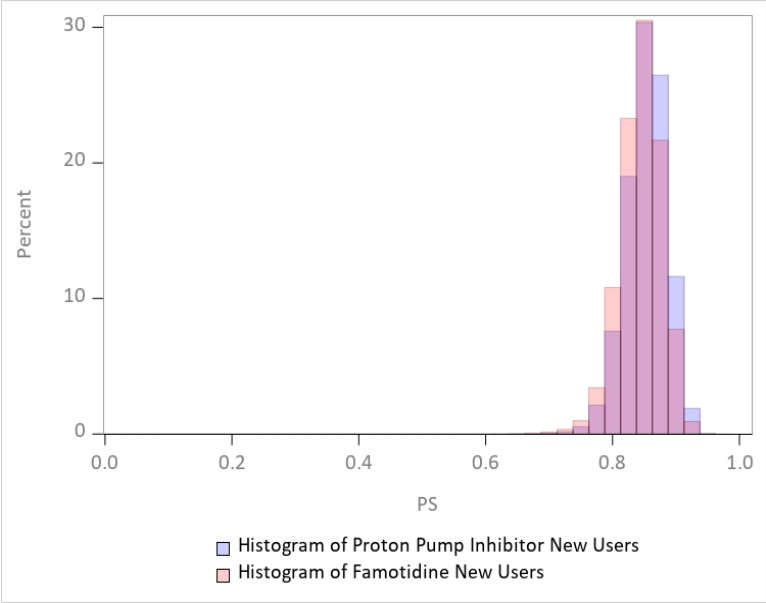


Figure 1a. Histograms Depicting Propensity Score Distributions Before and After Adjustment for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024

Weighted Propensity Score Distribution After Trimming, Inverse Probability of Treatment Weighted, Average Treatment Effect in the Treated (ATT)

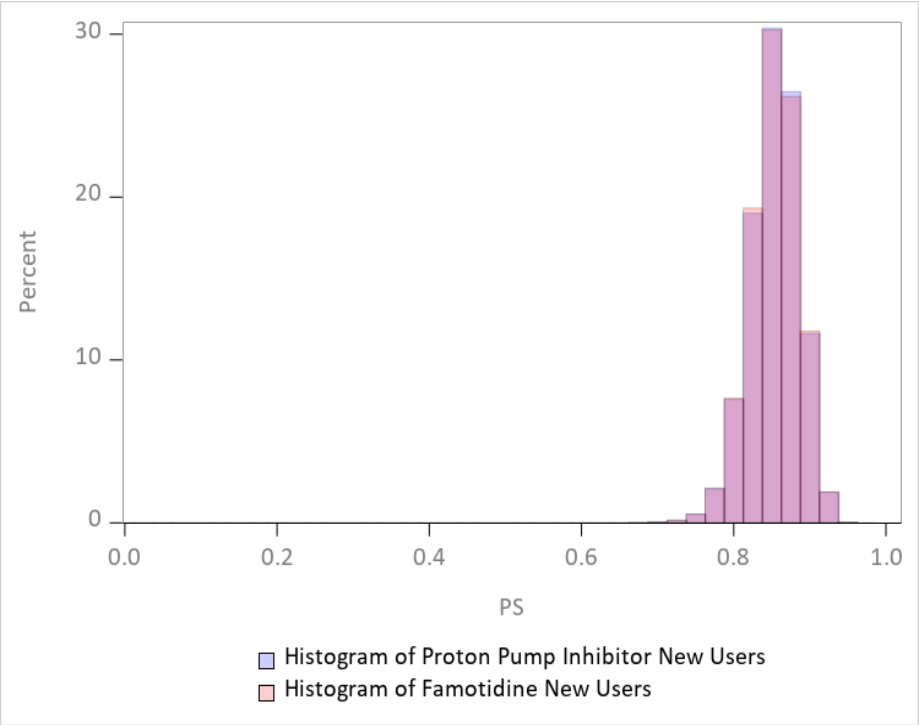
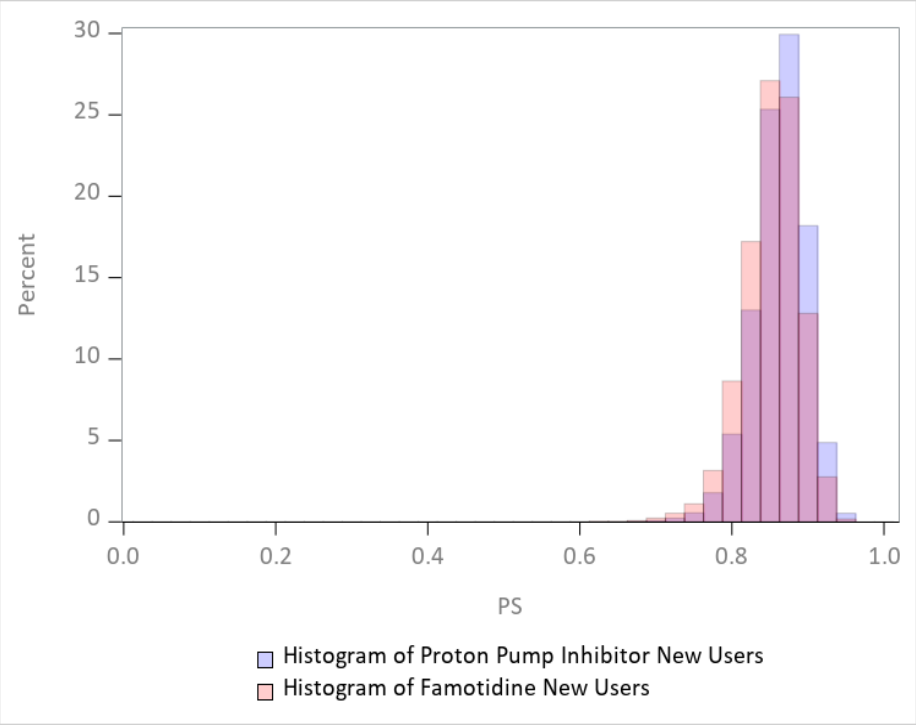


Figure 1b. Histograms Depicting Propensity Score Distributions Before and After Adjustment for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years

Unweighted Propensity Score Distribution Before Trimming



Unweighted Propensity Score Distribution After Trimming

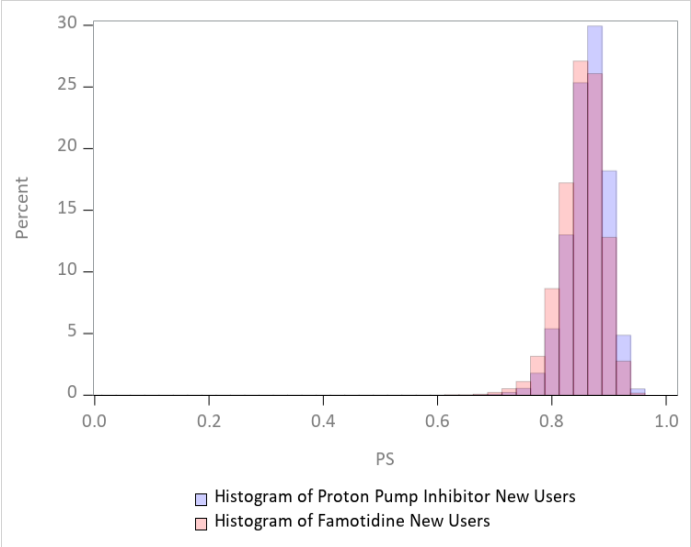


Figure 1b. Histograms Depicting Propensity Score Distributions Before and After Adjustment for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years

Weighted Propensity Score Distribution After Trimming, Inverse Probability of Treatment Weighted, Average Treatment Effect in the Treated (ATT)

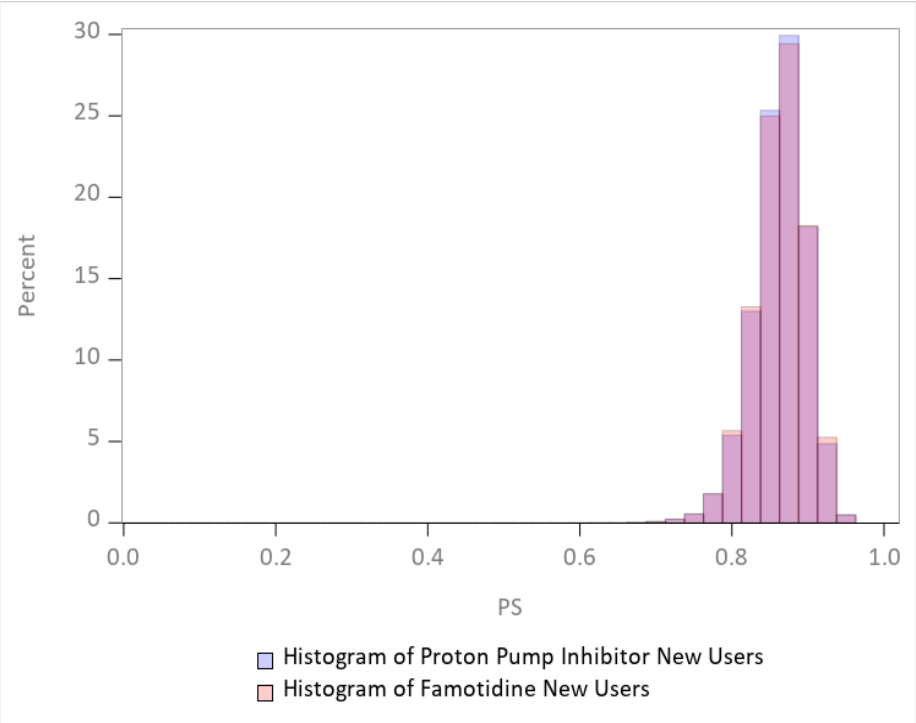
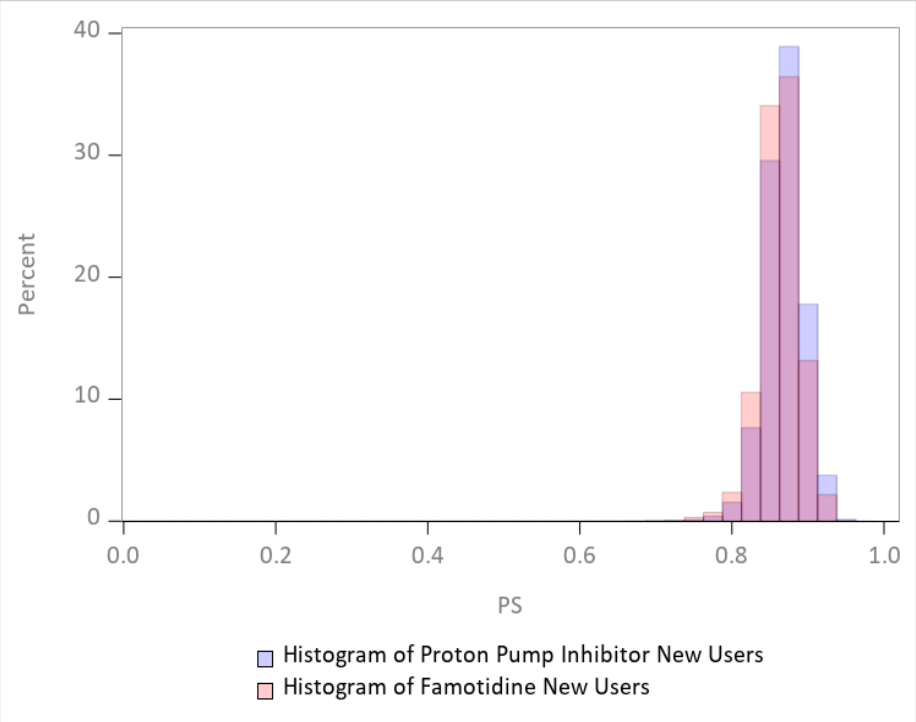


Figure 1c. Histograms Depicting Propensity Score Distributions Before and After Adjustment for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 50-64 years

Unweighted Propensity Score Distribution Before Trimming



Unweighted Propensity Score Distribution After Trimming

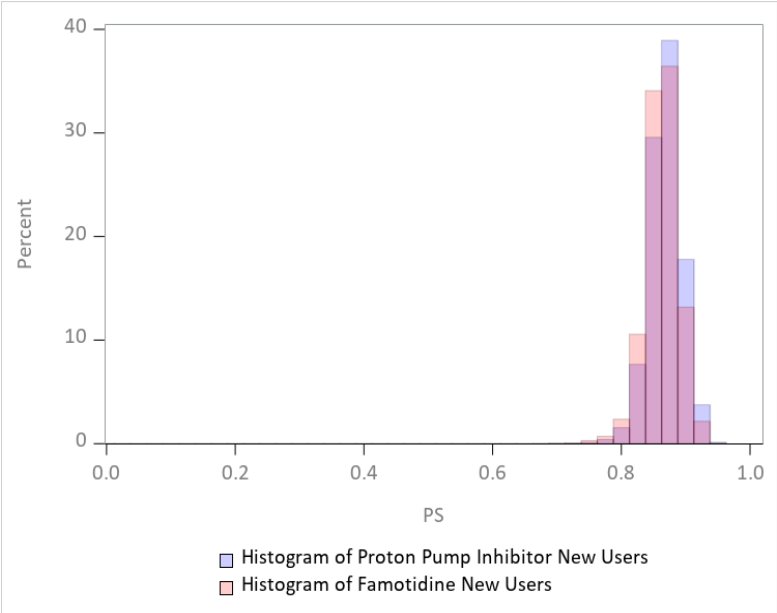


Figure 1c. Histograms Depicting Propensity Score Distributions Before and After Adjustment for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 50-64 years

Weighted Propensity Score Distribution After Trimming, Inverse Probability of Treatment Weighted, Average Treatment Effect in the Treated (ATT)

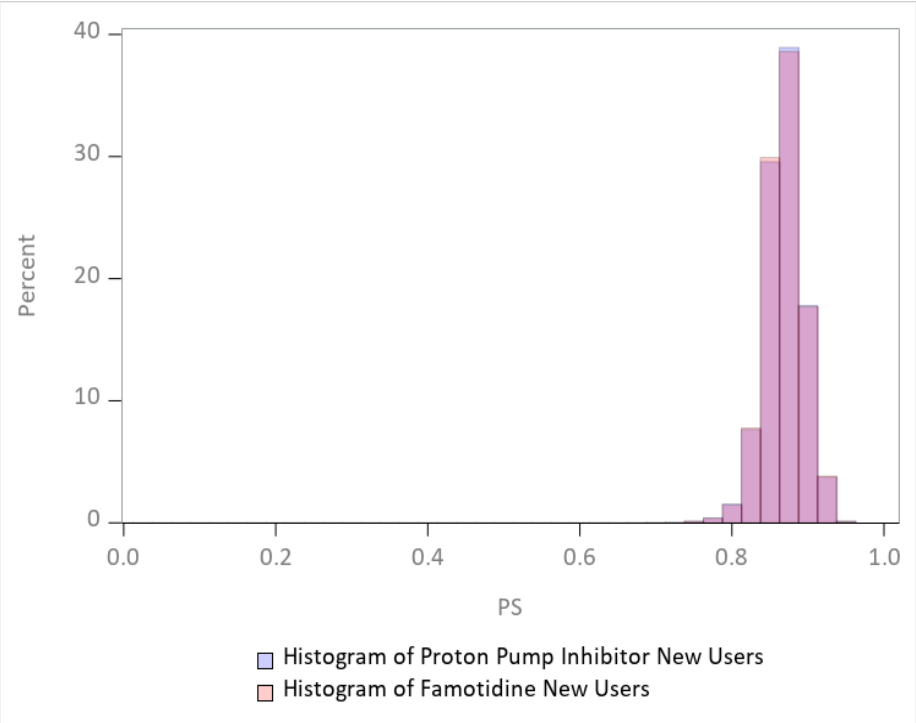
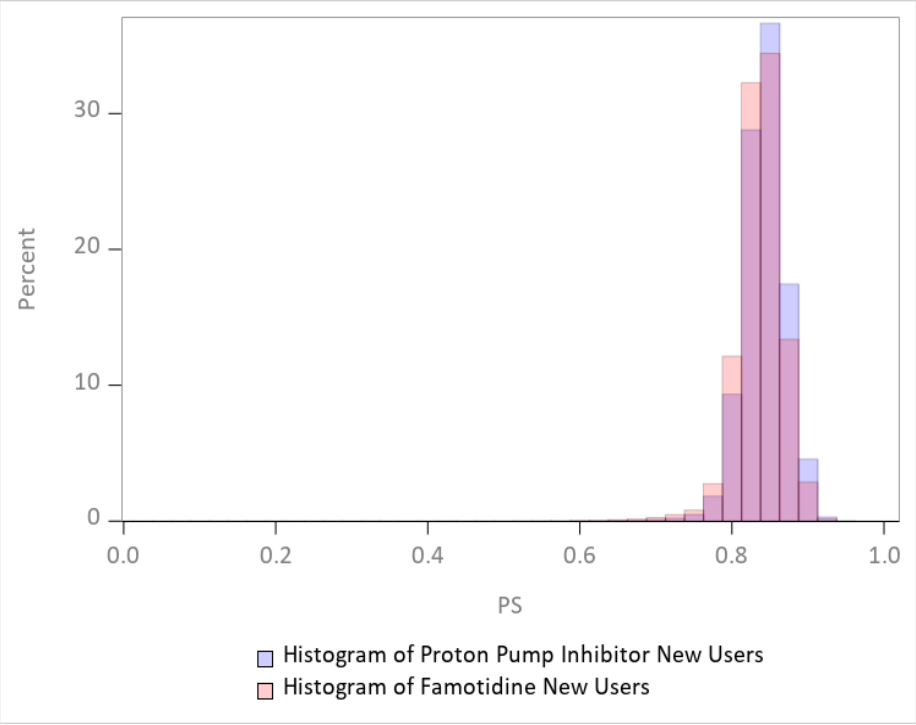


Figure 1d. Histograms Depicting Propensity Score Distributions Before and After Adjustment for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years

Unweighted Propensity Score Distribution Before Trimming



Unweighted Propensity Score Distribution After Trimming

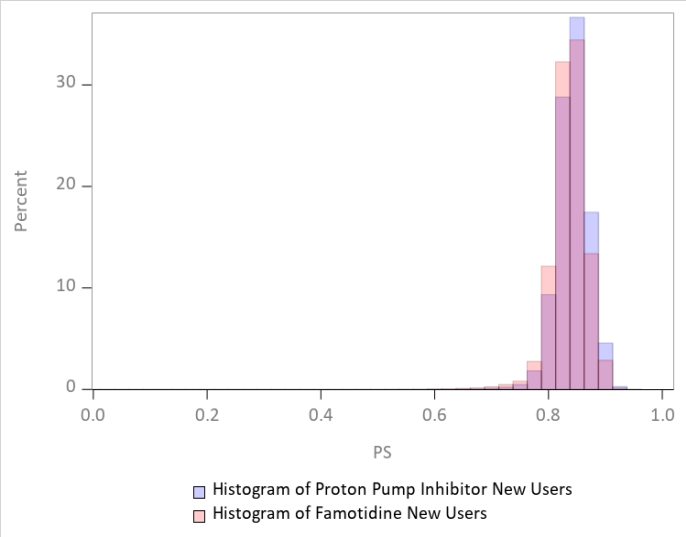


Figure 1d. Histograms Depicting Propensity Score Distributions Before and After Adjustment for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years

Weighted Propensity Score Distribution After Trimming, Inverse Probability of Treatment Weighted, Average Treatment Effect in the Treated (ATT)

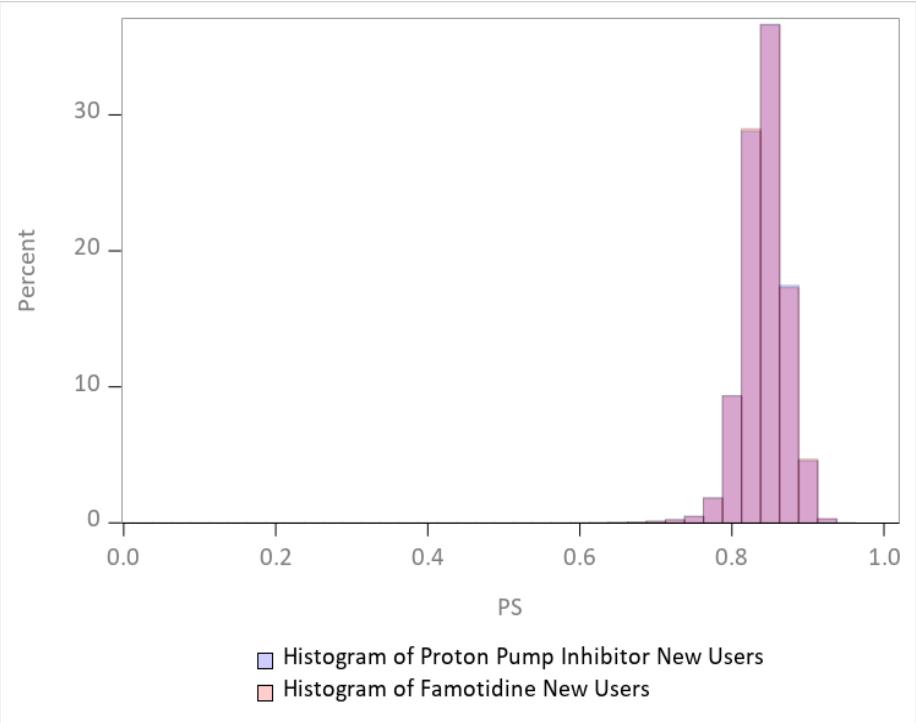
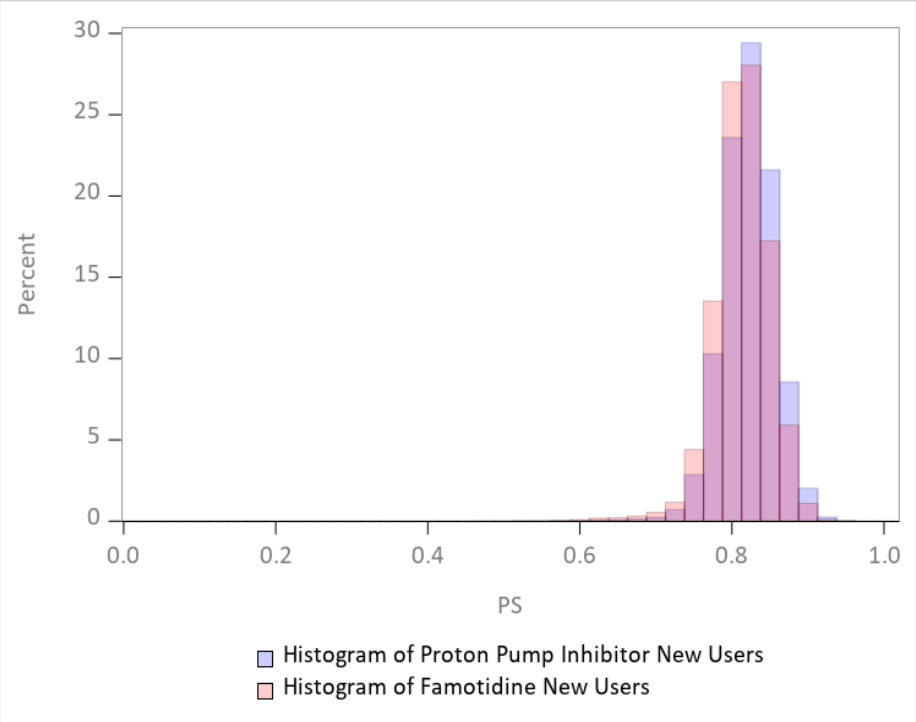


Figure 1e. Histograms Depicting Propensity Score Distributions Before and After Adjustment for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: ≥ 75 years

Unweighted Propensity Score Distribution Before Trimming



Unweighted Propensity Score Distribution After Trimming

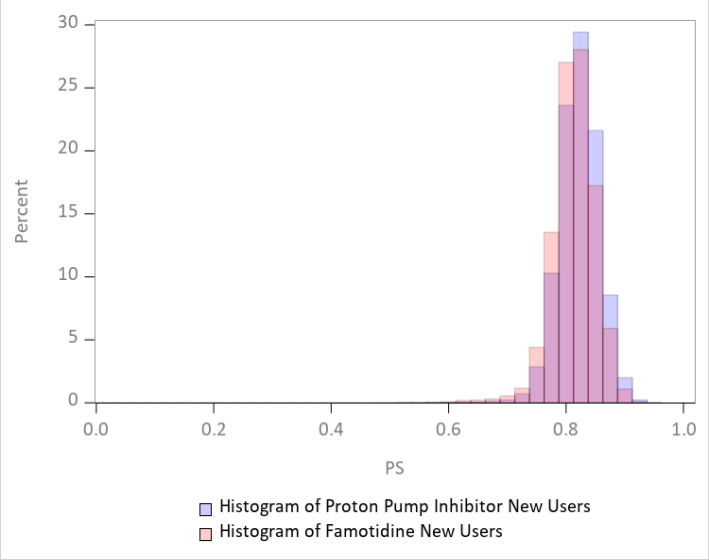


Figure 1e. Histograms Depicting Propensity Score Distributions Before and After Adjustment for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: ≥ 75 years

Weighted Propensity Score Distribution After Trimming, Inverse Probability of Treatment Weighted, Average Treatment Effect in the Treated (ATT)

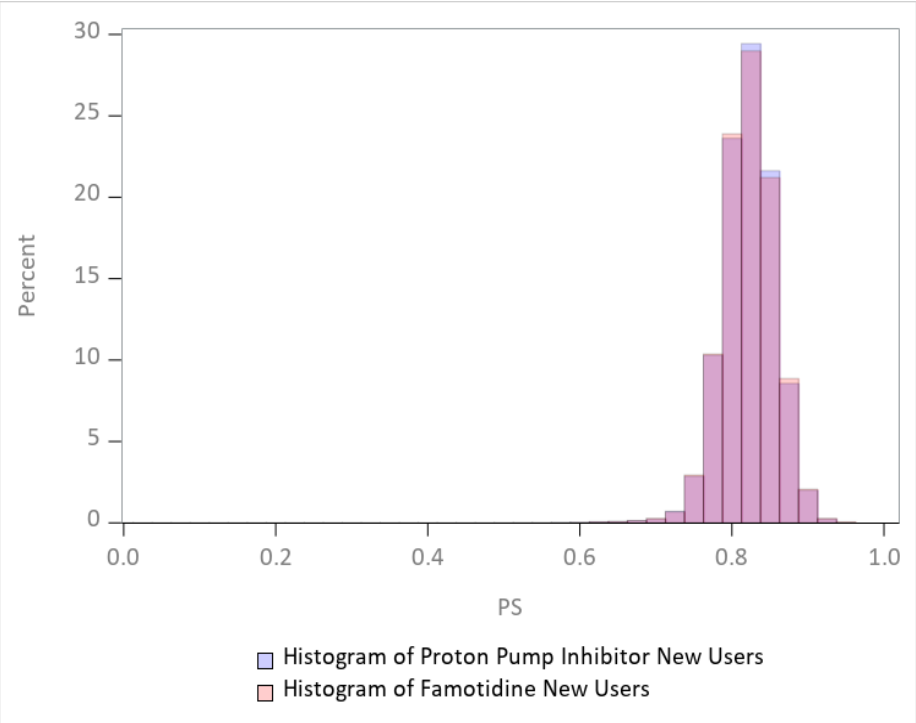
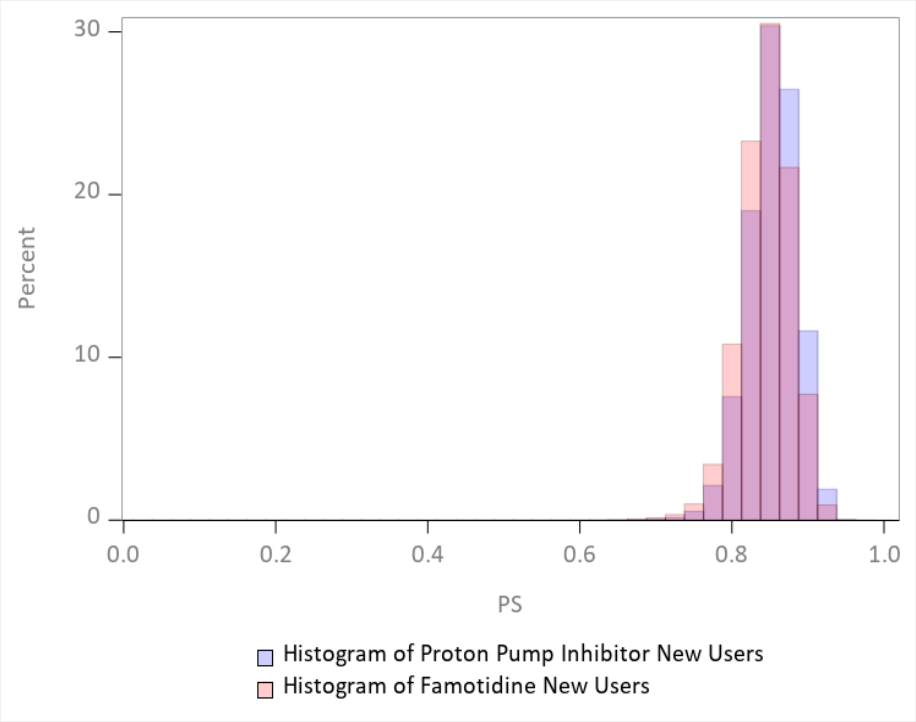


Figure 2a. Histograms Depicting Propensity Score Distributions Before and After Adjustment for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024

Unweighted Propensity Score Distribution Before Trimming



Unweighted Propensity Score Distribution After Trimming

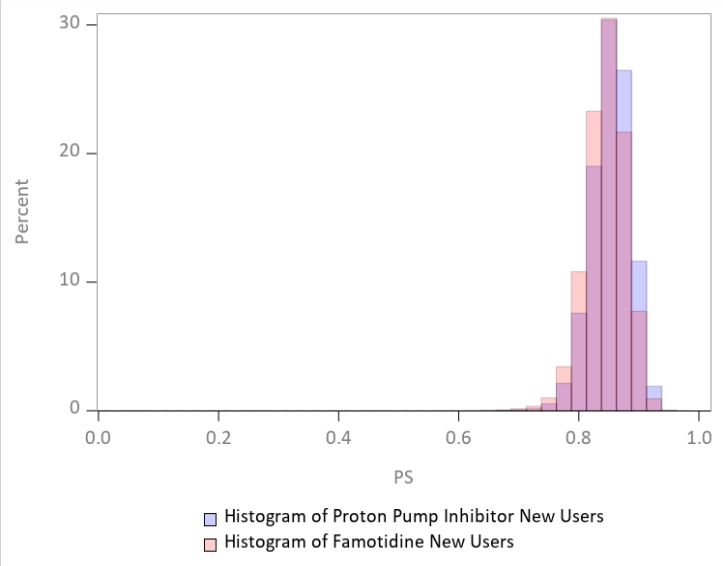


Figure 2a. Histograms Depicting Propensity Score Distributions Before and After Adjustment for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024

Weighted Propensity Score Distribution After Trimming, Inverse Probability of Treatment Weighted, Average Treatment Effect in the Treated (ATT)

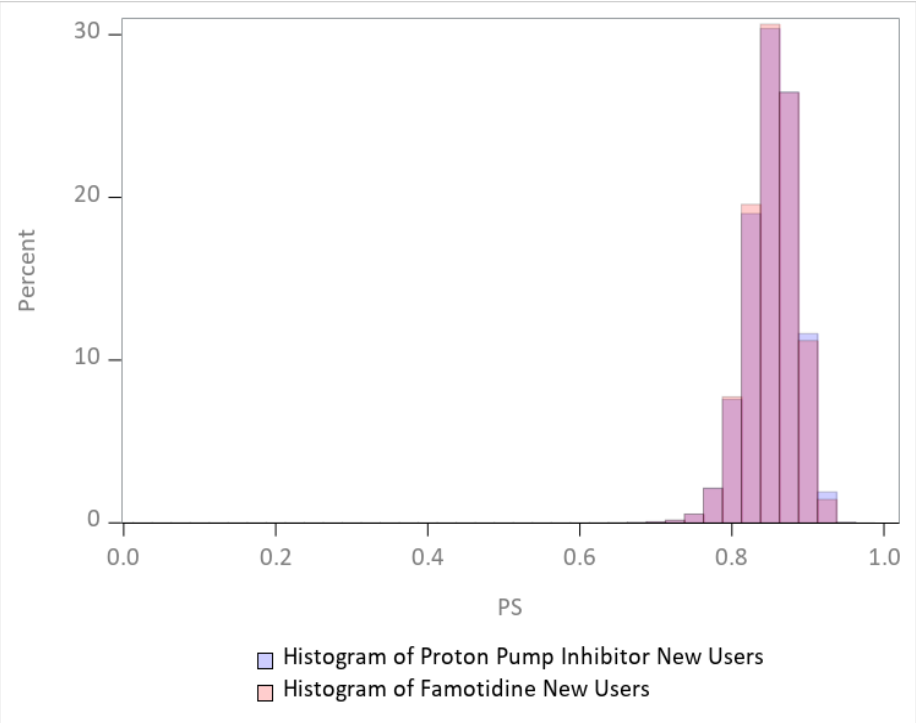
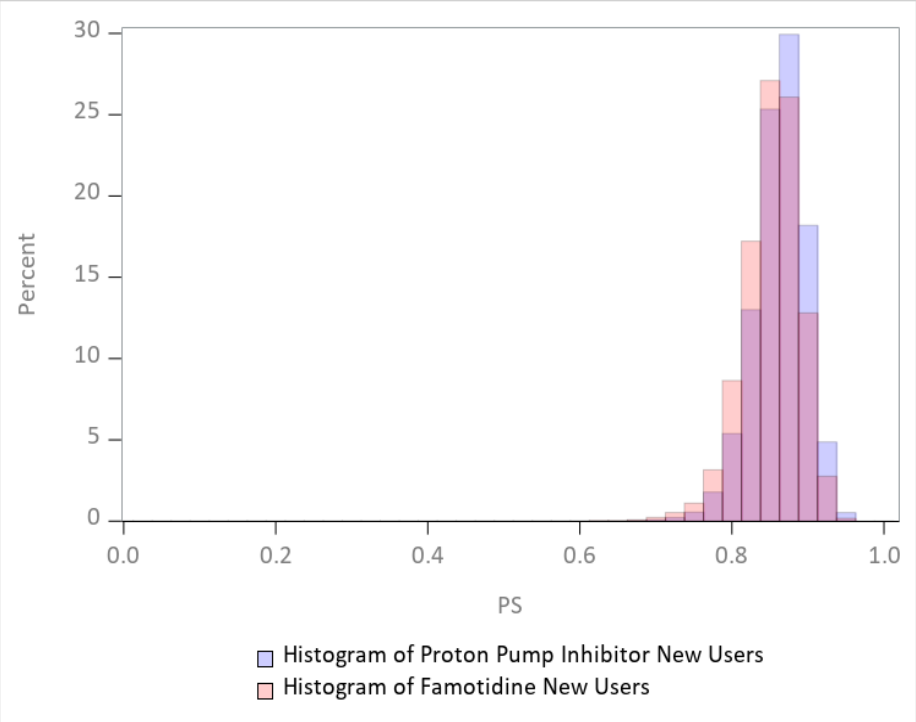


Figure 2b. Histograms Depicting Propensity Score Distributions Before and After Adjustment for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years

Unweighted Propensity Score Distribution Before Trimming



Unweighted Propensity Score Distribution After Trimming

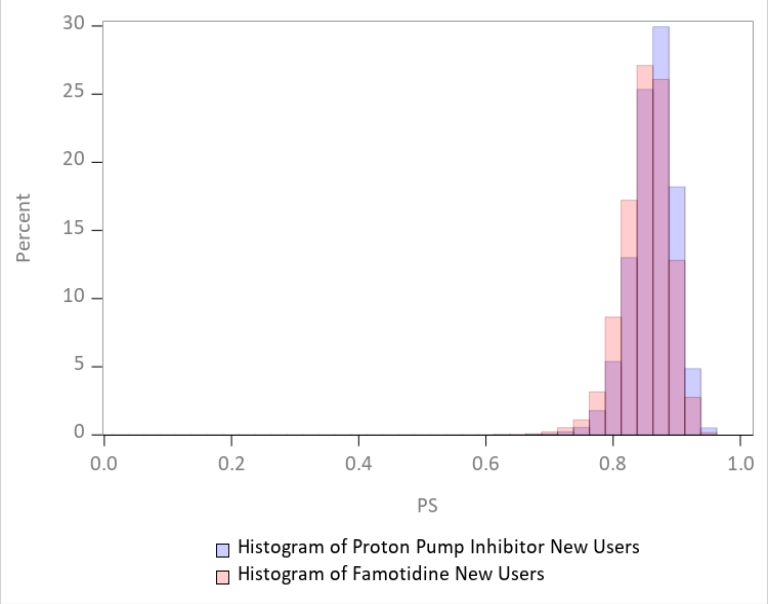


Figure 2b. Histograms Depicting Propensity Score Distributions Before and After Adjustment for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years

Weighted Propensity Score Distribution After Trimming, Inverse Probability of Treatment Weighted, Average Treatment Effect in the Treated (ATT)

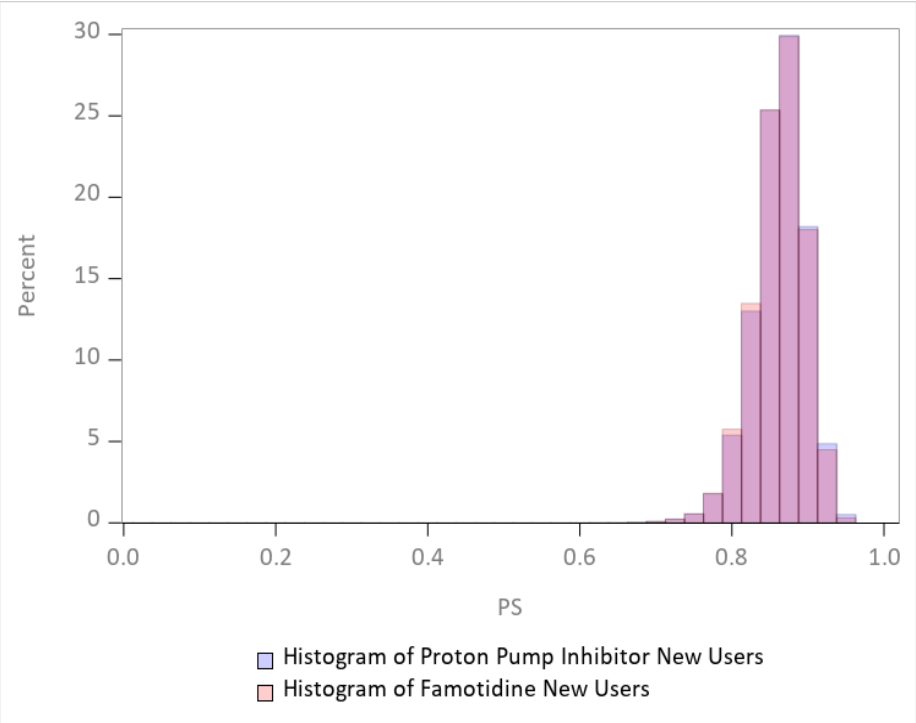
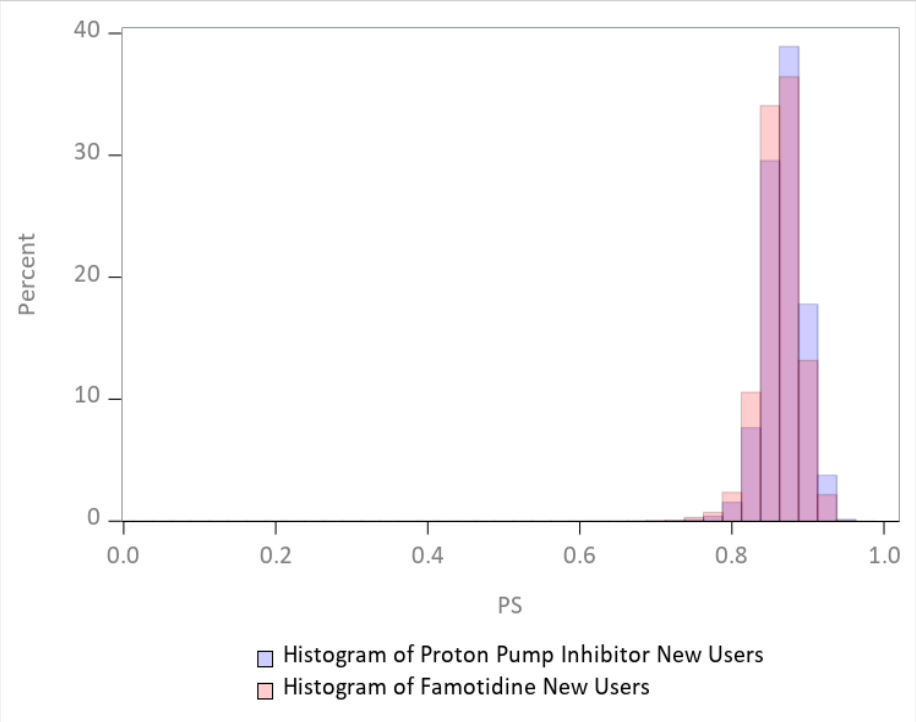


Figure 2c. Histograms Depicting Propensity Score Distributions Before and After Adjustment for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 50-64 years

Unweighted Propensity Score Distribution Before Trimming



Unweighted Propensity Score Distribution After Trimming

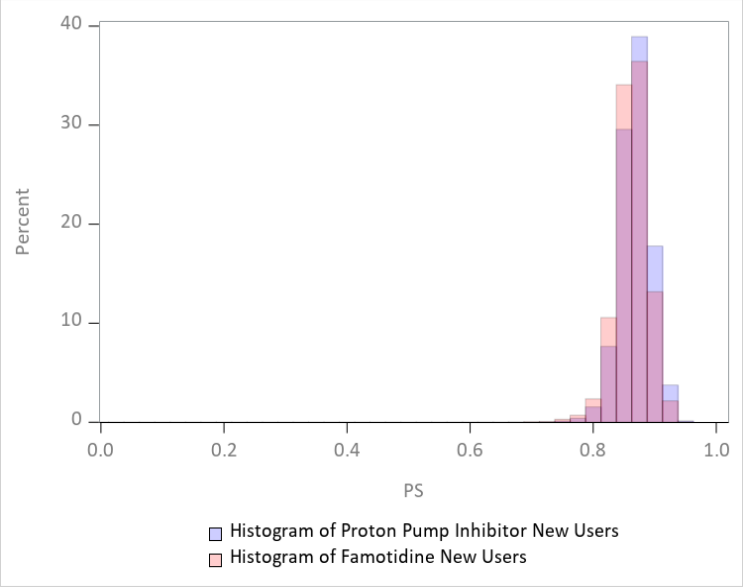


Figure 2c. Histograms Depicting Propensity Score Distributions Before and After Adjustment for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 50-64 years

Weighted Propensity Score Distribution After Trimming, Inverse Probability of Treatment Weighted, Average Treatment Effect in the Treated (ATT)

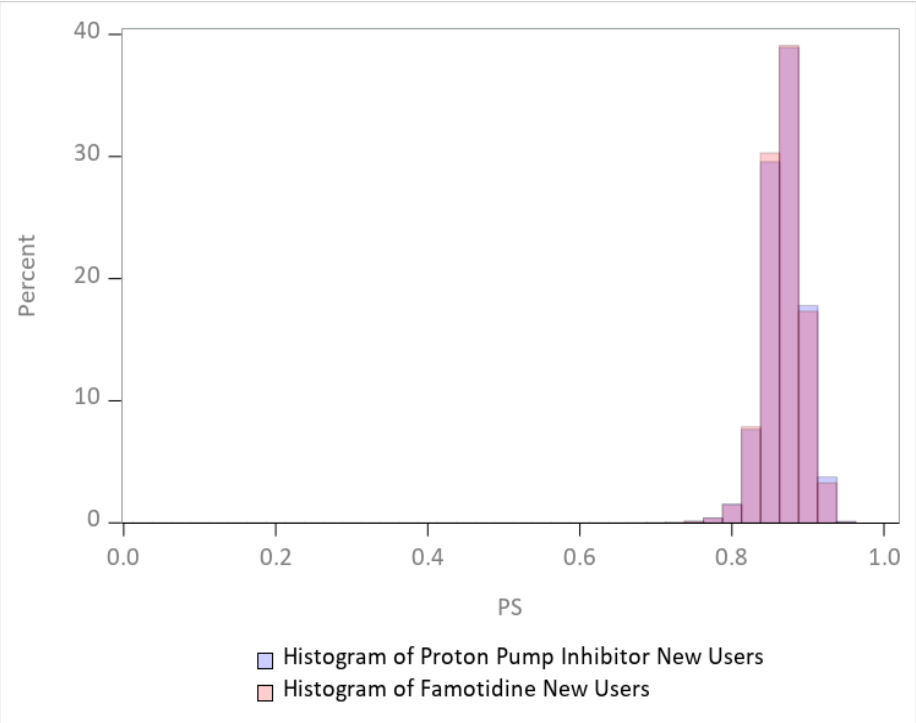
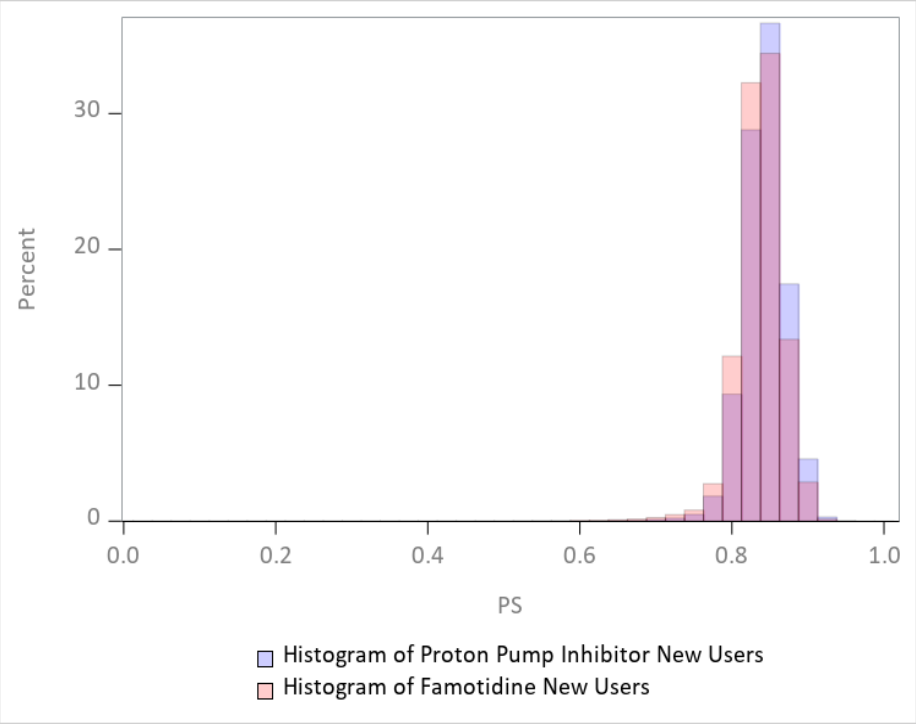


Figure 2d. Histograms Depicting Propensity Score Distributions Before and After Adjustment for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years

Unweighted Propensity Score Distribution Before Trimming



Unweighted Propensity Score Distribution After Trimming

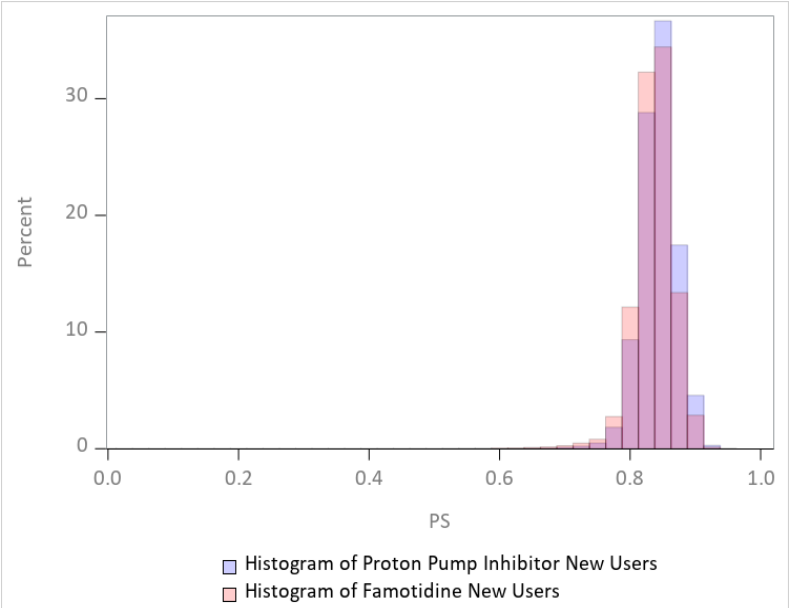


Figure 2d. Histograms Depicting Propensity Score Distributions Before and After Adjustment for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years

Weighted Propensity Score Distribution After Trimming, Inverse Probability of Treatment Weighted, Average Treatment Effect in the Treated (ATT)

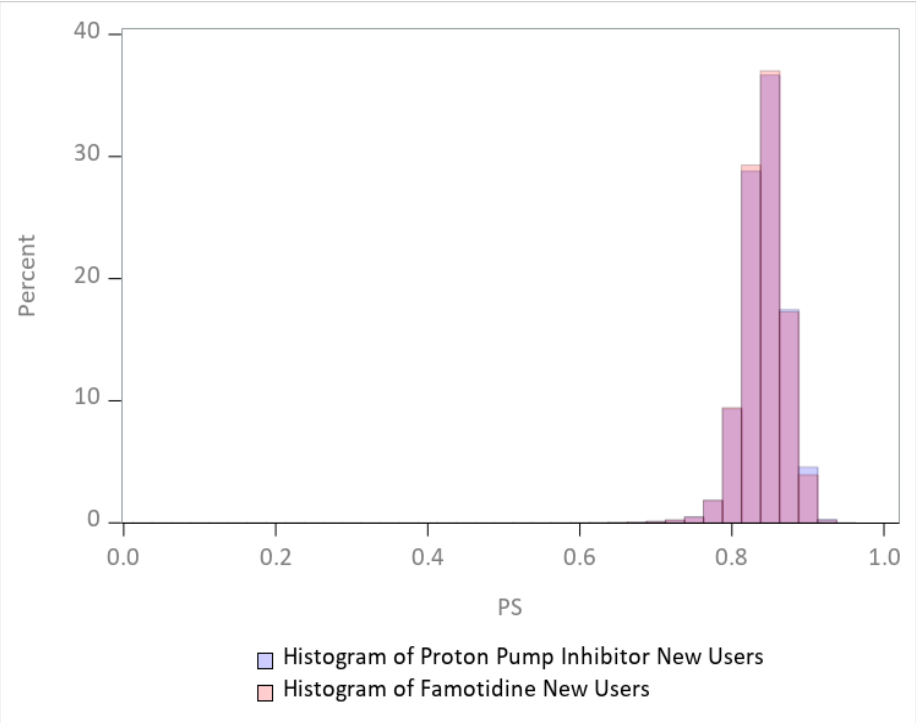
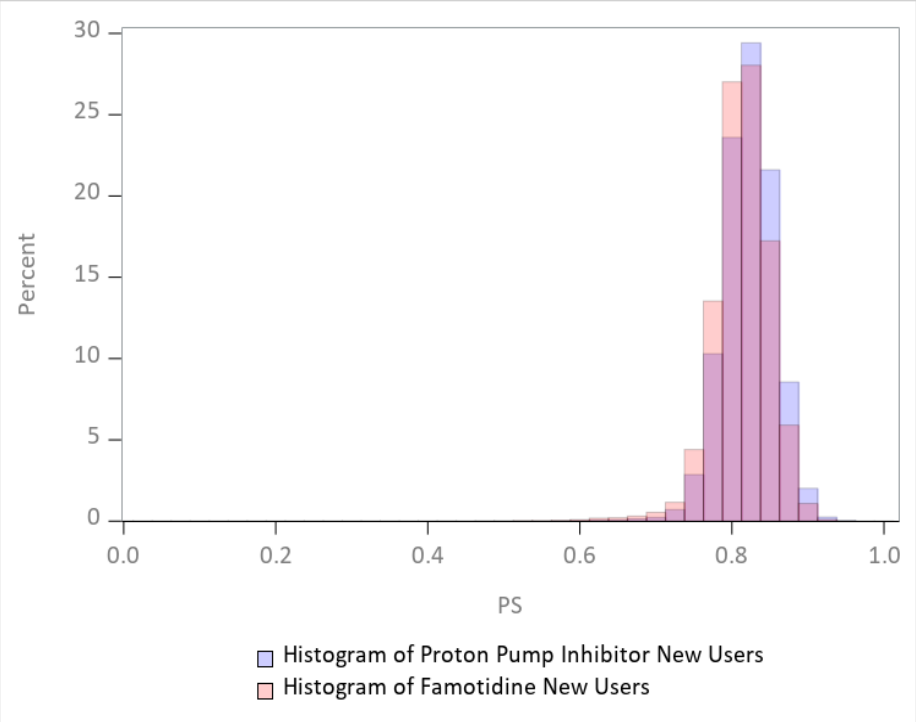


Figure 2e. Histograms Depicting Propensity Score Distributions Before and After Adjustment for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: ≥ 75 years

Unweighted Propensity Score Distribution Before Trimming



Unweighted Propensity Score Distribution After Trimming

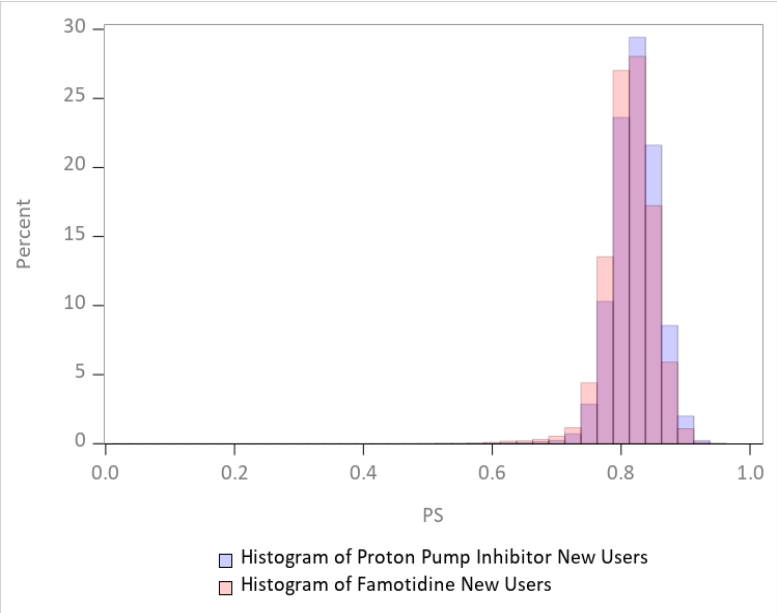


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Weighted Propensity Score Distribution After Trimming, Inverse Probability of Treatment Weighted, Average Treatment Effect in the Treated (ATT)

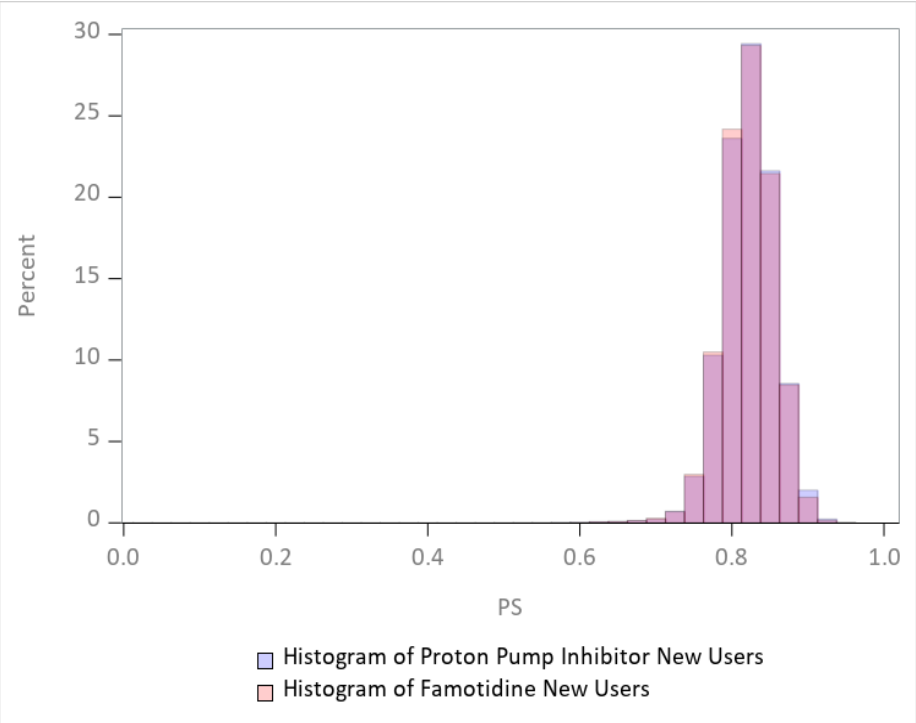
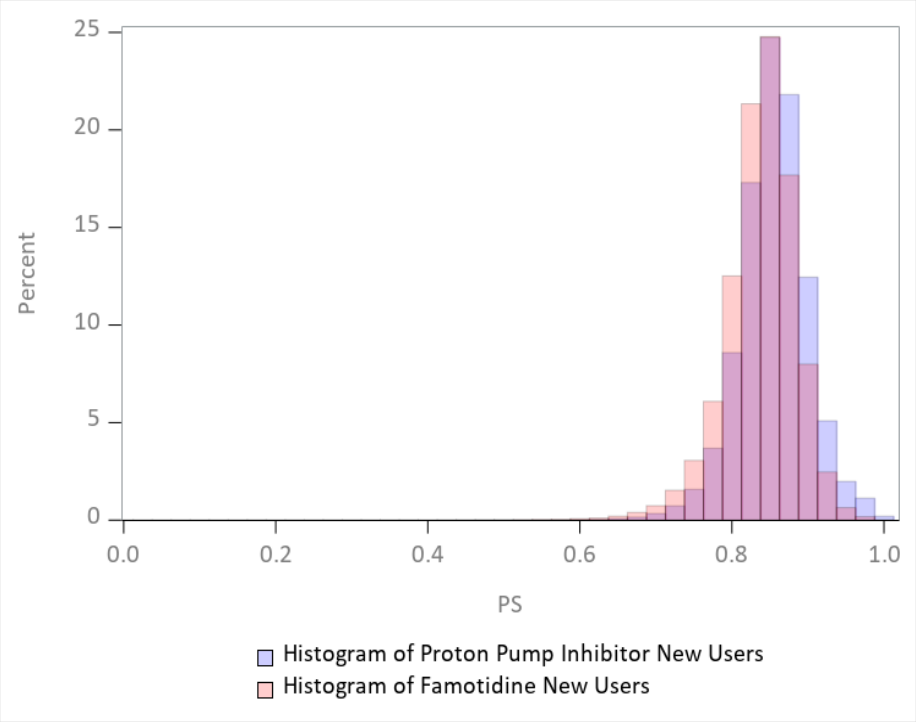


Figure 3a. Histograms Depicting Propensity Score Distributions Before and After Adjustment for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment using hdPS, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024

Unweighted Propensity Score Distribution Before Trimming



Unweighted Propensity Score Distribution After Trimming

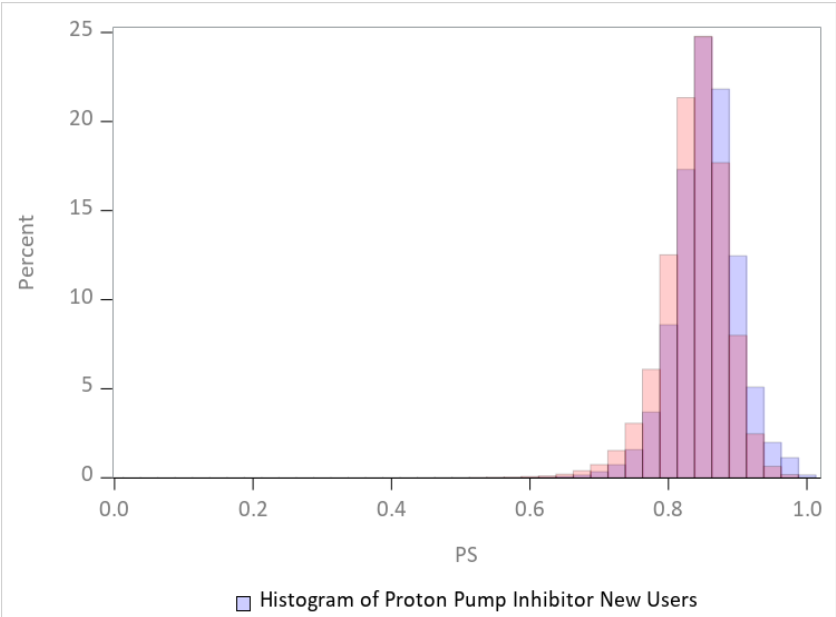


Figure 3a. Histograms Depicting Propensity Score Distributions Before and After Adjustment for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment using hdPS, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024

Histogram of Famotidine New Users

Weighted Propensity Score Distribution After Trimming, Inverse Probability of Treatment Weighted, Average Treatment Effect in the Treated (ATT)

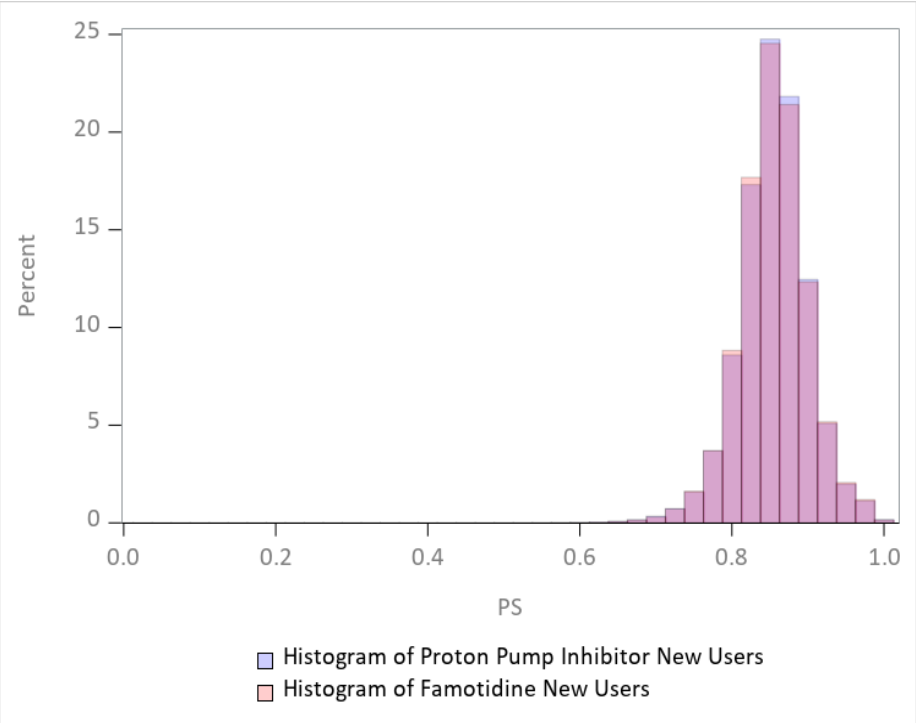
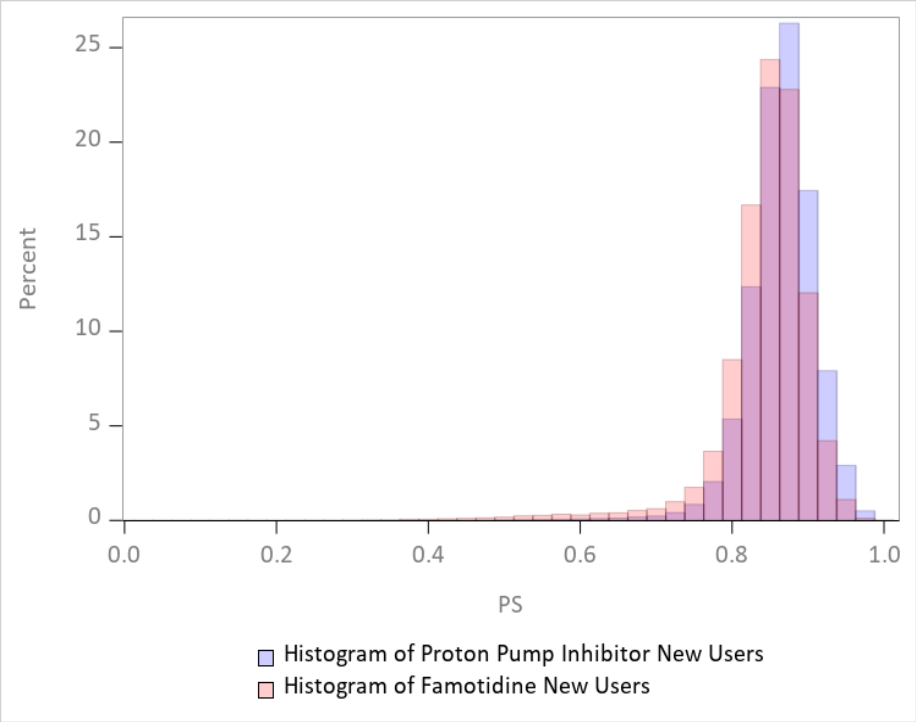


Figure 3b. Histograms Depicting Propensity Score Distributions Before and After Adjustment for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment using hdPS, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years

Unweighted Propensity Score Distribution Before Trimming



Unweighted Propensity Score Distribution After Trimming

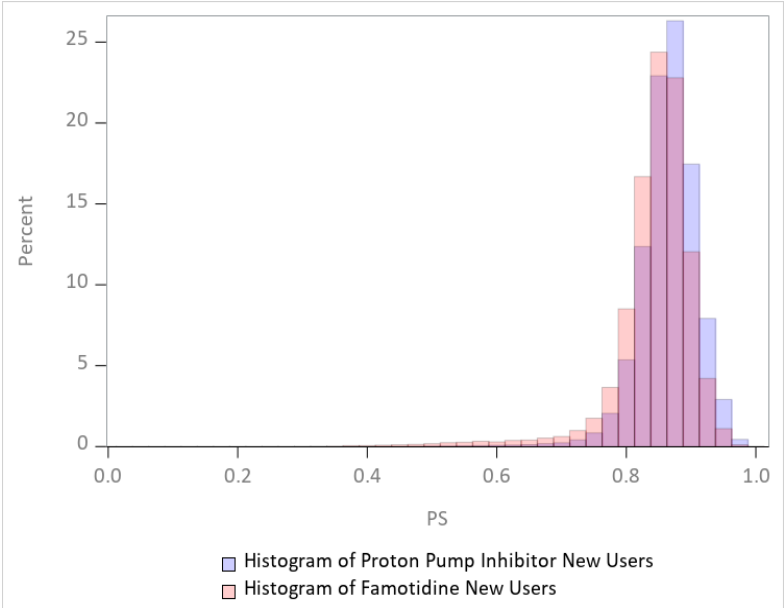


Figure 3b. Histograms Depicting Propensity Score Distributions Before and After Adjustment for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment using hdPS, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years

Weighted Propensity Score Distribution After Trimming, Inverse Probability of Treatment Weighted, Average Treatment Effect in the Treated (ATT)

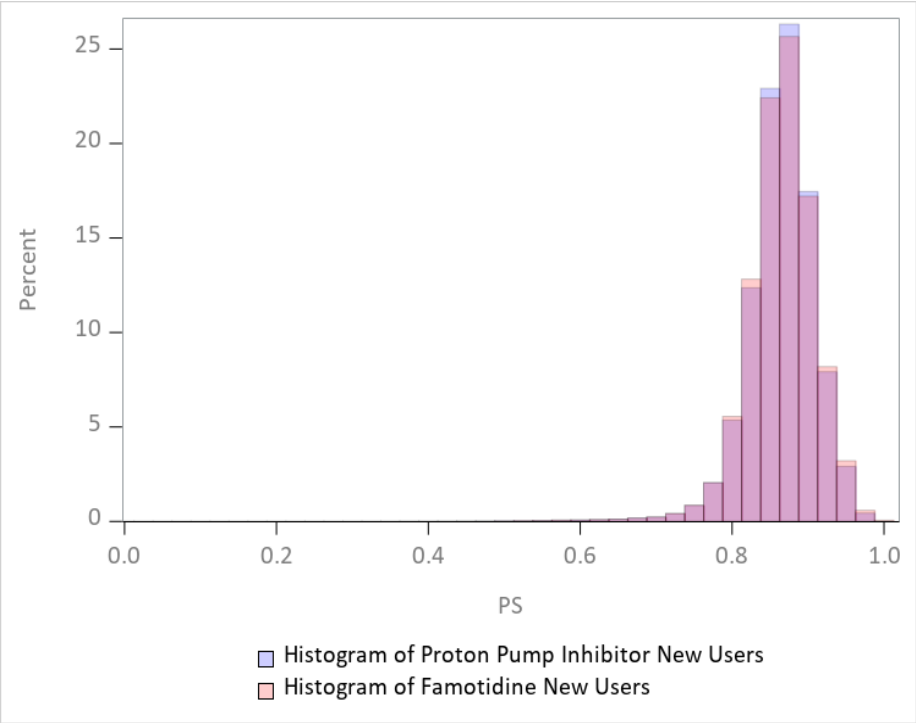
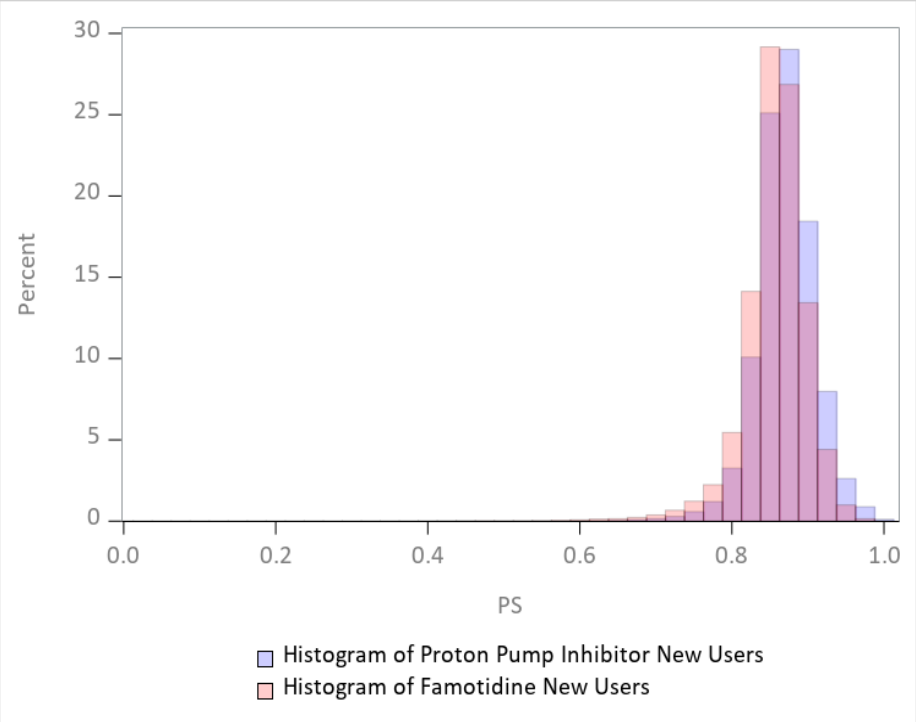


Figure 3c. Histograms Depicting Propensity Score Distributions Before and After Adjustment for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment using hdPS, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 50-64 years

Unweighted Propensity Score Distribution Before Trimming



Unweighted Propensity Score Distribution After Trimming

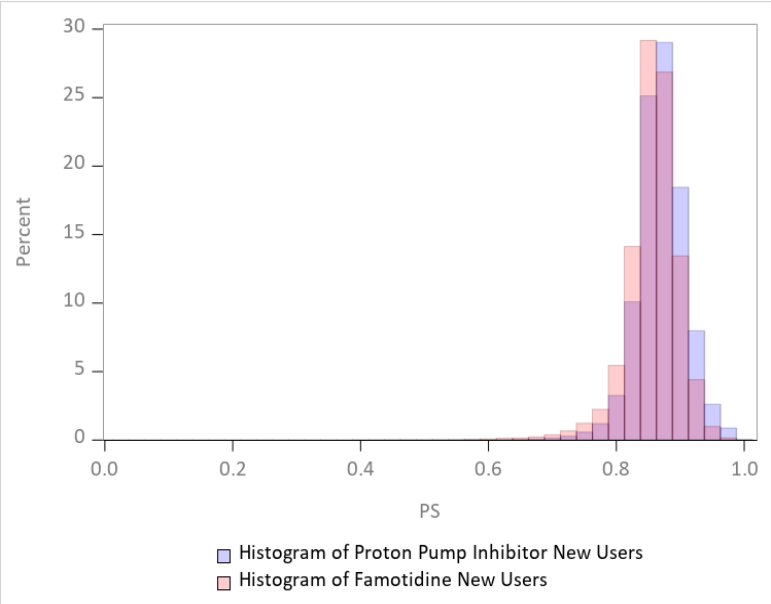


Figure 3c. Histograms Depicting Propensity Score Distributions Before and After Adjustment for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment using hdPS, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 50-64 years

Weighted Propensity Score Distribution After Trimming, Inverse Probability of Treatment Weighted, Average Treatment Effect in the Treated (ATT)

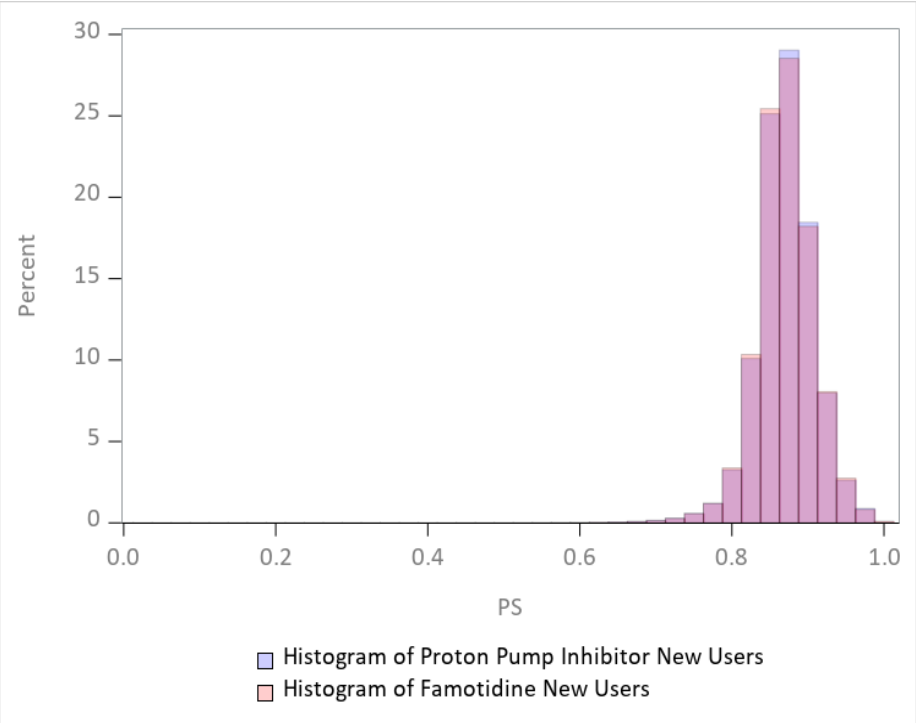
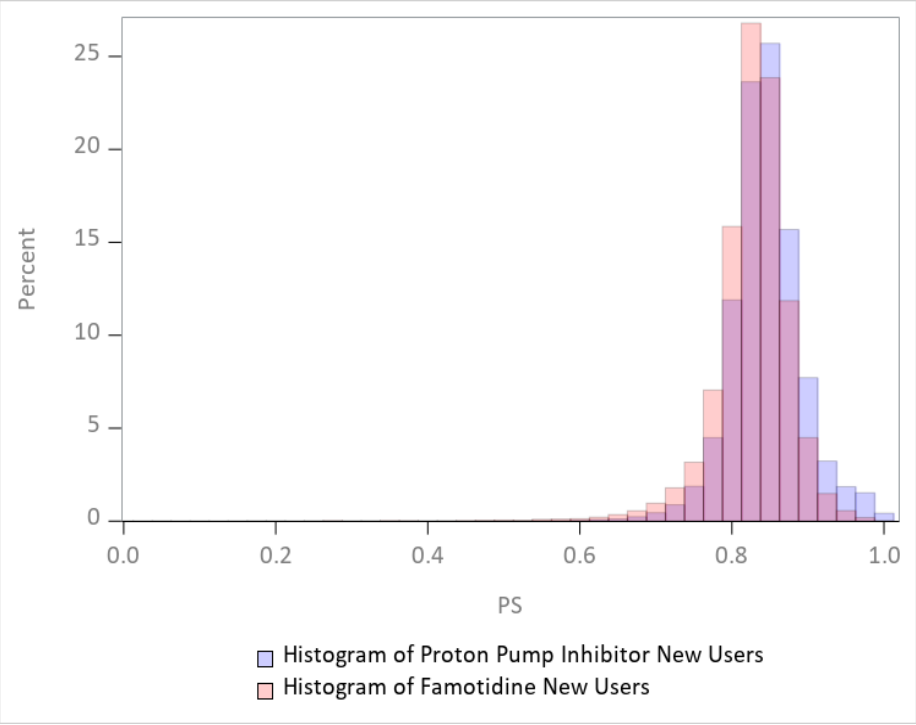


Figure 3d. Histograms Depicting Propensity Score Distributions Before and After Adjustment for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment using hdPS, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years

Unweighted Propensity Score Distribution Before Trimming



Unweighted Propensity Score Distribution After Trimming

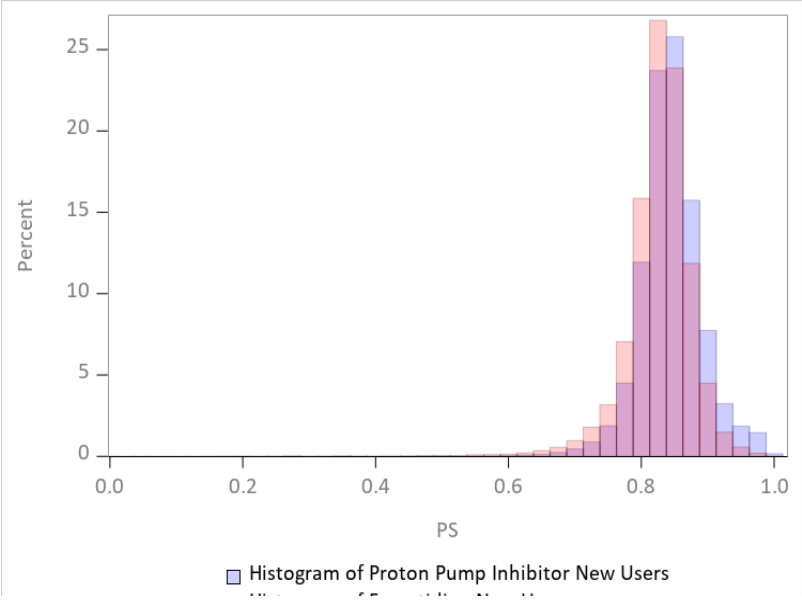


Figure 3d. Histograms Depicting Propensity Score Distributions Before and After Adjustment for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment using hdPS, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years

Histogram of Famotidine New Users

Weighted Propensity Score Distribution After Trimming, Inverse Probability of Treatment Weighted, Average Treatment Effect in the Treated (ATT)

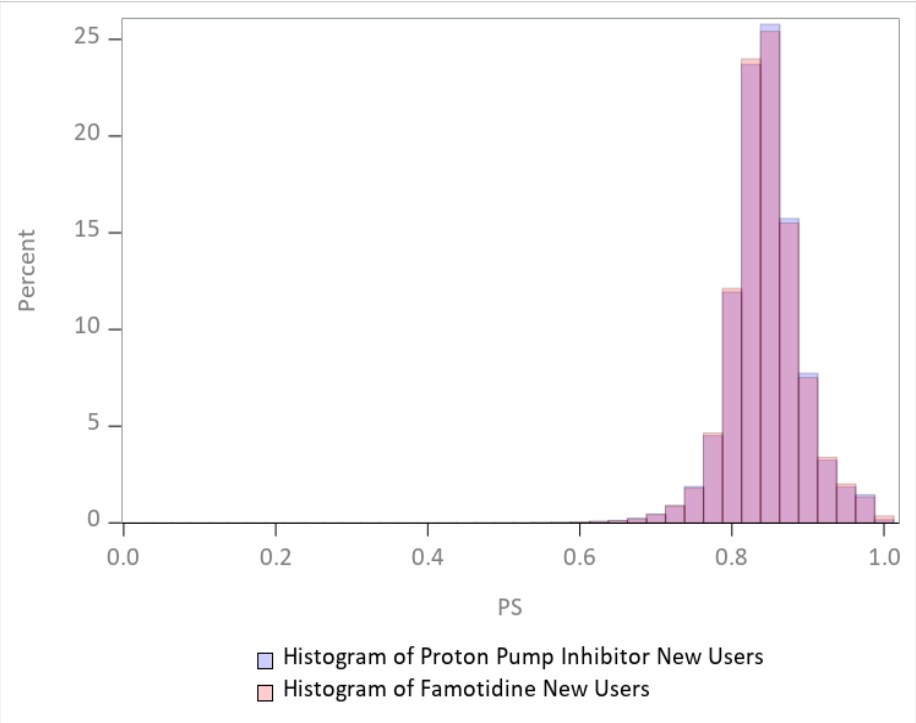
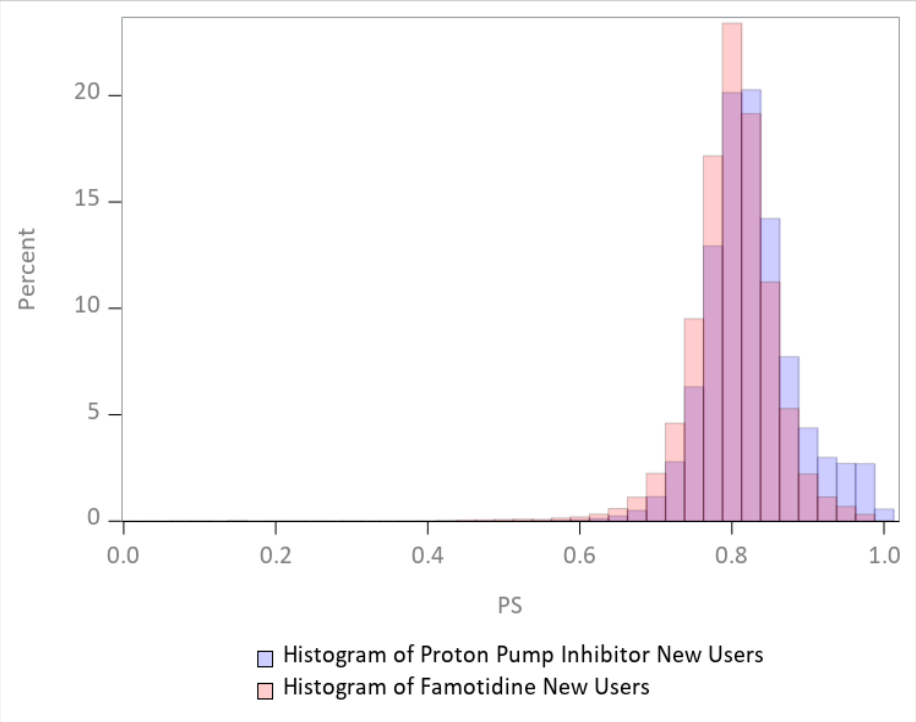


Figure 3e. Histograms Depicting Propensity Score Distributions Before and After Adjustment for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment using hdPS, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: ≥ 75 years

Unweighted Propensity Score Distribution Before Trimming



Unweighted Propensity Score Distribution After Trimming

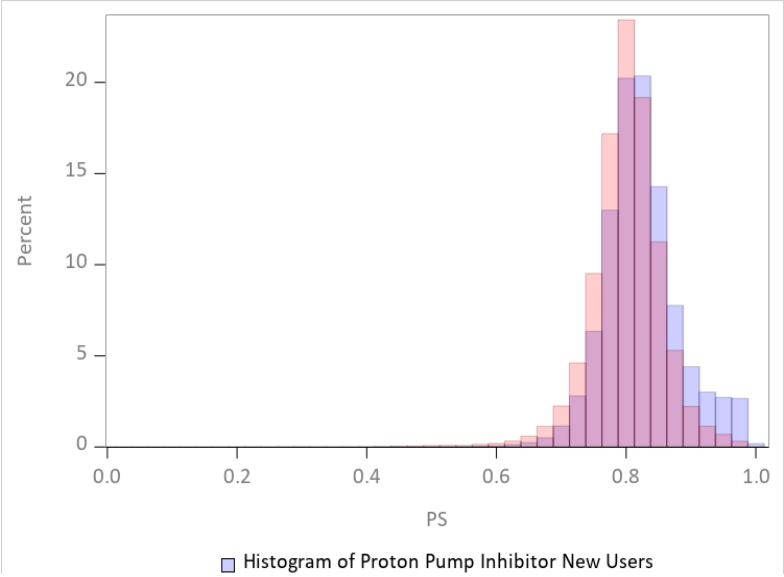


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Histogram of Famotidine New Users

Weighted Propensity Score Distribution After Trimming, Inverse Probability of Treatment Weighted, Average Treatment Effect in the Treated (ATT)

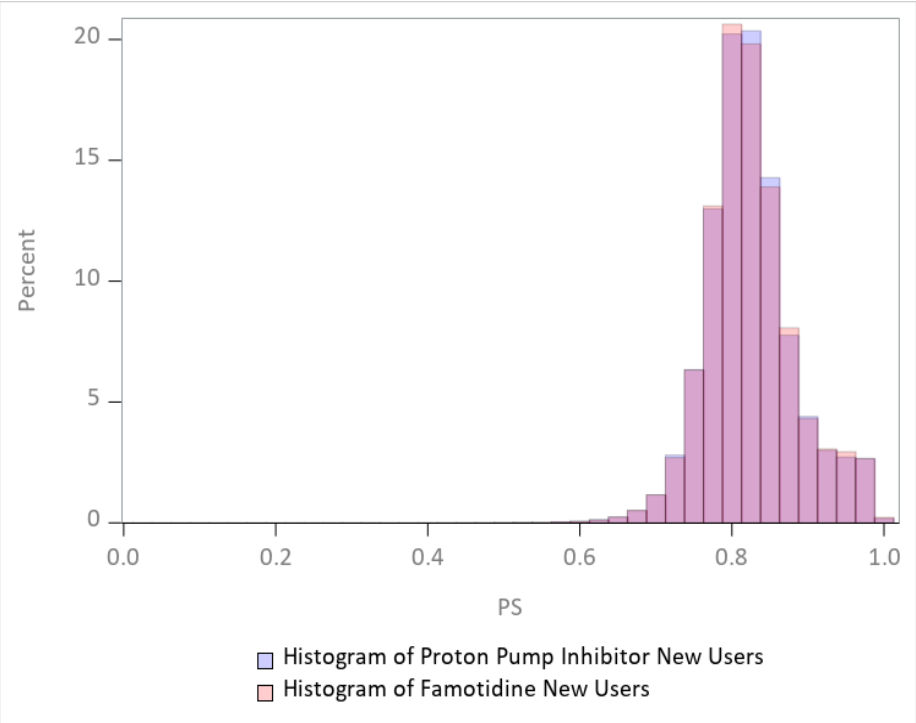
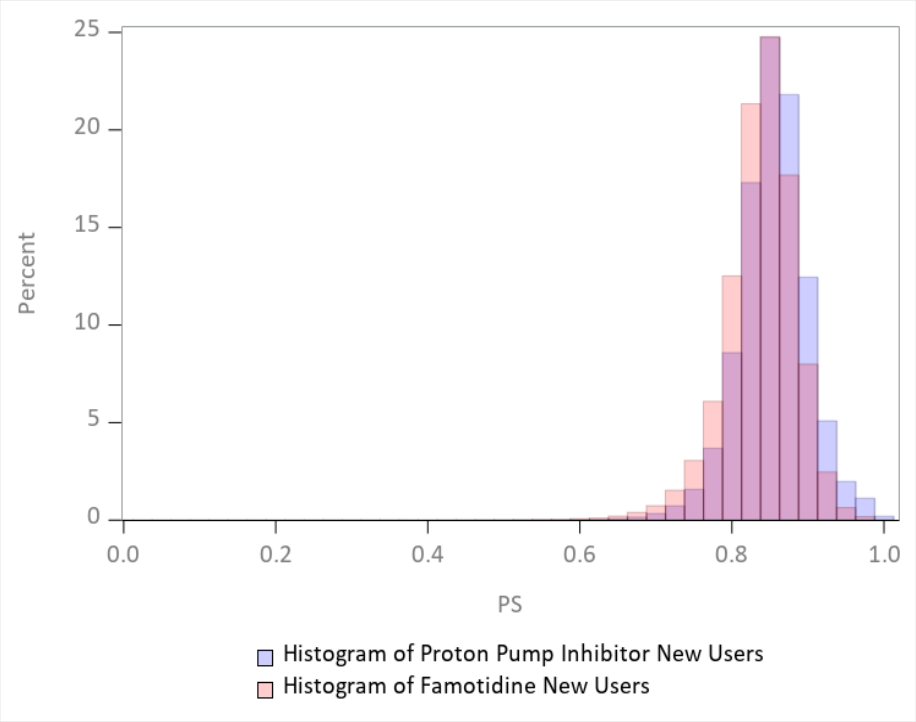


Figure 4a. Histograms Depicting Propensity Score Distributions Before and After Adjustment for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment using hdPS, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024

Unweighted Propensity Score Distribution Before Trimming



Unweighted Propensity Score Distribution After Trimming

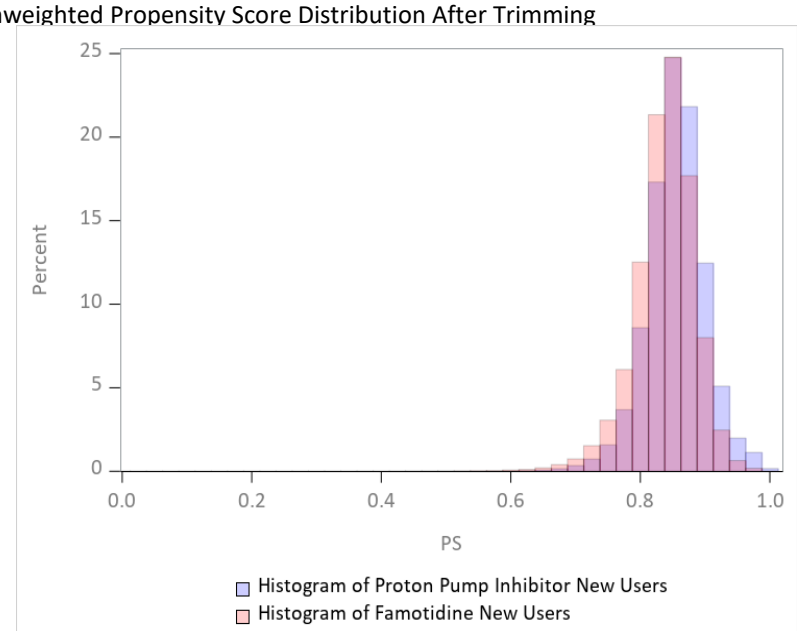


Figure 4a. Histograms Depicting Propensity Score Distributions Before and After Adjustment for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment using hdPS, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024

Weighted Propensity Score Distribution After Trimming, Inverse Probability of Treatment Weighted, Average Treatment Effect in the Treated
(ATT)

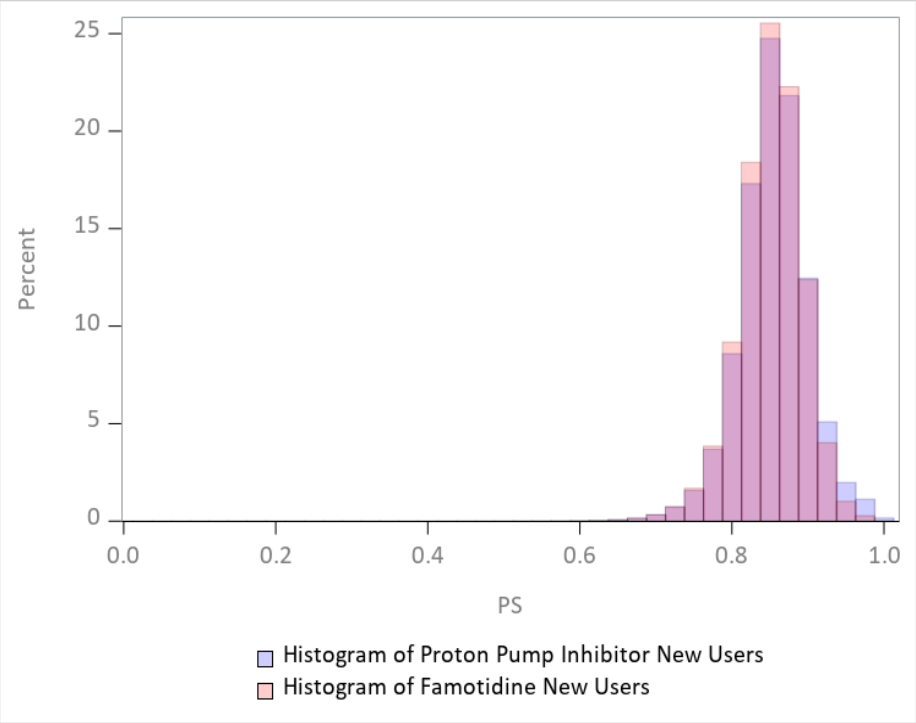
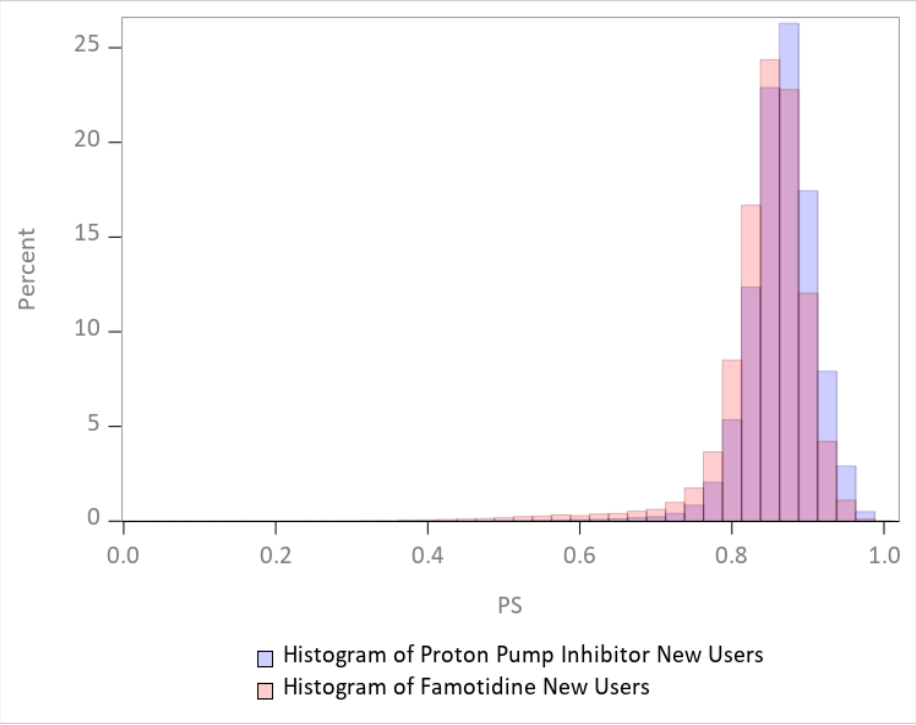


Figure 4b. Histograms Depicting Propensity Score Distributions Before and After Adjustment for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment using hdPS, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years

Unweighted Propensity Score Distribution Before Trimming



Unweighted Propensity Score Distribution After Trimming

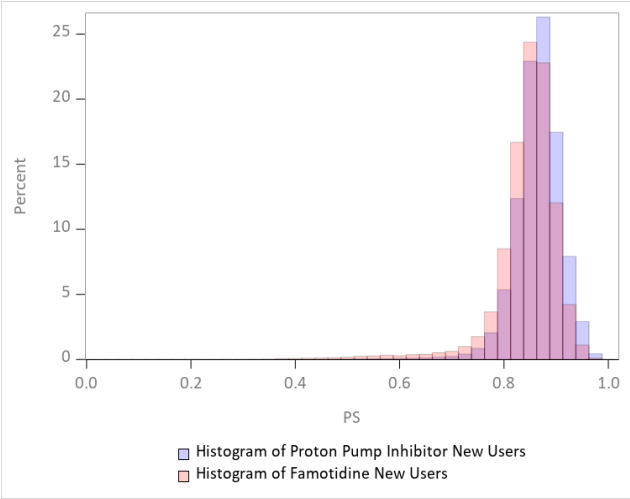


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Weighted Propensity Score Distribution After Trimming, Inverse Probability of Treatment Weighted, Average Treatment Effect in the Treated (ATT)

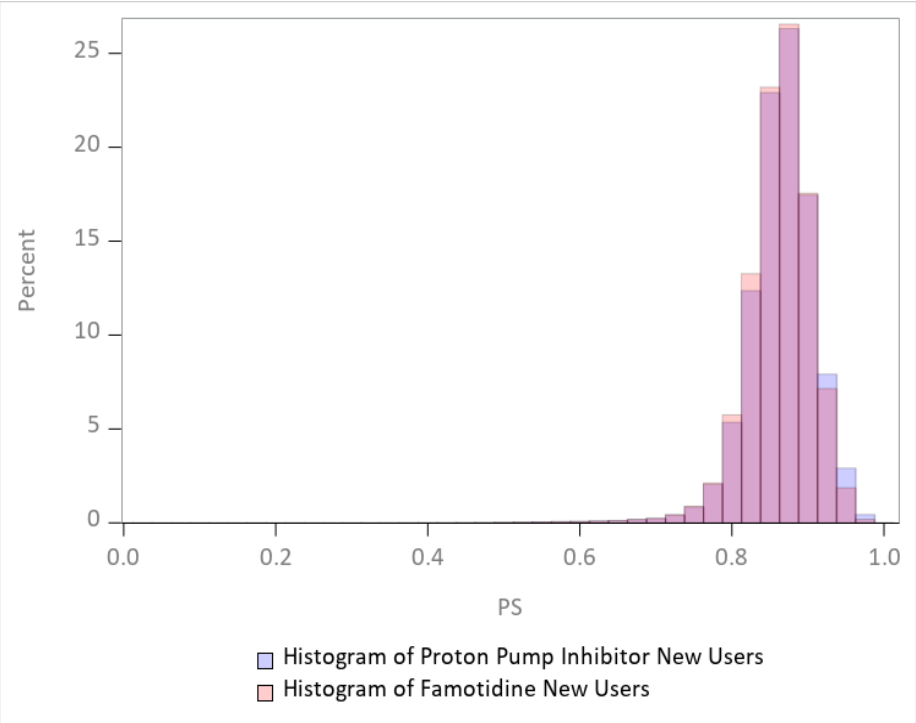
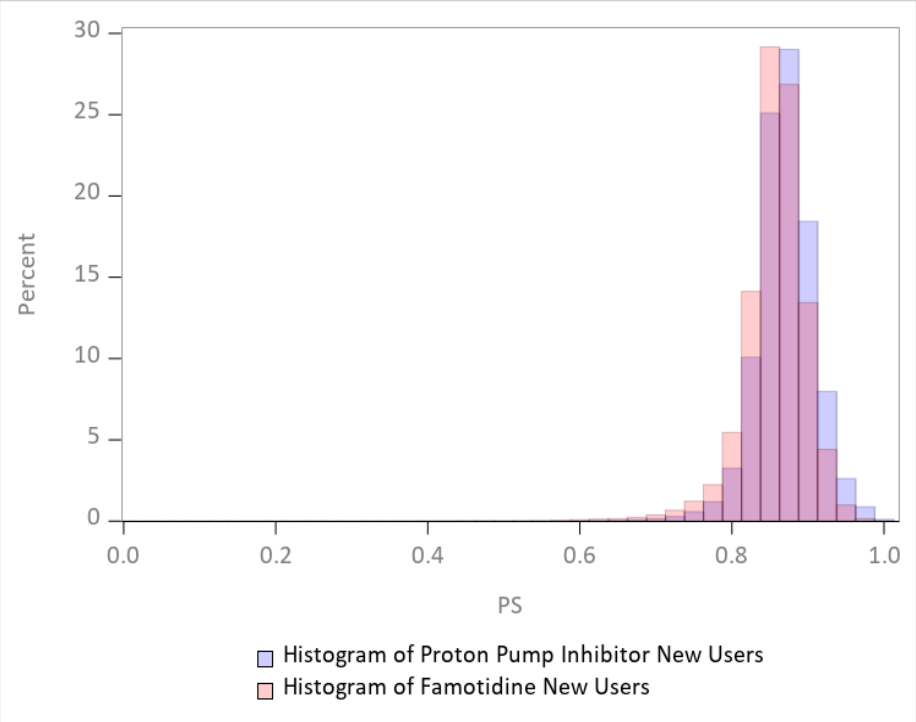


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Unweighted Propensity Score Distribution Before Trimming



Unweighted Propensity Score Distribution After Trimming

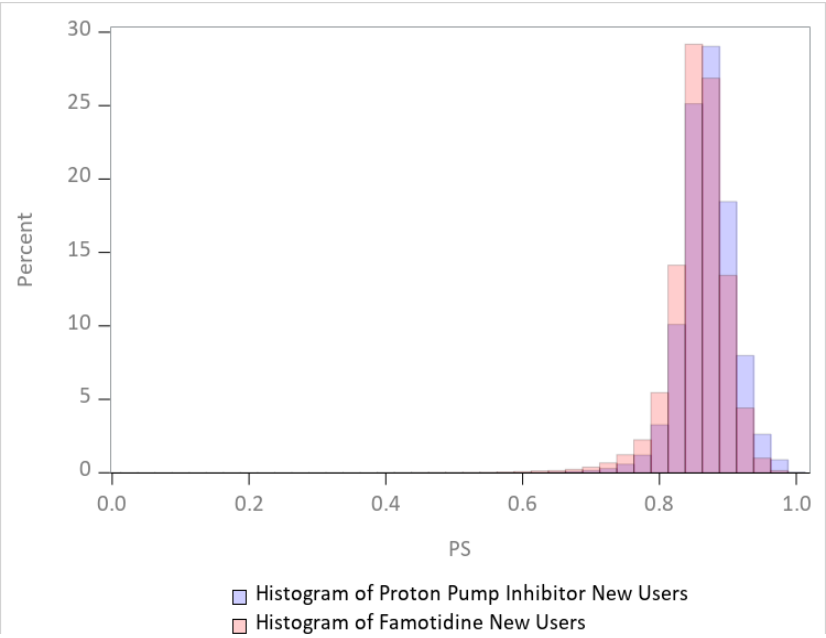


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Weighted Propensity Score Distribution After Trimming, Inverse Probability of Treatment Weighted, Average Treatment Effect in the Treated (ATT)

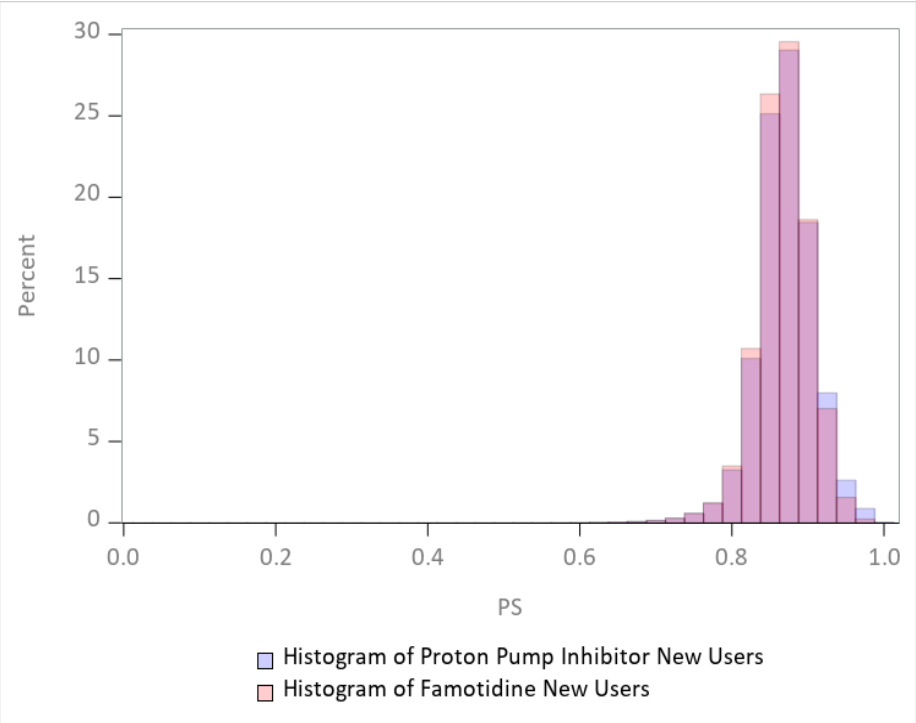
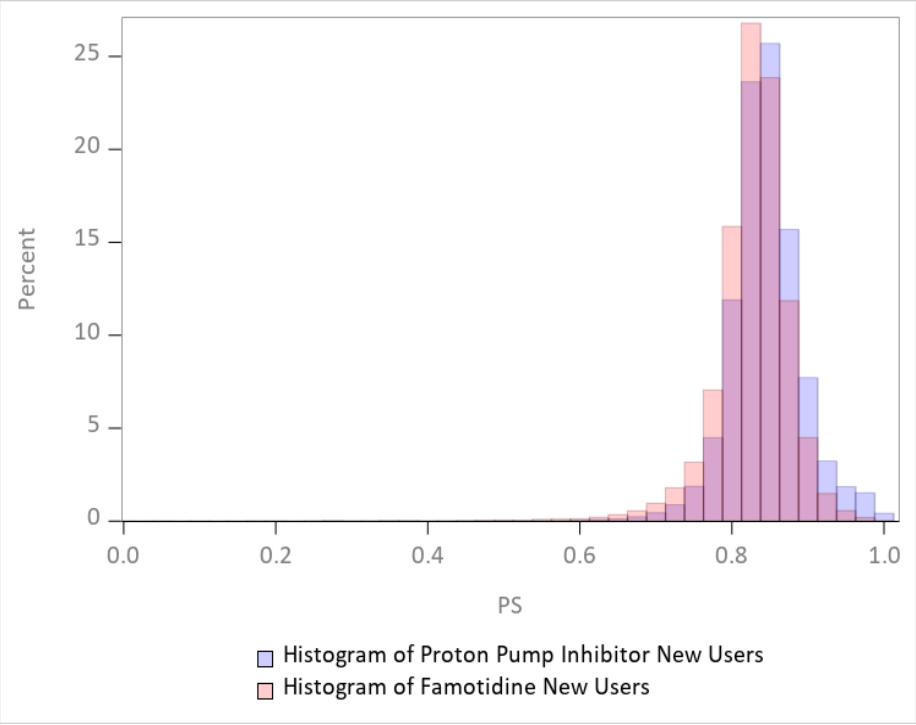


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Unweighted Propensity Score Distribution Before Trimming



Unweighted Propensity Score Distribution After Trimming

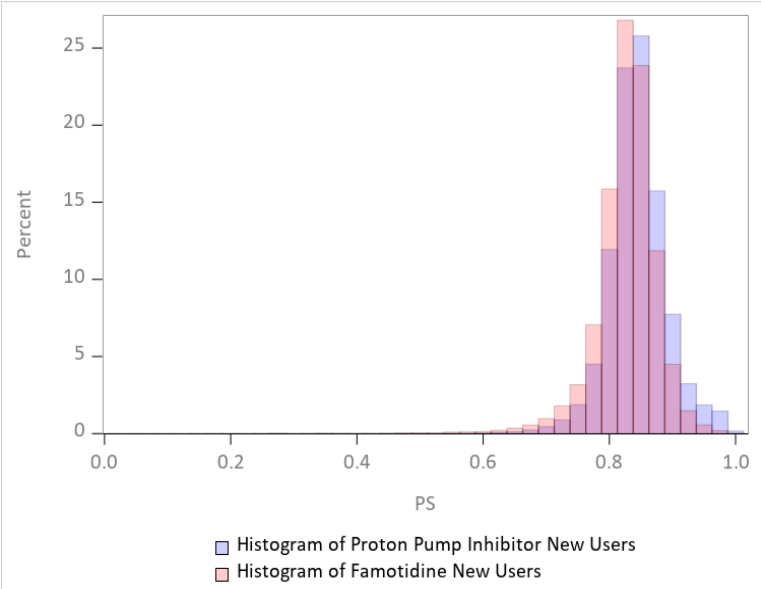


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Weighted Propensity Score Distribution After Trimming, Inverse Probability of Treatment Weighted, Average Treatment Effect in the Treated (ATT)

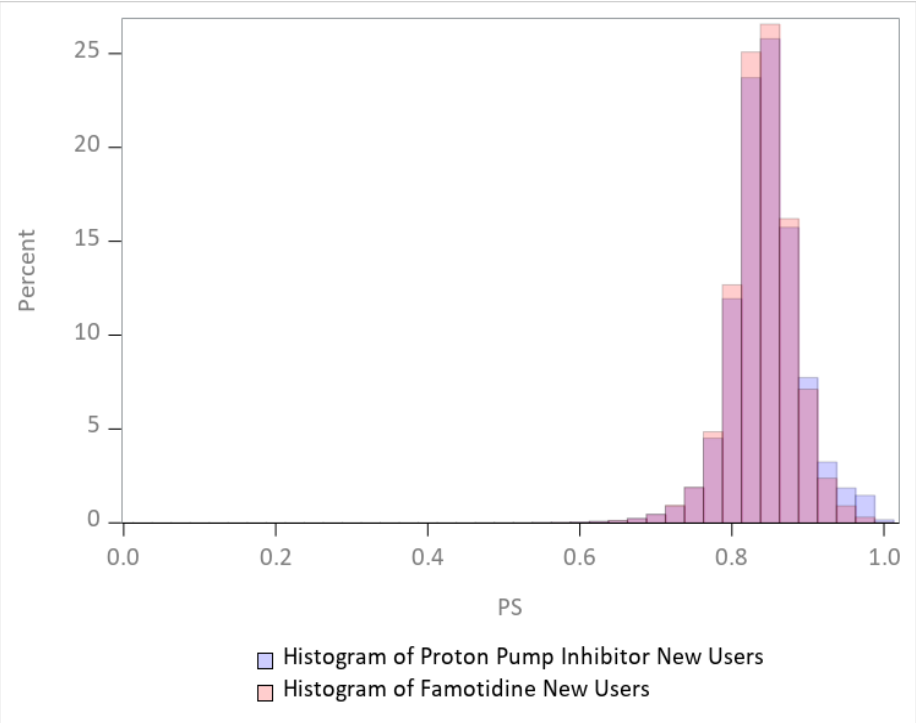
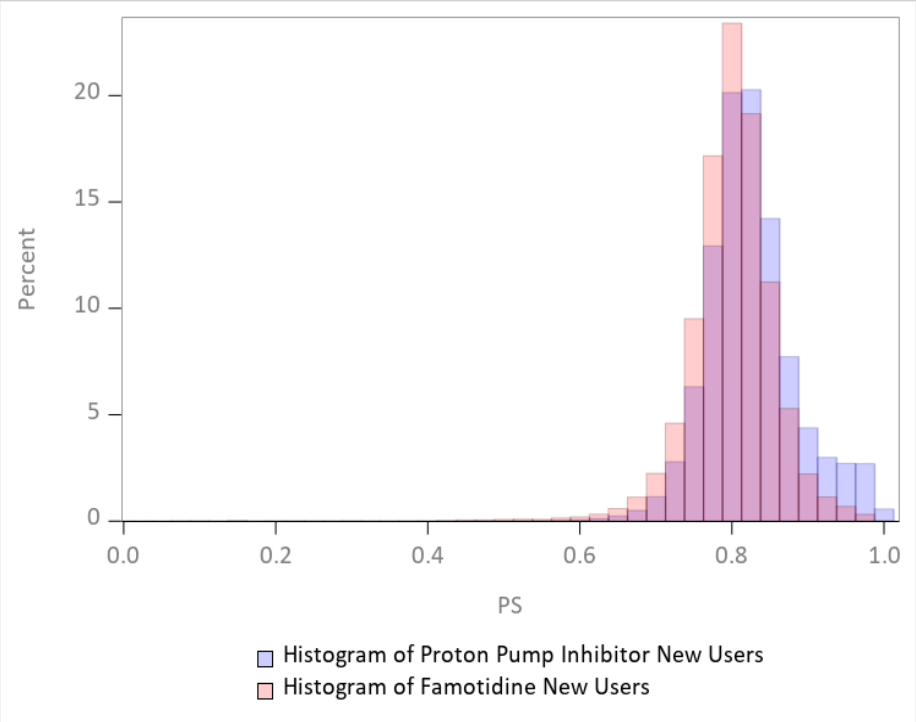


Figure 4e. Histograms Depicting Propensity Score Distributions Before and After Adjustment for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment using hdPS, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: ≥ 75 years

Unweighted Propensity Score Distribution Before Trimming



Unweighted Propensity Score Distribution After Trimming

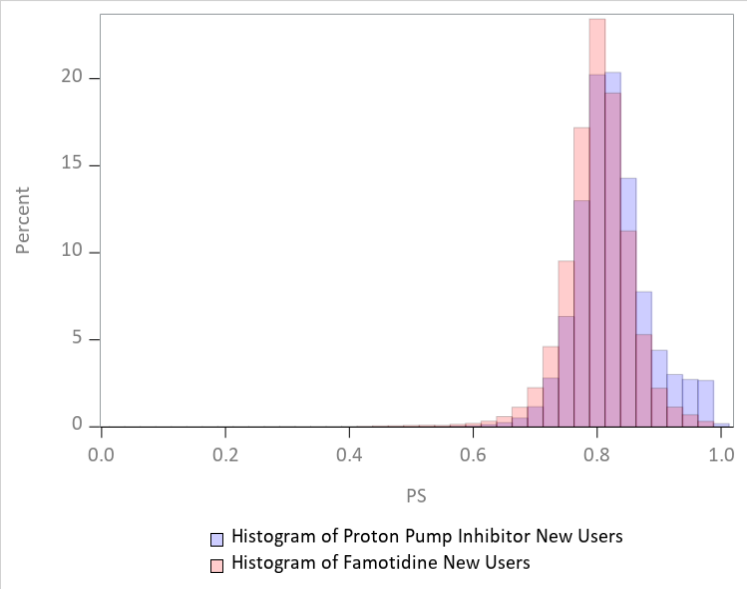


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Weighted Propensity Score Distribution After Trimming, Inverse Probability of Treatment Weighted, Average Treatment Effect in the Treated (ATT)

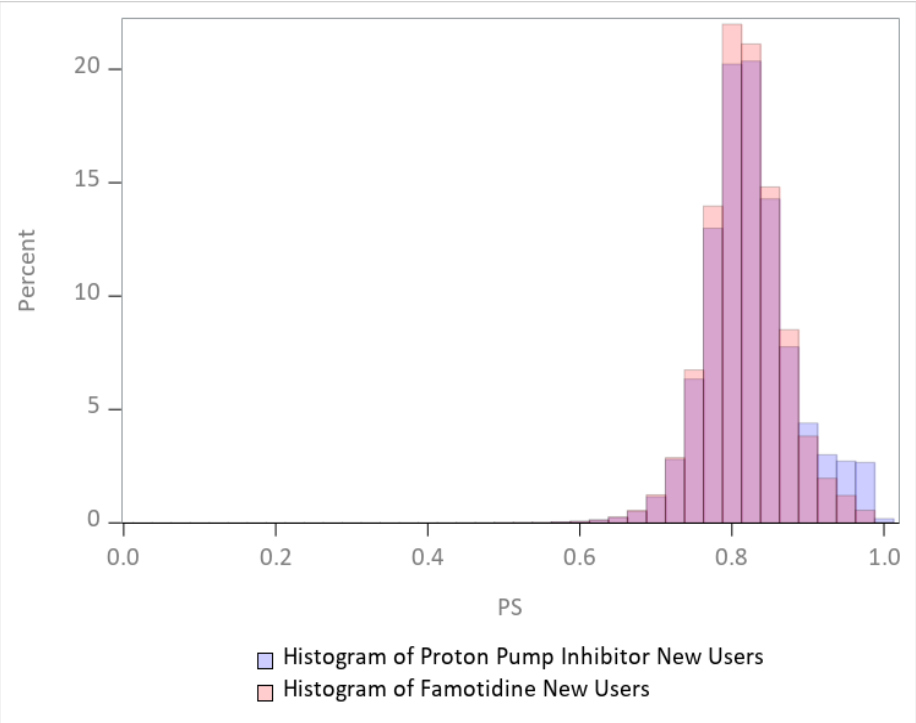
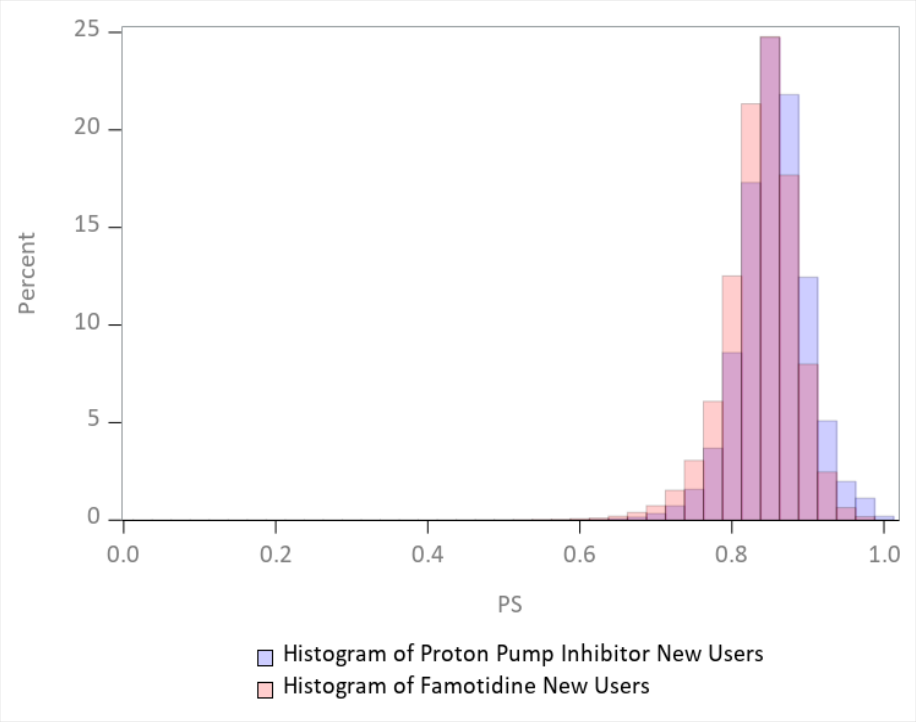


Figure 5a. Histograms Depicting Propensity Score Distributions Before and After Adjustment for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024

Unweighted Propensity Score Distribution Before Trimming



Unweighted Propensity Score Distribution After Trimming

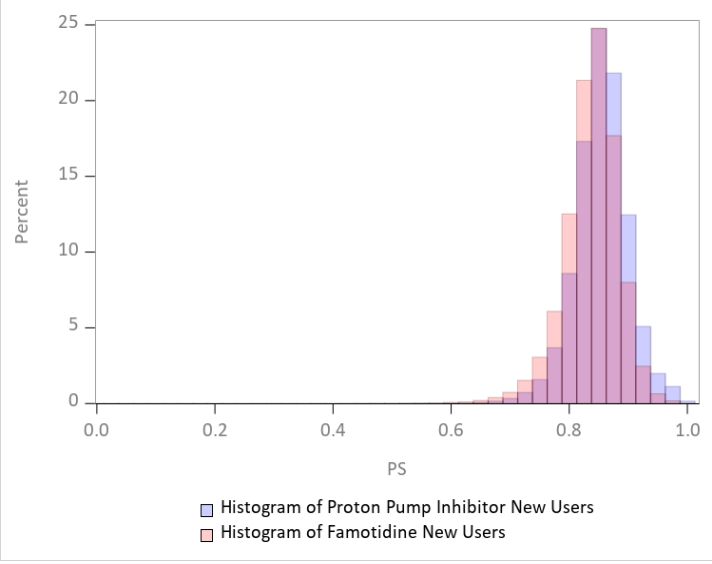


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Weighted Propensity Score Distribution After Trimming, Stratum Weighted, Average Treatment Effect in the Treated (ATT)

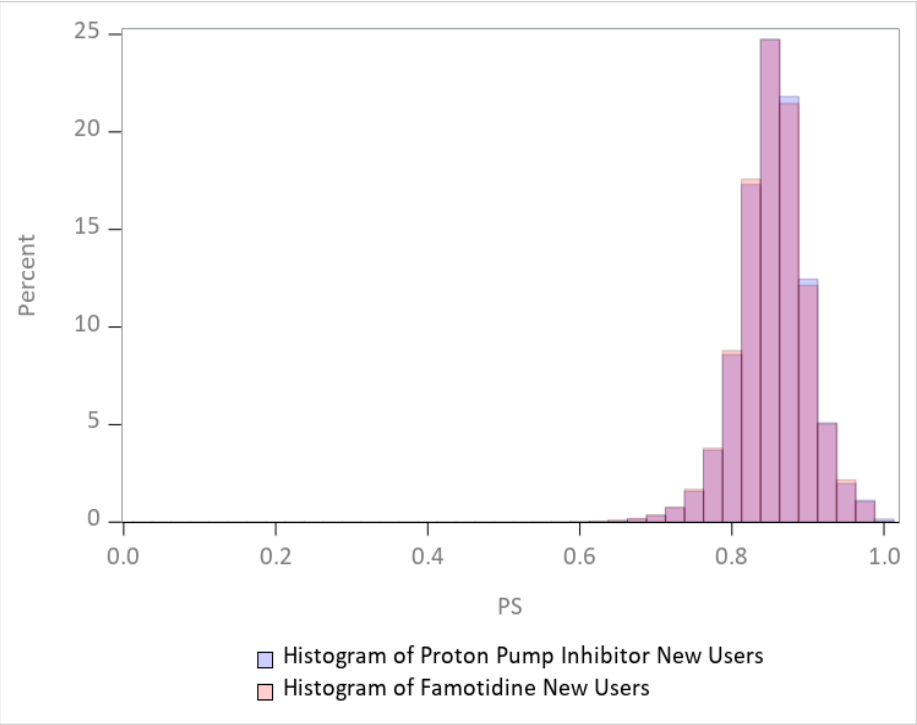
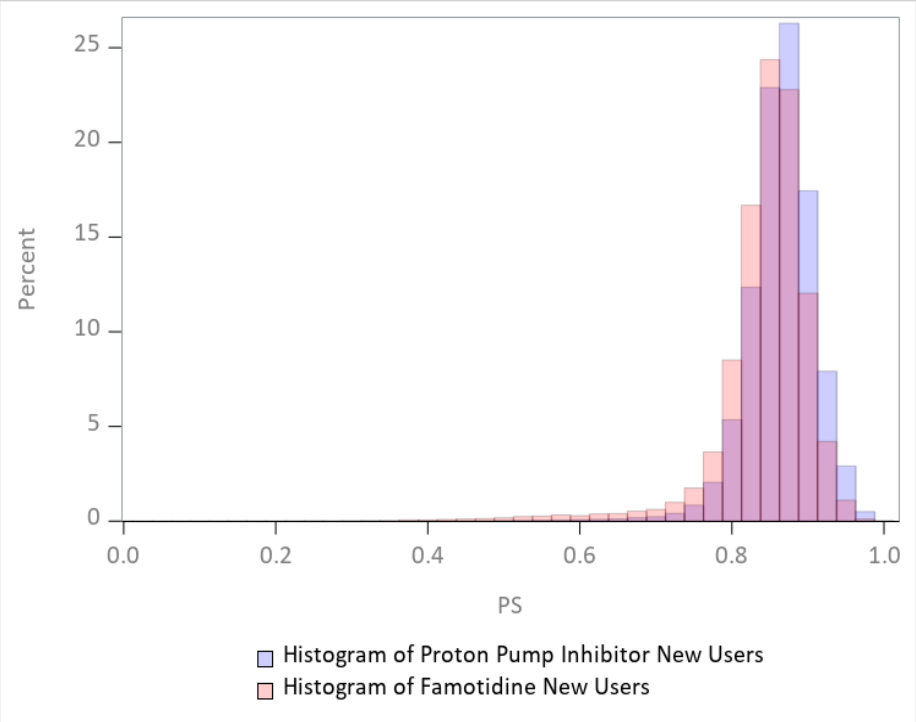


Figure 5b. Histograms Depicting Propensity Score Distributions Before and After Adjustment for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years

Unweighted Propensity Score Distribution Before Trimming



Unweighted Propensity Score Distribution After Trimming

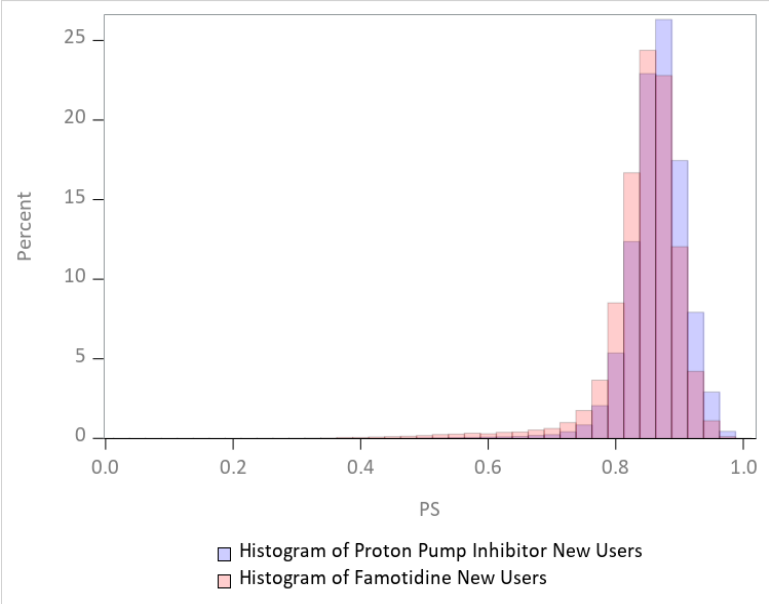


Figure 5b. Histograms Depicting Propensity Score Distributions Before and After Adjustment for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years

Weighted Propensity Score Distribution After Trimming, Stratum Weighted, Average Treatment Effect in the Treated (ATT)

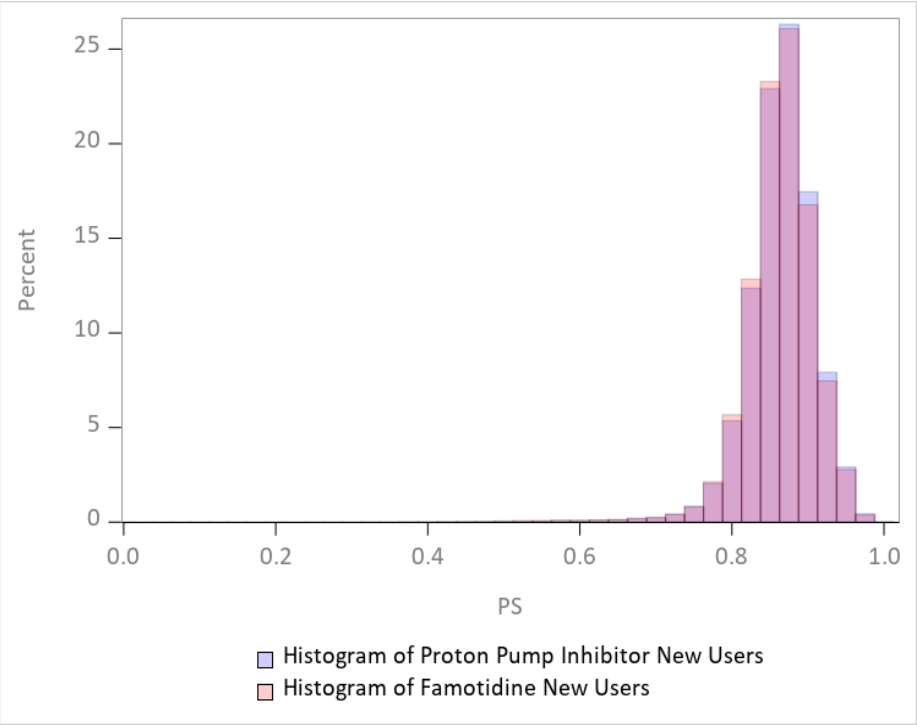
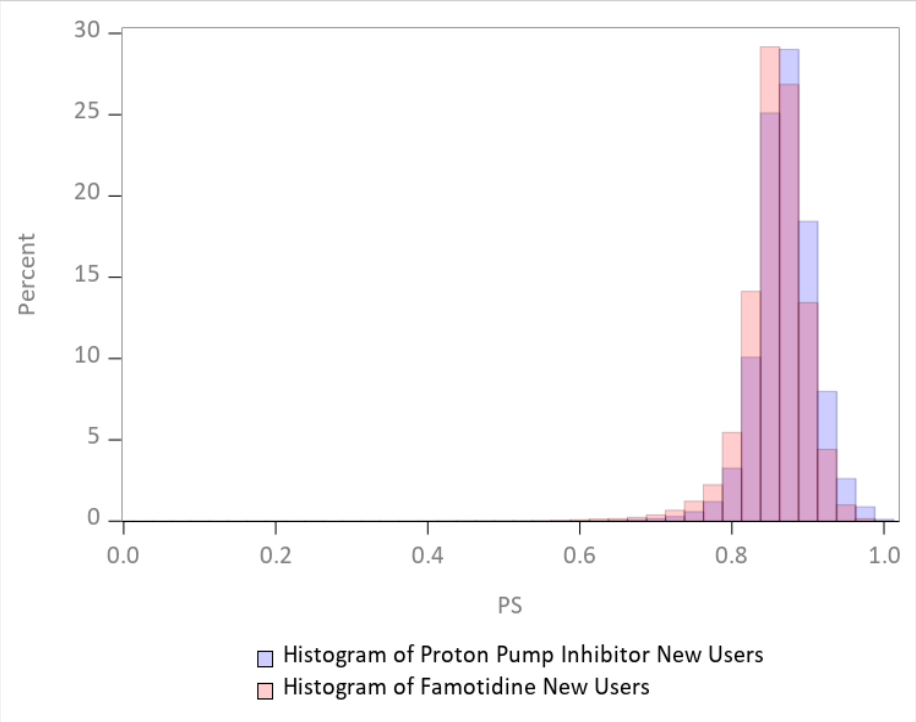


Figure 5c. Histograms Depicting Propensity Score Distributions Before and After Adjustment for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 50-64 years

Unweighted Propensity Score Distribution Before Trimming



Unweighted Propensity Score Distribution After Trimming

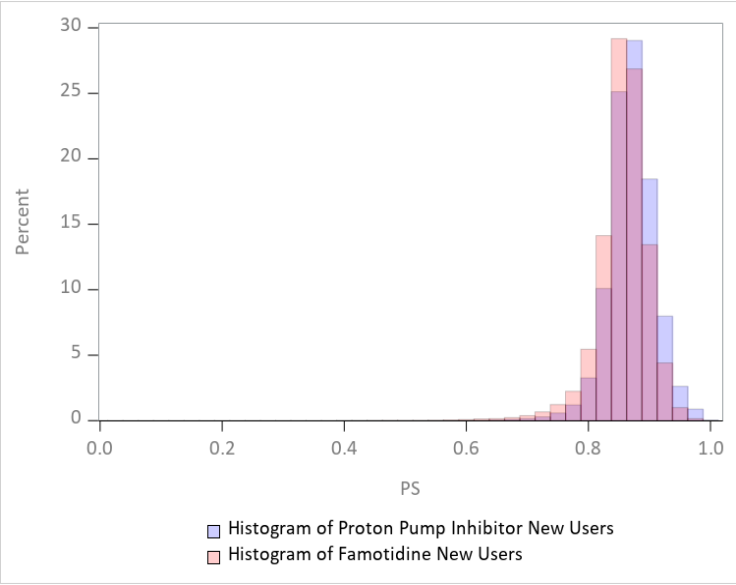


Figure 5c. Histograms Depicting Propensity Score Distributions Before and After Adjustment for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 50-64 years

Weighted Propensity Score Distribution After Trimming, Stratum Weighted, Average Treatment Effect in the Treated (ATT)

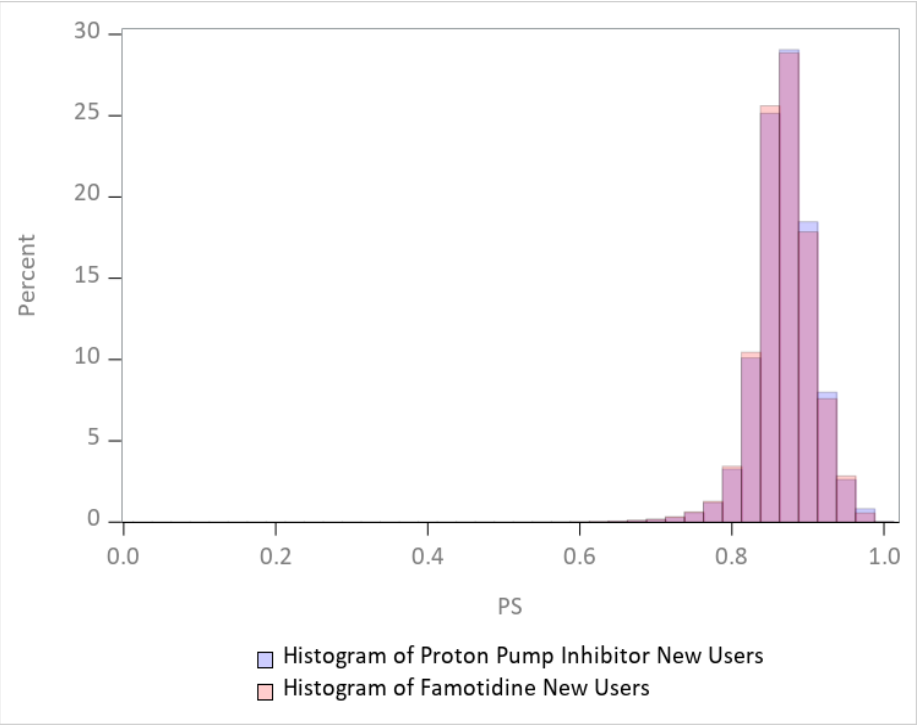
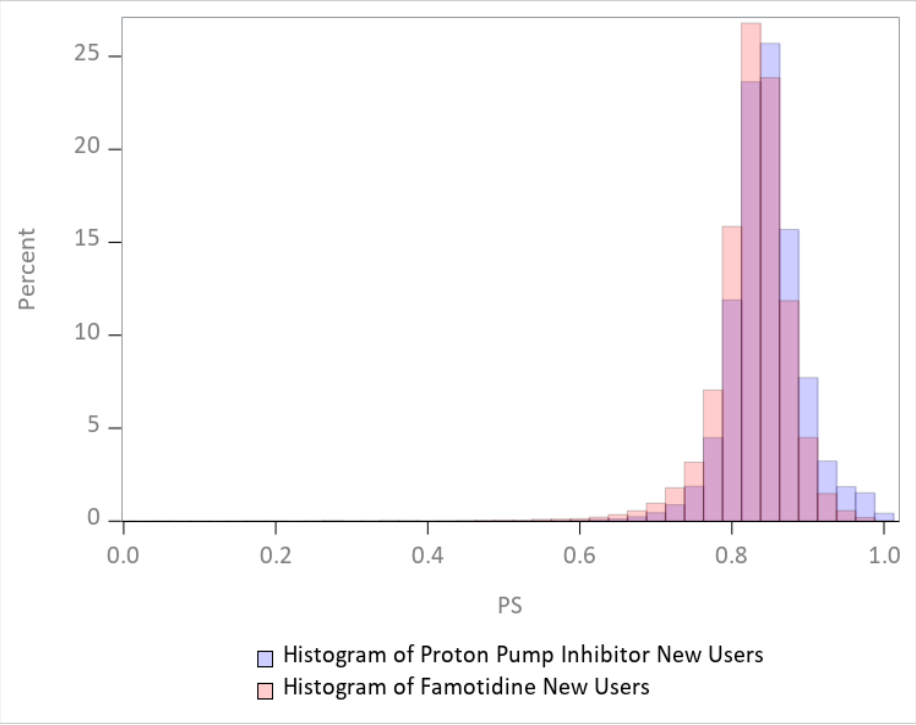


Figure 5d. Histograms Depicting Propensity Score Distributions Before and After Adjustment for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years

Unweighted Propensity Score Distribution Before Trimming



Unweighted Propensity Score Distribution After Trimming

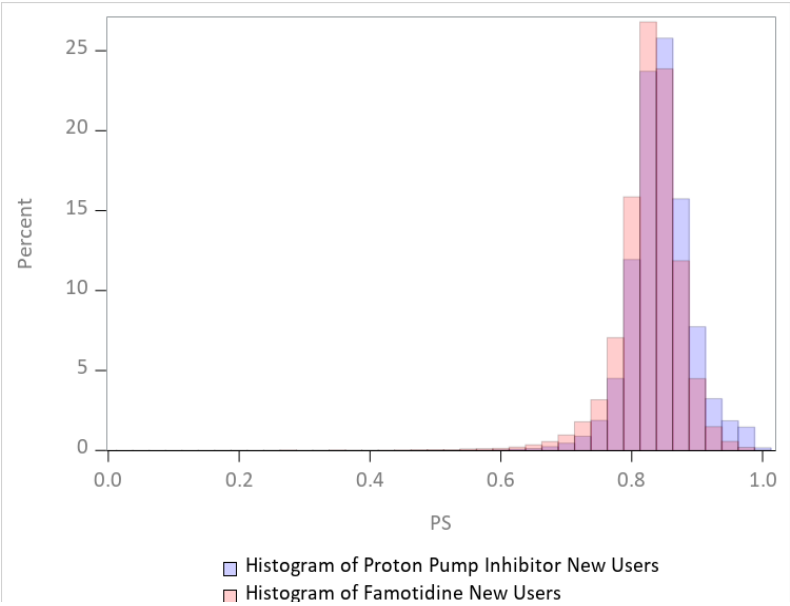


Figure 5d. Histograms Depicting Propensity Score Distributions Before and After Adjustment for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years

Weighted Propensity Score Distribution After Trimming, Stratum Weighted, Average Treatment Effect in the Treated (ATT)

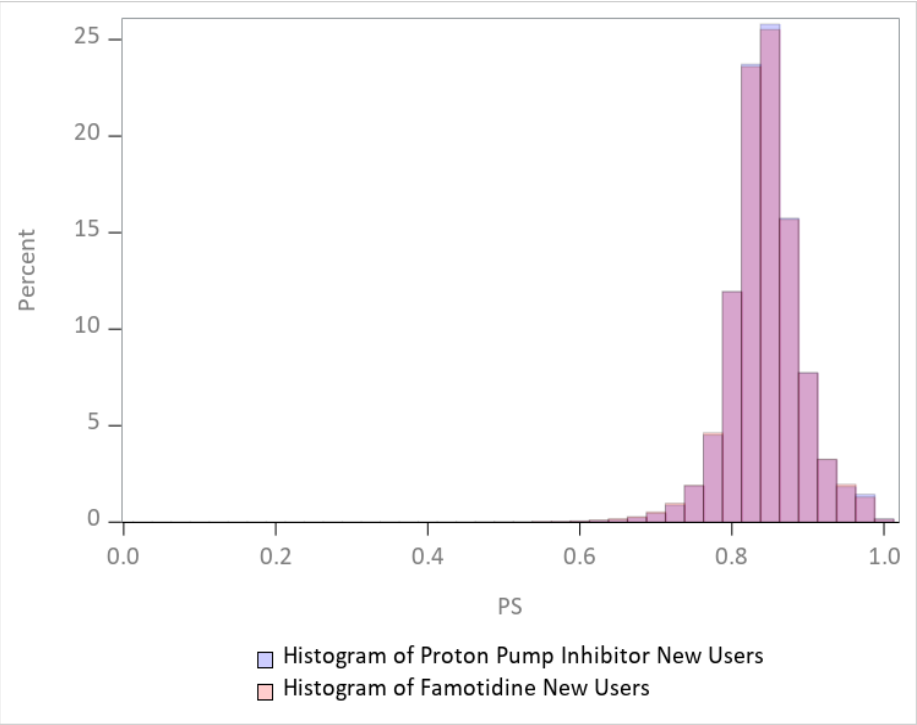
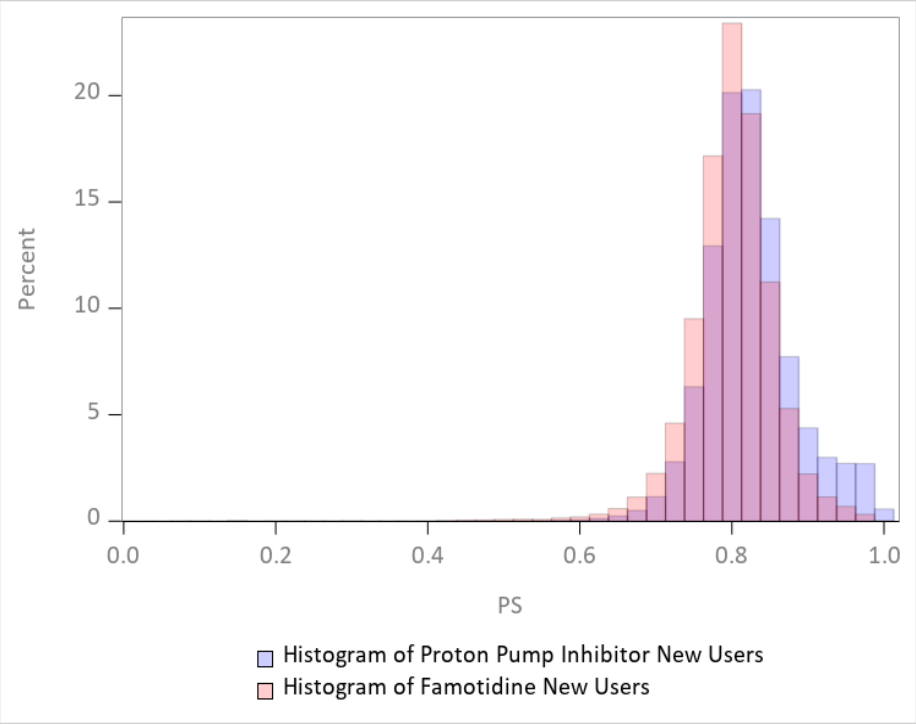


Figure 5e. Histograms Depicting Propensity Score Distributions Before and After Adjustment for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: ≥ 75 years

Unweighted Propensity Score Distribution Before Trimming



Unweighted Propensity Score Distribution After Trimming

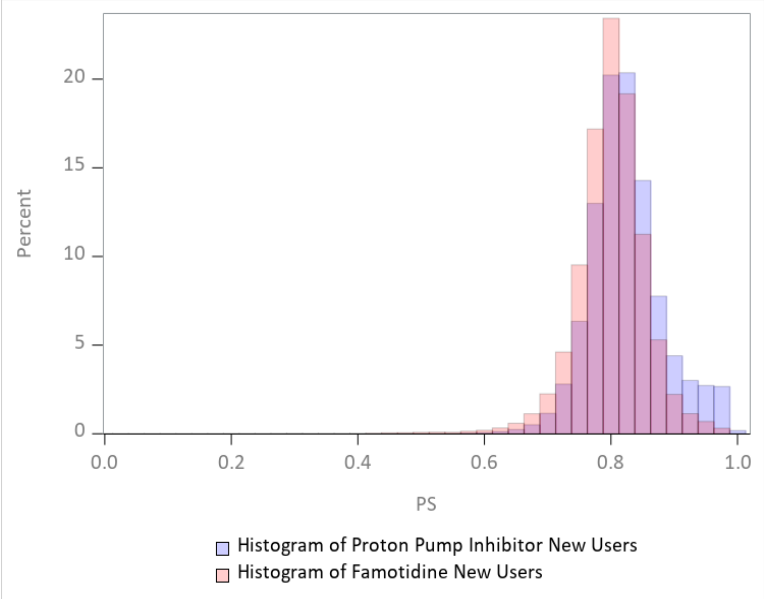


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Weighted Propensity Score Distribution After Trimming, Stratum Weighted, Average Treatment Effect in the Treated (ATT)

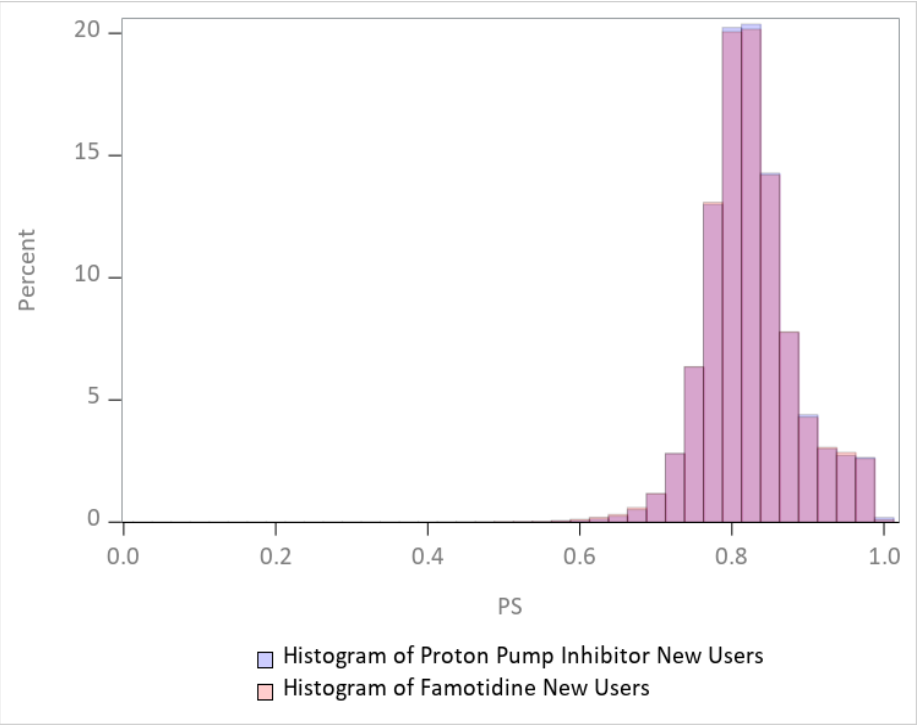
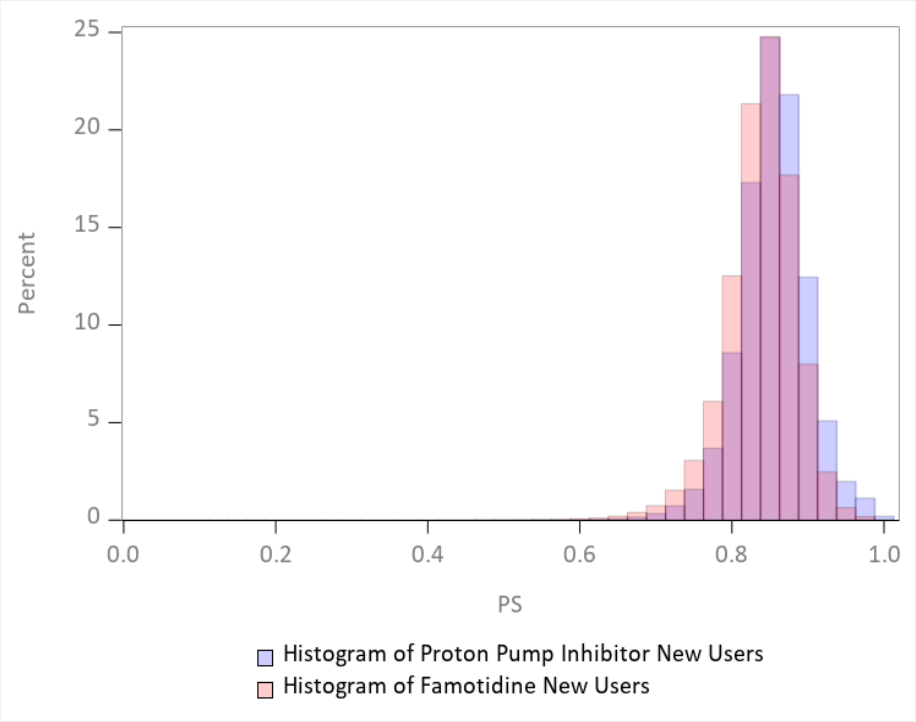


Figure 6a. Histograms Depicting Propensity Score Distributions Before and After Adjustment for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024

Site-Adjusted Propensity Score Distribution



Weighted Propensity Score Distribution, Overlap Weighted

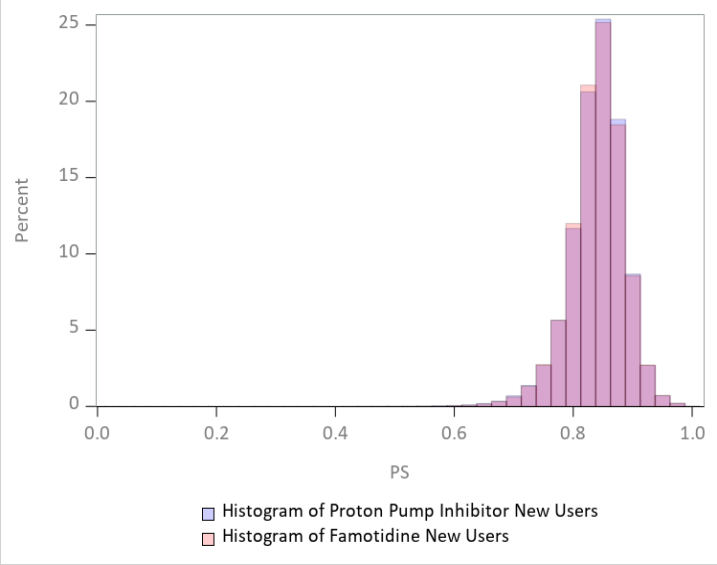
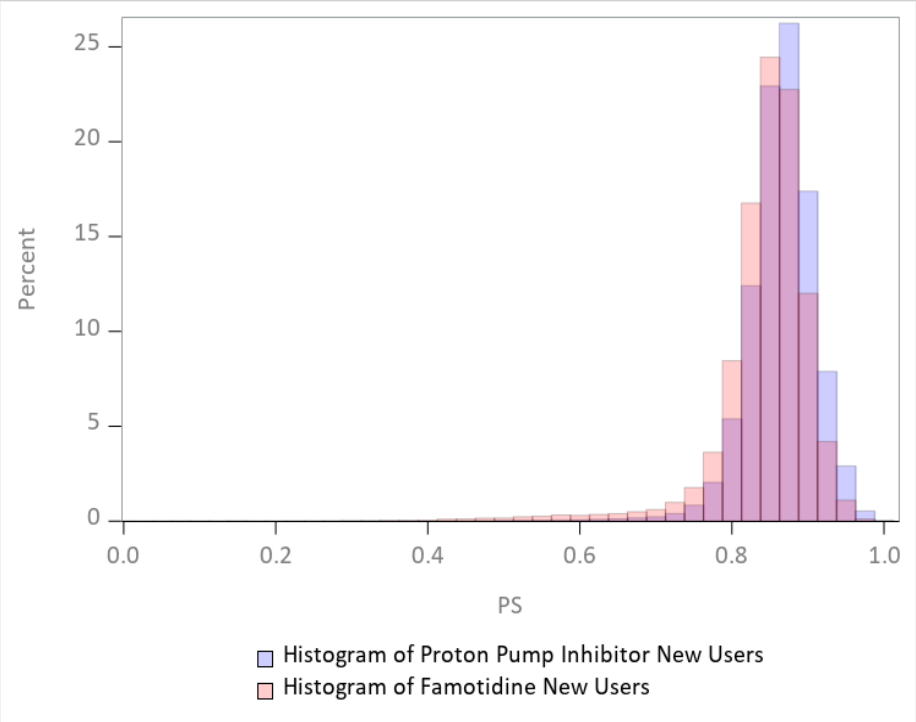


Figure 6b. Histograms Depicting Propensity Score Distributions Before and After Adjustment for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years

Site-Adjusted Propensity Score Distribution



Weighted Propensity Score Distribution, Overlap Weighted

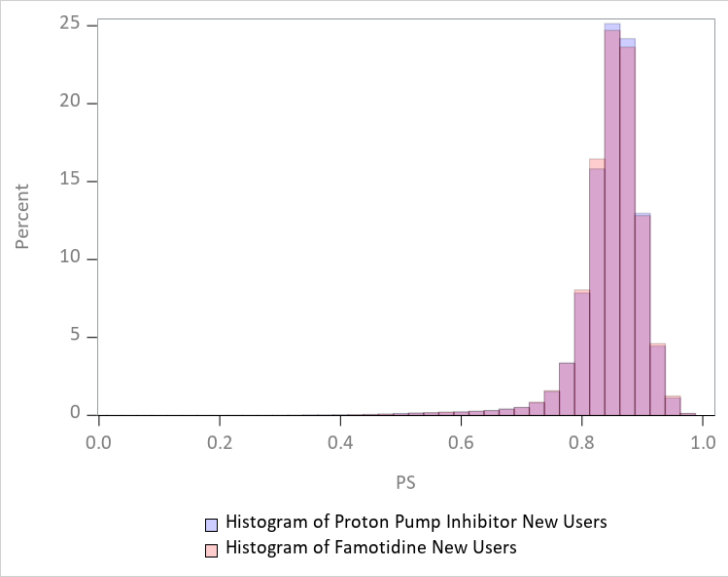
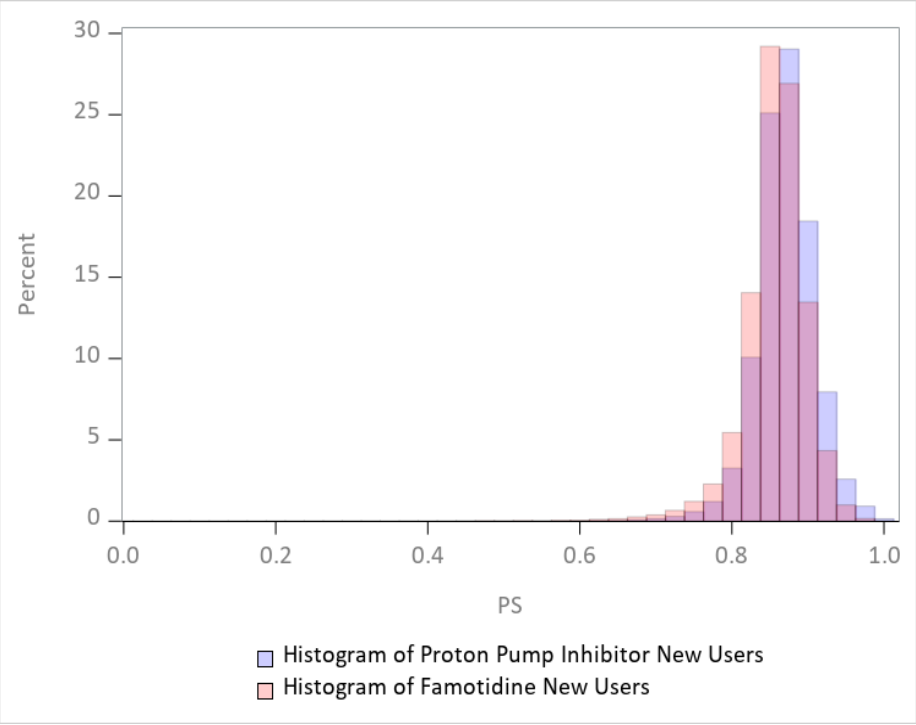


Figure 6c. Histograms Depicting Propensity Score Distributions Before and After Adjustment for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 50-64 years

Site-Adjusted Propensity Score Distribution



Weighted Propensity Score Distribution, Overlap Weighted

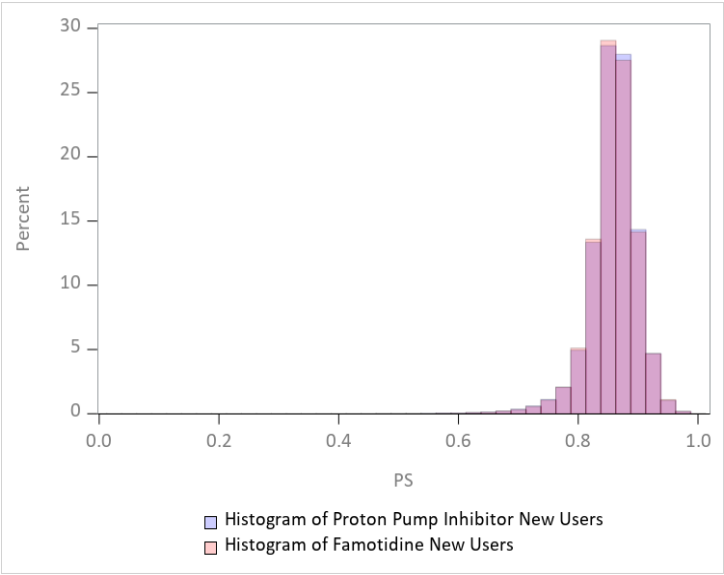
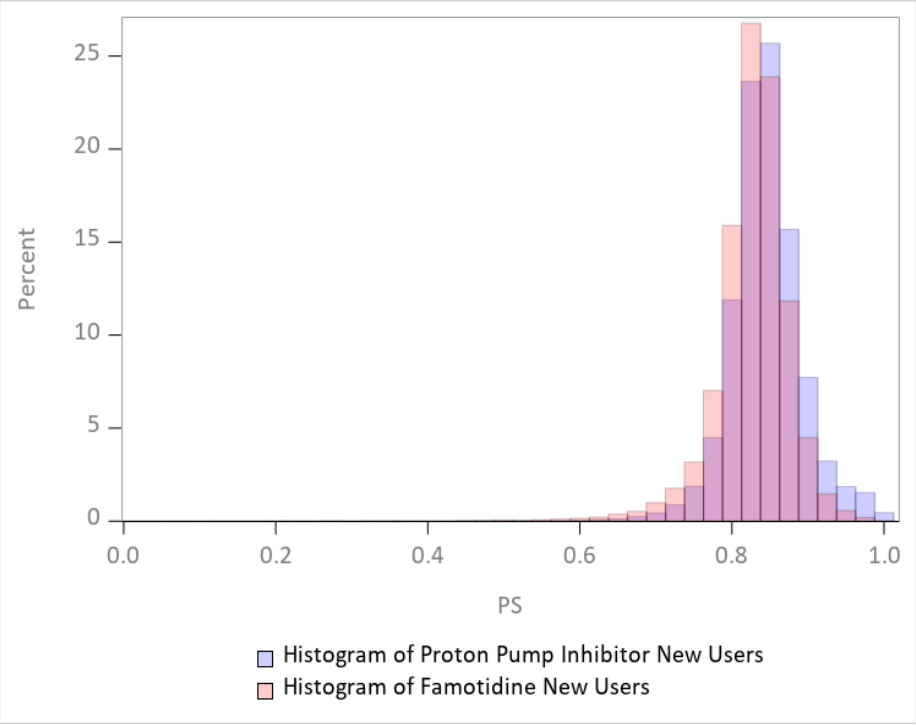


Figure 6d. Histograms Depicting Propensity Score Distributions Before and After Adjustment for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years

Site-Adjusted Propensity Score Distribution



Weighted Propensity Score Distribution, Overlap Weighted

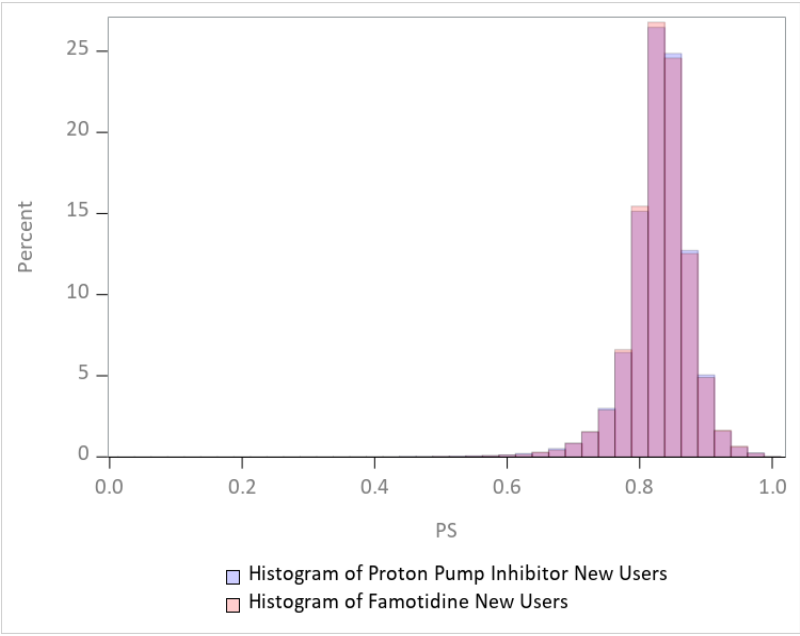
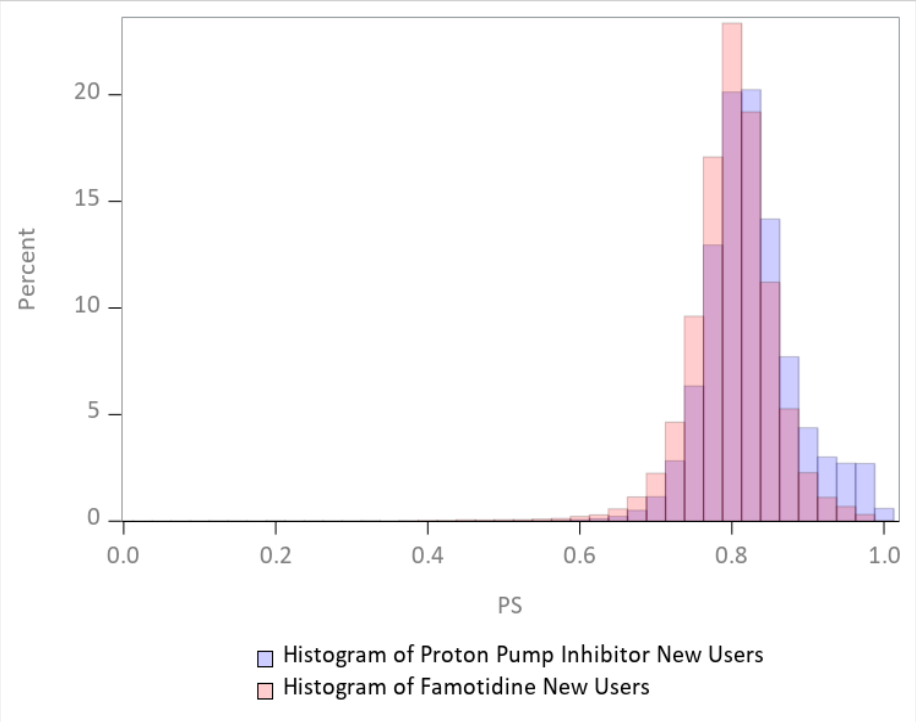


Figure 6e. Histograms Depicting Propensity Score Distributions Before and After Adjustment for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: ≥ 75 years

Site-Adjusted Propensity Score Distribution



Weighted Propensity Score Distribution, Overlap Weighted

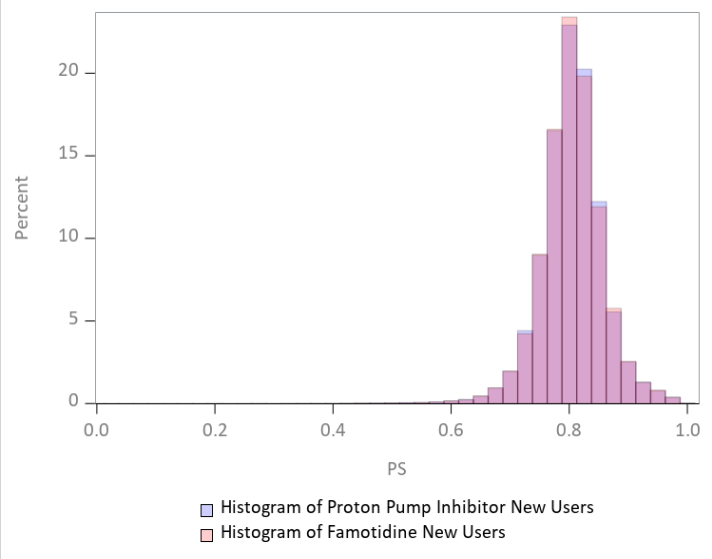
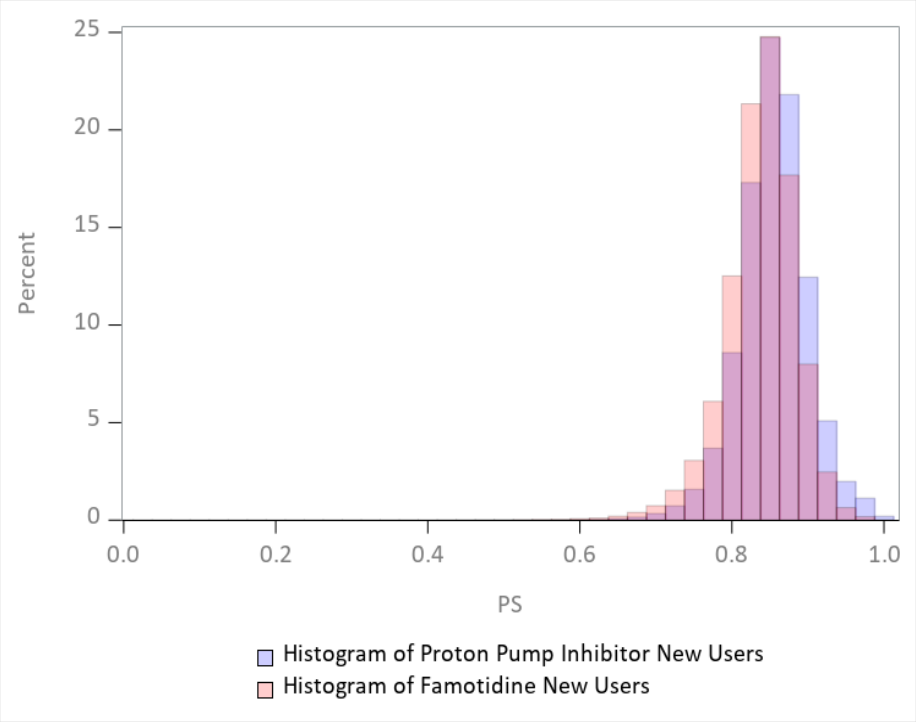


Figure 7a. Histograms Depicting Propensity Score Distributions Before and After Adjustment for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with IPTW ATE Adjustment Using hdPS, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024

Unweighted Propensity Score Distribution Before Trimming



Unweighted Propensity Score Distribution After Trimming

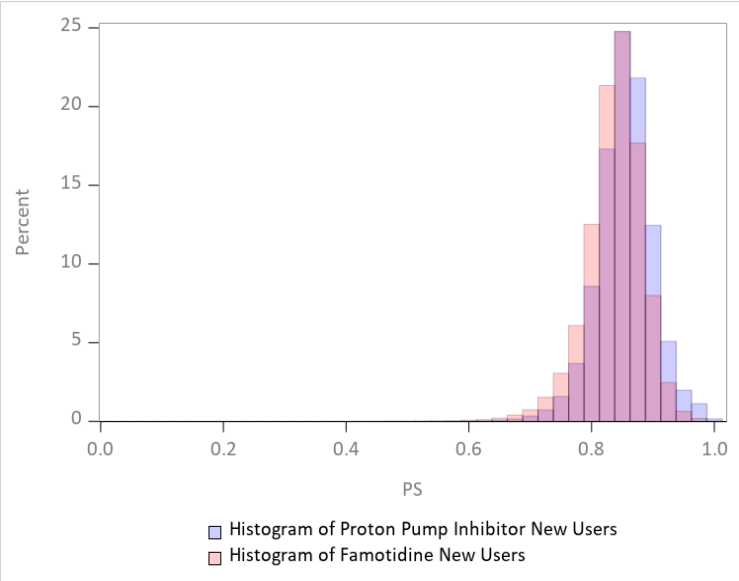


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Weighted Propensity Score Distribution After Trimming, Inverse Probability of Treatment Weighted, Average Treatment Effect (ATE)

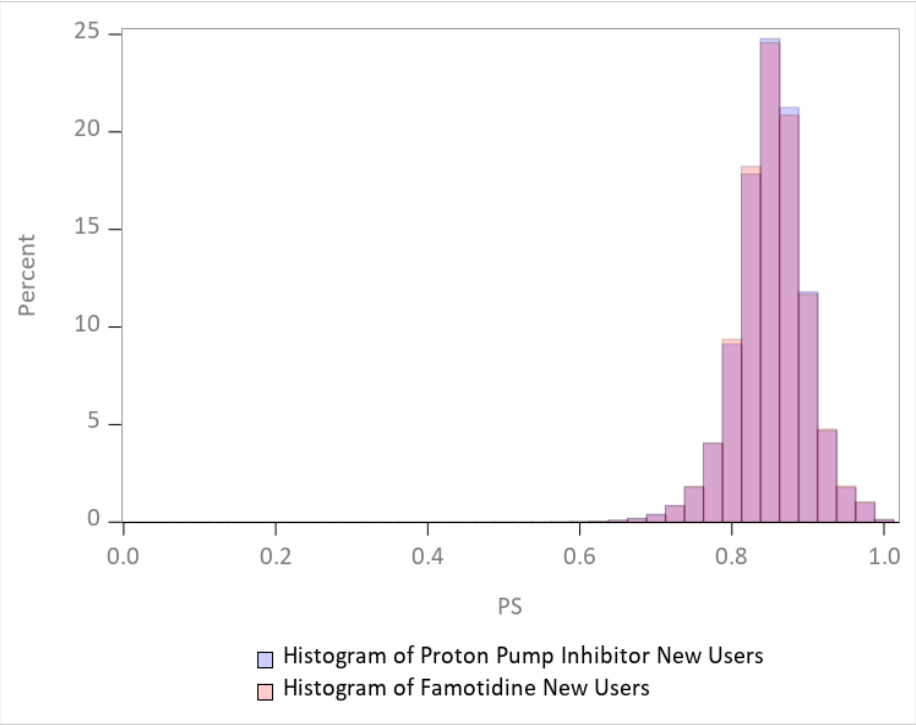
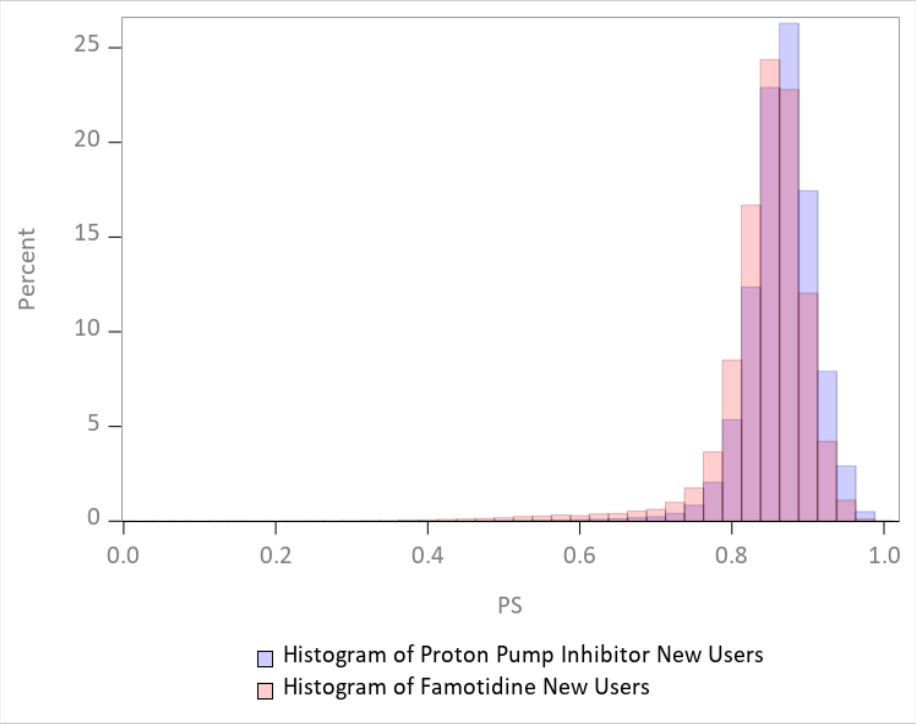


Figure 7b. Histograms Depicting Propensity Score Distributions Before and After Adjustment for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with IPTW ATE Adjustment Using hdPS, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years

Unweighted Propensity Score Distribution Before Trimming



Unweighted Propensity Score Distribution After Trimming

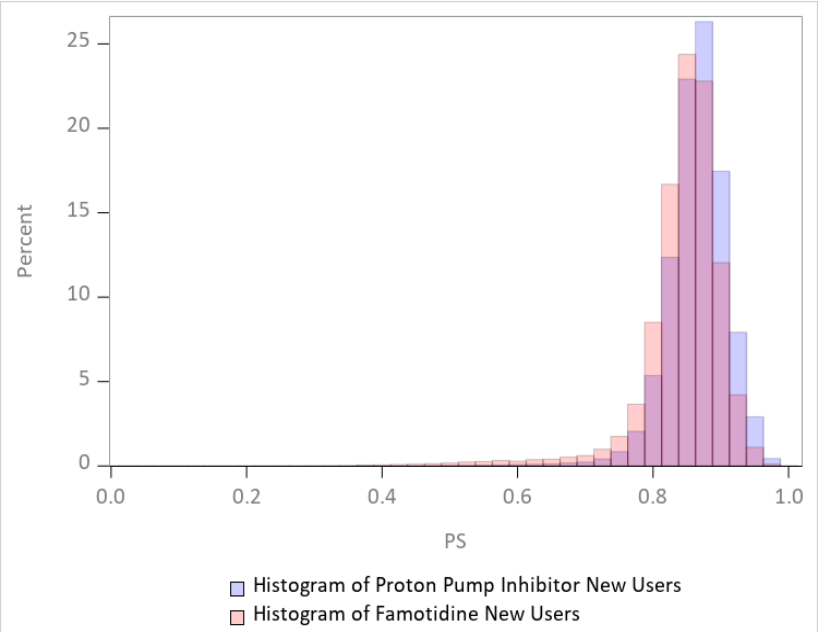


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Weighted Propensity Score Distribution After Trimming, Inverse Probability of Treatment Weighted, Average Treatment Effect (ATE)

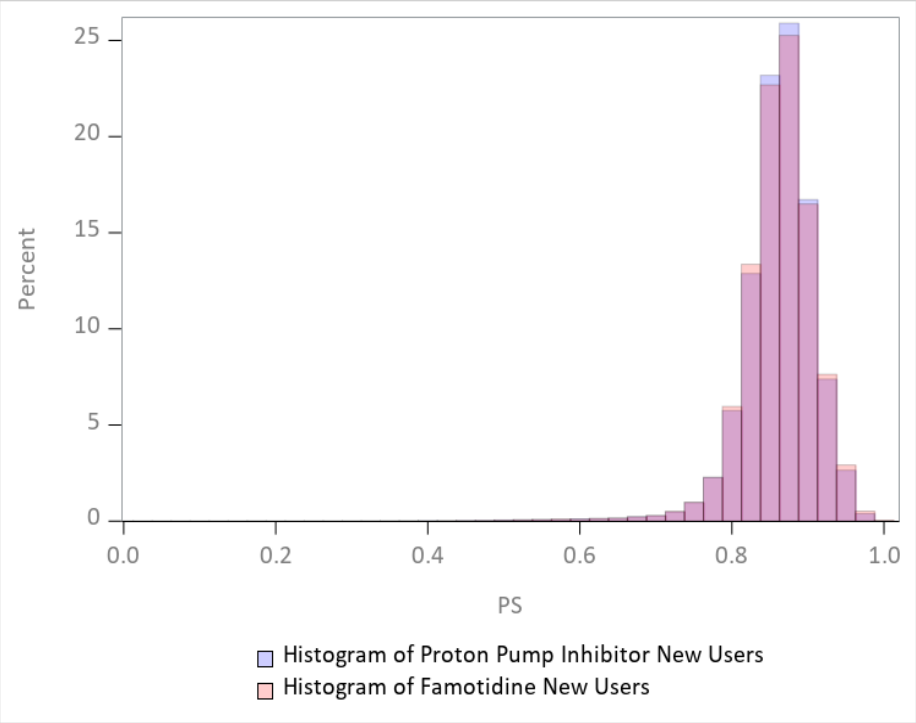
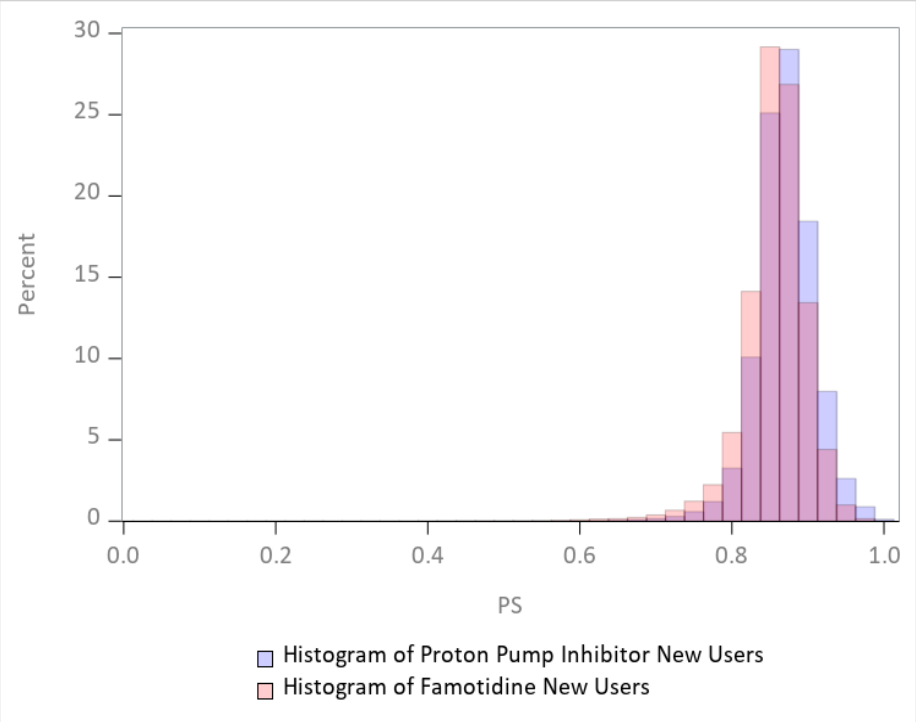


Figure 7c. Histograms Depicting Propensity Score Distributions Before and After Adjustment for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with IPTW ATE Adjustment Using hdPS, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 50-64 years

Unweighted Propensity Score Distribution Before Trimming



Unweighted Propensity Score Distribution After Trimming

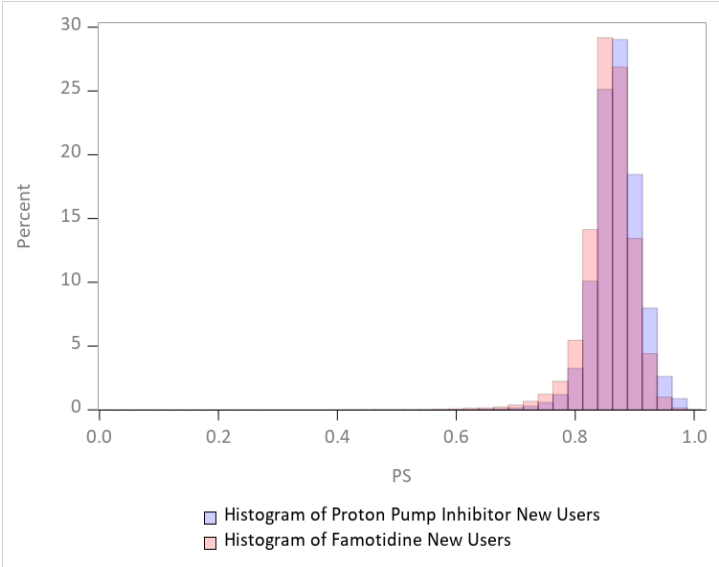


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Weighted Propensity Score Distribution After Trimming, Inverse Probability of Treatment Weighted, Average Treatment Effect (ATE)

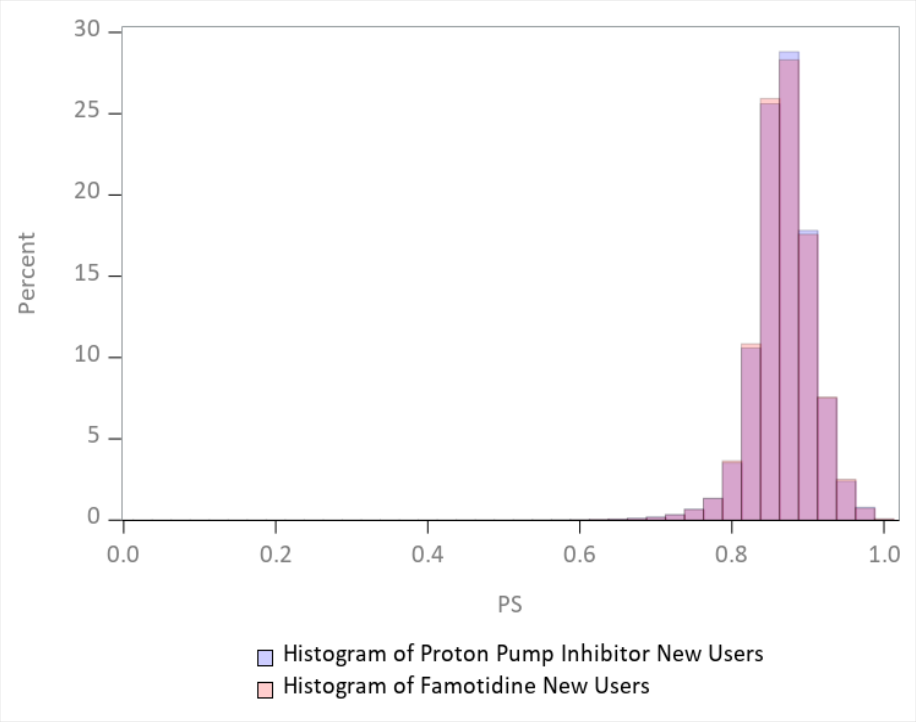
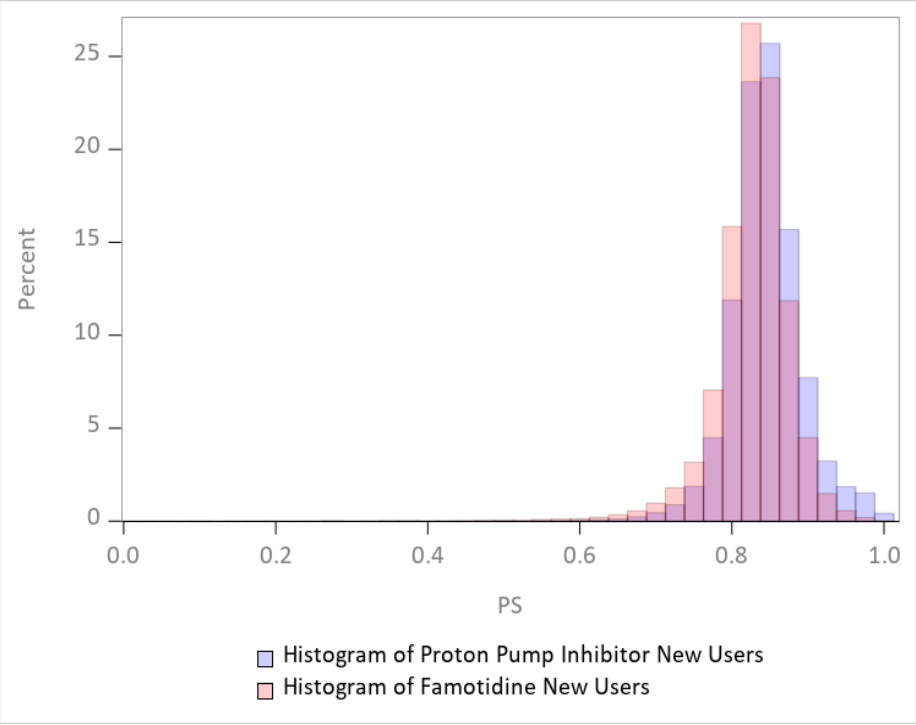


Figure 7d. Histograms Depicting Propensity Score Distributions Before and After Adjustment for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with IPTW ATE Adjustment Using hdPS, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years

Unweighted Propensity Score Distribution Before Trimming



Unweighted Propensity Score Distribution After Trimming

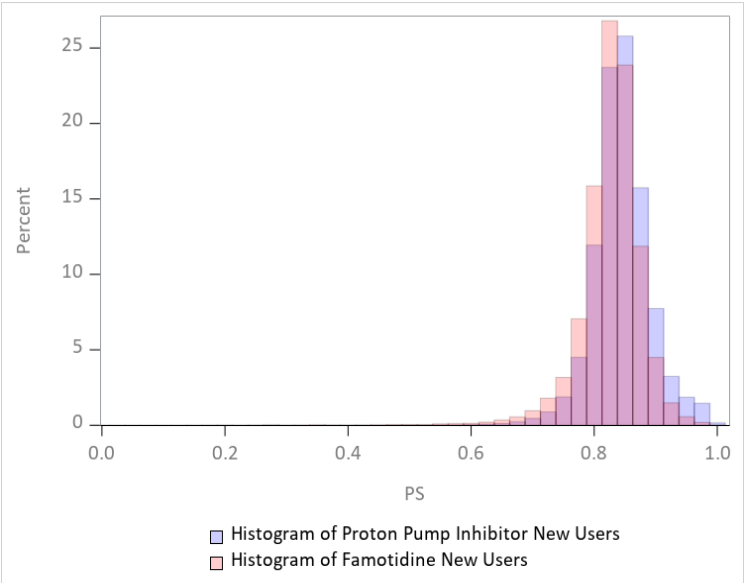


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Weighted Propensity Score Distribution After Trimming, Inverse Probability of Treatment Weighted, Average Treatment Effect (ATE)

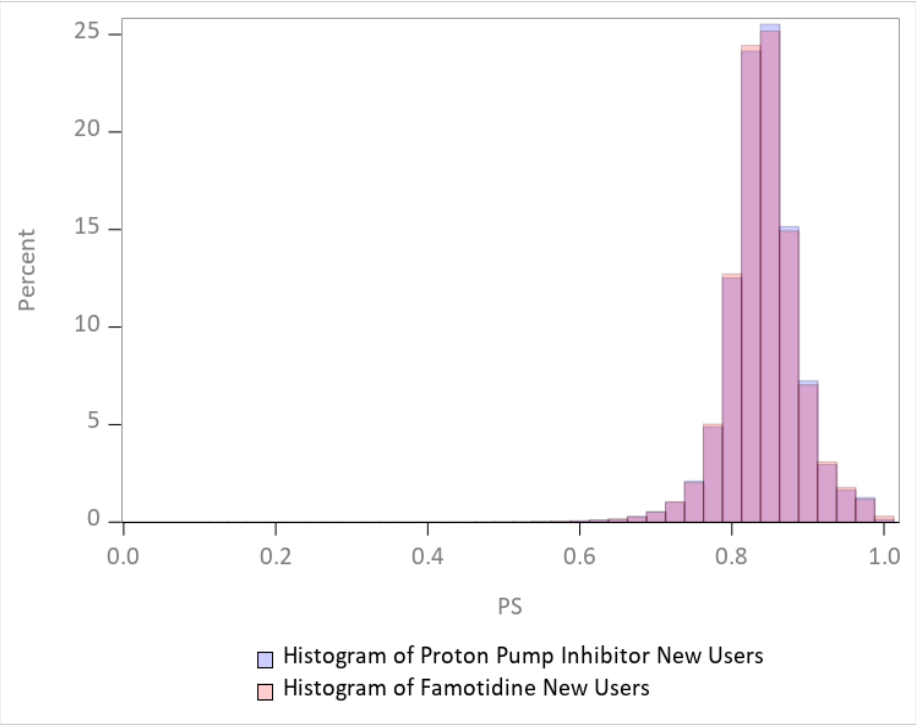
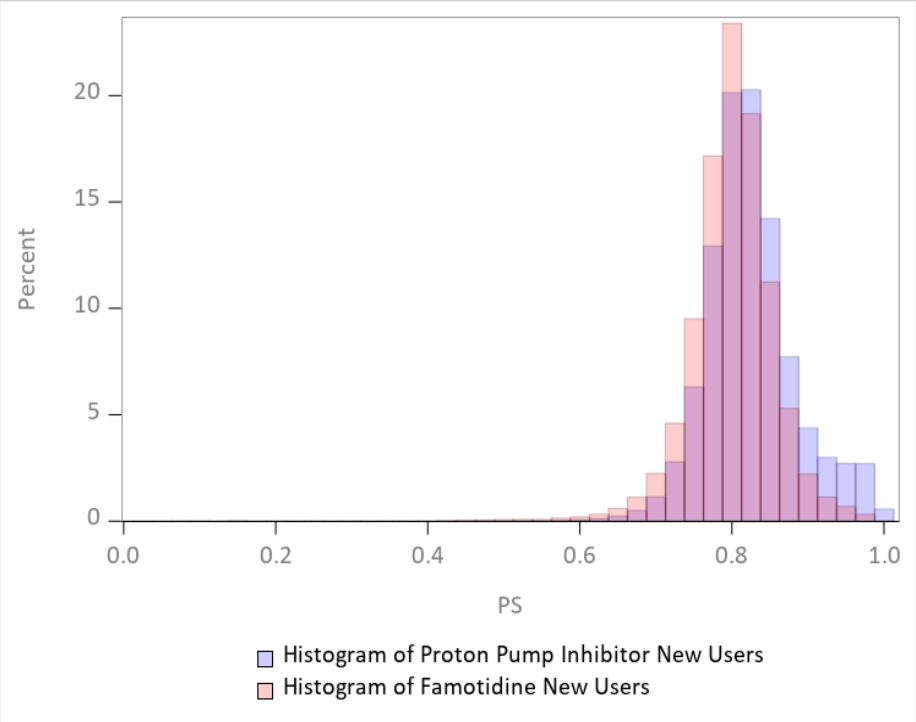


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Unweighted Propensity Score Distribution Before Trimming



Unweighted Propensity Score Distribution After Trimming

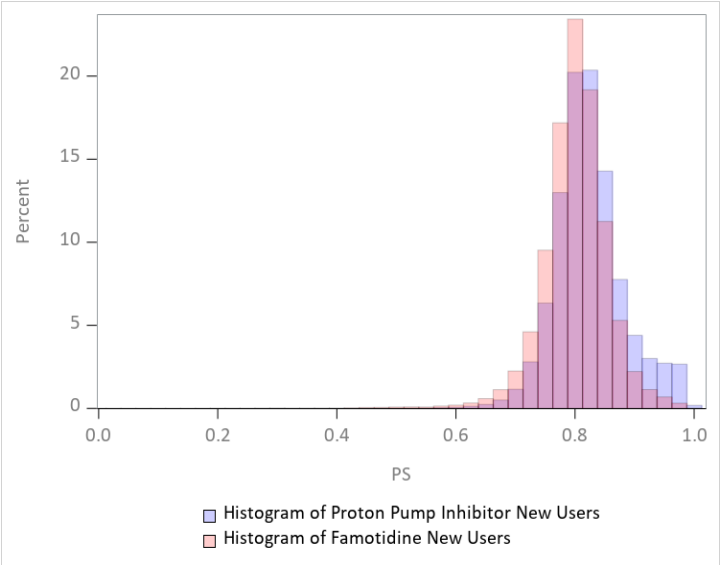


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Weighted Propensity Score Distribution After Trimming, Inverse Probability of Treatment Weighted, Average Treatment Effect (ATE)

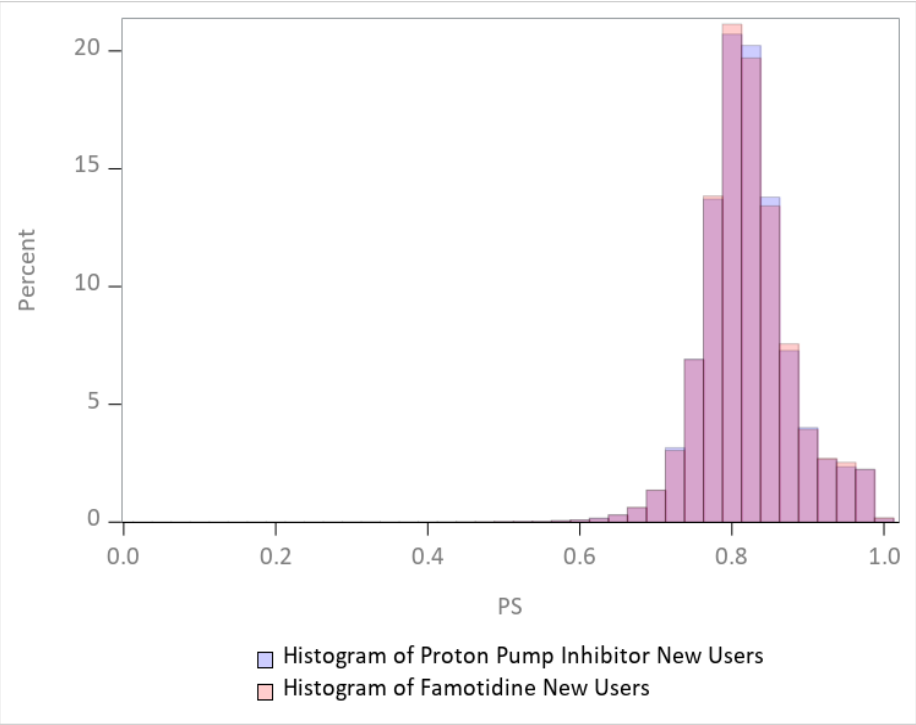
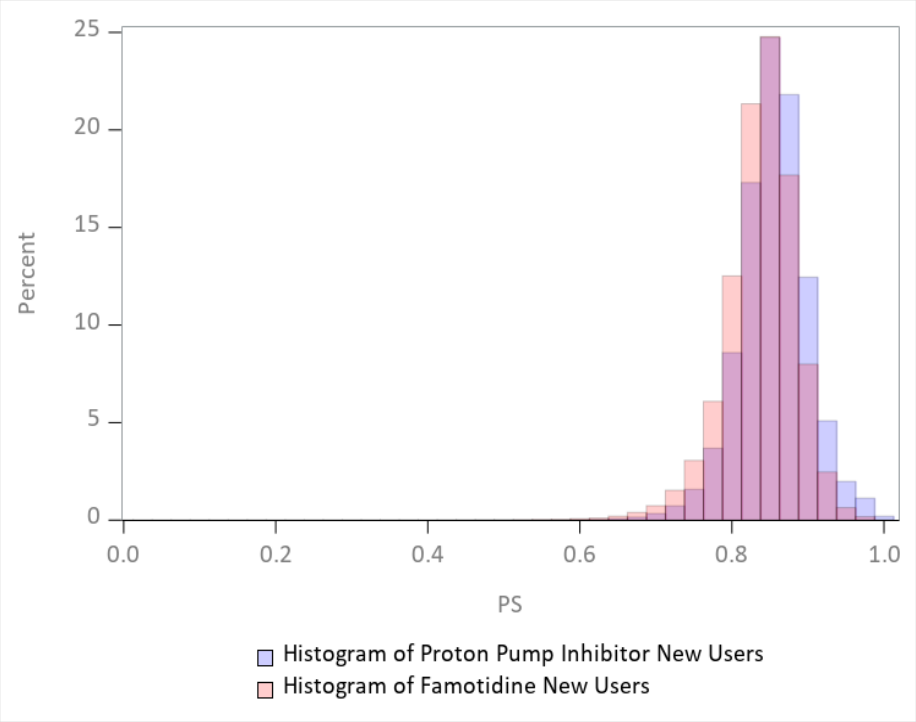


Figure 8a. Histograms Depicting Propensity Score Distributions Before and After Adjustment for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with IPTW ATE Adjustment Using hdPS, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024

Unweighted Propensity Score Distribution Before Trimming



Unweighted Propensity Score Distribution After Trimming

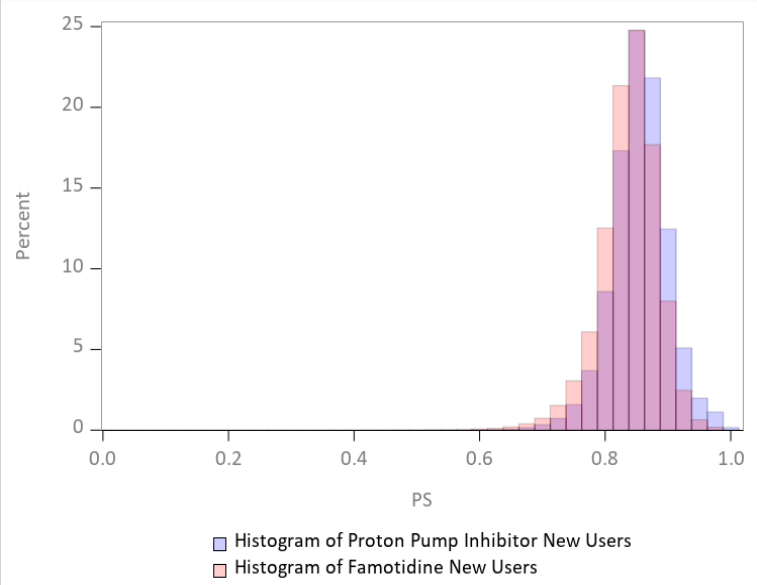


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Weighted Propensity Score Distribution After Trimming, Inverse Probability of Treatment Weighted, Average Treatment Effect (ATE)

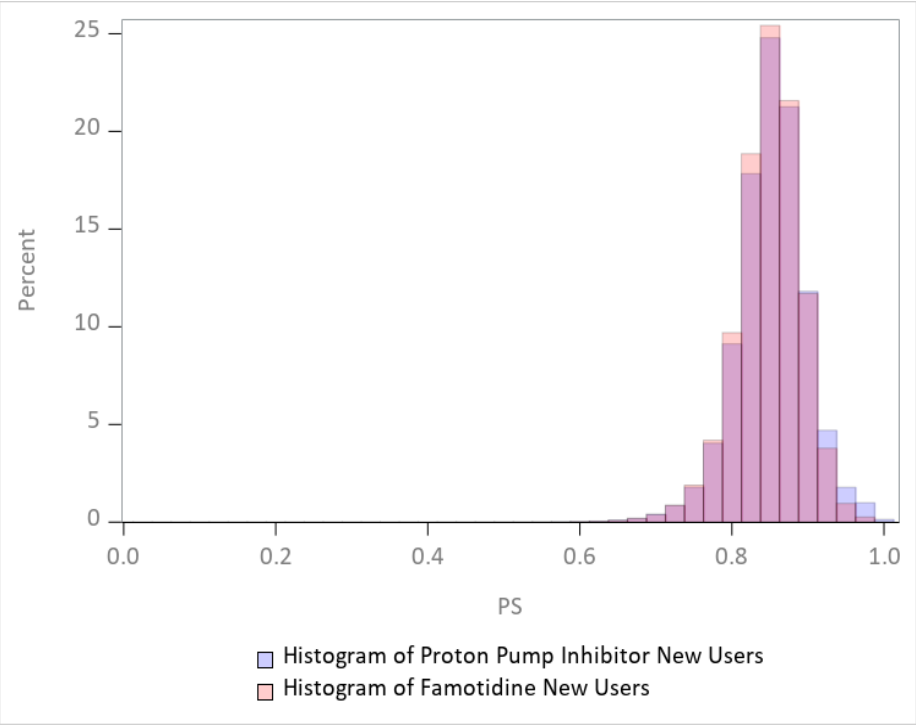
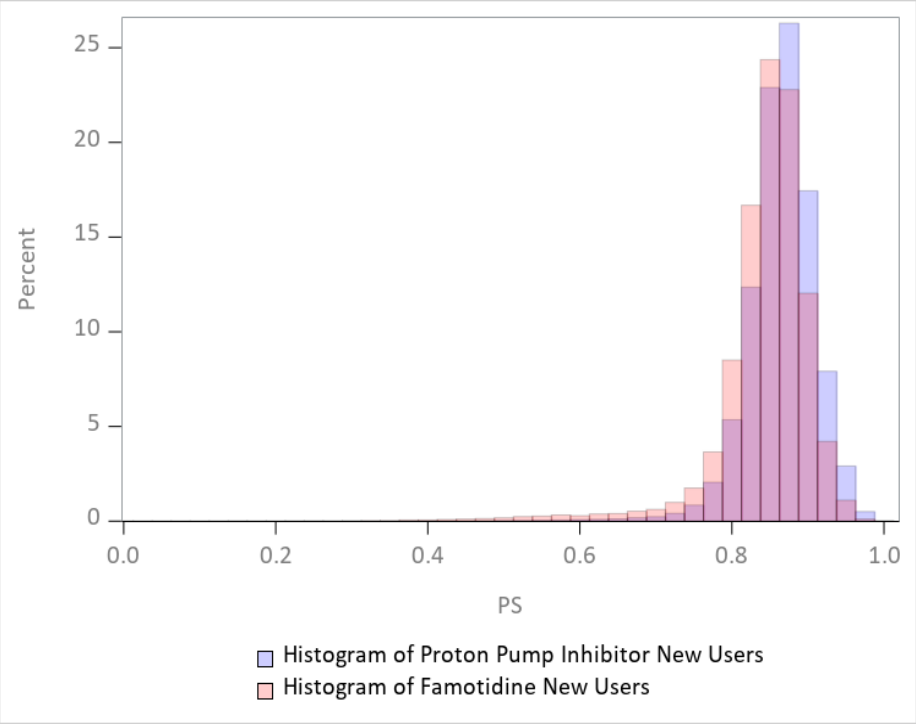


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Unweighted Propensity Score Distribution Before Trimming



Unweighted Propensity Score Distribution After Trimming

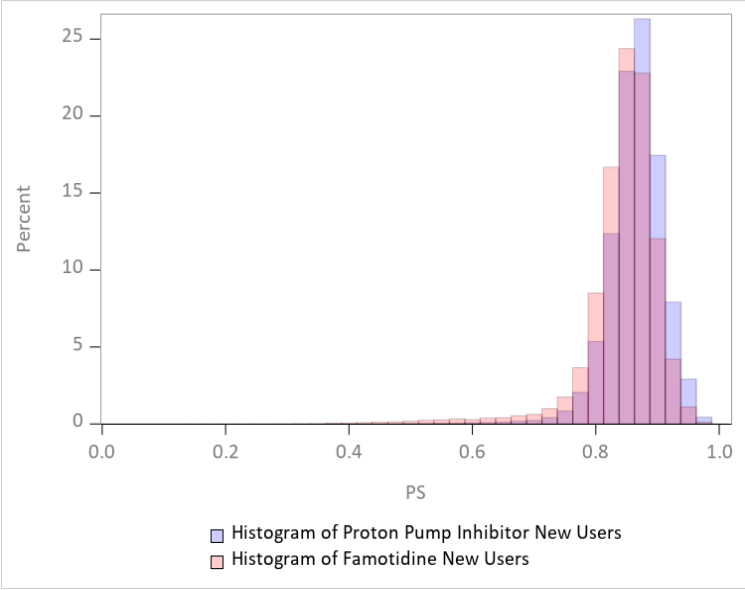


Figure 8b. Histograms Depicting Propensity Score Distributions Before and After Adjustment for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with IPTW ATE Adjustment Using hdPS, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years

Weighted Propensity Score Distribution After Trimming, Inverse Probability of Treatment Weighted, Average Treatment Effect (ATE)

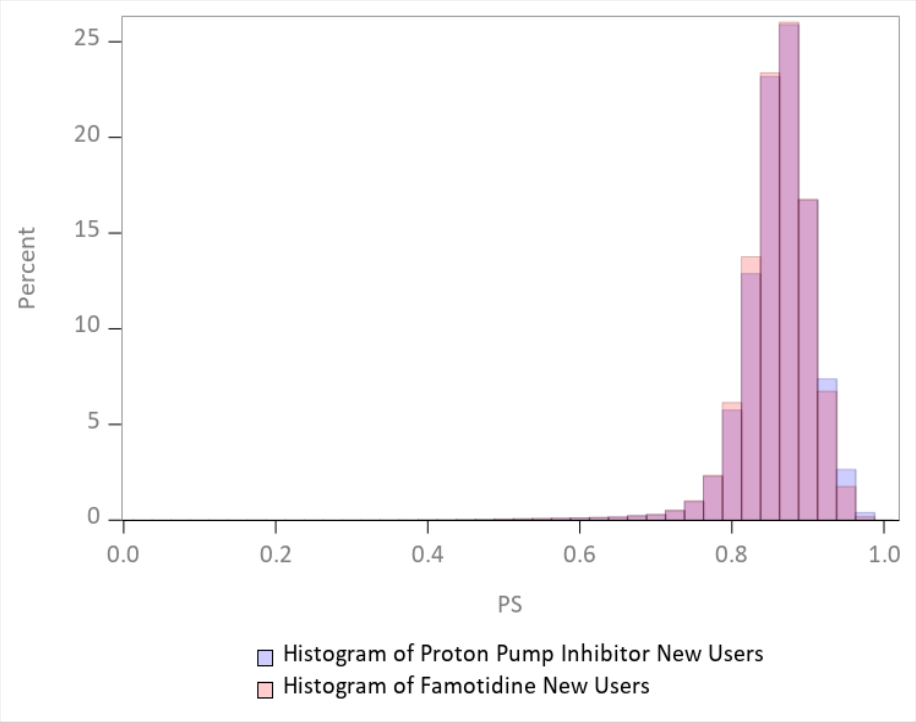
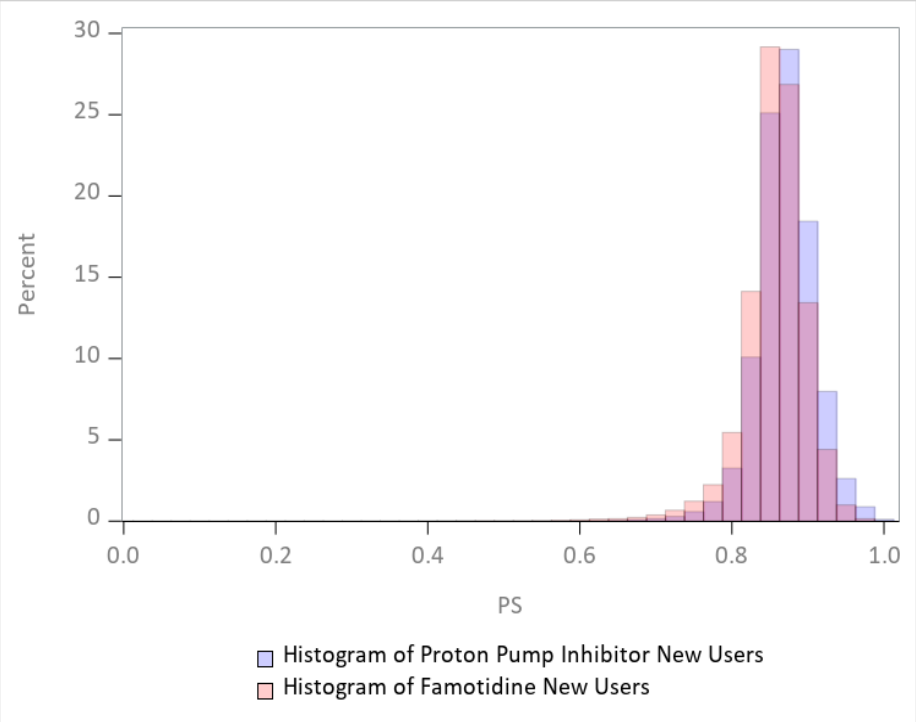


Figure 8c. Histograms Depicting Propensity Score Distributions Before and After Adjustment for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with IPTW ATE Adjustment Using hdPS, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 50-64 years

Unweighted Propensity Score Distribution Before Trimming



Unweighted Propensity Score Distribution After Trimming

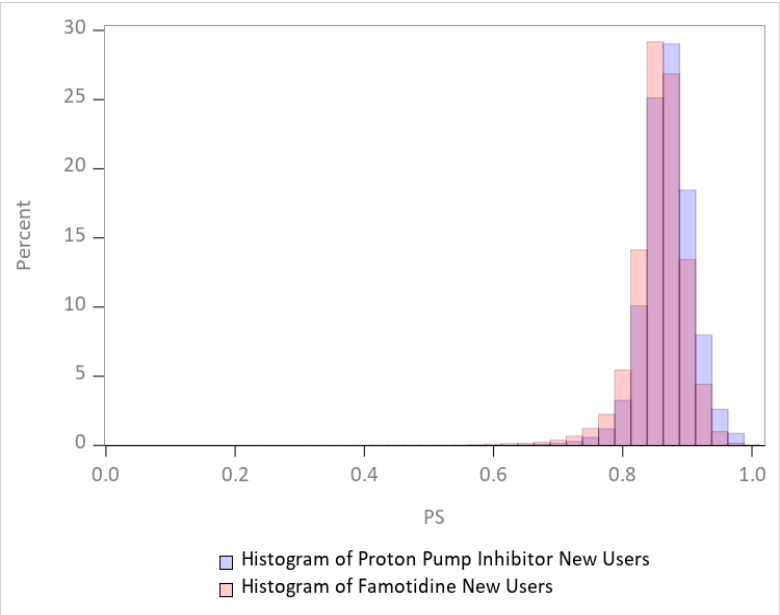


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Weighted Propensity Score Distribution After Trimming, Inverse Probability of Treatment Weighted, Average Treatment Effect (ATE)

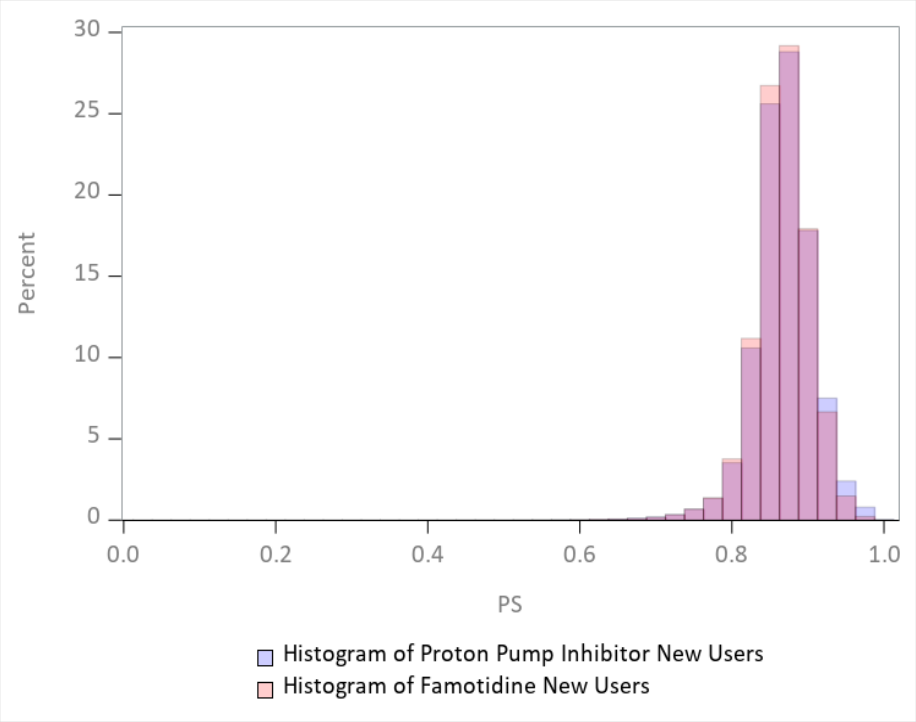
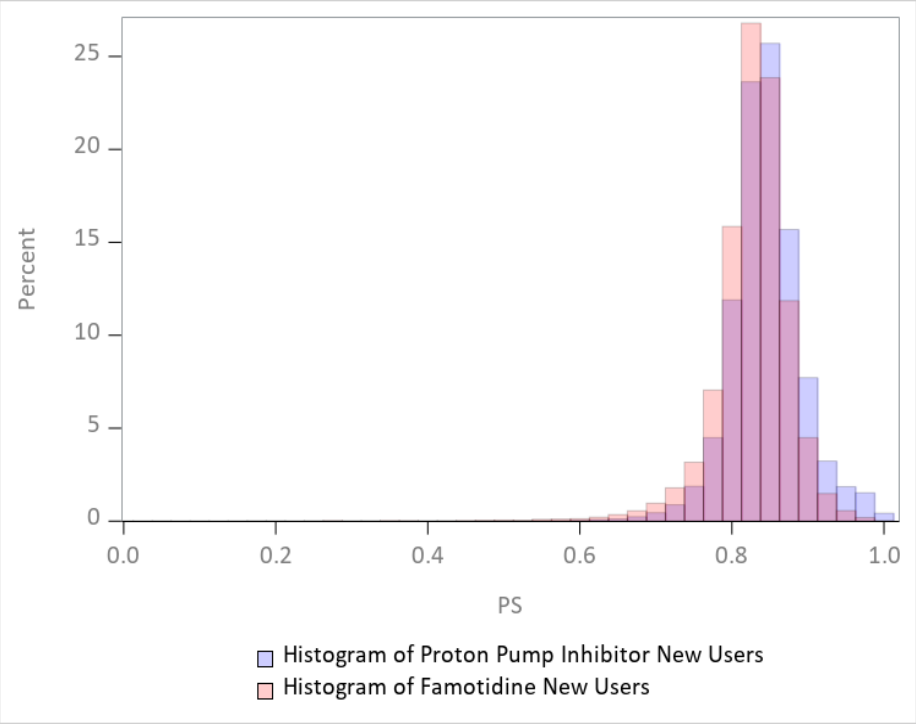


Figure 8d. Histograms Depicting Propensity Score Distributions Before and After Adjustment for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with IPTW ATE Adjustment Using hdPS, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years

Unweighted Propensity Score Distribution Before Trimming



Unweighted Propensity Score Distribution After Trimming

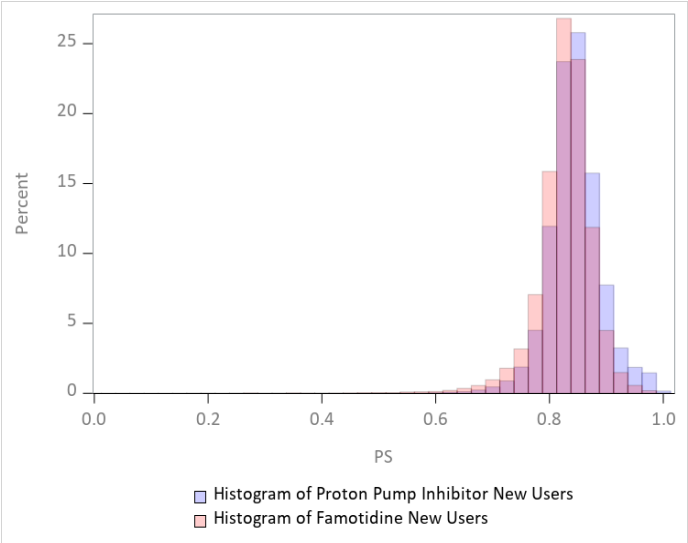


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Weighted Propensity Score Distribution After Trimming, Inverse Probability of Treatment Weighted, Average Treatment Effect (ATE)

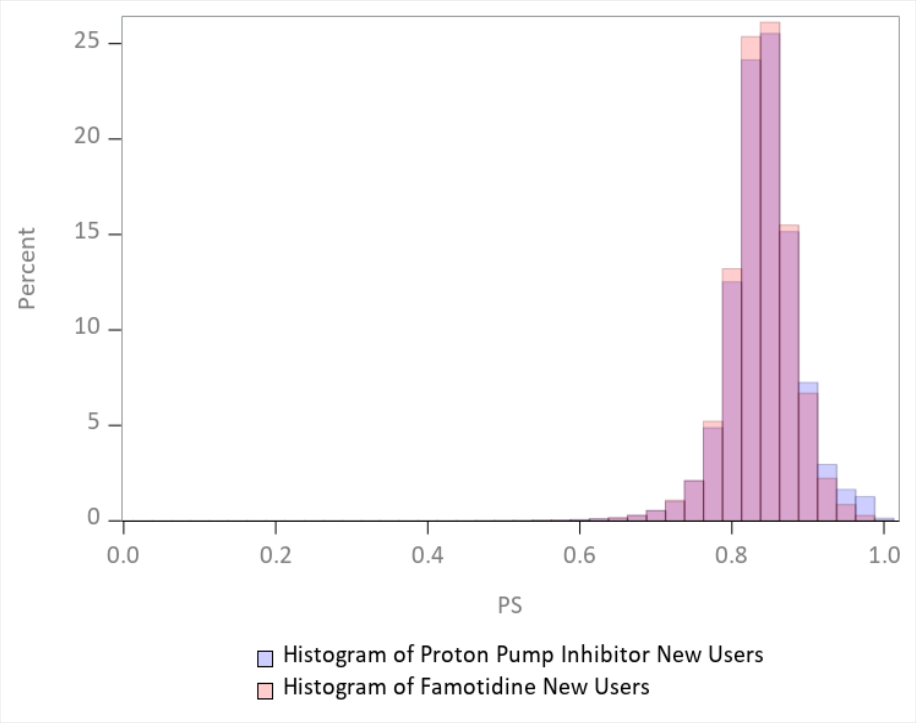
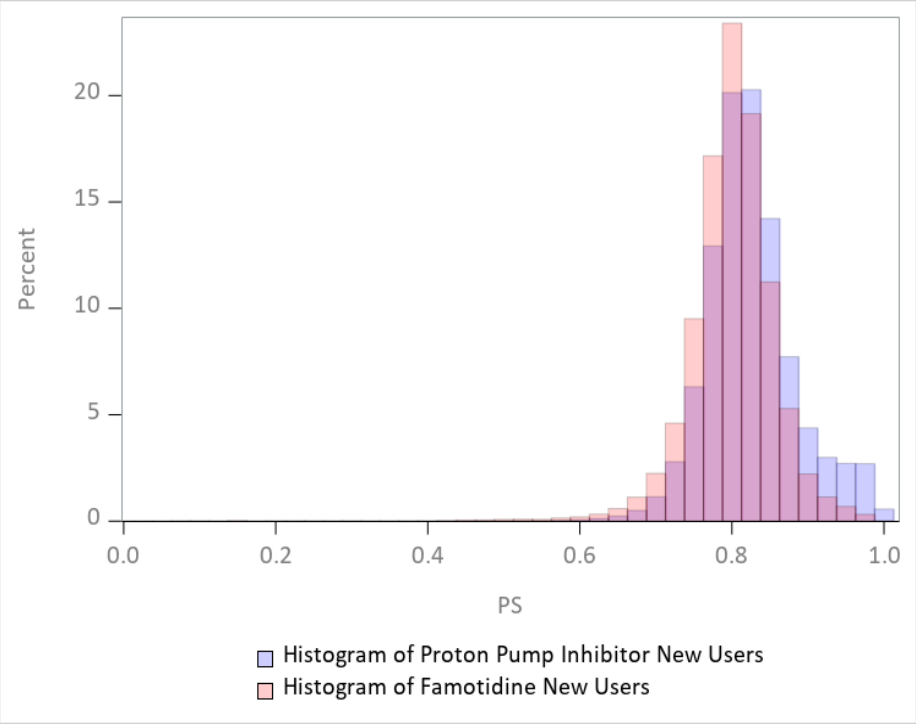


Figure 8e. Histograms Depicting Propensity Score Distributions Before and After Adjustment for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with IPTW ATE Adjustment Using hdPS, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: ≥ 75 years

Unweighted Propensity Score Distribution Before Trimming



Unweighted Propensity Score Distribution After Trimming

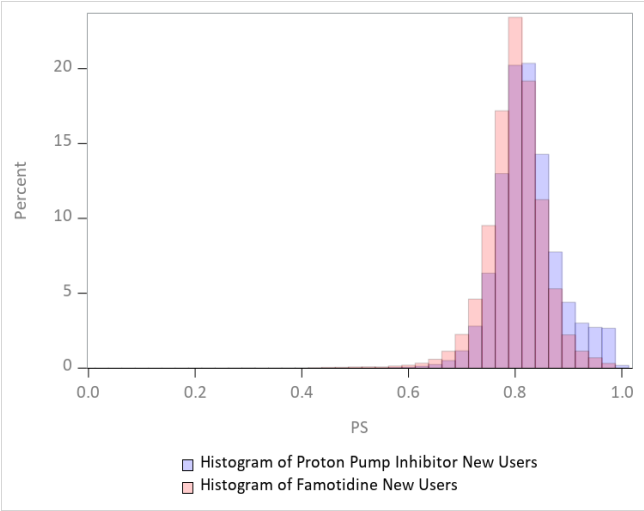


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Weighted Propensity Score Distribution After Trimming, Inverse Probability of Treatment Weighted, Average Treatment Effect (ATE)

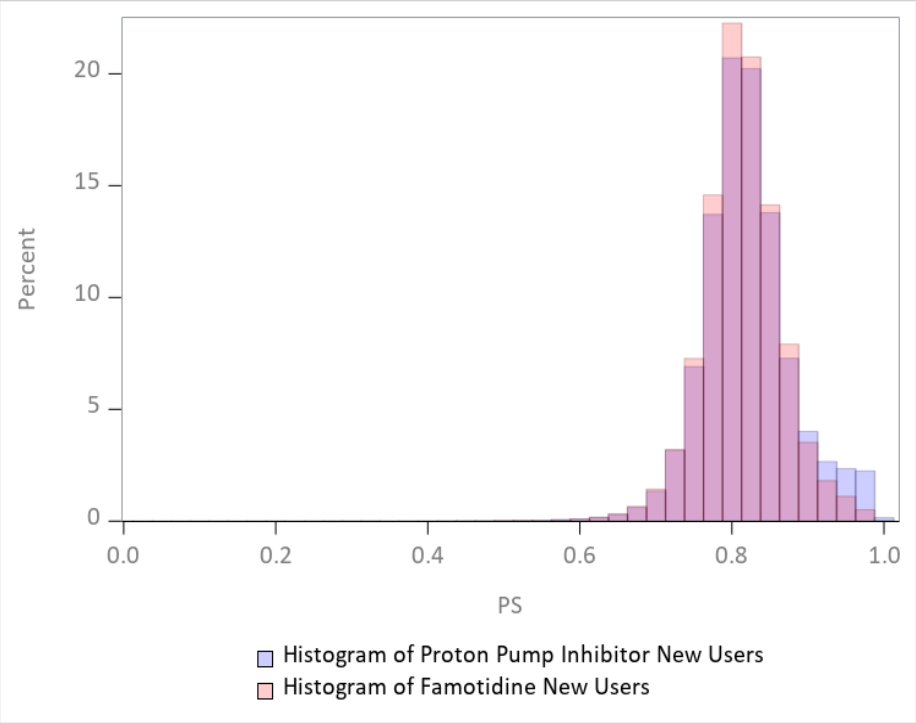
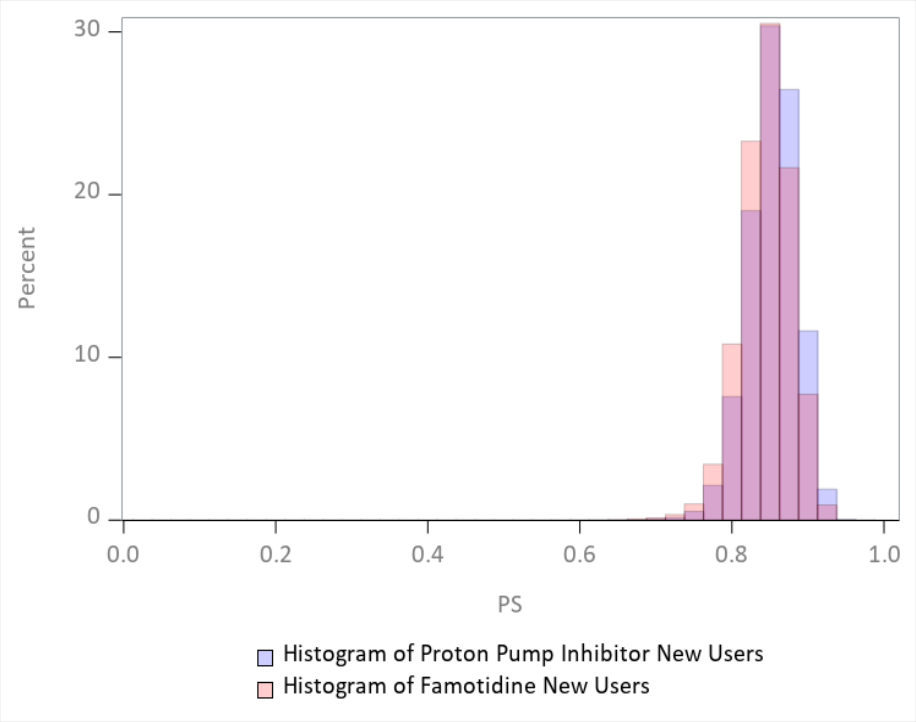


Figure 9a. Histograms Depicting Propensity Score Distributions Before and After Adjustment for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024

Unweighted Propensity Score Distribution Before Trimming



Unweighted Propensity Score Distribution After Trimming

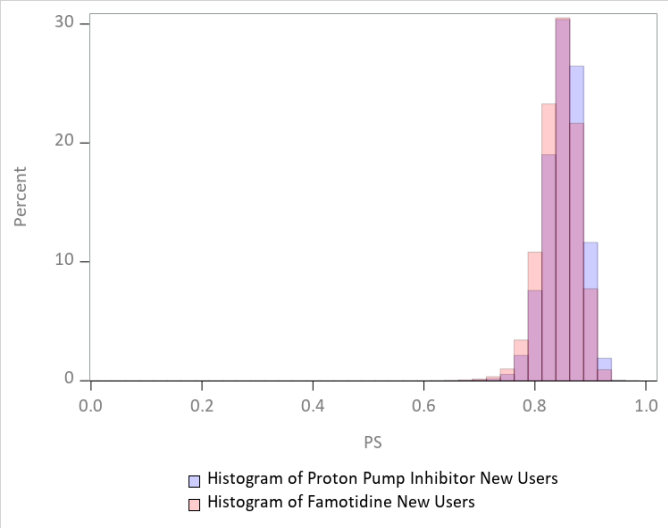


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Weighted Propensity Score Distribution After Trimming, Inverse Probability of Treatment Weighted, Average Treatment Effect in the Treated (ATT)

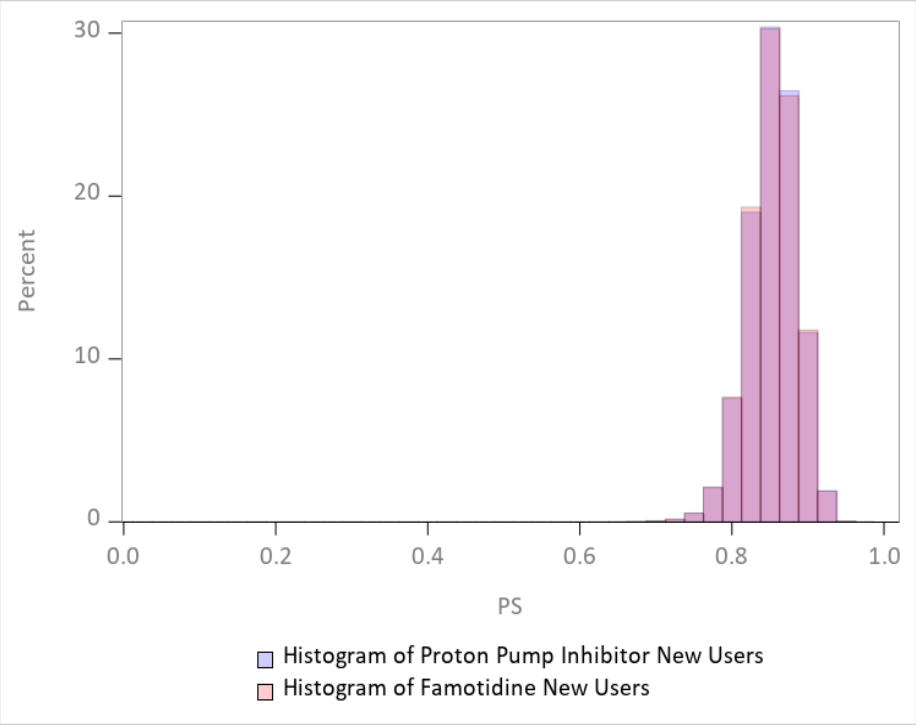
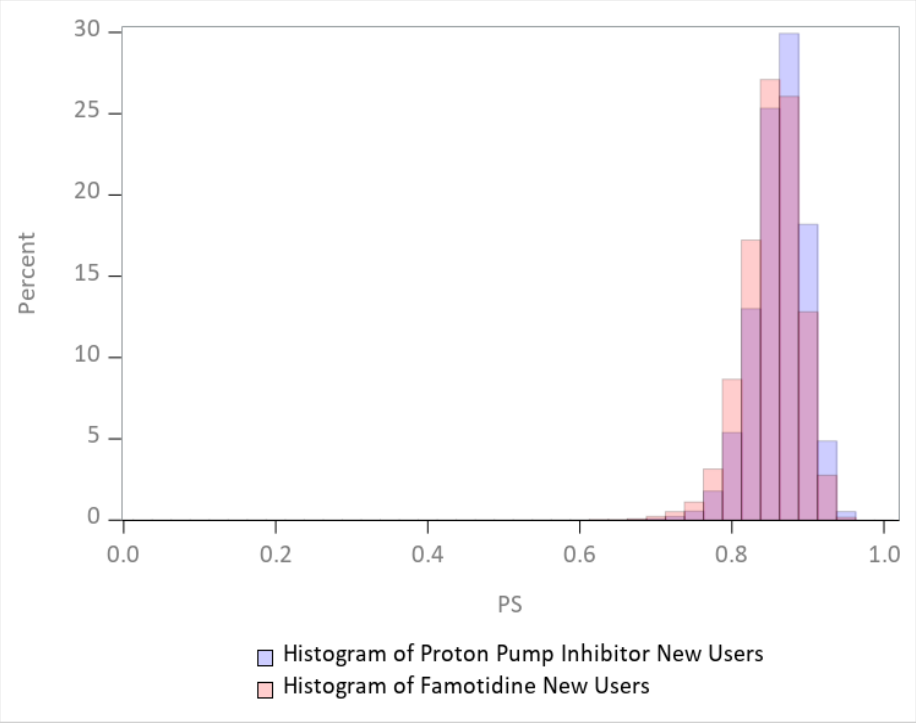


Figure 9b. Histograms Depicting Propensity Score Distributions Before and After Adjustment for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years

Unweighted Propensity Score Distribution Before Trimming



Unweighted Propensity Score Distribution After Trimming

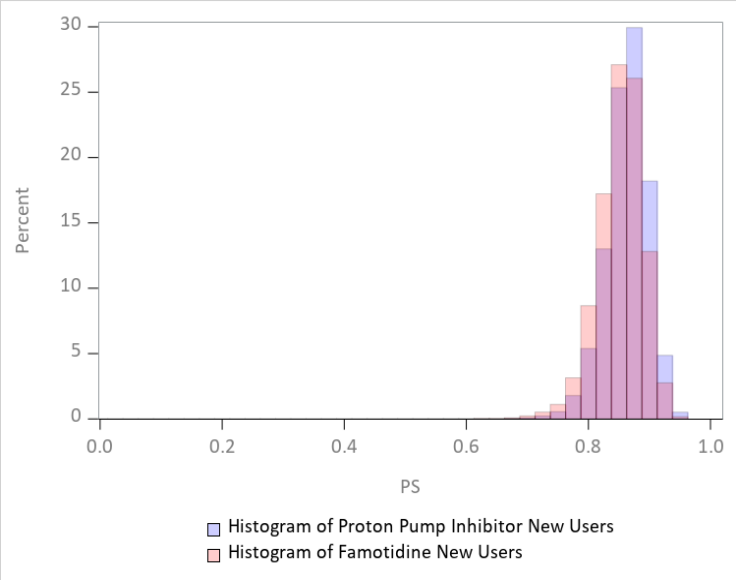


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Weighted Propensity Score Distribution After Trimming, Inverse Probability of Treatment Weighted, Average Treatment Effect in the Treated (ATT)

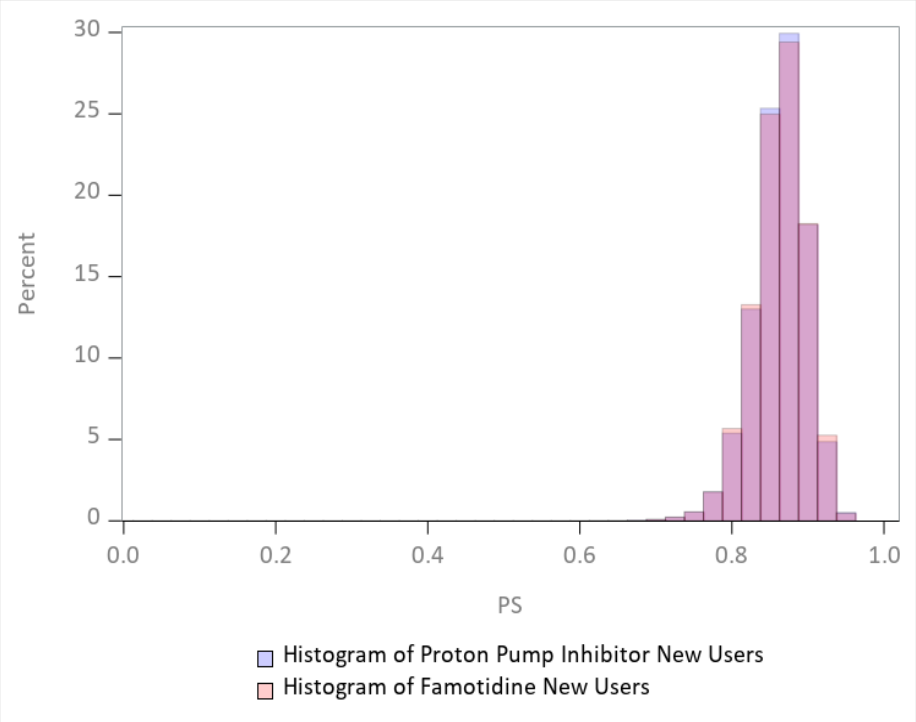
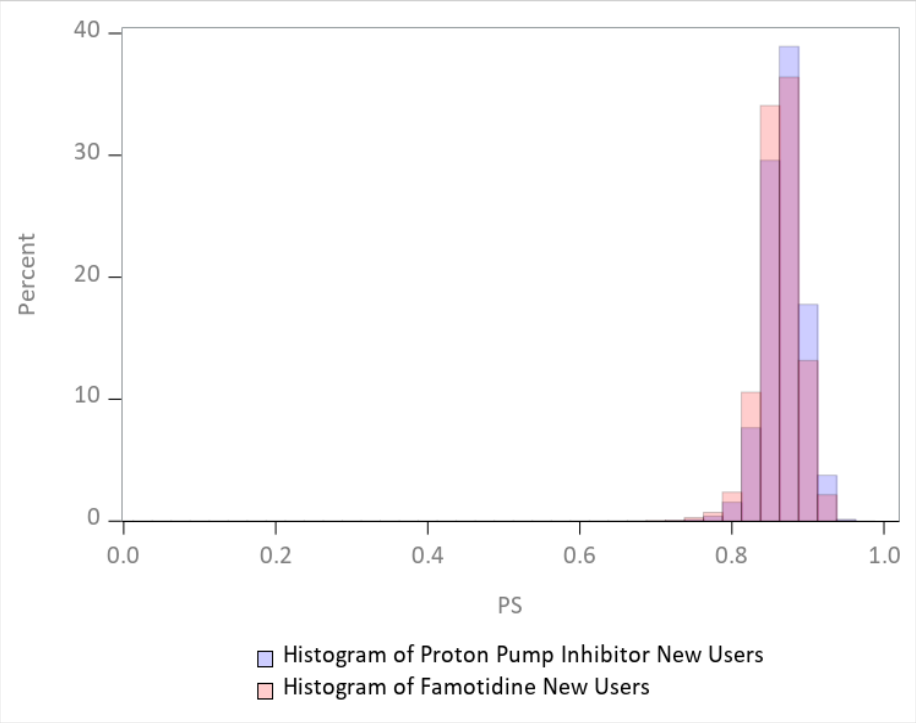


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Unweighted Propensity Score Distribution Before Trimming



Unweighted Propensity Score Distribution After Trimming

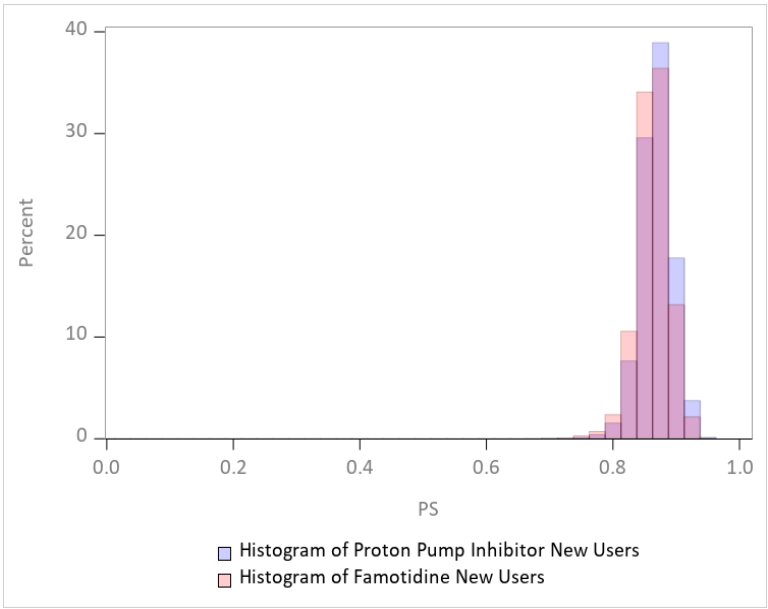


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Weighted Propensity Score Distribution After Trimming, Inverse Probability of Treatment Weighted, Average Treatment Effect in the Treated (ATT)

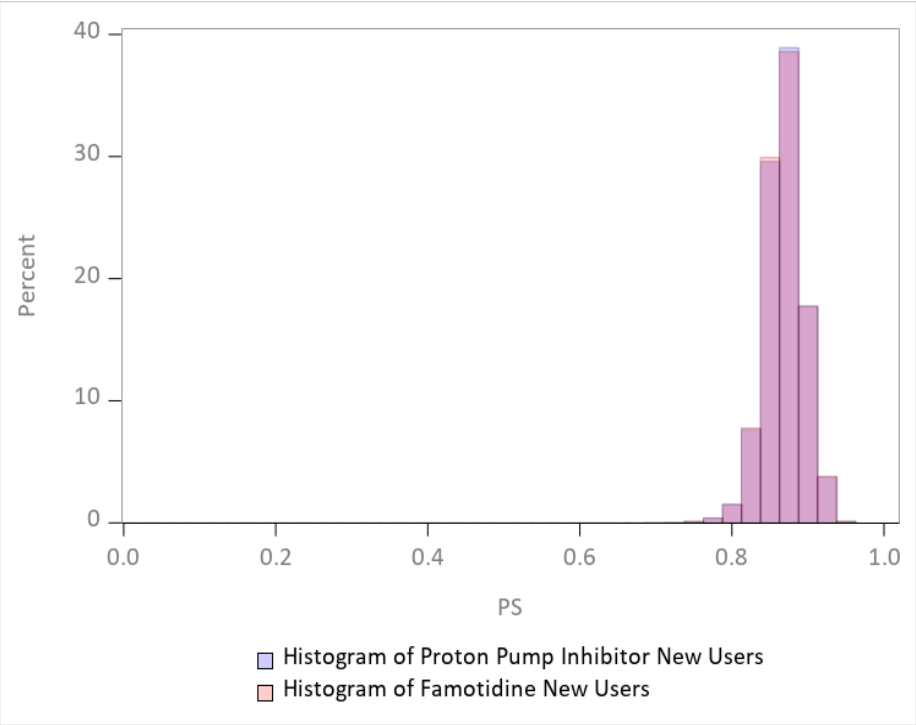
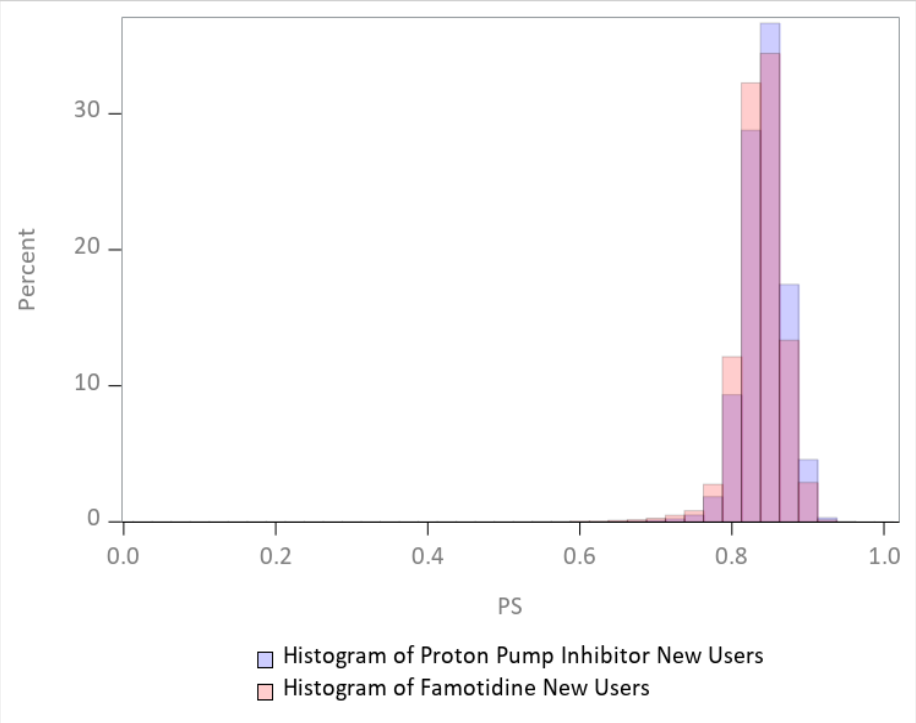


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Unweighted Propensity Score Distribution Before Trimming



Unweighted Propensity Score Distribution After Trimming

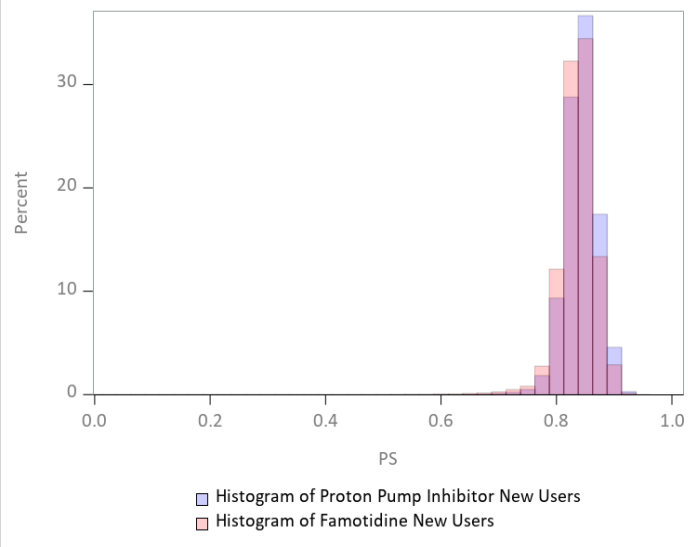


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Weighted Propensity Score Distribution After Trimming, Inverse Probability of Treatment Weighted, Average Treatment Effect in the Treated (ATT)

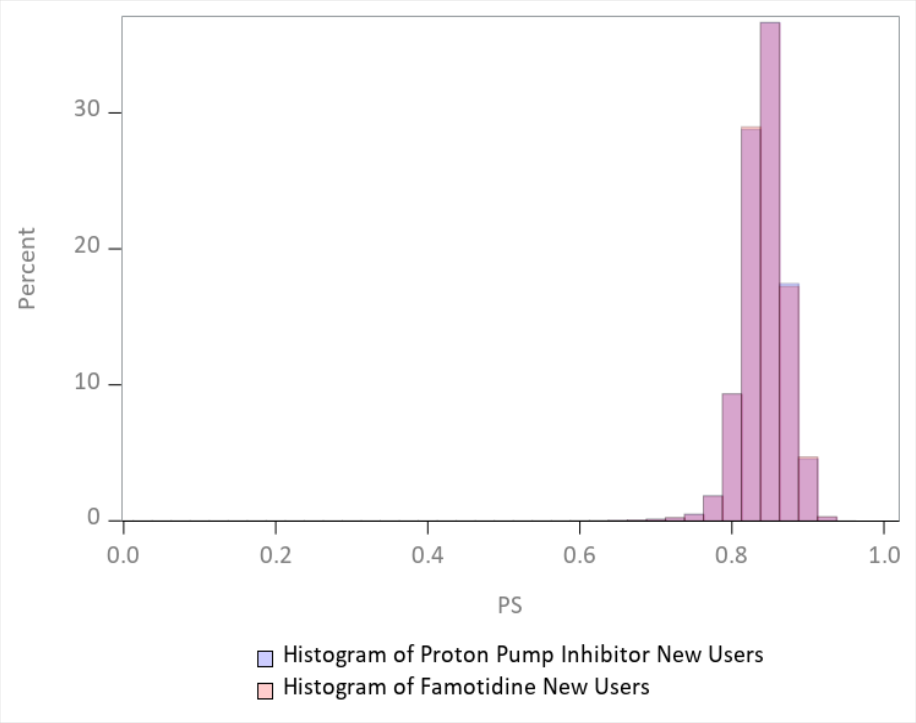
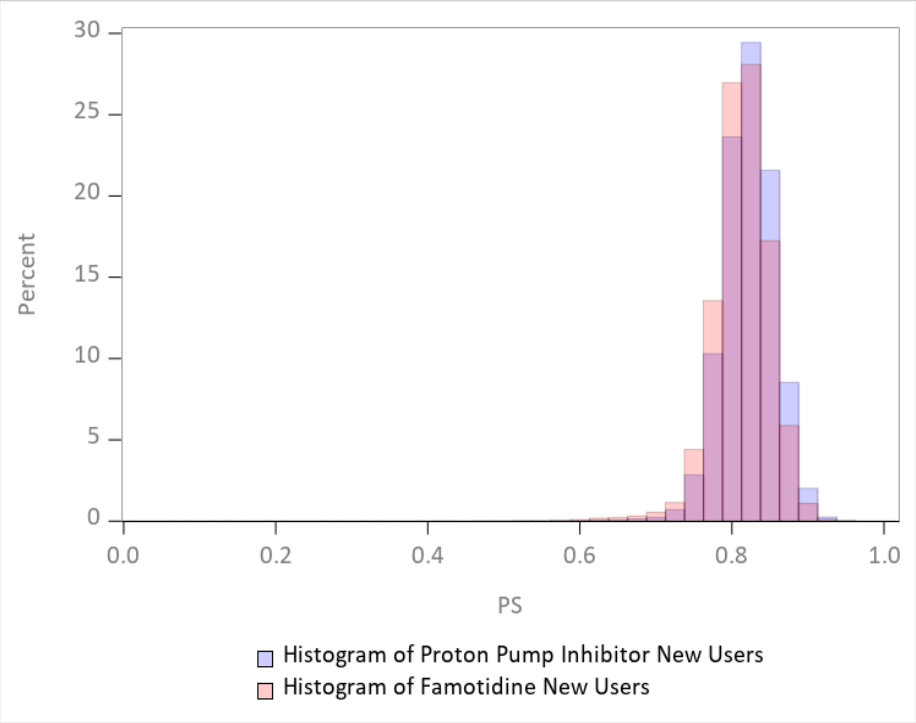


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Unweighted Propensity Score Distribution Before Trimming



Unweighted Propensity Score Distribution After Trimming

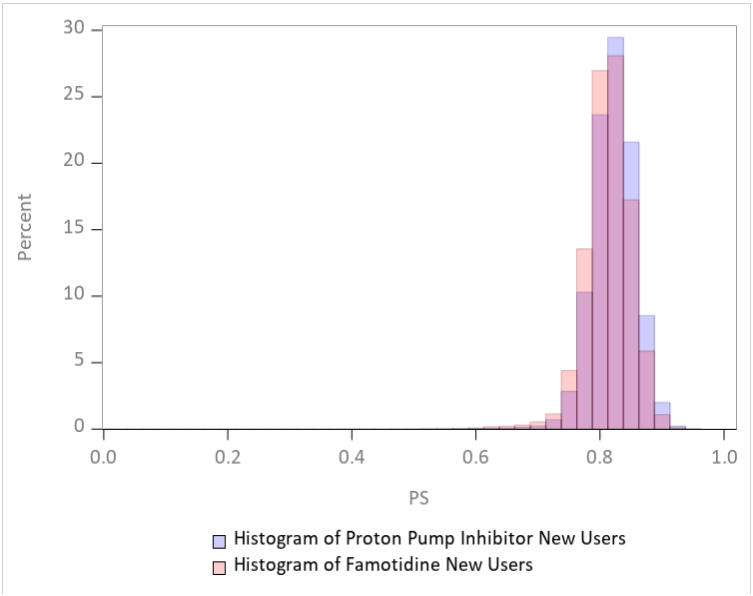


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Weighted Propensity Score Distribution After Trimming, Inverse Probability of Treatment Weighted, Average Treatment Effect in the Treated (ATT)

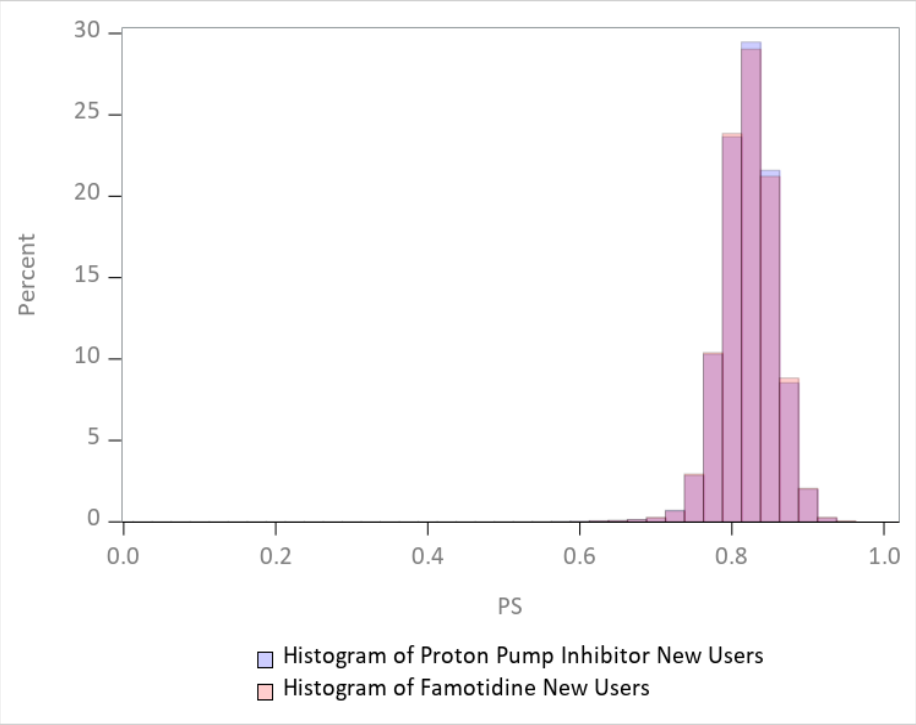
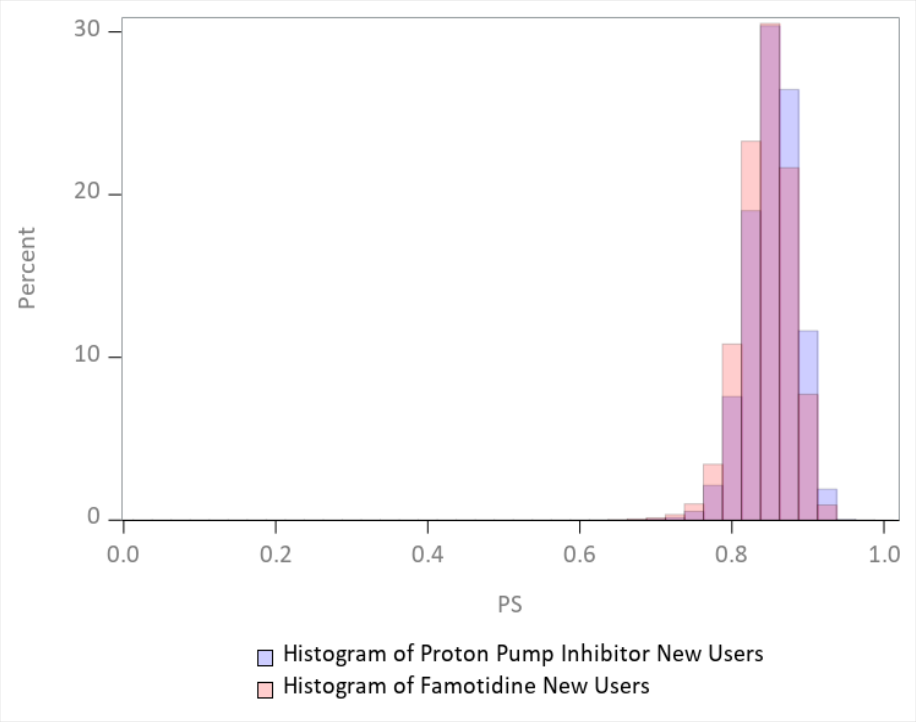


Figure 10a. Histograms Depicting Propensity Score Distributions Before and After Adjustment for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024

Unweighted Propensity Score Distribution Before Trimming



Unweighted Propensity Score Distribution After Trimming

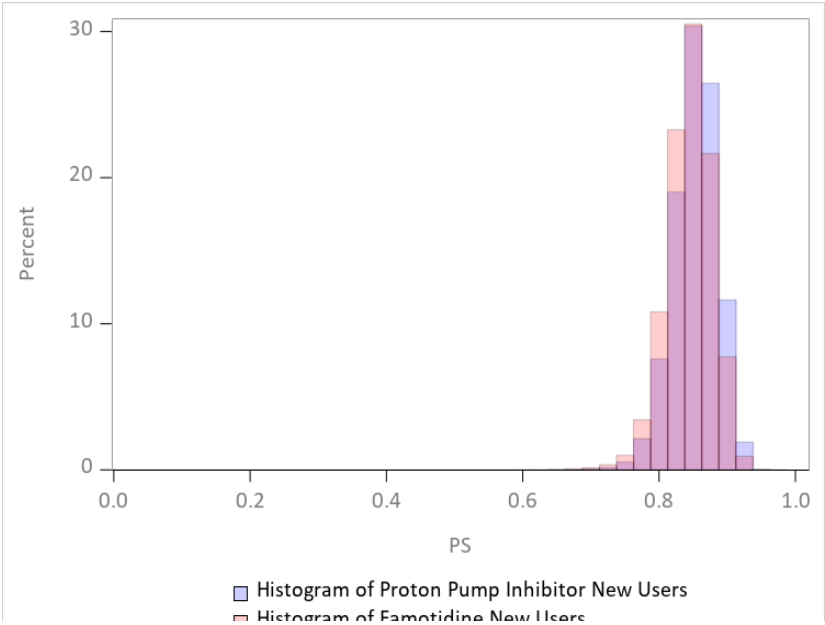


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Weighted Propensity Score Distribution After Trimming, Inverse Probability of Treatment Weighted, Average Treatment Effect in the Treated (ATT)

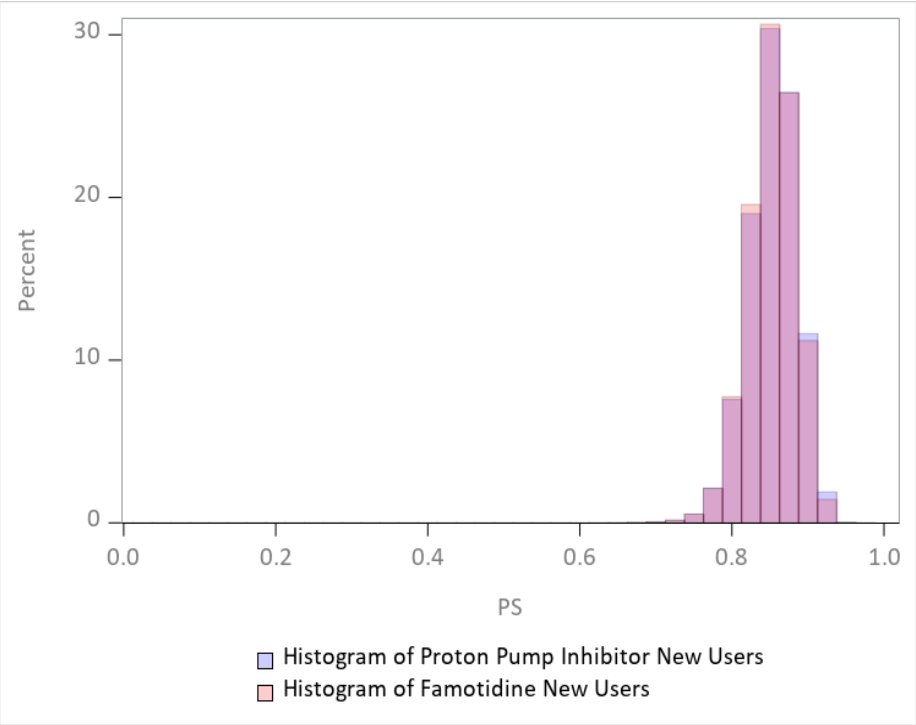
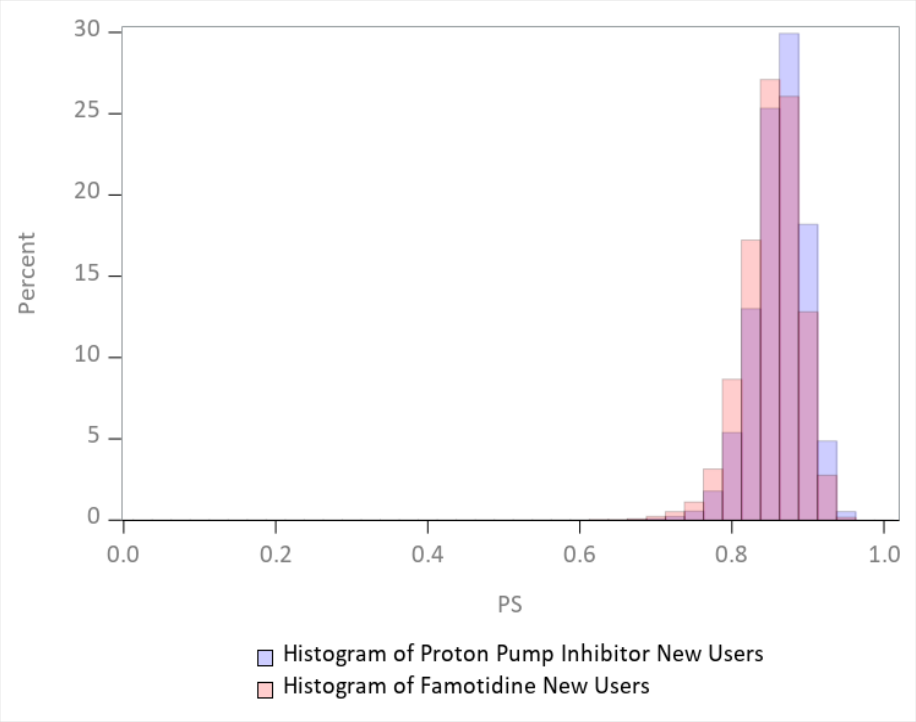


Figure 10b. Histograms Depicting Propensity Score Distributions Before and After Adjustment for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years

Unweighted Propensity Score Distribution Before Trimming



Unweighted Propensity Score Distribution After Trimming

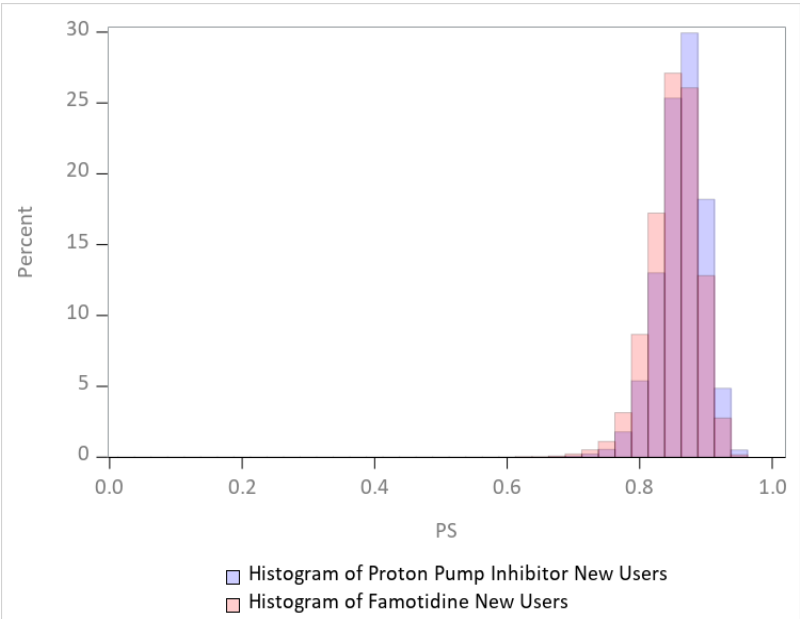


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Weighted Propensity Score Distribution After Trimming, Inverse Probability of Treatment Weighted, Average Treatment Effect in the Treated (ATT)

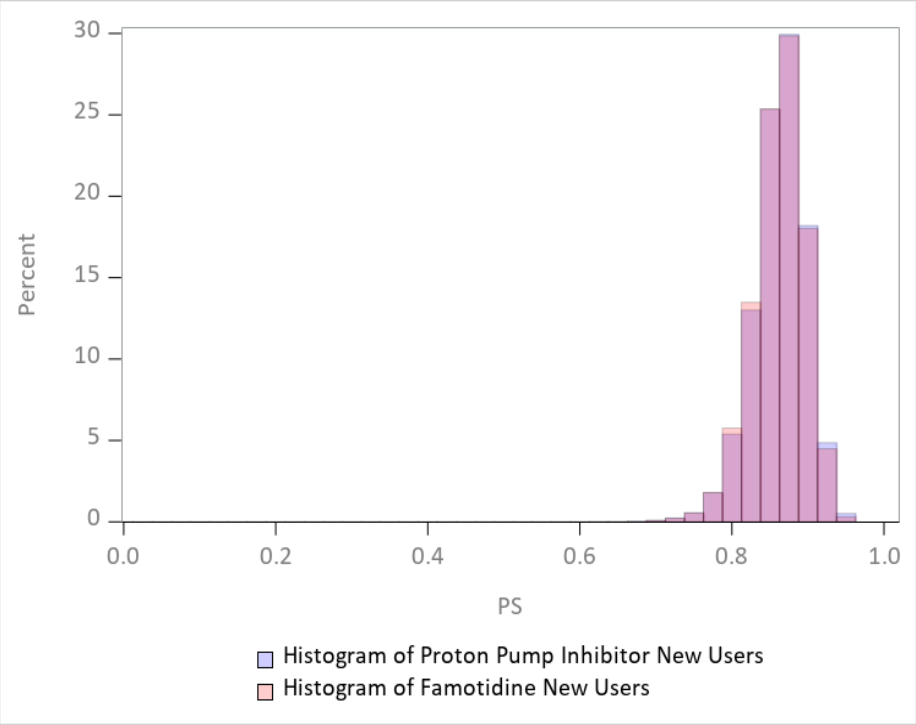
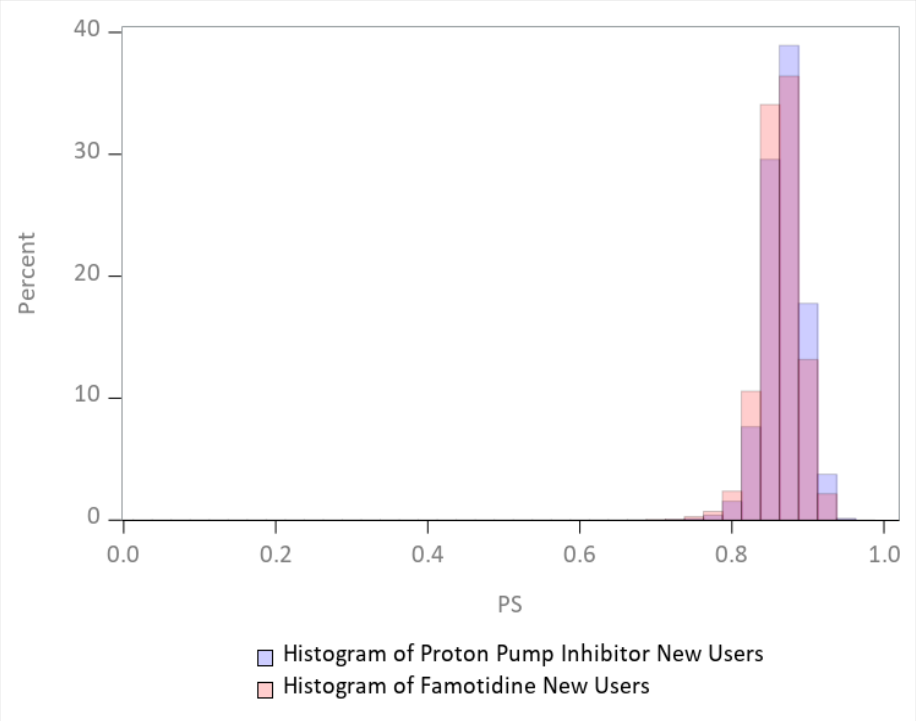


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Unweighted Propensity Score Distribution Before Trimming



Unweighted Propensity Score Distribution After Trimming

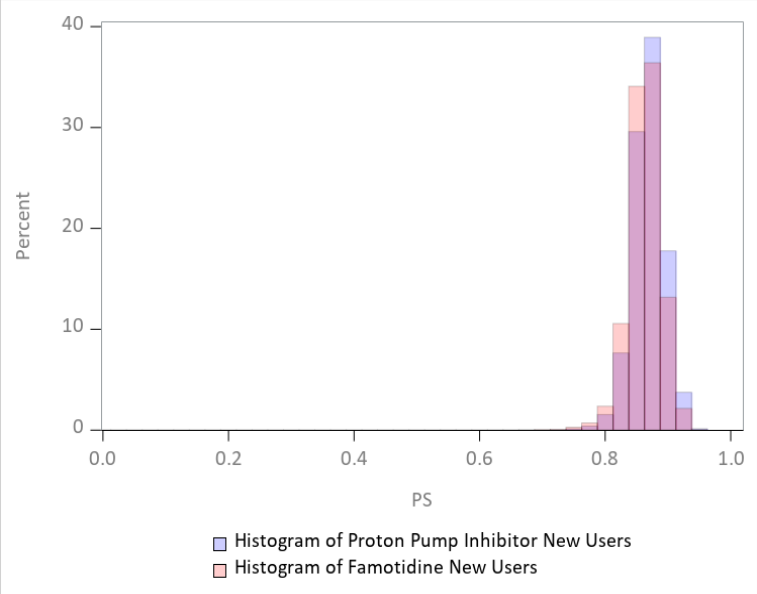


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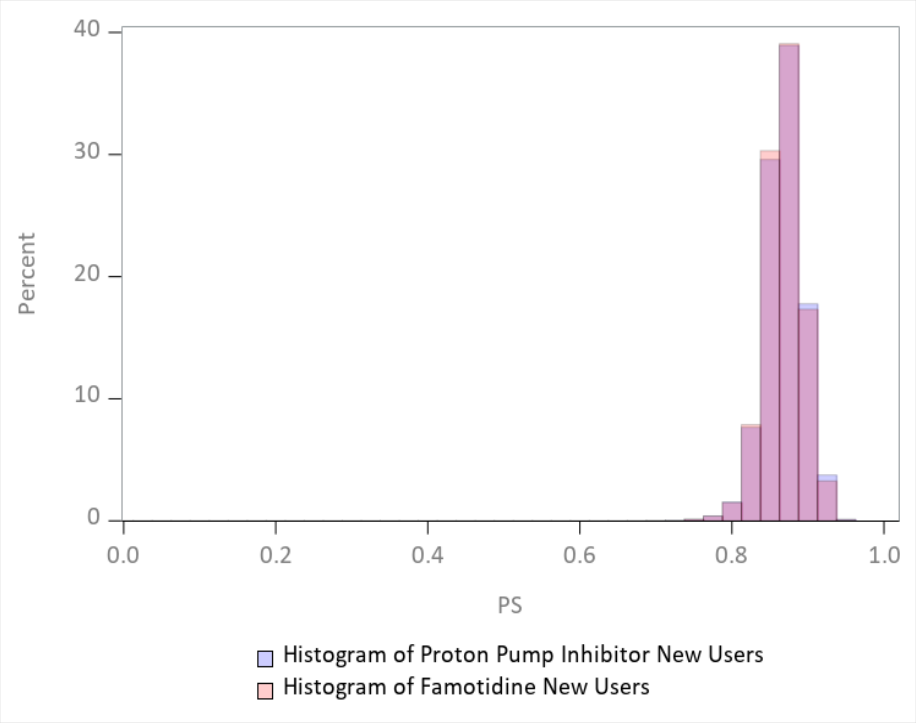
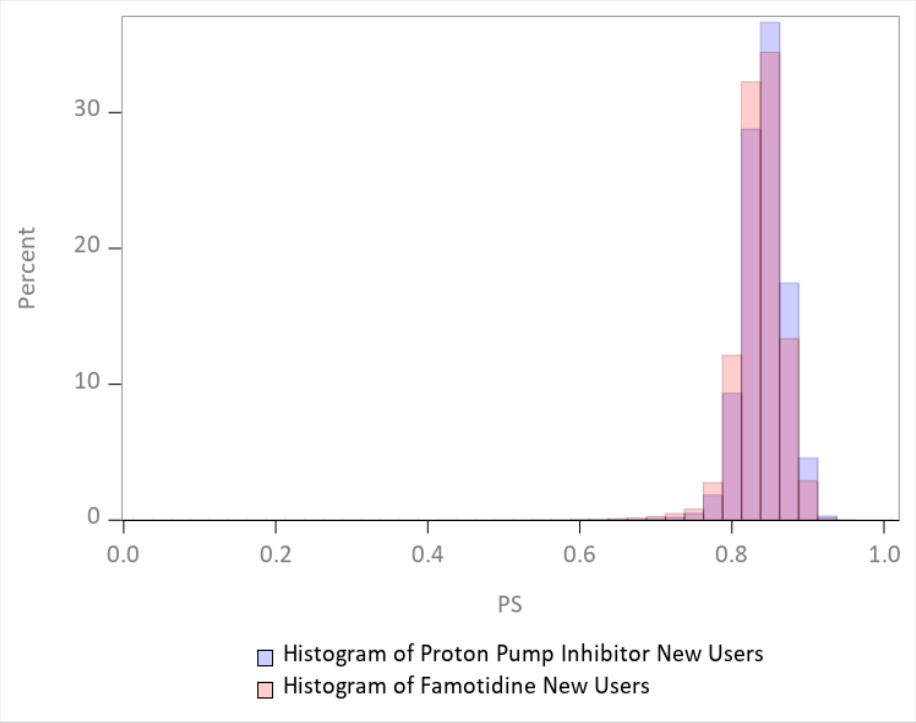


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Unweighted Propensity Score Distribution Before Trimming



Unweighted Propensity Score Distribution After Trimming

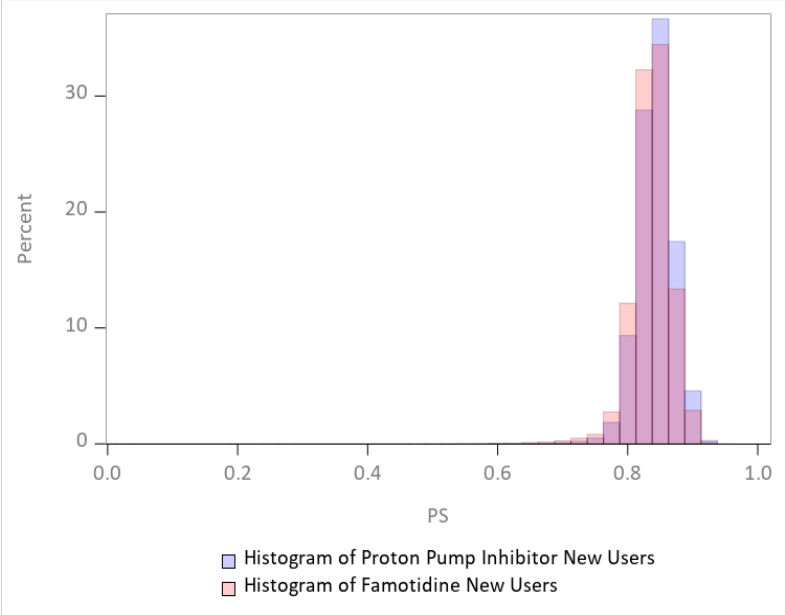


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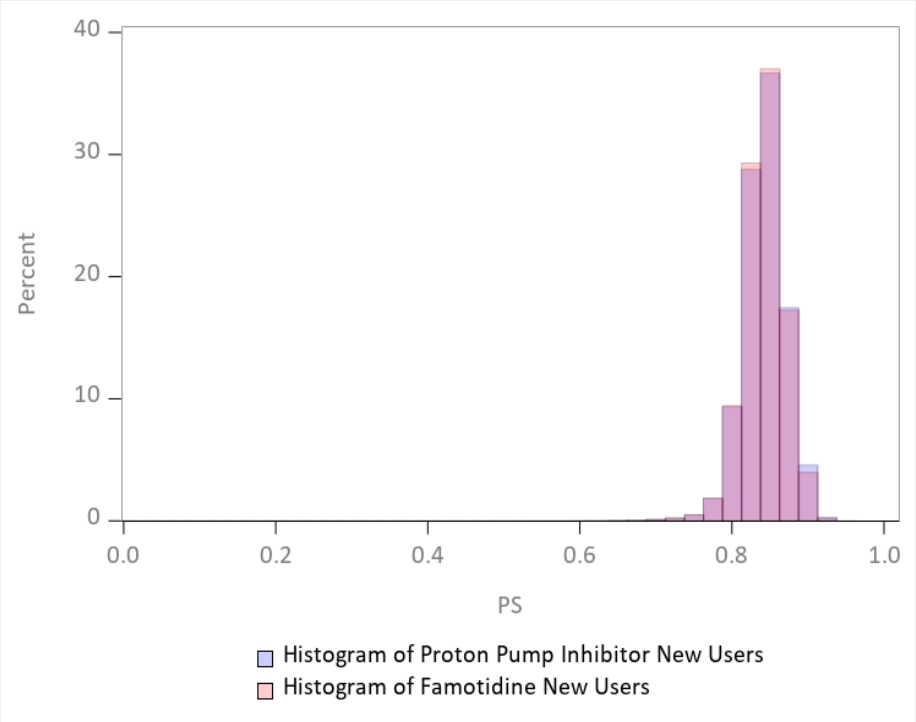
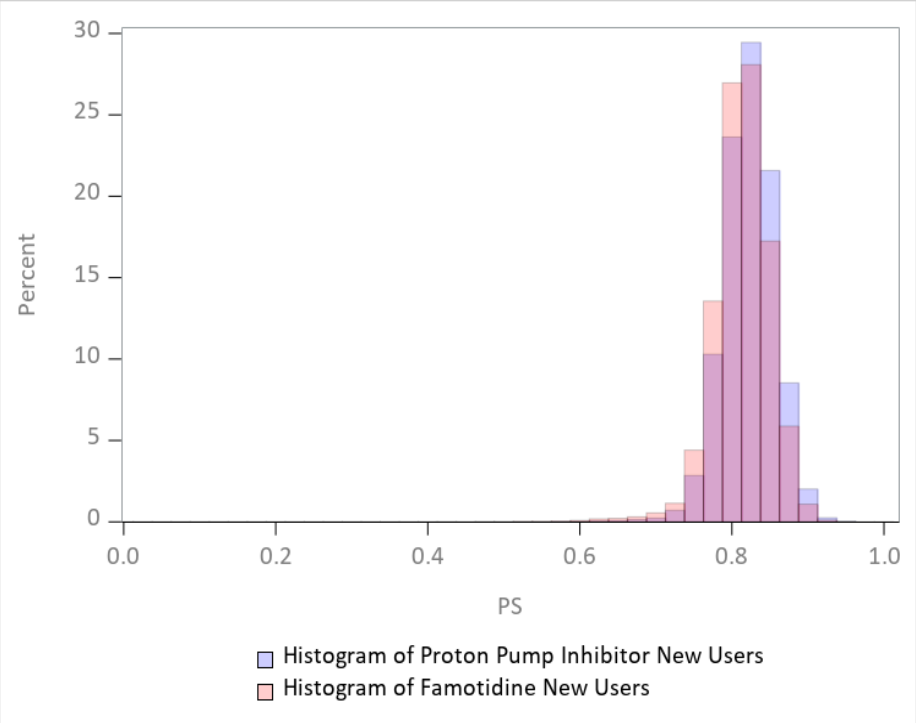


Figure 10e. Histograms Depicting Propensity Score Distributions Before and After Adjustment for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: ≥ 75 years

Unweighted Propensity Score Distribution Before Trimming



Unweighted Propensity Score Distribution After Trimming

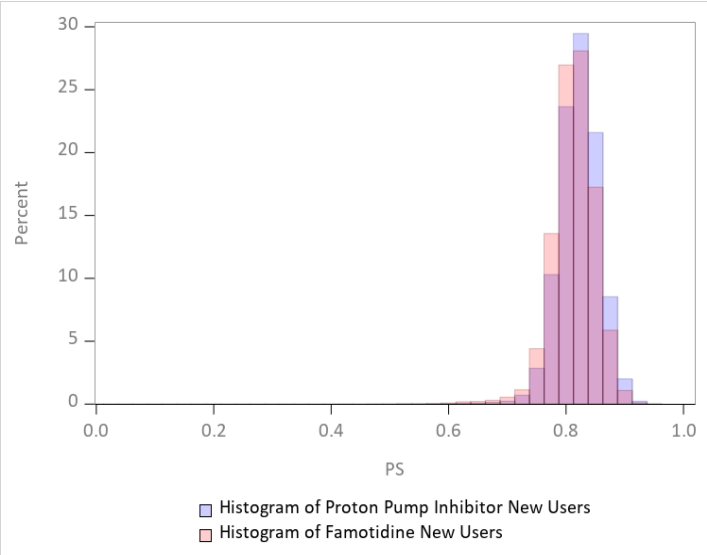


Figure 10e. Histograms Depicting Propensity Score Distributions Before and After Adjustment for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: ≥ 75 years

Weighted Propensity Score Distribution After Trimming, Inverse Probability of Treatment Weighted, Average Treatment Effect in the Treated (ATT)

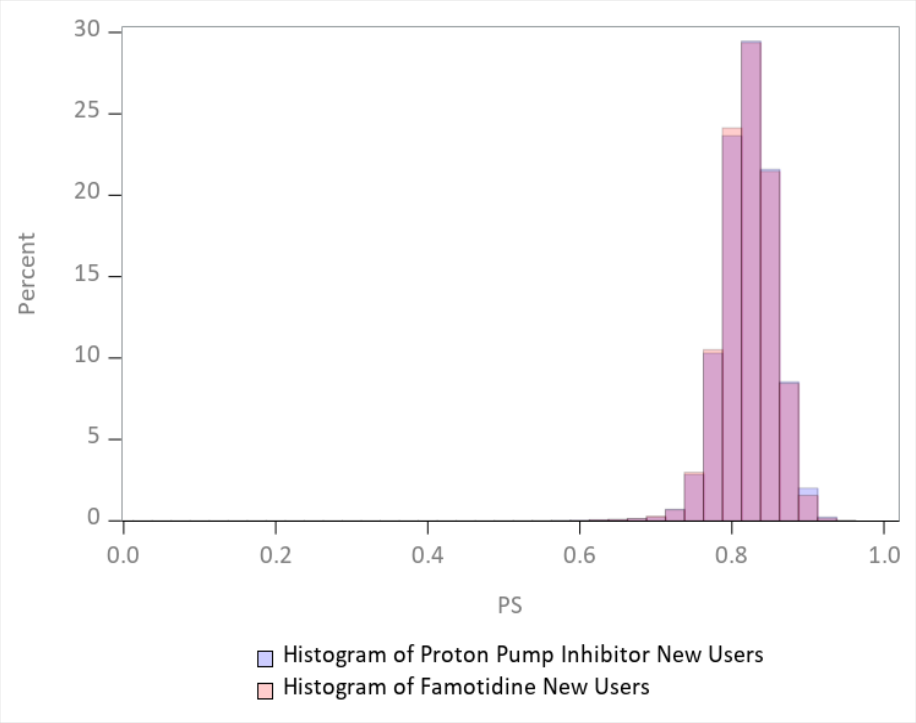
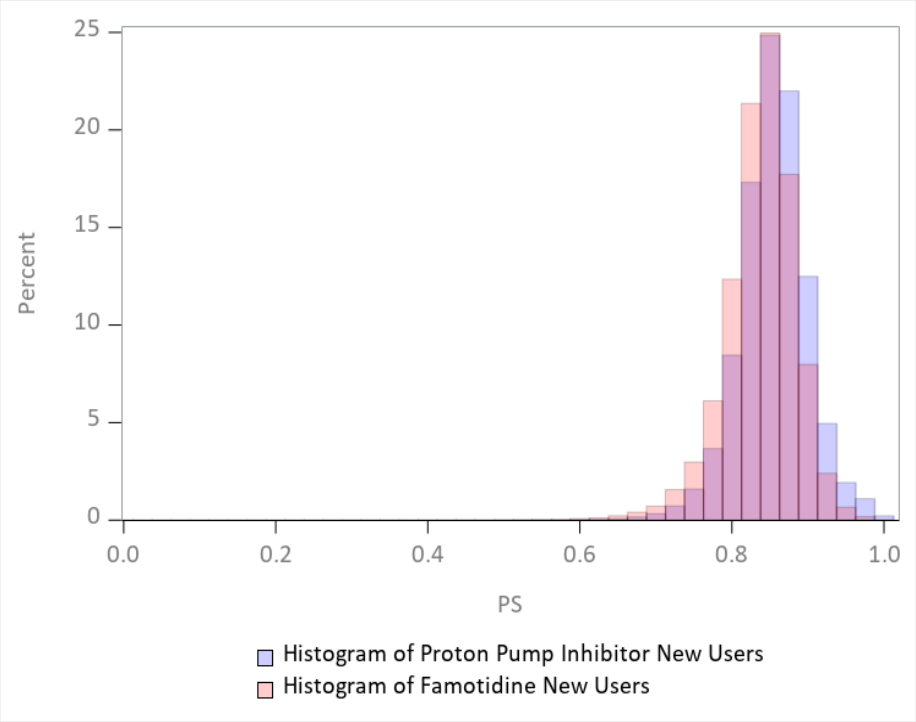


Figure 11a. Histograms Depicting Propensity Score Distributions Before and After Adjustment for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment using hdPS, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024

Unweighted Propensity Score Distribution Before Trimming



Unweighted Propensity Score Distribution After Trimming

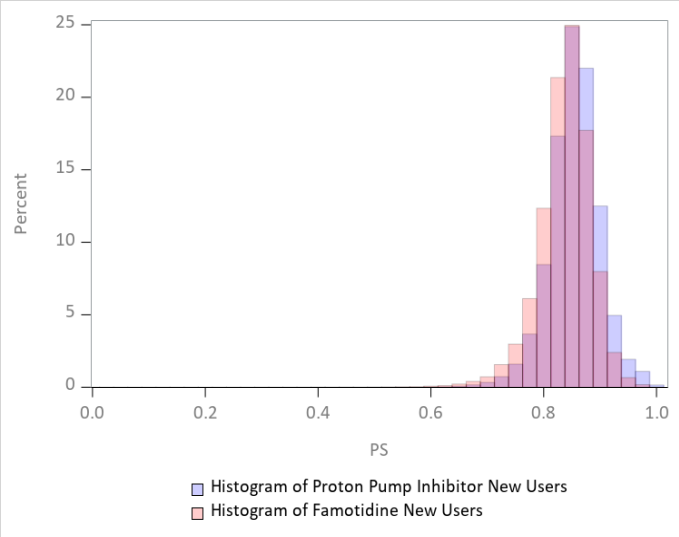


Figure 11a. Histograms Depicting Propensity Score Distributions Before and After Adjustment for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment using hdPS, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024

Weighted Propensity Score Distribution After Trimming, Inverse Probability of Treatment Weighted, Average Treatment Effect in the Treated (ATT)

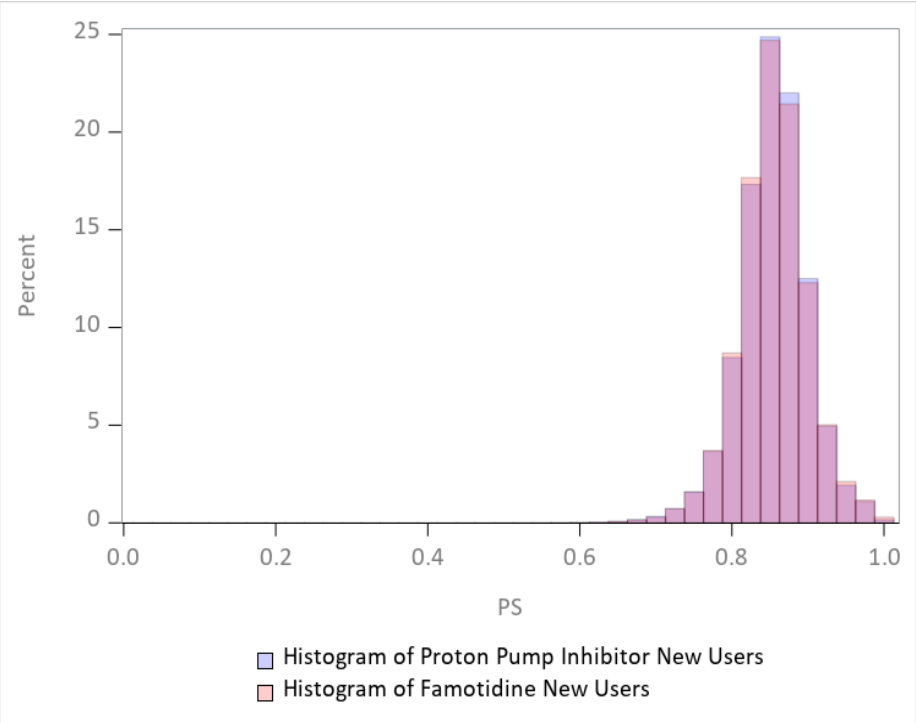
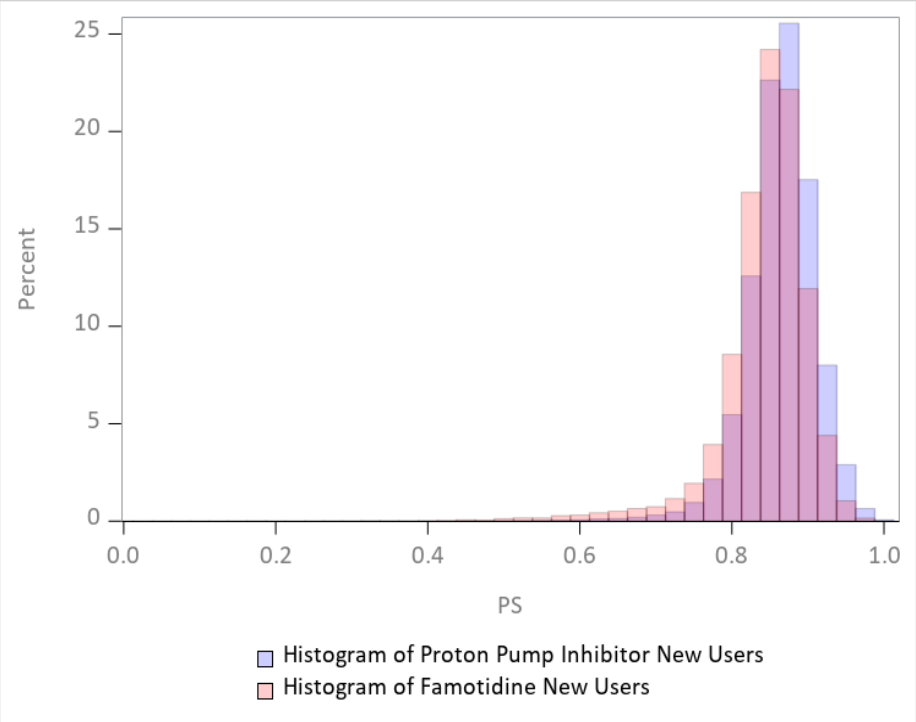


Figure 11b. Histograms Depicting Propensity Score Distributions Before and After Adjustment for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment using hdPS, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years

Unweighted Propensity Score Distribution Before Trimming



Unweighted Propensity Score Distribution After Trimming

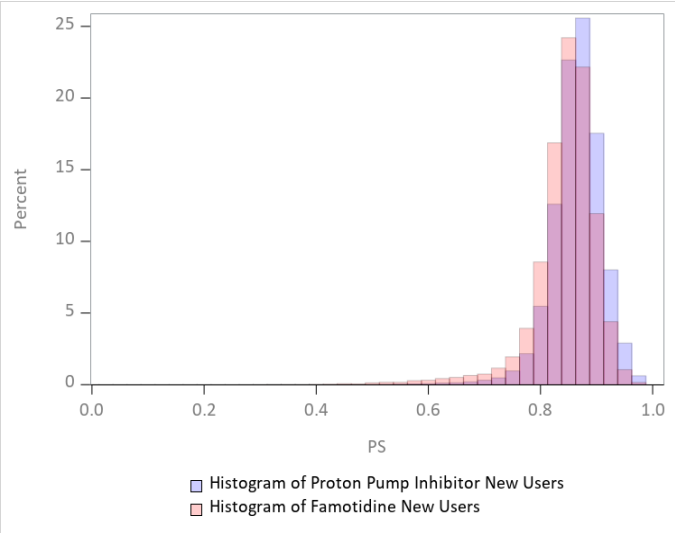


Figure 11b. Histograms Depicting Propensity Score Distributions Before and After Adjustment for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment using hdPS, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years

Weighted Propensity Score Distribution After Trimming, Inverse Probability of Treatment Weighted, Average Treatment Effect in the Treated (ATT)

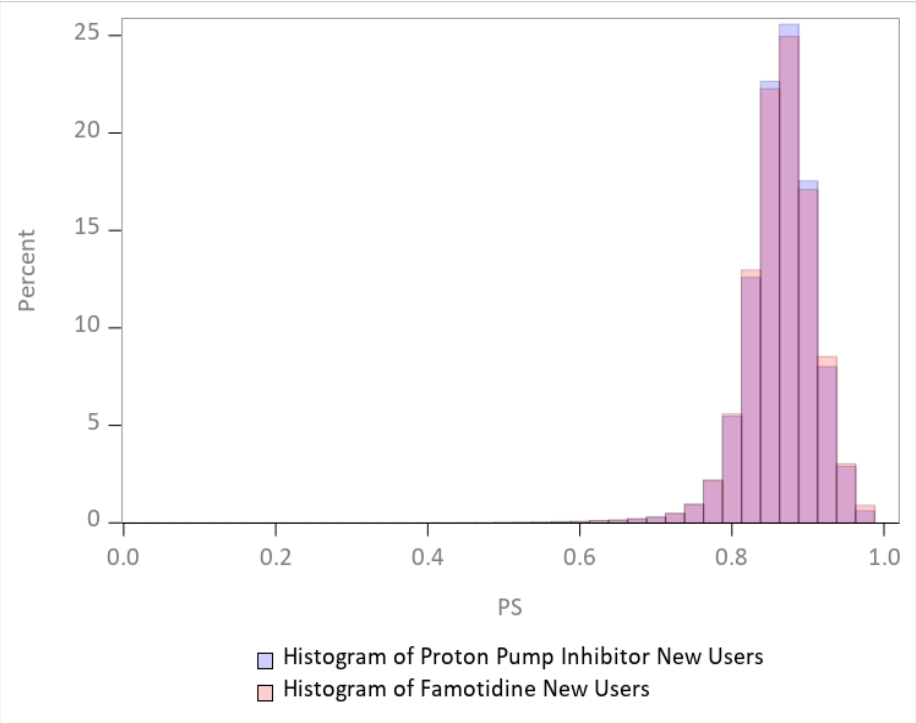
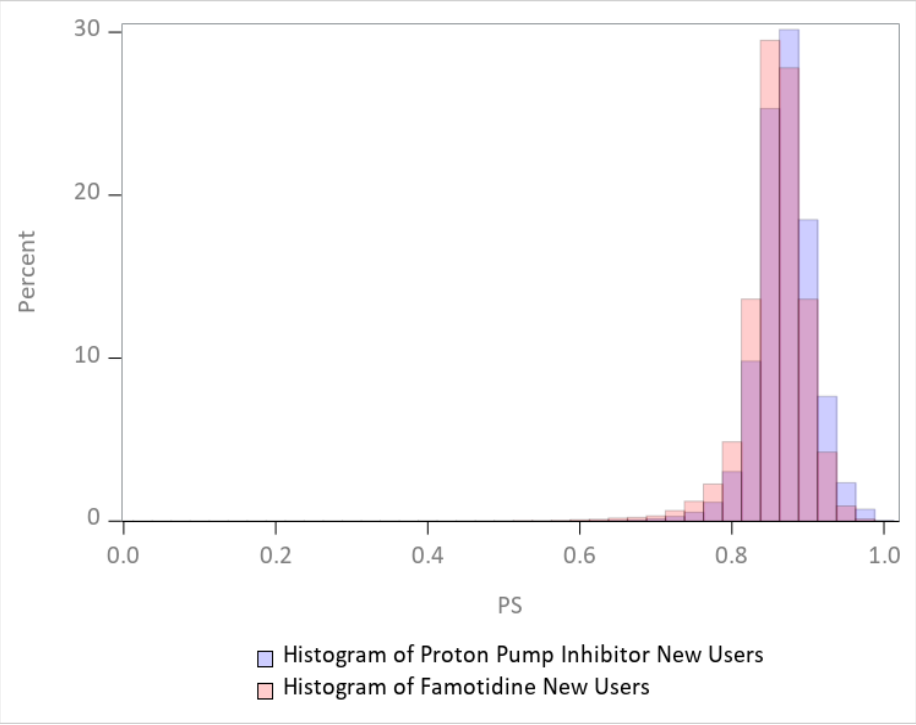


Figure 11c. Histograms Depicting Propensity Score Distributions Before and After Adjustment for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment using hdPS, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 50-64 years

Unweighted Propensity Score Distribution Before Trimming



Unweighted Propensity Score Distribution After Trimming

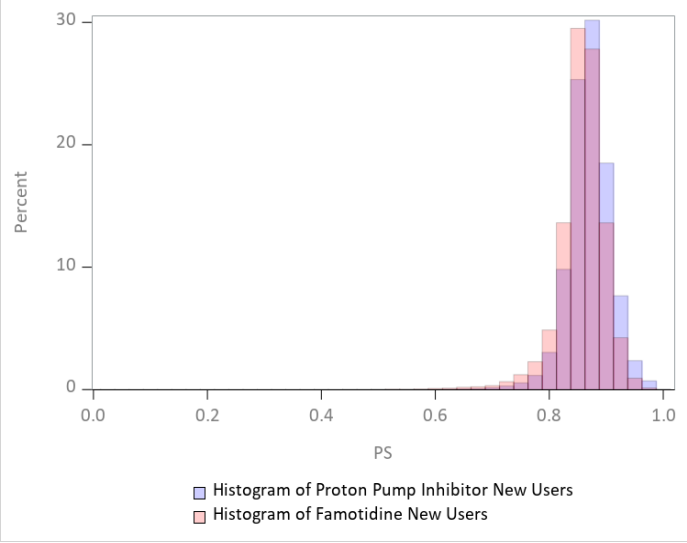


Figure 11c. Histograms Depicting Propensity Score Distributions Before and After Adjustment for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment using hdPS, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 50-64 years

Weighted Propensity Score Distribution After Trimming, Inverse Probability of Treatment Weighted, Average Treatment Effect in the Treated (ATT)

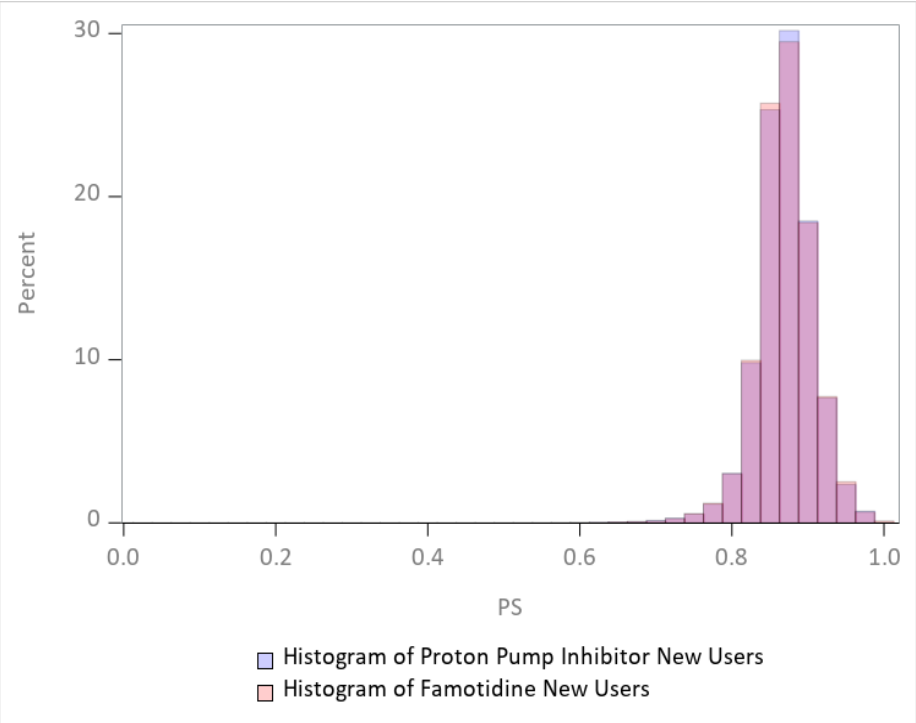
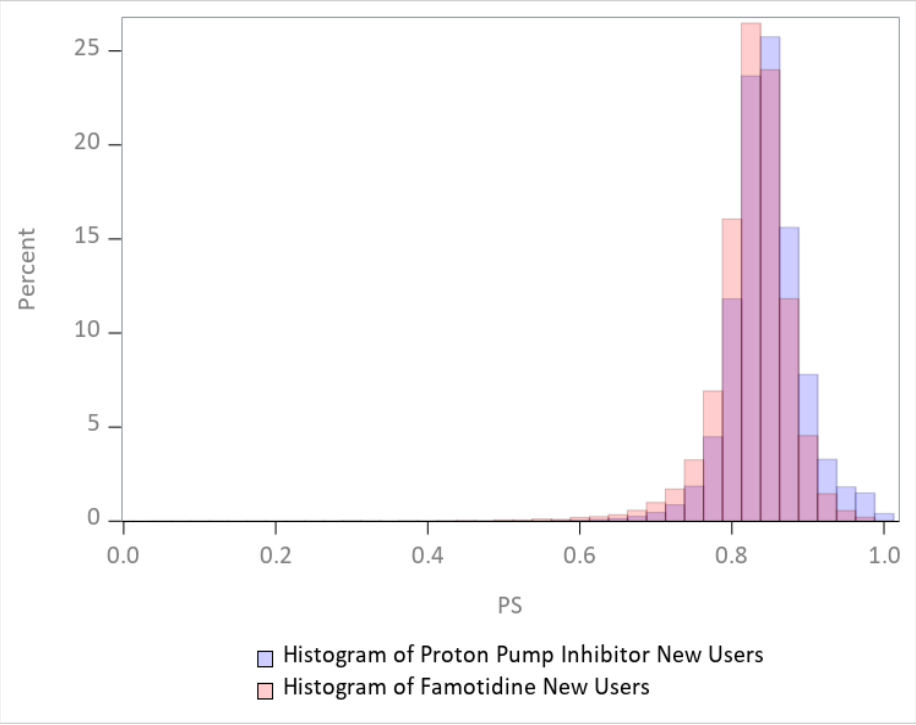


Figure 11d. Histograms Depicting Propensity Score Distributions Before and After Adjustment for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment using hdPS, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years

Unweighted Propensity Score Distribution Before Trimming



Unweighted Propensity Score Distribution After Trimming

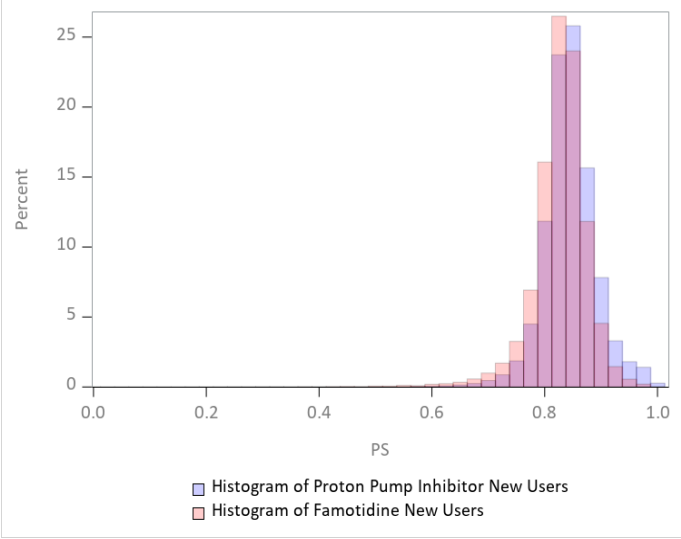


Figure 11d. Histograms Depicting Propensity Score Distributions Before and After Adjustment for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment using hdPS, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years

Weighted Propensity Score Distribution After Trimming, Inverse Probability of Treatment Weighted, Average Treatment Effect in the Treated (ATT)

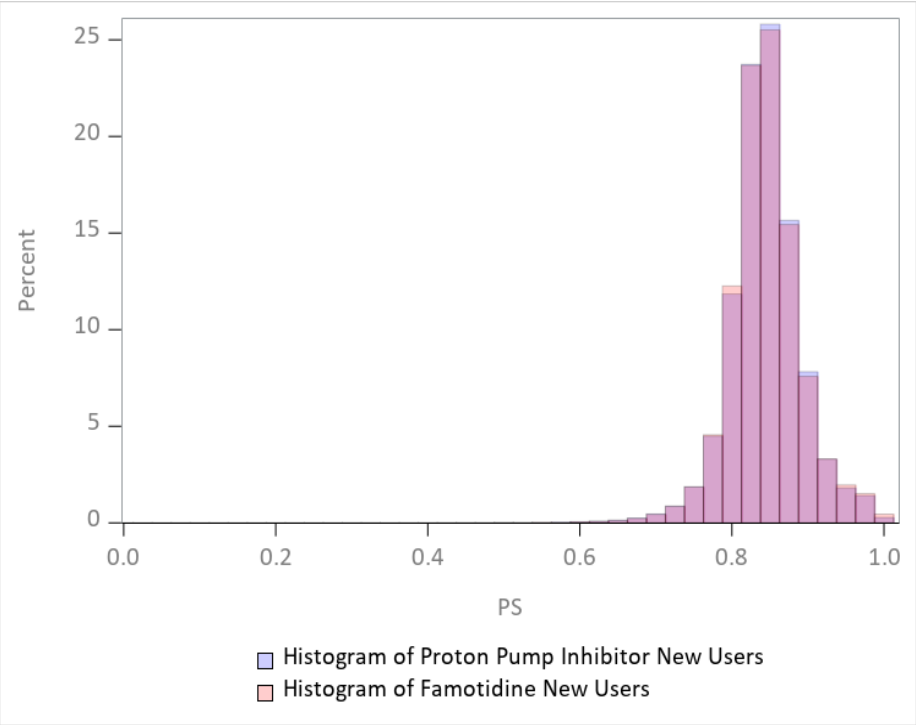
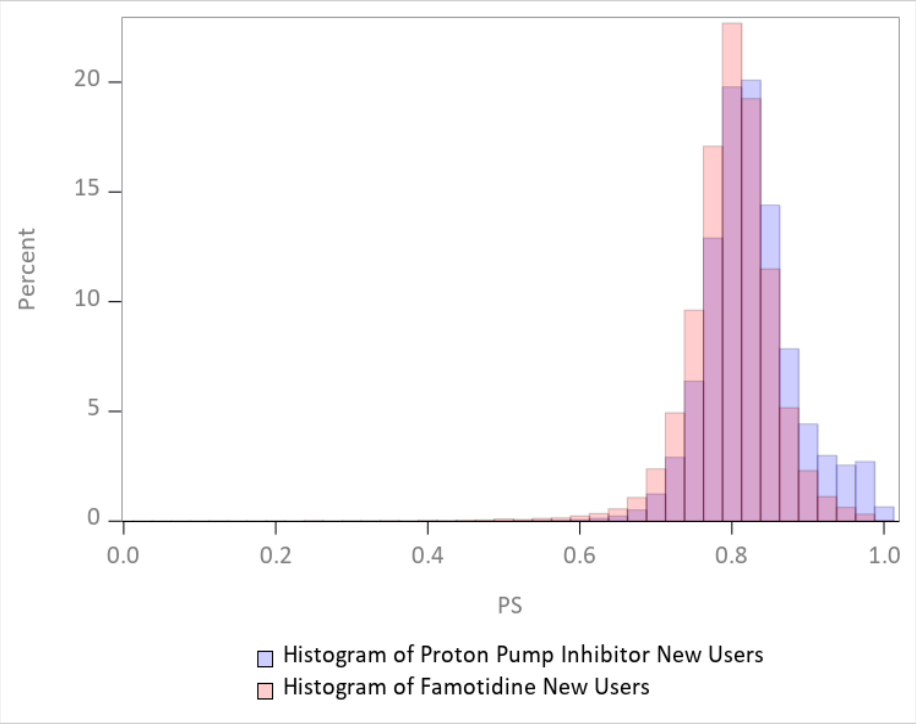


Figure 11e. Histograms Depicting Propensity Score Distributions Before and After Adjustment for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment using hdPS, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: ≥ 75 years

Unweighted Propensity Score Distribution Before Trimming



Unweighted Propensity Score Distribution After Trimming

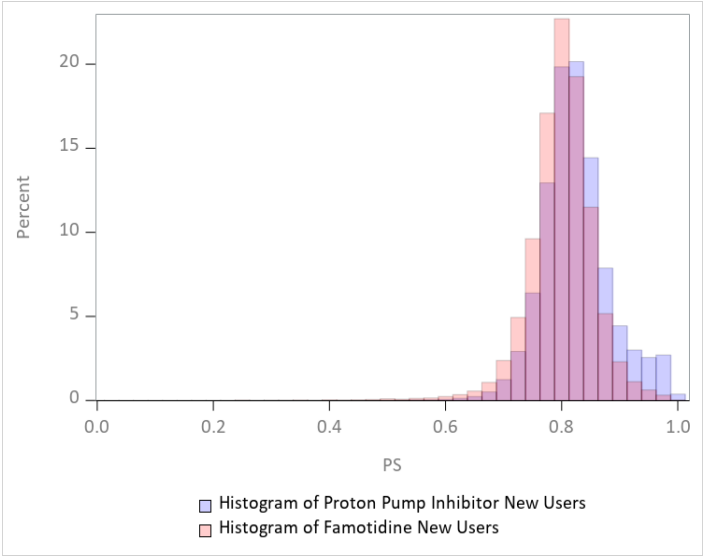


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Weighted Propensity Score Distribution After Trimming, Inverse Probability of Treatment Weighted, Average Treatment Effect in the Treated (ATT)

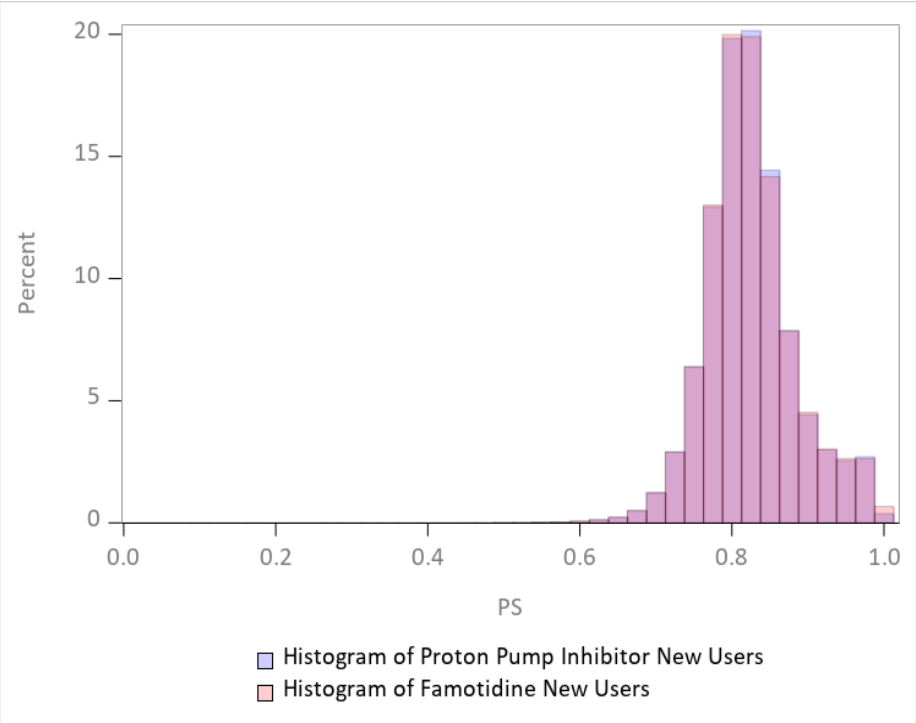
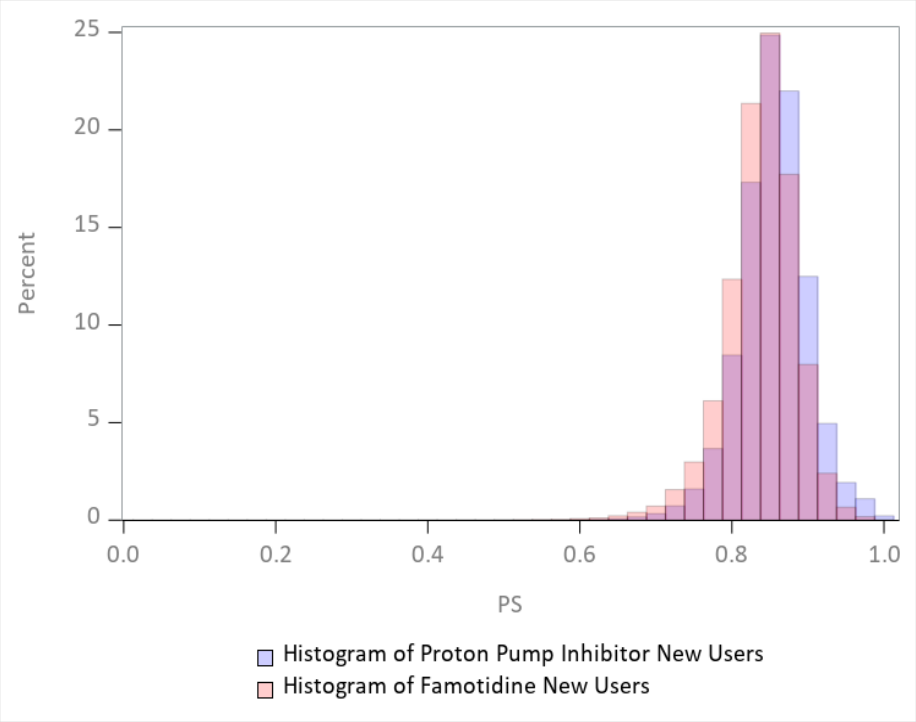


Figure 12a. Histograms Depicting Propensity Score Distributions Before and After Adjustment for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment using hdPS, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024

Unweighted Propensity Score Distribution Before Trimming



Unweighted Propensity Score Distribution After Trimming

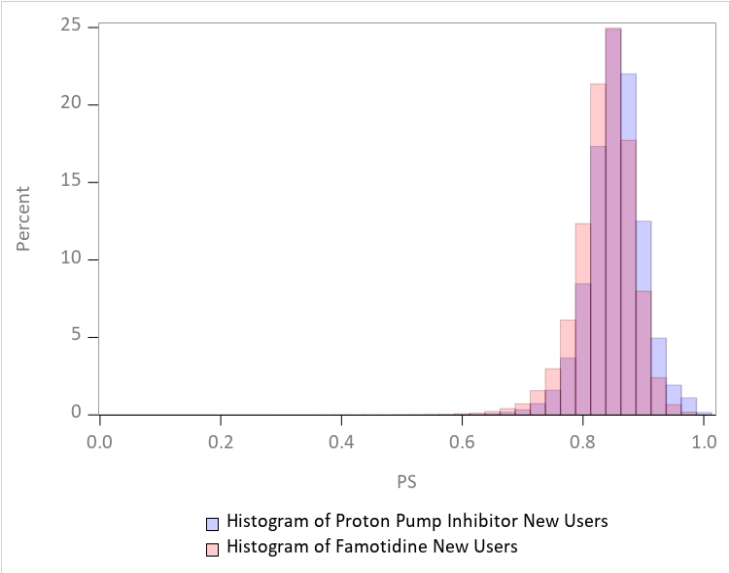


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Weighted Propensity Score Distribution After Trimming, Inverse Probability of Treatment Weighted, Average Treatment Effect in the Treated (ATT)

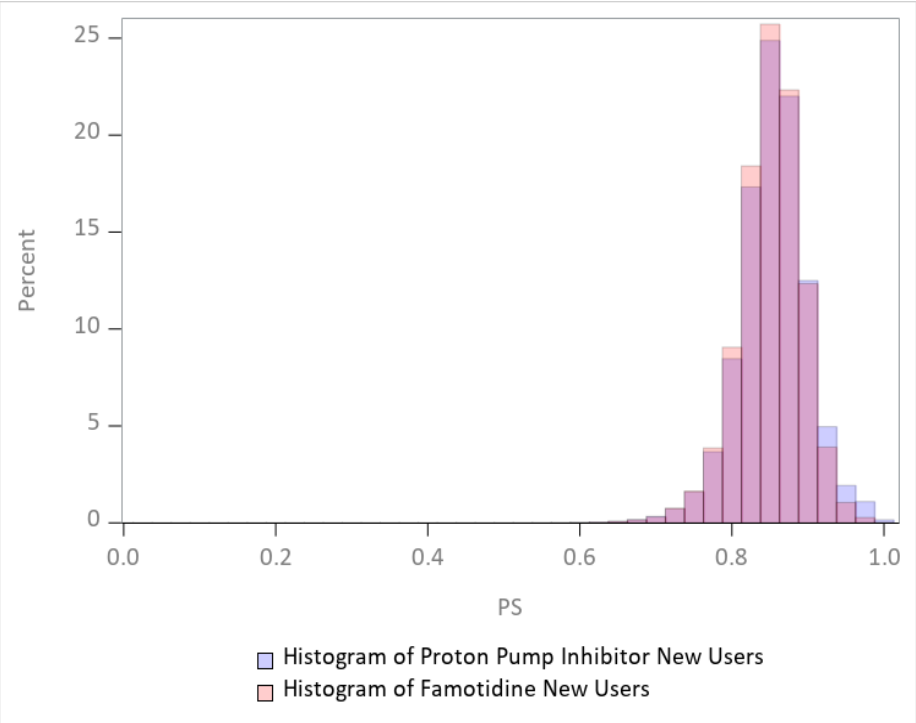
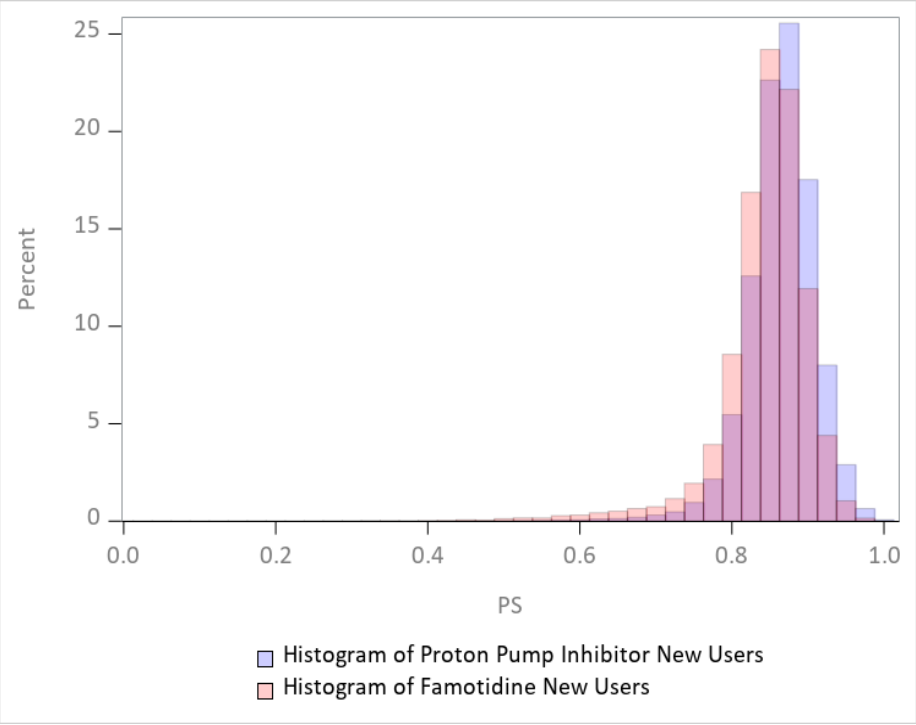


Figure 12b. Histograms Depicting Propensity Score Distributions Before and After Adjustment for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment using hdPS, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years

Unweighted Propensity Score Distribution Before Trimming



Unweighted Propensity Score Distribution After Trimming

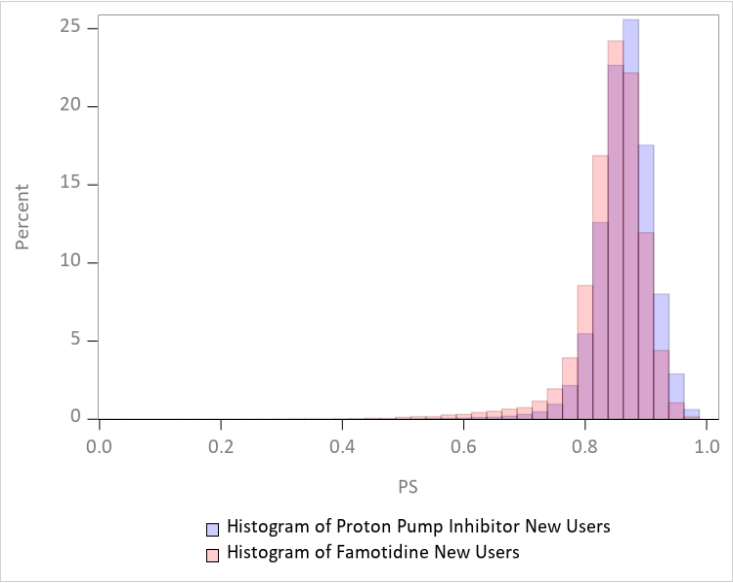


Figure 12b. Histograms Depicting Propensity Score Distributions Before and After Adjustment for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment using hdPS, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years

Weighted Propensity Score Distribution After Trimming, Inverse Probability of Treatment Weighted, Average Treatment Effect in the Treated (ATT)

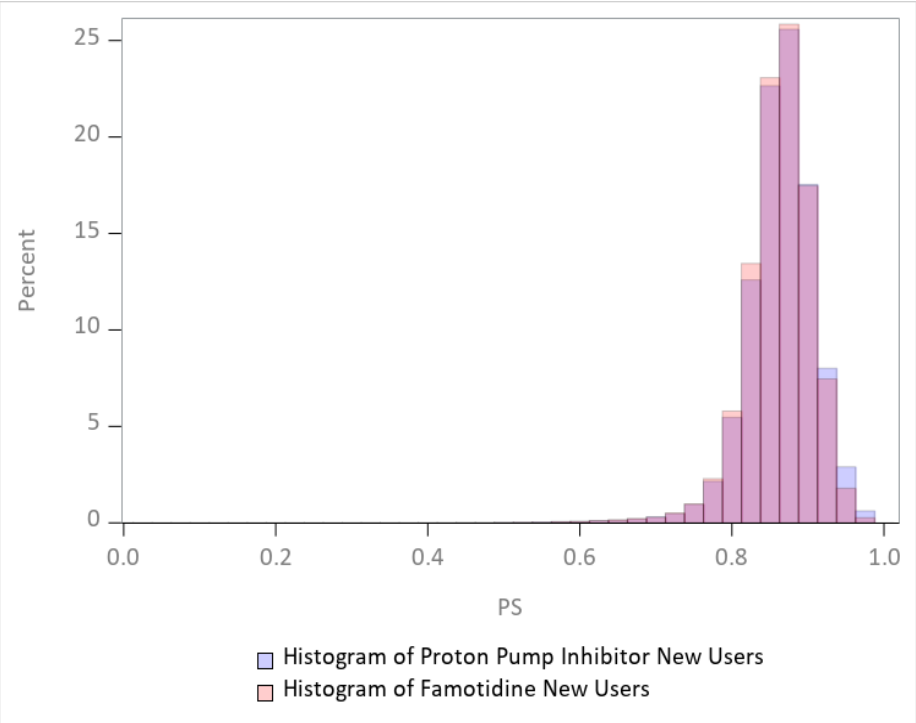
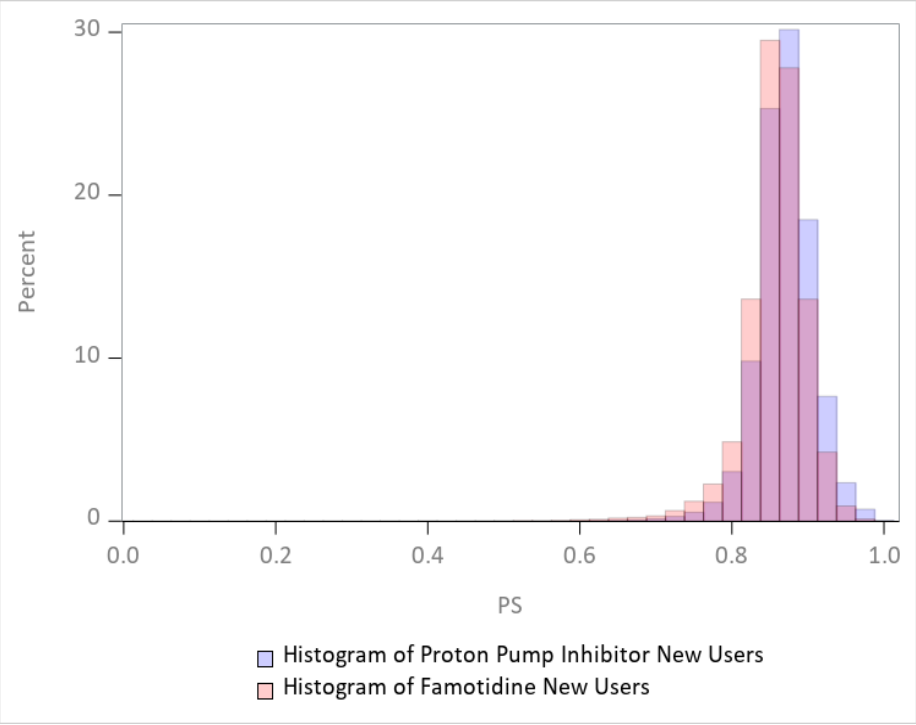


Figure 12c. Histograms Depicting Propensity Score Distributions Before and After Adjustment for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment using hdPS, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 50-64 years

Unweighted Propensity Score Distribution Before Trimming



Unweighted Propensity Score Distribution After Trimming

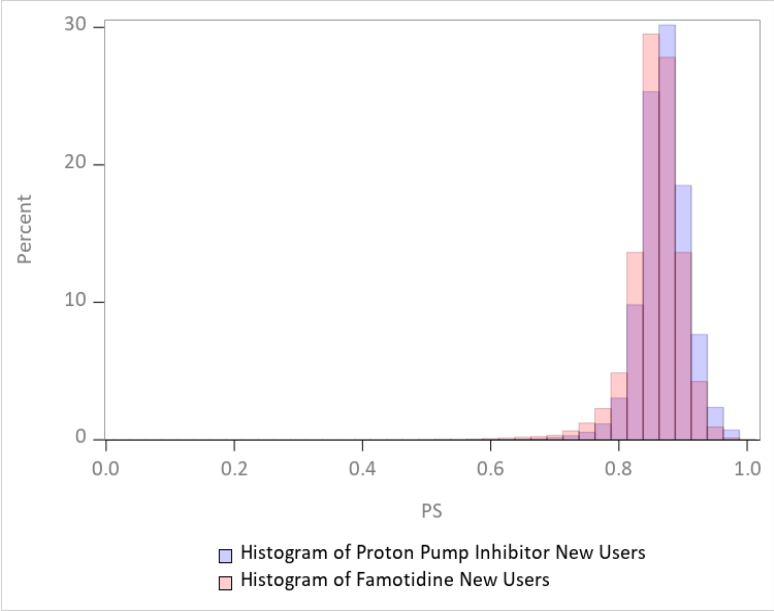


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Weighted Propensity Score Distribution After Trimming, Inverse Probability of Treatment Weighted, Average Treatment Effect in the Treated (ATT)

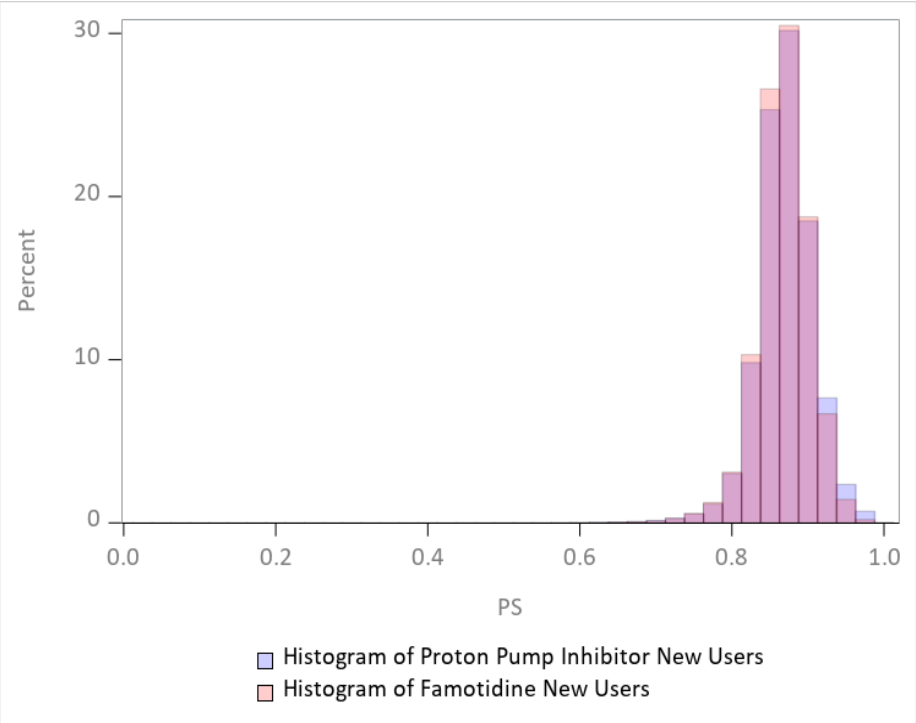
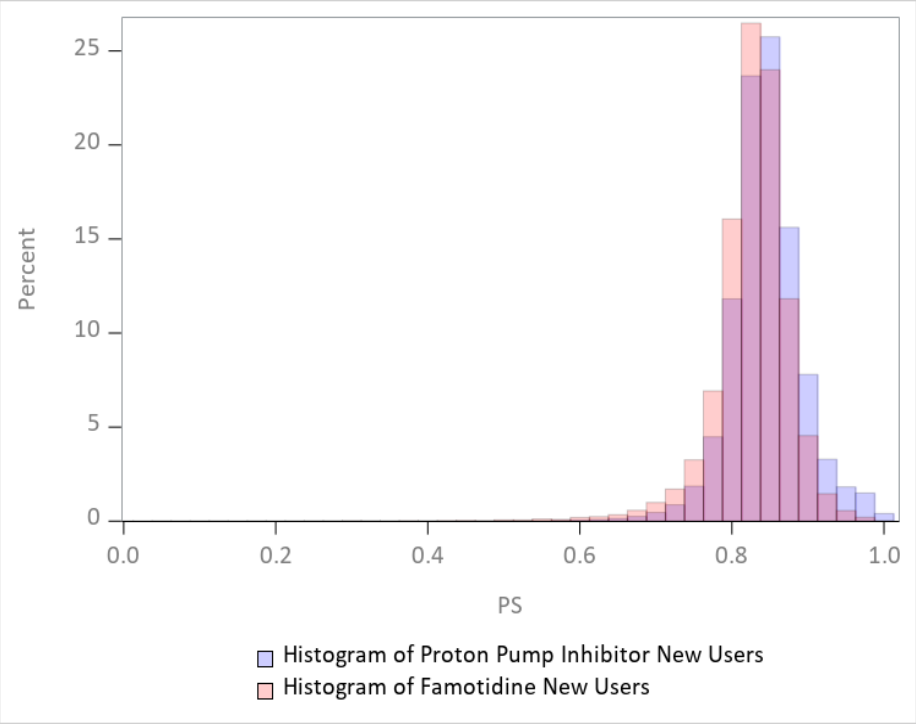


Figure 12d. Histograms Depicting Propensity Score Distributions Before and After Adjustment for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment using hdPS, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years

Unweighted Propensity Score Distribution Before Trimming



Unweighted Propensity Score Distribution After Trimming

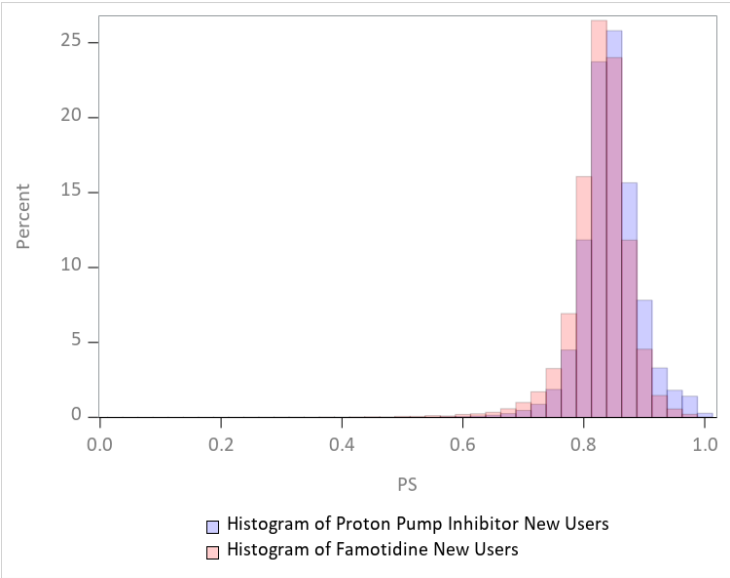


Figure 12d. Histograms Depicting Propensity Score Distributions Before and After Adjustment for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment using hdPS, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years

Weighted Propensity Score Distribution After Trimming, Inverse Probability of Treatment Weighted, Average Treatment Effect in the Treated (ATT)

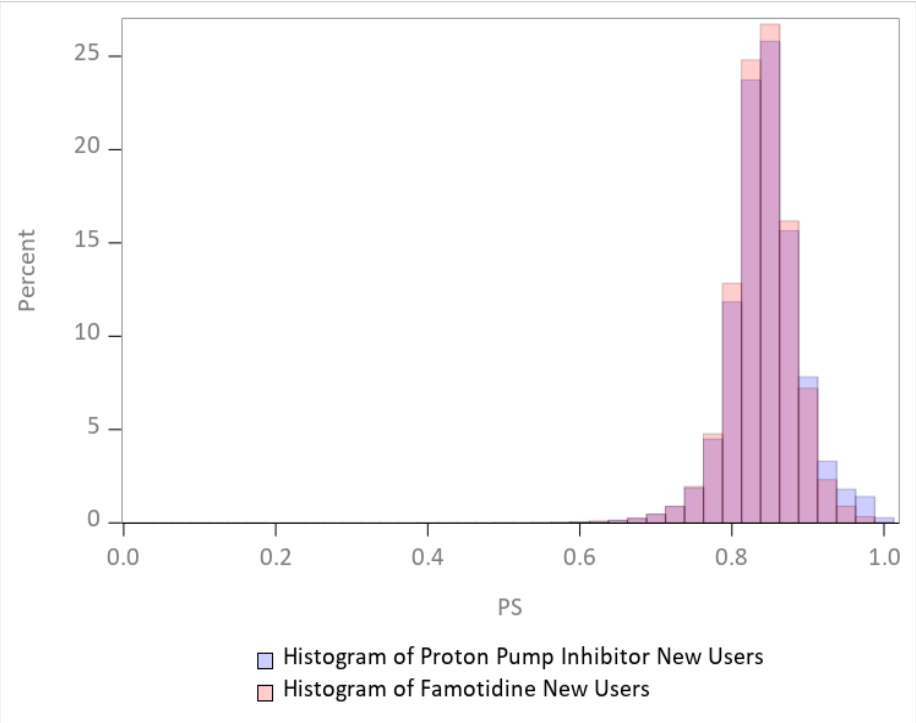
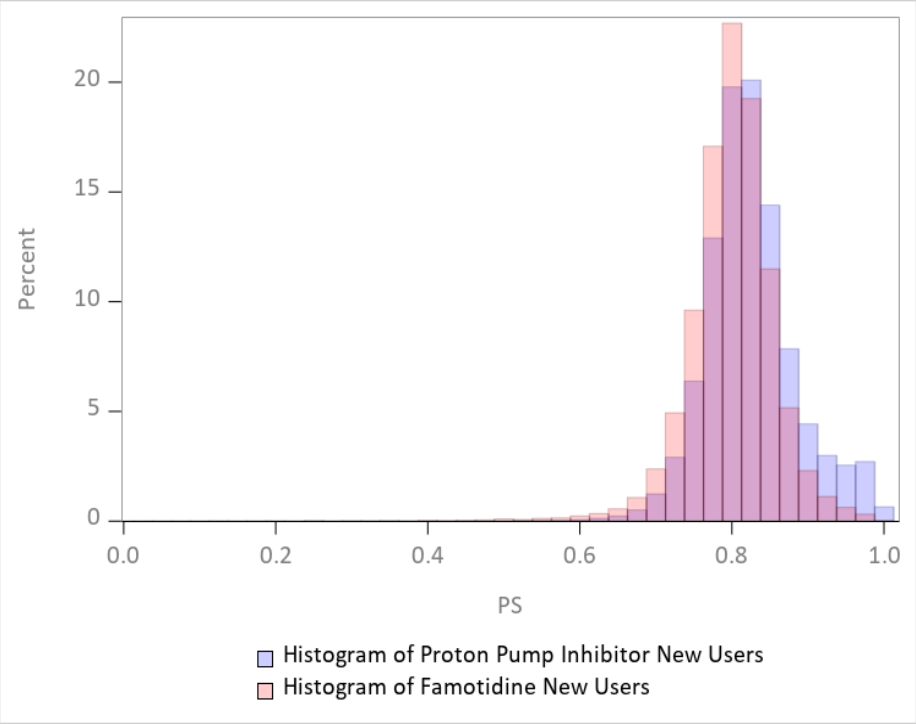


Figure 12e. Histograms Depicting Propensity Score Distributions Before and After Adjustment for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment using hdPS, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: ≥ 75 years

Unweighted Propensity Score Distribution Before Trimming



Unweighted Propensity Score Distribution After Trimming

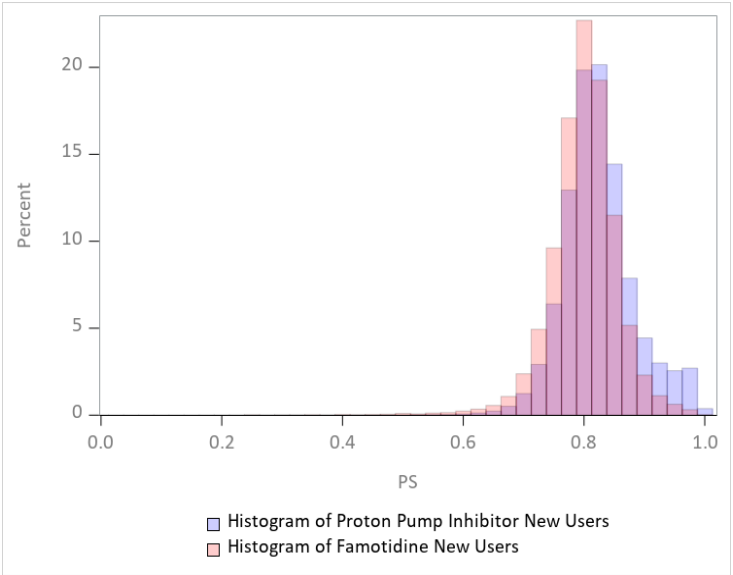


Figure 12e. Histograms Depicting Propensity Score Distributions Before and After Adjustment for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment using hdPS, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: ≥ 75 years

Weighted Propensity Score Distribution After Trimming, Inverse Probability of Treatment Weighted, Average Treatment Effect in the Treated (ATT)

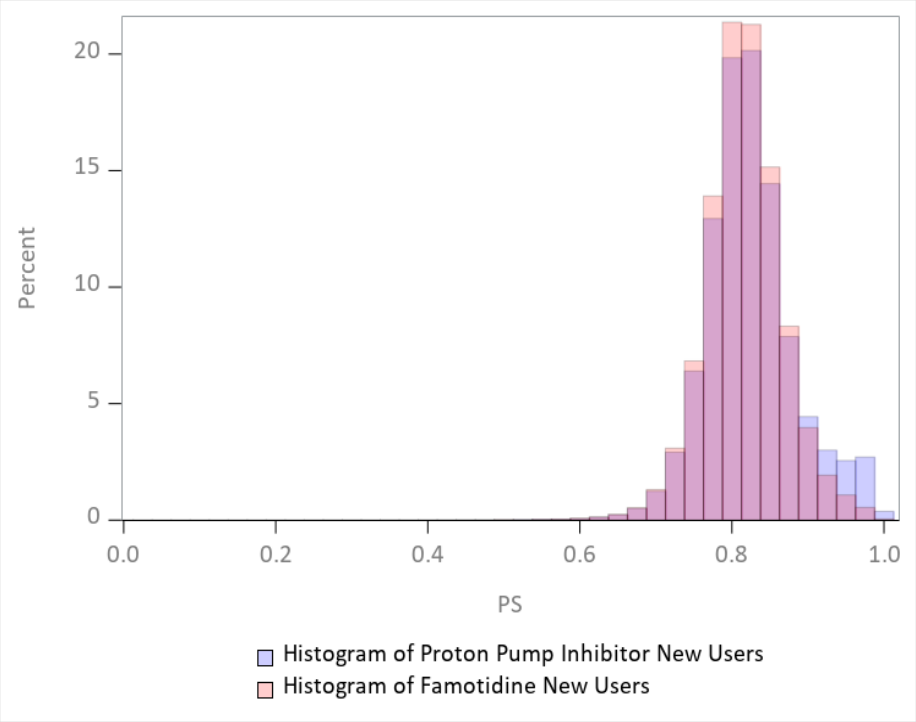


Figure 13a. Forest Plot of Hazard Ratios (HR) and 95% Confidence Intervals (CI) for Site-Adjusted Analyses in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024

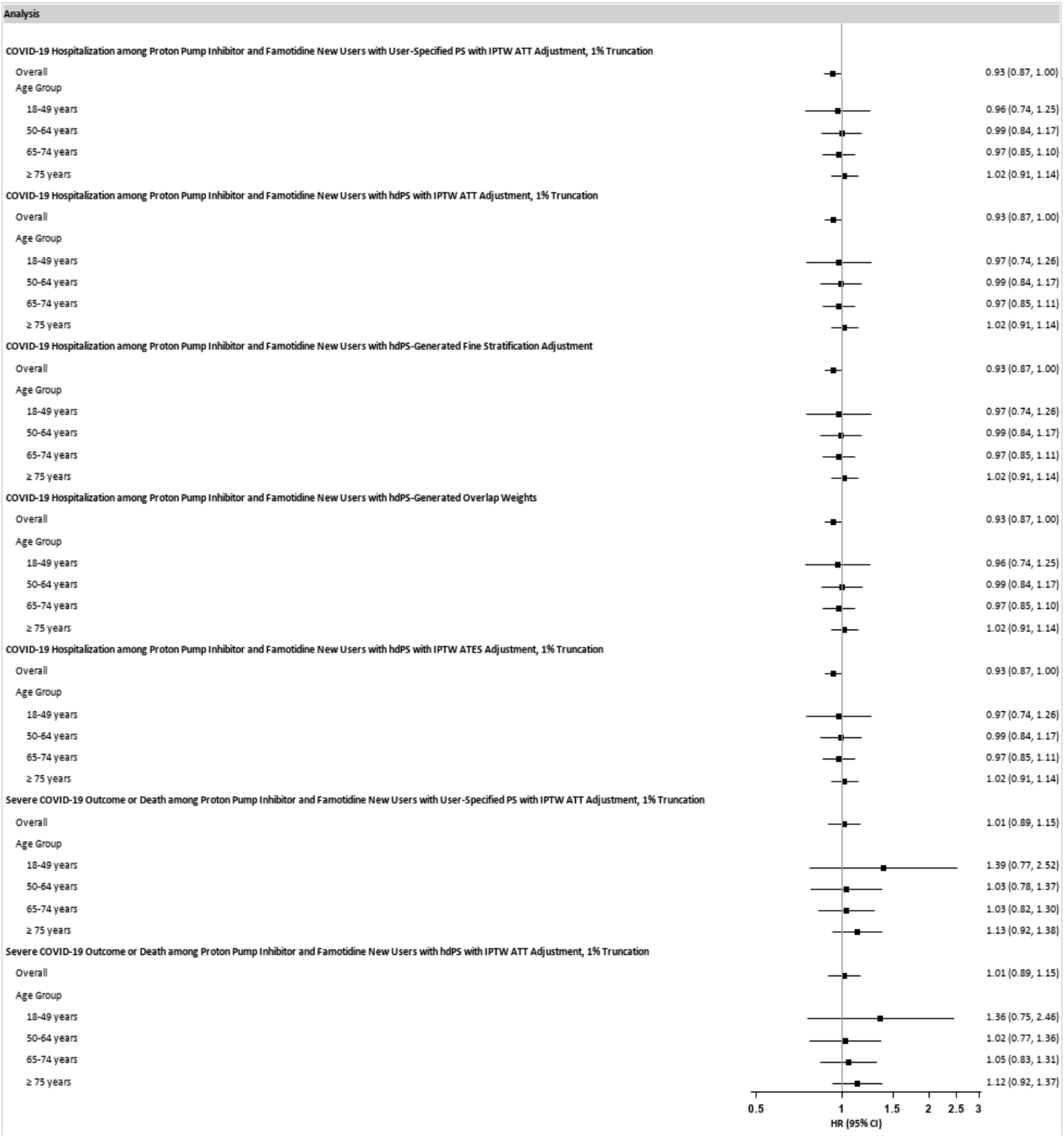
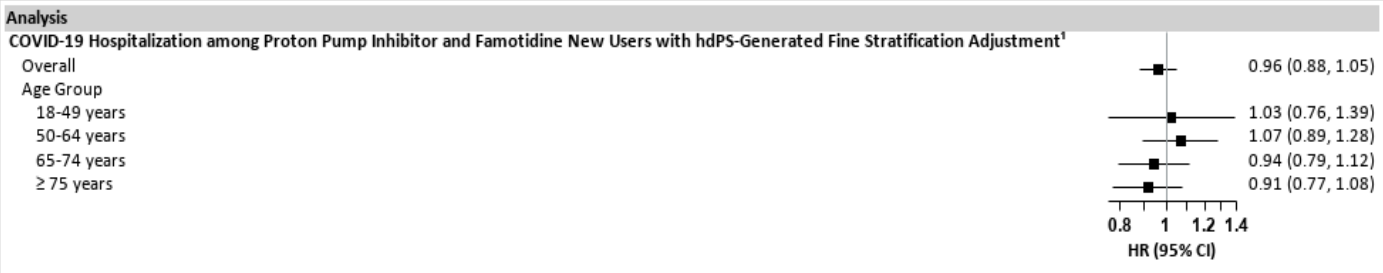
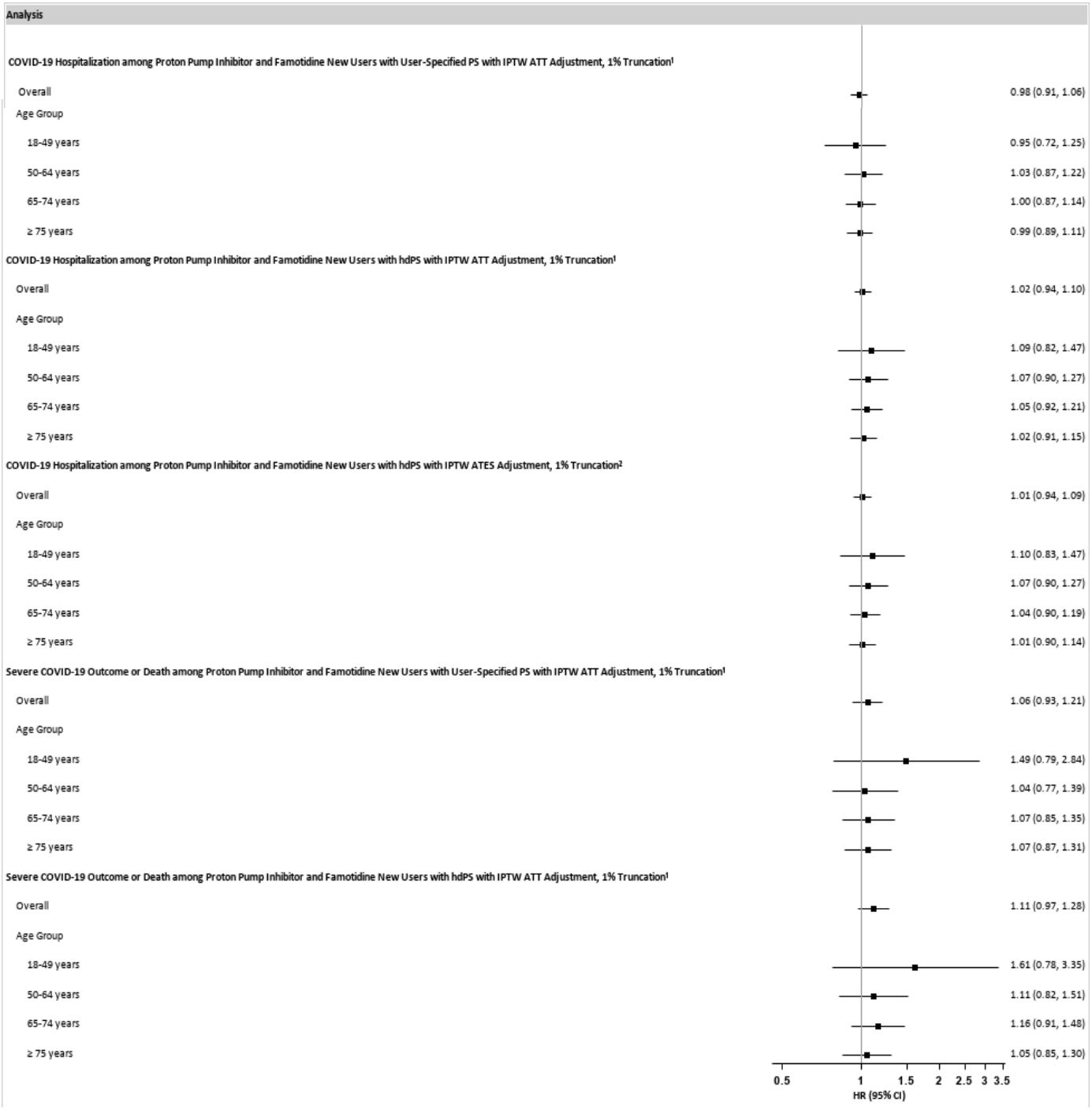


Figure 13b. Forest Plot of Hazard Ratios (HR) and 95% Confidence Intervals (CI) for Propensity Score Stratum Weighted Analyses in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024



[1]Weighted using Average Treatment Effect in the Treated, (ATT); Percentiles: 50

Figure 13c. Forest Plot of Hazard Ratios (HR) and 95% Confidence Intervals (CI) for Inverse Probability of Treatment Weighted Analyses in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024



[1]Weighted using Average Treatment Effect in the Treated, (ATT)

[2]Weighted using Average Treatment Effect, (ATE)

Figure 13d. Forest Plot of Hazard Ratios (HR) and 95% Confidence Intervals (CI) for Overlap Weighted Analyses in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024

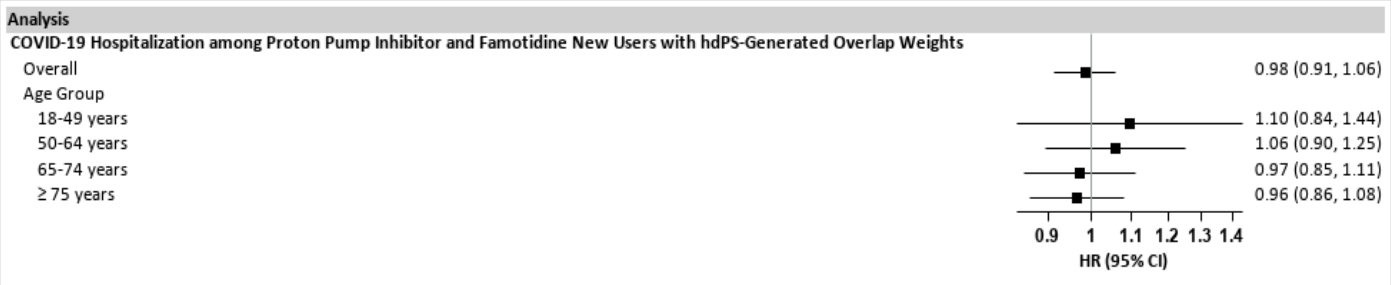


Figure 14a. Aggregated Unadjusted Kaplan-Meier Estimate and 95% Confidence Interval of COVID-19 Hospitalization Not Occurring among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation from the Whole Population in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024

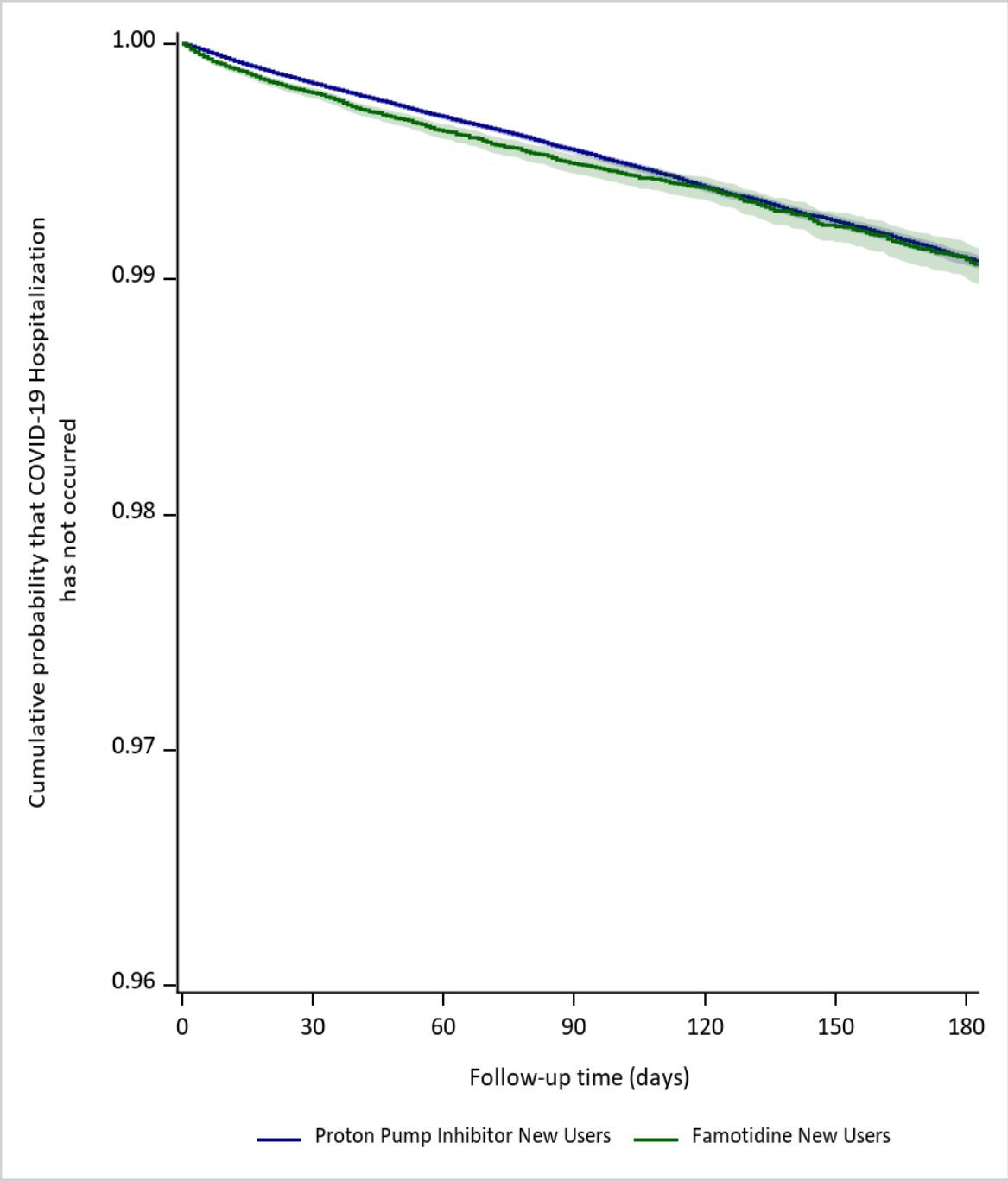


Figure 14b. Aggregated Adjusted Kaplan-Meier Estimate and 95% Confidence Interval of COVID-19 Hospitalization Not Occurring among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation from the Weighted Population in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024

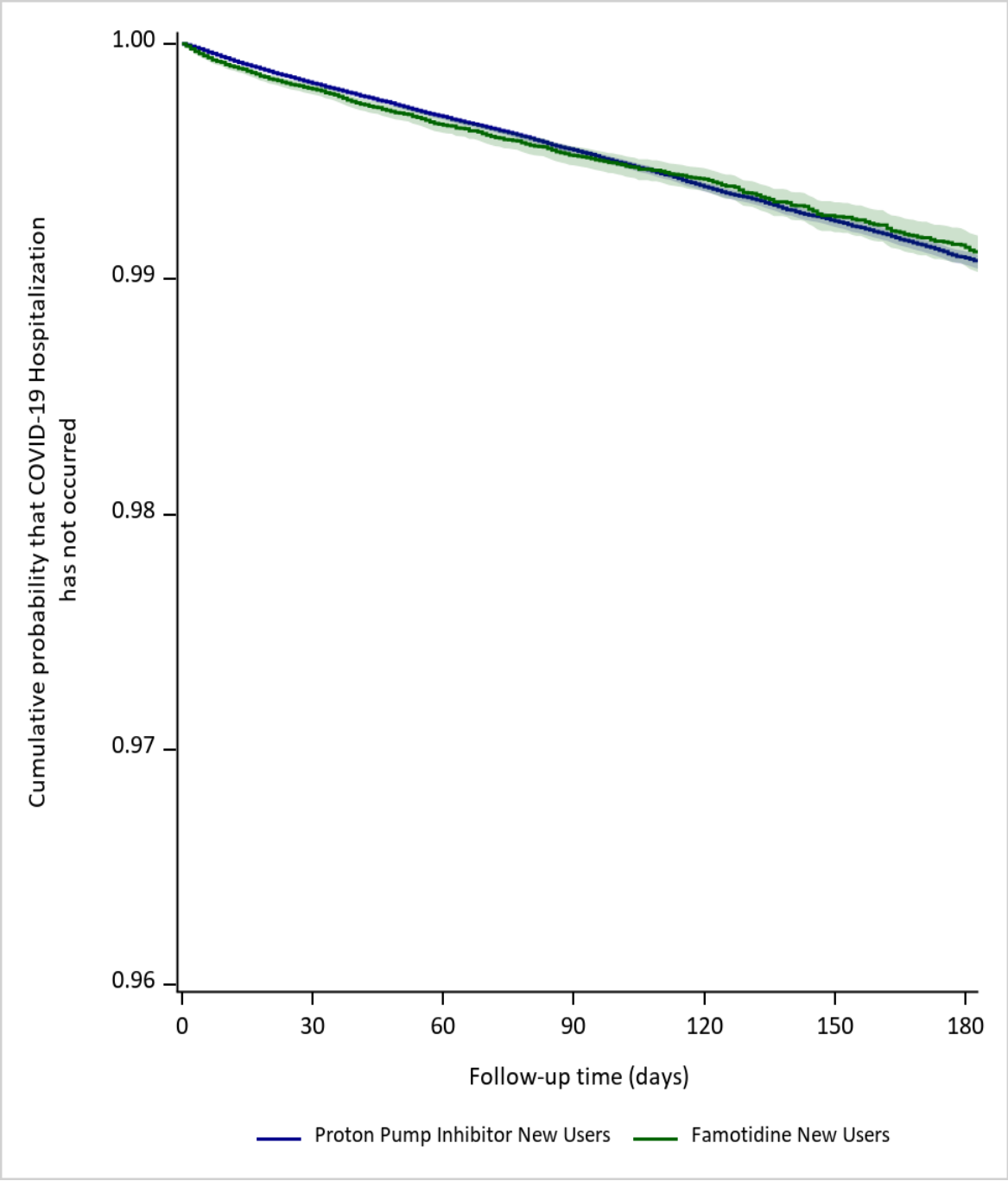


Figure 14c. Aggregated Unadjusted Kaplan-Meier Estimate and 95% Confidence Interval of COVID-19 Hospitalization Not Occurring among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation from the Whole Population in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years

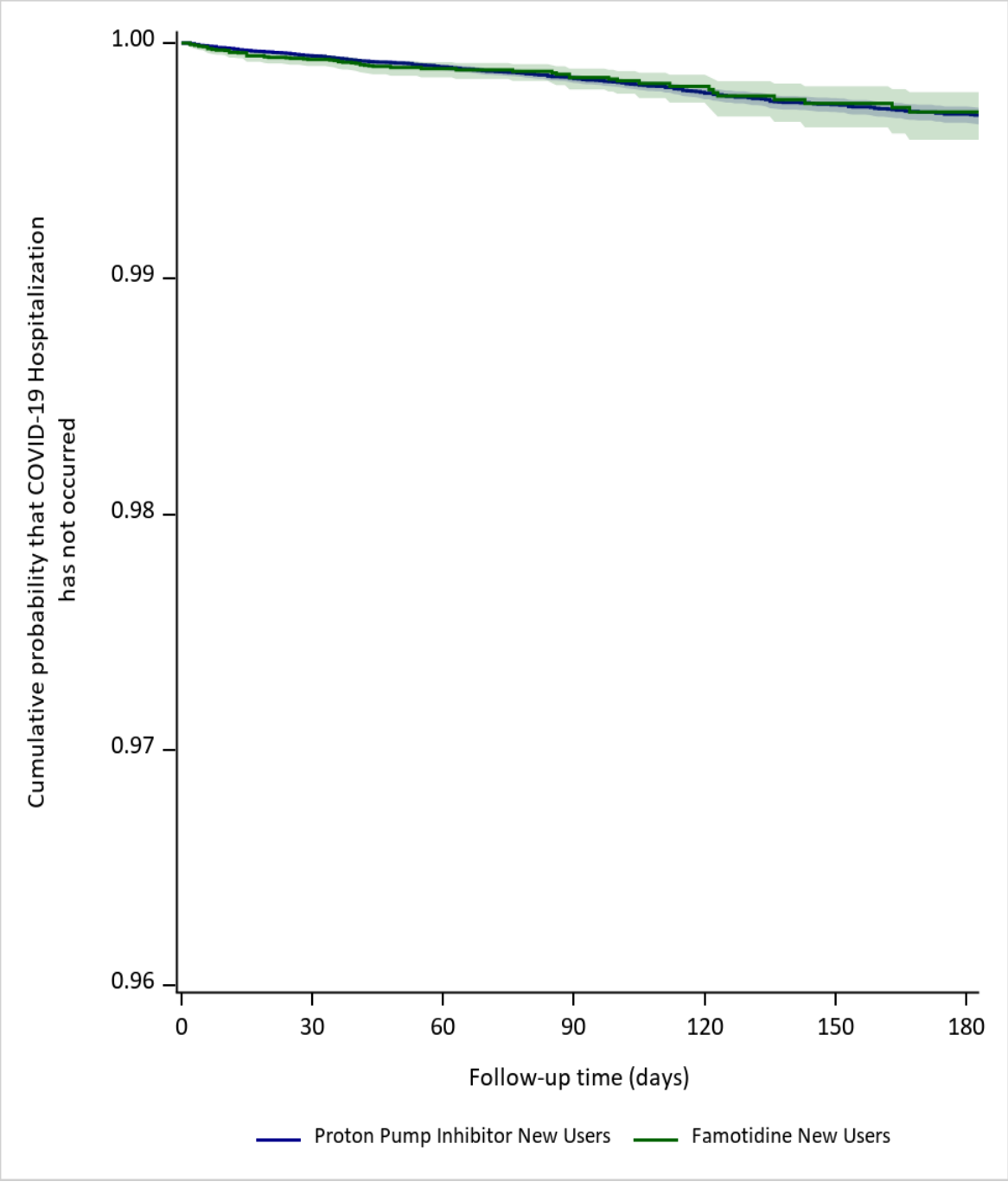


Figure 14d. Aggregated Adjusted Kaplan-Meier Estimate and 95% Confidence Interval of COVID-19 Hospitalization Not Occurring among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation from the Weighted Population in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years

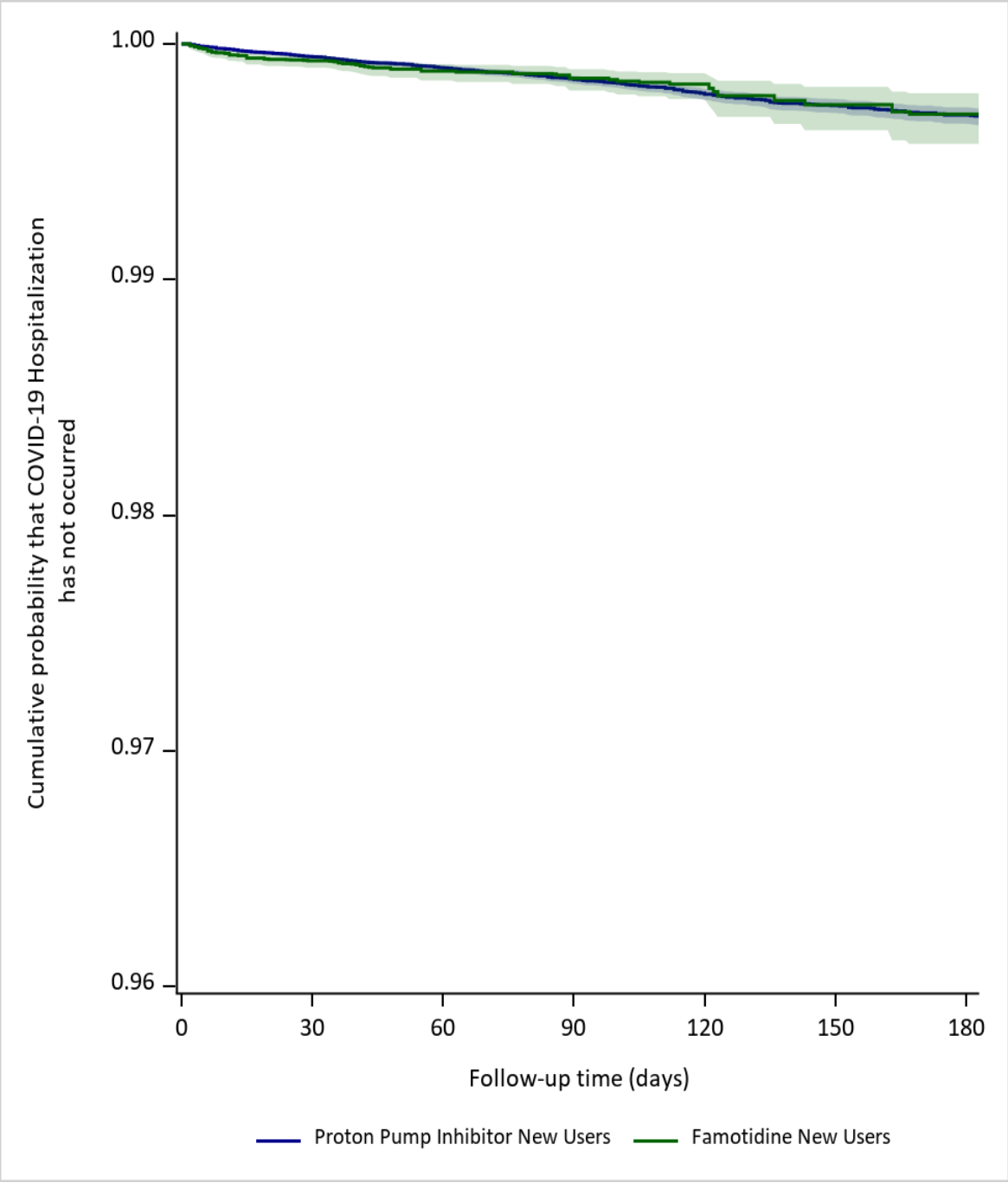


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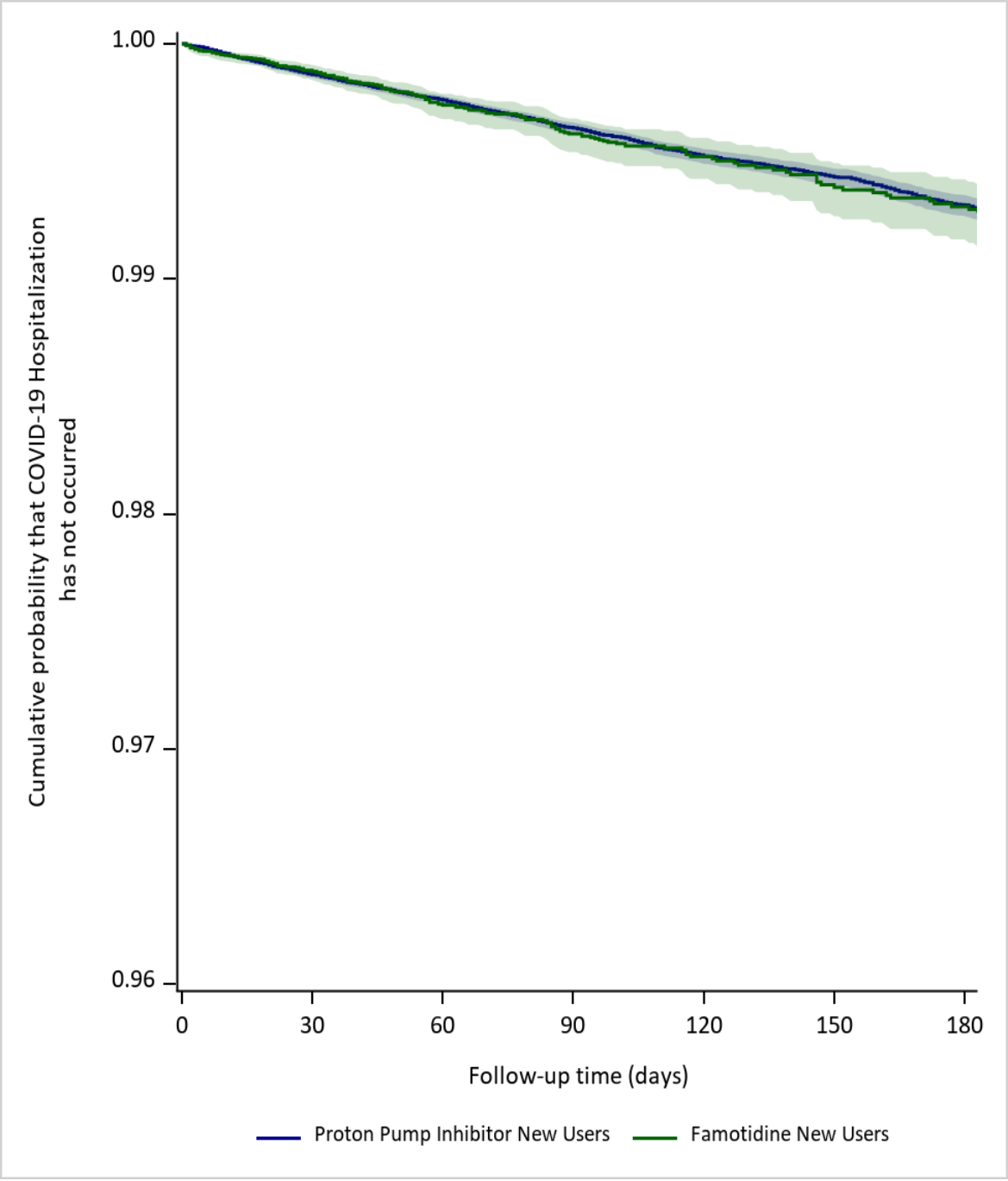


Figure 14f. Aggregated Adjusted Kaplan-Meier Estimate and 95% Confidence Interval of COVID-19 Hospitalization Not Occurring among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation from the Weighted Population in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 50-64 years

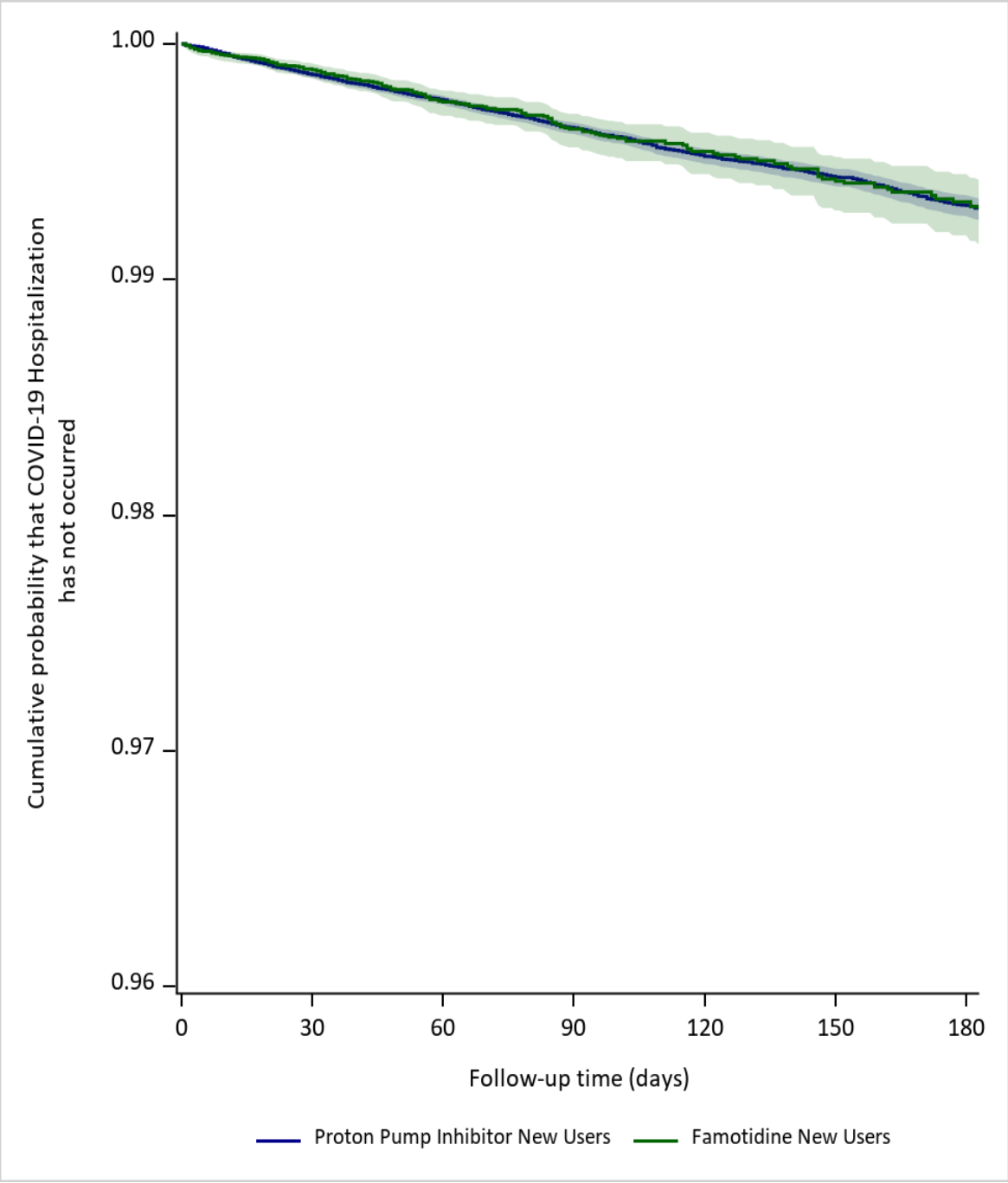


Figure 14g. Aggregated Unadjusted Kaplan-Meier Estimate and 95% Confidence Interval of COVID-19 Hospitalization Not Occurring among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation from the Whole Population in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years

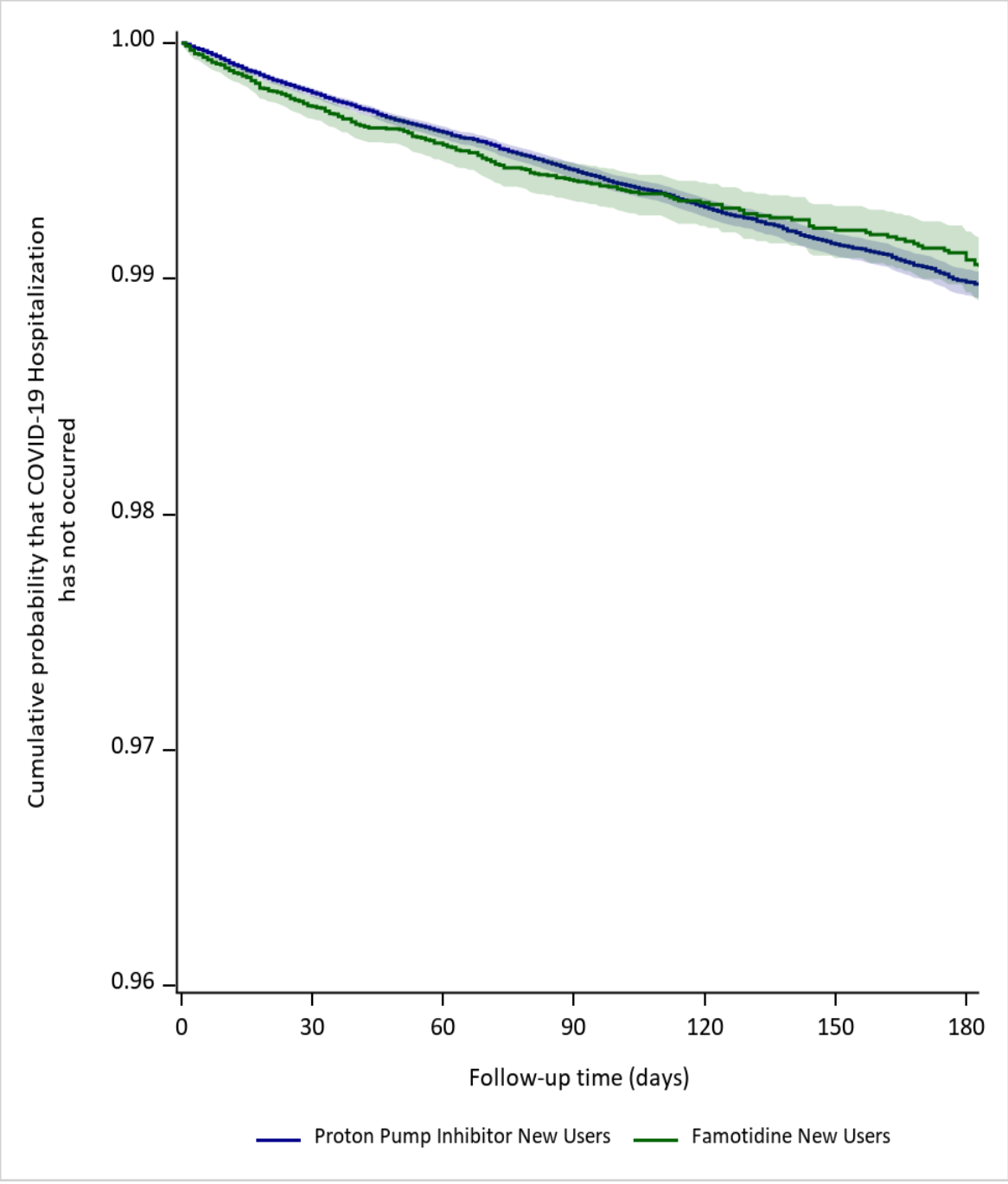


Figure 14h. Aggregated Adjusted Kaplan-Meier Estimate and 95% Confidence Interval of COVID-19 Hospitalization Not Occurring among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation from the Weighted Population in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years

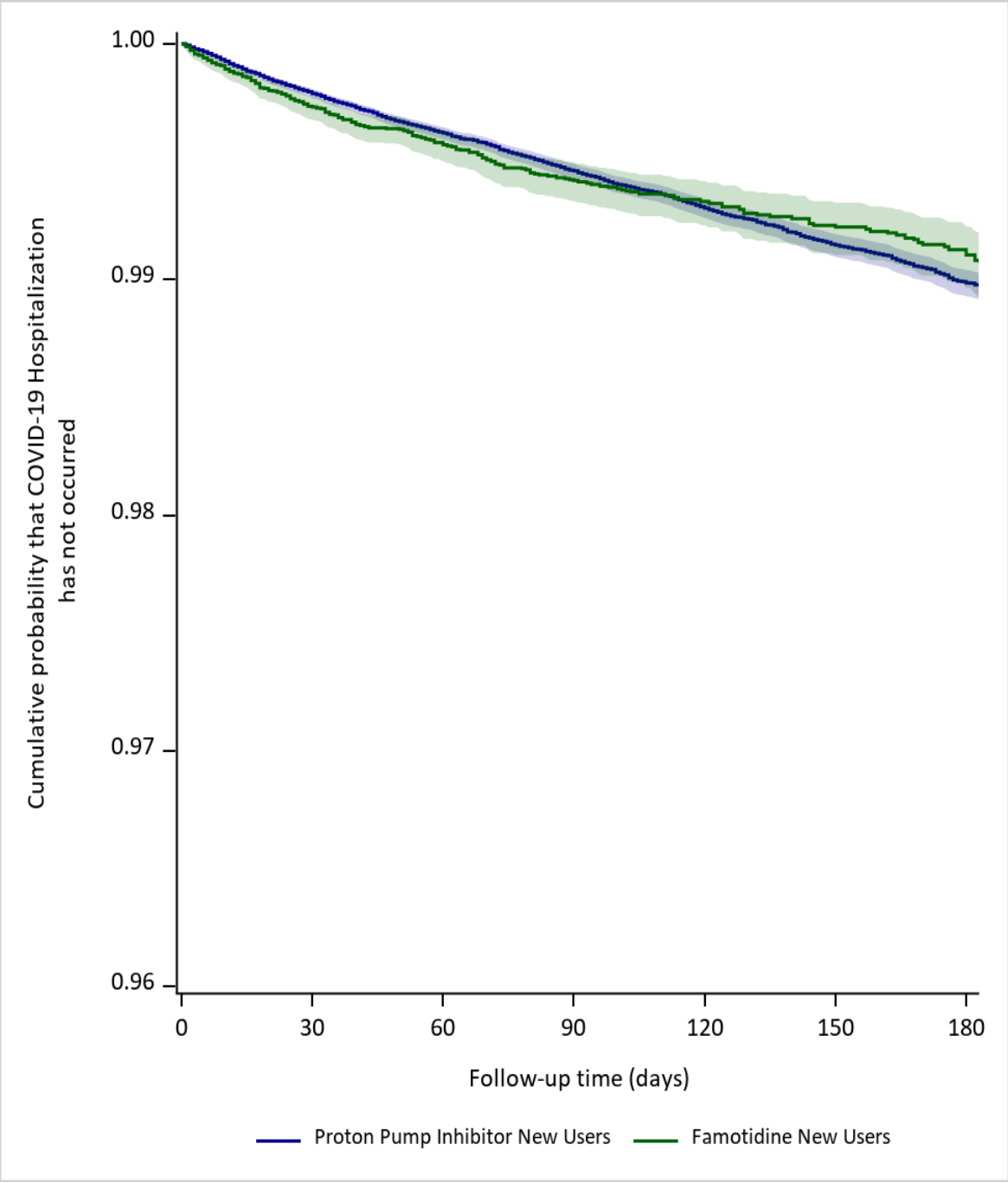


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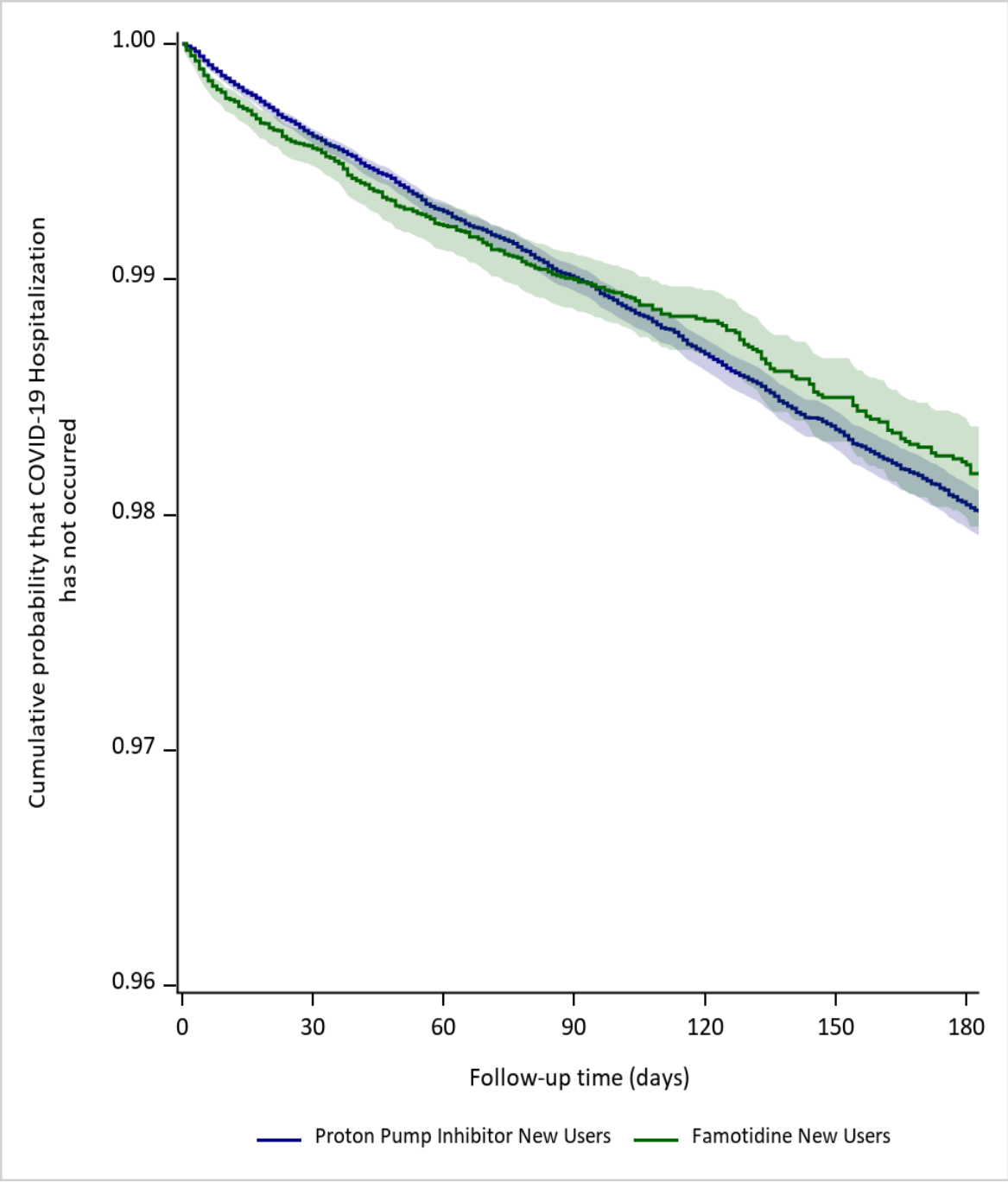


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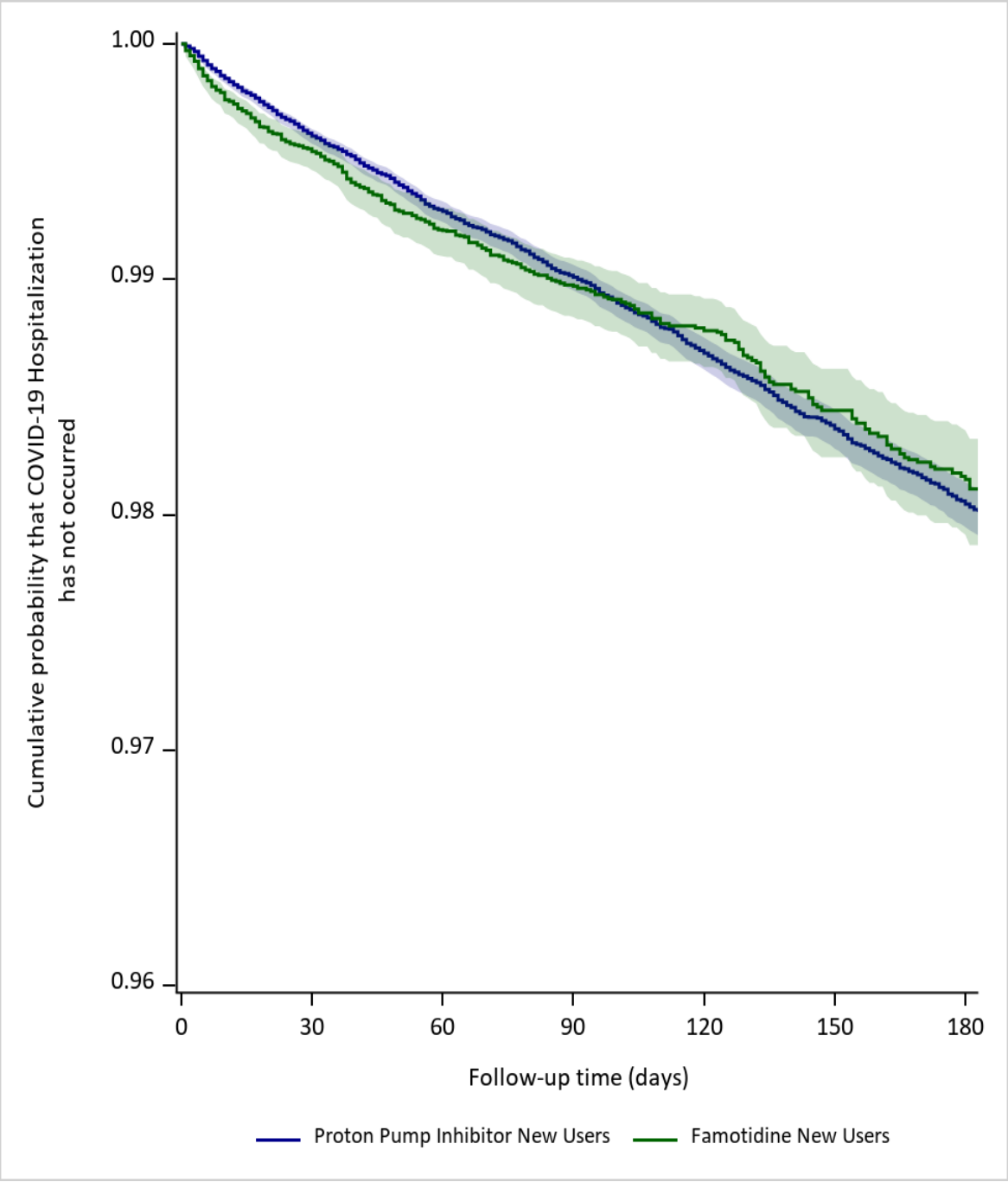


Figure 15a. Aggregated Unadjusted Kaplan-Meier Estimate and 95% Confidence Interval of COVID-19 Hospitalization Not Occurring among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation from the Whole Population in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024

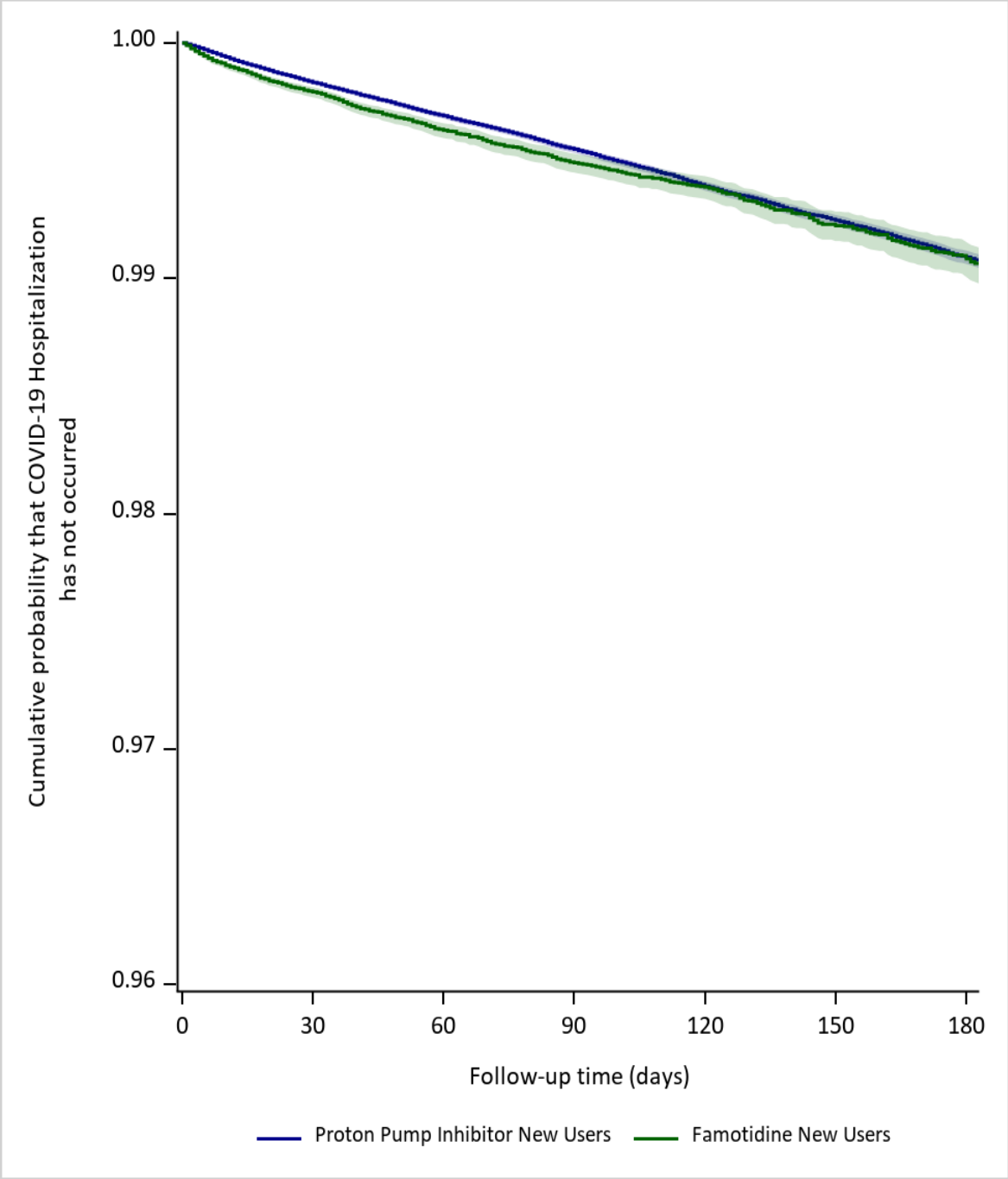


Figure 15b. Aggregated Adjusted Kaplan-Meier Estimate and 95% Confidence Interval of COVID-19 Hospitalization Not Occurring among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation from the Weighted Population in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024

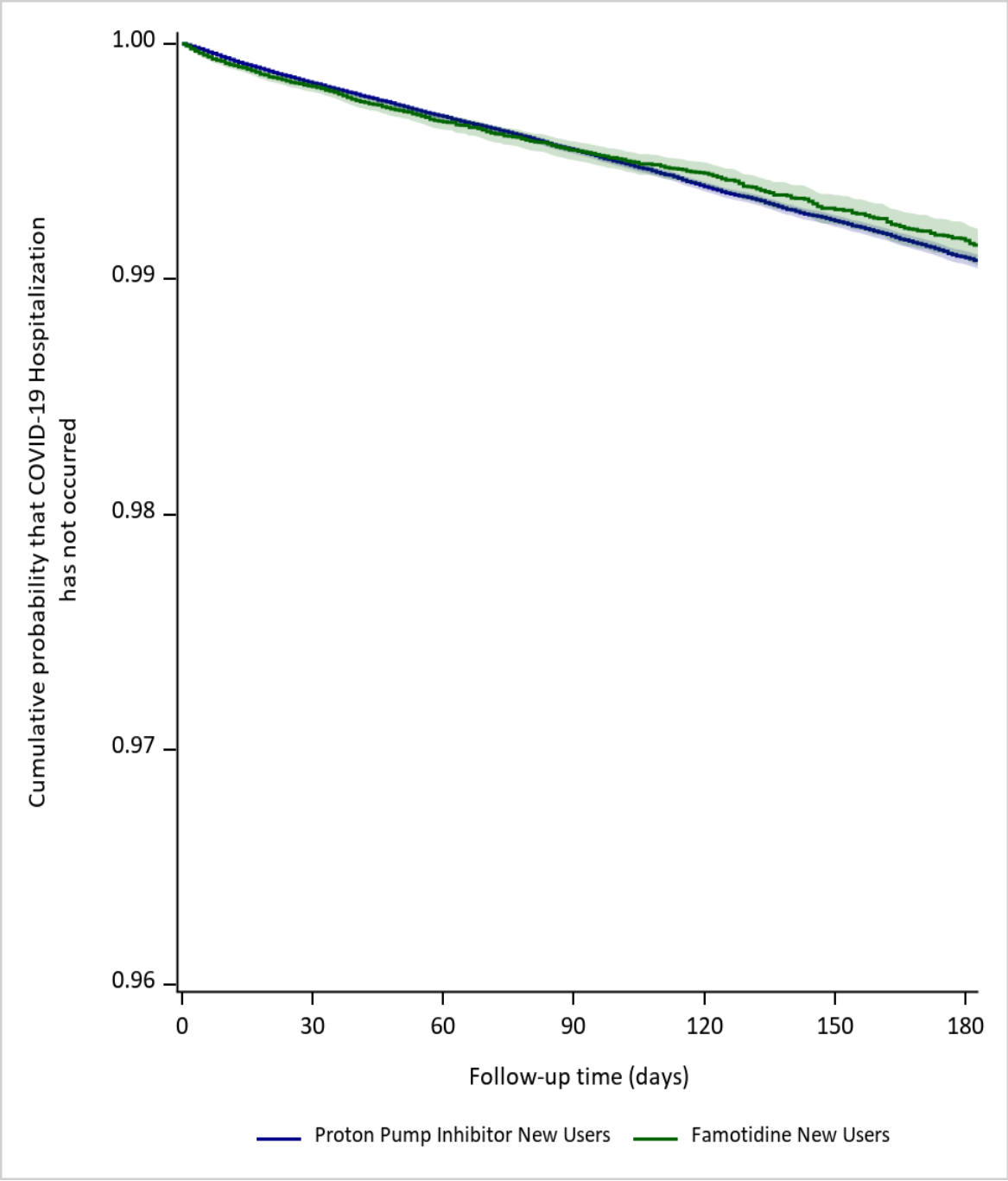


Figure 15c. Aggregated Unadjusted Kaplan-Meier Estimate and 95% Confidence Interval of COVID-19 Hospitalization Not Occurring among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation from the Whole Population in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years

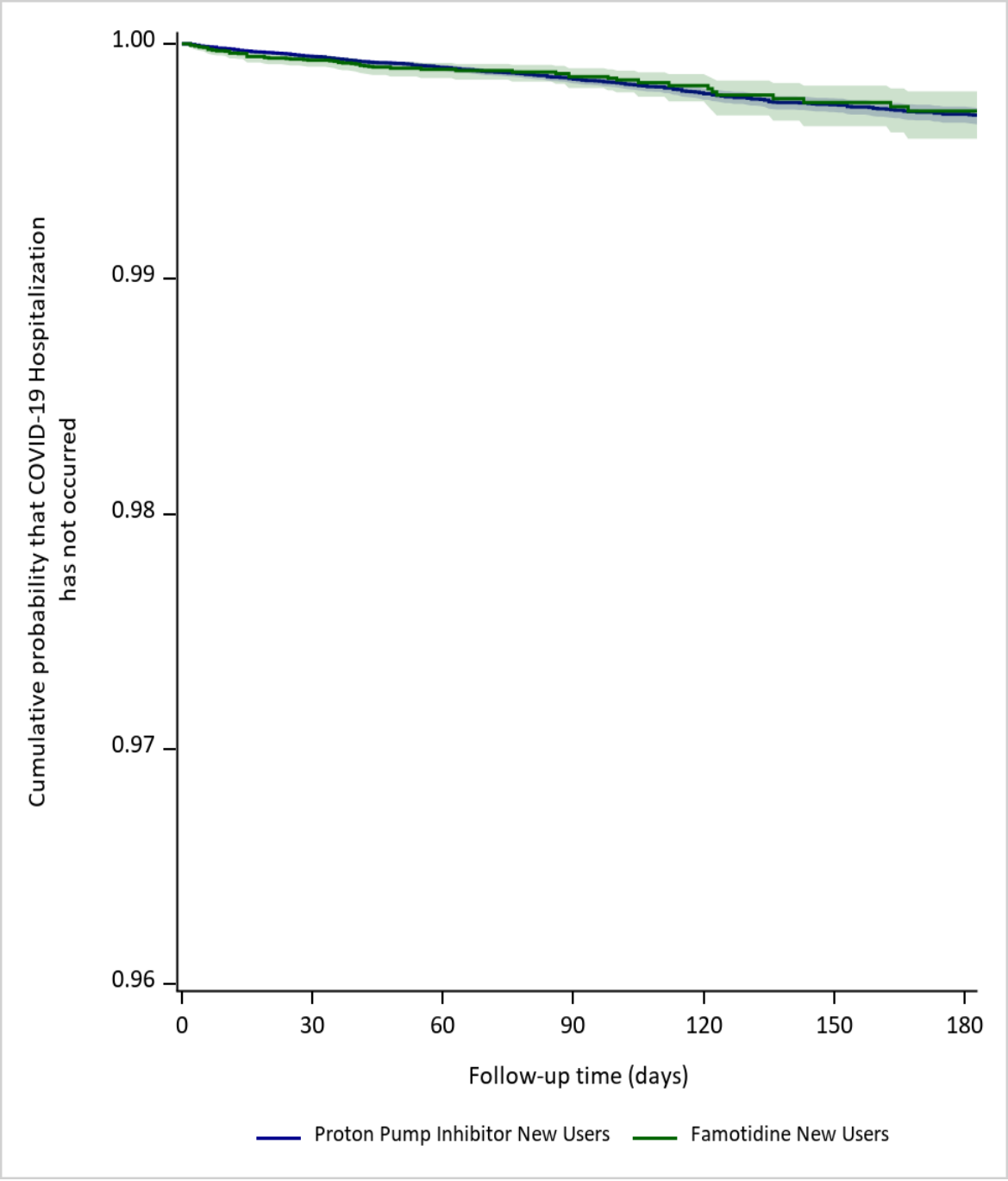


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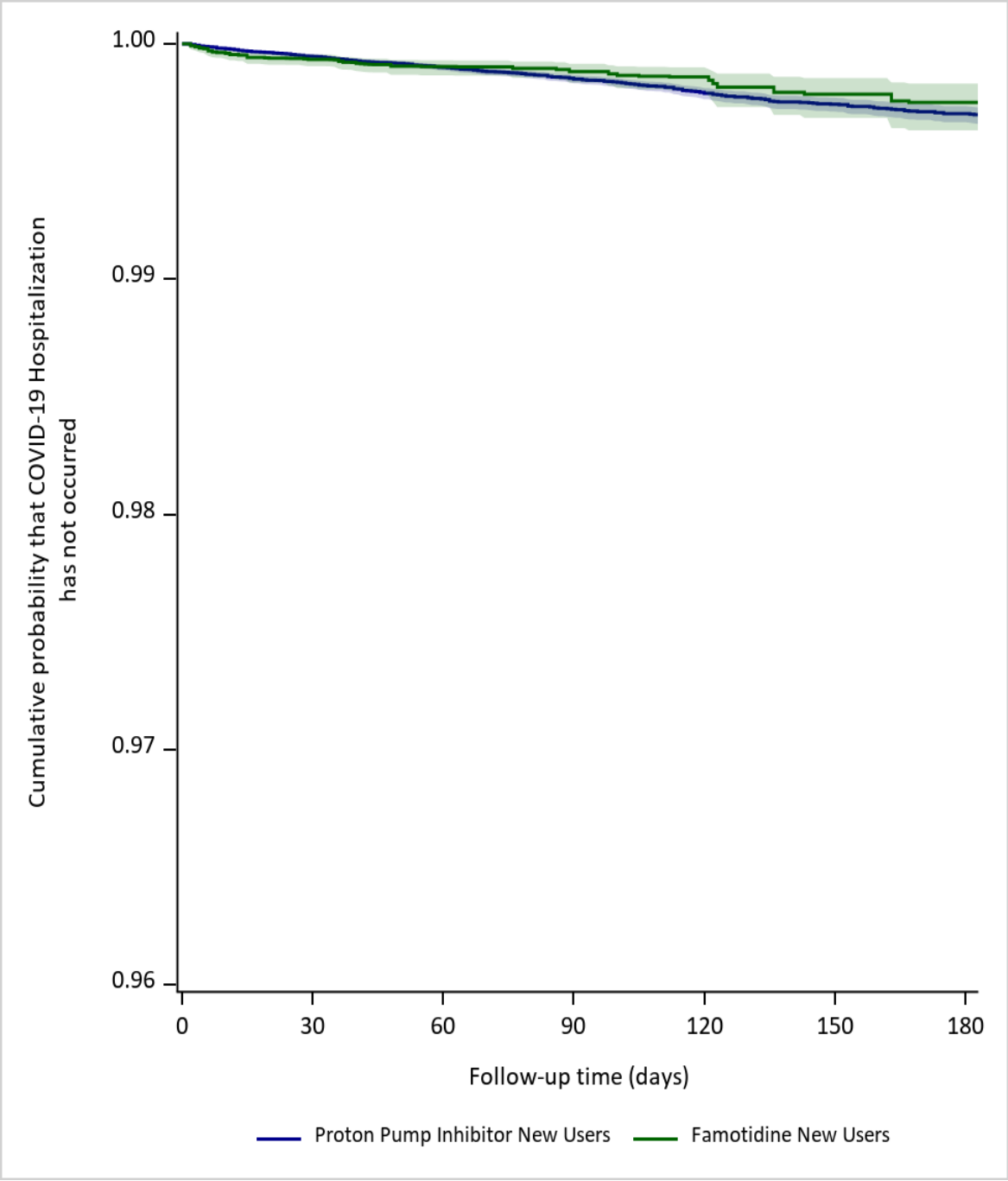


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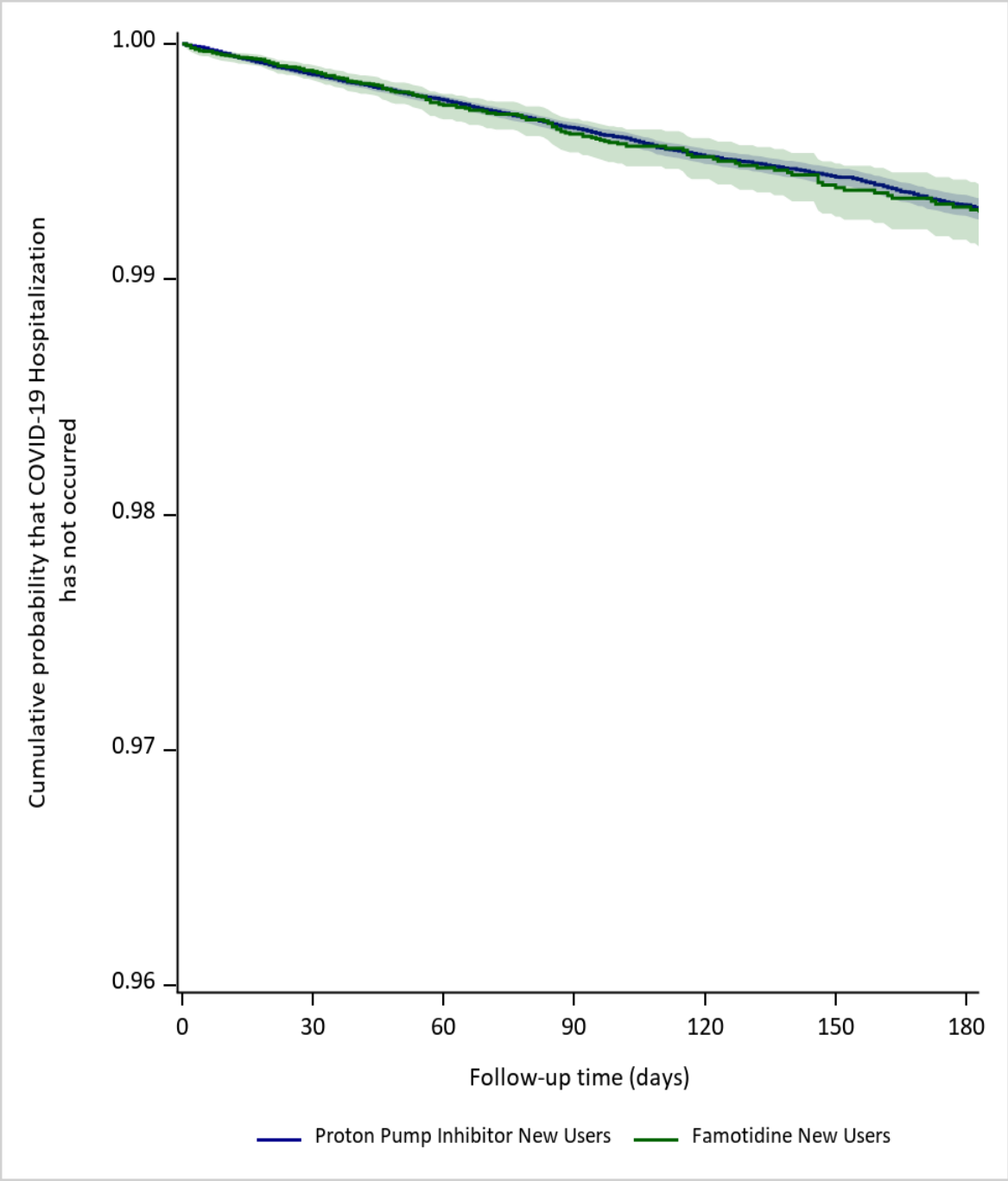


Figure 15f. Aggregated Adjusted Kaplan-Meier Estimate and 95% Confidence Interval of COVID-19 Hospitalization Not Occurring among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation from the Weighted Population in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 50-64 years

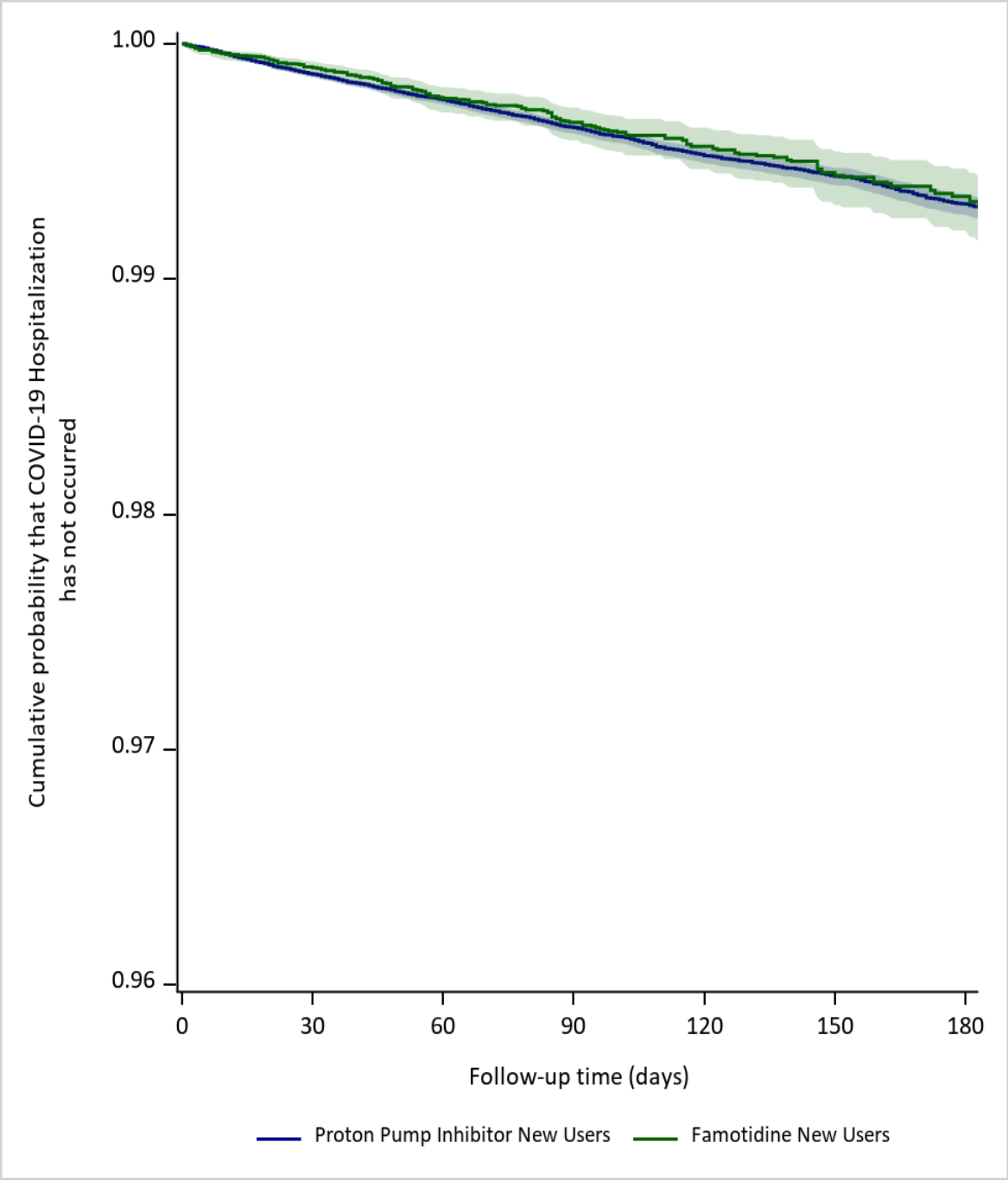


Figure 15g. Aggregated Unadjusted Kaplan-Meier Estimate and 95% Confidence Interval of COVID-19 Hospitalization Not Occurring among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation from the Whole Population in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years

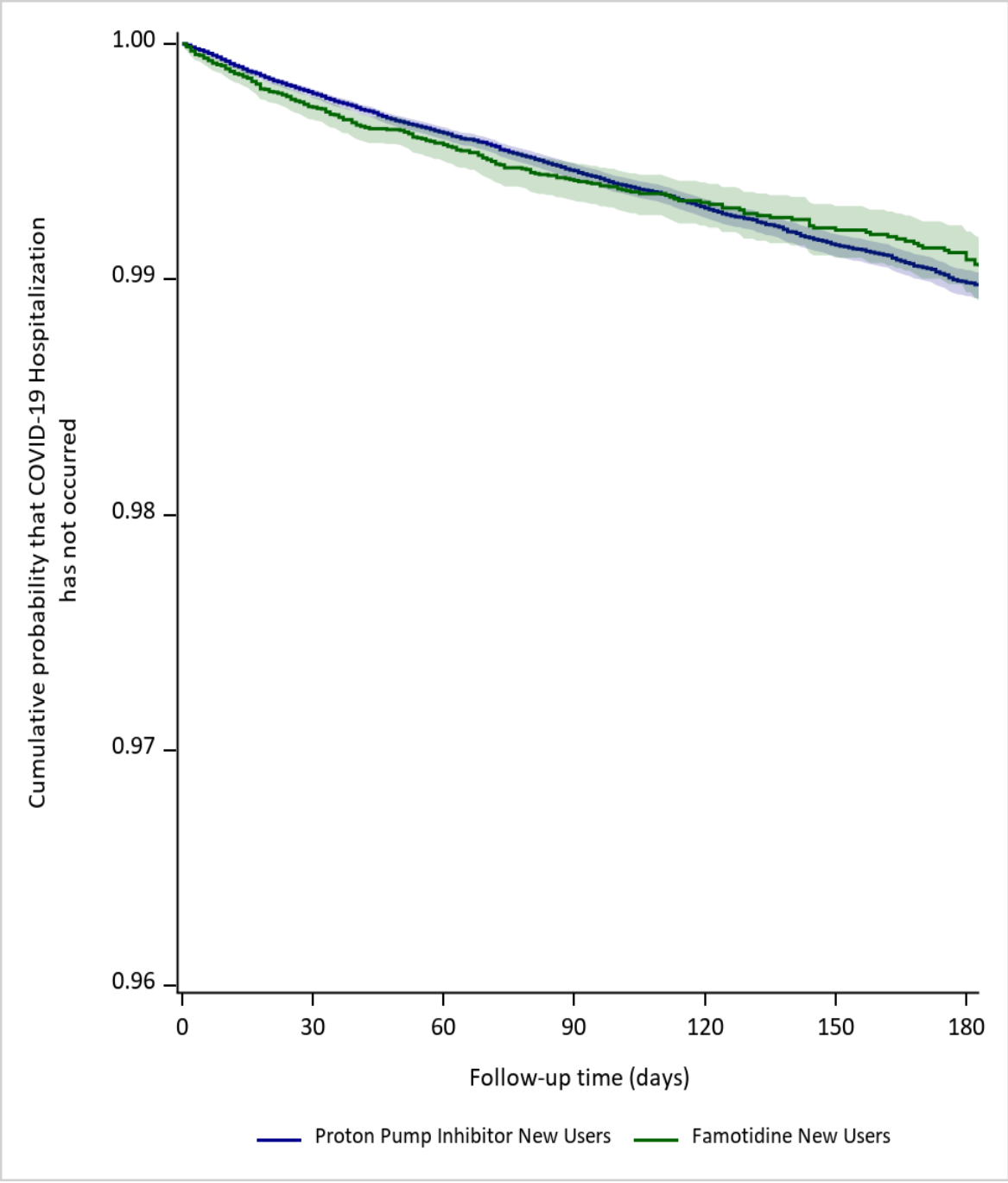


Figure 15h. Aggregated Adjusted Kaplan-Meier Estimate and 95% Confidence Interval of COVID-19 Hospitalization Not Occurring among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation from the Weighted Population in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years

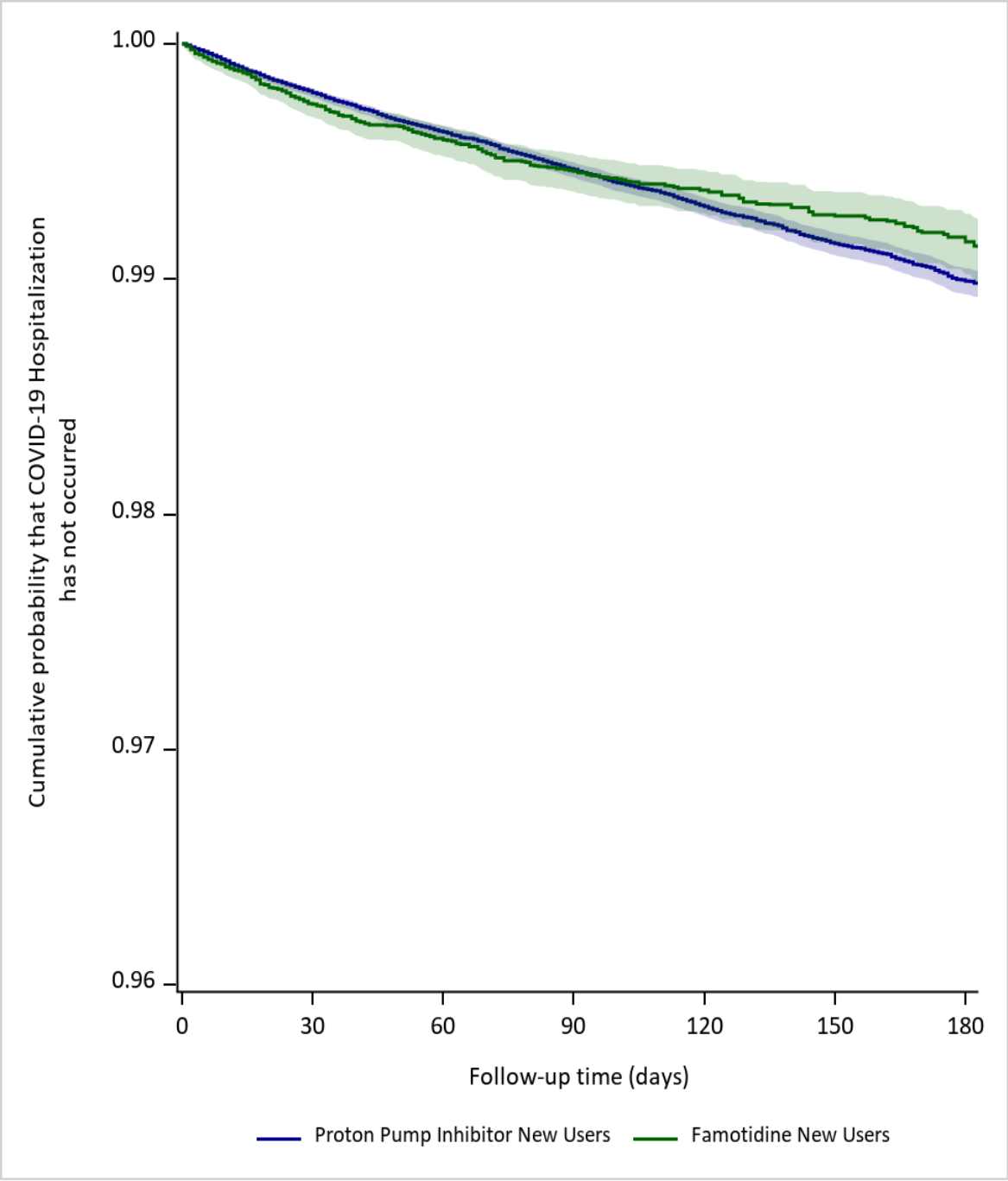


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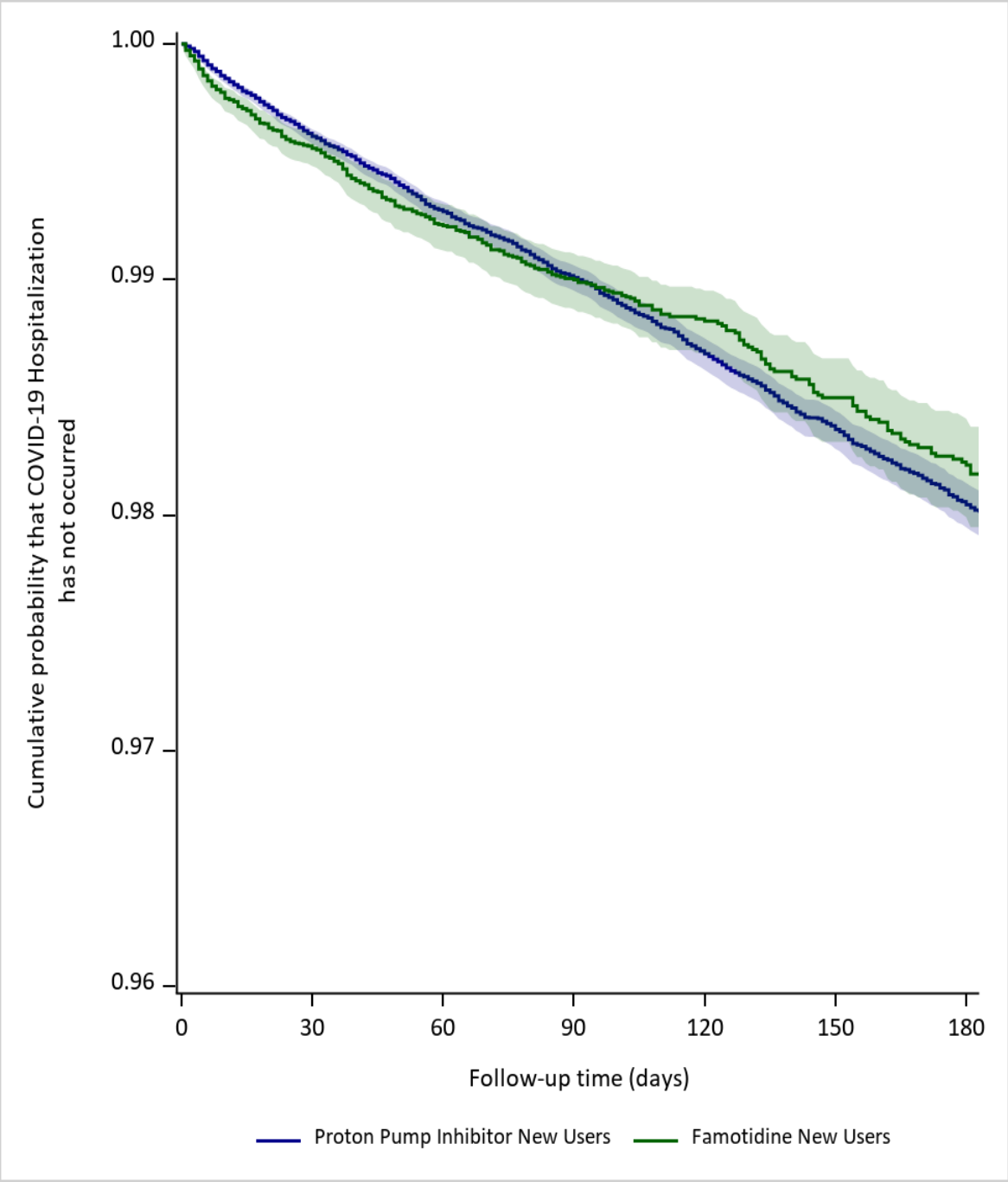


Figure 15j. Aggregated Adjusted Kaplan-Meier Estimate and 95% Confidence Interval of COVID-19 Hospitalization Not Occurring among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation from the Weighted Population in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: ≥ 75 years

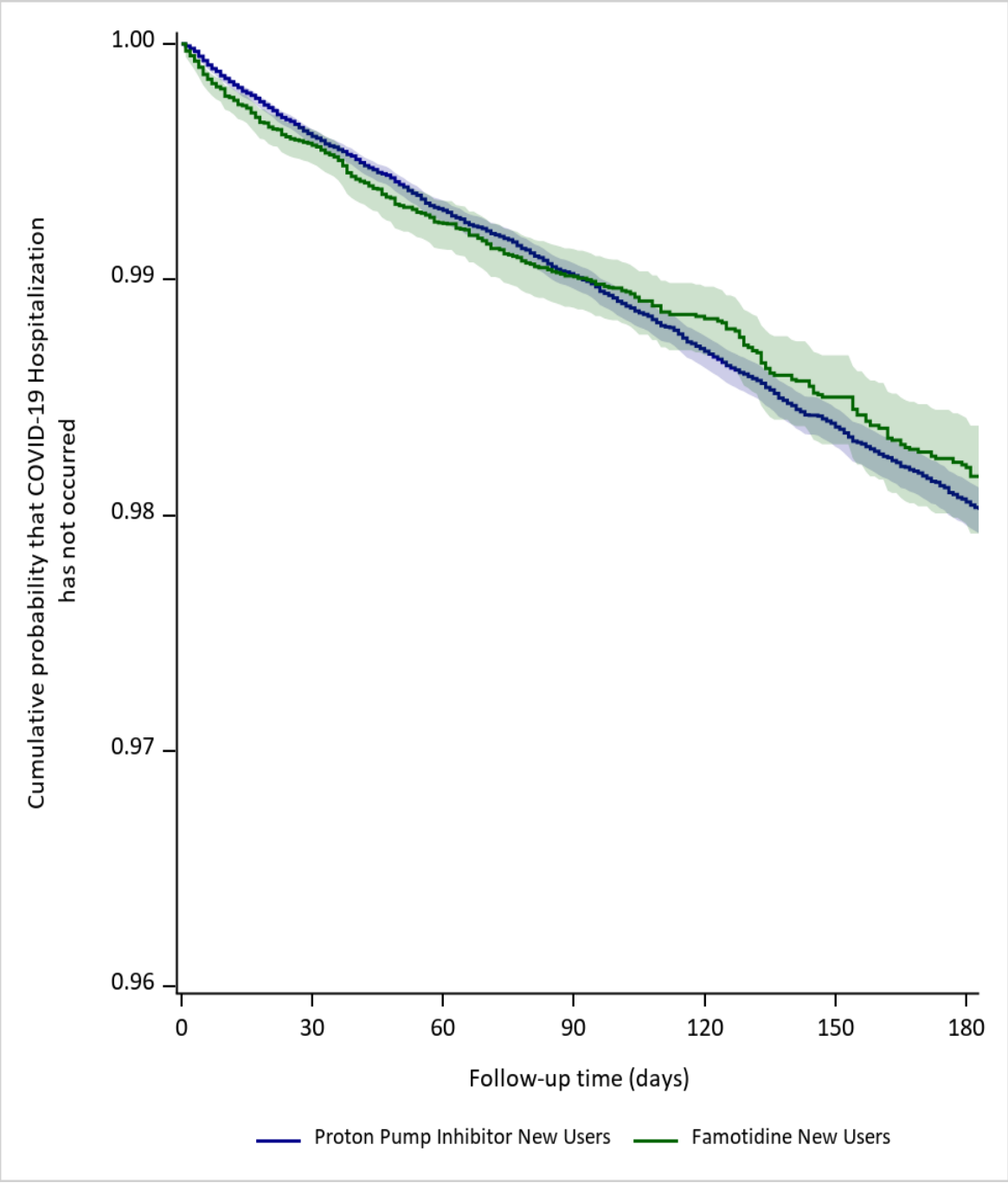


Figure 16a. Aggregated Unadjusted Kaplan-Meier Estimate and 95% Confidence Interval of COVID-19 Hospitalization Not Occurring among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment from the Whole Population in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024

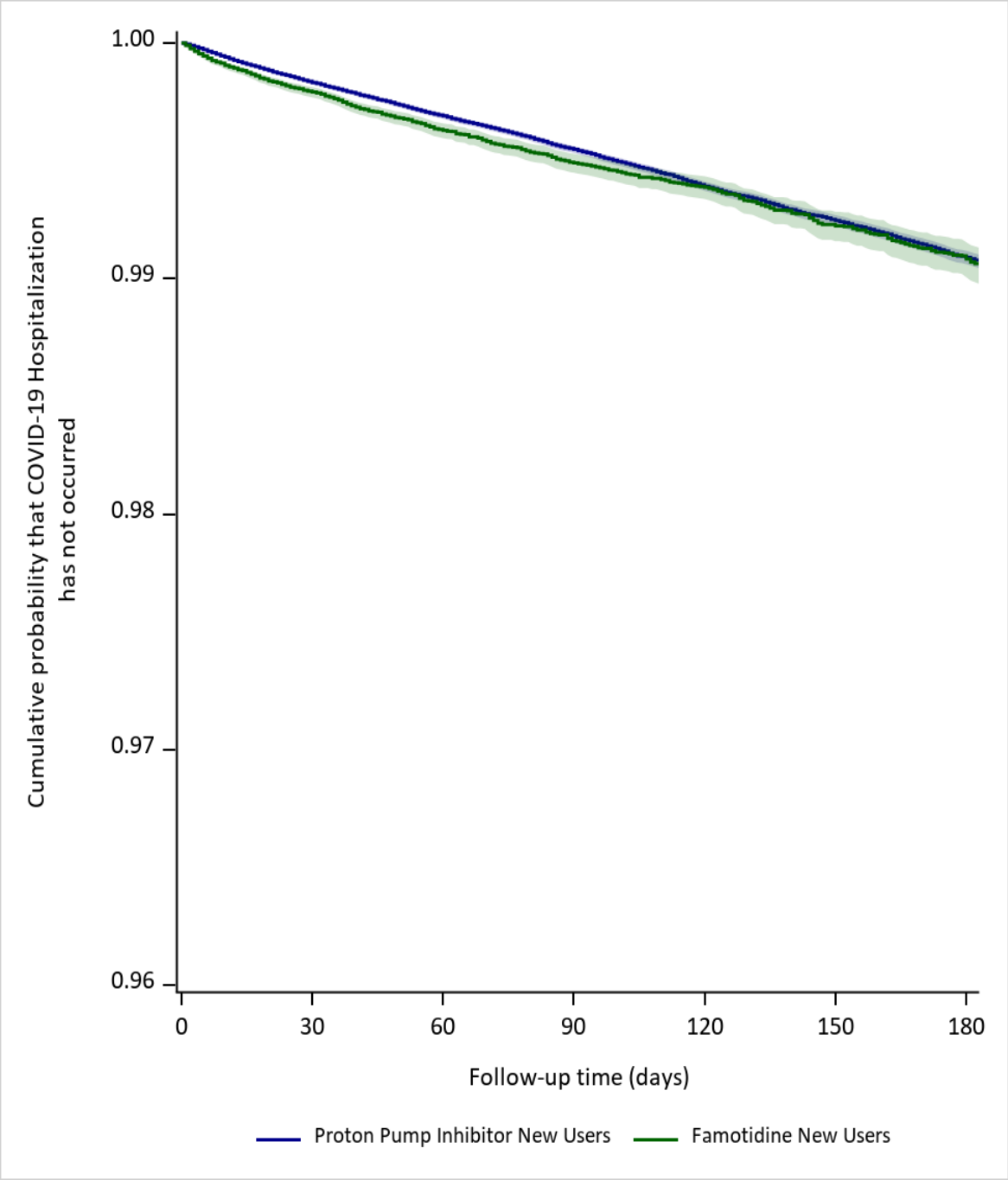


Figure 16b. Aggregated Adjusted Kaplan-Meier Estimate and 95% Confidence Interval of COVID-19 Hospitalization Not Occurring among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment from the Weighted Population in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024

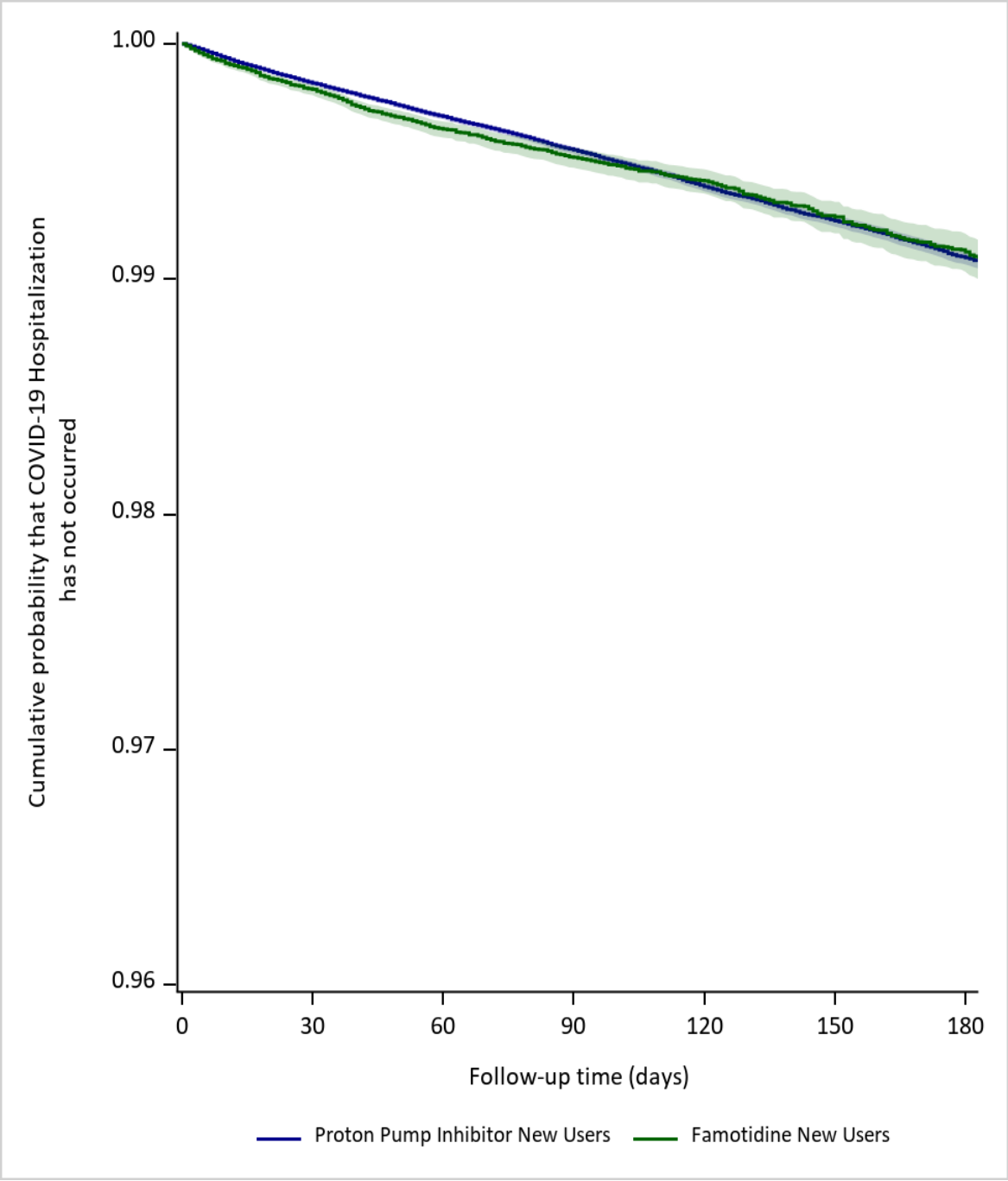


Figure 16c. Aggregated Unadjusted Kaplan-Meier Estimate and 95% Confidence Interval of COVID-19 Hospitalization Not Occurring among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment from the Whole Population in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years

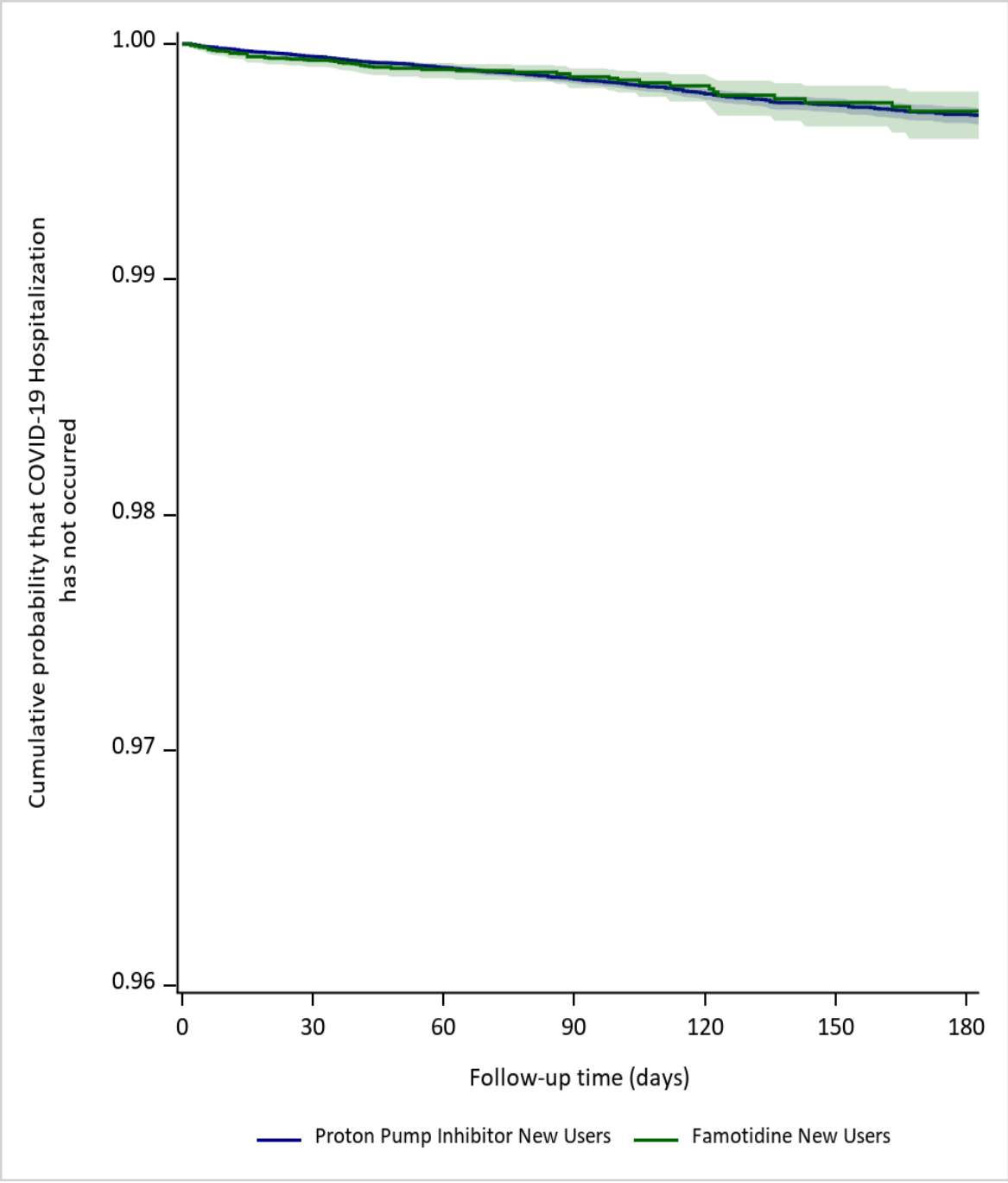


Figure 16d. Aggregated Adjusted Kaplan-Meier Estimate and 95% Confidence Interval of COVID-19 Hospitalization Not Occurring among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment from the Weighted Population in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years

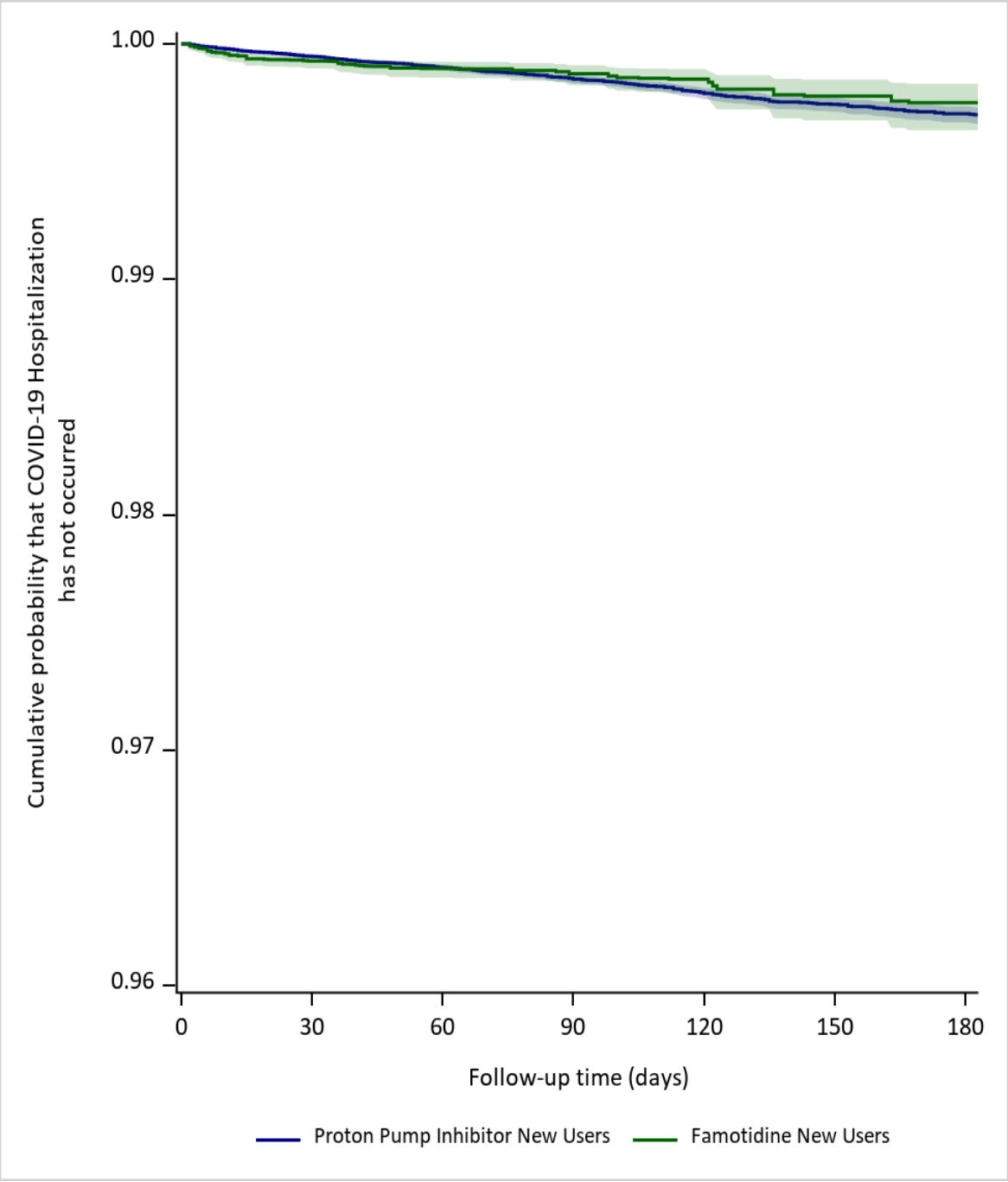


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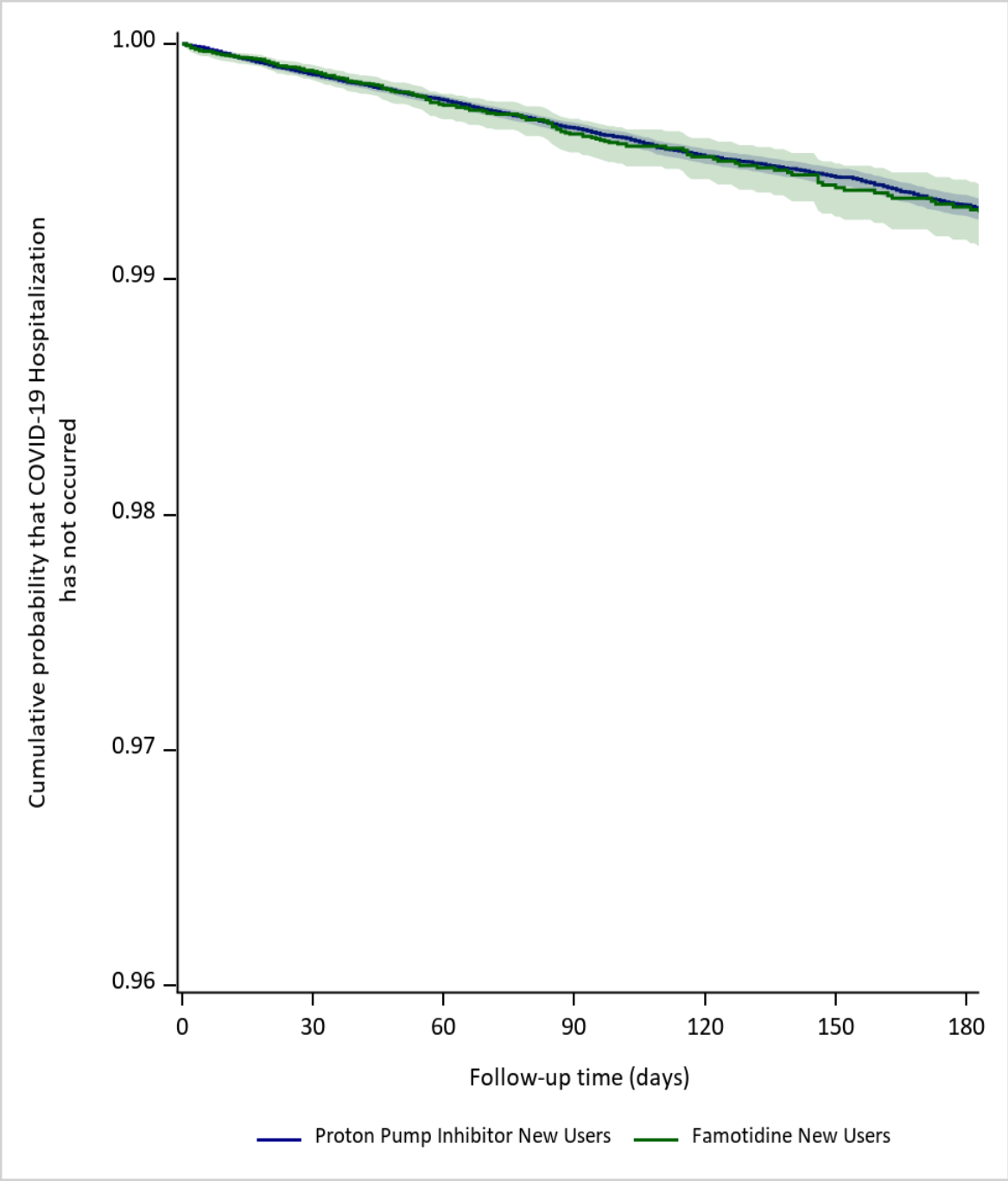


Figure 16f. Aggregated Adjusted Kaplan-Meier Estimate and 95% Confidence Interval of COVID-19 Hospitalization Not Occurring among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment from the Weighted Population in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 50-64 years

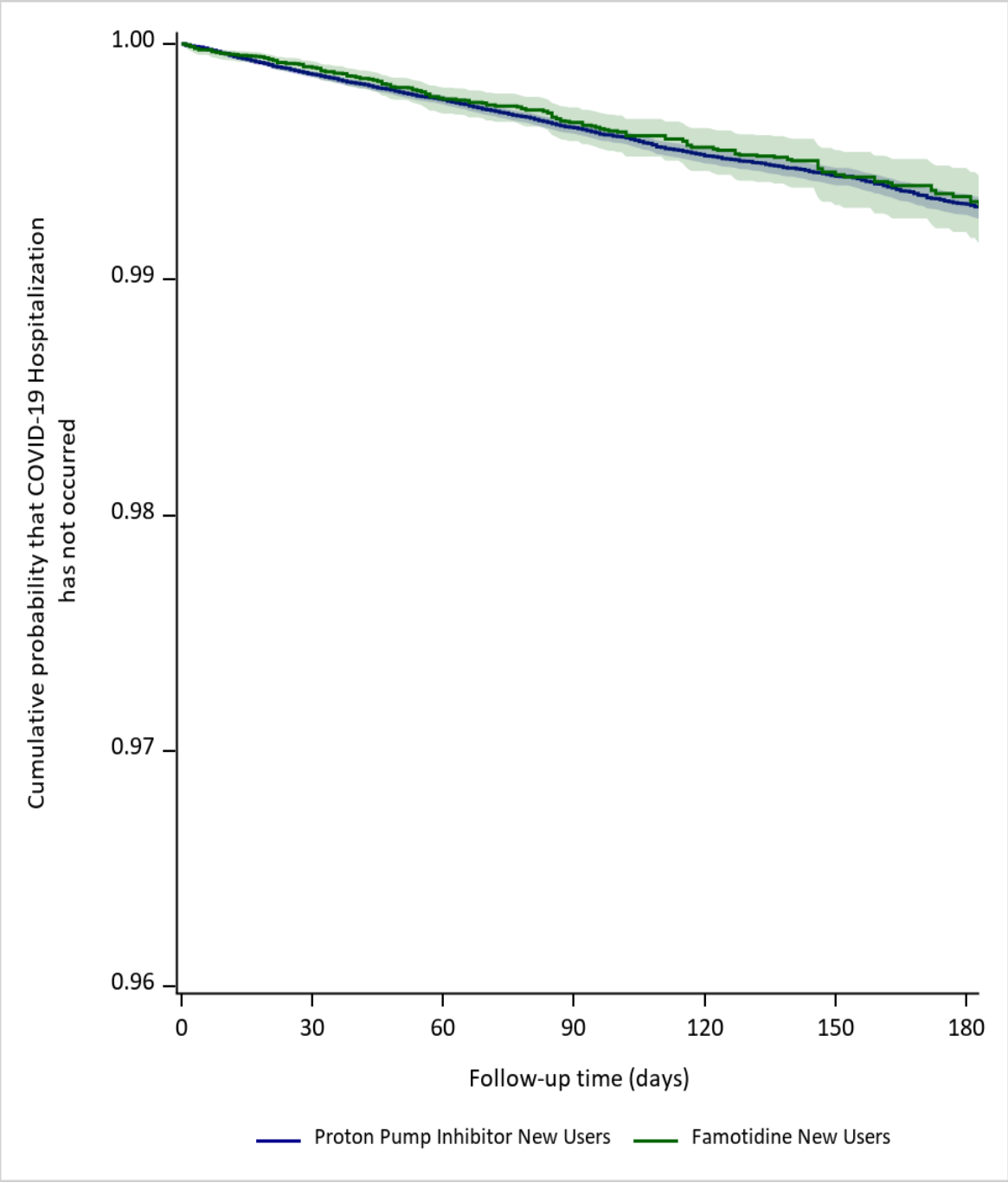


Figure 16g. Aggregated Unadjusted Kaplan-Meier Estimate and 95% Confidence Interval of COVID-19 Hospitalization Not Occurring among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment from the Whole Population in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years

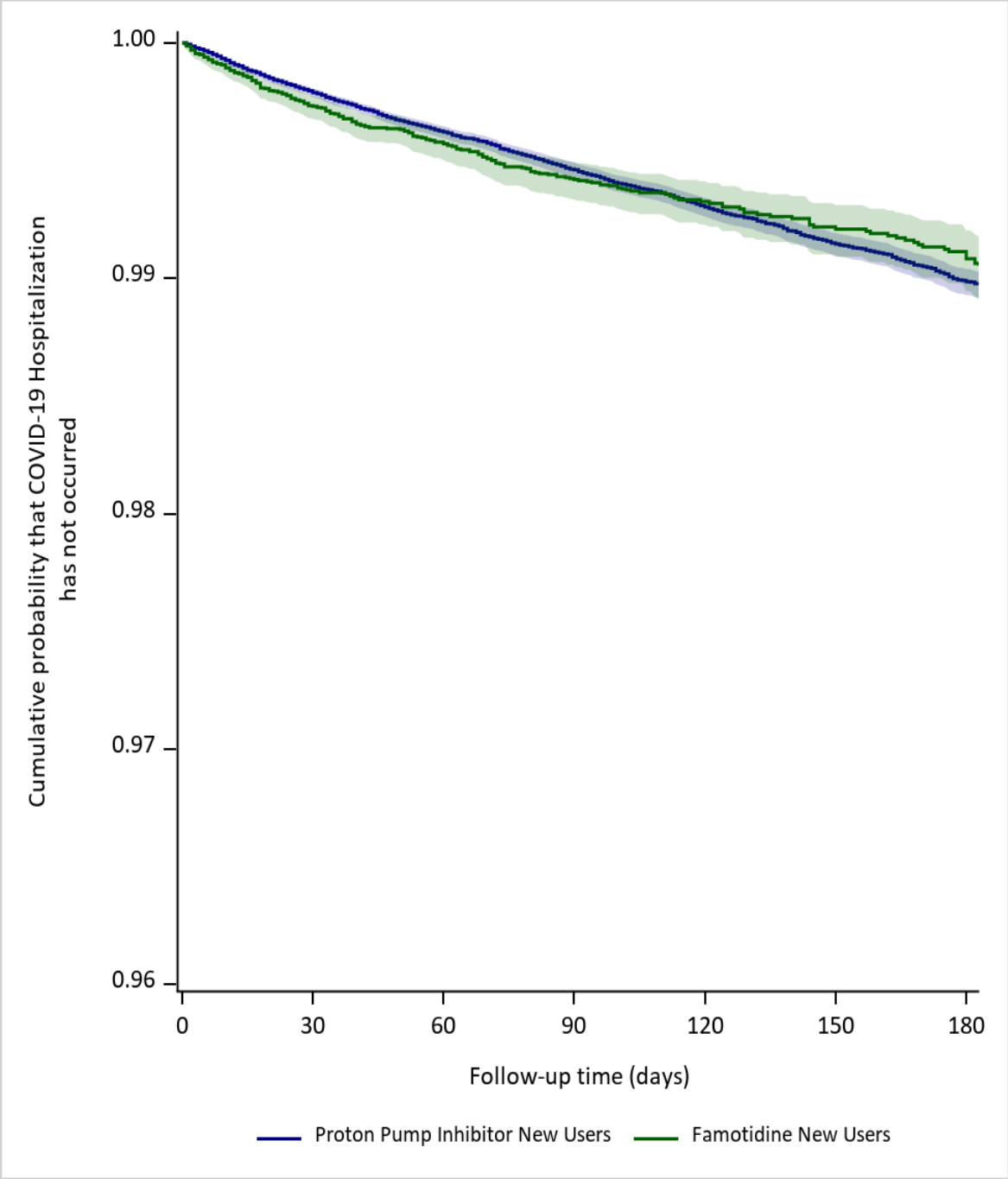


Figure 16h. Aggregated Adjusted Kaplan-Meier Estimate and 95% Confidence Interval of COVID-19 Hospitalization Not Occurring among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment from the Weighted Population in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years

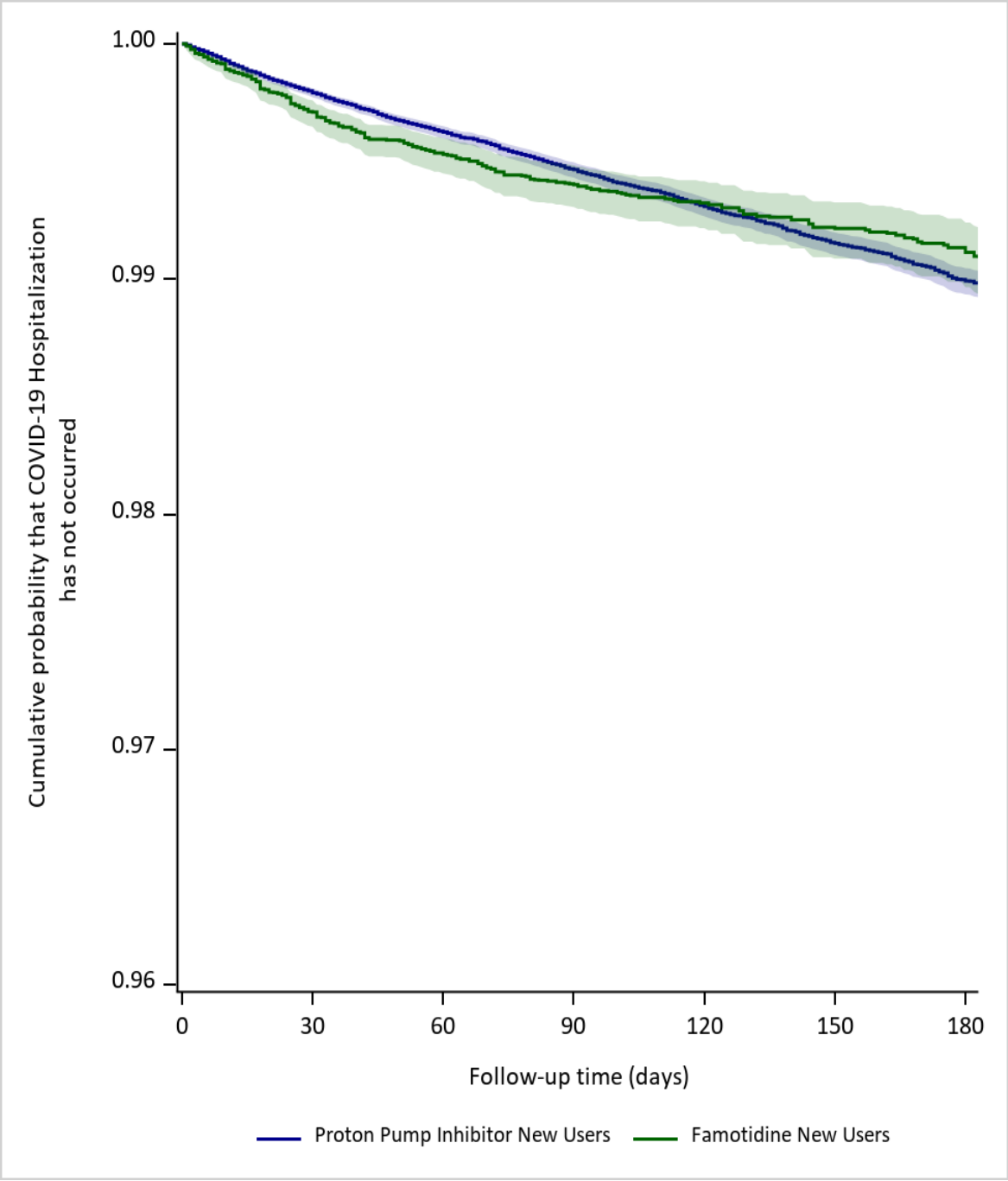


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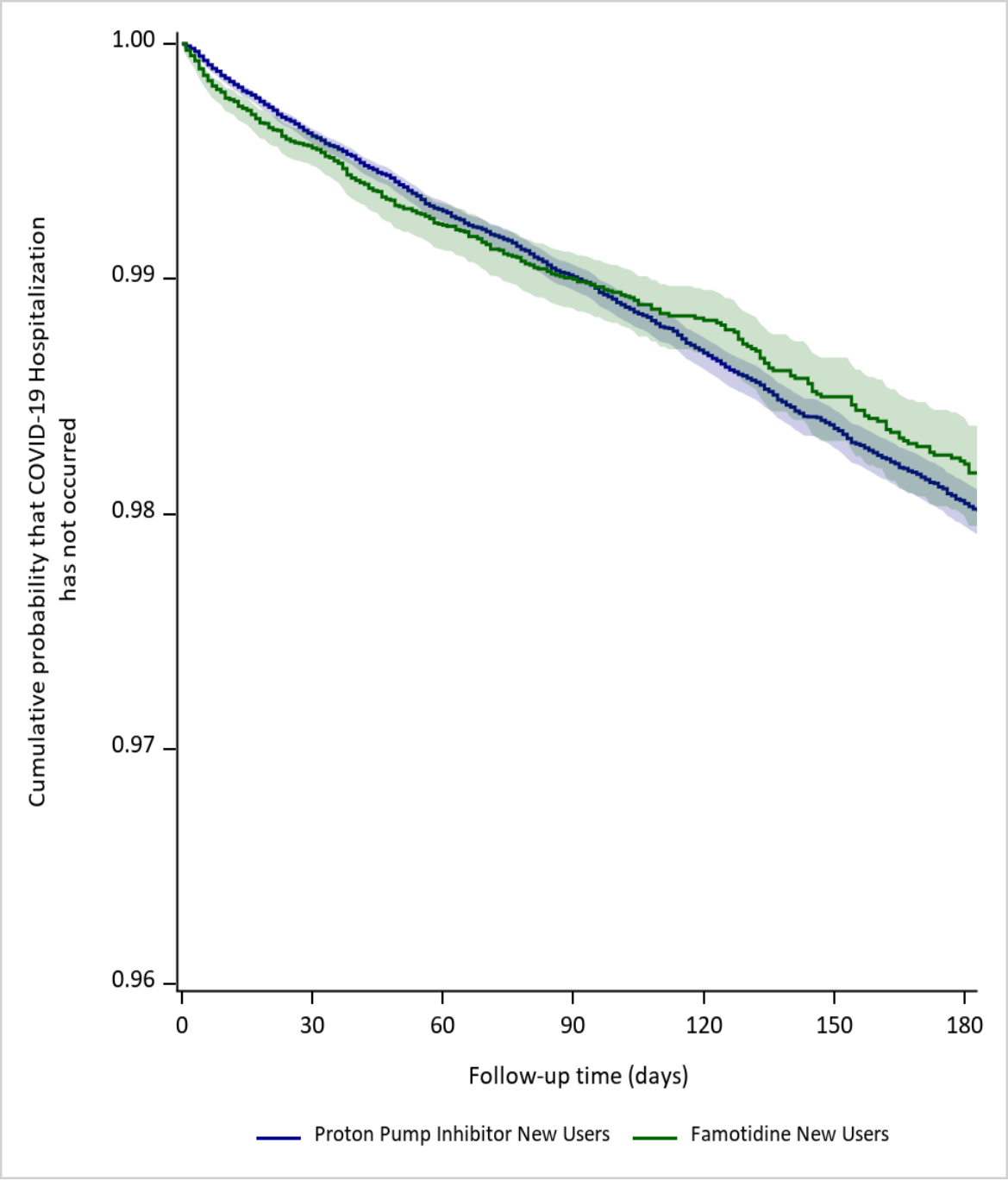


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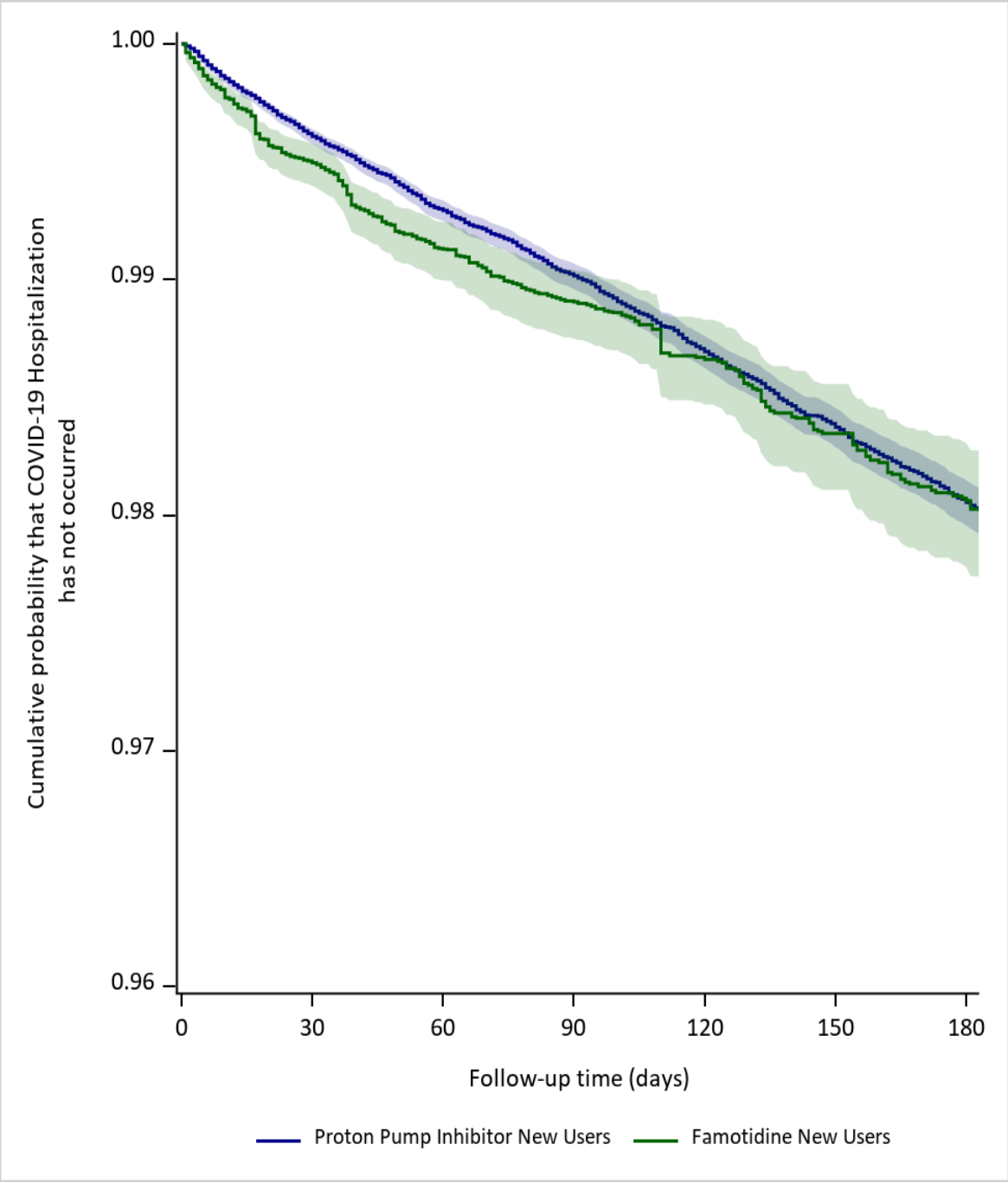


Figure 17a. Aggregated Unadjusted Kaplan-Meier Estimate and 95% Confidence Interval of COVID-19 Hospitalization Not Occurring among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights from the Whole Population in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024

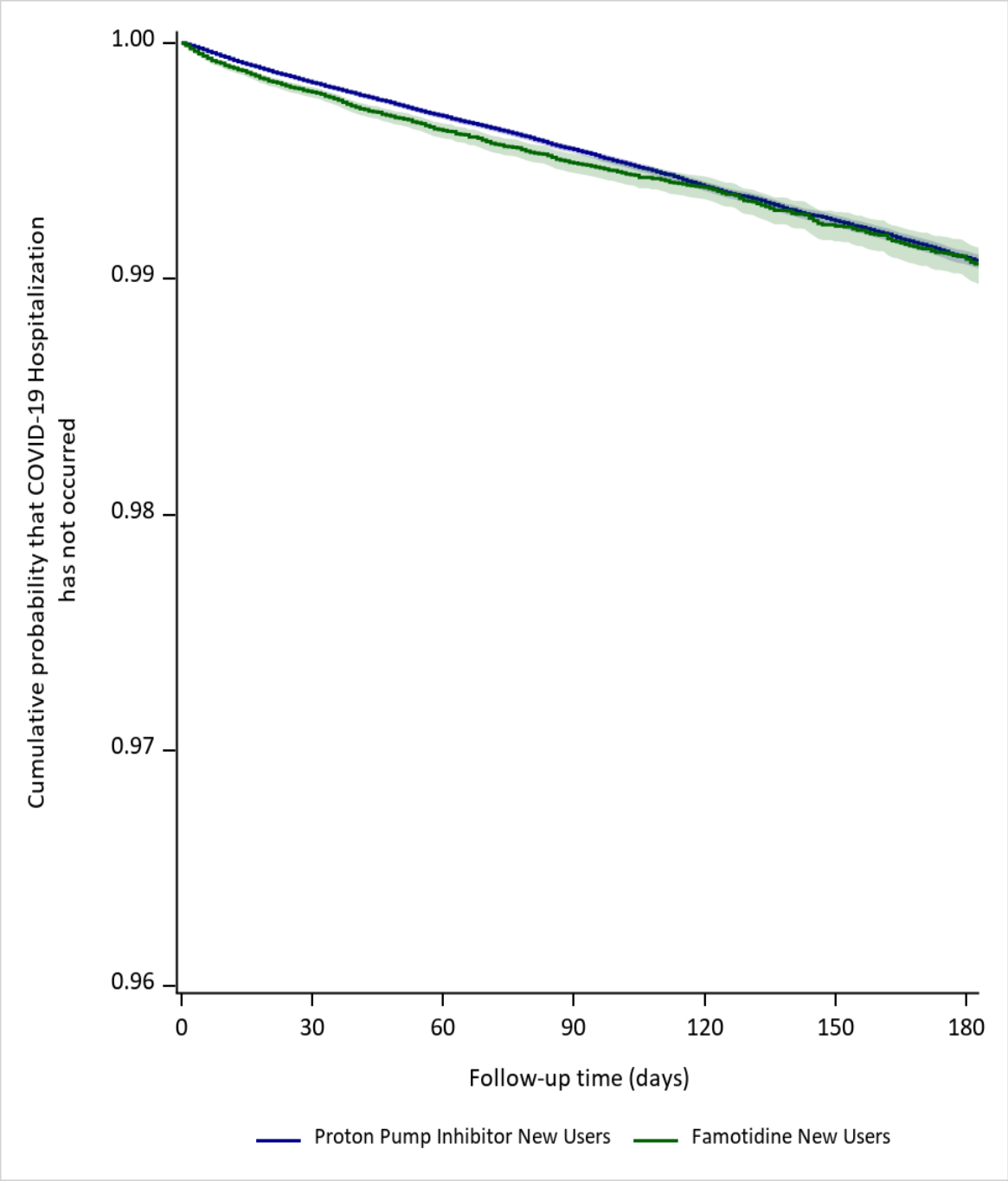


Figure 17b. Aggregated Adjusted Kaplan-Meier Estimate and 95% Confidence Interval of COVID-19 Hospitalization Not Occurring among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights from the Weighted Population in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024

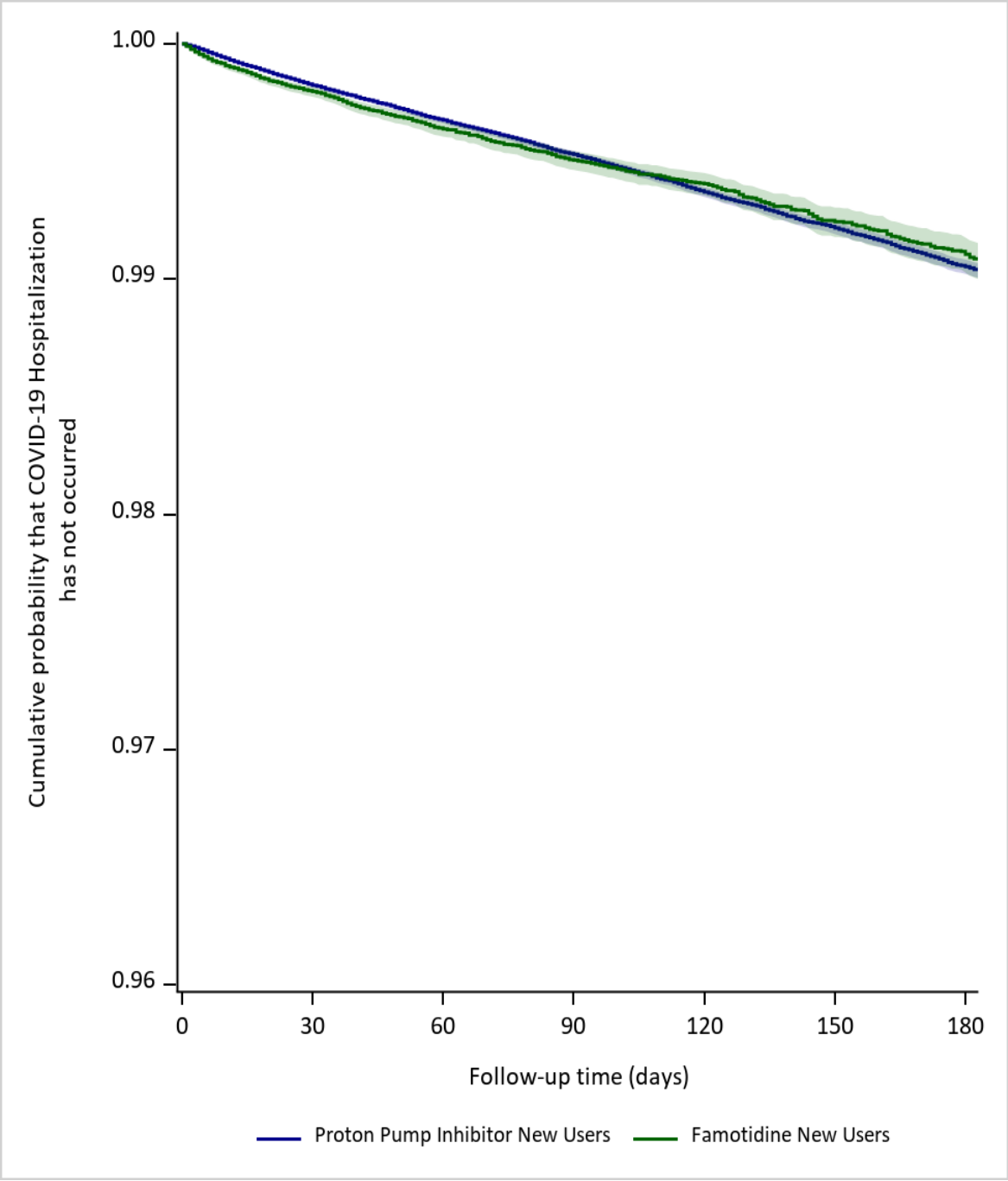


Figure 17c. Aggregated Unadjusted Kaplan-Meier Estimate and 95% Confidence Interval of COVID-19 Hospitalization Not Occurring among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights from the Whole Population in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years

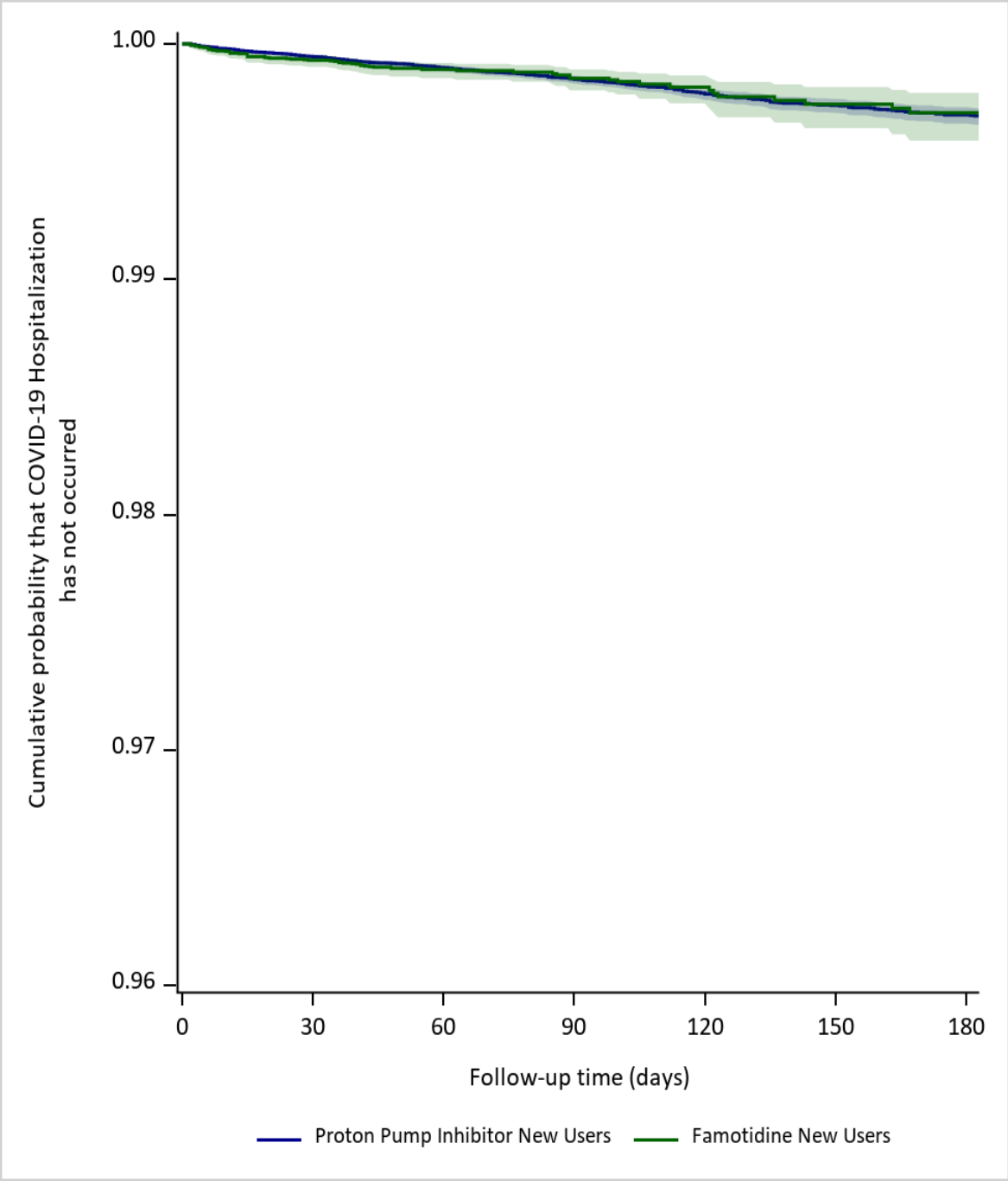


Figure 17d. Aggregated Adjusted Kaplan-Meier Estimate and 95% Confidence Interval of COVID-19 Hospitalization Not Occurring among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights from the Weighted Population in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years

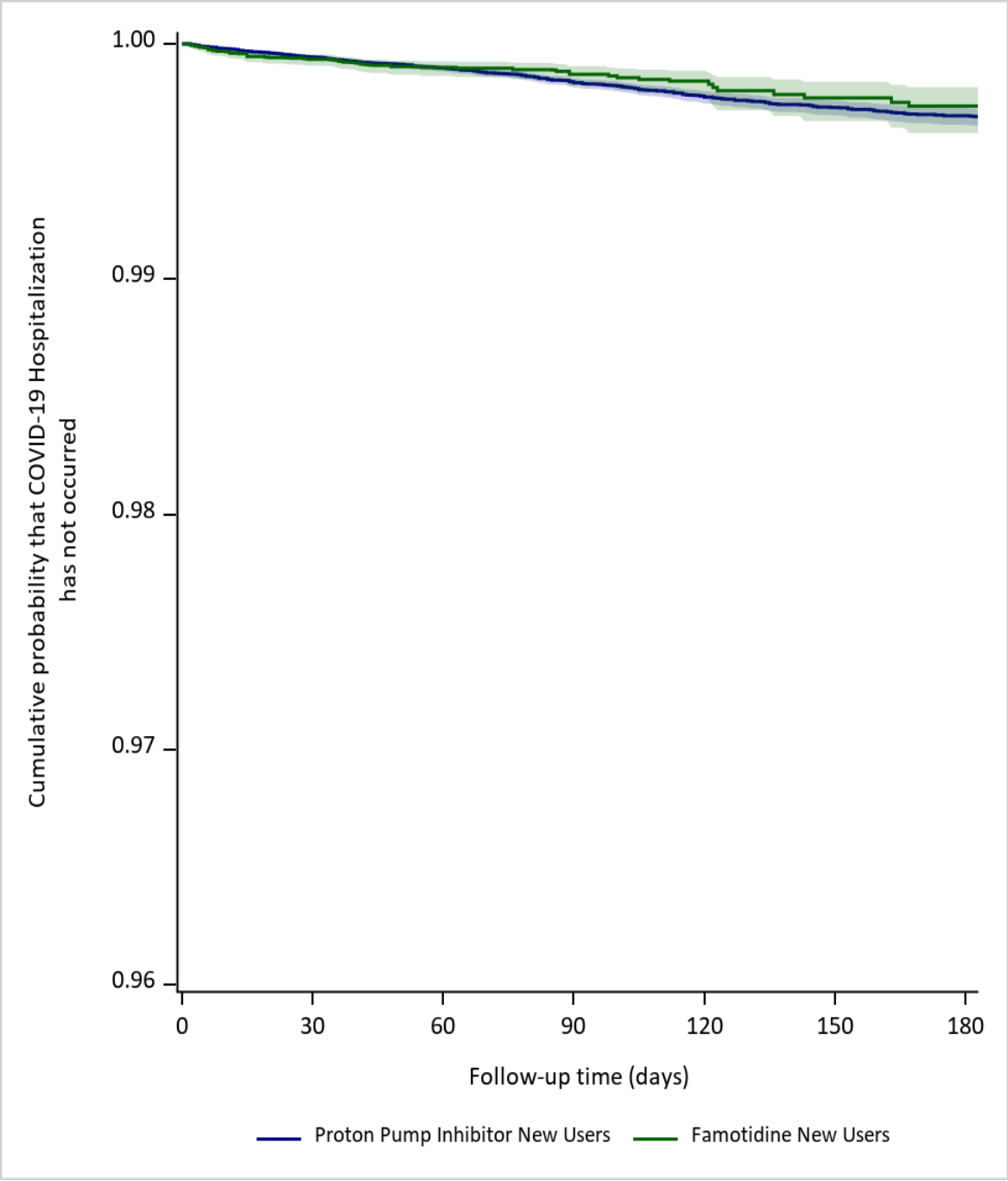


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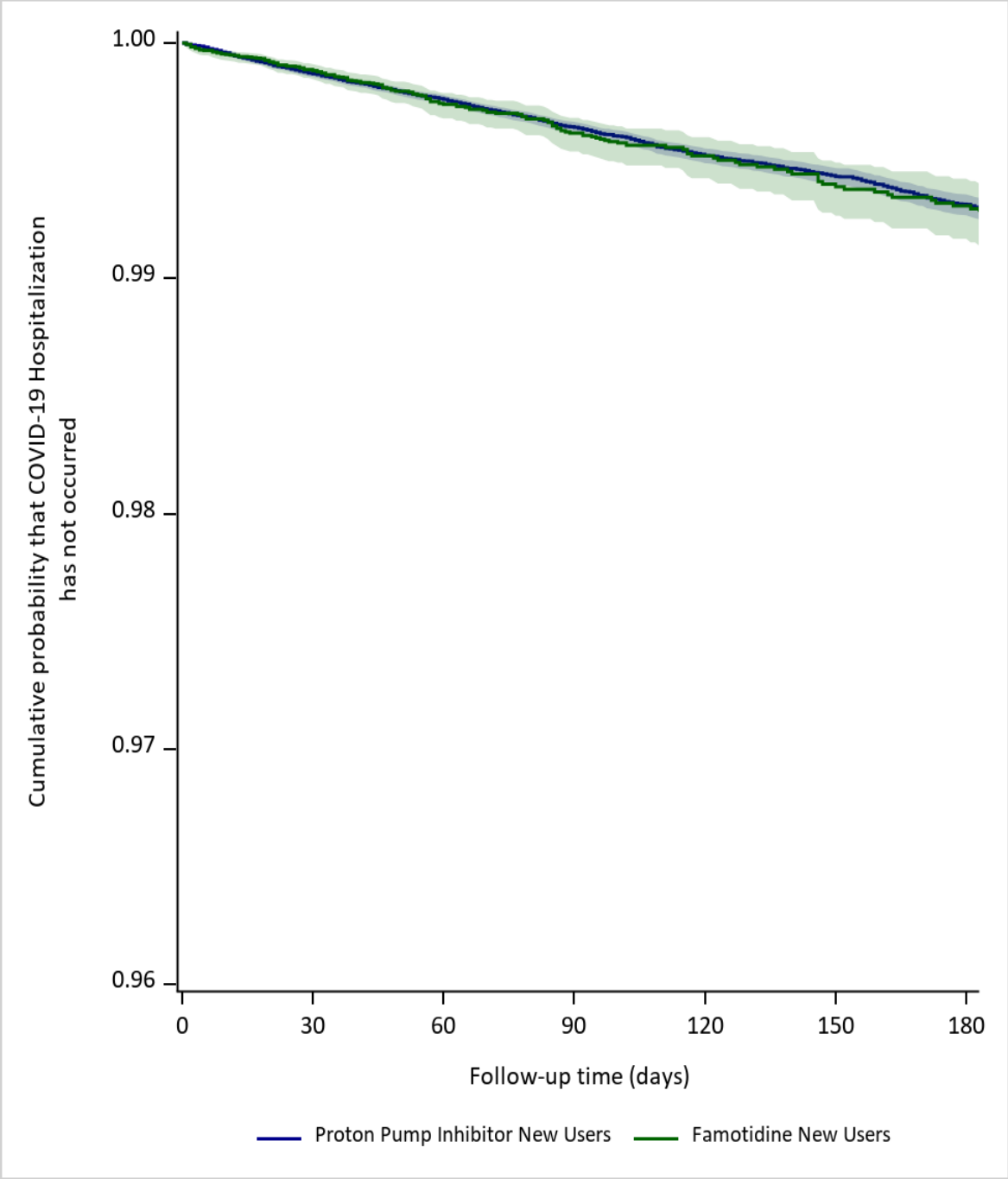


Figure 17f. Aggregated Adjusted Kaplan-Meier Estimate and 95% Confidence Interval of COVID-19 Hospitalization Not Occurring among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights from the Weighted Population in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 50-64 years

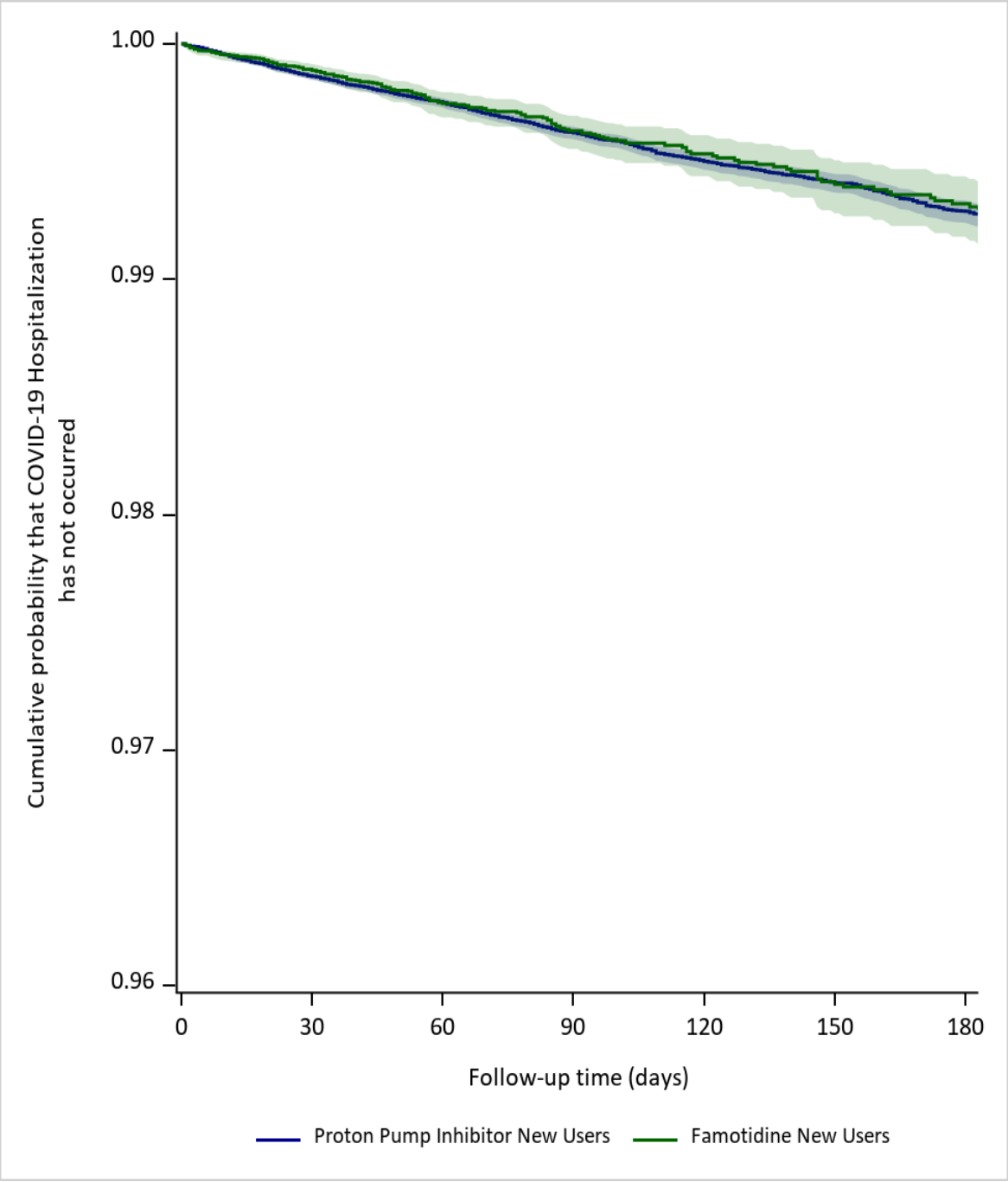


Figure 17g. Aggregated Unadjusted Kaplan-Meier Estimate and 95% Confidence Interval of COVID-19 Hospitalization Not Occurring among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights from the Whole Population in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years

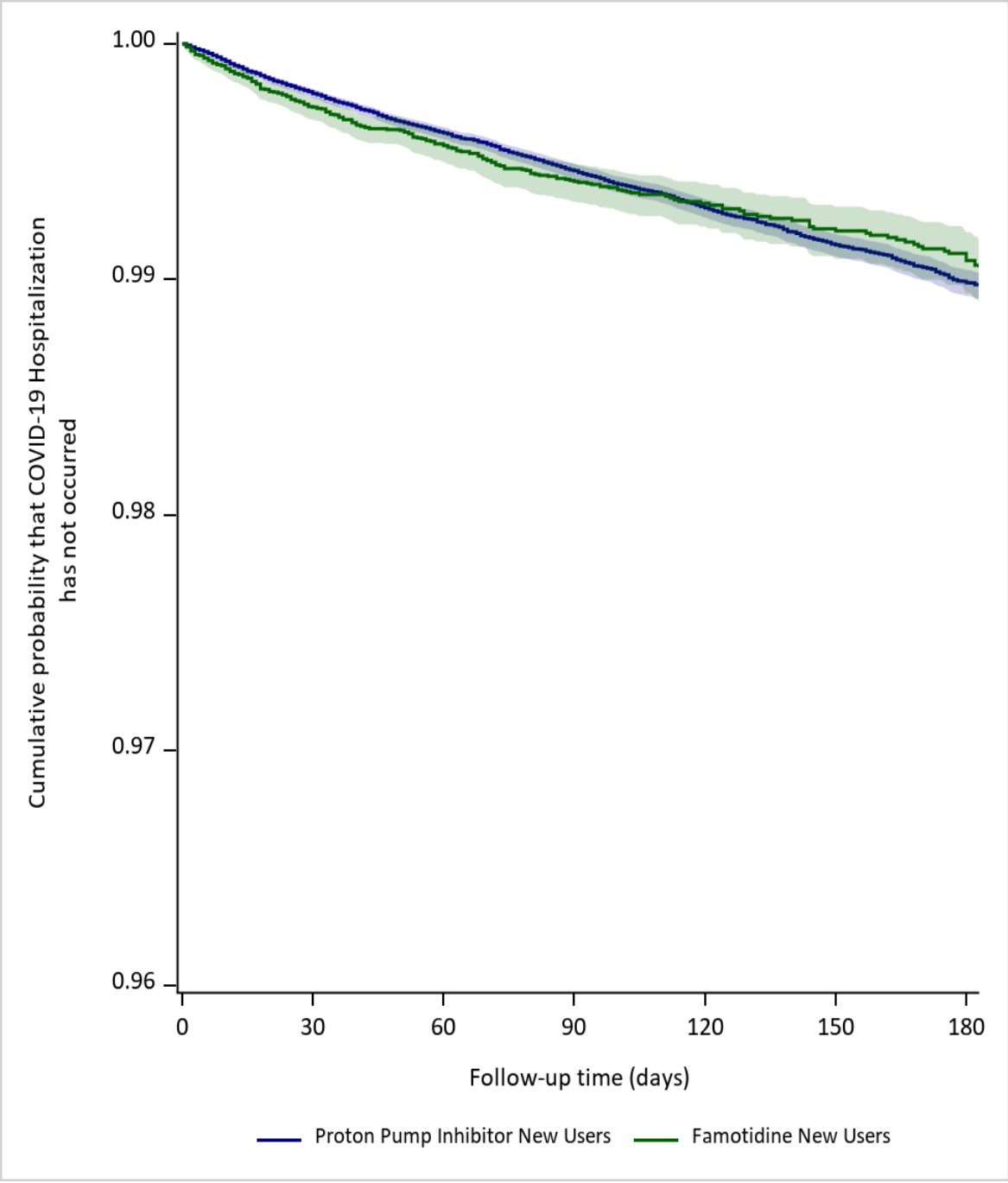


Figure 17h. Aggregated Adjusted Kaplan-Meier Estimate and 95% Confidence Interval of COVID-19 Hospitalization Not Occurring among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights from the Weighted Population in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years

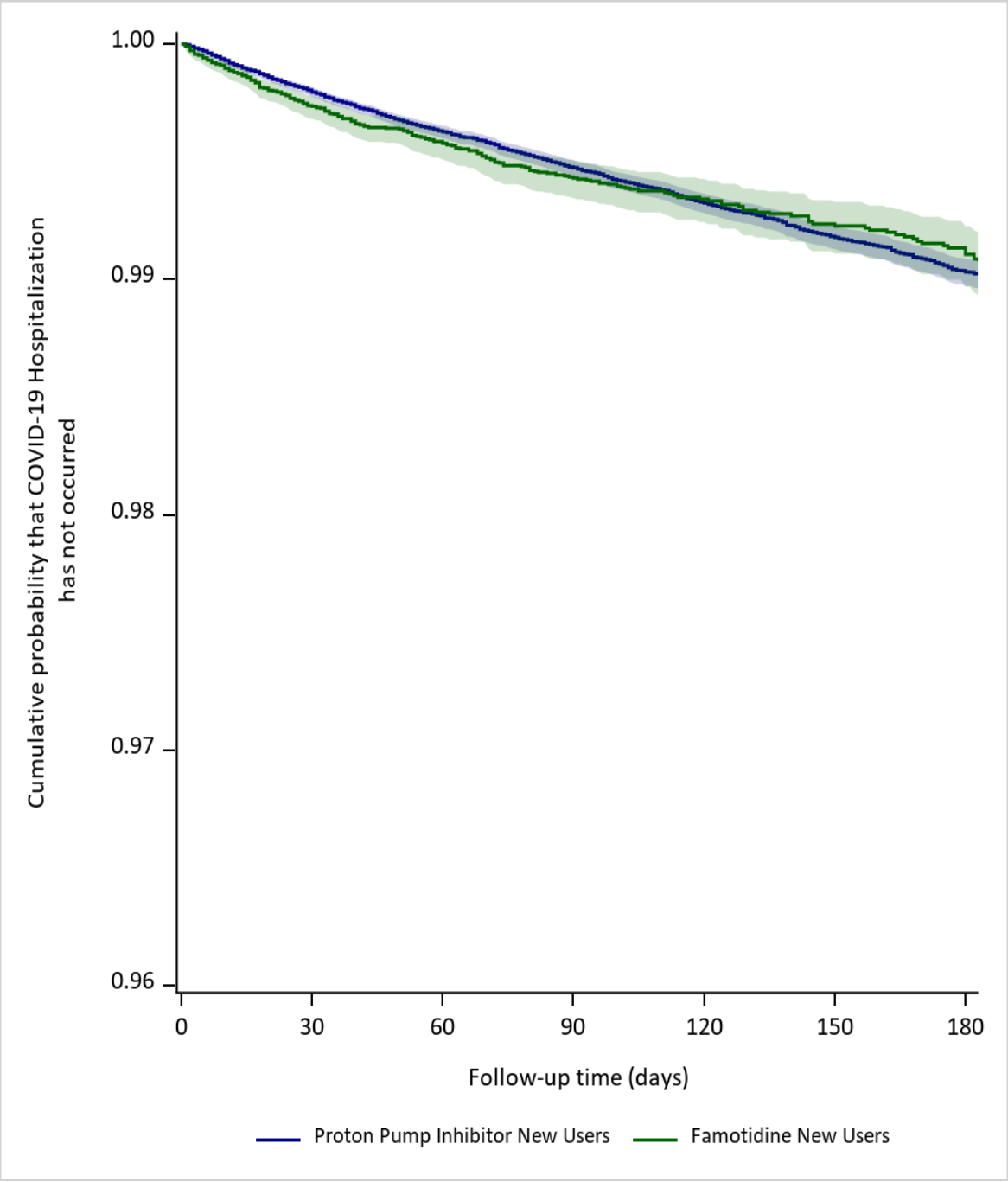


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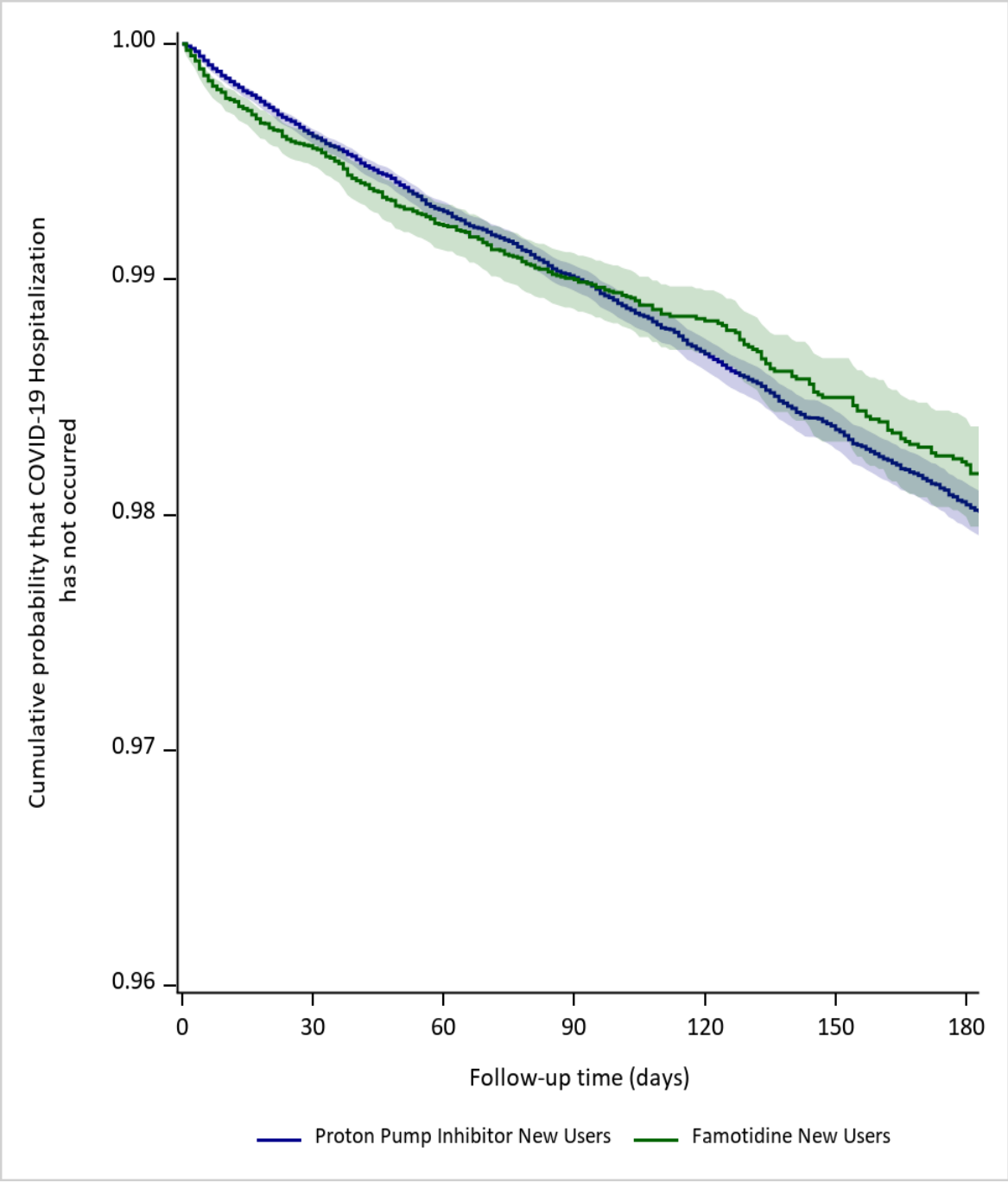


Figure 17j. Aggregated Adjusted Kaplan-Meier Estimate and 95% Confidence Interval of COVID-19 Hospitalization Not Occurring among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights from the Weighted Population in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: ≥ 75 years

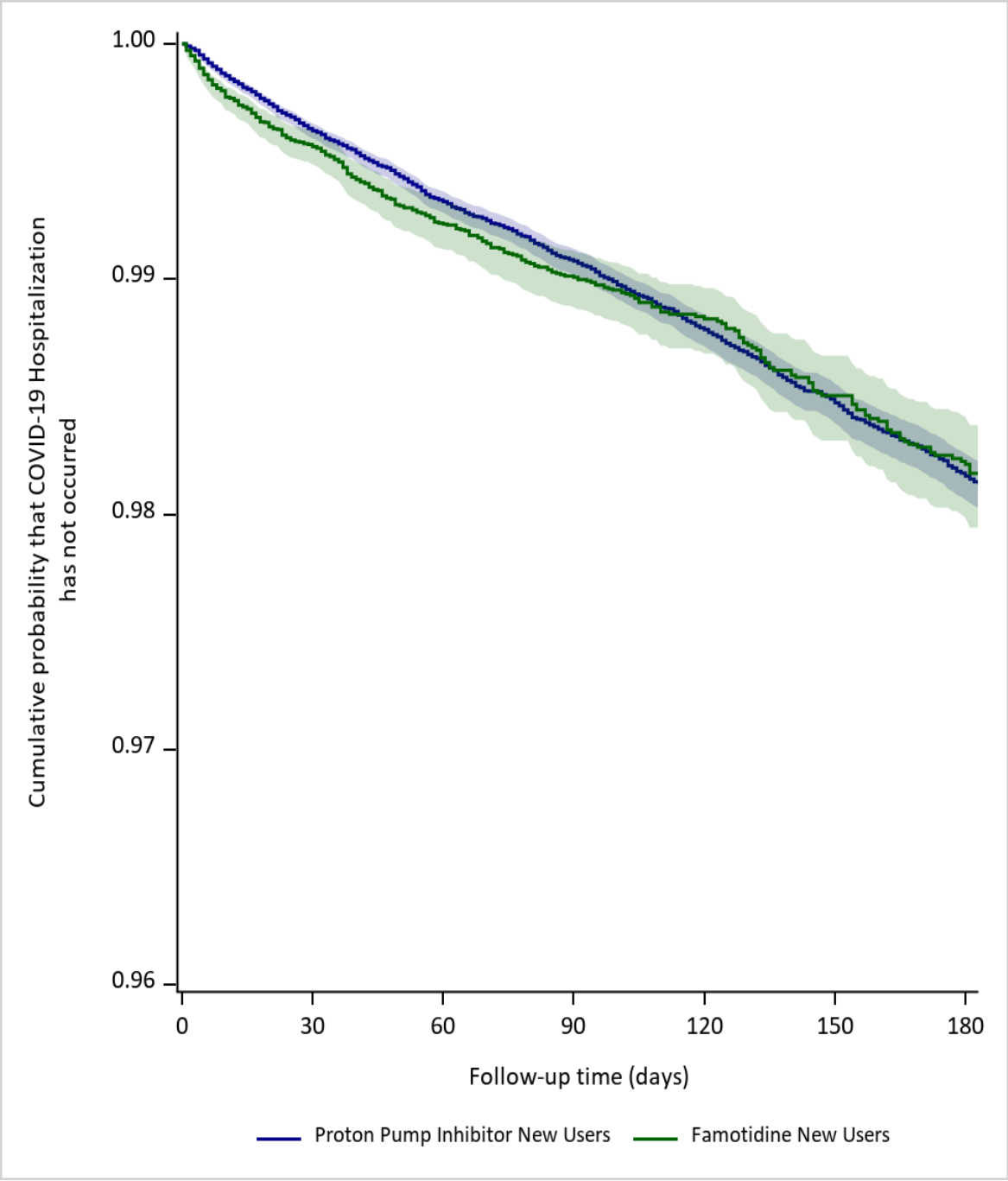


Figure 18a. Aggregated Unadjusted Kaplan-Meier Estimate and 95% Confidence Interval of COVID-19 Hospitalization Not Occurring among Proton Pump Inhibitor and Famotidine New Users with IPTW ATE Adjustment Using hdPS, 1% Truncation from the Whole Population in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024

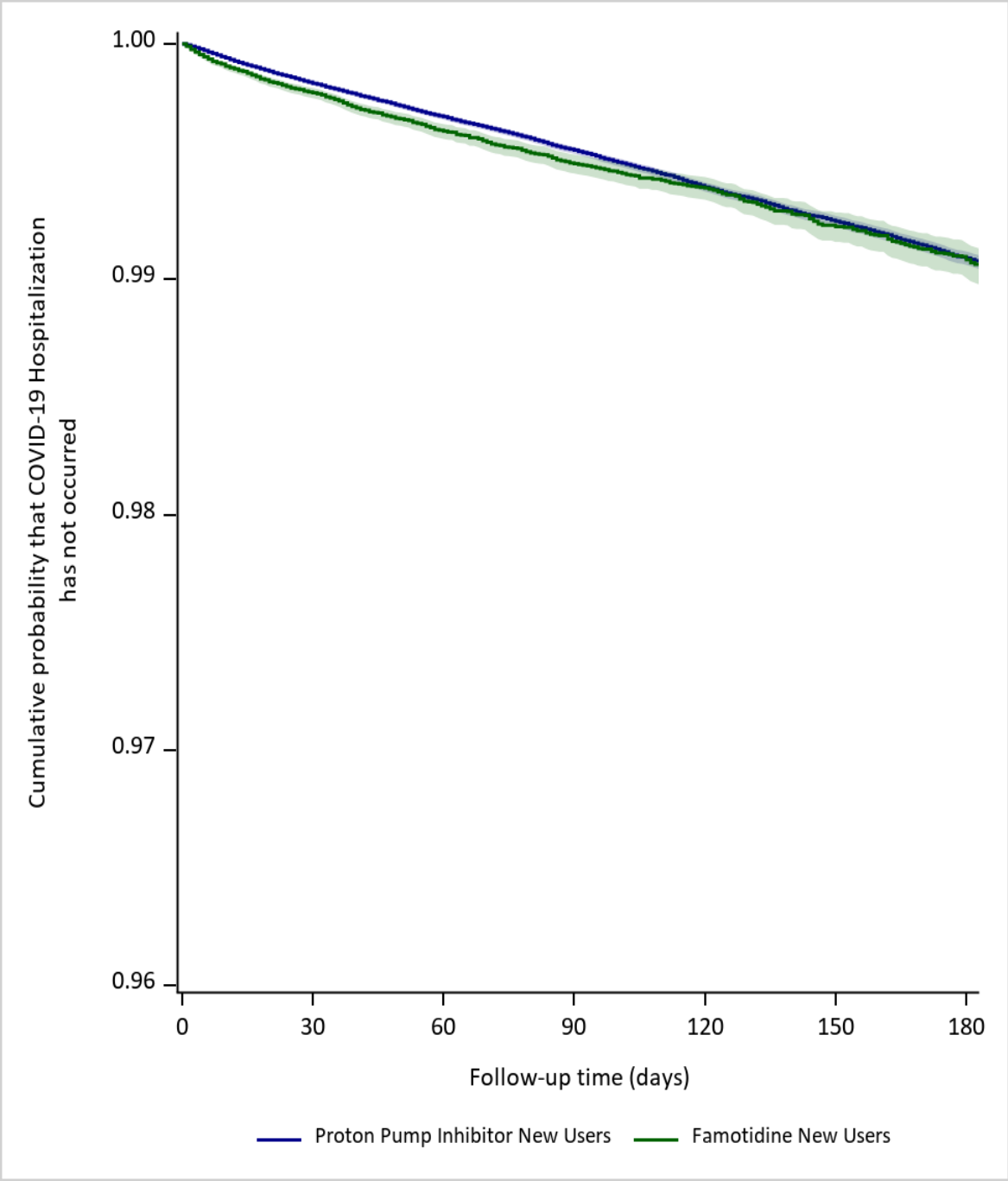


Figure 18b. Aggregated Adjusted Kaplan-Meier Estimate and 95% Confidence Interval of COVID-19 Hospitalization Not Occurring among Proton Pump Inhibitor and Famotidine New Users with IPTW ATE Adjustment Using hdPS, 1% Truncation from the Weighted Population in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024

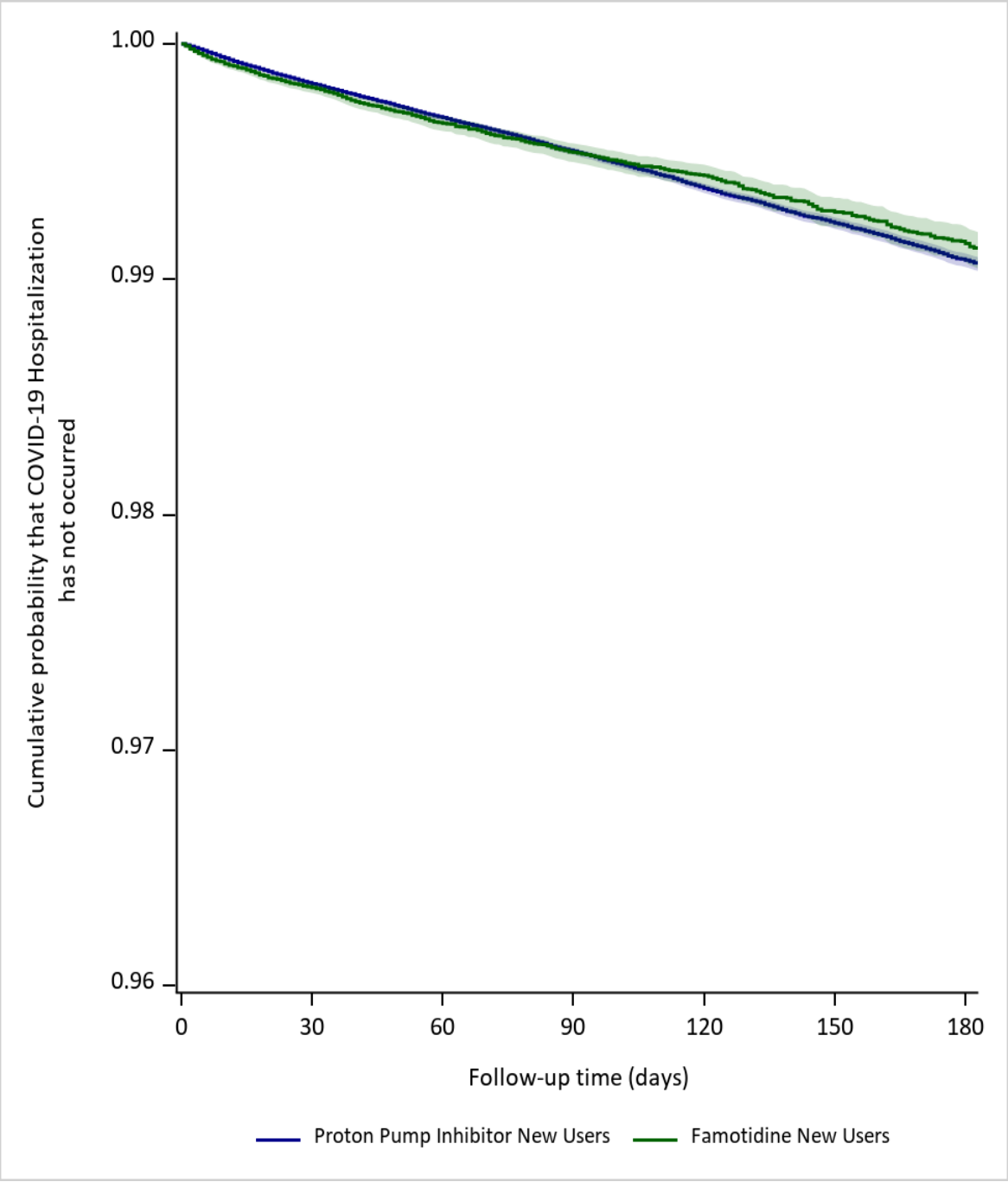


Figure 18c. Aggregated Unadjusted Kaplan-Meier Estimate and 95% Confidence Interval of COVID-19 Hospitalization Not Occurring among Proton Pump Inhibitor and Famotidine New Users with IPTW ATE Adjustment Using hdPS, 1% Truncation from the Whole Population in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years

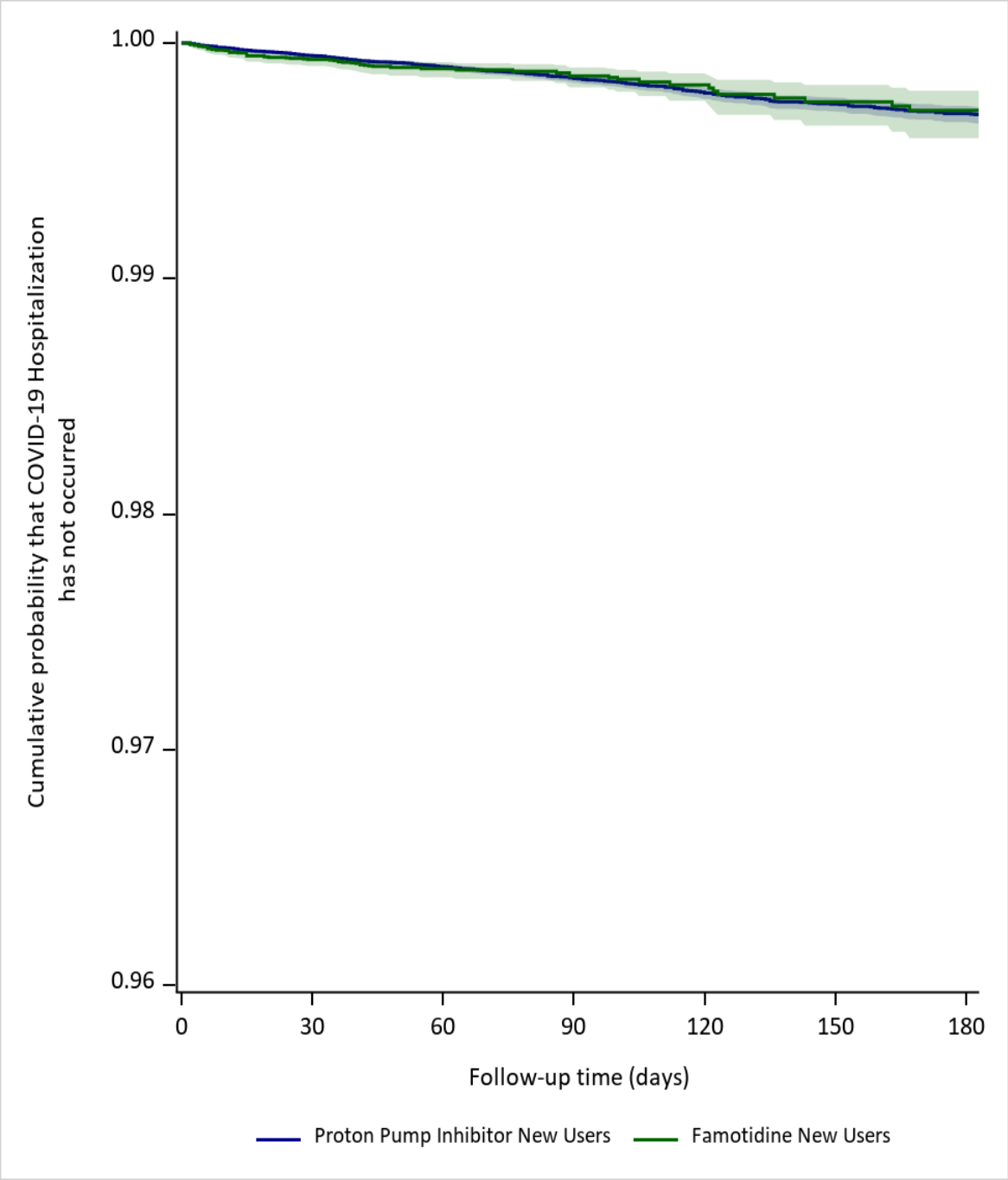


Figure 18d. Aggregated Adjusted Kaplan-Meier Estimate and 95% Confidence Interval of COVID-19 Hospitalization Not Occurring among Proton Pump Inhibitor and Famotidine New Users with IPTW ATE Adjustment Using hdPS, 1% Truncation from the Weighted Population in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years

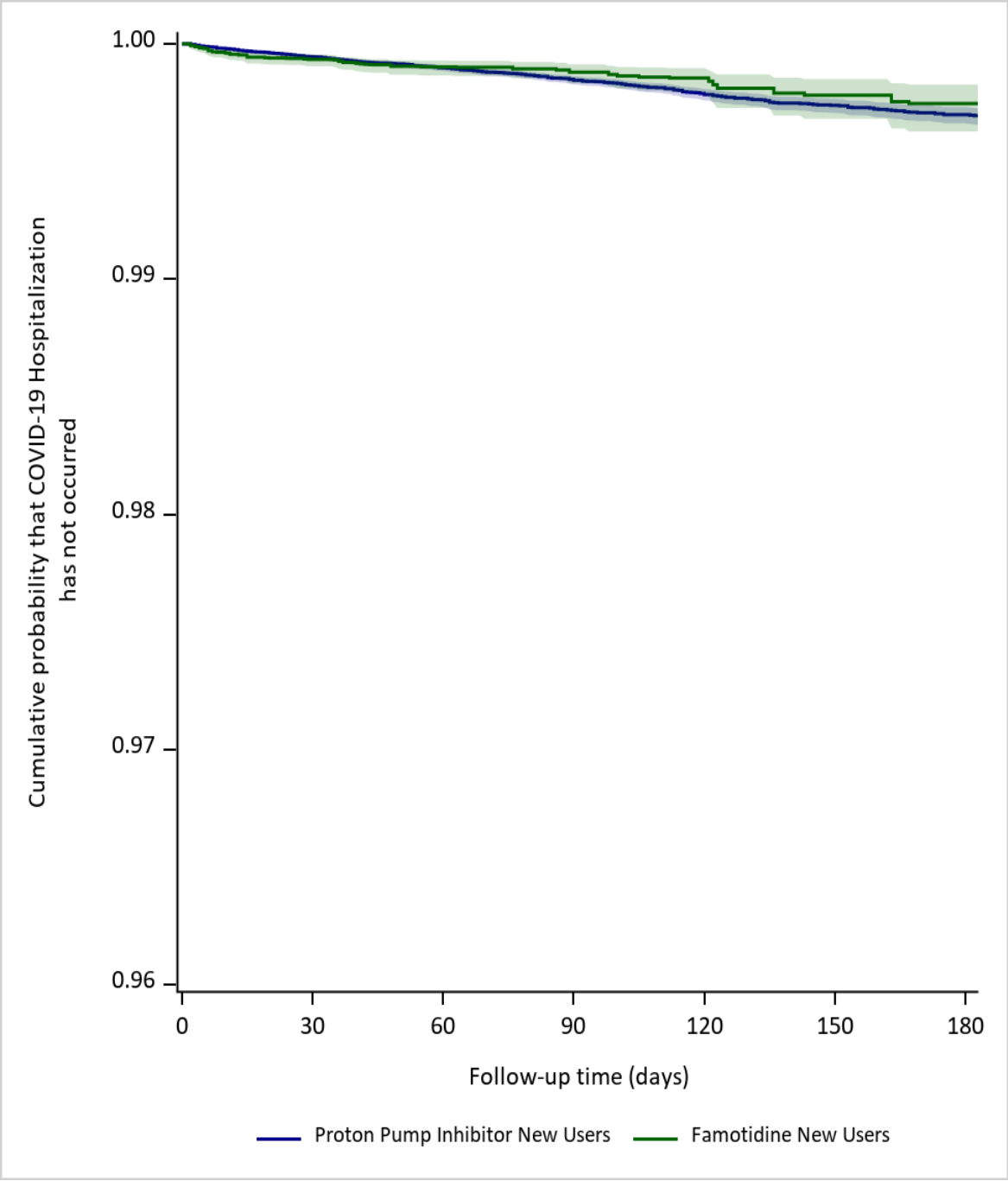


Figure 18e. Aggregated Unadjusted Kaplan-Meier Estimate and 95% Confidence Interval of COVID-19 Hospitalization Not Occurring among Proton Pump Inhibitor and Famotidine New Users with IPTW ATE Adjustment Using hdPS, 1% Truncation from the Whole Population in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 50-64 years

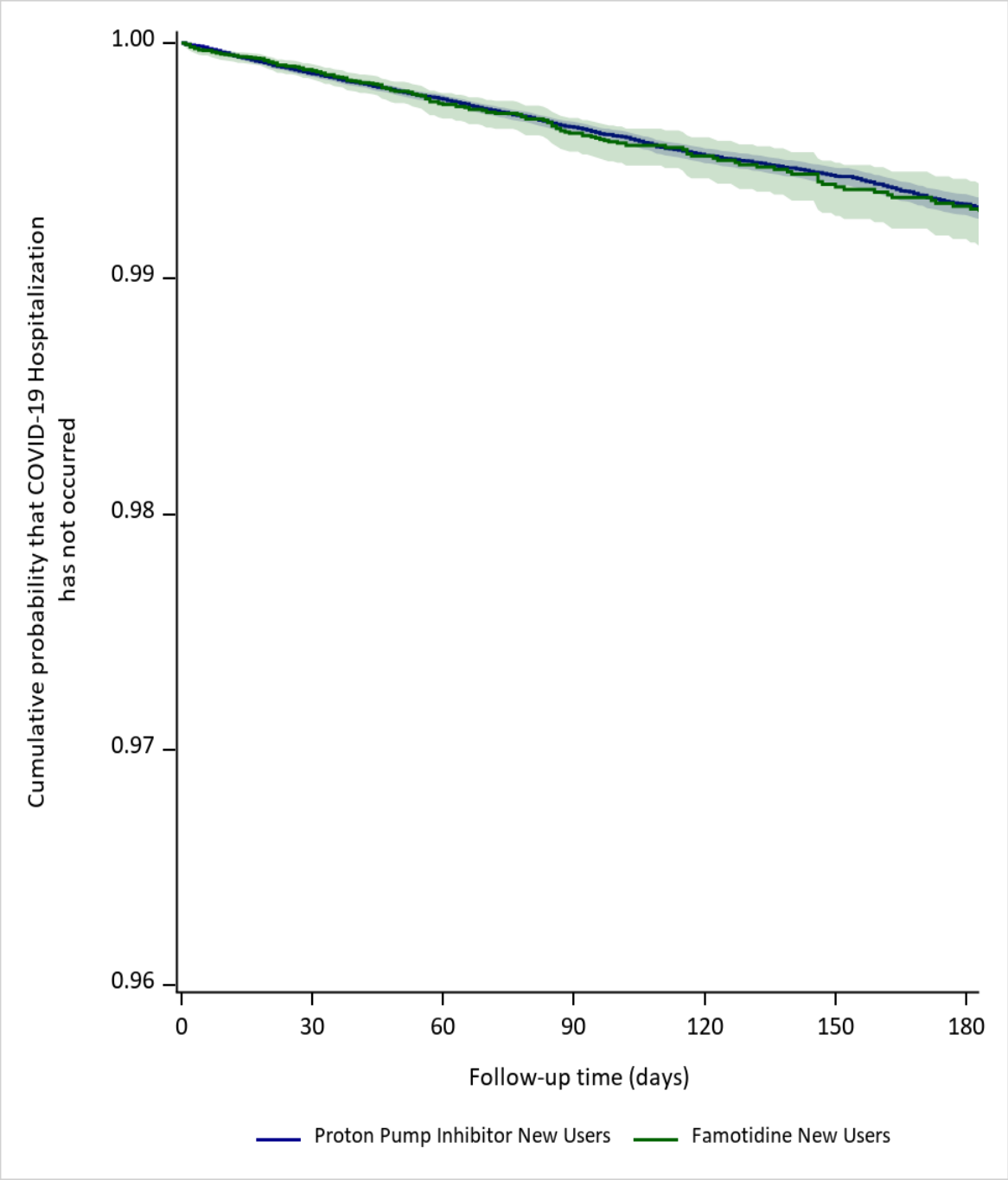


Figure 18f. Aggregated Adjusted Kaplan-Meier Estimate and 95% Confidence Interval of COVID-19 Hospitalization Not Occurring among Proton Pump Inhibitor and Famotidine New Users with IPTW ATE Adjustment Using hdPS, 1% Truncation from the Weighted Population in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 50-64 years

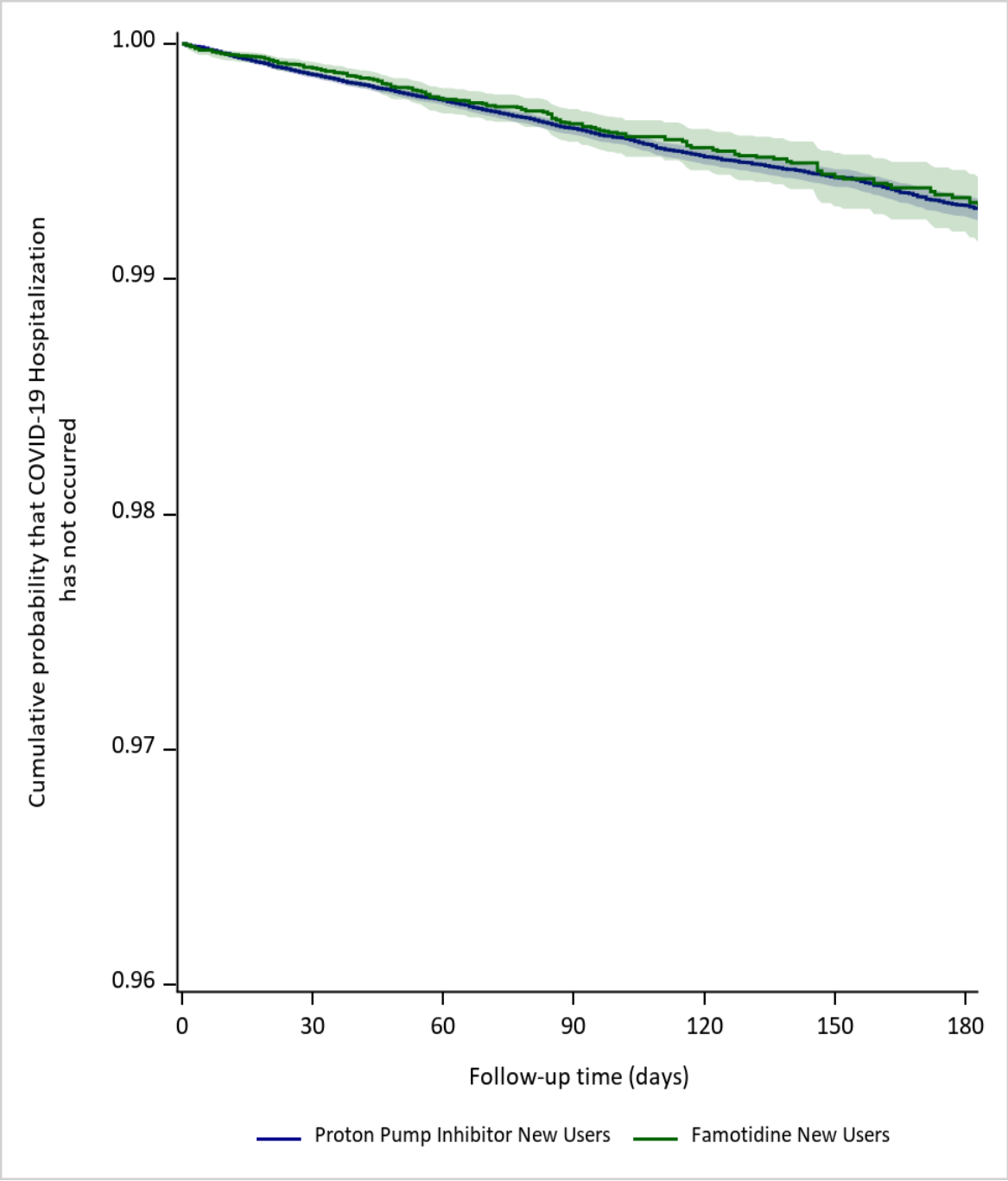


Figure 18g. Aggregated Unadjusted Kaplan-Meier Estimate and 95% Confidence Interval of COVID-19 Hospitalization Not Occurring among Proton Pump Inhibitor and Famotidine New Users with IPTW ATE Adjustment Using hdPS, 1% Truncation from the Whole Population in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years

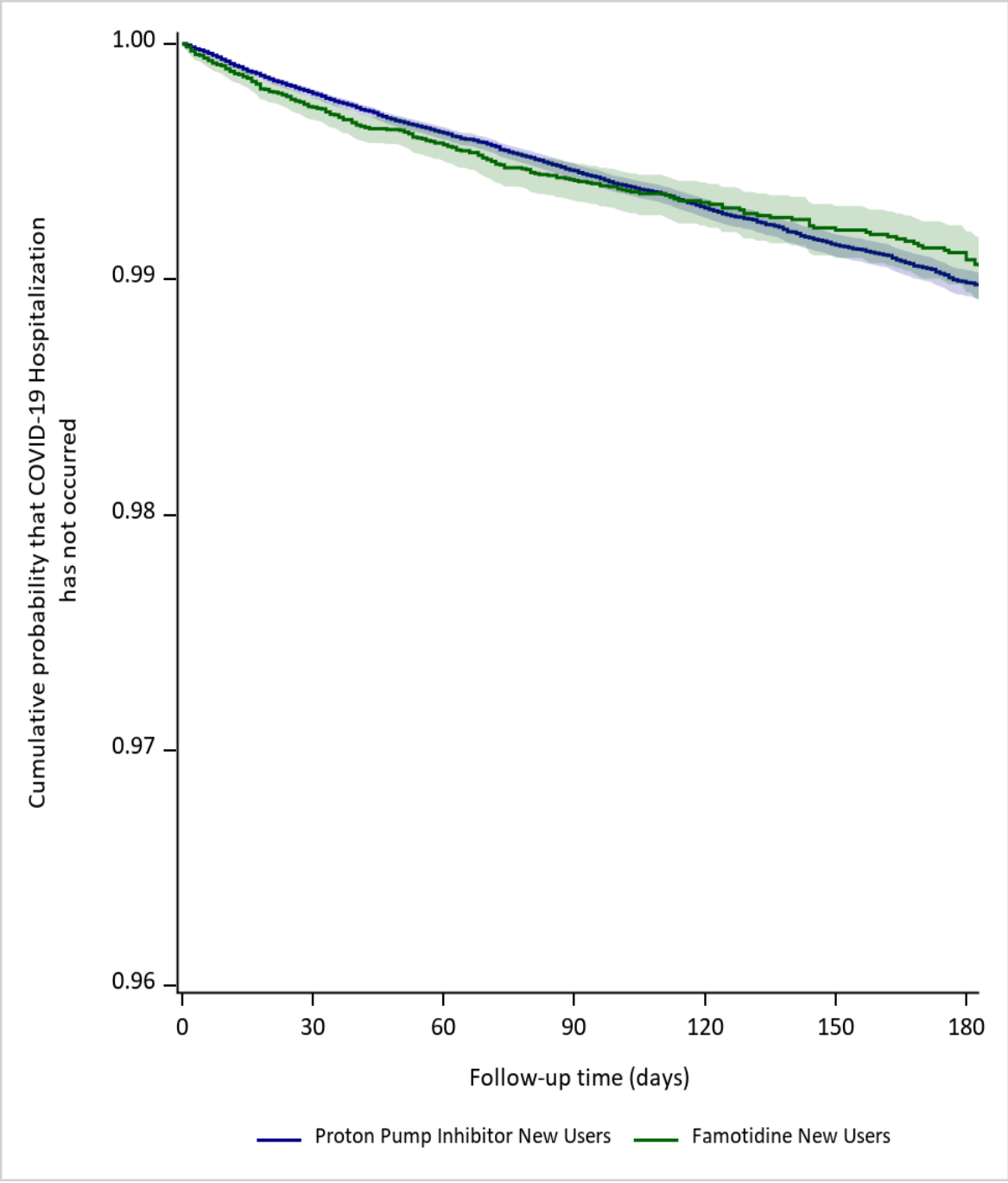


Figure 18h. Aggregated Adjusted Kaplan-Meier Estimate and 95% Confidence Interval of COVID-19 Hospitalization Not Occurring among Proton Pump Inhibitor and Famotidine New Users with IPTW ATE Adjustment Using hdPS, 1% Truncation from the Weighted Population in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years

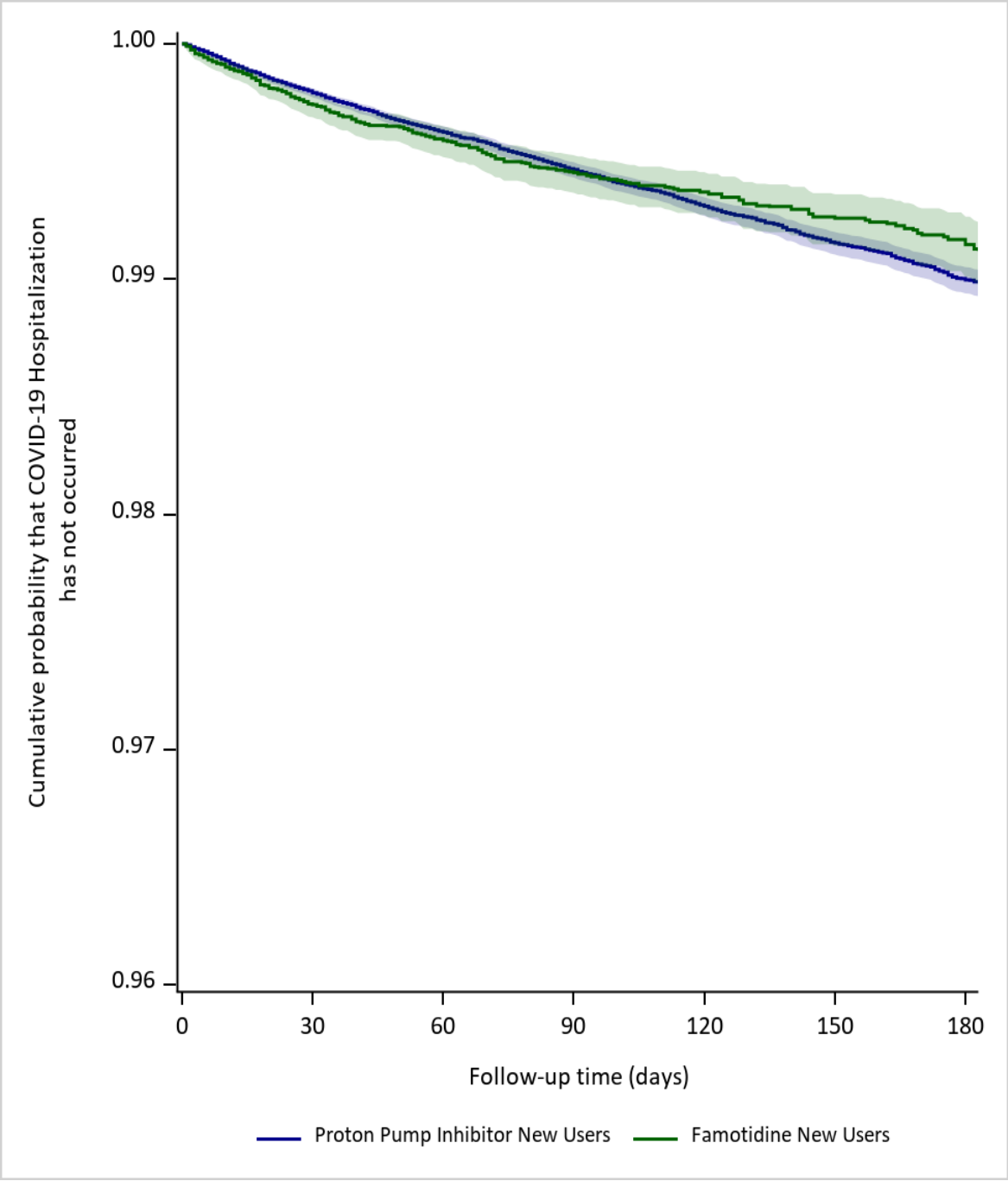


Figure 18i. Aggregated Unadjusted Kaplan-Meier Estimate and 95% Confidence Interval of COVID-19 Hospitalization Not Occurring among Proton Pump Inhibitor and Famotidine New Users with IPTW ATE Adjustment Using hdPS, 1% Truncation from the Whole Population in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: ≥ 75 years

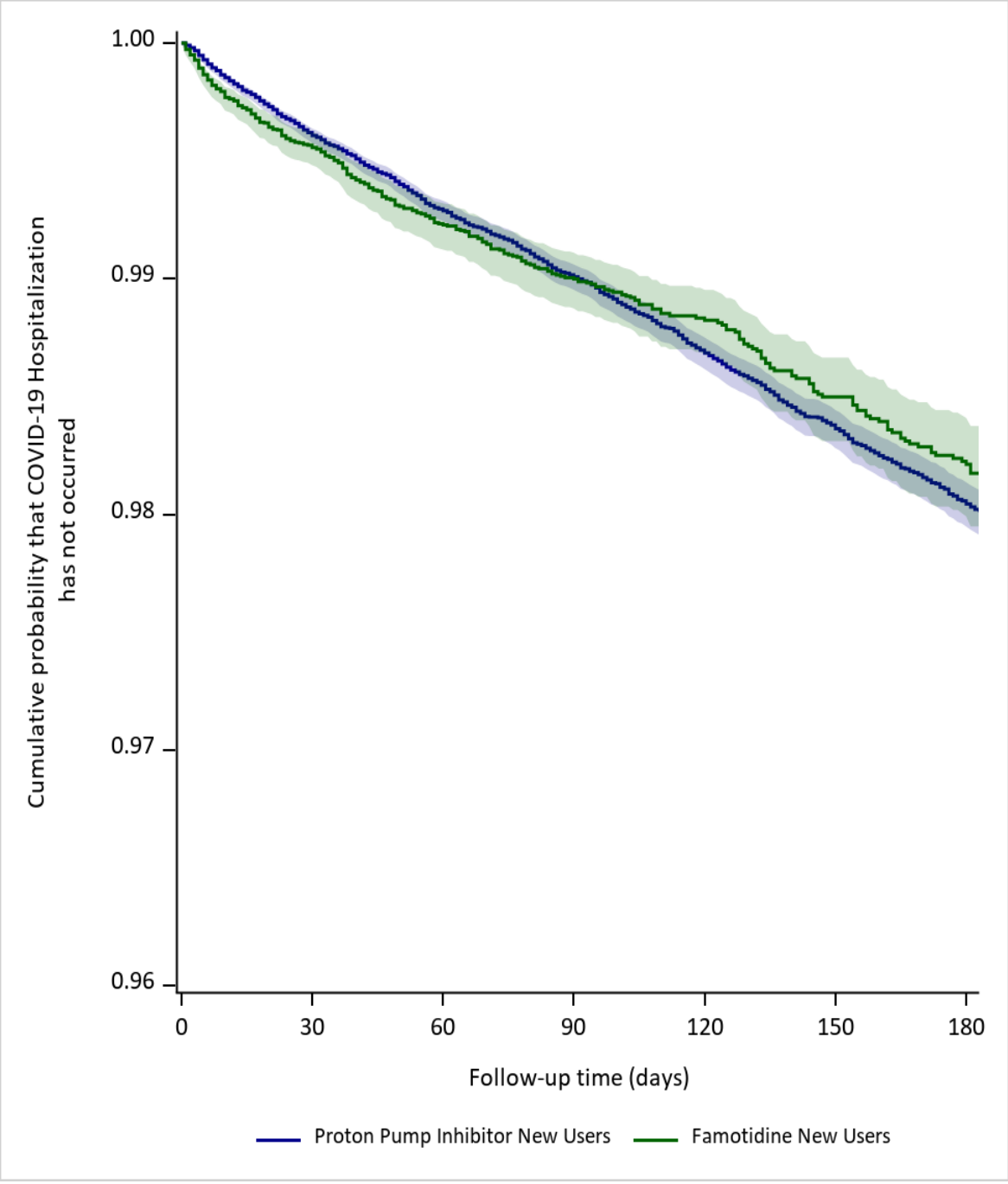


Figure 18j. Aggregated Adjusted Kaplan-Meier Estimate and 95% Confidence Interval of COVID-19 Hospitalization Not Occurring among Proton Pump Inhibitor and Famotidine New Users with IPTW ATE Adjustment Using hdPS, 1% Truncation from the Weighted Population in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: ≥ 75 years

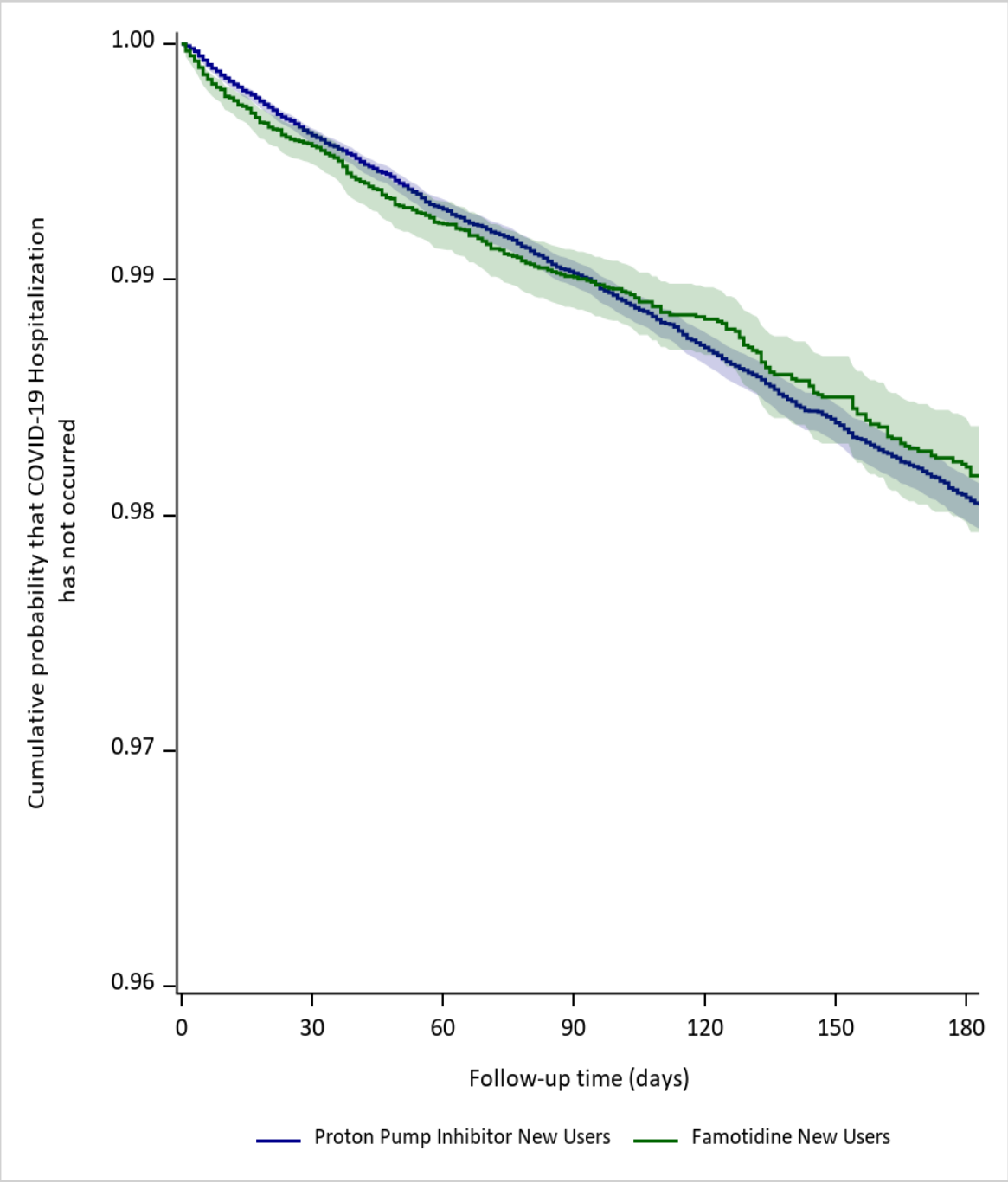


Figure 19a. Aggregated Unadjusted Kaplan-Meier Estimate and 95% Confidence Interval of Severe COVID-19 Outcome or Death Not Occurring among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation from the Whole Population in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024

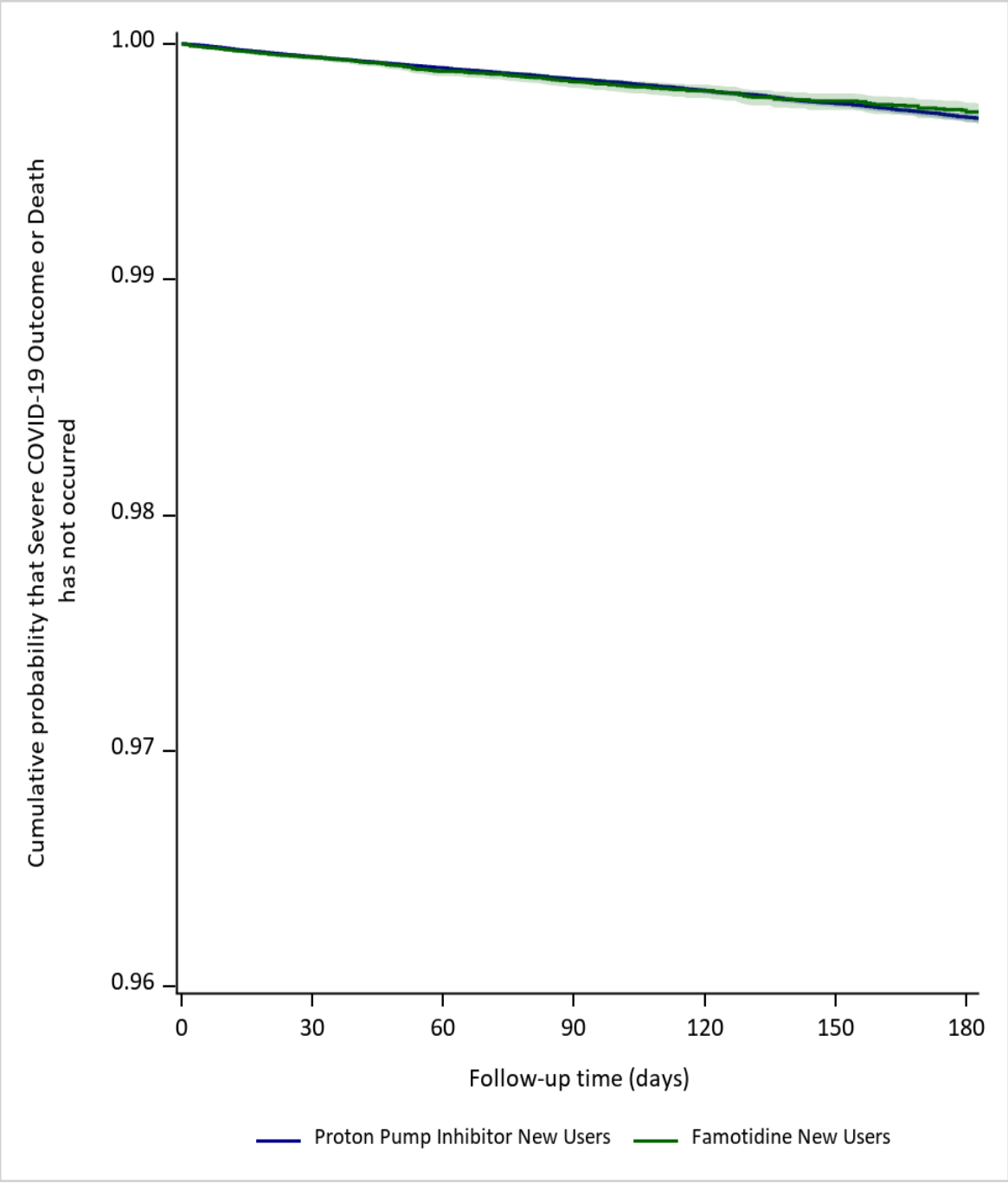


Figure 19b. Aggregated Adjusted Kaplan-Meier Estimate and 95% Confidence Interval of Severe COVID-19 Outcome or Death Not Occurring among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation from the Weighted Population in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024

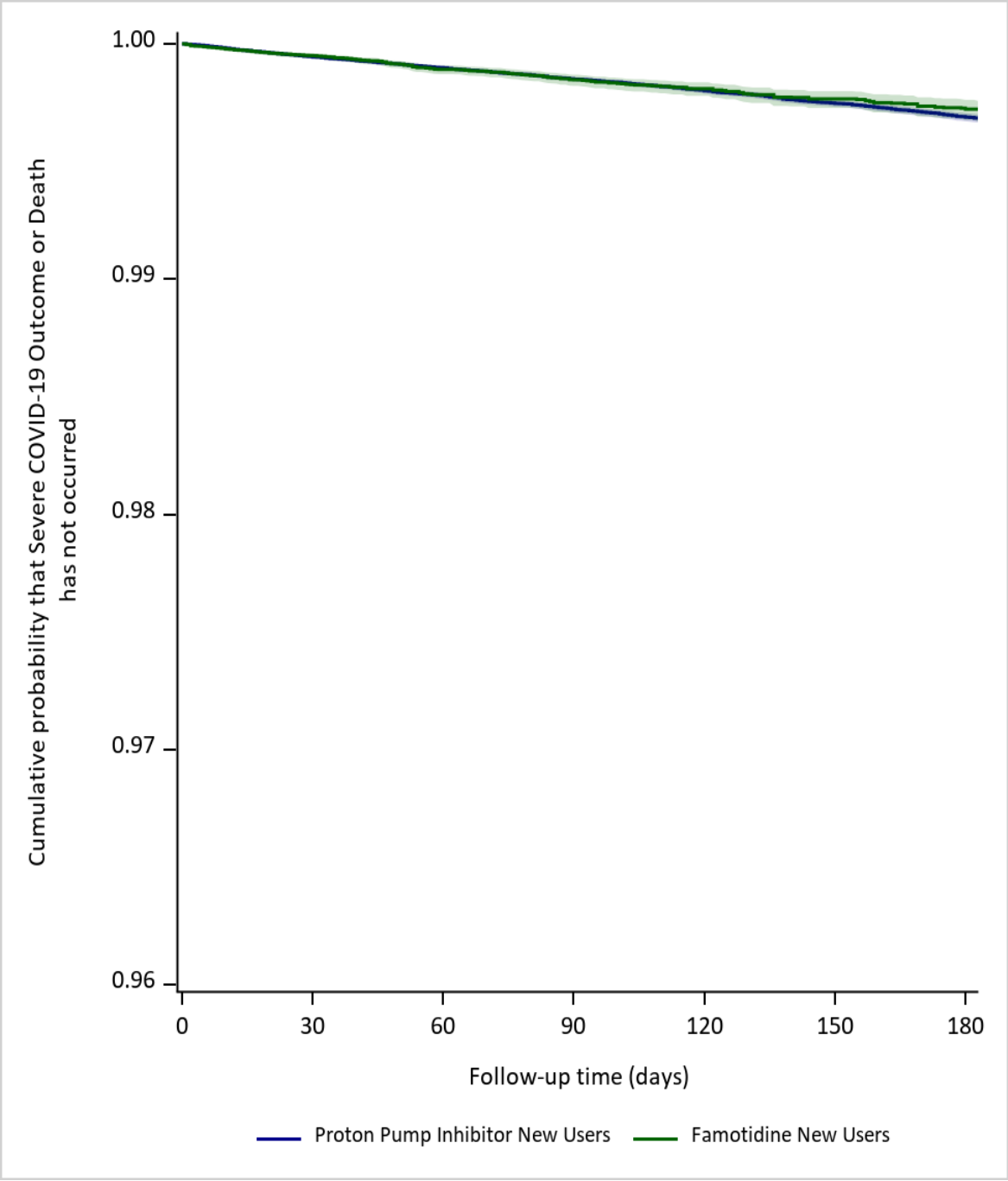


Figure 19c. Aggregated Unadjusted Kaplan-Meier Estimate and 95% Confidence Interval of Severe COVID-19 Outcome or Death Not Occurring among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation from the Whole Population in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years

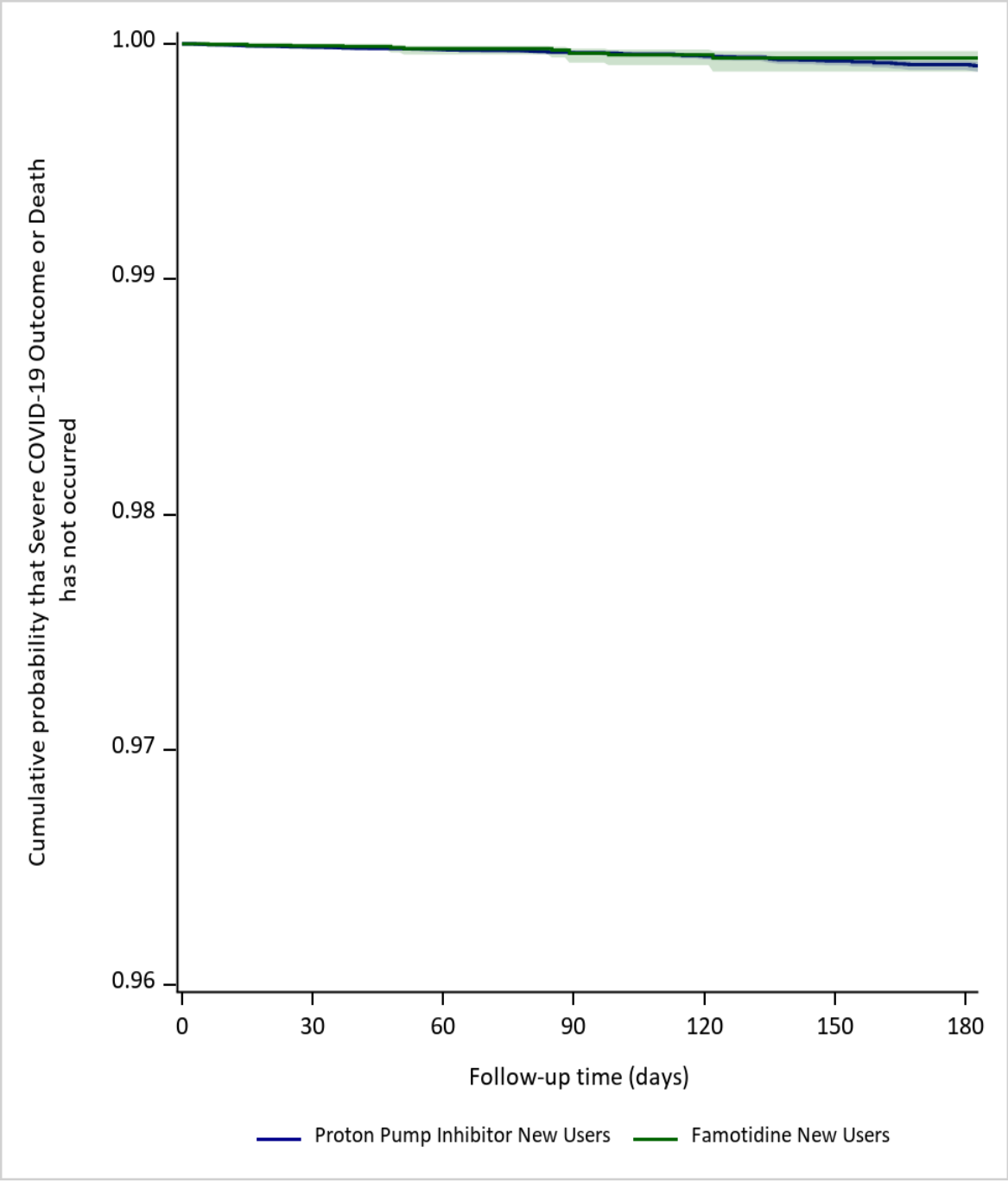


Figure 19d. Aggregated Adjusted Kaplan-Meier Estimate and 95% Confidence Interval of Severe COVID-19 Outcome or Death Not Occurring among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation from the Weighted Population in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years

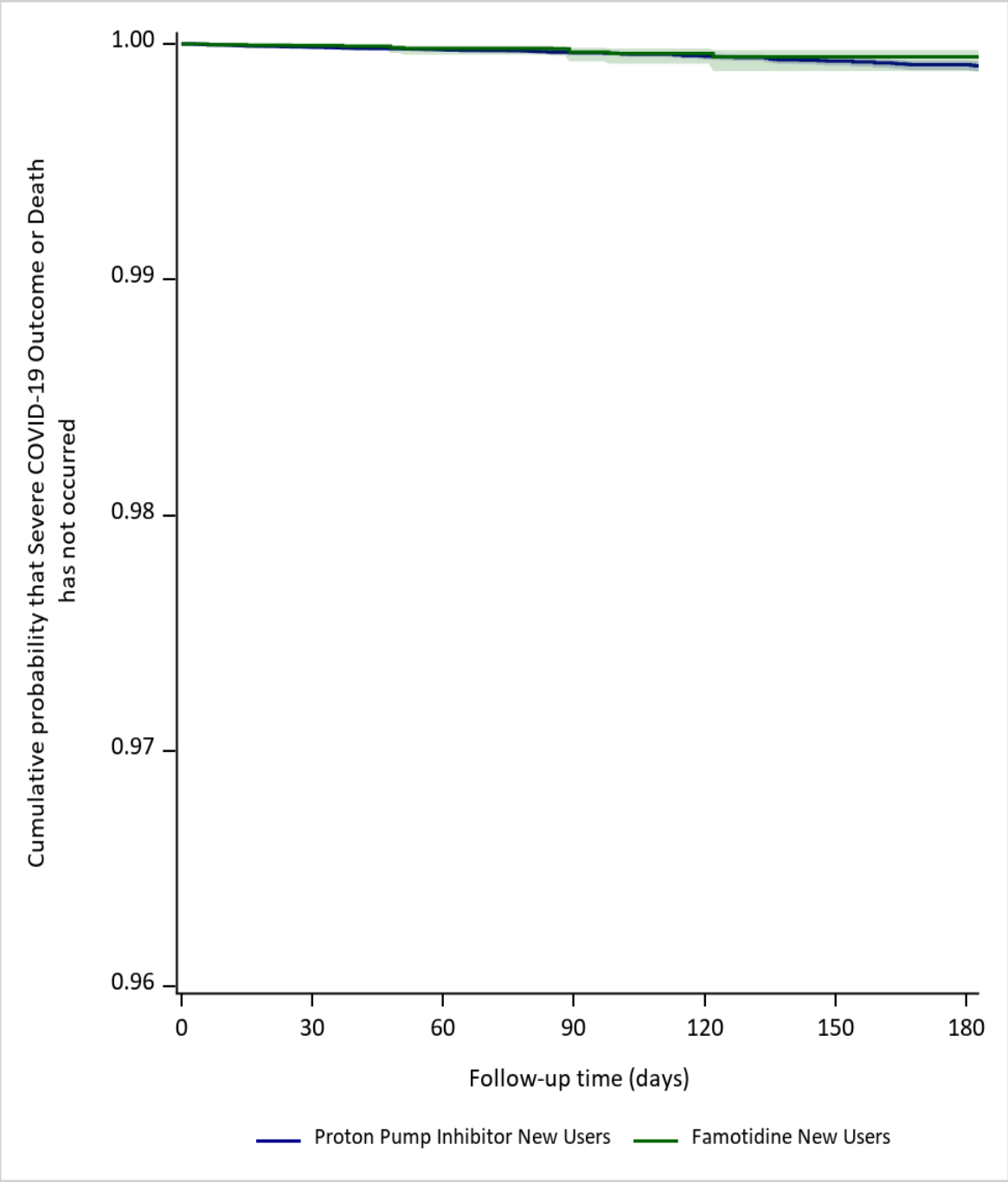


Figure 19e. Aggregated Unadjusted Kaplan-Meier Estimate and 95% Confidence Interval of Severe COVID-19 Outcome or Death Not Occurring among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation from the Whole Population in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 50-64 years

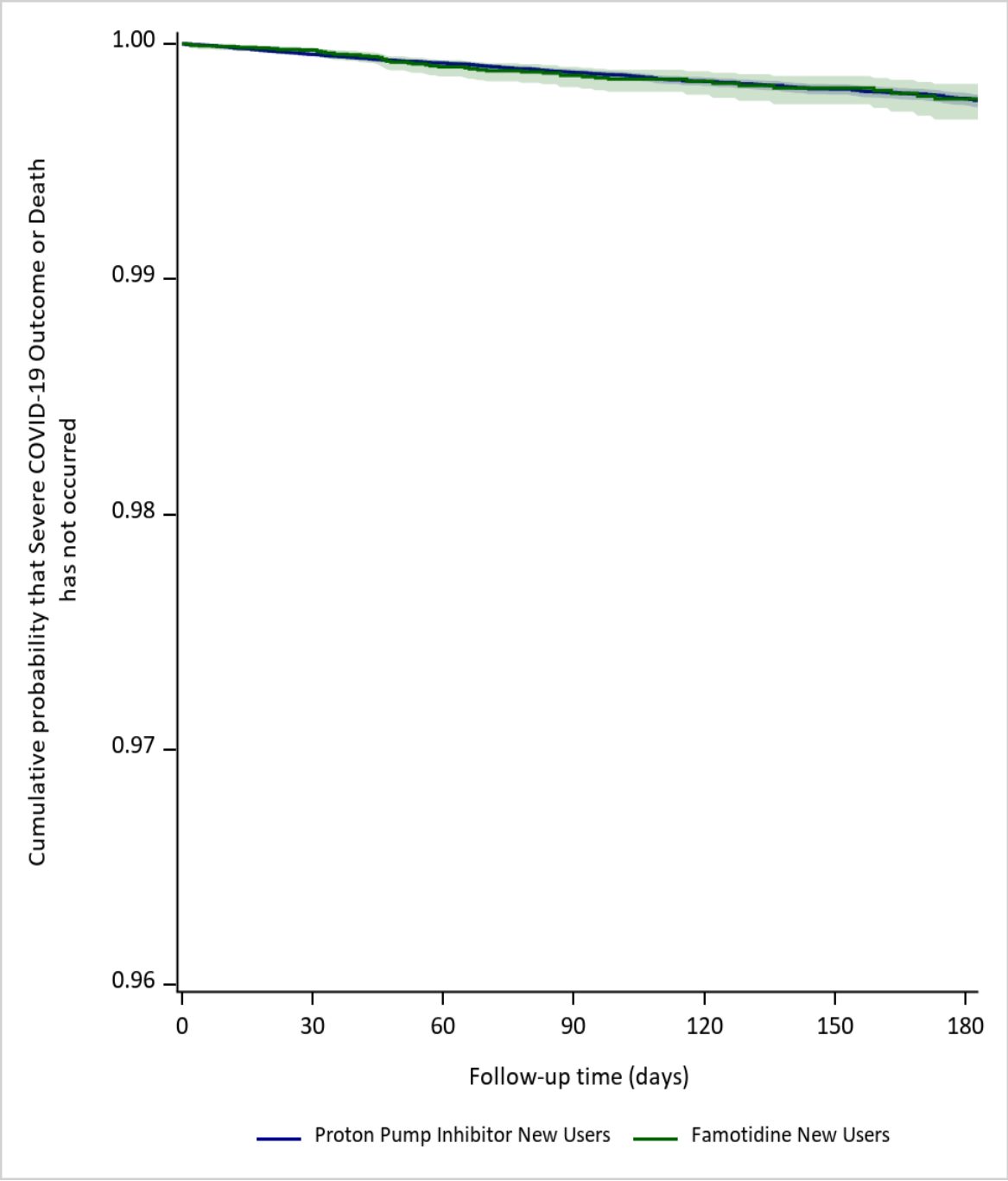


Figure 19f. Aggregated Adjusted Kaplan-Meier Estimate and 95% Confidence Interval of Severe COVID-19 Outcome or Death Not Occurring among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation from the Weighted Population in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 50-64 years

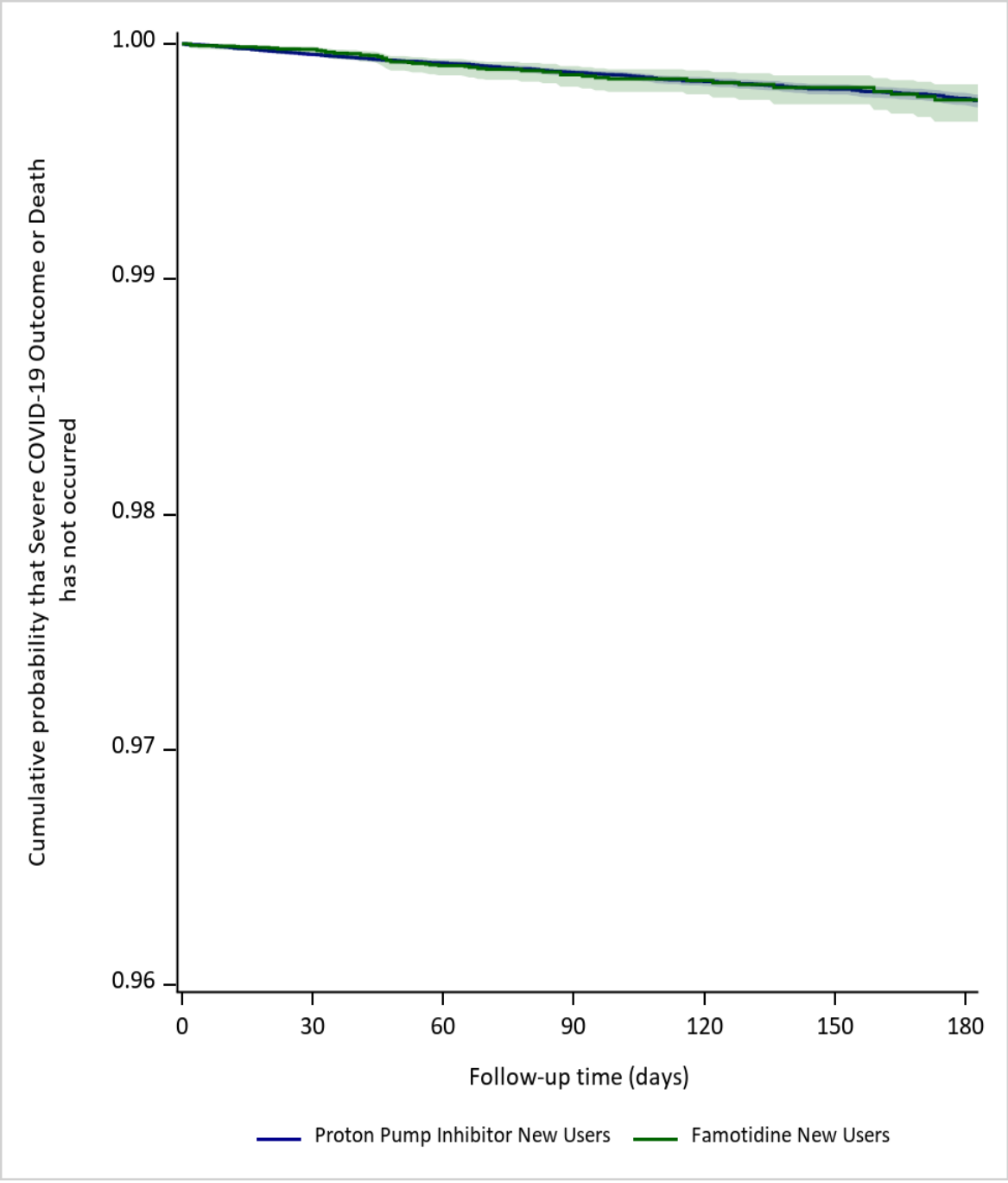


Figure 19g. Aggregated Unadjusted Kaplan-Meier Estimate and 95% Confidence Interval of Severe COVID-19 Outcome or Death Not Occurring among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation from the Whole Population in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years

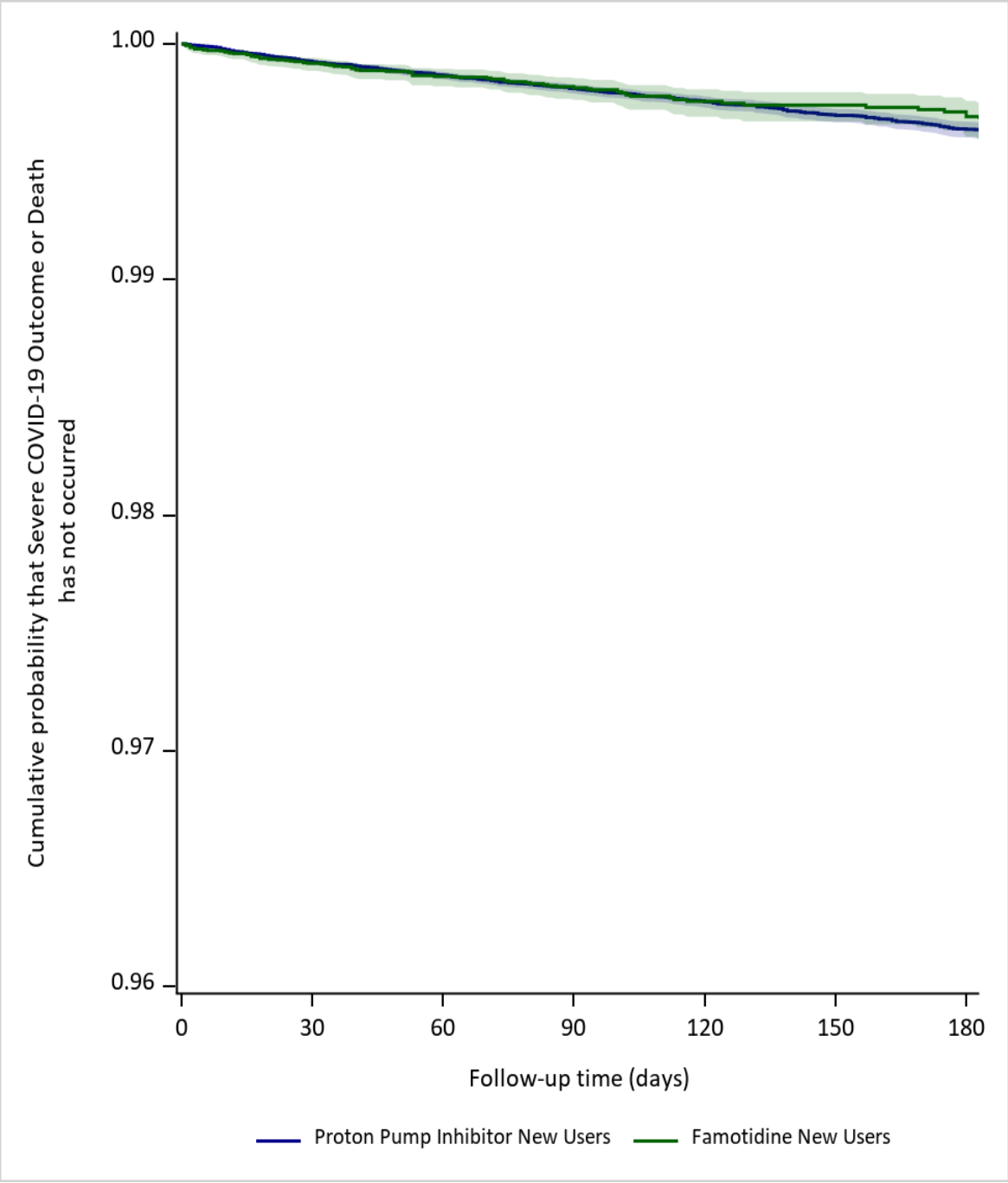


Figure 19h. Aggregated Adjusted Kaplan-Meier Estimate and 95% Confidence Interval of Severe COVID-19 Outcome or Death Not Occurring among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation from the Weighted Population in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years

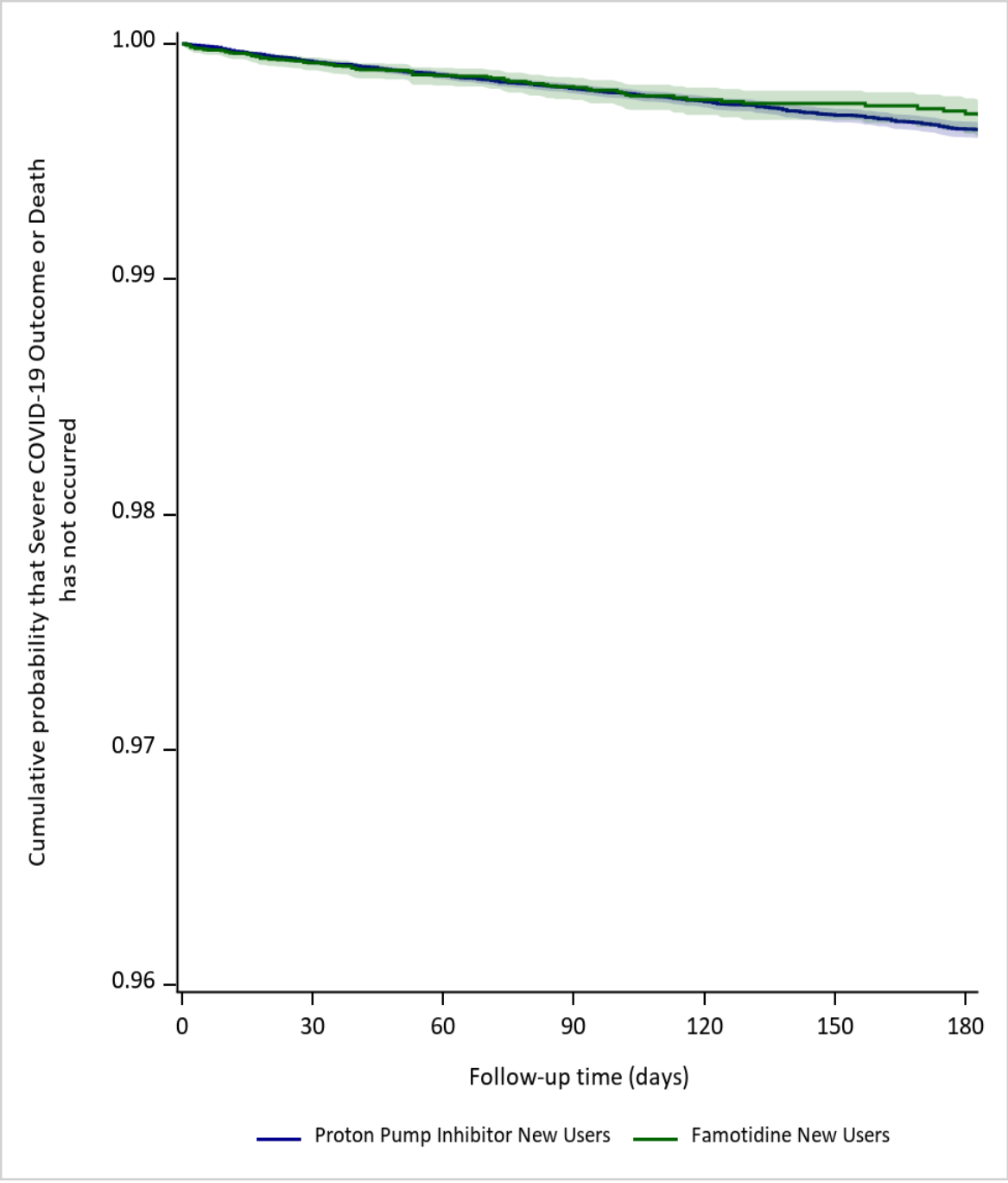


Figure 19i. Aggregated Unadjusted Kaplan-Meier Estimate and 95% Confidence Interval of Severe COVID-19 Outcome or Death Not Occurring among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation from the Whole Population in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: ≥ 75 years

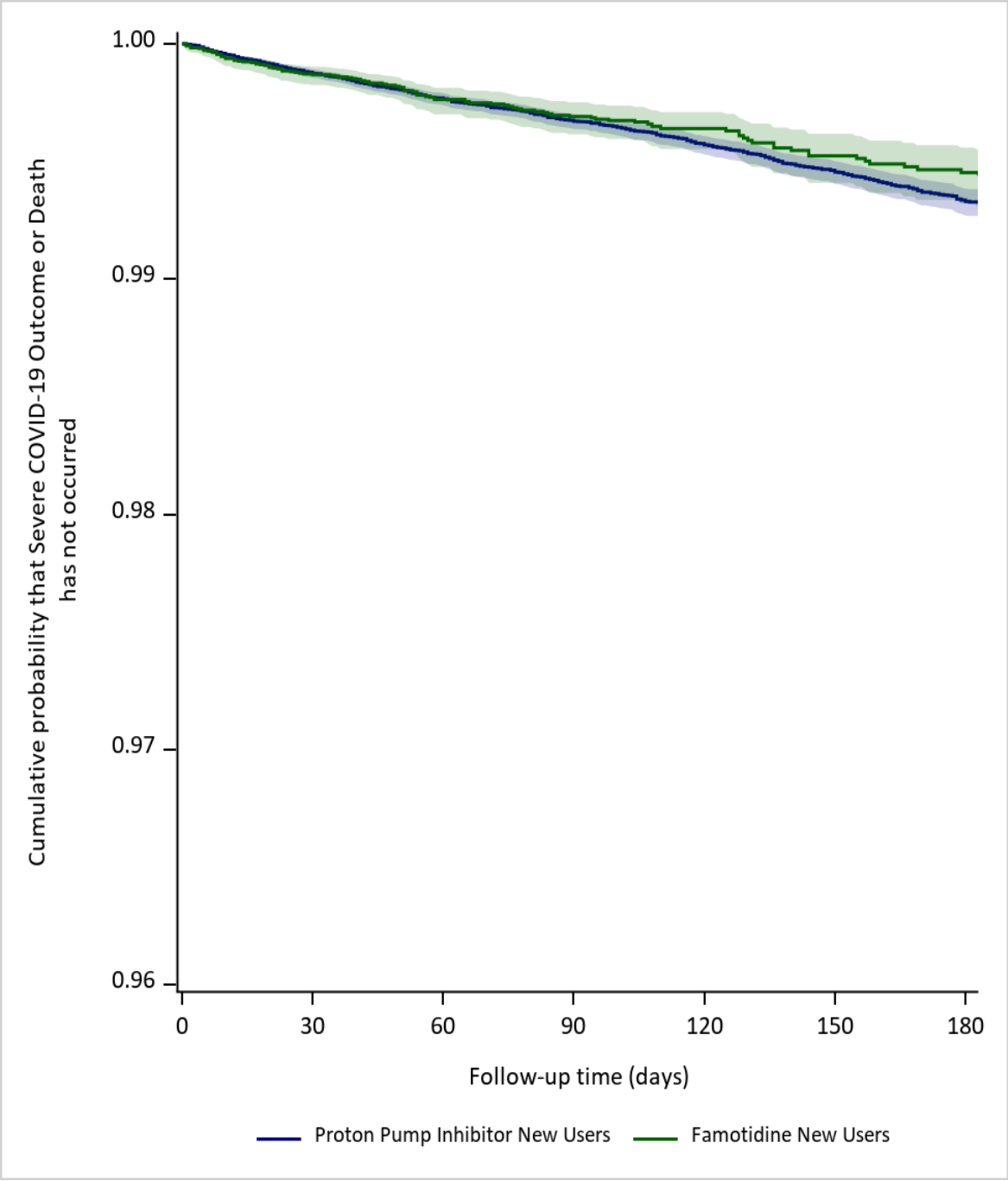


Figure 19j. Aggregated Adjusted Kaplan-Meier Estimate and 95% Confidence Interval of Severe COVID-19 Outcome or Death Not Occurring among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using User-Specified PS, 1% Truncation from the Weighted Population in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: ≥ 75 years

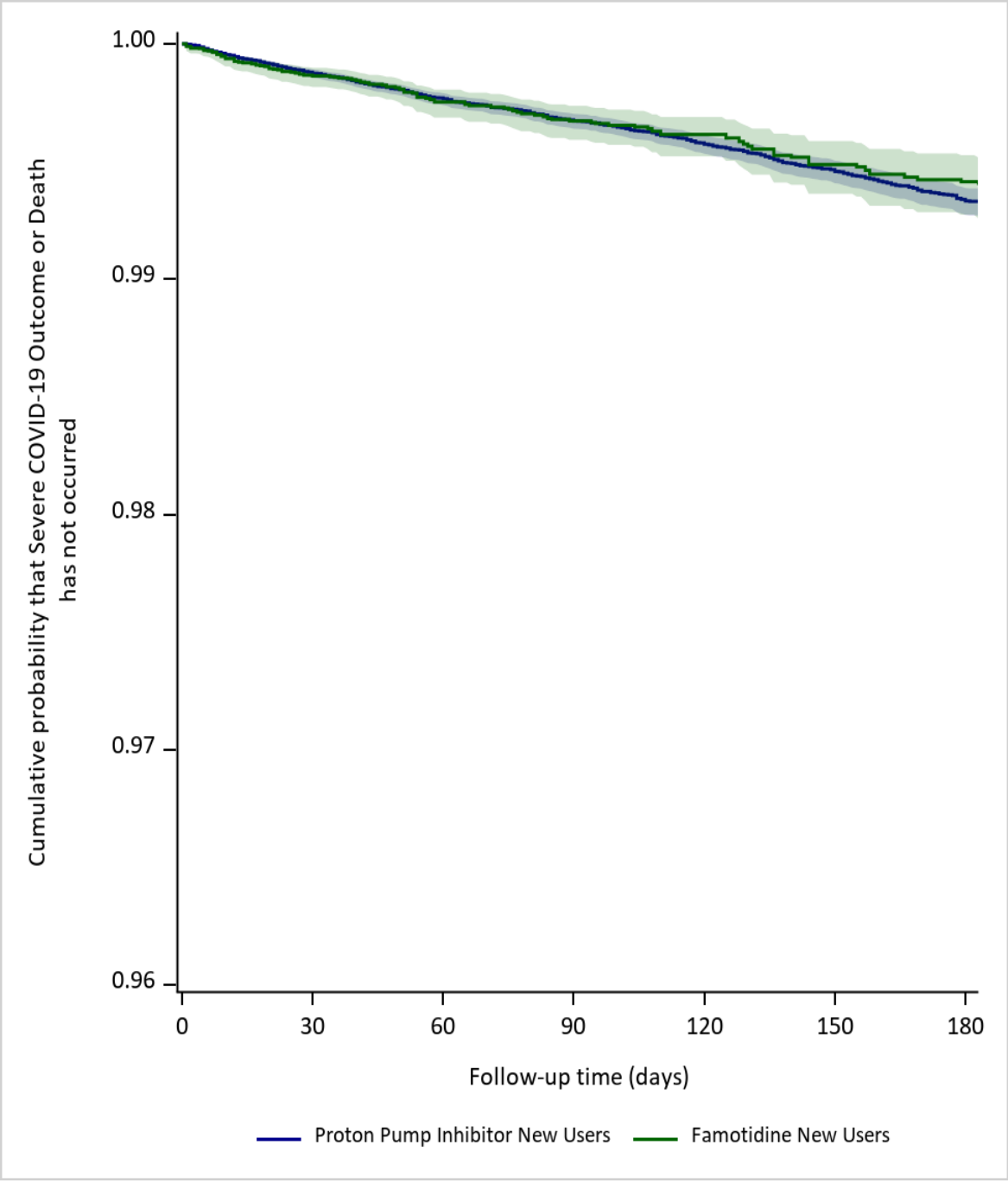


Figure 20a. Aggregated Unadjusted Kaplan-Meier Estimate and 95% Confidence Interval of Severe COVID-19 Outcome or Death Not Occurring among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation from the Whole Population in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024

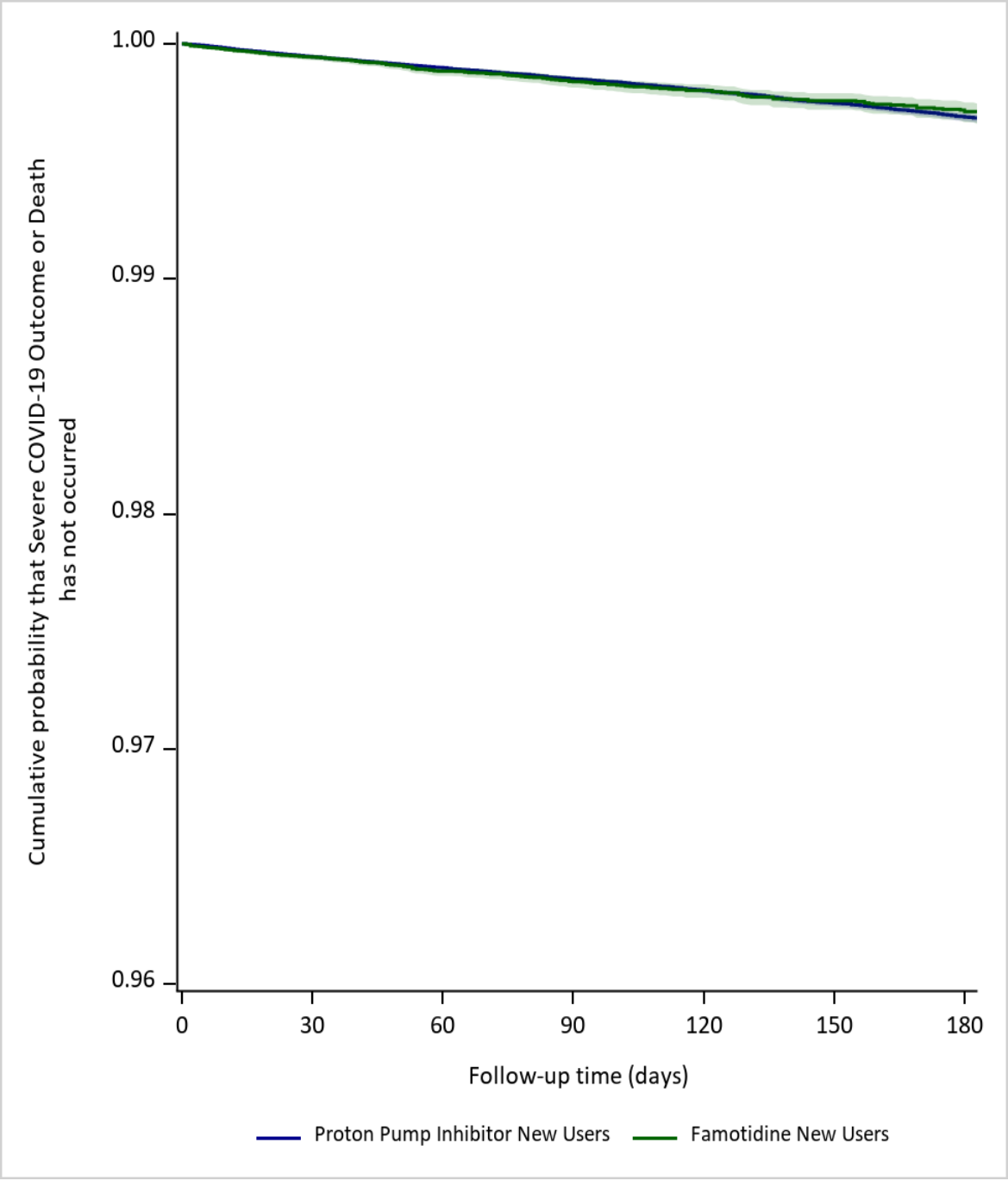


Figure 20b. Aggregated Adjusted Kaplan-Meier Estimate and 95% Confidence Interval of Severe COVID-19 Outcome or Death Not Occurring among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation from the Weighted Population in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024

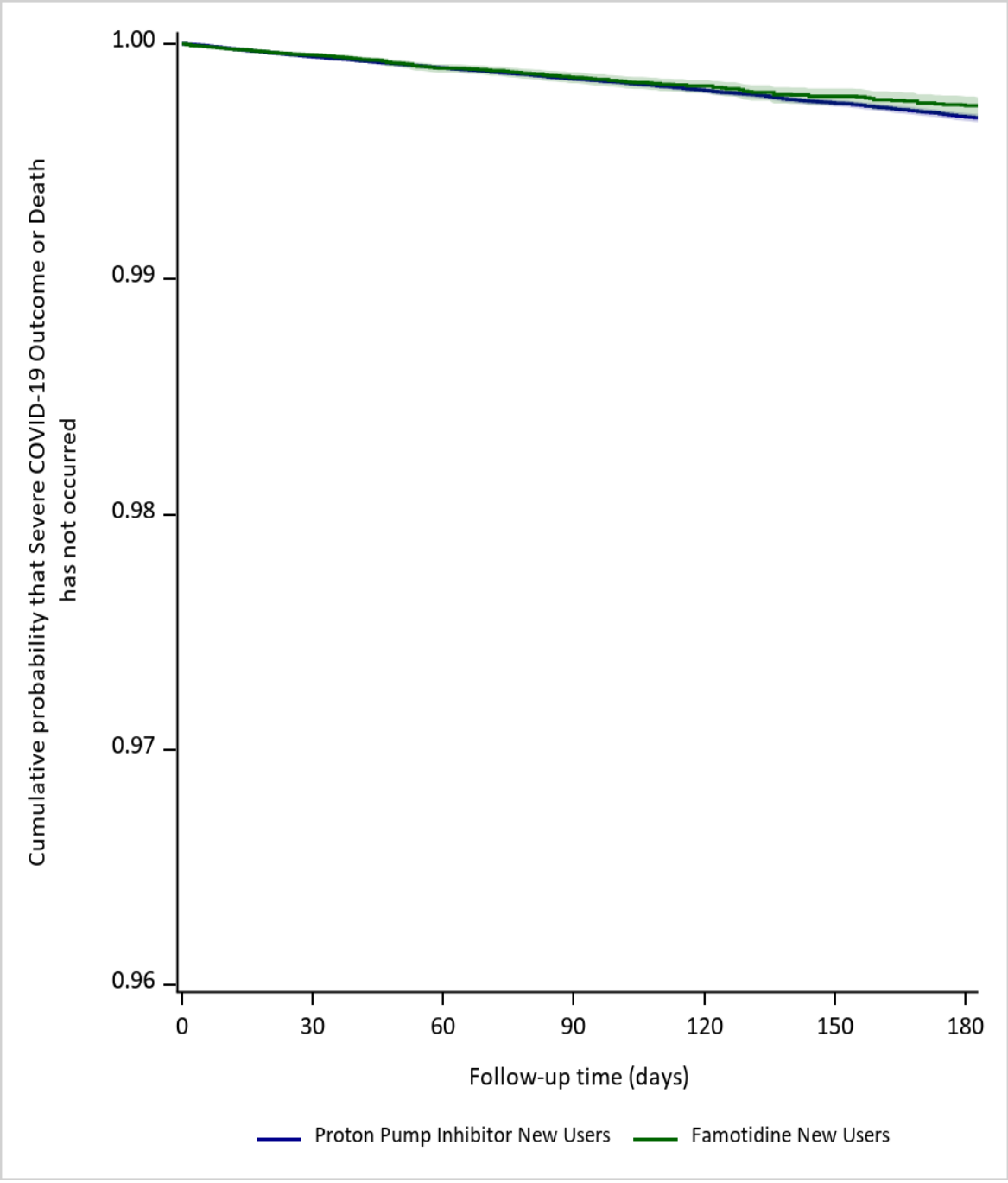


Figure 20c. Aggregated Unadjusted Kaplan-Meier Estimate and 95% Confidence Interval of Severe COVID-19 Outcome or Death Not Occurring among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation from the Whole Population in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years

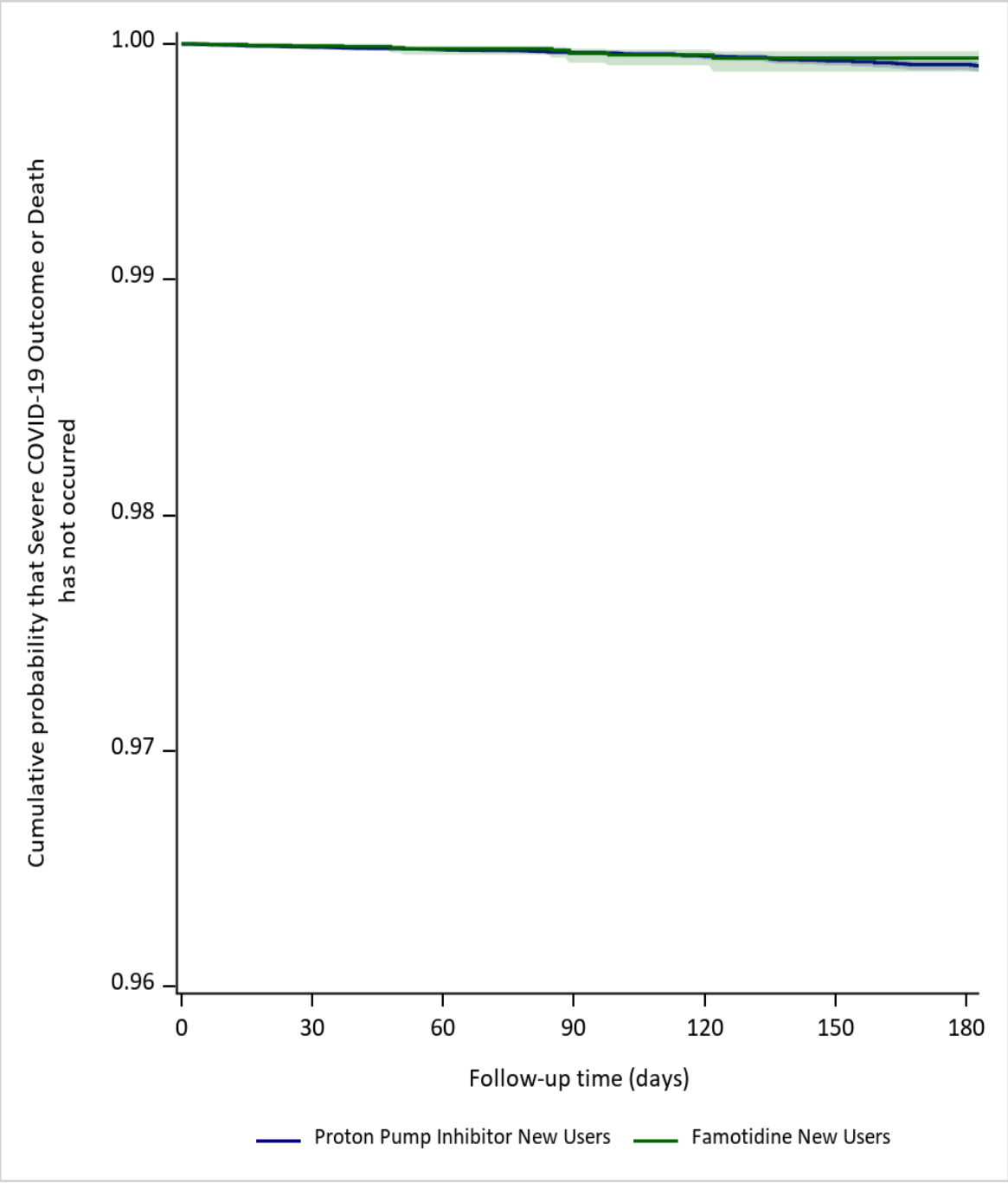


Figure 20d. Aggregated Adjusted Kaplan-Meier Estimate and 95% Confidence Interval of Severe COVID-19 Outcome or Death Not Occurring among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation from the Weighted Population in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 18-49 years

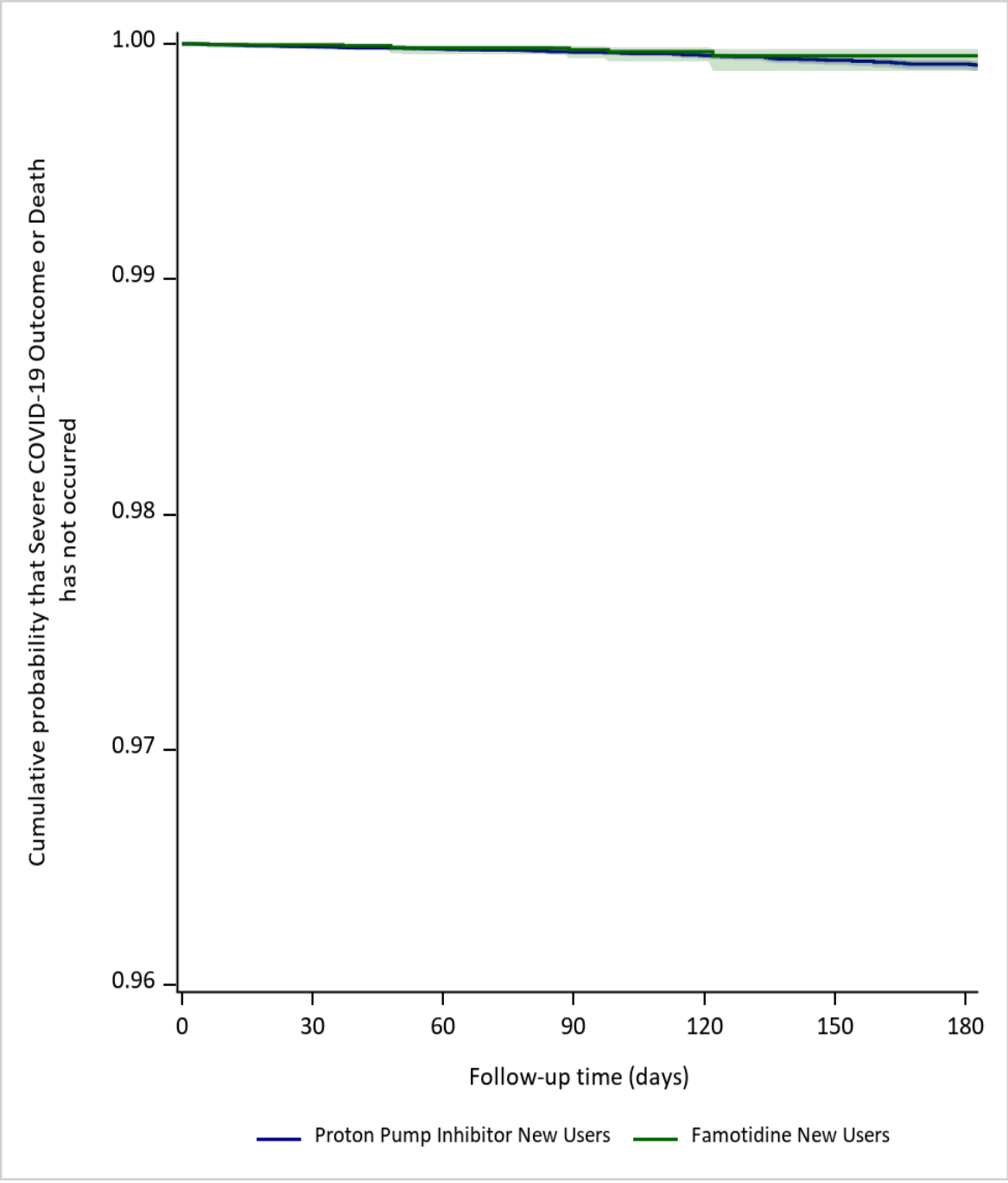


Figure 20e. Aggregated Unadjusted Kaplan-Meier Estimate and 95% Confidence Interval of Severe COVID-19 Outcome or Death Not Occurring among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation from the Whole Population in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 50-64 years

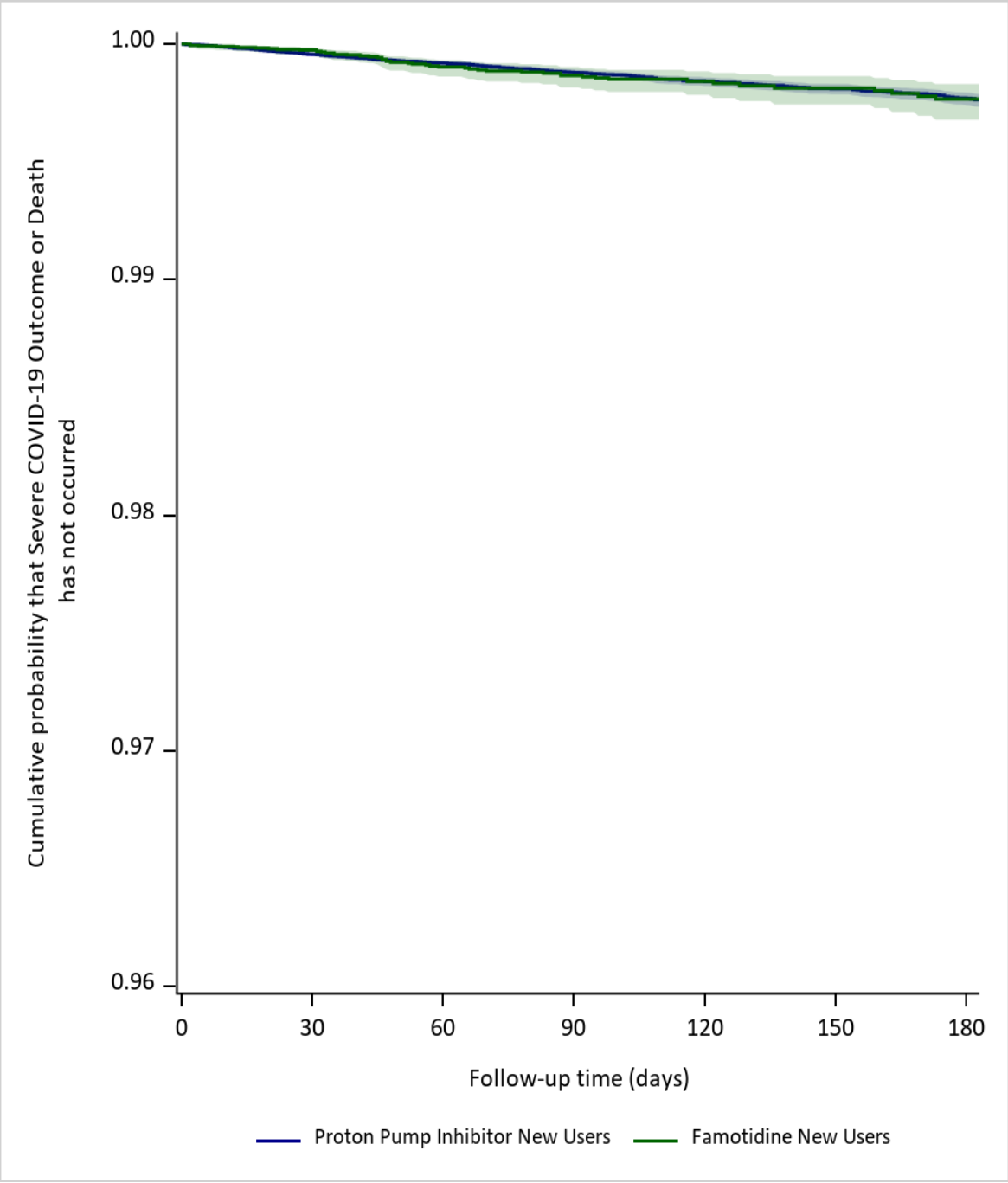


Figure 20f. Aggregated Adjusted Kaplan-Meier Estimate and 95% Confidence Interval of Severe COVID-19 Outcome or Death Not Occurring among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation from the Weighted Population in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 50-64 years

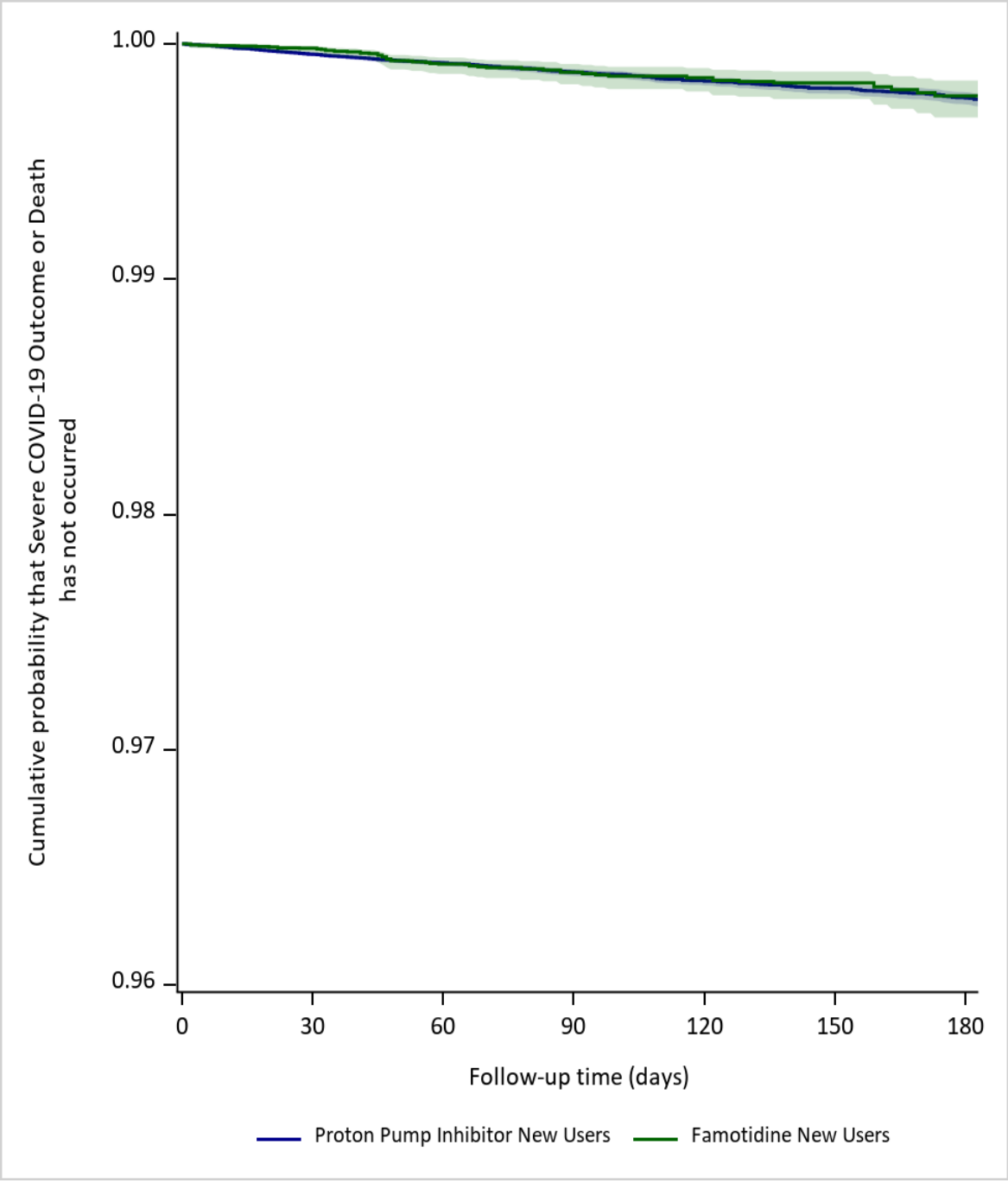


Figure 20g. Aggregated Unadjusted Kaplan-Meier Estimate and 95% Confidence Interval of Severe COVID-19 Outcome or Death Not Occurring among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation from the Whole Population in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years

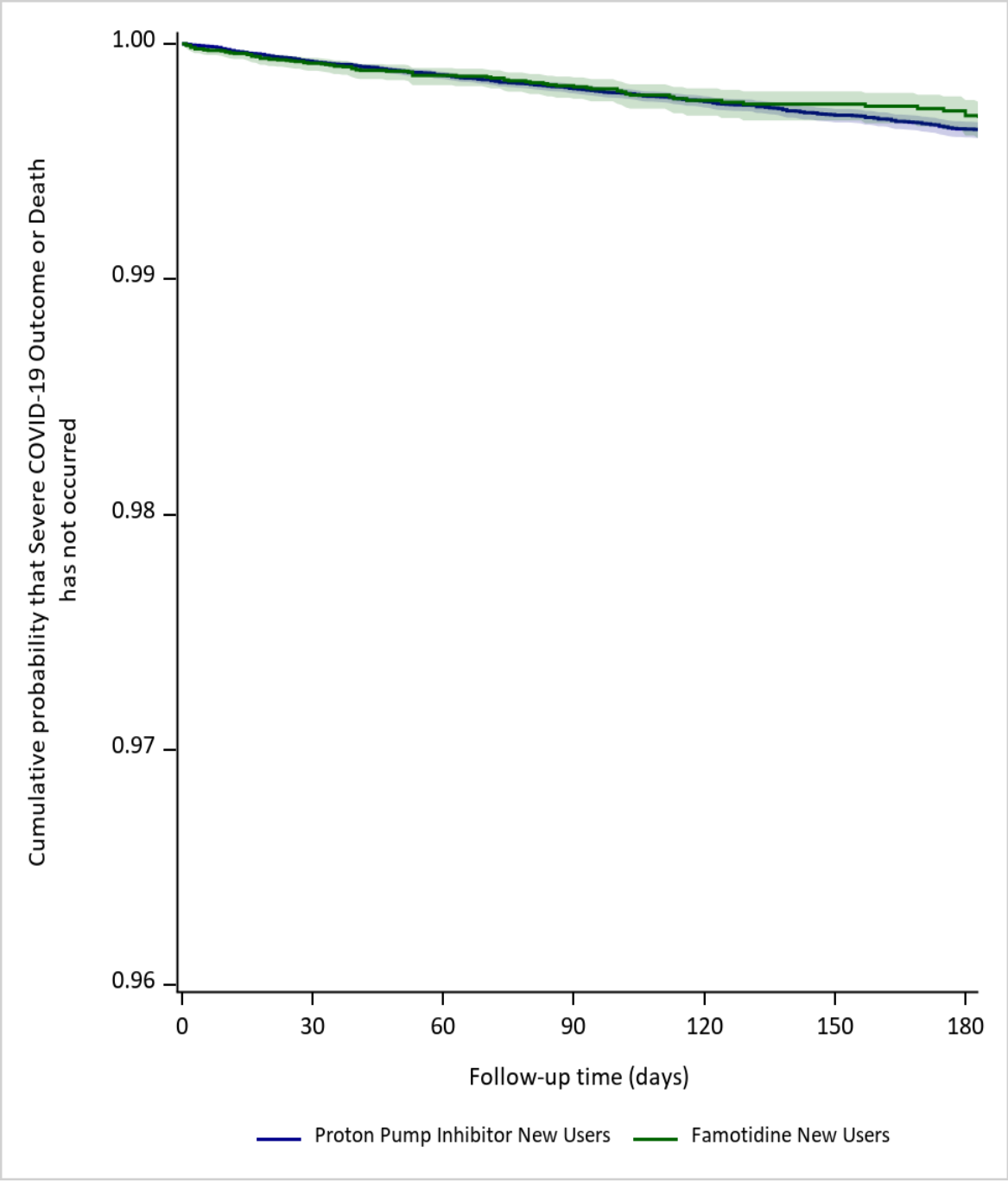


Figure 20h. Aggregated Adjusted Kaplan-Meier Estimate and 95% Confidence Interval of Severe COVID-19 Outcome or Death Not Occurring among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation from the Weighted Population in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: 65-74 years

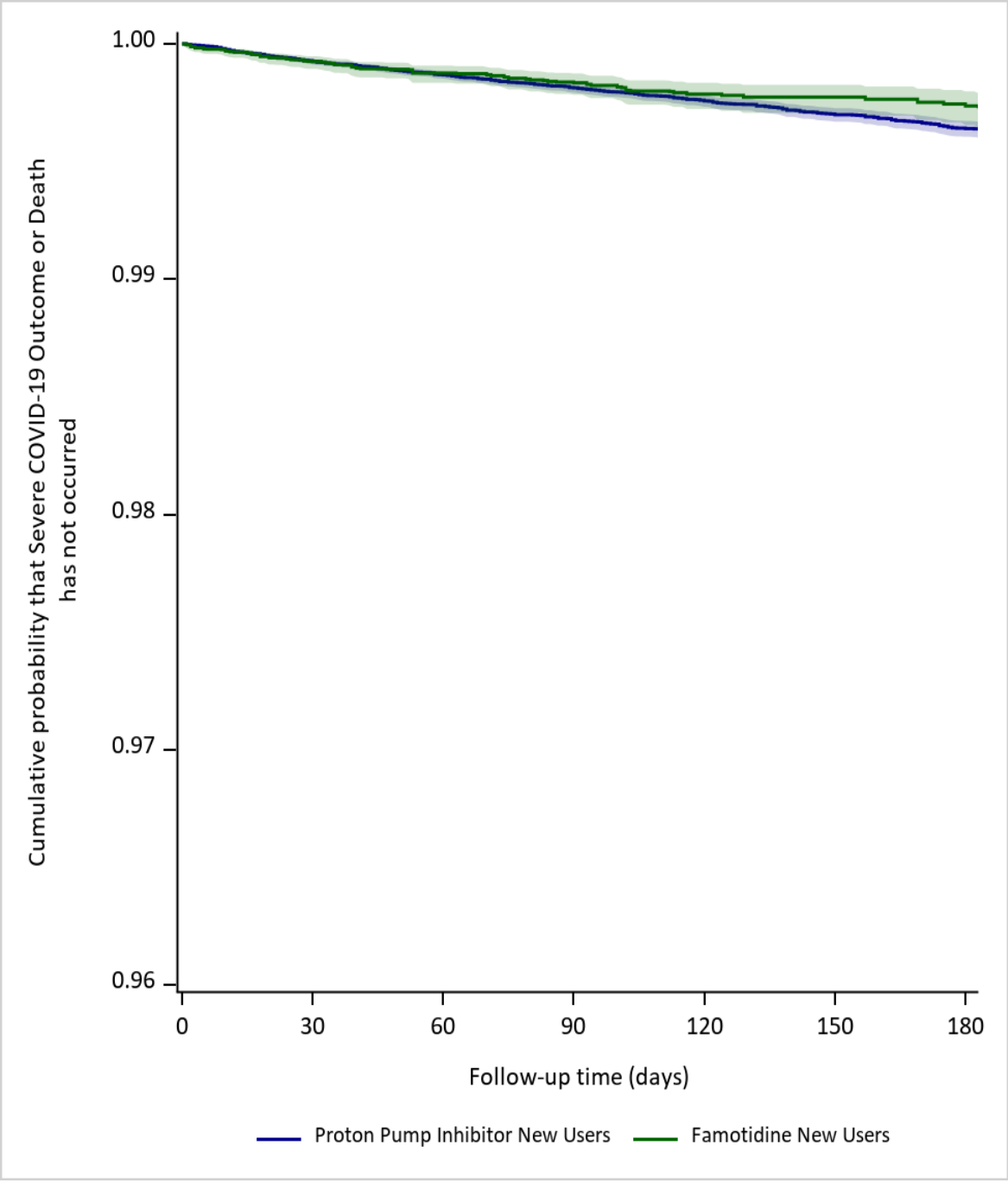


Figure 20i. Aggregated Unadjusted Kaplan-Meier Estimate and 95% Confidence Interval of Severe COVID-19 Outcome or Death Not Occurring among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation from the Whole Population in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: ≥ 75 years

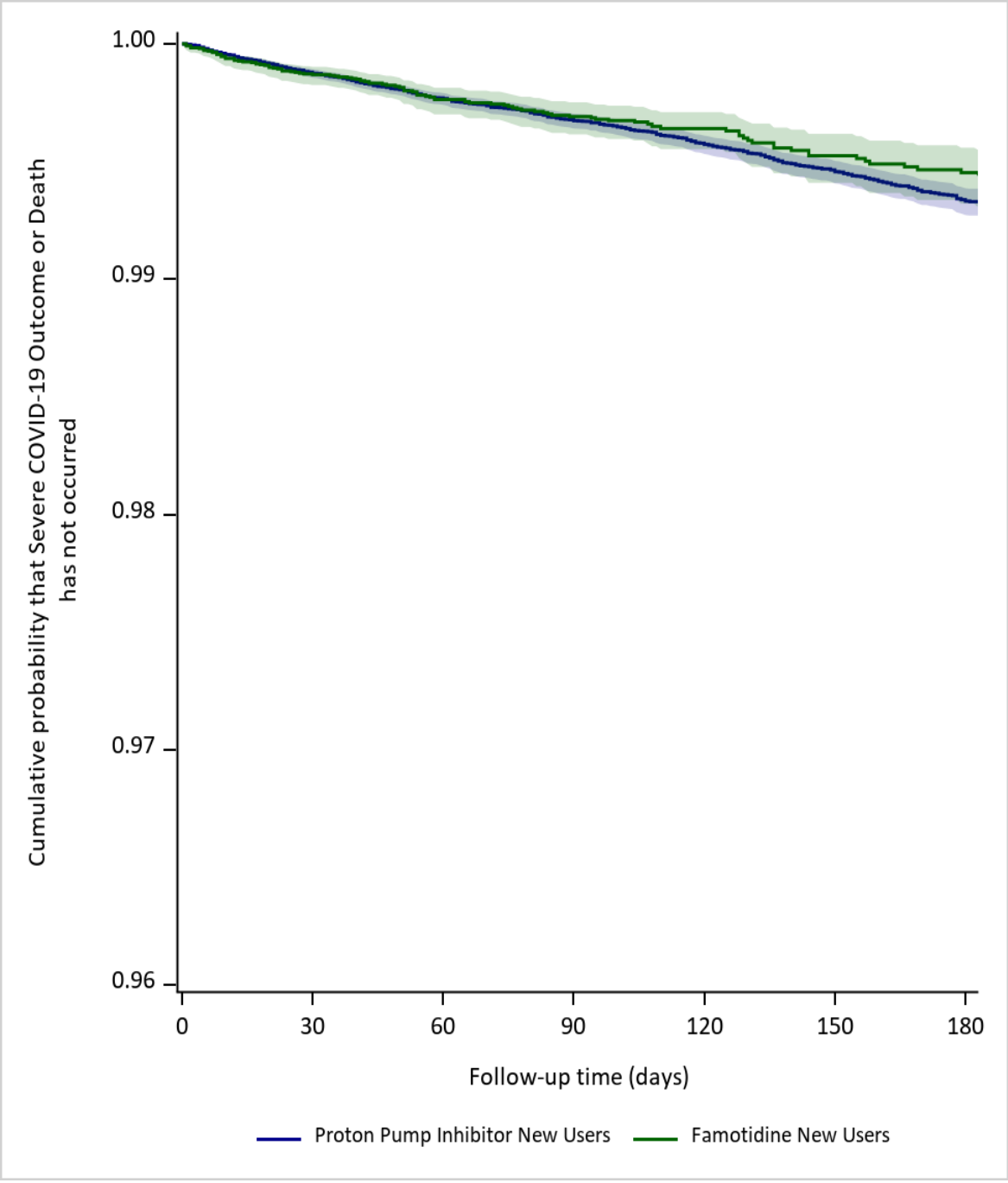
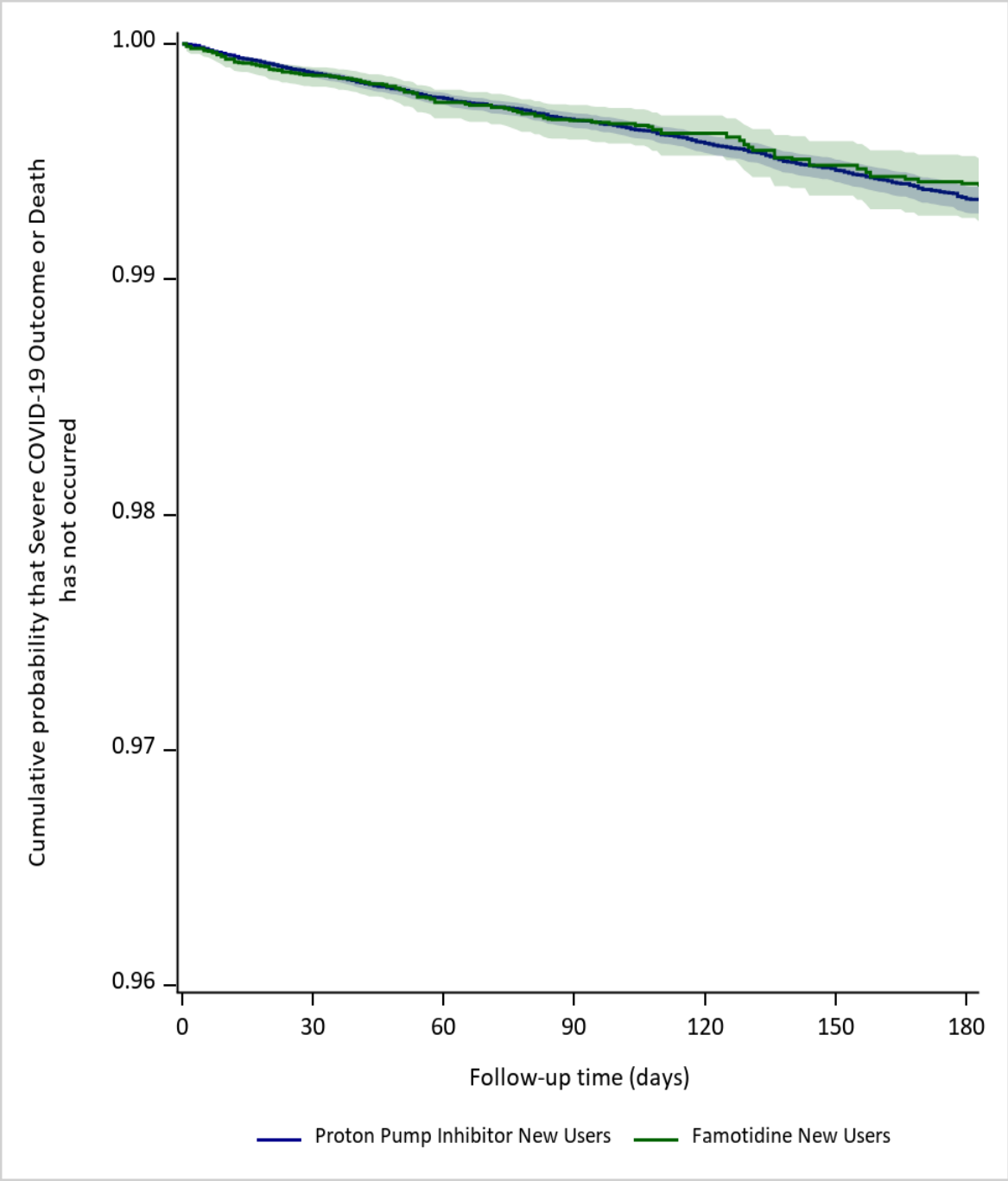


Figure 20j. Aggregated Adjusted Kaplan-Meier Estimate and 95% Confidence Interval of Severe COVID-19 Outcome or Death Not Occurring or Death among Proton Pump Inhibitor and Famotidine New Users with IPTW ATT Adjustment Using hdPS, 1% Truncation from the Weighted Population in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, Age Group: ≥ 75 years



Appendix A. Dates of Available Data for Each Data Partner (DP) as of Request Distribution Date

Masked DP ID	DP Start Date	DP End Date[1]
DP01	01/01/2007	10/31/2023
DP02	01/01/2004	07/31/2023
DP03	01/01/2006	10/31/2023
DP04	01/01/2008	01/31/2024
DP05	01/01/2000	04/30/2023

[1]End Date represents the earliest of: (1) query end date, or (2) last day of the most recent month for which all of a Data Partner's data tables (enrollment, dispensing, etc.) have at least 80% of the record count relative to the prior month.

Appendix B. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Proton Pump Inhibitor and Famotidine New Users with an hdPS Model in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP)

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP01	K92	DX	10	Any	0.049
DP01	K92	DX	10	Often	0.042
DP01	N18	DX	10	Any	0.042
DP01	N18	DX	10	Often	0.034
DP01	D62	DX	10	Any	0.032
DP01	731	PX	CPT	Any	0.028
DP01	D50	DX	10	Any	0.028
DP01	D62	DX	10	Often	0.027
DP01	K92	DX	10	Frequent	0.024
DP01	I12	DX	10	Any	0.024
DP01	R26	DX	10	Any	0.023
DP01	A0428	PX	HCPCS	Any	0.023
DP01	99309	PX	CPT	Any	0.022
DP01	D50	DX	10	Often	0.021
DP01	99223	PX	CPT	Any	0.020
DP01	99308	PX	CPT	Any	0.020
DP01	99306	PX	CPT	Any	0.019
DP01	D64	DX	10	Often	0.018
DP01	D64	DX	10	Frequent	0.017
DP01	99222	PX	CPT	Any	0.017
DP01	K25	DX	10	Any	0.017
DP01	I12	DX	10	Often	0.016
DP01	R11	DX	10	Any	0.016
DP01	0DB68ZX	PX	10	Any	0.016
DP01	F03	DX	10	Any	0.016
DP01	D64	DX	10	Any	0.016
DP01	R10	DX	10	Any	0.016
DP01	99232	PX	CPT	Any	0.016
DP01	K21	DX	10	Frequent	0.015
DP01	30233N1	PX	10	Any	0.015
DP01	N18	DX	10	Frequent	0.015
DP01	74177	PX	CPT	Any	0.015
DP01	0DJ08ZZ	PX	10	Any	0.015
DP01	A0425	PX	HCPCS	Frequent	0.015
DP01	R26	DX	10	Often	0.014
DP01	R41	DX	10	Any	0.014

Appendix B. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Proton Pump Inhibitor and Famotidine New Users with an hdPS Model in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP)

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP01	D62	DX	10	Frequent	0.014
DP01	R06	DX	10	Any	0.014
DP01	99285	PX	CPT	Any	0.014
DP01	R06	DX	10	Often	0.013
DP01	R41	DX	10	Often	0.013
DP01	K31	DX	10	Any	0.013
DP01	K29	DX	10	Any	0.012
DP01	F03	DX	10	Often	0.012
DP01	R11	DX	10	Often	0.012
DP01	99309	PX	CPT	Often	0.012
DP01	M62	DX	10	Any	0.012
DP01	K21	DX	10	Often	0.012
DP01	Z79	DX	10	Often	0.012
DP01	R27	DX	10	Any	0.012
DP01	I13	DX	10	Any	0.012
DP01	Z74	DX	10	Frequent	0.012
DP01	D50	DX	10	Frequent	0.012
DP01	99308	PX	CPT	Frequent	0.012
DP01	83970	PX	CPT	Any	0.012
DP01	43235	PX	CPT	Any	0.012
DP01	R10	DX	10	Often	0.011
DP01	99285	PX	CPT	Often	0.011
DP01	74176	PX	CPT	Any	0.011
DP01	K25	DX	10	Often	0.011
DP01	N25	DX	10	Any	0.011
DP01	88342	PX	CPT	Any	0.011
DP01	99310	PX	CPT	Any	0.011
DP01	84100	PX	CPT	Any	0.011
DP01	70450	PX	CPT	Any	0.011
DP01	88305	PX	CPT	Any	0.011
DP01	Z74	DX	10	Any	0.010
DP01	E78	DX	10	Any	0.010
DP01	99223	PX	CPT	Often	0.010
DP01	R29	DX	10	Any	0.010
DP01	E86	DX	10	Any	0.010
DP01	R11	DX	10	Frequent	0.010

Appendix B. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Proton Pump Inhibitor and Famotidine New Users with an hdPS Model in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP)

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP01	B96	DX	10	Any	0.010
DP01	K44	DX	10	Any	0.010
DP01	C58	RX	CLASS	Often	0.010
DP01	99233	PX	CPT	Any	0.010
DP01	R13	DX	10	Any	0.010
DP01	C58	RX	CLASS	Any	0.010
DP01	I63	DX	10	Any	0.010
DP01	81001	PX	CPT	Any	0.010
DP01	G93	DX	10	Any	0.009
DP01	R10	DX	10	Frequent	0.009
DP01	Z91	DX	10	Any	0.009
DP01	N17	DX	10	Any	0.009
DP01	I69	DX	10	Often	0.009
DP01	E78	DX	10	Often	0.009
DP01	K25	DX	10	Frequent	0.009
DP01	I12	DX	10	Frequent	0.009
DP01	Z79	DX	10	Frequent	0.009
DP01	I69	DX	10	Any	0.009
DP01	M62	DX	10	Often	0.009
DP01	I70	DX	10	Any	0.009
DP01	99222	PX	CPT	Frequent	0.009
DP01	E11	DX	10	Often	0.009
DP01	99309	PX	CPT	Frequent	0.009
DP01	99305	PX	CPT	Any	0.009
DP01	99291	PX	CPT	Any	0.009
DP01	93010	PX	CPT	Any	0.008
DP01	P9016	PX	HCPCS	Any	0.008
DP01	J44	DX	10	Often	0.008
DP02	K22	DX	10	Any	0.123
DP02	K22	DX	10	Often	0.119
DP02	0UT20ZZ	PX	10	Any	0.102
DP02	Z68	DX	10	Frequent	0.100
DP02	K92	DX	10	Any	0.088
DP02	D64	DX	10	Any	0.087
DP02	K22	DX	10	Frequent	0.086
DP02	K92	DX	10	Often	0.084

Appendix B. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Proton Pump Inhibitor and Famotidine New Users with an hdPS Model in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP)

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP02	D04_INT_UNIQ_Q4	PX	10	Q4ServiceInt	0.084
DP02	0UT70ZZ	PX	10	Any	0.082
DP02	99285	PX	CPT	Any	0.078
DP02	Z68	DX	10	Any	0.078
DP02	0DB68ZX	PX	10	Any	0.076
DP02	D04_INT_ALL_Q4	PX	10	Q4ServiceInt	0.076
DP02	K44	DX	10	Any	0.074
DP02	76937	PX	CPT	Any	0.073
DP02	E66	DX	10	Frequent	0.066
DP02	D50	DX	10	Any	0.065
DP02	731	PX	CPT	Any	0.060
DP02	99152	PX	CPT	Any	0.058
DP02	R13	DX	10	Any	0.058
DP02	D62	DX	10	Any	0.057
DP02	70450	PX	CPT	Any	0.057
DP02	N18	DX	10	Any	0.057
DP02	80053	PX	CPT	Any	0.056
DP02	0UT90ZZ	PX	10	Any	0.055
DP02	B4101ZZ	PX	10	Any	0.055
DP02	0W3P8ZZ	PX	10	Any	0.051
DP02	74177	PX	CPT	Any	0.050
DP02	30233N1	PX	10	Any	0.049
DP02	U0003	PX	HCPCS	Any	0.049
DP02	84100	PX	CPT	Any	0.048
DP02	99284	PX	CPT	Any	0.048
DP02	E66	DX	10	Any	0.047
DP02	K21	DX	10	Frequent	0.046
DP02	S9500	PX	HCPCS	Any	0.046
DP02	88305	PX	CPT	Any	0.045
DP02	D62	DX	10	Frequent	0.045
DP02	43235	PX	CPT	Any	0.044
DP02	N18	DX	10	Often	0.044
DP02	R29	DX	10	Any	0.044
DP02	C138	RX	CLASS	Frequent	0.042
DP02	0DBU0ZZ	PX	10	Any	0.041
DP02	83540	PX	CPT	Any	0.041

Appendix B. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Proton Pump Inhibitor and Famotidine New Users with an hdPS Model in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP)

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP02	R10	DX	10	Any	0.040
DP02	71045	PX	CPT	Any	0.040
DP02	K44	DX	10	Frequent	0.040
DP02	I73	DX	10	Any	0.039
DP02	K76	DX	10	Any	0.039
DP02	M81	DX	10	Any	0.039
DP02	84520	PX	CPT	Any	0.039
DP02	I12	DX	10	Any	0.038
DP02	H02	DX	10	Often	0.037
DP02	43239	PX	CPT	Any	0.036
DP02	D64	DX	10	Often	0.036
DP02	93306	PX	CPT	Any	0.036
DP02	R13	DX	10	Often	0.036
DP02	D50	DX	10	Often	0.036
DP02	K92	DX	10	Frequent	0.036
DP02	85025	PX	CPT	Any	0.035
DP02	93010	PX	CPT	Any	0.035
DP02	K25	DX	10	Any	0.035
DP02	99239	PX	CPT	Any	0.035
DP02	U0005	PX	HCPCS	Any	0.034
DP02	71045	PX	CPT	Often	0.034
DP02	G47	DX	10	Any	0.034
DP02	84295	PX	CPT	Any	0.033
DP02	C58	RX	CLASS	Any	0.033
DP02	C844	RX	CLASS	Any	0.033
DP02	Z09	DX	10	Any	0.033
DP02	90662	PX	CPT	Any	0.033
DP02	87086	PX	CPT	Any	0.033
DP02	84165	PX	CPT	Any	0.033
DP02	82565	PX	CPT	Any	0.033
DP02	J3010	PX	HCPCS	Any	0.033
DP02	84132	PX	CPT	Any	0.032
DP02	R10	DX	10	Often	0.032
DP02	I51	DX	10	Any	0.032
DP02	E11	DX	10	Often	0.031
DP02	Z91	DX	10	Any	0.030

Appendix B. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Proton Pump Inhibitor and Famotidine New Users with an hdPS Model in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP)

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP02	B96	DX	10	Any	0.030
DP02	R41	DX	10	Any	0.030
DP02	83550	PX	CPT	Any	0.030
DP02	88307	PX	CPT	Any	0.030
DP02	88342	PX	CPT	Any	0.030
DP02	N18	DX	10	Frequent	0.029
DP02	M62	DX	10	Any	0.029
DP02	D03_INT_ALL_Q4	PX	CPT	Q4ServiceInt	0.029
DP02	R74	DX	10	Frequent	0.029
DP02	99285	PX	CPT	Frequent	0.029
DP02	D04_INT_ALL_Q1	PX	10	Q1ServiceInt	0.028
DP02	J2060	PX	HCPCS	Any	0.028
DP02	82728	PX	CPT	Any	0.028
DP02	I12	DX	10	Often	0.028
DP02	R53	DX	10	Any	0.028
DP02	G93	DX	10	Any	0.028
DP02	93005	PX	CPT	Any	0.028
DP02	C844	RX	CLASS	Often	0.028
DP02	82570	PX	CPT	Any	0.028
DP02	G0378	PX	HCPCS	Any	0.027
DP03	N18	DX	10	Any	0.045
DP03	N18	DX	10	Often	0.034
DP03	K92	DX	10	Any	0.030
DP03	K92	DX	10	Often	0.030
DP03	I12	DX	10	Any	0.028
DP03	K92	DX	10	Frequent	0.027
DP03	731	PX	CPT	Any	0.022
DP03	A0425	PX	HCPCS	Any	0.020
DP03	D62	DX	10	Any	0.020
DP03	K21	DX	10	Any	0.020
DP03	G0463	PX	HCPCS	Any	0.018
DP03	N18	DX	10	Frequent	0.018
DP03	D04_INT_ALL_Q4	PX	CPT	Q4ServiceInt	0.018
DP03	I12	DX	10	Often	0.017
DP03	0DB68ZX	PX	10	Any	0.017
DP03	D02_INT_UNIQ_Q4	DX	10	Q4ServiceInt	0.017

Appendix B. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Proton Pump Inhibitor and Famotidine New Users with an hdPS Model in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP)

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP03	R26	DX	10	Any	0.017
DP03	D62	DX	10	Often	0.016
DP03	K44	DX	10	Any	0.016
DP03	D64	DX	10	Often	0.016
DP03	D64	DX	10	Frequent	0.015
DP03	D02_INT_ALL_Q4	DX	10	Q4ServiceInt	0.015
DP03	R13	DX	10	Any	0.015
DP03	I63	DX	10	Any	0.014
DP03	R41	DX	10	Any	0.014
DP03	G93	DX	10	Any	0.014
DP03	70450	PX	CPT	Any	0.014
DP03	A0428	PX	HCPCS	Any	0.014
DP03	Z74	DX	10	Any	0.014
DP03	11721	PX	CPT	Any	0.013
DP03	D63	DX	10	Any	0.013
DP03	I50	DX	10	Any	0.013
DP03	74177	PX	CPT	Any	0.013
DP03	G0463	PX	HCPCS	Often	0.013
DP03	A0427	PX	HCPCS	Any	0.013
DP03	K22	DX	10	Any	0.013
DP03	D03_INT_UNIQ_Q4	RX	CLASS	Q4ServiceInt	0.012
DP03	K21	DX	10	Frequent	0.012
DP03	D50	DX	10	Any	0.012
DP03	C58	RX	CLASS	Any	0.012
DP03	B35	DX	10	Any	0.012
DP03	K25	DX	10	Any	0.012
DP03	C1097	RX	CLASS	Any	0.012
DP03	I12	DX	10	Frequent	0.012
DP03	C689	RX	CLASS	Any	0.012
DP03	99222	PX	CPT	Any	0.012
DP03	A0429	PX	HCPCS	Any	0.012
DP03	30233N1	PX	10	Any	0.012
DP03	J96	DX	10	Often	0.012
DP03	88305	PX	CPT	Any	0.012
DP03	G93	DX	10	Often	0.011
DP03	D62	DX	10	Frequent	0.011

Appendix B. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Proton Pump Inhibitor and Famotidine New Users with an hdPS Model in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP)

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP03	D03_INT_ALL_Q4	RX	CLASS	Q4ServiceInt	0.011
DP03	D06_INT_UNIQ_Q4	PX	HCPCS	Q4ServiceInt	0.011
DP03	M81	DX	10	Any	0.011
DP03	D50	DX	10	Often	0.011
DP03	I25	DX	10	Any	0.011
DP03	99214	PX	CPT	Frequent	0.011
DP03	99239	PX	CPT	Any	0.011
DP03	C58	RX	CLASS	Frequent	0.011
DP03	R60	DX	10	Any	0.011
DP03	R26	DX	10	Often	0.011
DP03	I63	DX	10	Often	0.010
DP03	K29	DX	10	Any	0.010
DP03	C422	RX	CLASS	Any	0.010
DP03	I73	DX	10	Any	0.010
DP03	P9016	PX	HCPCS	Any	0.010
DP03	G93	DX	10	Frequent	0.010
DP03	88342	PX	CPT	Any	0.010
DP03	G0463	PX	HCPCS	Frequent	0.010
DP03	R10	DX	10	Any	0.010
DP03	C689	RX	CLASS	Often	0.010
DP03	R11	DX	10	Any	0.010
DP03	D04_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.010
DP03	43235	PX	CPT	Any	0.010
DP03	B96	DX	10	Any	0.009
DP03	99215	PX	CPT	Any	0.009
DP03	R13	DX	10	Often	0.009
DP03	J96	DX	10	Any	0.009
DP03	E66	DX	10	Frequent	0.009
DP03	99284	PX	CPT	Any	0.009
DP03	C388	RX	CLASS	Any	0.009
DP03	M79	DX	10	Any	0.009
DP03	C1097	RX	CLASS	Often	0.009
DP03	D64	DX	10	Any	0.009
DP03	D63	DX	10	Often	0.009
DP03	K57	DX	10	Any	0.009
DP03	K44	DX	10	Often	0.009

Appendix B. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Proton Pump Inhibitor and Famotidine New Users with an hdPS Model in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP)

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP03	M81	DX	10	Often	0.009
DP03	R41	DX	10	Often	0.009
DP03	R09	DX	10	Any	0.009
DP03	0DB78ZX	PX	10	Any	0.009
DP03	J96	DX	10	Frequent	0.009
DP03	99215	PX	CPT	Frequent	0.009
DP03	N39	DX	10	Any	0.009
DP03	Z74	DX	10	Frequent	0.009
DP03	B96	DX	10	Frequent	0.009
DP03	Z99	DX	10	Any	0.009
DP03	93306	PX	CPT	Any	0.009
DP03	I70	DX	10	Any	0.009
DP04	N18	DX	10	Any	0.068
DP04	D02_INT_UNIQ_Q4	DX	10	Q4ServiceInt	0.053
DP04	N18	DX	10	Often	0.046
DP04	D02_INT_ALL_Q4	DX	10	Q4ServiceInt	0.046
DP04	I10	DX	10	Any	0.042
DP04	I10	DX	10	Often	0.041
DP04	99309	PX	CPT	Any	0.037
DP04	I12	DX	10	Any	0.037
DP04	R26	DX	10	Any	0.035
DP04	K92	DX	10	Any	0.035
DP04	K92	DX	10	Often	0.034
DP04	D04_INT_ALL_Q4	PX	CPT	Q4ServiceInt	0.034
DP04	I10	DX	10	Frequent	0.032
DP04	I25	DX	10	Any	0.032
DP04	E78	DX	10	Any	0.031
DP04	99308	PX	CPT	Any	0.030
DP04	K92	DX	10	Frequent	0.030
DP04	E78	DX	10	Often	0.030
DP04	Z74	DX	10	Any	0.029
DP04	D04_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.029
DP04	I50	DX	10	Any	0.028
DP04	731	PX	CPT	Any	0.027
DP04	E11	DX	10	Often	0.027
DP04	I11	DX	10	Any	0.027

Appendix B. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Proton Pump Inhibitor and Famotidine New Users with an hdPS Model in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP)

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP04	C689	RX	CLASS	Any	0.027
DP04	I12	DX	10	Often	0.027
DP04	C401	RX	CLASS	Any	0.027
DP04	Z79	DX	10	Any	0.026
DP04	C689	RX	CLASS	Often	0.026
DP04	C225	RX	CLASS	Any	0.026
DP04	I73	DX	10	Any	0.026
DP04	A0425	PX	HCPCS	Frequent	0.025
DP04	D62	DX	10	Any	0.025
DP04	N18	DX	10	Frequent	0.025
DP04	A0428	PX	HCPCS	Any	0.024
DP04	C1097	RX	CLASS	Any	0.024
DP04	R41	DX	10	Any	0.024
DP04	99306	PX	CPT	Any	0.023
DP04	0DB68ZX	PX	10	Any	0.023
DP04	D07_INT_ALL_Q4	PX	HCPCS	Q4ServiceInt	0.023
DP04	R60	DX	10	Any	0.023
DP04	99214	PX	CPT	Often	0.023
DP04	R26	DX	10	Often	0.023
DP04	D02_INT_ALL_Q1	DX	10	Q1ServiceInt	0.023
DP04	G0463	PX	HCPCS	Any	0.022
DP04	E78	DX	10	Frequent	0.022
DP04	A0425	PX	HCPCS	Any	0.022
DP04	E11	DX	10	Any	0.022
DP04	B35	DX	10	Any	0.022
DP04	99214	PX	CPT	Any	0.021
DP04	M19	DX	10	Any	0.021
DP04	I25	DX	10	Often	0.021
DP04	Z74	DX	10	Frequent	0.021
DP04	I48	DX	10	Any	0.021
DP04	11721	PX	CPT	Any	0.021
DP04	I70	DX	10	Any	0.021
DP04	C422	RX	CLASS	Any	0.020
DP04	C401	RX	CLASS	Often	0.020
DP04	D02_INT_UNIQ_Q1	DX	10	Q1ServiceInt	0.020
DP04	N39	DX	10	Any	0.020

Appendix B. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Proton Pump Inhibitor and Famotidine New Users with an hdPS Model in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP)

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP04	I50	DX	10	Often	0.019
DP04	R69	DX	10	Any	0.019
DP04	70450	PX	CPT	Any	0.019
DP04	Z96	DX	10	Any	0.019
DP04	E11	DX	10	Frequent	0.019
DP04	K25	DX	10	Any	0.018
DP04	G0299	PX	HCPCS	Any	0.018
DP04	Z79	DX	10	Often	0.018
DP04	80048	PX	CPT	Any	0.018
DP04	A0429	PX	HCPCS	Any	0.018
DP04	C225	RX	CLASS	Often	0.018
DP04	G93	DX	10	Often	0.018
DP04	D03_INT_UNIQ_Q4	RX	CLASS	Q4ServiceInt	0.017
DP04	G0463	PX	HCPCS	Often	0.017
DP04	F03	DX	10	Any	0.017
DP04	0DJ08ZZ	PX	10	Any	0.017
DP04	99214	PX	CPT	Frequent	0.017
DP04	R29	DX	10	Any	0.017
DP04	D07_INT_UNIQ_Q4	PX	HCPCS	Q4ServiceInt	0.016
DP04	R27	DX	10	Any	0.016
DP04	G93	DX	10	Any	0.016
DP04	I13	DX	10	Any	0.016
DP04	N39	DX	10	Frequent	0.016
DP04	99348	PX	CPT	Any	0.016
DP04	C1097	RX	CLASS	Often	0.016
DP04	G0151	PX	HCPCS	Any	0.016
DP04	K21	DX	10	Any	0.016
DP04	1123F	PX	CPT	Any	0.015
DP04	R13	DX	10	Any	0.015
DP04	G0008	PX	HCPCS	Any	0.015
DP04	I11	DX	10	Often	0.015
DP04	W19	DX	10	Any	0.015
DP04	I63	DX	10	Any	0.015
DP04	D04_INT_ALL_Q1	PX	CPT	Q1ServiceInt	0.015
DP04	D63	DX	10	Any	0.015
DP04	99309	PX	CPT	Frequent	0.015

Appendix B. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Proton Pump Inhibitor and Famotidine New Users with an hdPS Model in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP)

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP04	J96	DX	10	Any	0.015
DP04	C1124	RX	CLASS	Any	0.014
DP04	A0428	PX	HCPCS	Frequent	0.014
DP04	R69	DX	10	Frequent	0.014
DP05	Z3A	DX	10	Any	0.086
DP05	87340	PX	CPT	Any	0.073
DP05	R13	DX	10	Any	0.068
DP05	O99	DX	10	Any	0.063
DP05	F10	DX	10	Any	0.062
DP05	O99	DX	10	Frequent	0.060
DP05	K20	DX	10	Any	0.057
DP05	86780	PX	CPT	Any	0.055
DP05	C62	RX	CLASS	Any	0.051
DP05	K92	DX	10	Any	0.050
DP05	D64	DX	10	Any	0.050
DP05	99239	PX	CPT	Any	0.049
DP05	731	PX	CPT	Any	0.049
DP05	Z3A	DX	10	Often	0.048
DP05	K92	DX	10	Often	0.048
DP05	D05_INT_ALL_Q4	PX	HCPCS	Q4ServiceInt	0.047
DP05	86850	PX	CPT	Any	0.047
DP05	99222	PX	CPT	Any	0.045
DP05	K31	DX	10	Any	0.045
DP05	K21	DX	10	Frequent	0.044
DP05	74177	PX	CPT	Any	0.044
DP05	F10	DX	10	Often	0.042
DP05	81001	PX	CPT	Any	0.041
DP05	86901	PX	CPT	Any	0.041
DP05	R32	DX	10	Any	0.040
DP05	S0215	PX	HCPCS	Any	0.040
DP05	Z02	DX	10	Any	0.040
DP05	0W9G3ZZ	PX	10	Any	0.039
DP05	86803	PX	CPT	Any	0.039
DP05	86900	PX	CPT	Any	0.039
DP05	0DN84ZZ	PX	10	Any	0.038
DP05	84156	PX	CPT	Any	0.038

Appendix B. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Proton Pump Inhibitor and Famotidine New Users with an hdPS Model in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP)

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP05	99310	PX	CPT	Any	0.037
DP05	R13	DX	10	Frequent	0.037
DP05	O99	DX	10	Often	0.036
DP05	C1033	RX	CLASS	Frequent	0.036
DP05	K22	DX	10	Any	0.036
DP05	A0427	PX	HCPCS	Any	0.036
DP05	N17	DX	10	Any	0.036
DP05	A0425	PX	HCPCS	Any	0.036
DP05	K29	DX	10	Any	0.036
DP05	A0100	PX	HCPCS	Any	0.034
DP05	D04_INT_ALL_Q2	PX	10	Q2ServiceInt	0.034
DP05	88305	PX	CPT	Any	0.033
DP05	D68	DX	10	Any	0.033
DP05	43235	PX	CPT	Any	0.033
DP05	D03_INT_ALL_Q4	PX	CPT	Q4ServiceInt	0.033
DP05	K76	DX	10	Any	0.033
DP05	T2023	PX	HCPCS	Any	0.033
DP05	D04_INT_UNIQ_Q2	PX	10	Q2ServiceInt	0.033
DP05	99231	PX	CPT	Any	0.032
DP05	K44	DX	10	Any	0.032
DP05	0DJ08ZZ	PX	10	Any	0.032
DP05	C1179	RX	CLASS	Any	0.032
DP05	D03_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.032
DP05	R41	DX	10	Any	0.032
DP05	W19	DX	10	Frequent	0.031
DP05	0DB68ZX	PX	10	Any	0.031
DP05	76705	PX	CPT	Any	0.031
DP05	D05_INT_UNIQ_Q4	PX	HCPCS	Q4ServiceInt	0.030
DP05	Z68	DX	10	Frequent	0.030
DP05	73502	PX	CPT	Frequent	0.030
DP05	0D1B0Z4	PX	10	Any	0.030
DP05	83605	PX	CPT	Any	0.030
DP05	99233	PX	CPT	Any	0.029
DP05	3E04305	PX	10	Any	0.028
DP05	G0463	PX	HCPCS	Any	0.028
DP05	74018	PX	CPT	Any	0.028

Appendix B. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Proton Pump Inhibitor and Famotidine New Users with an hdPS Model in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP)

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP05	W19	DX	10	Any	0.028
DP05	H2035	PX	HCPCS	Any	0.027
DP05	K21	DX	10	Any	0.027
DP05	Z02	DX	10	Often	0.027
DP05	A41	DX	10	Any	0.027
DP05	H0038	PX	HCPCS	Frequent	0.026
DP05	Q9967	PX	HCPCS	Any	0.026
DP05	S0215	PX	HCPCS	Often	0.026
DP05	99217	PX	CPT	Any	0.025
DP05	87086	PX	CPT	Any	0.025
DP05	85027	PX	CPT	Any	0.025
DP05	87389	PX	CPT	Any	0.025
DP05	Z3A	DX	10	Frequent	0.025
DP05	Q0092	PX	HCPCS	Any	0.025
DP05	R11	DX	10	Frequent	0.025
DP05	F10	DX	10	Frequent	0.024
DP05	T2023	PX	HCPCS	Frequent	0.024
DP05	B35	DX	10	Any	0.024
DP05	Z68	DX	10	Any	0.024
DP05	G0156	PX	HCPCS	Any	0.024
DP05	87086	PX	CPT	Frequent	0.023
DP05	B35	DX	10	Frequent	0.023
DP05	99284	PX	CPT	Frequent	0.023
DP05	C1751	PX	HCPCS	Any	0.023
DP05	76937	PX	CPT	Any	0.023
DP05	R10	DX	10	Often	0.023
DP05	HZ2ZZZZ	PX	10	Any	0.023
DP05	J1630	PX	HCPCS	Any	0.023
DP05	74177	PX	CPT	Often	0.023
DP05	99605	PX	CPT	Any	0.022
DP05	K92	DX	10	Frequent	0.022
DP05	K31	DX	10	Frequent	0.022

Appendix C. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP01	N18	DX	10	Any	0.061
DP01	Z99	DX	10	Often	0.057
DP01	N17	DX	10	Any	0.056
DP01	0J2TXYZ	PX	10	Any	0.055
DP01	N18	DX	10	Often	0.053
DP01	D63	DX	10	Any	0.050
DP01	93010	PX	CPT	Frequent	0.049
DP01	N18	DX	10	Frequent	0.049
DP01	E87	DX	10	Often	0.048
DP01	D04_INT_ALL_Q4	PX	CPT	Q4ServiceInt	0.047
DP01	E87	DX	10	Any	0.046
DP01	81001	PX	CPT	Frequent	0.046
DP01	99233	PX	CPT	Frequent	0.046
DP01	Z99	DX	10	Frequent	0.043
DP01	Z99	DX	10	Any	0.043
DP01	I13	DX	10	Any	0.043
DP01	99285	PX	CPT	Frequent	0.043
DP01	E87	DX	10	Frequent	0.042
DP01	99233	PX	CPT	Any	0.042
DP01	A0425	PX	HCPCS	Any	0.041
DP01	90999	PX	CPT	Any	0.041
DP01	99233	PX	CPT	Often	0.040
DP01	I12	DX	10	Any	0.040
DP01	D02_INT_UNIQ_Q4	DX	10	Q4ServiceInt	0.040
DP01	99285	PX	CPT	Often	0.040
DP01	A0425	PX	HCPCS	Frequent	0.040
DP01	71045	PX	CPT	Often	0.038
DP01	71045	PX	CPT	Frequent	0.038
DP01	I69	DX	10	Often	0.037
DP01	99223	PX	CPT	Often	0.037
DP01	731	PX	CPT	Any	0.037
DP01	99232	PX	CPT	Often	0.037
DP01	J96	DX	10	Any	0.036
DP01	99291	PX	CPT	Any	0.036
DP01	Z88	DX	10	Often	0.036
DP01	71045	PX	CPT	Any	0.036

Appendix C. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP01	99285	PX	CPT	Any	0.035
DP01	A0427	PX	HCPCS	Any	0.035
DP01	D04_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.035
DP01	R69	DX	10	Any	0.035
DP01	N25	DX	10	Any	0.034
DP01	D02_INT_ALL_Q4	DX	10	Q4ServiceInt	0.033
DP01	K31	DX	10	Any	0.033
DP01	D06_INT_ALL_Q4	PX	HCPCS	Q4ServiceInt	0.033
DP01	99239	PX	CPT	Any	0.032
DP01	J98	DX	10	Any	0.032
DP01	Z88	DX	10	Any	0.032
DP01	93010	PX	CPT	Any	0.032
DP01	A0428	PX	HCPCS	Any	0.032
DP01	85025	PX	CPT	Frequent	0.032
DP01	D63	DX	10	Often	0.032
DP01	A41	DX	10	Often	0.031
DP01	Z45	DX	10	Any	0.031
DP01	A41	DX	10	Frequent	0.030
DP01	99222	PX	CPT	Any	0.030
DP01	I12	DX	10	Frequent	0.030
DP01	C1085	RX	CLASS	Any	0.030
DP01	88305	PX	CPT	Any	0.030
DP01	99232	PX	CPT	Frequent	0.029
DP01	N17	DX	10	Often	0.029
DP01	82947	PX	CPT	Frequent	0.029
DP01	80053	PX	CPT	Frequent	0.028
DP01	99232	PX	CPT	Any	0.028
DP01	80053	PX	CPT	Any	0.027
DP01	A0428	PX	HCPCS	Frequent	0.027
DP01	99223	PX	CPT	Frequent	0.027
DP01	C1124	RX	CLASS	Any	0.027
DP01	88305	PX	CPT	Frequent	0.027
DP01	K21	DX	10	Frequent	0.026
DP01	N17	DX	10	Frequent	0.026
DP01	99239	PX	CPT	Frequent	0.026
DP01	J7030	PX	HCPCS	Any	0.026

Appendix C. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP01	C58	RX	CLASS	Often	0.025
DP01	Z79	DX	10	Often	0.025
DP01	I12	DX	10	Often	0.025
DP01	I69	DX	10	Any	0.025
DP01	99221	PX	CPT	Any	0.024
DP01	I69	DX	10	Frequent	0.024
DP01	T81	DX	10	Frequent	0.024
DP01	Z91	DX	10	Frequent	0.024
DP01	N25	DX	10	Often	0.024
DP01	R53	DX	10	Frequent	0.024
DP01	J45	DX	10	Any	0.024
DP01	A0100	PX	HCPCS	Any	0.024
DP01	76937	PX	CPT	Any	0.024
DP01	99284	PX	CPT	Any	0.024
DP01	J96	DX	10	Often	0.024
DP01	Z79	DX	10	Any	0.024
DP01	93005	PX	CPT	Any	0.024
DP01	C420	RX	CLASS	Often	0.023
DP01	Z74	DX	10	Frequent	0.023
DP01	Z86	DX	10	Frequent	0.023
DP01	71250	PX	CPT	Any	0.023
DP01	Z20	DX	10	Frequent	0.023
DP01	84132	PX	CPT	Any	0.023
DP01	C58	RX	CLASS	Any	0.023
DP01	G0299	PX	HCPCS	Any	0.022
DP01	R10	DX	10	Frequent	0.022
DP01	99283	PX	CPT	Any	0.022
DP01	84484	PX	CPT	Any	0.022
DP02	Z98	DX	10	Frequent	0.276
DP02	74246	PX	CPT	Frequent	0.215
DP02	74246	PX	CPT	Any	0.176
DP02	R55	DX	10	Often	0.172
DP02	Z98	DX	10	Often	0.170
DP02	82040	PX	CPT	Frequent	0.156
DP02	86850	PX	CPT	Any	0.141
DP02	Z98	DX	10	Any	0.134

Appendix C. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP02	R80	DX	10	Frequent	0.133
DP02	20610	PX	CPT	Any	0.133
DP02	84100	PX	CPT	Frequent	0.131
DP02	88307	PX	CPT	Any	0.122
DP02	I51	DX	10	Frequent	0.120
DP02	K44	DX	10	Frequent	0.120
DP02	A4627	PX	HCPCS	Any	0.119
DP02	J0690	PX	HCPCS	Any	0.114
DP02	E55	DX	10	Any	0.109
DP02	Z68	DX	10	Any	0.107
DP02	C782	RX	CLASS	Any	0.106
DP02	D50	DX	10	Frequent	0.106
DP02	86901	PX	CPT	Any	0.105
DP02	83970	PX	CPT	Any	0.105
DP02	K22	DX	10	Any	0.104
DP02	93010	PX	CPT	Any	0.103
DP02	K44	DX	10	Any	0.100
DP02	97802	PX	CPT	Any	0.100
DP02	86900	PX	CPT	Any	0.099
DP02	J3301	PX	HCPCS	Any	0.096
DP02	K22	DX	10	Often	0.094
DP02	E28	DX	10	Frequent	0.093
DP02	93010	PX	CPT	Frequent	0.091
DP02	C98	RX	CLASS	Any	0.091
DP02	82306	PX	CPT	Any	0.089
DP02	E55	DX	10	Frequent	0.089
DP02	J1644	PX	HCPCS	Any	0.085
DP02	82962	PX	CPT	Any	0.083
DP02	74176	PX	CPT	Any	0.081
DP02	K63	DX	10	Any	0.081
DP02	I45	DX	10	Any	0.079
DP02	84100	PX	CPT	Any	0.077
DP02	G47	DX	10	Any	0.076
DP02	J1940	PX	HCPCS	Any	0.075
DP02	R80	DX	10	Any	0.075
DP02	N18	DX	10	Often	0.074

Appendix C. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP02	R13	DX	10	Often	0.073
DP02	R13	DX	10	Any	0.071
DP02	93005	PX	CPT	Any	0.067
DP02	Z30	DX	10	Any	0.066
DP02	Z01	DX	10	Frequent	0.066
DP02	D04_INT_UNIQ_Q2	PX	10	Q2ServiceInt	0.064
DP02	E87	DX	10	Any	0.062
DP02	K80	DX	10	Any	0.062
DP02	84550	PX	CPT	Any	0.062
DP02	C1135	RX	CLASS	Any	0.061
DP02	I51	DX	10	Any	0.058
DP02	E66	DX	10	Any	0.058
DP02	N18	DX	10	Frequent	0.057
DP02	N18	DX	10	Any	0.054
DP02	99396	PX	CPT	Any	0.054
DP02	J1750	PX	HCPCS	Any	0.053
DP02	C689	RX	CLASS	Any	0.053
DP02	R10	DX	10	Any	0.052
DP02	82607	PX	CPT	Any	0.052
DP02	R55	DX	10	Any	0.050
DP02	76705	PX	CPT	Often	0.049
DP02	C1189	RX	CLASS	Any	0.048
DP02	83880	PX	CPT	Any	0.048
DP02	F17	DX	10	Any	0.047
DP02	E66	DX	10	Often	0.046
DP02	E78	DX	10	Frequent	0.046
DP02	99215	PX	CPT	Any	0.045
DP02	J3010	PX	HCPCS	Any	0.045
DP02	83690	PX	CPT	Any	0.045
DP02	D72	DX	10	Any	0.044
DP02	J2001	PX	HCPCS	Any	0.044
DP02	C1189	RX	CLASS	Frequent	0.043
DP02	C401	RX	CLASS	Any	0.043
DP02	D50	DX	10	Any	0.043
DP02	E11	DX	10	Often	0.043
DP02	D04_INT_ALL_Q2	PX	10	Q2ServiceInt	0.041

Appendix C. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP02	71045	PX	CPT	Often	0.041
DP02	C225	RX	CLASS	Any	0.041
DP02	D64	DX	10	Any	0.039
DP02	Z90	DX	10	Any	0.038
DP02	73562	PX	CPT	Any	0.038
DP02	E78	DX	10	Any	0.036
DP02	76705	PX	CPT	Any	0.036
DP02	I49	DX	10	Any	0.036
DP02	I10	DX	10	Any	0.035
DP02	U0003	PX	HCPCS	Any	0.035
DP02	81025	PX	CPT	Any	0.034
DP02	88305	PX	CPT	Any	0.033
DP02	C826	RX	CLASS	Any	0.033
DP02	71045	PX	CPT	Any	0.032
DP02	J2704	PX	HCPCS	Any	0.032
DP02	Z88	DX	10	Often	0.031
DP02	C1186	RX	CLASS	Any	0.031
DP02	R94	DX	10	Any	0.031
DP02	N92	DX	10	Frequent	0.031
DP02	K21	DX	10	Any	0.030
DP03	Z3A	DX	10	Any	0.088
DP03	Z36	DX	10	Any	0.077
DP03	Z34	DX	10	Any	0.069
DP03	Z36	DX	10	Frequent	0.060
DP03	O99	DX	10	Any	0.059
DP03	Z3A	DX	10	Often	0.058
DP03	Z3A	DX	10	Frequent	0.056
DP03	O26	DX	10	Any	0.054
DP03	Z36	DX	10	Often	0.053
DP03	O99	DX	10	Often	0.052
DP03	O09	DX	10	Any	0.050
DP03	O09	DX	10	Often	0.047
DP03	O09	DX	10	Frequent	0.043
DP03	Z34	DX	10	Often	0.041
DP03	O99	DX	10	Frequent	0.039
DP03	O26	DX	10	Often	0.037

Appendix C. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP03	Z34	DX	10	Frequent	0.033
DP03	731	PX	CPT	Any	0.032
DP03	86850	PX	CPT	Any	0.029
DP03	I10	DX	10	Any	0.026
DP03	86901	PX	CPT	Any	0.024
DP03	E66	DX	10	Frequent	0.023
DP03	84156	PX	CPT	Any	0.022
DP03	86900	PX	CPT	Any	0.022
DP03	O26	DX	10	Frequent	0.022
DP03	I10	DX	10	Often	0.022
DP03	87086	PX	CPT	Any	0.021
DP03	E66	DX	10	Often	0.021
DP03	D04_INT_ALL_Q4	PX	CPT	Q4ServiceInt	0.021
DP03	K21	DX	10	Any	0.020
DP03	K92	DX	10	Any	0.020
DP03	43239	PX	CPT	Any	0.019
DP03	K76	DX	10	Any	0.019
DP03	C1110	RX	CLASS	Any	0.019
DP03	Z32	DX	10	Any	0.018
DP03	I10	DX	10	Frequent	0.017
DP03	86803	PX	CPT	Any	0.017
DP03	E66	DX	10	Any	0.017
DP03	E0603	PX	HCPCS	Any	0.017
DP03	Z39	DX	10	Any	0.017
DP03	E11	DX	10	Often	0.017
DP03	K92	DX	10	Often	0.016
DP03	Z68	DX	10	Frequent	0.016
DP03	C58	RX	CLASS	Any	0.015
DP03	N18	DX	10	Often	0.015
DP03	99223	PX	CPT	Any	0.015
DP03	D04_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.015
DP03	99284	PX	CPT	Any	0.015
DP03	C1124	RX	CLASS	Any	0.015
DP03	88305	PX	CPT	Any	0.015
DP03	K21	DX	10	Frequent	0.015
DP03	E11	DX	10	Any	0.014

Appendix C. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP03	36415	PX	CPT	Frequent	0.014
DP03	84702	PX	CPT	Any	0.014
DP03	C58	RX	CLASS	Frequent	0.013
DP03	88342	PX	CPT	Any	0.013
DP03	G47	DX	10	Any	0.013
DP03	43239	PX	CPT	Often	0.013
DP03	C1110	RX	CLASS	Frequent	0.013
DP03	K22	DX	10	Any	0.013
DP03	74177	PX	CPT	Any	0.012
DP03	99283	PX	CPT	Any	0.012
DP03	K20	DX	10	Any	0.012
DP03	C1124	RX	CLASS	Often	0.012
DP03	C1124	RX	CLASS	Frequent	0.012
DP03	96374	PX	CPT	Any	0.012
DP03	83970	PX	CPT	Any	0.012
DP03	N18	DX	10	Any	0.012
DP03	R11	DX	10	Any	0.012
DP03	87340	PX	CPT	Any	0.011
DP03	0DB68ZX	PX	10	Any	0.011
DP03	99284	PX	CPT	Frequent	0.011
DP03	87591	PX	CPT	Any	0.011
DP03	87491	PX	CPT	Any	0.011
DP03	R10	DX	10	Any	0.011
DP03	A0425	PX	HCPCS	Any	0.011
DP03	81025	PX	CPT	Any	0.011
DP03	99239	PX	CPT	Any	0.011
DP03	C1175	RX	CLASS	Any	0.011
DP03	K31	DX	10	Any	0.010
DP03	84425	PX	CPT	Any	0.010
DP03	797	PX	CPT	Any	0.010
DP03	87389	PX	CPT	Any	0.010
DP03	D06_INT_UNIQ_Q4	PX	HCPCS	Q4ServiceInt	0.010
DP03	J1200	PX	HCPCS	Any	0.010
DP03	A0429	PX	HCPCS	Any	0.010
DP03	K22	DX	10	Often	0.010
DP03	K92	DX	10	Frequent	0.010

Appendix C. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP03	Z98	DX	10	Any	0.010
DP03	0TY00Z0	PX	10	Any	0.010
DP03	88313	PX	CPT	Any	0.010
DP03	99215	PX	CPT	Frequent	0.010
DP03	99152	PX	CPT	Any	0.010
DP03	K29	DX	10	Any	0.009
DP03	Z32	DX	10	Frequent	0.009
DP03	R11	DX	10	Often	0.009
DP03	Z68	DX	10	Any	0.009
DP03	N18	DX	10	Frequent	0.009
DP03	E78	DX	10	Often	0.009
DP03	Q9967	PX	HCPCS	Any	0.009
DP04	Z34	DX	10	Often	0.103
DP04	Z34	DX	10	Frequent	0.081
DP04	Z3A	DX	10	Often	0.080
DP04	Z36	DX	10	Any	0.076
DP04	Z34	DX	10	Any	0.074
DP04	O99	DX	10	Any	0.070
DP04	Z3A	DX	10	Frequent	0.069
DP04	O99	DX	10	Often	0.064
DP04	Z3A	DX	10	Any	0.059
DP04	O99	DX	10	Frequent	0.057
DP04	86900	PX	CPT	Any	0.050
DP04	Z36	DX	10	Often	0.049
DP04	86901	PX	CPT	Any	0.049
DP04	N18	DX	10	Often	0.049
DP04	86850	PX	CPT	Any	0.047
DP04	I10	DX	10	Any	0.047
DP04	87340	PX	CPT	Any	0.046
DP04	D04_INT_ALL_Q4	PX	CPT	Q4ServiceInt	0.041
DP04	Z36	DX	10	Frequent	0.041
DP04	731	PX	CPT	Any	0.041
DP04	N18	DX	10	Any	0.040
DP04	O09	DX	10	Any	0.037
DP04	D02_INT_UNIQ_Q4	DX	10	Q4ServiceInt	0.036
DP04	D02_INT_ALL_Q4	DX	10	Q4ServiceInt	0.036

Appendix C. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP04	C131	RX	CLASS	Frequent	0.036
DP04	K29	DX	10	Any	0.035
DP04	E0603	PX	HCPCS	Any	0.035
DP04	C1124	RX	CLASS	Any	0.034
DP04	G0439	PX	HCPCS	Any	0.033
DP04	K21	DX	10	Any	0.033
DP04	87086	PX	CPT	Any	0.032
DP04	K21	DX	10	Frequent	0.032
DP04	D04_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.032
DP04	99238	PX	CPT	Any	0.029
DP04	5A1D70Z	PX	10	Any	0.029
DP04	84100	PX	CPT	Frequent	0.027
DP04	36415	PX	CPT	Frequent	0.027
DP04	86780	PX	CPT	Any	0.027
DP04	99231	PX	CPT	Any	0.026
DP04	K29	DX	10	Frequent	0.025
DP04	43239	PX	CPT	Any	0.025
DP04	I10	DX	10	Often	0.025
DP04	D07_INT_ALL_Q4	PX	HCPCS	Q4ServiceInt	0.024
DP04	Z99	DX	10	Frequent	0.024
DP04	I50	DX	10	Often	0.023
DP04	K31	DX	10	Any	0.023
DP04	R16	DX	10	Any	0.023
DP04	C187	RX	CLASS	Any	0.023
DP04	K76	DX	10	Any	0.023
DP04	G93	DX	10	Frequent	0.023
DP04	86803	PX	CPT	Any	0.023
DP04	93010	PX	CPT	Frequent	0.023
DP04	K44	DX	10	Any	0.022
DP04	Z39	DX	10	Any	0.022
DP04	C187	RX	CLASS	Often	0.022
DP04	D03_INT_UNIQ_Q4	RX	CLASS	Q4ServiceInt	0.022
DP04	C1124	RX	CLASS	Often	0.022
DP04	J45	DX	10	Often	0.021
DP04	81001	PX	CPT	Any	0.021
DP04	K22	DX	10	Any	0.021

Appendix C. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP04	C1085	RX	CLASS	Any	0.021
DP04	G0463	PX	HCPCS	Frequent	0.021
DP04	3E0R305	PX	10	Frequent	0.020
DP04	88312	PX	CPT	Any	0.020
DP04	G0463	PX	HCPCS	Any	0.020
DP04	C131	RX	CLASS	Often	0.020
DP04	87186	PX	CPT	Any	0.020
DP04	99284	PX	CPT	Any	0.020
DP04	C41	RX	CLASS	Any	0.020
DP04	R11	DX	10	Frequent	0.020
DP04	J45	DX	10	Any	0.019
DP04	C1124	RX	CLASS	Frequent	0.019
DP04	E66	DX	10	Frequent	0.019
DP04	Z74	DX	10	Any	0.019
DP04	99152	PX	CPT	Any	0.019
DP04	K25	DX	10	Any	0.019
DP04	N18	DX	10	Frequent	0.019
DP04	R16	DX	10	Frequent	0.019
DP04	C935	RX	CLASS	Any	0.018
DP04	I10	DX	10	Frequent	0.018
DP04	C1049	RX	CLASS	Any	0.018
DP04	E66	DX	10	Often	0.018
DP04	G93	DX	10	Any	0.018
DP04	Z86	DX	10	Frequent	0.018
DP04	Z86	DX	10	Any	0.018
DP04	I50	DX	10	Any	0.018
DP04	88313	PX	CPT	Any	0.017
DP04	88305	PX	CPT	Any	0.017
DP04	Z78	DX	10	Any	0.017
DP04	C689	RX	CLASS	Often	0.017
DP04	J2357	PX	HCPCS	Any	0.017
DP04	0W9G3ZZ	PX	10	Any	0.017
DP04	0DBN8ZX	PX	10	Any	0.017
DP04	R10	DX	10	Any	0.017
DP04	3E0R305	PX	10	Any	0.016
DP04	85025	PX	CPT	Frequent	0.016

Appendix C. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP04	M10	DX	10	Any	0.016
DP04	R10	DX	10	Frequent	0.016
DP04	99213	PX	CPT	Often	0.016
DP04	K76	DX	10	Frequent	0.016
DP05	O09	DX	10	Any	0.299
DP05	Z36	DX	10	Any	0.275
DP05	86762	PX	CPT	Any	0.234
DP05	Z3A	DX	10	Any	0.220
DP05	O09	DX	10	Often	0.214
DP05	Z36	DX	10	Often	0.200
DP05	O26	DX	10	Any	0.191
DP05	Z34	DX	10	Any	0.176
DP05	86780	PX	CPT	Any	0.174
DP05	O99	DX	10	Any	0.165
DP05	76801	PX	CPT	Often	0.141
DP05	O99	DX	10	Frequent	0.136
DP05	86850	PX	CPT	Any	0.134
DP05	87340	PX	CPT	Any	0.134
DP05	76801	PX	CPT	Any	0.130
DP05	82950	PX	CPT	Any	0.130
DP05	Z3A	DX	10	Often	0.127
DP05	O09	DX	10	Frequent	0.125
DP05	5A1955Z	PX	10	Any	0.123
DP05	O26	DX	10	Often	0.123
DP05	86901	PX	CPT	Any	0.121
DP05	76816	PX	CPT	Often	0.120
DP05	86900	PX	CPT	Any	0.119
DP05	76816	PX	CPT	Any	0.110
DP05	0T778DZ	PX	10	Any	0.107
DP05	86803	PX	CPT	Any	0.103
DP05	76817	PX	CPT	Often	0.094
DP05	76817	PX	CPT	Any	0.092
DP05	84156	PX	CPT	Any	0.090
DP05	H2035	PX	HCPCS	Any	0.089
DP05	O36	DX	10	Any	0.088
DP05	81001	PX	CPT	Any	0.088

Appendix C. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP05	O99	DX	10	Often	0.084
DP05	O26	DX	10	Frequent	0.084
DP05	87591	PX	CPT	Any	0.076
DP05	87491	PX	CPT	Any	0.075
DP05	H2015	PX	HCPCS	Frequent	0.075
DP05	J0696	PX	HCPCS	Any	0.073
DP05	87086	PX	CPT	Any	0.070
DP05	K20	DX	10	Any	0.068
DP05	G0481	PX	HCPCS	Frequent	0.066
DP05	74018	PX	CPT	Any	0.066
DP05	Z3A	DX	10	Frequent	0.063
DP05	87389	PX	CPT	Any	0.062
DP05	C1179	RX	CLASS	Any	0.057
DP05	76815	PX	CPT	Frequent	0.057
DP05	Z02	DX	10	Any	0.057
DP05	N17	DX	10	Any	0.055
DP05	Z34	DX	10	Often	0.054
DP05	C1110	RX	CLASS	Any	0.053
DP05	J0295	PX	HCPCS	Any	0.053
DP05	H2035	PX	HCPCS	Often	0.052
DP05	R16	DX	10	Any	0.052
DP05	D03_INT_ALL_Q4	PX	CPT	Q4ServiceInt	0.052
DP05	C62	RX	CLASS	Any	0.052
DP05	H0038	PX	HCPCS	Any	0.051
DP05	81025	PX	CPT	Any	0.050
DP05	A0100	PX	HCPCS	Any	0.049
DP05	E66	DX	10	Any	0.046
DP05	97803	PX	CPT	Any	0.046
DP05	S0215	PX	HCPCS	Any	0.046
DP05	99283	PX	CPT	Any	0.044
DP05	99284	PX	CPT	Frequent	0.044
DP05	HZ2ZZZZ	PX	10	Any	0.043
DP05	76815	PX	CPT	Any	0.043
DP05	93325	PX	CPT	Any	0.043
DP05	E78	DX	10	Frequent	0.042
DP05	Z32	DX	10	Any	0.039

Appendix C. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP05	83605	PX	CPT	Any	0.039
DP05	Z45	DX	10	Any	0.038
DP05	99239	PX	CPT	Any	0.037
DP05	R73	DX	10	Any	0.037
DP05	C545	RX	CLASS	Any	0.037
DP05	F10	DX	10	Often	0.037
DP05	F15	DX	10	Often	0.037
DP05	82077	PX	CPT	Any	0.036
DP05	E87	DX	10	Often	0.036
DP05	T1016	PX	HCPCS	Any	0.035
DP05	D03_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.035
DP05	D04_INT_UNIQ_Q1	PX	10	Q1ServiceInt	0.034
DP05	97802	PX	CPT	Any	0.034
DP05	G93	DX	10	Any	0.034
DP05	D68	DX	10	Any	0.034
DP05	D04_INT_ALL_Q1	PX	10	Q1ServiceInt	0.034
DP05	J1170	PX	HCPCS	Any	0.034
DP05	Z68	DX	10	Any	0.033
DP05	96130	PX	CPT	Any	0.033
DP05	96361	PX	CPT	Any	0.033
DP05	T2023	PX	HCPCS	Any	0.033
DP05	S9480	PX	HCPCS	Any	0.033
DP05	96376	PX	CPT	Any	0.033
DP05	F10	DX	10	Any	0.033
DP05	87040	PX	CPT	Any	0.032
DP05	J2370	PX	HCPCS	Any	0.032
DP05	R21	DX	10	Any	0.032
DP05	J2250	PX	HCPCS	Any	0.032
DP05	K92	DX	10	Frequent	0.032
DP05	C991	RX	CLASS	Any	0.032
DP05	H0001	PX	HCPCS	Any	0.032
DP05	G0463	PX	HCPCS	Any	0.031

Appendix D. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 50-64 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP01	N18	DX	10	Any	0.050
DP01	K92	DX	10	Often	0.044
DP01	N18	DX	10	Often	0.043
DP01	K92	DX	10	Any	0.039
DP01	A0428	PX	HCPCS	Any	0.036
DP01	A0425	PX	HCPCS	Frequent	0.031
DP01	Z99	DX	10	Any	0.029
DP01	Z99	DX	10	Often	0.028
DP01	E11	DX	10	Frequent	0.027
DP01	I12	DX	10	Any	0.026
DP01	D50	DX	10	Any	0.025
DP01	731	PX	CPT	Any	0.023
DP01	99232	PX	CPT	Often	0.023
DP01	99309	PX	CPT	Often	0.022
DP01	I13	DX	10	Any	0.022
DP01	J96	DX	10	Any	0.021
DP01	99233	PX	CPT	Frequent	0.021
DP01	R10	DX	10	Any	0.021
DP01	02HV33Z	PX	10	Any	0.021
DP01	A0429	PX	HCPCS	Any	0.020
DP01	99309	PX	CPT	Any	0.020
DP01	I12	DX	10	Often	0.020
DP01	99308	PX	CPT	Any	0.020
DP01	J96	DX	10	Often	0.019
DP01	A0428	PX	HCPCS	Frequent	0.019
DP01	D02_INT_ALL_Q4	DX	10	Q4ServiceInt	0.019
DP01	K29	DX	10	Any	0.019
DP01	Z74	DX	10	Any	0.018
DP01	I69	DX	10	Often	0.018
DP01	I50	DX	10	Often	0.018
DP01	R18	DX	10	Any	0.018
DP01	Z46	DX	10	Any	0.018
DP01	A41	DX	10	Any	0.018
DP01	I50	DX	10	Any	0.017
DP01	99232	PX	CPT	Frequent	0.017
DP01	J96	DX	10	Frequent	0.017

Appendix D. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 50-64 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP01	E11	DX	10	Often	0.017
DP01	K74	DX	10	Any	0.017
DP01	A0425	PX	HCPCS	Any	0.017
DP01	N18	DX	10	Frequent	0.016
DP01	D62	DX	10	Any	0.016
DP01	D50	DX	10	Often	0.016
DP01	74177	PX	CPT	Any	0.016
DP01	D05_INT_UNIQ_Q4	PX	10	Q4ServiceInt	0.016
DP01	K31	DX	10	Any	0.016
DP01	99291	PX	CPT	Frequent	0.016
DP01	K74	DX	10	Often	0.016
DP01	99223	PX	CPT	Often	0.016
DP01	K92	DX	10	Frequent	0.015
DP01	D63	DX	10	Any	0.015
DP01	D05_INT_ALL_Q4	PX	10	Q4ServiceInt	0.015
DP01	99308	PX	CPT	Frequent	0.015
DP01	A41	DX	10	Often	0.015
DP01	R10	DX	10	Often	0.015
DP01	Z74	DX	10	Frequent	0.015
DP01	N17	DX	10	Any	0.015
DP01	I12	DX	10	Frequent	0.015
DP01	30233N1	PX	10	Any	0.015
DP01	R11	DX	10	Any	0.015
DP01	J18	DX	10	Any	0.014
DP01	C225	RX	CLASS	Often	0.014
DP01	36556	PX	CPT	Any	0.014
DP01	I69	DX	10	Any	0.014
DP01	C422	RX	CLASS	Any	0.014
DP01	I63	DX	10	Any	0.014
DP01	C225	RX	CLASS	Any	0.014
DP01	99231	PX	CPT	Any	0.014
DP01	R27	DX	10	Any	0.014
DP01	R09	DX	10	Any	0.014
DP01	G0299	PX	HCPCS	Any	0.014
DP01	88305	PX	CPT	Any	0.013
DP01	99306	PX	CPT	Any	0.013

Appendix D. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 50-64 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP01	Z89	DX	10	Any	0.013
DP01	99233	PX	CPT	Any	0.013
DP01	80048	PX	CPT	Any	0.013
DP01	36620	PX	CPT	Any	0.013
DP01	83735	PX	CPT	Any	0.013
DP01	99309	PX	CPT	Frequent	0.013
DP01	E78	DX	10	Frequent	0.013
DP01	Z87	DX	10	Frequent	0.012
DP01	99231	PX	CPT	Frequent	0.012
DP01	76705	PX	CPT	Any	0.012
DP01	D04_INT_ALL_Q4	PX	CPT	Q4ServiceInt	0.012
DP01	E78	DX	10	Often	0.012
DP01	I10	DX	10	Frequent	0.012
DP01	K22	DX	10	Often	0.012
DP01	0BH17EZ	PX	10	Any	0.012
DP01	J98	DX	10	Frequent	0.012
DP01	99233	PX	CPT	Often	0.012
DP01	71045	PX	CPT	Any	0.012
DP01	Z46	DX	10	Often	0.012
DP01	93010	PX	CPT	Frequent	0.012
DP01	K74	DX	10	Frequent	0.012
DP01	L03	DX	10	Often	0.012
DP01	D63	DX	10	Often	0.012
DP01	99238	PX	CPT	Any	0.012
DP01	99291	PX	CPT	Any	0.012
DP01	D64	DX	10	Any	0.011
DP01	G93	DX	10	Often	0.011
DP01	L03	DX	10	Any	0.011
DP02	J9206	PX	HCPCS	Any	0.126
DP02	C713	RX	CLASS	Frequent	0.118
DP02	84402	PX	CPT	Any	0.115
DP02	96413	PX	CPT	Frequent	0.115
DP02	J1650	PX	HCPCS	Any	0.109
DP02	86160	PX	CPT	Any	0.107
DP02	K22	DX	10	Frequent	0.104
DP02	I82	DX	10	Any	0.104

Appendix D. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 50-64 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP02	S9500	PX	HCPCS	Any	0.100
DP02	C772	RX	CLASS	Frequent	0.100
DP02	R13	DX	10	Any	0.096
DP02	K22	DX	10	Often	0.094
DP02	G0103	PX	HCPCS	Any	0.092
DP02	E29	DX	10	Any	0.090
DP02	N28	DX	10	Frequent	0.086
DP02	K57	DX	10	Any	0.084
DP02	E78	DX	10	Any	0.084
DP02	D02_INT_UNIQ_Q3	RX	CLASS	Q3ServiceInt	0.083
DP02	S0164	PX	HCPCS	Any	0.081
DP02	M48	DX	10	Frequent	0.078
DP02	80061	PX	CPT	Any	0.074
DP02	D04_INT_ALL_Q4	PX	10	Q4ServiceInt	0.074
DP02	D04_INT_UNIQ_Q4	PX	10	Q4ServiceInt	0.074
DP02	J7050	PX	HCPCS	Frequent	0.072
DP02	43239	PX	CPT	Frequent	0.072
DP02	77080	PX	CPT	Often	0.068
DP02	Z68	DX	10	Frequent	0.068
DP02	R13	DX	10	Frequent	0.068
DP02	G0475	PX	HCPCS	Any	0.067
DP02	96413	PX	CPT	Often	0.066
DP02	D12	DX	10	Frequent	0.065
DP02	72100	PX	CPT	Often	0.064
DP02	72040	PX	CPT	Any	0.064
DP02	82040	PX	CPT	Frequent	0.063
DP02	C772	RX	CLASS	Any	0.060
DP02	J9299	PX	HCPCS	Any	0.060
DP02	J3411	PX	HCPCS	Any	0.060
DP02	99443	PX	CPT	Frequent	0.060
DP02	N30	DX	10	Frequent	0.059
DP02	Q0162	PX	HCPCS	Any	0.059
DP02	C65	RX	CLASS	Any	0.058
DP02	C1143	RX	CLASS	Any	0.058
DP02	G0008	PX	HCPCS	Any	0.058
DP02	77080	PX	CPT	Any	0.057

Appendix D. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 50-64 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP02	N17	DX	10	Frequent	0.057
DP02	84165	PX	CPT	Any	0.057
DP02	Z11	DX	10	Any	0.056
DP02	K44	DX	10	Frequent	0.055
DP02	K22	DX	10	Any	0.055
DP02	C713	RX	CLASS	Often	0.055
DP02	Z00	DX	10	Any	0.055
DP02	72100	PX	CPT	Any	0.053
DP02	R73	DX	10	Any	0.053
DP02	81001	PX	CPT	Any	0.051
DP02	85027	PX	CPT	Any	0.051
DP02	C65	RX	CLASS	Often	0.051
DP02	M53	DX	10	Any	0.051
DP02	70450	PX	CPT	Any	0.050
DP02	R13	DX	10	Often	0.049
DP02	97530	PX	CPT	Any	0.048
DP02	82947	PX	CPT	Frequent	0.047
DP02	N18	DX	10	Often	0.047
DP02	E86	DX	10	Any	0.046
DP02	70491	PX	CPT	Any	0.046
DP02	82310	PX	CPT	Frequent	0.045
DP02	R79	DX	10	Frequent	0.045
DP02	M81	DX	10	Any	0.045
DP02	C180	RX	CLASS	Any	0.044
DP02	72148	PX	CPT	Any	0.044
DP02	81015	PX	CPT	Frequent	0.044
DP02	A9585	PX	HCPCS	Any	0.044
DP02	B37	DX	10	Any	0.044
DP02	84403	PX	CPT	Any	0.043
DP02	R05	DX	10	Any	0.043
DP02	99024	PX	CPT	Any	0.043
DP02	C753	RX	CLASS	Any	0.043
DP02	K31	DX	10	Often	0.043
DP02	C101	RX	CLASS	Frequent	0.043
DP02	G1004	PX	HCPCS	Any	0.042
DP02	R91	DX	10	Any	0.042

Appendix D. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 50-64 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP02	84460	PX	CPT	Frequent	0.040
DP02	C207	RX	CLASS	Any	0.040
DP02	K44	DX	10	Any	0.039
DP02	M81	DX	10	Frequent	0.039
DP02	C1022	RX	CLASS	Frequent	0.039
DP02	J44	DX	10	Frequent	0.039
DP02	82746	PX	CPT	Any	0.038
DP02	R53	DX	10	Any	0.038
DP02	E66	DX	10	Frequent	0.037
DP02	D50	DX	10	Any	0.037
DP02	Z01	DX	10	Frequent	0.036
DP02	J2060	PX	HCPCS	Any	0.036
DP02	D50	DX	10	Often	0.036
DP02	90686	PX	CPT	Any	0.036
DP02	D05_INT_ALL_Q2	PX	HCPCS	Q2ServiceInt	0.036
DP02	C835	RX	CLASS	Any	0.036
DP02	R09	DX	10	Any	0.035
DP02	82247	PX	CPT	Any	0.035
DP02	M17	DX	10	Any	0.035
DP02	84520	PX	CPT	Frequent	0.035
DP03	N18	DX	10	Any	0.030
DP03	N18	DX	10	Often	0.025
DP03	N18	DX	10	Frequent	0.019
DP03	K92	DX	10	Frequent	0.016
DP03	I12	DX	10	Any	0.014
DP03	R10	DX	10	Any	0.013
DP03	K92	DX	10	Often	0.013
DP03	G0463	PX	HCPCS	Any	0.012
DP03	K92	DX	10	Any	0.012
DP03	R11	DX	10	Any	0.012
DP03	G93	DX	10	Frequent	0.012
DP03	731	PX	CPT	Any	0.012
DP03	D04_INT_ALL_Q4	PX	CPT	Q4ServiceInt	0.012
DP03	K21	DX	10	Any	0.011
DP03	K44	DX	10	Any	0.011
DP03	J96	DX	10	Often	0.011

Appendix D. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 50-64 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP03	C1175	RX	CLASS	Any	0.011
DP03	99233	PX	CPT	Often	0.011
DP03	99232	PX	CPT	Frequent	0.011
DP03	G93	DX	10	Any	0.011
DP03	J96	DX	10	Frequent	0.011
DP03	84100	PX	CPT	Any	0.011
DP03	70450	PX	CPT	Any	0.010
DP03	R11	DX	10	Frequent	0.010
DP03	J90	DX	10	Any	0.010
DP03	99223	PX	CPT	Frequent	0.010
DP03	D62	DX	10	Often	0.010
DP03	0DB68ZX	PX	10	Any	0.010
DP03	99239	PX	CPT	Any	0.010
DP03	I12	DX	10	Often	0.010
DP03	D62	DX	10	Any	0.010
DP03	77063	PX	CPT	Any	0.010
DP03	C58	RX	CLASS	Any	0.010
DP03	R10	DX	10	Often	0.010
DP03	K21	DX	10	Frequent	0.009
DP03	Z99	DX	10	Frequent	0.009
DP03	77067	PX	CPT	Any	0.009
DP03	99233	PX	CPT	Frequent	0.009
DP03	G0463	PX	HCPCS	Often	0.009
DP03	C58	RX	CLASS	Frequent	0.009
DP03	D05_INT_ALL_Q4	PX	10	Q4ServiceInt	0.009
DP03	D02_INT_UNIQ_Q4	DX	10	Q4ServiceInt	0.009
DP03	J96	DX	10	Any	0.009
DP03	99222	PX	CPT	Any	0.009
DP03	74177	PX	CPT	Any	0.008
DP03	D62	DX	10	Frequent	0.008
DP03	I51	DX	10	Any	0.008
DP03	D05_INT_UNIQ_Q4	PX	10	Q4ServiceInt	0.008
DP03	K25	DX	10	Any	0.008
DP03	R10	DX	10	Frequent	0.008
DP03	Q9967	PX	HCPCS	Any	0.008
DP03	G93	DX	10	Often	0.008

Appendix D. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 50-64 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP03	C388	RX	CLASS	Often	0.008
DP03	A0427	PX	HCPCS	Any	0.008
DP03	R13	DX	10	Any	0.008
DP03	83735	PX	CPT	Any	0.008
DP03	0DJ08ZZ	PX	10	Any	0.008
DP03	99214	PX	CPT	Frequent	0.008
DP03	I12	DX	10	Frequent	0.008
DP03	D64	DX	10	Often	0.008
DP03	99215	PX	CPT	Any	0.007
DP03	76937	PX	CPT	Any	0.007
DP03	A0425	PX	HCPCS	Any	0.007
DP03	Z74	DX	10	Any	0.007
DP03	99220	PX	CPT	Any	0.007
DP03	R11	DX	10	Often	0.007
DP03	D04_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.007
DP03	99284	PX	CPT	Frequent	0.007
DP03	43235	PX	CPT	Any	0.007
DP03	E66	DX	10	Frequent	0.007
DP03	88342	PX	CPT	Any	0.007
DP03	0TY00Z0	PX	10	Any	0.007
DP03	B96	DX	10	Any	0.007
DP03	80069	PX	CPT	Any	0.007
DP03	Z46	DX	10	Any	0.007
DP03	R91	DX	10	Any	0.007
DP03	K44	DX	10	Often	0.007
DP03	D50	DX	10	Any	0.007
DP03	C388	RX	CLASS	Any	0.007
DP03	K57	DX	10	Any	0.007
DP03	99213	PX	CPT	Frequent	0.006
DP03	Z99	DX	10	Any	0.006
DP03	R09	DX	10	Any	0.006
DP03	E87	DX	10	Any	0.006
DP03	E86	DX	10	Any	0.006
DP03	I63	DX	10	Any	0.006
DP03	I48	DX	10	Frequent	0.006
DP03	R19	DX	10	Any	0.006

Appendix D. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 50-64 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP03	99254	PX	CPT	Any	0.006
DP03	K25	DX	10	Often	0.006
DP03	K29	DX	10	Any	0.006
DP03	D06_INT_UNIQ_Q4	PX	HCPCS	Q4ServiceInt	0.006
DP03	J2930	PX	HCPCS	Any	0.006
DP03	0DB78ZX	PX	10	Any	0.006
DP03	G0463	PX	HCPCS	Frequent	0.006
DP03	R22	DX	10	Any	0.006
DP03	K31	DX	10	Often	0.006
DP03	K76	DX	10	Any	0.006
DP03	I73	DX	10	Any	0.006
DP03	D02_INT_ALL_Q4	DX	10	Q4ServiceInt	0.006
DP04	D02_INT_ALL_Q4	DX	10	Q4ServiceInt	0.038
DP04	G0463	PX	HCPCS	Any	0.036
DP04	D02_INT_UNIQ_Q4	DX	10	Q4ServiceInt	0.033
DP04	D04_INT_ALL_Q4	PX	CPT	Q4ServiceInt	0.030
DP04	N18	DX	10	Often	0.030
DP04	N18	DX	10	Any	0.029
DP04	J96	DX	10	Any	0.027
DP04	M79	DX	10	Any	0.027
DP04	D03_INT_UNIQ_Q4	RX	CLASS	Q4ServiceInt	0.026
DP04	D04_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.025
DP04	G0463	PX	HCPCS	Often	0.025
DP04	G62	DX	10	Any	0.022
DP04	D07_INT_ALL_Q4	PX	HCPCS	Q4ServiceInt	0.022
DP04	M79	DX	10	Frequent	0.021
DP04	99214	PX	CPT	Often	0.021
DP04	D06_INT_UNIQ_Q4	PX	10	Q4ServiceInt	0.020
DP04	M79	DX	10	Often	0.020
DP04	M05	DX	10	Any	0.020
DP04	I73	DX	10	Any	0.020
DP04	Z74	DX	10	Any	0.019
DP04	D06_INT_ALL_Q4	PX	10	Q4ServiceInt	0.018
DP04	E11	DX	10	Often	0.017
DP04	R26	DX	10	Any	0.016
DP04	G0378	PX	HCPCS	Any	0.016

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Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP04	C1097	RX	CLASS	Any	0.016
DP04	99214	PX	CPT	Frequent	0.015
DP04	Z79	DX	10	Often	0.015
DP04	M05	DX	10	Frequent	0.015
DP04	A0425	PX	HCPCS	Frequent	0.015
DP04	I73	DX	10	Frequent	0.015
DP04	G62	DX	10	Frequent	0.015
DP04	E11	DX	10	Frequent	0.015
DP04	I25	DX	10	Frequent	0.015
DP04	J45	DX	10	Frequent	0.015
DP04	99214	PX	CPT	Any	0.015
DP04	99348	PX	CPT	Any	0.014
DP04	G0463	PX	HCPCS	Frequent	0.014
DP04	D03_INT_ALL_Q4	RX	CLASS	Q4ServiceInt	0.014
DP04	N18	DX	10	Frequent	0.014
DP04	99215	PX	CPT	Any	0.014
DP04	86140	PX	CPT	Any	0.014
DP04	R69	DX	10	Any	0.014
DP04	J1200	PX	HCPCS	Any	0.014
DP04	A9585	PX	HCPCS	Any	0.013
DP04	R29	DX	10	Any	0.013
DP04	A0428	PX	HCPCS	Any	0.013
DP04	I12	DX	10	Any	0.013
DP04	J44	DX	10	Any	0.013
DP04	99053	PX	CPT	Any	0.013
DP04	C1097	RX	CLASS	Often	0.013
DP04	J44	DX	10	Often	0.013
DP04	0DB68ZX	PX	10	Any	0.013
DP04	D63	DX	10	Any	0.013
DP04	E1390	PX	HCPCS	Any	0.013
DP04	Z99	DX	10	Frequent	0.013
DP04	Z79	DX	10	Any	0.013
DP04	77063	PX	CPT	Any	0.013
DP04	J96	DX	10	Frequent	0.013
DP04	I12	DX	10	Often	0.012
DP04	J44	DX	10	Frequent	0.012

Appendix D. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 50-64 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP04	J96	DX	10	Often	0.012
DP04	84100	PX	CPT	Any	0.012
DP04	G89	DX	10	Frequent	0.012
DP04	R69	DX	10	Frequent	0.012
DP04	K22	DX	10	Any	0.012
DP04	R29	DX	10	Often	0.012
DP04	G0151	PX	HCPCS	Frequent	0.012
DP04	80069	PX	CPT	Frequent	0.012
DP04	77067	PX	CPT	Any	0.012
DP04	K21	DX	10	Frequent	0.012
DP04	84100	PX	CPT	Frequent	0.011
DP04	Y92	DX	10	Any	0.011
DP04	70450	PX	CPT	Any	0.011
DP04	K92	DX	10	Any	0.011
DP04	R20	DX	10	Frequent	0.011
DP04	C749	RX	CLASS	Frequent	0.011
DP04	80069	PX	CPT	Any	0.011
DP04	M06	DX	10	Any	0.011
DP04	R26	DX	10	Often	0.011
DP04	D07_INT_UNIQ_Q4	PX	HCPCS	Q4ServiceInt	0.011
DP04	A0425	PX	HCPCS	Any	0.011
DP04	Z74	DX	10	Frequent	0.011
DP04	I25	DX	10	Often	0.011
DP04	J45	DX	10	Often	0.011
DP04	Z91	DX	10	Any	0.011
DP04	I11	DX	10	Any	0.010
DP04	T78	DX	10	Any	0.010
DP04	G89	DX	10	Any	0.010
DP04	3E04305	PX	10	Any	0.010
DP04	I50	DX	10	Any	0.010
DP04	87086	PX	CPT	Any	0.010
DP04	G0299	PX	HCPCS	Any	0.010
DP04	M05	DX	10	Often	0.010
DP04	99220	PX	CPT	Any	0.010
DP04	Z48	DX	10	Any	0.010
DP04	C1186	RX	CLASS	Often	0.010

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Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP04	70553	PX	CPT	Any	0.010
DP04	K20	DX	10	Any	0.010
DP04	K21	DX	10	Any	0.010
DP04	30233N1	PX	10	Any	0.009
DP05	T2023	PX	HCPCS	Frequent	0.292
DP05	K74	DX	10	Any	0.168
DP05	K70	DX	10	Any	0.164
DP05	K70	DX	10	Often	0.147
DP05	T2023	PX	HCPCS	Often	0.144
DP05	K74	DX	10	Often	0.135
DP05	T2003	PX	HCPCS	Often	0.121
DP05	T2023	PX	HCPCS	Any	0.115
DP05	T2003	PX	HCPCS	Frequent	0.101
DP05	J43	DX	10	Any	0.101
DP05	86039	PX	CPT	Any	0.101
DP05	V5160	PX	HCPCS	Any	0.100
DP05	K70	DX	10	Frequent	0.097
DP05	R18	DX	10	Any	0.088
DP05	V5261	PX	HCPCS	Any	0.083
DP05	G0180	PX	HCPCS	Any	0.080
DP05	H90	DX	10	Frequent	0.077
DP05	86704	PX	CPT	Any	0.076
DP05	70486	PX	CPT	Often	0.075
DP05	A4371	PX	HCPCS	Frequent	0.075
DP05	G0179	PX	HCPCS	Often	0.075
DP05	C342	RX	CLASS	Any	0.070
DP05	S0215	PX	HCPCS	Often	0.068
DP05	S0215	PX	HCPCS	Any	0.067
DP05	86706	PX	CPT	Any	0.066
DP05	T2003	PX	HCPCS	Any	0.066
DP05	C42	RX	CLASS	Any	0.064
DP05	F17	DX	10	Often	0.064
DP05	R26	DX	10	Any	0.062
DP05	F17	DX	10	Any	0.062
DP05	M43	DX	10	Frequent	0.062
DP05	L4360	PX	HCPCS	Any	0.061

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Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP05	93306	PX	CPT	Any	0.059
DP05	F10	DX	10	Any	0.057
DP05	76700	PX	CPT	Any	0.057
DP05	87389	PX	CPT	Any	0.056
DP05	83540	PX	CPT	Any	0.056
DP05	G0463	PX	HCPCS	Any	0.054
DP05	C1725	PX	HCPCS	Any	0.054
DP05	R22	DX	10	Any	0.053
DP05	83690	PX	CPT	Any	0.052
DP05	76705	PX	CPT	Any	0.052
DP05	70486	PX	CPT	Any	0.051
DP05	L57	DX	10	Frequent	0.050
DP05	K22	DX	10	Any	0.050
DP05	K21	DX	10	Frequent	0.048
DP05	99223	PX	CPT	Any	0.047
DP05	82248	PX	CPT	Any	0.046
DP05	88342	PX	CPT	Often	0.046
DP05	C42	RX	CLASS	Frequent	0.046
DP05	84466	PX	CPT	Any	0.045
DP05	02HV33Z	PX	10	Any	0.044
DP05	A0425	PX	HCPCS	Any	0.044
DP05	97035	PX	CPT	Frequent	0.042
DP05	99238	PX	CPT	Any	0.042
DP05	J44	DX	10	Often	0.042
DP05	99204	PX	CPT	Any	0.041
DP05	C48	RX	CLASS	Any	0.041
DP05	74177	PX	CPT	Any	0.041
DP05	F10	DX	10	Often	0.041
DP05	K74	DX	10	Frequent	0.041
DP05	0WQF0ZZ	PX	10	Any	0.040
DP05	A4385	PX	HCPCS	Any	0.040
DP05	43239	PX	CPT	Any	0.040
DP05	F10	DX	10	Frequent	0.040
DP05	R19	DX	10	Any	0.039
DP05	C1119	RX	CLASS	Frequent	0.039
DP05	A0427	PX	HCPCS	Any	0.039

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Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP05	H0046	PX	HCPCS	Any	0.039
DP05	C215	RX	CLASS	Any	0.039
DP05	99605	PX	CPT	Any	0.039
DP05	G0103	PX	HCPCS	Any	0.039
DP05	C826	RX	CLASS	Any	0.039
DP05	R59	DX	10	Frequent	0.038
DP05	D12	DX	10	Any	0.038
DP05	82728	PX	CPT	Any	0.038
DP05	D12	DX	10	Often	0.037
DP05	C1894	PX	HCPCS	Any	0.037
DP05	K31	DX	10	Any	0.037
DP05	C1132	RX	CLASS	Any	0.037
DP05	J0330	PX	HCPCS	Any	0.036
DP05	99211	PX	CPT	Any	0.036
DP05	72100	PX	CPT	Any	0.036
DP05	D64	DX	10	Frequent	0.036
DP05	L40	DX	10	Often	0.036
DP05	82150	PX	CPT	Any	0.035
DP05	C42	RX	CLASS	Often	0.035
DP05	87081	PX	CPT	Any	0.035
DP05	R73	DX	10	Any	0.034
DP05	R91	DX	10	Any	0.034
DP05	R19	DX	10	Frequent	0.034
DP05	88312	PX	CPT	Any	0.034
DP05	G0500	PX	HCPCS	Any	0.033
DP05	Z68	DX	10	Any	0.032
DP05	H90	DX	10	Any	0.031
DP05	C693	RX	CLASS	Any	0.031
DP05	Z91	DX	10	Frequent	0.031
DP05	G56	DX	10	Frequent	0.031
DP05	J43	DX	10	Frequent	0.031
DP05	H91	DX	10	Any	0.031

Appendix E. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP01	K92	DX	10	Any	0.052
DP01	K92	DX	10	Often	0.043
DP01	D62	DX	10	Any	0.037
DP01	D62	DX	10	Often	0.035
DP01	K92	DX	10	Frequent	0.034
DP01	N18	DX	10	Any	0.033
DP01	N18	DX	10	Often	0.029
DP01	D50	DX	10	Any	0.028
DP01	99223	PX	CPT	Any	0.026
DP01	99306	PX	CPT	Any	0.025
DP01	731	PX	CPT	Any	0.024
DP01	K25	DX	10	Any	0.023
DP01	99308	PX	CPT	Any	0.023
DP01	A0428	PX	HCPCS	Any	0.022
DP01	99309	PX	CPT	Any	0.022
DP01	R11	DX	10	Any	0.021
DP01	D50	DX	10	Often	0.021
DP01	0DJ08ZZ	PX	10	Any	0.021
DP01	30233N1	PX	10	Any	0.020
DP01	0DB68ZX	PX	10	Any	0.020
DP01	99232	PX	CPT	Any	0.019
DP01	R26	DX	10	Any	0.019
DP01	D64	DX	10	Often	0.019
DP01	K25	DX	10	Often	0.018
DP01	D64	DX	10	Any	0.018
DP01	Z91	DX	10	Any	0.018
DP01	D64	DX	10	Frequent	0.017
DP01	D62	DX	10	Frequent	0.017
DP01	N17	DX	10	Any	0.017
DP01	I12	DX	10	Any	0.017
DP01	R06	DX	10	Any	0.016
DP01	R10	DX	10	Any	0.015
DP01	99223	PX	CPT	Often	0.015
DP01	E86	DX	10	Any	0.015
DP01	84100	PX	CPT	Any	0.015
DP01	R29	DX	10	Any	0.015

Appendix E. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP01	K25	DX	10	Frequent	0.015
DP01	M62	DX	10	Any	0.015
DP01	D50	DX	10	Frequent	0.014
DP01	99233	PX	CPT	Any	0.014
DP01	R11	DX	10	Often	0.014
DP01	K21	DX	10	Frequent	0.014
DP01	99222	PX	CPT	Any	0.014
DP01	99285	PX	CPT	Any	0.013
DP01	Z74	DX	10	Frequent	0.013
DP01	74177	PX	CPT	Any	0.013
DP01	99310	PX	CPT	Any	0.013
DP01	74176	PX	CPT	Any	0.013
DP01	R13	DX	10	Any	0.013
DP01	C58	RX	CLASS	Often	0.013
DP01	D04_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.013
DP01	E11	DX	10	Often	0.012
DP01	R26	DX	10	Often	0.012
DP01	88342	PX	CPT	Any	0.012
DP01	A0427	PX	HCPCS	Any	0.012
DP01	43235	PX	CPT	Any	0.012
DP01	F17	DX	10	Any	0.012
DP01	N18	DX	10	Frequent	0.012
DP01	R11	DX	10	Frequent	0.012
DP01	I95	DX	10	Any	0.012
DP01	83970	PX	CPT	Any	0.012
DP01	N17	DX	10	Often	0.012
DP01	J98	DX	10	Frequent	0.011
DP01	E11	DX	10	Any	0.011
DP01	R06	DX	10	Often	0.011
DP01	K29	DX	10	Any	0.011
DP01	G93	DX	10	Often	0.011
DP01	93010	PX	CPT	Any	0.011
DP01	K31	DX	10	Any	0.011
DP01	I12	DX	10	Often	0.011
DP01	A0428	PX	HCPCS	Frequent	0.011
DP01	J44	DX	10	Any	0.011

Appendix E. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP01	B96	DX	10	Any	0.011
DP01	E11	DX	10	Frequent	0.011
DP01	A0425	PX	HCPCS	Frequent	0.011
DP01	99309	PX	CPT	Often	0.010
DP01	R27	DX	10	Any	0.010
DP01	R41	DX	10	Any	0.010
DP01	0W3P8ZZ	PX	10	Any	0.010
DP01	99308	PX	CPT	Frequent	0.010
DP01	76705	PX	CPT	Any	0.010
DP01	71045	PX	CPT	Any	0.010
DP01	J44	DX	10	Often	0.010
DP01	C58	RX	CLASS	Any	0.010
DP01	81001	PX	CPT	Any	0.010
DP01	I48	DX	10	Often	0.010
DP01	K21	DX	10	Often	0.010
DP01	R10	DX	10	Often	0.010
DP01	G93	DX	10	Any	0.010
DP01	F17	DX	10	Often	0.010
DP01	I63	DX	10	Frequent	0.009
DP01	Z79	DX	10	Often	0.009
DP01	84156	PX	CPT	Any	0.009
DP01	Z74	DX	10	Any	0.009
DP01	D04_INT_ALL_Q4	PX	CPT	Q4ServiceInt	0.009
DP01	0DB98ZX	PX	10	Any	0.009
DP01	R07	DX	10	Any	0.009
DP01	93010	PX	CPT	Frequent	0.009
DP01	83880	PX	CPT	Any	0.009
DP01	99291	PX	CPT	Any	0.009
DP02	S9501	PX	HCPCS	Frequent	0.368
DP02	V2304	PX	HCPCS	Any	0.254
DP02	S9501	PX	HCPCS	Often	0.234
DP02	99225	PX	CPT	Any	0.179
DP02	99285	PX	CPT	Any	0.178
DP02	F10	DX	10	Frequent	0.169
DP02	84156	PX	CPT	Any	0.154
DP02	B2111ZZ	PX	10	Any	0.153

Appendix E. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP02	E78	DX	10	Frequent	0.143
DP02	R07	DX	10	Any	0.143
DP02	85379	PX	CPT	Any	0.140
DP02	99239	PX	CPT	Any	0.139
DP02	R18	DX	10	Any	0.133
DP02	D64	DX	10	Any	0.131
DP02	80053	PX	CPT	Any	0.131
DP02	C1010	RX	CLASS	Any	0.129
DP02	A9270	PX	HCPCS	Frequent	0.126
DP02	93010	PX	CPT	Any	0.121
DP02	86140	PX	CPT	Any	0.119
DP02	K92	DX	10	Any	0.118
DP02	85025	PX	CPT	Any	0.117
DP02	77001	PX	CPT	Frequent	0.107
DP02	D03_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.106
DP02	Q9957	PX	HCPCS	Any	0.106
DP02	K29	DX	10	Any	0.103
DP02	I77	DX	10	Any	0.102
DP02	R79	DX	10	Any	0.101
DP02	66984	PX	CPT	Often	0.100
DP02	E86	DX	10	Any	0.098
DP02	K76	DX	10	Any	0.098
DP02	83540	PX	CPT	Any	0.097
DP02	G47	DX	10	Frequent	0.095
DP02	Z79	DX	10	Any	0.092
DP02	N13	DX	10	Frequent	0.092
DP02	A9575	PX	HCPCS	Any	0.091
DP02	J1650	PX	HCPCS	Often	0.089
DP02	R25	DX	10	Frequent	0.089
DP02	E78	DX	10	Any	0.088
DP02	C107	RX	CLASS	Often	0.087
DP02	Z68	DX	10	Any	0.083
DP02	H52	DX	10	Often	0.082
DP02	80053	PX	CPT	Frequent	0.082
DP02	86900	PX	CPT	Any	0.082
DP02	86901	PX	CPT	Any	0.082

Appendix E. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP02	99285	PX	CPT	Frequent	0.081
DP02	83550	PX	CPT	Any	0.081
DP02	66984	PX	CPT	Any	0.080
DP02	92136	PX	CPT	Any	0.079
DP02	86038	PX	CPT	Any	0.079
DP02	87635	PX	CPT	Any	0.079
DP02	C140	RX	CLASS	Often	0.079
DP02	83735	PX	CPT	Frequent	0.078
DP02	81001	PX	CPT	Any	0.078
DP02	G25	DX	10	Any	0.078
DP02	Z88	DX	10	Any	0.078
DP02	C8929	PX	HCPCS	Any	0.077
DP02	86850	PX	CPT	Any	0.077
DP02	74177	PX	CPT	Any	0.077
DP02	R07	DX	10	Often	0.076
DP02	E66	DX	10	Any	0.075
DP02	A9270	PX	HCPCS	Any	0.075
DP02	96160	PX	CPT	Any	0.074
DP02	R74	DX	10	Frequent	0.074
DP02	N63	DX	10	Frequent	0.074
DP02	J2785	PX	HCPCS	Any	0.074
DP02	83690	PX	CPT	Any	0.073
DP02	85014	PX	CPT	Any	0.073
DP02	C1142	RX	CLASS	Frequent	0.072
DP02	83880	PX	CPT	Any	0.071
DP02	B96	DX	10	Any	0.071
DP02	J1650	PX	HCPCS	Any	0.071
DP02	C1894	PX	HCPCS	Any	0.071
DP02	C42	RX	CLASS	Any	0.070
DP02	R10	DX	10	Often	0.069
DP02	R07	DX	10	Frequent	0.069
DP02	I08	DX	10	Any	0.068
DP02	87040	PX	CPT	Any	0.068
DP02	V2103	PX	HCPCS	Any	0.068
DP02	C987	RX	CLASS	Any	0.068
DP02	C140	RX	CLASS	Any	0.067

Appendix E. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP02	I12	DX	10	Frequent	0.067
DP02	D64	DX	10	Often	0.066
DP02	G47	DX	10	Any	0.065
DP02	M16	DX	10	Often	0.065
DP02	E66	DX	10	Frequent	0.064
DP02	F31	DX	10	Any	0.063
DP02	92012	PX	CPT	Any	0.063
DP02	K76	DX	10	Often	0.063
DP02	C107	RX	CLASS	Any	0.062
DP02	C390	RX	CLASS	Frequent	0.062
DP02	A9552	PX	HCPCS	Any	0.062
DP02	C78	DX	10	Frequent	0.062
DP02	C390	RX	CLASS	Often	0.062
DP02	93005	PX	CPT	Any	0.061
DP02	Z68	DX	10	Frequent	0.061
DP02	N63	DX	10	Any	0.061
DP02	Z17	DX	10	Often	0.060
DP02	V2020	PX	HCPCS	Any	0.060
DP02	84439	PX	CPT	Frequent	0.059
DP02	78815	PX	CPT	Any	0.058
DP03	K92	DX	10	Any	0.042
DP03	D64	DX	10	Often	0.034
DP03	D64	DX	10	Any	0.032
DP03	99308	PX	CPT	Often	0.030
DP03	D64	DX	10	Frequent	0.028
DP03	N18	DX	10	Any	0.028
DP03	K92	DX	10	Frequent	0.027
DP03	99308	PX	CPT	Any	0.027
DP03	K92	DX	10	Often	0.026
DP03	99232	PX	CPT	Any	0.026
DP03	99309	PX	CPT	Any	0.025
DP03	N18	DX	10	Often	0.024
DP03	99239	PX	CPT	Any	0.024
DP03	K21	DX	10	Any	0.023
DP03	D50	DX	10	Often	0.023
DP03	99285	PX	CPT	Any	0.023

Appendix E. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP03	99309	PX	CPT	Often	0.023
DP03	M62	DX	10	Any	0.021
DP03	I12	DX	10	Any	0.021
DP03	99223	PX	CPT	Any	0.021
DP03	K21	DX	10	Often	0.021
DP03	99223	PX	CPT	Frequent	0.021
DP03	99232	PX	CPT	Often	0.021
DP03	A0428	PX	HCPCS	Any	0.021
DP03	D50	DX	10	Any	0.020
DP03	731	PX	CPT	Any	0.020
DP03	99308	PX	CPT	Frequent	0.020
DP03	99233	PX	CPT	Any	0.020
DP03	99222	PX	CPT	Any	0.020
DP03	R13	DX	10	Any	0.020
DP03	99309	PX	CPT	Frequent	0.020
DP03	D62	DX	10	Often	0.019
DP03	Z99	DX	10	Any	0.018
DP03	N18	DX	10	Frequent	0.018
DP03	Z79	DX	10	Often	0.018
DP03	D50	DX	10	Frequent	0.018
DP03	C58	RX	CLASS	Often	0.017
DP03	P9016	PX	HCPCS	Any	0.017
DP03	74177	PX	CPT	Any	0.017
DP03	30233N1	PX	10	Any	0.016
DP03	C58	RX	CLASS	Any	0.016
DP03	D62	DX	10	Any	0.016
DP03	Z79	DX	10	Any	0.015
DP03	D06_INT_UNIQ_Q4	PX	HCPCS	Q4ServiceInt	0.015
DP03	R41	DX	10	Any	0.015
DP03	M62	DX	10	Often	0.015
DP03	N17	DX	10	Any	0.014
DP03	A0427	PX	HCPCS	Any	0.014
DP03	J2405	PX	HCPCS	Any	0.014
DP03	G93	DX	10	Any	0.014
DP03	D62	DX	10	Frequent	0.013
DP03	E87	DX	10	Often	0.013

Appendix E. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP03	R11	DX	10	Any	0.013
DP03	K25	DX	10	Any	0.013
DP03	99306	PX	CPT	Any	0.013
DP03	Z79	DX	10	Frequent	0.013
DP03	43235	PX	CPT	Any	0.012
DP03	D06_INT_ALL_Q4	PX	HCPCS	Q4ServiceInt	0.012
DP03	K21	DX	10	Frequent	0.012
DP03	C58	RX	CLASS	Frequent	0.012
DP03	87040	PX	CPT	Any	0.012
DP03	85610	PX	CPT	Any	0.012
DP03	82948	PX	CPT	Any	0.012
DP03	96365	PX	CPT	Frequent	0.012
DP03	C386	RX	CLASS	Frequent	0.012
DP03	R26	DX	10	Any	0.012
DP03	I63	DX	10	Often	0.012
DP03	Q9967	PX	HCPCS	Any	0.011
DP03	96376	PX	CPT	Any	0.011
DP03	0DB68ZX	PX	10	Any	0.011
DP03	96375	PX	CPT	Any	0.011
DP03	B96	DX	10	Any	0.011
DP03	C388	RX	CLASS	Any	0.011
DP03	D03_INT_UNIQ_Q4	RX	CLASS	Q4ServiceInt	0.011
DP03	K44	DX	10	Any	0.011
DP03	71045	PX	CPT	Any	0.011
DP03	85025	PX	CPT	Frequent	0.011
DP03	J96	DX	10	Frequent	0.011
DP03	I12	DX	10	Frequent	0.011
DP03	D72	DX	10	Often	0.011
DP03	G0010	PX	HCPCS	Frequent	0.010
DP03	C386	RX	CLASS	Any	0.010
DP03	I50	DX	10	Frequent	0.010
DP03	Q0092	PX	HCPCS	Any	0.010
DP03	I10	DX	10	Often	0.010
DP03	M62	DX	10	Frequent	0.010
DP03	G93	DX	10	Often	0.010
DP03	G93	DX	10	Frequent	0.010

Appendix E. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP03	5A1D70Z	PX	10	Any	0.010
DP03	G0378	PX	HCPCS	Any	0.010
DP03	I10	DX	10	Any	0.010
DP03	E11	DX	10	Often	0.010
DP03	E83	DX	10	Any	0.010
DP03	99152	PX	CPT	Any	0.010
DP03	J43	DX	10	Any	0.010
DP03	Z51	DX	10	Any	0.010
DP03	I48	DX	10	Often	0.010
DP03	99217	PX	CPT	Any	0.010
DP03	84100	PX	CPT	Any	0.010
DP03	K22	DX	10	Any	0.010
DP04	K92	DX	10	Any	0.042
DP04	D62	DX	10	Any	0.039
DP04	K92	DX	10	Often	0.038
DP04	99223	PX	CPT	Any	0.037
DP04	731	PX	CPT	Any	0.037
DP04	99233	PX	CPT	Any	0.035
DP04	99222	PX	CPT	Any	0.034
DP04	N18	DX	10	Any	0.033
DP04	D64	DX	10	Often	0.031
DP04	N18	DX	10	Often	0.027
DP04	K25	DX	10	Any	0.026
DP04	30233N1	PX	10	Any	0.025
DP04	D64	DX	10	Frequent	0.025
DP04	K92	DX	10	Frequent	0.023
DP04	0DB68ZX	PX	10	Any	0.022
DP04	99232	PX	CPT	Any	0.022
DP04	N17	DX	10	Often	0.021
DP04	R10	DX	10	Any	0.021
DP04	K21	DX	10	Any	0.021
DP04	99285	PX	CPT	Any	0.020
DP04	99239	PX	CPT	Any	0.020
DP04	D64	DX	10	Any	0.020
DP04	0DJ08ZZ	PX	10	Any	0.019
DP04	D50	DX	10	Any	0.018

Appendix E. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP04	I12	DX	10	Any	0.018
DP04	D50	DX	10	Often	0.017
DP04	R11	DX	10	Any	0.017
DP04	D06_INT_UNIQ_Q1	PX	10	Q1ServiceInt	0.017
DP04	D06_INT_ALL_Q1	PX	10	Q1ServiceInt	0.017
DP04	R06	DX	10	Any	0.016
DP04	K25	DX	10	Frequent	0.015
DP04	N18	DX	10	Frequent	0.015
DP04	74177	PX	CPT	Any	0.015
DP04	R13	DX	10	Any	0.015
DP04	I25	DX	10	Often	0.015
DP04	N17	DX	10	Any	0.014
DP04	71045	PX	CPT	Any	0.014
DP04	71045	PX	CPT	Frequent	0.014
DP04	N17	DX	10	Frequent	0.014
DP04	Z79	DX	10	Frequent	0.014
DP04	I25	DX	10	Frequent	0.014
DP04	J96	DX	10	Frequent	0.014
DP04	99232	PX	CPT	Frequent	0.014
DP04	0DB78ZX	PX	10	Any	0.013
DP04	99285	PX	CPT	Frequent	0.013
DP04	I95	DX	10	Any	0.013
DP04	88305	PX	CPT	Any	0.013
DP04	R19	DX	10	Any	0.013
DP04	R06	DX	10	Often	0.013
DP04	K21	DX	10	Frequent	0.013
DP04	R10	DX	10	Often	0.013
DP04	93010	PX	CPT	Any	0.013
DP04	J44	DX	10	Often	0.012
DP04	J44	DX	10	Any	0.012
DP04	74176	PX	CPT	Any	0.012
DP04	C1097	RX	CLASS	Any	0.012
DP04	Q9967	PX	HCPCS	Any	0.012
DP04	99223	PX	CPT	Frequent	0.011
DP04	0DH63UZ	PX	10	Any	0.011
DP04	R10	DX	10	Frequent	0.011

Appendix E. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP04	I69	DX	10	Any	0.011
DP04	99233	PX	CPT	Frequent	0.011
DP04	96375	PX	CPT	Frequent	0.011
DP04	D04_INT_ALL_Q4	PX	CPT	Q4ServiceInt	0.011
DP04	A41	DX	10	Any	0.011
DP04	K74	DX	10	Any	0.011
DP04	C58	RX	CLASS	Frequent	0.011
DP04	K29	DX	10	Any	0.011
DP04	I69	DX	10	Often	0.010
DP04	3E0G76Z	PX	10	Any	0.010
DP04	0DB98ZX	PX	10	Any	0.010
DP04	I63	DX	10	Often	0.010
DP04	D50	DX	10	Frequent	0.010
DP04	83690	PX	CPT	Any	0.010
DP04	G93	DX	10	Often	0.010
DP04	84156	PX	CPT	Any	0.010
DP04	R13	DX	10	Often	0.010
DP04	G0378	PX	HCPCS	Any	0.010
DP04	C58	RX	CLASS	Often	0.010
DP04	D62	DX	10	Frequent	0.010
DP04	I12	DX	10	Often	0.010
DP04	I69	DX	10	Frequent	0.010
DP04	88342	PX	CPT	Any	0.010
DP04	K74	DX	10	Often	0.010
DP04	E87	DX	10	Frequent	0.010
DP04	D03_INT_UNIQ_Q4	RX	CLASS	Q4ServiceInt	0.010
DP04	I25	DX	10	Any	0.010
DP04	J18	DX	10	Any	0.010
DP04	99309	PX	CPT	Any	0.010
DP04	D06_INT_ALL_Q3	PX	10	Q3ServiceInt	0.010
DP04	I63	DX	10	Any	0.010
DP04	K57	DX	10	Any	0.009
DP04	99308	PX	CPT	Any	0.009
DP04	R53	DX	10	Any	0.009
DP04	K31	DX	10	Frequent	0.009
DP04	84100	PX	CPT	Any	0.009

Appendix E. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP04	96375	PX	CPT	Any	0.009
DP04	G93	DX	10	Frequent	0.009
DP04	96376	PX	CPT	Any	0.009
DP04	99291	PX	CPT	Any	0.009
DP05	73560	PX	CPT	Any	0.342
DP05	99309	PX	CPT	Frequent	0.334
DP05	D63	DX	10	Often	0.303
DP05	E43	DX	10	Any	0.266
DP05	C782	RX	CLASS	Any	0.249
DP05	99316	PX	CPT	Any	0.248
DP05	D64	DX	10	Any	0.246
DP05	G0157	PX	HCPCS	Any	0.230
DP05	B96	DX	10	Frequent	0.228
DP05	99231	PX	CPT	Any	0.227
DP05	J81	DX	10	Any	0.214
DP05	Z68	DX	10	Frequent	0.204
DP05	76770	PX	CPT	Any	0.203
DP05	E11	DX	10	Often	0.200
DP05	A41	DX	10	Any	0.199
DP05	D63	DX	10	Any	0.199
DP05	85060	PX	CPT	Any	0.197
DP05	R49	DX	10	Any	0.195
DP05	82962	PX	CPT	Any	0.192
DP05	I13	DX	10	Often	0.192
DP05	73502	PX	CPT	Frequent	0.190
DP05	81001	PX	CPT	Frequent	0.185
DP05	C1033	RX	CLASS	Frequent	0.184
DP05	C1033	RX	CLASS	Often	0.182
DP05	R13	DX	10	Frequent	0.180
DP05	K21	DX	10	Frequent	0.177
DP05	73560	PX	CPT	Often	0.176
DP05	M48	DX	10	Any	0.175
DP05	E11	DX	10	Frequent	0.171
DP05	I34	DX	10	Frequent	0.167
DP05	G0299	PX	HCPCS	Frequent	0.167
DP05	G0299	PX	HCPCS	Often	0.167

Appendix E. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP05	R13	DX	10	Any	0.164
DP05	I12	DX	10	Any	0.163
DP05	86140	PX	CPT	Any	0.161
DP05	N18	DX	10	Often	0.160
DP05	M51	DX	10	Often	0.159
DP05	R52	DX	10	Frequent	0.157
DP05	99239	PX	CPT	Frequent	0.156
DP05	74176	PX	CPT	Any	0.151
DP05	C487	RX	CLASS	Any	0.149
DP05	G93	DX	10	Frequent	0.147
DP05	71250	PX	CPT	Any	0.147
DP05	G93	DX	10	Often	0.145
DP05	J1885	PX	HCPCS	Any	0.145
DP05	C825	RX	CLASS	Any	0.143
DP05	J3475	PX	HCPCS	Any	0.142
DP05	L03	DX	10	Frequent	0.142
DP05	K74	DX	10	Often	0.141
DP05	M48	DX	10	Often	0.141
DP05	Y92	DX	10	Any	0.138
DP05	88112	PX	CPT	Frequent	0.138
DP05	C1033	RX	CLASS	Any	0.137
DP05	H01	DX	10	Any	0.135
DP05	J1650	PX	HCPCS	Any	0.134
DP05	R50	DX	10	Frequent	0.134
DP05	R74	DX	10	Frequent	0.134
DP05	E44	DX	10	Any	0.130
DP05	A0425	PX	HCPCS	Frequent	0.130
DP05	Z79	DX	10	Frequent	0.130
DP05	99284	PX	CPT	Frequent	0.129
DP05	H01	DX	10	Often	0.128
DP05	99310	PX	CPT	Any	0.124
DP05	009U3ZX	PX	10	Any	0.123
DP05	D03_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.123
DP05	G0300	PX	HCPCS	Any	0.123
DP05	C829	RX	CLASS	Any	0.122
DP05	Z72	DX	10	Any	0.122

Appendix E. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP05	E46	DX	10	Frequent	0.119
DP05	M54	DX	10	Frequent	0.118
DP05	85025	PX	CPT	Any	0.118
DP05	G89	DX	10	Frequent	0.118
DP05	99222	PX	CPT	Any	0.117
DP05	R22	DX	10	Any	0.117
DP05	83735	PX	CPT	Any	0.116
DP05	E66	DX	10	Frequent	0.116
DP05	Z68	DX	10	Any	0.115
DP05	99232	PX	CPT	Frequent	0.114
DP05	R53	DX	10	Often	0.113
DP05	87086	PX	CPT	Any	0.112
DP05	C822	RX	CLASS	Any	0.112
DP05	A41	DX	10	Frequent	0.111
DP05	D69	DX	10	Frequent	0.111
DP05	K74	DX	10	Any	0.110
DP05	C713	RX	CLASS	Any	0.110
DP05	H02	DX	10	Any	0.109
DP05	731	PX	CPT	Any	0.107
DP05	R47	DX	10	Any	0.107
DP05	02HV33Z	PX	10	Any	0.106
DP05	R32	DX	10	Any	0.106
DP05	I50	DX	10	Frequent	0.106
DP05	M62	DX	10	Any	0.105
DP05	A0427	PX	HCPCS	Any	0.105
DP05	93308	PX	CPT	Any	0.105
DP05	N39	DX	10	Any	0.105
DP05	M51	DX	10	Any	0.104
DP05	C42	RX	CLASS	Any	0.104
DP05	R18	DX	10	Any	0.104
DP05	80053	PX	CPT	Frequent	0.103
DP05	I10	DX	10	Frequent	0.103

Appendix F. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP01	K92	DX	10	Any	0.052
DP01	99223	PX	CPT	Any	0.038
DP01	99222	PX	CPT	Any	0.038
DP01	K92	DX	10	Often	0.037
DP01	99232	PX	CPT	Any	0.035
DP01	D62	DX	10	Any	0.032
DP01	99285	PX	CPT	Any	0.032
DP01	D50	DX	10	Any	0.031
DP01	731	PX	CPT	Any	0.031
DP01	99233	PX	CPT	Any	0.028
DP01	D02_INT_ALL_Q4	DX	10	Q4ServiceInt	0.028
DP01	71045	PX	CPT	Any	0.027
DP01	D64	DX	10	Often	0.026
DP01	Z79	DX	10	Often	0.026
DP01	D64	DX	10	Any	0.026
DP01	D02_INT_UNIQ_Q4	DX	10	Q4ServiceInt	0.025
DP01	K92	DX	10	Frequent	0.025
DP01	D50	DX	10	Often	0.025
DP01	99285	PX	CPT	Often	0.024
DP01	99223	PX	CPT	Often	0.023
DP01	R06	DX	10	Any	0.023
DP01	N17	DX	10	Any	0.022
DP01	R06	DX	10	Often	0.022
DP01	93010	PX	CPT	Any	0.021
DP01	99232	PX	CPT	Often	0.021
DP01	D62	DX	10	Often	0.021
DP01	N18	DX	10	Any	0.020
DP01	99233	PX	CPT	Often	0.020
DP01	Z79	DX	10	Frequent	0.020
DP01	D64	DX	10	Frequent	0.020
DP01	R06	DX	10	Frequent	0.019
DP01	71045	PX	CPT	Often	0.019
DP01	93010	PX	CPT	Frequent	0.019
DP01	I48	DX	10	Often	0.019
DP01	K21	DX	10	Frequent	0.018
DP01	99222	PX	CPT	Frequent	0.018

Appendix F. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP01	K21	DX	10	Any	0.018
DP01	99291	PX	CPT	Any	0.017
DP01	N18	DX	10	Often	0.017
DP01	I25	DX	10	Often	0.017
DP01	99231	PX	CPT	Any	0.017
DP01	A0425	PX	HCPCS	Any	0.017
DP01	Z79	DX	10	Any	0.017
DP01	74177	PX	CPT	Any	0.017
DP01	K21	DX	10	Often	0.016
DP01	Z87	DX	10	Often	0.016
DP01	Z87	DX	10	Any	0.016
DP01	Z95	DX	10	Any	0.016
DP01	0DB68ZX	PX	10	Any	0.016
DP01	R26	DX	10	Any	0.016
DP01	K25	DX	10	Any	0.016
DP01	R10	DX	10	Any	0.016
DP01	D05_INT_UNIQ_Q2	PX	10	Q2ServiceInt	0.015
DP01	A0427	PX	HCPCS	Any	0.015
DP01	I25	DX	10	Any	0.015
DP01	D05_INT_ALL_Q2	PX	10	Q2ServiceInt	0.015
DP01	I48	DX	10	Frequent	0.015
DP01	I50	DX	10	Often	0.014
DP01	71045	PX	CPT	Frequent	0.014
DP01	Z20	DX	10	Any	0.014
DP01	A41	DX	10	Any	0.014
DP01	85025	PX	CPT	Frequent	0.014
DP01	I12	DX	10	Any	0.014
DP01	Z87	DX	10	Frequent	0.013
DP01	74176	PX	CPT	Any	0.013
DP01	I48	DX	10	Any	0.013
DP01	F03	DX	10	Any	0.013
DP01	R11	DX	10	Any	0.013
DP01	K44	DX	10	Any	0.013
DP01	N17	DX	10	Often	0.013
DP01	99239	PX	CPT	Any	0.013
DP01	D06_INT_UNIQ_Q4	PX	HCPCS	Q4ServiceInt	0.013

Appendix F. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP01	J44	DX	10	Any	0.013
DP01	99223	PX	CPT	Frequent	0.013
DP01	83880	PX	CPT	Any	0.013
DP01	Z95	DX	10	Often	0.013
DP01	J90	DX	10	Any	0.013
DP01	93306	PX	CPT	Any	0.013
DP01	Z20	DX	10	Often	0.012
DP01	J44	DX	10	Frequent	0.012
DP01	0DJ08ZZ	PX	10	Any	0.012
DP01	R10	DX	10	Often	0.012
DP01	D04_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.012
DP01	J96	DX	10	Any	0.012
DP01	J98	DX	10	Any	0.012
DP01	99232	PX	CPT	Frequent	0.012
DP01	E86	DX	10	Any	0.012
DP01	P9016	PX	HCPCS	Any	0.012
DP01	99309	PX	CPT	Any	0.011
DP01	G0378	PX	HCPCS	Any	0.011
DP01	K29	DX	10	Any	0.011
DP01	J44	DX	10	Often	0.011
DP01	R11	DX	10	Often	0.011
DP01	K31	DX	10	Any	0.011
DP01	E87	DX	10	Any	0.011
DP01	93005	PX	CPT	Any	0.011
DP01	B96	DX	10	Any	0.011
DP01	84484	PX	CPT	Any	0.011
DP01	85610	PX	CPT	Any	0.011
DP01	A0428	PX	HCPCS	Any	0.011
DP02	K22	DX	10	Often	0.169
DP02	K22	DX	10	Frequent	0.167
DP02	K22	DX	10	Any	0.162
DP02	D01_INT_UNIQ_Q4	DX	10	Q4ServiceInt	0.161
DP02	D64	DX	10	Any	0.156
DP02	99233	PX	CPT	Any	0.141
DP02	D62	DX	10	Any	0.127
DP02	99239	PX	CPT	Any	0.122

Appendix F. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP02	D01_INT_ALL_Q4	DX	10	Q4ServiceInt	0.119
DP02	30233N1	PX	10	Any	0.113
DP02	G0452	PX	HCPCS	Any	0.112
DP02	C172	RX	CLASS	Frequent	0.109
DP02	B35	DX	10	Often	0.108
DP02	99284	PX	CPT	Any	0.107
DP02	D03_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.107
DP02	Z79	DX	10	Any	0.107
DP02	K92	DX	10	Any	0.105
DP02	D50	DX	10	Any	0.102
DP02	U0003	PX	HCPCS	Any	0.101
DP02	E66	DX	10	Any	0.095
DP02	71260	PX	CPT	Any	0.095
DP02	0UT20ZZ	PX	10	Any	0.094
DP02	0UT70ZZ	PX	10	Any	0.094
DP02	B35	DX	10	Any	0.093
DP02	85025	PX	CPT	Frequent	0.093
DP02	71045	PX	CPT	Any	0.092
DP02	99072	PX	CPT	Frequent	0.092
DP02	F10	DX	10	Frequent	0.090
DP02	N17	DX	10	Any	0.089
DP02	99285	PX	CPT	Any	0.088
DP02	D05_INT_ALL_Q4	PX	HCPCS	Q4ServiceInt	0.088
DP02	Z20	DX	10	Any	0.085
DP02	M62	DX	10	Any	0.084
DP02	99291	PX	CPT	Any	0.084
DP02	K83	DX	10	Frequent	0.083
DP02	D05_INT_UNIQ_Q4	PX	HCPCS	Q4ServiceInt	0.083
DP02	C1894	PX	HCPCS	Any	0.083
DP02	D64	DX	10	Often	0.082
DP02	Z79	DX	10	Often	0.082
DP02	W19	DX	10	Frequent	0.080
DP02	E66	DX	10	Frequent	0.079
DP02	A4565	PX	HCPCS	Any	0.077
DP02	G0482	PX	HCPCS	Any	0.077
DP02	I27	DX	10	Any	0.077

Appendix F. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP02	80053	PX	CPT	Frequent	0.076
DP02	K21	DX	10	Frequent	0.075
DP02	R53	DX	10	Any	0.075
DP02	88342	PX	CPT	Any	0.075
DP02	43239	PX	CPT	Any	0.074
DP02	74177	PX	CPT	Any	0.074
DP02	K86	DX	10	Any	0.074
DP02	G0378	PX	HCPCS	Any	0.072
DP02	U0005	PX	HCPCS	Any	0.072
DP02	A41	DX	10	Any	0.072
DP02	88307	PX	CPT	Any	0.072
DP02	99222	PX	CPT	Any	0.071
DP02	K44	DX	10	Any	0.070
DP02	K83	DX	10	Any	0.069
DP02	99232	PX	CPT	Any	0.068
DP02	99306	PX	CPT	Any	0.067
DP02	Z68	DX	10	Any	0.067
DP02	Z20	DX	10	Often	0.065
DP02	99358	PX	CPT	Any	0.064
DP02	G0127	PX	HCPCS	Any	0.064
DP02	85025	PX	CPT	Any	0.063
DP02	Z68	DX	10	Frequent	0.063
DP02	Q9967	PX	HCPCS	Any	0.062
DP02	82962	PX	CPT	Any	0.060
DP02	71045	PX	CPT	Often	0.059
DP02	83605	PX	CPT	Any	0.059
DP02	99309	PX	CPT	Any	0.059
DP02	K83	DX	10	Often	0.059
DP02	E11	DX	10	Frequent	0.059
DP02	Z48	DX	10	Frequent	0.059
DP02	F10	DX	10	Any	0.058
DP02	C806	RX	CLASS	Any	0.058
DP02	97530	PX	CPT	Any	0.058
DP02	G89	DX	10	Frequent	0.057
DP02	C713	RX	CLASS	Frequent	0.057
DP02	G47	DX	10	Any	0.057

Appendix F. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP02	K92	DX	10	Often	0.057
DP02	C806	RX	CLASS	Often	0.056
DP02	731	PX	CPT	Any	0.056
DP02	C806	RX	CLASS	Frequent	0.056
DP02	04V03EZ	PX	10	Any	0.056
DP02	0DBU0ZZ	PX	10	Any	0.056
DP02	0UT90ZZ	PX	10	Any	0.056
DP02	C1085	RX	CLASS	Any	0.056
DP02	C581	RX	CLASS	Any	0.056
DP02	J9271	PX	HCPCS	Often	0.056
DP02	C1085	RX	CLASS	Often	0.056
DP02	C545	RX	CLASS	Often	0.056
DP02	N17	DX	10	Often	0.055
DP02	99072	PX	CPT	Often	0.055
DP02	99223	PX	CPT	Any	0.055
DP02	D03_INT_ALL_Q4	PX	CPT	Q4ServiceInt	0.055
DP02	J2001	PX	HCPCS	Any	0.054
DP02	G47	DX	10	Often	0.054
DP02	R10	DX	10	Any	0.053
DP02	J0696	PX	HCPCS	Any	0.053
DP03	K92	DX	10	Any	0.059
DP03	99233	PX	CPT	Any	0.054
DP03	99222	PX	CPT	Any	0.053
DP03	99232	PX	CPT	Any	0.052
DP03	99223	PX	CPT	Any	0.052
DP03	K92	DX	10	Often	0.052
DP03	99232	PX	CPT	Often	0.045
DP03	D64	DX	10	Often	0.043
DP03	99239	PX	CPT	Any	0.043
DP03	D62	DX	10	Any	0.040
DP03	D64	DX	10	Any	0.038
DP03	99233	PX	CPT	Often	0.038
DP03	D02_INT_ALL_Q4	DX	10	Q4ServiceInt	0.036
DP03	D50	DX	10	Often	0.033
DP03	D04_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.032
DP03	99222	PX	CPT	Frequent	0.032

Appendix F. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP03	93010	PX	CPT	Frequent	0.032
DP03	K92	DX	10	Frequent	0.032
DP03	0DB68ZX	PX	10	Any	0.032
DP03	99231	PX	CPT	Any	0.031
DP03	74176	PX	CPT	Any	0.031
DP03	99223	PX	CPT	Often	0.030
DP03	71045	PX	CPT	Any	0.029
DP03	A0425	PX	HCPCS	Frequent	0.029
DP03	D50	DX	10	Any	0.029
DP03	D02_INT_UNIQ_Q4	DX	10	Q4ServiceInt	0.028
DP03	N17	DX	10	Any	0.028
DP03	99232	PX	CPT	Frequent	0.028
DP03	731	PX	CPT	Any	0.028
DP03	99285	PX	CPT	Any	0.026
DP03	D64	DX	10	Frequent	0.026
DP03	99285	PX	CPT	Frequent	0.024
DP03	D04_INT_ALL_Q4	PX	CPT	Q4ServiceInt	0.024
DP03	D62	DX	10	Often	0.024
DP03	A0425	PX	HCPCS	Any	0.024
DP03	D06_INT_UNIQ_Q4	PX	HCPCS	Q4ServiceInt	0.024
DP03	K21	DX	10	Any	0.024
DP03	71045	PX	CPT	Frequent	0.023
DP03	99233	PX	CPT	Frequent	0.023
DP03	D06_INT_ALL_Q4	PX	HCPCS	Q4ServiceInt	0.021
DP03	J44	DX	10	Often	0.020
DP03	99238	PX	CPT	Any	0.020
DP03	J90	DX	10	Any	0.020
DP03	74177	PX	CPT	Any	0.020
DP03	99223	PX	CPT	Frequent	0.019
DP03	R53	DX	10	Often	0.019
DP03	E87	DX	10	Often	0.019
DP03	J44	DX	10	Frequent	0.019
DP03	E44	DX	10	Any	0.019
DP03	K21	DX	10	Often	0.018
DP03	93010	PX	CPT	Any	0.018
DP03	K25	DX	10	Often	0.018

Appendix F. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP03	N17	DX	10	Often	0.018
DP03	A0429	PX	HCPCS	Any	0.018
DP03	731	PX	CPT	Frequent	0.018
DP03	71045	PX	CPT	Often	0.018
DP03	K25	DX	10	Any	0.018
DP03	30233N1	PX	10	Any	0.018
DP03	J44	DX	10	Any	0.017
DP03	P9016	PX	HCPCS	Any	0.017
DP03	E87	DX	10	Any	0.017
DP03	D04_INT_UNIQ_Q1	PX	CPT	Q1ServiceInt	0.016
DP03	D02_INT_UNIQ_Q1	DX	10	Q1ServiceInt	0.015
DP03	A0428	PX	HCPCS	Any	0.015
DP03	D50	DX	10	Frequent	0.015
DP03	I95	DX	10	Any	0.015
DP03	I10	DX	10	Often	0.015
DP03	99308	PX	CPT	Any	0.014
DP03	R53	DX	10	Frequent	0.014
DP03	J96	DX	10	Any	0.014
DP03	99306	PX	CPT	Any	0.014
DP03	D05_INT_ALL_Q4	PX	10	Q4ServiceInt	0.014
DP03	Z87	DX	10	Any	0.013
DP03	D05_INT_UNIQ_Q3	PX	10	Q3ServiceInt	0.013
DP03	K25	DX	10	Frequent	0.013
DP03	K29	DX	10	Any	0.013
DP03	80048	PX	CPT	Any	0.013
DP03	99309	PX	CPT	Any	0.012
DP03	Z79	DX	10	Any	0.012
DP03	D05_INT_UNIQ_Q4	PX	10	Q4ServiceInt	0.012
DP03	I50	DX	10	Any	0.012
DP03	85025	PX	CPT	Frequent	0.012
DP03	N17	DX	10	Frequent	0.012
DP03	Z87	DX	10	Often	0.012
DP03	D05_INT_ALL_Q3	PX	10	Q3ServiceInt	0.012
DP03	J43	DX	10	Any	0.012
DP03	71275	PX	CPT	Any	0.012
DP03	99221	PX	CPT	Any	0.012

Appendix F. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP03	D02_INT_ALL_Q1	DX	10	Q1ServiceInt	0.012
DP03	D72	DX	10	Any	0.012
DP03	99305	PX	CPT	Any	0.012
DP03	E1390	PX	HCPCS	Any	0.012
DP03	W19	DX	10	Any	0.012
DP03	71250	PX	CPT	Any	0.011
DP03	R91	DX	10	Any	0.011
DP03	E11	DX	10	Often	0.011
DP03	0DJD8ZZ	PX	10	Any	0.011
DP03	0DB98ZX	PX	10	Any	0.011
DP03	86850	PX	CPT	Any	0.011
DP03	99335	PX	CPT	Any	0.011
DP04	99232	PX	CPT	Any	0.055
DP04	99233	PX	CPT	Any	0.052
DP04	99223	PX	CPT	Any	0.049
DP04	99222	PX	CPT	Any	0.046
DP04	K92	DX	10	Any	0.038
DP04	71045	PX	CPT	Any	0.038
DP04	K92	DX	10	Often	0.038
DP04	99232	PX	CPT	Frequent	0.036
DP04	99239	PX	CPT	Any	0.034
DP04	A0425	PX	HCPCS	Any	0.034
DP04	93010	PX	CPT	Any	0.033
DP04	99285	PX	CPT	Any	0.032
DP04	D02_INT_UNIQ_Q4	DX	10	Q4ServiceInt	0.032
DP04	D64	DX	10	Often	0.031
DP04	D62	DX	10	Any	0.028
DP04	N17	DX	10	Any	0.028
DP04	93010	PX	CPT	Frequent	0.027
DP04	D02_INT_ALL_Q4	DX	10	Q4ServiceInt	0.026
DP04	99233	PX	CPT	Frequent	0.026
DP04	A0427	PX	HCPCS	Any	0.025
DP04	731	PX	CPT	Any	0.025
DP04	D64	DX	10	Any	0.025
DP04	I50	DX	10	Any	0.024
DP04	0DB68ZX	PX	10	Any	0.024

Appendix F. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP04	R11	DX	10	Any	0.024
DP04	D07_INT_ALL_Q4	PX	HCPCS	Q4ServiceInt	0.024
DP04	D50	DX	10	Any	0.023
DP04	0DJ08ZZ	PX	10	Any	0.023
DP04	J44	DX	10	Often	0.023
DP04	J98	DX	10	Any	0.023
DP04	D64	DX	10	Frequent	0.022
DP04	I48	DX	10	Any	0.021
DP04	99231	PX	CPT	Any	0.021
DP04	I48	DX	10	Often	0.021
DP04	I50	DX	10	Often	0.021
DP04	D04_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.020
DP04	71045	PX	CPT	Frequent	0.020
DP04	N17	DX	10	Often	0.020
DP04	99291	PX	CPT	Any	0.020
DP04	74176	PX	CPT	Any	0.020
DP04	K92	DX	10	Frequent	0.020
DP04	99285	PX	CPT	Frequent	0.020
DP04	85025	PX	CPT	Frequent	0.019
DP04	R91	DX	10	Any	0.019
DP04	99223	PX	CPT	Frequent	0.018
DP04	I48	DX	10	Frequent	0.018
DP04	E87	DX	10	Any	0.018
DP04	J90	DX	10	Any	0.018
DP04	J44	DX	10	Any	0.017
DP04	D50	DX	10	Often	0.017
DP04	Z79	DX	10	Often	0.017
DP04	99221	PX	CPT	Any	0.016
DP04	I50	DX	10	Frequent	0.016
DP04	J18	DX	10	Any	0.016
DP04	N17	DX	10	Frequent	0.016
DP04	43235	PX	CPT	Any	0.015
DP04	A0425	PX	HCPCS	Frequent	0.015
DP04	I25	DX	10	Frequent	0.015
DP04	D07_INT_UNIQ_Q4	PX	HCPCS	Q4ServiceInt	0.015
DP04	K21	DX	10	Any	0.015

Appendix F. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP04	Z20	DX	10	Any	0.015
DP04	I95	DX	10	Any	0.014
DP04	J90	DX	10	Frequent	0.014
DP04	Z74	DX	10	Any	0.014
DP04	88342	PX	CPT	Any	0.014
DP04	I25	DX	10	Often	0.014
DP04	D04_INT_ALL_Q4	PX	CPT	Q4ServiceInt	0.014
DP04	R13	DX	10	Any	0.014
DP04	D06_INT_UNIQ_Q2	PX	10	Q2ServiceInt	0.014
DP04	R06	DX	10	Any	0.014
DP04	96365	PX	CPT	Any	0.014
DP04	D06_INT_ALL_Q2	PX	10	Q2ServiceInt	0.014
DP04	74177	PX	CPT	Any	0.013
DP04	Z79	DX	10	Frequent	0.013
DP04	74018	PX	CPT	Any	0.013
DP04	80053	PX	CPT	Frequent	0.013
DP04	I25	DX	10	Any	0.013
DP04	K25	DX	10	Any	0.013
DP04	K22	DX	10	Frequent	0.013
DP04	E87	DX	10	Often	0.013
DP04	K80	DX	10	Any	0.013
DP04	0DJD8ZZ	PX	10	Any	0.013
DP04	K29	DX	10	Any	0.012
DP04	R10	DX	10	Any	0.012
DP04	E86	DX	10	Any	0.012
DP04	J44	DX	10	Frequent	0.012
DP04	K31	DX	10	Any	0.012
DP04	93306	PX	CPT	Any	0.012
DP04	Z79	DX	10	Any	0.012
DP04	K29	DX	10	Often	0.012
DP04	D02_INT_UNIQ_Q1	DX	10	Q1ServiceInt	0.011
DP04	D03_INT_UNIQ_Q4	RX	CLASS	Q4ServiceInt	0.011
DP04	99284	PX	CPT	Any	0.011
DP04	R53	DX	10	Frequent	0.011
DP04	J96	DX	10	Any	0.011
DP04	J18	DX	10	Often	0.011

Appendix F. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP04	D07_INT_UNIQ_Q1	PX	HCPCS	Q1ServiceInt	0.011
DP04	R53	DX	10	Any	0.011
DP04	96375	PX	CPT	Frequent	0.011
DP04	A41	DX	10	Any	0.011
DP05	V2303	PX	HCPCS	Any	0.284
DP05	A4565	PX	HCPCS	Any	0.203
DP05	C384	RX	CLASS	Often	0.193
DP05	80069	PX	CPT	Frequent	0.167
DP05	L03	DX	10	Any	0.155
DP05	C587	RX	CLASS	Any	0.150
DP05	C150	RX	CLASS	Often	0.150
DP05	C150	RX	CLASS	Any	0.148
DP05	99215	PX	CPT	Frequent	0.147
DP05	93970	PX	CPT	Frequent	0.146
DP05	M15	DX	10	Frequent	0.146
DP05	G0152	PX	HCPCS	Frequent	0.144
DP05	Z95	DX	10	Often	0.142
DP05	99308	PX	CPT	Any	0.136
DP05	99490	PX	CPT	Any	0.134
DP05	Z87	DX	10	Any	0.130
DP05	L97	DX	10	Often	0.127
DP05	Z87	DX	10	Frequent	0.124
DP05	93971	PX	CPT	Any	0.124
DP05	99100	PX	CPT	Any	0.123
DP05	D01_INT_ALL_Q4	DX	10	Q4ServiceInt	0.122
DP05	E0156	PX	HCPCS	Any	0.122
DP05	C384	RX	CLASS	Any	0.121
DP05	D12	DX	10	Frequent	0.119
DP05	R77	DX	10	Any	0.116
DP05	99337	PX	CPT	Frequent	0.115
DP05	T4527	PX	HCPCS	Often	0.115
DP05	D72	DX	10	Any	0.113
DP05	R13	DX	10	Frequent	0.112
DP05	Z87	DX	10	Often	0.111
DP05	M15	DX	10	Often	0.110
DP05	90785	PX	CPT	Frequent	0.108

Appendix F. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP05	93296	PX	CPT	Any	0.107
DP05	11721	PX	CPT	Often	0.106
DP05	Q0092	PX	HCPCS	Any	0.106
DP05	Z51	DX	10	Any	0.105
DP05	I82	DX	10	Any	0.101
DP05	N39	DX	10	Frequent	0.101
DP05	99337	PX	CPT	Any	0.101
DP05	142	PX	CPT	Any	0.101
DP05	1126F	PX	CPT	Any	0.100
DP05	99225	PX	CPT	Any	0.099
DP05	D63	DX	10	Frequent	0.099
DP05	99222	PX	CPT	Any	0.097
DP05	E66	DX	10	Frequent	0.097
DP05	76942	PX	CPT	Any	0.095
DP05	S5170	PX	HCPCS	Any	0.095
DP05	C61	DX	10	Frequent	0.095
DP05	M15	DX	10	Any	0.095
DP05	G0153	PX	HCPCS	Any	0.090
DP05	H0046	PX	HCPCS	Any	0.089
DP05	G30	DX	10	Frequent	0.089
DP05	C384	RX	CLASS	Frequent	0.088
DP05	99232	PX	CPT	Frequent	0.088
DP05	99239	PX	CPT	Frequent	0.087
DP05	R97	DX	10	Frequent	0.086
DP05	R97	DX	10	Often	0.086
DP05	L97	DX	10	Any	0.083
DP05	K59	DX	10	Frequent	0.083
DP05	M19	DX	10	Any	0.082
DP05	99309	PX	CPT	Any	0.081
DP05	S5170	PX	HCPCS	Often	0.081
DP05	M79	DX	10	Often	0.081
DP05	Z90	DX	10	Frequent	0.080
DP05	G30	DX	10	Often	0.080
DP05	99309	PX	CPT	Frequent	0.080
DP05	99337	PX	CPT	Often	0.079
DP05	R97	DX	10	Any	0.078

Appendix F. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP05	R09	DX	10	Frequent	0.077
DP05	Z02	DX	10	Frequent	0.077
DP05	A9552	PX	HCPCS	Any	0.077
DP05	I49	DX	10	Any	0.077
DP05	Q9967	PX	HCPCS	Any	0.076
DP05	Z51	DX	10	Frequent	0.075
DP05	G62	DX	10	Any	0.075
DP05	L03	DX	10	Often	0.075
DP05	M79	DX	10	Any	0.075
DP05	11720	PX	CPT	Any	0.073
DP05	99233	PX	CPT	Frequent	0.073
DP05	P9603	PX	HCPCS	Any	0.073
DP05	I26	DX	10	Often	0.073
DP05	I11	DX	10	Any	0.072
DP05	C1189	RX	CLASS	Often	0.072
DP05	F33	DX	10	Any	0.072
DP05	I73	DX	10	Often	0.072
DP05	F32	DX	10	Often	0.071
DP05	N39	DX	10	Any	0.071
DP05	R60	DX	10	Any	0.070
DP05	99232	PX	CPT	Any	0.070
DP05	D01_INT_UNIQ_Q4	DX	10	Q4ServiceInt	0.070
DP05	76376	PX	CPT	Any	0.070
DP05	1170F	PX	CPT	Any	0.070
DP05	99308	PX	CPT	Frequent	0.068
DP05	R0070	PX	HCPCS	Any	0.068
DP05	I47	DX	10	Frequent	0.068
DP05	I73	DX	10	Any	0.068
DP05	J44	DX	10	Any	0.068
DP05	5A09357	PX	10	Any	0.067
DP05	Z92	DX	10	Frequent	0.067
DP05	S9129	PX	HCPCS	Often	0.067

Appendix G. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP01	N18	DX	10	Any	0.061
DP01	Z99	DX	10	Often	0.057
DP01	N17	DX	10	Any	0.056
DP01	0J2TXYZ	PX	10	Any	0.055
DP01	N18	DX	10	Often	0.053
DP01	D63	DX	10	Any	0.050
DP01	93010	PX	CPT	Frequent	0.049
DP01	N18	DX	10	Frequent	0.049
DP01	E87	DX	10	Often	0.048
DP01	D04_INT_ALL_Q4	PX	CPT	Q4ServiceInt	0.047
DP01	E87	DX	10	Any	0.046
DP01	81001	PX	CPT	Frequent	0.046
DP01	99233	PX	CPT	Frequent	0.046
DP01	Z99	DX	10	Frequent	0.043
DP01	Z99	DX	10	Any	0.043
DP01	I13	DX	10	Any	0.043
DP01	99285	PX	CPT	Frequent	0.043
DP01	E87	DX	10	Frequent	0.042
DP01	99233	PX	CPT	Any	0.042
DP01	A0425	PX	HCPCS	Any	0.041
DP01	90999	PX	CPT	Any	0.041
DP01	99233	PX	CPT	Often	0.040
DP01	I12	DX	10	Any	0.040
DP01	D02_INT_UNIQ_Q4	DX	10	Q4ServiceInt	0.040
DP01	99285	PX	CPT	Often	0.040
DP01	A0425	PX	HCPCS	Frequent	0.040
DP01	71045	PX	CPT	Often	0.038
DP01	71045	PX	CPT	Frequent	0.038
DP01	I69	DX	10	Often	0.037
DP01	99223	PX	CPT	Often	0.037
DP01	731	PX	CPT	Any	0.037
DP01	99232	PX	CPT	Often	0.037
DP01	J96	DX	10	Any	0.036
DP01	99291	PX	CPT	Any	0.036
DP01	Z88	DX	10	Often	0.036
DP01	71045	PX	CPT	Any	0.036

Appendix G. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP01	99285	PX	CPT	Any	0.035
DP01	A0427	PX	HCPCS	Any	0.035
DP01	D04_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.035
DP01	R69	DX	10	Any	0.035
DP01	N25	DX	10	Any	0.034
DP01	D02_INT_ALL_Q4	DX	10	Q4ServiceInt	0.033
DP01	K31	DX	10	Any	0.033
DP01	D06_INT_ALL_Q4	PX	HCPCS	Q4ServiceInt	0.033
DP01	99239	PX	CPT	Any	0.032
DP01	J98	DX	10	Any	0.032
DP01	Z88	DX	10	Any	0.032
DP01	93010	PX	CPT	Any	0.032
DP01	A0428	PX	HCPCS	Any	0.032
DP01	85025	PX	CPT	Frequent	0.032
DP01	D63	DX	10	Often	0.032
DP01	A41	DX	10	Often	0.031
DP01	Z45	DX	10	Any	0.031
DP01	A41	DX	10	Frequent	0.030
DP01	99222	PX	CPT	Any	0.030
DP01	I12	DX	10	Frequent	0.030
DP01	C1085	RX	CLASS	Any	0.030
DP01	88305	PX	CPT	Any	0.030
DP01	99232	PX	CPT	Frequent	0.029
DP01	N17	DX	10	Often	0.029
DP01	82947	PX	CPT	Frequent	0.029
DP01	80053	PX	CPT	Frequent	0.028
DP01	99232	PX	CPT	Any	0.028
DP01	80053	PX	CPT	Any	0.027
DP01	A0428	PX	HCPCS	Frequent	0.027
DP01	99223	PX	CPT	Frequent	0.027
DP01	C1124	RX	CLASS	Any	0.027
DP01	88305	PX	CPT	Frequent	0.027
DP01	K21	DX	10	Frequent	0.026
DP01	N17	DX	10	Frequent	0.026
DP01	99239	PX	CPT	Frequent	0.026
DP01	J7030	PX	HCPCS	Any	0.026

Appendix G. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP01	C58	RX	CLASS	Often	0.025
DP01	Z79	DX	10	Often	0.025
DP01	I12	DX	10	Often	0.025
DP01	I69	DX	10	Any	0.025
DP01	99221	PX	CPT	Any	0.024
DP01	I69	DX	10	Frequent	0.024
DP01	T81	DX	10	Frequent	0.024
DP01	Z91	DX	10	Frequent	0.024
DP01	N25	DX	10	Often	0.024
DP01	R53	DX	10	Frequent	0.024
DP01	J45	DX	10	Any	0.024
DP01	A0100	PX	HCPCS	Any	0.024
DP01	76937	PX	CPT	Any	0.024
DP01	99284	PX	CPT	Any	0.024
DP01	J96	DX	10	Often	0.024
DP01	Z79	DX	10	Any	0.024
DP01	93005	PX	CPT	Any	0.024
DP01	C420	RX	CLASS	Often	0.023
DP01	Z74	DX	10	Frequent	0.023
DP01	Z86	DX	10	Frequent	0.023
DP01	71250	PX	CPT	Any	0.023
DP01	Z20	DX	10	Frequent	0.023
DP01	84132	PX	CPT	Any	0.023
DP01	C58	RX	CLASS	Any	0.023
DP01	G0299	PX	HCPCS	Any	0.022
DP01	R10	DX	10	Frequent	0.022
DP01	99283	PX	CPT	Any	0.022
DP01	84484	PX	CPT	Any	0.022
DP02	Z98	DX	10	Frequent	0.276
DP02	74246	PX	CPT	Frequent	0.215
DP02	74246	PX	CPT	Any	0.176
DP02	R55	DX	10	Often	0.172
DP02	Z98	DX	10	Often	0.170
DP02	82040	PX	CPT	Frequent	0.156
DP02	86850	PX	CPT	Any	0.141
DP02	Z98	DX	10	Any	0.134

Appendix G. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP02	R80	DX	10	Frequent	0.133
DP02	20610	PX	CPT	Any	0.133
DP02	84100	PX	CPT	Frequent	0.131
DP02	88307	PX	CPT	Any	0.122
DP02	I51	DX	10	Frequent	0.120
DP02	K44	DX	10	Frequent	0.120
DP02	A4627	PX	HCPCS	Any	0.119
DP02	J0690	PX	HCPCS	Any	0.114
DP02	E55	DX	10	Any	0.109
DP02	Z68	DX	10	Any	0.107
DP02	C782	RX	CLASS	Any	0.106
DP02	D50	DX	10	Frequent	0.106
DP02	86901	PX	CPT	Any	0.105
DP02	83970	PX	CPT	Any	0.105
DP02	K22	DX	10	Any	0.104
DP02	93010	PX	CPT	Any	0.103
DP02	K44	DX	10	Any	0.100
DP02	97802	PX	CPT	Any	0.100
DP02	86900	PX	CPT	Any	0.099
DP02	J3301	PX	HCPCS	Any	0.096
DP02	K22	DX	10	Often	0.094
DP02	E28	DX	10	Frequent	0.093
DP02	93010	PX	CPT	Frequent	0.091
DP02	C98	RX	CLASS	Any	0.091
DP02	82306	PX	CPT	Any	0.089
DP02	E55	DX	10	Frequent	0.089
DP02	J1644	PX	HCPCS	Any	0.085
DP02	82962	PX	CPT	Any	0.083
DP02	74176	PX	CPT	Any	0.081
DP02	K63	DX	10	Any	0.081
DP02	I45	DX	10	Any	0.079
DP02	84100	PX	CPT	Any	0.077
DP02	G47	DX	10	Any	0.076
DP02	J1940	PX	HCPCS	Any	0.075
DP02	R80	DX	10	Any	0.075
DP02	N18	DX	10	Often	0.074

Appendix G. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP02	R13	DX	10	Often	0.073
DP02	R13	DX	10	Any	0.071
DP02	93005	PX	CPT	Any	0.067
DP02	Z30	DX	10	Any	0.066
DP02	Z01	DX	10	Frequent	0.066
DP02	D04_INT_UNIQ_Q2	PX	10	Q2ServiceInt	0.064
DP02	E87	DX	10	Any	0.062
DP02	K80	DX	10	Any	0.062
DP02	84550	PX	CPT	Any	0.062
DP02	C1135	RX	CLASS	Any	0.061
DP02	I51	DX	10	Any	0.058
DP02	E66	DX	10	Any	0.058
DP02	N18	DX	10	Frequent	0.057
DP02	N18	DX	10	Any	0.054
DP02	99396	PX	CPT	Any	0.054
DP02	J1750	PX	HCPCS	Any	0.053
DP02	C689	RX	CLASS	Any	0.053
DP02	R10	DX	10	Any	0.052
DP02	82607	PX	CPT	Any	0.052
DP02	R55	DX	10	Any	0.050
DP02	76705	PX	CPT	Often	0.049
DP02	C1189	RX	CLASS	Any	0.048
DP02	83880	PX	CPT	Any	0.048
DP02	F17	DX	10	Any	0.047
DP02	E66	DX	10	Often	0.046
DP02	E78	DX	10	Frequent	0.046
DP02	99215	PX	CPT	Any	0.045
DP02	J3010	PX	HCPCS	Any	0.045
DP02	83690	PX	CPT	Any	0.045
DP02	D72	DX	10	Any	0.044
DP02	J2001	PX	HCPCS	Any	0.044
DP02	C1189	RX	CLASS	Frequent	0.043
DP02	C401	RX	CLASS	Any	0.043
DP02	D50	DX	10	Any	0.043
DP02	E11	DX	10	Often	0.043
DP02	D04_INT_ALL_Q2	PX	10	Q2ServiceInt	0.041

Appendix G. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP02	71045	PX	CPT	Often	0.041
DP02	C225	RX	CLASS	Any	0.041
DP02	D64	DX	10	Any	0.039
DP02	Z90	DX	10	Any	0.038
DP02	73562	PX	CPT	Any	0.038
DP02	E78	DX	10	Any	0.036
DP02	76705	PX	CPT	Any	0.036
DP02	I49	DX	10	Any	0.036
DP02	I10	DX	10	Any	0.035
DP02	U0003	PX	HCPCS	Any	0.035
DP02	81025	PX	CPT	Any	0.034
DP02	88305	PX	CPT	Any	0.033
DP02	C826	RX	CLASS	Any	0.033
DP02	71045	PX	CPT	Any	0.032
DP02	J2704	PX	HCPCS	Any	0.032
DP02	Z88	DX	10	Often	0.031
DP02	C1186	RX	CLASS	Any	0.031
DP02	R94	DX	10	Any	0.031
DP02	N92	DX	10	Frequent	0.031
DP02	K21	DX	10	Any	0.030
DP03	Z3A	DX	10	Any	0.088
DP03	Z36	DX	10	Any	0.077
DP03	Z34	DX	10	Any	0.069
DP03	Z36	DX	10	Frequent	0.060
DP03	O99	DX	10	Any	0.059
DP03	Z3A	DX	10	Often	0.058
DP03	Z3A	DX	10	Frequent	0.056
DP03	O26	DX	10	Any	0.054
DP03	Z36	DX	10	Often	0.053
DP03	O99	DX	10	Often	0.052
DP03	O09	DX	10	Any	0.050
DP03	O09	DX	10	Often	0.047
DP03	O09	DX	10	Frequent	0.043
DP03	Z34	DX	10	Often	0.041
DP03	O99	DX	10	Frequent	0.039
DP03	O26	DX	10	Often	0.037

Appendix G. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP03	Z34	DX	10	Frequent	0.033
DP03	731	PX	CPT	Any	0.032
DP03	86850	PX	CPT	Any	0.029
DP03	I10	DX	10	Any	0.026
DP03	86901	PX	CPT	Any	0.024
DP03	E66	DX	10	Frequent	0.023
DP03	84156	PX	CPT	Any	0.022
DP03	86900	PX	CPT	Any	0.022
DP03	O26	DX	10	Frequent	0.022
DP03	I10	DX	10	Often	0.022
DP03	87086	PX	CPT	Any	0.021
DP03	E66	DX	10	Often	0.021
DP03	D04_INT_ALL_Q4	PX	CPT	Q4ServiceInt	0.021
DP03	K21	DX	10	Any	0.020
DP03	K92	DX	10	Any	0.020
DP03	43239	PX	CPT	Any	0.019
DP03	K76	DX	10	Any	0.019
DP03	C1110	RX	CLASS	Any	0.019
DP03	Z32	DX	10	Any	0.018
DP03	I10	DX	10	Frequent	0.017
DP03	86803	PX	CPT	Any	0.017
DP03	E66	DX	10	Any	0.017
DP03	E0603	PX	HCPCS	Any	0.017
DP03	Z39	DX	10	Any	0.017
DP03	E11	DX	10	Often	0.017
DP03	K92	DX	10	Often	0.016
DP03	Z68	DX	10	Frequent	0.016
DP03	C58	RX	CLASS	Any	0.015
DP03	N18	DX	10	Often	0.015
DP03	99223	PX	CPT	Any	0.015
DP03	D04_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.015
DP03	99284	PX	CPT	Any	0.015
DP03	C1124	RX	CLASS	Any	0.015
DP03	88305	PX	CPT	Any	0.015
DP03	K21	DX	10	Frequent	0.015
DP03	E11	DX	10	Any	0.014

Appendix G. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP03	36415	PX	CPT	Frequent	0.014
DP03	84702	PX	CPT	Any	0.014
DP03	C58	RX	CLASS	Frequent	0.013
DP03	88342	PX	CPT	Any	0.013
DP03	G47	DX	10	Any	0.013
DP03	43239	PX	CPT	Often	0.013
DP03	C1110	RX	CLASS	Frequent	0.013
DP03	K22	DX	10	Any	0.013
DP03	74177	PX	CPT	Any	0.012
DP03	99283	PX	CPT	Any	0.012
DP03	K20	DX	10	Any	0.012
DP03	C1124	RX	CLASS	Often	0.012
DP03	C1124	RX	CLASS	Frequent	0.012
DP03	96374	PX	CPT	Any	0.012
DP03	83970	PX	CPT	Any	0.012
DP03	N18	DX	10	Any	0.012
DP03	R11	DX	10	Any	0.012
DP03	87340	PX	CPT	Any	0.011
DP03	0DB68ZX	PX	10	Any	0.011
DP03	99284	PX	CPT	Frequent	0.011
DP03	87591	PX	CPT	Any	0.011
DP03	87491	PX	CPT	Any	0.011
DP03	R10	DX	10	Any	0.011
DP03	A0425	PX	HCPCS	Any	0.011
DP03	81025	PX	CPT	Any	0.011
DP03	99239	PX	CPT	Any	0.011
DP03	C1175	RX	CLASS	Any	0.011
DP03	K31	DX	10	Any	0.010
DP03	84425	PX	CPT	Any	0.010
DP03	797	PX	CPT	Any	0.010
DP03	87389	PX	CPT	Any	0.010
DP03	D06_INT_UNIQ_Q4	PX	HCPCS	Q4ServiceInt	0.010
DP03	J1200	PX	HCPCS	Any	0.010
DP03	A0429	PX	HCPCS	Any	0.010
DP03	K22	DX	10	Often	0.010
DP03	K92	DX	10	Frequent	0.010

Appendix G. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP03	Z98	DX	10	Any	0.010
DP03	0TY00Z0	PX	10	Any	0.010
DP03	88313	PX	CPT	Any	0.010
DP03	99215	PX	CPT	Frequent	0.010
DP03	99152	PX	CPT	Any	0.010
DP03	K29	DX	10	Any	0.009
DP03	Z32	DX	10	Frequent	0.009
DP03	R11	DX	10	Often	0.009
DP03	Z68	DX	10	Any	0.009
DP03	N18	DX	10	Frequent	0.009
DP03	E78	DX	10	Often	0.009
DP03	Q9967	PX	HCPCS	Any	0.009
DP04	Z34	DX	10	Often	0.103
DP04	Z34	DX	10	Frequent	0.081
DP04	Z3A	DX	10	Often	0.080
DP04	Z36	DX	10	Any	0.076
DP04	Z34	DX	10	Any	0.074
DP04	O99	DX	10	Any	0.070
DP04	Z3A	DX	10	Frequent	0.069
DP04	O99	DX	10	Often	0.064
DP04	Z3A	DX	10	Any	0.059
DP04	O99	DX	10	Frequent	0.057
DP04	86900	PX	CPT	Any	0.050
DP04	Z36	DX	10	Often	0.049
DP04	86901	PX	CPT	Any	0.049
DP04	N18	DX	10	Often	0.049
DP04	86850	PX	CPT	Any	0.047
DP04	I10	DX	10	Any	0.047
DP04	87340	PX	CPT	Any	0.046
DP04	D04_INT_ALL_Q4	PX	CPT	Q4ServiceInt	0.041
DP04	Z36	DX	10	Frequent	0.041
DP04	731	PX	CPT	Any	0.041
DP04	N18	DX	10	Any	0.040
DP04	O09	DX	10	Any	0.037
DP04	D02_INT_UNIQ_Q4	DX	10	Q4ServiceInt	0.036
DP04	D02_INT_ALL_Q4	DX	10	Q4ServiceInt	0.036

Appendix G. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP04	C131	RX	CLASS	Frequent	0.036
DP04	K29	DX	10	Any	0.035
DP04	E0603	PX	HCPCS	Any	0.035
DP04	C1124	RX	CLASS	Any	0.034
DP04	G0439	PX	HCPCS	Any	0.033
DP04	K21	DX	10	Any	0.033
DP04	87086	PX	CPT	Any	0.032
DP04	K21	DX	10	Frequent	0.032
DP04	D04_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.032
DP04	99238	PX	CPT	Any	0.029
DP04	5A1D70Z	PX	10	Any	0.029
DP04	84100	PX	CPT	Frequent	0.027
DP04	36415	PX	CPT	Frequent	0.027
DP04	86780	PX	CPT	Any	0.027
DP04	99231	PX	CPT	Any	0.026
DP04	K29	DX	10	Frequent	0.025
DP04	43239	PX	CPT	Any	0.025
DP04	I10	DX	10	Often	0.025
DP04	D07_INT_ALL_Q4	PX	HCPCS	Q4ServiceInt	0.024
DP04	Z99	DX	10	Frequent	0.024
DP04	I50	DX	10	Often	0.023
DP04	K31	DX	10	Any	0.023
DP04	R16	DX	10	Any	0.023
DP04	C187	RX	CLASS	Any	0.023
DP04	K76	DX	10	Any	0.023
DP04	G93	DX	10	Frequent	0.023
DP04	86803	PX	CPT	Any	0.023
DP04	93010	PX	CPT	Frequent	0.023
DP04	K44	DX	10	Any	0.022
DP04	Z39	DX	10	Any	0.022
DP04	C187	RX	CLASS	Often	0.022
DP04	D03_INT_UNIQ_Q4	RX	CLASS	Q4ServiceInt	0.022
DP04	C1124	RX	CLASS	Often	0.022
DP04	J45	DX	10	Often	0.021
DP04	81001	PX	CPT	Any	0.021
DP04	K22	DX	10	Any	0.021

Appendix G. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP04	C1085	RX	CLASS	Any	0.021
DP04	G0463	PX	HCPCS	Frequent	0.021
DP04	3E0R305	PX	10	Frequent	0.020
DP04	88312	PX	CPT	Any	0.020
DP04	G0463	PX	HCPCS	Any	0.020
DP04	C131	RX	CLASS	Often	0.020
DP04	87186	PX	CPT	Any	0.020
DP04	99284	PX	CPT	Any	0.020
DP04	C41	RX	CLASS	Any	0.020
DP04	R11	DX	10	Frequent	0.020
DP04	J45	DX	10	Any	0.019
DP04	C1124	RX	CLASS	Frequent	0.019
DP04	E66	DX	10	Frequent	0.019
DP04	Z74	DX	10	Any	0.019
DP04	99152	PX	CPT	Any	0.019
DP04	K25	DX	10	Any	0.019
DP04	N18	DX	10	Frequent	0.019
DP04	R16	DX	10	Frequent	0.019
DP04	C935	RX	CLASS	Any	0.018
DP04	I10	DX	10	Frequent	0.018
DP04	C1049	RX	CLASS	Any	0.018
DP04	E66	DX	10	Often	0.018
DP04	G93	DX	10	Any	0.018
DP04	Z86	DX	10	Frequent	0.018
DP04	Z86	DX	10	Any	0.018
DP04	I50	DX	10	Any	0.018
DP04	88313	PX	CPT	Any	0.017
DP04	88305	PX	CPT	Any	0.017
DP04	Z78	DX	10	Any	0.017
DP04	C689	RX	CLASS	Often	0.017
DP04	J2357	PX	HCPCS	Any	0.017
DP04	0W9G3ZZ	PX	10	Any	0.017
DP04	0DBN8ZX	PX	10	Any	0.017
DP04	R10	DX	10	Any	0.017
DP04	3E0R305	PX	10	Any	0.016
DP04	85025	PX	CPT	Frequent	0.016

Appendix G. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP04	M10	DX	10	Any	0.016
DP04	R10	DX	10	Frequent	0.016
DP04	99213	PX	CPT	Often	0.016
DP04	K76	DX	10	Frequent	0.016
DP05	O09	DX	10	Any	0.299
DP05	Z36	DX	10	Any	0.275
DP05	86762	PX	CPT	Any	0.234
DP05	Z3A	DX	10	Any	0.220
DP05	O09	DX	10	Often	0.214
DP05	Z36	DX	10	Often	0.200
DP05	O26	DX	10	Any	0.191
DP05	Z34	DX	10	Any	0.176
DP05	86780	PX	CPT	Any	0.174
DP05	O99	DX	10	Any	0.165
DP05	76801	PX	CPT	Often	0.141
DP05	O99	DX	10	Frequent	0.136
DP05	86850	PX	CPT	Any	0.134
DP05	87340	PX	CPT	Any	0.134
DP05	76801	PX	CPT	Any	0.130
DP05	82950	PX	CPT	Any	0.130
DP05	Z3A	DX	10	Often	0.127
DP05	O09	DX	10	Frequent	0.125
DP05	5A1955Z	PX	10	Any	0.123
DP05	O26	DX	10	Often	0.123
DP05	86901	PX	CPT	Any	0.121
DP05	76816	PX	CPT	Often	0.120
DP05	86900	PX	CPT	Any	0.119
DP05	76816	PX	CPT	Any	0.110
DP05	0T778DZ	PX	10	Any	0.107
DP05	86803	PX	CPT	Any	0.103
DP05	76817	PX	CPT	Often	0.094
DP05	76817	PX	CPT	Any	0.092
DP05	84156	PX	CPT	Any	0.090
DP05	H2035	PX	HCPCS	Any	0.089
DP05	O36	DX	10	Any	0.088
DP05	81001	PX	CPT	Any	0.088

Appendix G. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP05	O99	DX	10	Often	0.084
DP05	O26	DX	10	Frequent	0.084
DP05	87591	PX	CPT	Any	0.076
DP05	87491	PX	CPT	Any	0.075
DP05	H2015	PX	HCPCS	Frequent	0.075
DP05	J0696	PX	HCPCS	Any	0.073
DP05	87086	PX	CPT	Any	0.070
DP05	K20	DX	10	Any	0.068
DP05	G0481	PX	HCPCS	Frequent	0.066
DP05	74018	PX	CPT	Any	0.066
DP05	Z3A	DX	10	Frequent	0.063
DP05	87389	PX	CPT	Any	0.062
DP05	C1179	RX	CLASS	Any	0.057
DP05	76815	PX	CPT	Frequent	0.057
DP05	Z02	DX	10	Any	0.057
DP05	N17	DX	10	Any	0.055
DP05	Z34	DX	10	Often	0.054
DP05	C1110	RX	CLASS	Any	0.053
DP05	J0295	PX	HCPCS	Any	0.053
DP05	H2035	PX	HCPCS	Often	0.052
DP05	R16	DX	10	Any	0.052
DP05	D03_INT_ALL_Q4	PX	CPT	Q4ServiceInt	0.052
DP05	C62	RX	CLASS	Any	0.052
DP05	H0038	PX	HCPCS	Any	0.051
DP05	81025	PX	CPT	Any	0.050
DP05	A0100	PX	HCPCS	Any	0.049
DP05	E66	DX	10	Any	0.046
DP05	97803	PX	CPT	Any	0.046
DP05	S0215	PX	HCPCS	Any	0.046
DP05	99283	PX	CPT	Any	0.044
DP05	99284	PX	CPT	Frequent	0.044
DP05	HZ2ZZZZ	PX	10	Any	0.043
DP05	76815	PX	CPT	Any	0.043
DP05	93325	PX	CPT	Any	0.043
DP05	E78	DX	10	Frequent	0.042
DP05	Z32	DX	10	Any	0.039

Appendix G. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP05	83605	PX	CPT	Any	0.039
DP05	Z45	DX	10	Any	0.038
DP05	99239	PX	CPT	Any	0.037
DP05	R73	DX	10	Any	0.037
DP05	C545	RX	CLASS	Any	0.037
DP05	F10	DX	10	Often	0.037
DP05	F15	DX	10	Often	0.037
DP05	82077	PX	CPT	Any	0.036
DP05	E87	DX	10	Often	0.036
DP05	T1016	PX	HCPCS	Any	0.035
DP05	D03_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.035
DP05	D04_INT_UNIQ_Q1	PX	10	Q1ServiceInt	0.034
DP05	97802	PX	CPT	Any	0.034
DP05	G93	DX	10	Any	0.034
DP05	D68	DX	10	Any	0.034
DP05	D04_INT_ALL_Q1	PX	10	Q1ServiceInt	0.034
DP05	J1170	PX	HCPCS	Any	0.034
DP05	Z68	DX	10	Any	0.033
DP05	96130	PX	CPT	Any	0.033
DP05	96361	PX	CPT	Any	0.033
DP05	T2023	PX	HCPCS	Any	0.033
DP05	S9480	PX	HCPCS	Any	0.033
DP05	96376	PX	CPT	Any	0.033
DP05	F10	DX	10	Any	0.033
DP05	87040	PX	CPT	Any	0.032
DP05	J2370	PX	HCPCS	Any	0.032
DP05	R21	DX	10	Any	0.032
DP05	J2250	PX	HCPCS	Any	0.032
DP05	K92	DX	10	Frequent	0.032
DP05	C991	RX	CLASS	Any	0.032
DP05	H0001	PX	HCPCS	Any	0.032
DP05	G0463	PX	HCPCS	Any	0.031

Appendix H. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 50-64 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP01	N18	DX	10	Any	0.050
DP01	K92	DX	10	Often	0.044
DP01	N18	DX	10	Often	0.043
DP01	K92	DX	10	Any	0.039
DP01	A0428	PX	HCPCS	Any	0.036
DP01	A0425	PX	HCPCS	Frequent	0.031
DP01	Z99	DX	10	Any	0.029
DP01	Z99	DX	10	Often	0.028
DP01	E11	DX	10	Frequent	0.027
DP01	I12	DX	10	Any	0.026
DP01	D50	DX	10	Any	0.025
DP01	731	PX	CPT	Any	0.023
DP01	99232	PX	CPT	Often	0.023
DP01	99309	PX	CPT	Often	0.022
DP01	I13	DX	10	Any	0.022
DP01	J96	DX	10	Any	0.021
DP01	99233	PX	CPT	Frequent	0.021
DP01	R10	DX	10	Any	0.021
DP01	02HV33Z	PX	10	Any	0.021
DP01	A0429	PX	HCPCS	Any	0.020
DP01	99309	PX	CPT	Any	0.020
DP01	I12	DX	10	Often	0.020
DP01	99308	PX	CPT	Any	0.020
DP01	J96	DX	10	Often	0.019
DP01	A0428	PX	HCPCS	Frequent	0.019
DP01	D02_INT_ALL_Q4	DX	10	Q4ServiceInt	0.019
DP01	K29	DX	10	Any	0.019
DP01	Z74	DX	10	Any	0.018
DP01	I69	DX	10	Often	0.018
DP01	I50	DX	10	Often	0.018
DP01	R18	DX	10	Any	0.018
DP01	Z46	DX	10	Any	0.018
DP01	A41	DX	10	Any	0.018
DP01	I50	DX	10	Any	0.017
DP01	99232	PX	CPT	Frequent	0.017
DP01	J96	DX	10	Frequent	0.017

Appendix H. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 50-64 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP01	E11	DX	10	Often	0.017
DP01	K74	DX	10	Any	0.017
DP01	A0425	PX	HCPCS	Any	0.017
DP01	N18	DX	10	Frequent	0.016
DP01	D62	DX	10	Any	0.016
DP01	D50	DX	10	Often	0.016
DP01	74177	PX	CPT	Any	0.016
DP01	D05_INT_UNIQ_Q4	PX	10	Q4ServiceInt	0.016
DP01	K31	DX	10	Any	0.016
DP01	99291	PX	CPT	Frequent	0.016
DP01	K74	DX	10	Often	0.016
DP01	99223	PX	CPT	Often	0.016
DP01	K92	DX	10	Frequent	0.015
DP01	D63	DX	10	Any	0.015
DP01	D05_INT_ALL_Q4	PX	10	Q4ServiceInt	0.015
DP01	99308	PX	CPT	Frequent	0.015
DP01	A41	DX	10	Often	0.015
DP01	R10	DX	10	Often	0.015
DP01	Z74	DX	10	Frequent	0.015
DP01	N17	DX	10	Any	0.015
DP01	I12	DX	10	Frequent	0.015
DP01	30233N1	PX	10	Any	0.015
DP01	R11	DX	10	Any	0.015
DP01	J18	DX	10	Any	0.014
DP01	C225	RX	CLASS	Often	0.014
DP01	36556	PX	CPT	Any	0.014
DP01	I69	DX	10	Any	0.014
DP01	C422	RX	CLASS	Any	0.014
DP01	I63	DX	10	Any	0.014
DP01	C225	RX	CLASS	Any	0.014
DP01	99231	PX	CPT	Any	0.014
DP01	R27	DX	10	Any	0.014
DP01	R09	DX	10	Any	0.014
DP01	G0299	PX	HCPCS	Any	0.014
DP01	88305	PX	CPT	Any	0.013
DP01	99306	PX	CPT	Any	0.013

Appendix H. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 50-64 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP01	Z89	DX	10	Any	0.013
DP01	99233	PX	CPT	Any	0.013
DP01	80048	PX	CPT	Any	0.013
DP01	36620	PX	CPT	Any	0.013
DP01	83735	PX	CPT	Any	0.013
DP01	99309	PX	CPT	Frequent	0.013
DP01	E78	DX	10	Frequent	0.013
DP01	Z87	DX	10	Frequent	0.012
DP01	99231	PX	CPT	Frequent	0.012
DP01	76705	PX	CPT	Any	0.012
DP01	D04_INT_ALL_Q4	PX	CPT	Q4ServiceInt	0.012
DP01	E78	DX	10	Often	0.012
DP01	I10	DX	10	Frequent	0.012
DP01	K22	DX	10	Often	0.012
DP01	0BH17EZ	PX	10	Any	0.012
DP01	J98	DX	10	Frequent	0.012
DP01	99233	PX	CPT	Often	0.012
DP01	71045	PX	CPT	Any	0.012
DP01	Z46	DX	10	Often	0.012
DP01	93010	PX	CPT	Frequent	0.012
DP01	K74	DX	10	Frequent	0.012
DP01	L03	DX	10	Often	0.012
DP01	D63	DX	10	Often	0.012
DP01	99238	PX	CPT	Any	0.012
DP01	99291	PX	CPT	Any	0.012
DP01	D64	DX	10	Any	0.011
DP01	G93	DX	10	Often	0.011
DP01	L03	DX	10	Any	0.011
DP02	J9206	PX	HCPCS	Any	0.126
DP02	C713	RX	CLASS	Frequent	0.118
DP02	84402	PX	CPT	Any	0.115
DP02	96413	PX	CPT	Frequent	0.115
DP02	J1650	PX	HCPCS	Any	0.109
DP02	86160	PX	CPT	Any	0.107
DP02	K22	DX	10	Frequent	0.104
DP02	I82	DX	10	Any	0.104

Appendix H. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 50-64 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP02	S9500	PX	HCPCS	Any	0.100
DP02	C772	RX	CLASS	Frequent	0.100
DP02	R13	DX	10	Any	0.096
DP02	K22	DX	10	Often	0.094
DP02	G0103	PX	HCPCS	Any	0.092
DP02	E29	DX	10	Any	0.090
DP02	N28	DX	10	Frequent	0.086
DP02	K57	DX	10	Any	0.084
DP02	E78	DX	10	Any	0.084
DP02	D02_INT_UNIQ_Q3	RX	CLASS	Q3ServiceInt	0.083
DP02	S0164	PX	HCPCS	Any	0.081
DP02	M48	DX	10	Frequent	0.078
DP02	80061	PX	CPT	Any	0.074
DP02	D04_INT_ALL_Q4	PX	10	Q4ServiceInt	0.074
DP02	D04_INT_UNIQ_Q4	PX	10	Q4ServiceInt	0.074
DP02	J7050	PX	HCPCS	Frequent	0.072
DP02	43239	PX	CPT	Frequent	0.072
DP02	77080	PX	CPT	Often	0.068
DP02	Z68	DX	10	Frequent	0.068
DP02	R13	DX	10	Frequent	0.068
DP02	G0475	PX	HCPCS	Any	0.067
DP02	96413	PX	CPT	Often	0.066
DP02	D12	DX	10	Frequent	0.065
DP02	72100	PX	CPT	Often	0.064
DP02	72040	PX	CPT	Any	0.064
DP02	82040	PX	CPT	Frequent	0.063
DP02	C772	RX	CLASS	Any	0.060
DP02	J9299	PX	HCPCS	Any	0.060
DP02	J3411	PX	HCPCS	Any	0.060
DP02	99443	PX	CPT	Frequent	0.060
DP02	N30	DX	10	Frequent	0.059
DP02	Q0162	PX	HCPCS	Any	0.059
DP02	C65	RX	CLASS	Any	0.058
DP02	C1143	RX	CLASS	Any	0.058
DP02	G0008	PX	HCPCS	Any	0.058
DP02	77080	PX	CPT	Any	0.057

Appendix H. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 50-64 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP02	N17	DX	10	Frequent	0.057
DP02	84165	PX	CPT	Any	0.057
DP02	Z11	DX	10	Any	0.056
DP02	K44	DX	10	Frequent	0.055
DP02	K22	DX	10	Any	0.055
DP02	C713	RX	CLASS	Often	0.055
DP02	Z00	DX	10	Any	0.055
DP02	72100	PX	CPT	Any	0.053
DP02	R73	DX	10	Any	0.053
DP02	81001	PX	CPT	Any	0.051
DP02	85027	PX	CPT	Any	0.051
DP02	C65	RX	CLASS	Often	0.051
DP02	M53	DX	10	Any	0.051
DP02	70450	PX	CPT	Any	0.050
DP02	R13	DX	10	Often	0.049
DP02	97530	PX	CPT	Any	0.048
DP02	82947	PX	CPT	Frequent	0.047
DP02	N18	DX	10	Often	0.047
DP02	E86	DX	10	Any	0.046
DP02	70491	PX	CPT	Any	0.046
DP02	82310	PX	CPT	Frequent	0.045
DP02	R79	DX	10	Frequent	0.045
DP02	M81	DX	10	Any	0.045
DP02	C180	RX	CLASS	Any	0.044
DP02	72148	PX	CPT	Any	0.044
DP02	81015	PX	CPT	Frequent	0.044
DP02	A9585	PX	HCPCS	Any	0.044
DP02	B37	DX	10	Any	0.044
DP02	84403	PX	CPT	Any	0.043
DP02	R05	DX	10	Any	0.043
DP02	99024	PX	CPT	Any	0.043
DP02	C753	RX	CLASS	Any	0.043
DP02	K31	DX	10	Often	0.043
DP02	C101	RX	CLASS	Frequent	0.043
DP02	G1004	PX	HCPCS	Any	0.042
DP02	R91	DX	10	Any	0.042

Appendix H. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 50-64 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP02	84460	PX	CPT	Frequent	0.040
DP02	C207	RX	CLASS	Any	0.040
DP02	K44	DX	10	Any	0.039
DP02	M81	DX	10	Frequent	0.039
DP02	C1022	RX	CLASS	Frequent	0.039
DP02	J44	DX	10	Frequent	0.039
DP02	82746	PX	CPT	Any	0.038
DP02	R53	DX	10	Any	0.038
DP02	E66	DX	10	Frequent	0.037
DP02	D50	DX	10	Any	0.037
DP02	Z01	DX	10	Frequent	0.036
DP02	J2060	PX	HCPCS	Any	0.036
DP02	D50	DX	10	Often	0.036
DP02	90686	PX	CPT	Any	0.036
DP02	D05_INT_ALL_Q2	PX	HCPCS	Q2ServiceInt	0.036
DP02	C835	RX	CLASS	Any	0.036
DP02	R09	DX	10	Any	0.035
DP02	82247	PX	CPT	Any	0.035
DP02	M17	DX	10	Any	0.035
DP02	84520	PX	CPT	Frequent	0.035
DP03	N18	DX	10	Any	0.030
DP03	N18	DX	10	Often	0.025
DP03	N18	DX	10	Frequent	0.019
DP03	K92	DX	10	Frequent	0.016
DP03	I12	DX	10	Any	0.014
DP03	R10	DX	10	Any	0.013
DP03	K92	DX	10	Often	0.013
DP03	G0463	PX	HCPCS	Any	0.012
DP03	K92	DX	10	Any	0.012
DP03	R11	DX	10	Any	0.012
DP03	G93	DX	10	Frequent	0.012
DP03	731	PX	CPT	Any	0.012
DP03	D04_INT_ALL_Q4	PX	CPT	Q4ServiceInt	0.012
DP03	K21	DX	10	Any	0.011
DP03	K44	DX	10	Any	0.011
DP03	J96	DX	10	Often	0.011

Appendix H. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 50-64 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP03	C1175	RX	CLASS	Any	0.011
DP03	99233	PX	CPT	Often	0.011
DP03	99232	PX	CPT	Frequent	0.011
DP03	G93	DX	10	Any	0.011
DP03	J96	DX	10	Frequent	0.011
DP03	84100	PX	CPT	Any	0.011
DP03	70450	PX	CPT	Any	0.010
DP03	R11	DX	10	Frequent	0.010
DP03	J90	DX	10	Any	0.010
DP03	99223	PX	CPT	Frequent	0.010
DP03	D62	DX	10	Often	0.010
DP03	0DB68ZX	PX	10	Any	0.010
DP03	99239	PX	CPT	Any	0.010
DP03	I12	DX	10	Often	0.010
DP03	D62	DX	10	Any	0.010
DP03	77063	PX	CPT	Any	0.010
DP03	C58	RX	CLASS	Any	0.010
DP03	R10	DX	10	Often	0.010
DP03	K21	DX	10	Frequent	0.009
DP03	Z99	DX	10	Frequent	0.009
DP03	77067	PX	CPT	Any	0.009
DP03	99233	PX	CPT	Frequent	0.009
DP03	G0463	PX	HCPCS	Often	0.009
DP03	C58	RX	CLASS	Frequent	0.009
DP03	D05_INT_ALL_Q4	PX	10	Q4ServiceInt	0.009
DP03	D02_INT_UNIQ_Q4	DX	10	Q4ServiceInt	0.009
DP03	J96	DX	10	Any	0.009
DP03	99222	PX	CPT	Any	0.009
DP03	74177	PX	CPT	Any	0.008
DP03	D62	DX	10	Frequent	0.008
DP03	I51	DX	10	Any	0.008
DP03	D05_INT_UNIQ_Q4	PX	10	Q4ServiceInt	0.008
DP03	K25	DX	10	Any	0.008
DP03	R10	DX	10	Frequent	0.008
DP03	Q9967	PX	HCPCS	Any	0.008
DP03	G93	DX	10	Often	0.008

Appendix H. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 50-64 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP03	C388	RX	CLASS	Often	0.008
DP03	A0427	PX	HCPCS	Any	0.008
DP03	R13	DX	10	Any	0.008
DP03	83735	PX	CPT	Any	0.008
DP03	0DJ08ZZ	PX	10	Any	0.008
DP03	99214	PX	CPT	Frequent	0.008
DP03	I12	DX	10	Frequent	0.008
DP03	D64	DX	10	Often	0.008
DP03	99215	PX	CPT	Any	0.007
DP03	76937	PX	CPT	Any	0.007
DP03	A0425	PX	HCPCS	Any	0.007
DP03	Z74	DX	10	Any	0.007
DP03	99220	PX	CPT	Any	0.007
DP03	R11	DX	10	Often	0.007
DP03	D04_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.007
DP03	99284	PX	CPT	Frequent	0.007
DP03	43235	PX	CPT	Any	0.007
DP03	E66	DX	10	Frequent	0.007
DP03	88342	PX	CPT	Any	0.007
DP03	0TY00Z0	PX	10	Any	0.007
DP03	B96	DX	10	Any	0.007
DP03	80069	PX	CPT	Any	0.007
DP03	Z46	DX	10	Any	0.007
DP03	R91	DX	10	Any	0.007
DP03	K44	DX	10	Often	0.007
DP03	D50	DX	10	Any	0.007
DP03	C388	RX	CLASS	Any	0.007
DP03	K57	DX	10	Any	0.007
DP03	99213	PX	CPT	Frequent	0.006
DP03	Z99	DX	10	Any	0.006
DP03	R09	DX	10	Any	0.006
DP03	E87	DX	10	Any	0.006
DP03	E86	DX	10	Any	0.006
DP03	I63	DX	10	Any	0.006
DP03	I48	DX	10	Frequent	0.006
DP03	R19	DX	10	Any	0.006

Appendix H. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 50-64 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP03	99254	PX	CPT	Any	0.006
DP03	K25	DX	10	Often	0.006
DP03	K29	DX	10	Any	0.006
DP03	D06_INT_UNIQ_Q4	PX	HCPCS	Q4ServiceInt	0.006
DP03	J2930	PX	HCPCS	Any	0.006
DP03	0DB78ZX	PX	10	Any	0.006
DP03	G0463	PX	HCPCS	Frequent	0.006
DP03	R22	DX	10	Any	0.006
DP03	K31	DX	10	Often	0.006
DP03	K76	DX	10	Any	0.006
DP03	I73	DX	10	Any	0.006
DP03	D02_INT_ALL_Q4	DX	10	Q4ServiceInt	0.006
DP04	D02_INT_ALL_Q4	DX	10	Q4ServiceInt	0.038
DP04	G0463	PX	HCPCS	Any	0.036
DP04	D02_INT_UNIQ_Q4	DX	10	Q4ServiceInt	0.033
DP04	D04_INT_ALL_Q4	PX	CPT	Q4ServiceInt	0.030
DP04	N18	DX	10	Often	0.030
DP04	N18	DX	10	Any	0.029
DP04	J96	DX	10	Any	0.027
DP04	M79	DX	10	Any	0.027
DP04	D03_INT_UNIQ_Q4	RX	CLASS	Q4ServiceInt	0.026
DP04	D04_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.025
DP04	G0463	PX	HCPCS	Often	0.025
DP04	G62	DX	10	Any	0.022
DP04	D07_INT_ALL_Q4	PX	HCPCS	Q4ServiceInt	0.022
DP04	M79	DX	10	Frequent	0.021
DP04	99214	PX	CPT	Often	0.021
DP04	D06_INT_UNIQ_Q4	PX	10	Q4ServiceInt	0.020
DP04	M79	DX	10	Often	0.020
DP04	M05	DX	10	Any	0.020
DP04	I73	DX	10	Any	0.020
DP04	Z74	DX	10	Any	0.019
DP04	D06_INT_ALL_Q4	PX	10	Q4ServiceInt	0.018
DP04	E11	DX	10	Often	0.017
DP04	R26	DX	10	Any	0.016
DP04	G0378	PX	HCPCS	Any	0.016

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Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP04	C1097	RX	CLASS	Any	0.016
DP04	99214	PX	CPT	Frequent	0.015
DP04	Z79	DX	10	Often	0.015
DP04	M05	DX	10	Frequent	0.015
DP04	A0425	PX	HCPCS	Frequent	0.015
DP04	I73	DX	10	Frequent	0.015
DP04	G62	DX	10	Frequent	0.015
DP04	E11	DX	10	Frequent	0.015
DP04	I25	DX	10	Frequent	0.015
DP04	J45	DX	10	Frequent	0.015
DP04	99214	PX	CPT	Any	0.015
DP04	99348	PX	CPT	Any	0.014
DP04	G0463	PX	HCPCS	Frequent	0.014
DP04	D03_INT_ALL_Q4	RX	CLASS	Q4ServiceInt	0.014
DP04	N18	DX	10	Frequent	0.014
DP04	99215	PX	CPT	Any	0.014
DP04	86140	PX	CPT	Any	0.014
DP04	R69	DX	10	Any	0.014
DP04	J1200	PX	HCPCS	Any	0.014
DP04	A9585	PX	HCPCS	Any	0.013
DP04	R29	DX	10	Any	0.013
DP04	A0428	PX	HCPCS	Any	0.013
DP04	I12	DX	10	Any	0.013
DP04	J44	DX	10	Any	0.013
DP04	99053	PX	CPT	Any	0.013
DP04	C1097	RX	CLASS	Often	0.013
DP04	J44	DX	10	Often	0.013
DP04	0DB68ZX	PX	10	Any	0.013
DP04	D63	DX	10	Any	0.013
DP04	E1390	PX	HCPCS	Any	0.013
DP04	Z99	DX	10	Frequent	0.013
DP04	Z79	DX	10	Any	0.013
DP04	77063	PX	CPT	Any	0.013
DP04	J96	DX	10	Frequent	0.013
DP04	I12	DX	10	Often	0.012
DP04	J44	DX	10	Frequent	0.012

Appendix H. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 50-64 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP04	J96	DX	10	Often	0.012
DP04	84100	PX	CPT	Any	0.012
DP04	G89	DX	10	Frequent	0.012
DP04	R69	DX	10	Frequent	0.012
DP04	K22	DX	10	Any	0.012
DP04	R29	DX	10	Often	0.012
DP04	G0151	PX	HCPCS	Frequent	0.012
DP04	80069	PX	CPT	Frequent	0.012
DP04	77067	PX	CPT	Any	0.012
DP04	K21	DX	10	Frequent	0.012
DP04	84100	PX	CPT	Frequent	0.011
DP04	Y92	DX	10	Any	0.011
DP04	70450	PX	CPT	Any	0.011
DP04	K92	DX	10	Any	0.011
DP04	R20	DX	10	Frequent	0.011
DP04	C749	RX	CLASS	Frequent	0.011
DP04	80069	PX	CPT	Any	0.011
DP04	M06	DX	10	Any	0.011
DP04	R26	DX	10	Often	0.011
DP04	D07_INT_UNIQ_Q4	PX	HCPCS	Q4ServiceInt	0.011
DP04	A0425	PX	HCPCS	Any	0.011
DP04	Z74	DX	10	Frequent	0.011
DP04	I25	DX	10	Often	0.011
DP04	J45	DX	10	Often	0.011
DP04	Z91	DX	10	Any	0.011
DP04	I11	DX	10	Any	0.010
DP04	T78	DX	10	Any	0.010
DP04	G89	DX	10	Any	0.010
DP04	3E04305	PX	10	Any	0.010
DP04	I50	DX	10	Any	0.010
DP04	87086	PX	CPT	Any	0.010
DP04	G0299	PX	HCPCS	Any	0.010
DP04	M05	DX	10	Often	0.010
DP04	99220	PX	CPT	Any	0.010
DP04	Z48	DX	10	Any	0.010
DP04	C1186	RX	CLASS	Often	0.010

Appendix H. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 50-64 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP04	70553	PX	CPT	Any	0.010
DP04	K20	DX	10	Any	0.010
DP04	K21	DX	10	Any	0.010
DP04	30233N1	PX	10	Any	0.009
DP05	T2023	PX	HCPCS	Frequent	0.292
DP05	K74	DX	10	Any	0.168
DP05	K70	DX	10	Any	0.164
DP05	K70	DX	10	Often	0.147
DP05	T2023	PX	HCPCS	Often	0.144
DP05	K74	DX	10	Often	0.135
DP05	T2003	PX	HCPCS	Often	0.121
DP05	T2023	PX	HCPCS	Any	0.115
DP05	T2003	PX	HCPCS	Frequent	0.101
DP05	J43	DX	10	Any	0.101
DP05	86039	PX	CPT	Any	0.101
DP05	V5160	PX	HCPCS	Any	0.100
DP05	K70	DX	10	Frequent	0.097
DP05	R18	DX	10	Any	0.088
DP05	V5261	PX	HCPCS	Any	0.083
DP05	G0180	PX	HCPCS	Any	0.080
DP05	H90	DX	10	Frequent	0.077
DP05	86704	PX	CPT	Any	0.076
DP05	70486	PX	CPT	Often	0.075
DP05	A4371	PX	HCPCS	Frequent	0.075
DP05	G0179	PX	HCPCS	Often	0.075
DP05	C342	RX	CLASS	Any	0.070
DP05	S0215	PX	HCPCS	Often	0.068
DP05	S0215	PX	HCPCS	Any	0.067
DP05	86706	PX	CPT	Any	0.066
DP05	T2003	PX	HCPCS	Any	0.066
DP05	C42	RX	CLASS	Any	0.064
DP05	F17	DX	10	Often	0.064
DP05	R26	DX	10	Any	0.062
DP05	F17	DX	10	Any	0.062
DP05	M43	DX	10	Frequent	0.062
DP05	L4360	PX	HCPCS	Any	0.061

Appendix H. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 50-64 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP05	93306	PX	CPT	Any	0.059
DP05	F10	DX	10	Any	0.057
DP05	76700	PX	CPT	Any	0.057
DP05	87389	PX	CPT	Any	0.056
DP05	83540	PX	CPT	Any	0.056
DP05	G0463	PX	HCPCS	Any	0.054
DP05	C1725	PX	HCPCS	Any	0.054
DP05	R22	DX	10	Any	0.053
DP05	83690	PX	CPT	Any	0.052
DP05	76705	PX	CPT	Any	0.052
DP05	70486	PX	CPT	Any	0.051
DP05	L57	DX	10	Frequent	0.050
DP05	K22	DX	10	Any	0.050
DP05	K21	DX	10	Frequent	0.048
DP05	99223	PX	CPT	Any	0.047
DP05	82248	PX	CPT	Any	0.046
DP05	88342	PX	CPT	Often	0.046
DP05	C42	RX	CLASS	Frequent	0.046
DP05	84466	PX	CPT	Any	0.045
DP05	02HV33Z	PX	10	Any	0.044
DP05	A0425	PX	HCPCS	Any	0.044
DP05	97035	PX	CPT	Frequent	0.042
DP05	99238	PX	CPT	Any	0.042
DP05	J44	DX	10	Often	0.042
DP05	99204	PX	CPT	Any	0.041
DP05	C48	RX	CLASS	Any	0.041
DP05	74177	PX	CPT	Any	0.041
DP05	F10	DX	10	Often	0.041
DP05	K74	DX	10	Frequent	0.041
DP05	0WQF0ZZ	PX	10	Any	0.040
DP05	A4385	PX	HCPCS	Any	0.040
DP05	43239	PX	CPT	Any	0.040
DP05	F10	DX	10	Frequent	0.040
DP05	R19	DX	10	Any	0.039
DP05	C1119	RX	CLASS	Frequent	0.039
DP05	A0427	PX	HCPCS	Any	0.039

Appendix H. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 50-64 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP05	H0046	PX	HCPCS	Any	0.039
DP05	C215	RX	CLASS	Any	0.039
DP05	99605	PX	CPT	Any	0.039
DP05	G0103	PX	HCPCS	Any	0.039
DP05	C826	RX	CLASS	Any	0.039
DP05	R59	DX	10	Frequent	0.038
DP05	D12	DX	10	Any	0.038
DP05	82728	PX	CPT	Any	0.038
DP05	D12	DX	10	Often	0.037
DP05	C1894	PX	HCPCS	Any	0.037
DP05	K31	DX	10	Any	0.037
DP05	C1132	RX	CLASS	Any	0.037
DP05	J0330	PX	HCPCS	Any	0.036
DP05	99211	PX	CPT	Any	0.036
DP05	72100	PX	CPT	Any	0.036
DP05	D64	DX	10	Frequent	0.036
DP05	L40	DX	10	Often	0.036
DP05	82150	PX	CPT	Any	0.035
DP05	C42	RX	CLASS	Often	0.035
DP05	87081	PX	CPT	Any	0.035
DP05	R73	DX	10	Any	0.034
DP05	R91	DX	10	Any	0.034
DP05	R19	DX	10	Frequent	0.034
DP05	88312	PX	CPT	Any	0.034
DP05	G0500	PX	HCPCS	Any	0.033
DP05	Z68	DX	10	Any	0.032
DP05	H90	DX	10	Any	0.031
DP05	C693	RX	CLASS	Any	0.031
DP05	Z91	DX	10	Frequent	0.031
DP05	G56	DX	10	Frequent	0.031
DP05	J43	DX	10	Frequent	0.031
DP05	H91	DX	10	Any	0.031

Appendix I. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP01	K92	DX	10	Any	0.052
DP01	K92	DX	10	Often	0.043
DP01	D62	DX	10	Any	0.037
DP01	D62	DX	10	Often	0.035
DP01	K92	DX	10	Frequent	0.034
DP01	N18	DX	10	Any	0.033
DP01	N18	DX	10	Often	0.029
DP01	D50	DX	10	Any	0.028
DP01	99223	PX	CPT	Any	0.026
DP01	99306	PX	CPT	Any	0.025
DP01	731	PX	CPT	Any	0.024
DP01	K25	DX	10	Any	0.023
DP01	99308	PX	CPT	Any	0.023
DP01	A0428	PX	HCPCS	Any	0.022
DP01	99309	PX	CPT	Any	0.022
DP01	R11	DX	10	Any	0.021
DP01	D50	DX	10	Often	0.021
DP01	0DJ08ZZ	PX	10	Any	0.021
DP01	30233N1	PX	10	Any	0.020
DP01	0DB68ZX	PX	10	Any	0.020
DP01	99232	PX	CPT	Any	0.019
DP01	R26	DX	10	Any	0.019
DP01	D64	DX	10	Often	0.019
DP01	K25	DX	10	Often	0.018
DP01	D64	DX	10	Any	0.018
DP01	Z91	DX	10	Any	0.018
DP01	D64	DX	10	Frequent	0.017
DP01	D62	DX	10	Frequent	0.017
DP01	N17	DX	10	Any	0.017
DP01	I12	DX	10	Any	0.017
DP01	R06	DX	10	Any	0.016
DP01	R10	DX	10	Any	0.015
DP01	99223	PX	CPT	Often	0.015
DP01	E86	DX	10	Any	0.015
DP01	84100	PX	CPT	Any	0.015
DP01	R29	DX	10	Any	0.015

Appendix I. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP01	K25	DX	10	Frequent	0.015
DP01	M62	DX	10	Any	0.015
DP01	D50	DX	10	Frequent	0.014
DP01	99233	PX	CPT	Any	0.014
DP01	R11	DX	10	Often	0.014
DP01	K21	DX	10	Frequent	0.014
DP01	99222	PX	CPT	Any	0.014
DP01	99285	PX	CPT	Any	0.013
DP01	Z74	DX	10	Frequent	0.013
DP01	74177	PX	CPT	Any	0.013
DP01	99310	PX	CPT	Any	0.013
DP01	74176	PX	CPT	Any	0.013
DP01	R13	DX	10	Any	0.013
DP01	C58	RX	CLASS	Often	0.013
DP01	D04_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.013
DP01	E11	DX	10	Often	0.012
DP01	R26	DX	10	Often	0.012
DP01	88342	PX	CPT	Any	0.012
DP01	A0427	PX	HCPCS	Any	0.012
DP01	43235	PX	CPT	Any	0.012
DP01	F17	DX	10	Any	0.012
DP01	N18	DX	10	Frequent	0.012
DP01	R11	DX	10	Frequent	0.012
DP01	I95	DX	10	Any	0.012
DP01	83970	PX	CPT	Any	0.012
DP01	N17	DX	10	Often	0.012
DP01	J98	DX	10	Frequent	0.011
DP01	E11	DX	10	Any	0.011
DP01	R06	DX	10	Often	0.011
DP01	K29	DX	10	Any	0.011
DP01	G93	DX	10	Often	0.011
DP01	93010	PX	CPT	Any	0.011
DP01	K31	DX	10	Any	0.011
DP01	I12	DX	10	Often	0.011
DP01	A0428	PX	HCPCS	Frequent	0.011
DP01	J44	DX	10	Any	0.011

Appendix I. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP01	B96	DX	10	Any	0.011
DP01	E11	DX	10	Frequent	0.011
DP01	A0425	PX	HCPCS	Frequent	0.011
DP01	99309	PX	CPT	Often	0.010
DP01	R27	DX	10	Any	0.010
DP01	R41	DX	10	Any	0.010
DP01	0W3P8ZZ	PX	10	Any	0.010
DP01	99308	PX	CPT	Frequent	0.010
DP01	76705	PX	CPT	Any	0.010
DP01	71045	PX	CPT	Any	0.010
DP01	J44	DX	10	Often	0.010
DP01	C58	RX	CLASS	Any	0.010
DP01	81001	PX	CPT	Any	0.010
DP01	I48	DX	10	Often	0.010
DP01	K21	DX	10	Often	0.010
DP01	R10	DX	10	Often	0.010
DP01	G93	DX	10	Any	0.010
DP01	F17	DX	10	Often	0.010
DP01	I63	DX	10	Frequent	0.009
DP01	Z79	DX	10	Often	0.009
DP01	84156	PX	CPT	Any	0.009
DP01	Z74	DX	10	Any	0.009
DP01	D04_INT_ALL_Q4	PX	CPT	Q4ServiceInt	0.009
DP01	0DB98ZX	PX	10	Any	0.009
DP01	R07	DX	10	Any	0.009
DP01	93010	PX	CPT	Frequent	0.009
DP01	83880	PX	CPT	Any	0.009
DP01	99291	PX	CPT	Any	0.009
DP02	S9501	PX	HCPCS	Frequent	0.368
DP02	V2304	PX	HCPCS	Any	0.254
DP02	S9501	PX	HCPCS	Often	0.234
DP02	99225	PX	CPT	Any	0.179
DP02	99285	PX	CPT	Any	0.178
DP02	F10	DX	10	Frequent	0.169
DP02	84156	PX	CPT	Any	0.154
DP02	B2111ZZ	PX	10	Any	0.153

Appendix I. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP02	E78	DX	10	Frequent	0.143
DP02	R07	DX	10	Any	0.143
DP02	85379	PX	CPT	Any	0.140
DP02	99239	PX	CPT	Any	0.139
DP02	R18	DX	10	Any	0.133
DP02	D64	DX	10	Any	0.131
DP02	80053	PX	CPT	Any	0.131
DP02	C1010	RX	CLASS	Any	0.129
DP02	A9270	PX	HCPCS	Frequent	0.126
DP02	93010	PX	CPT	Any	0.121
DP02	86140	PX	CPT	Any	0.119
DP02	K92	DX	10	Any	0.118
DP02	85025	PX	CPT	Any	0.117
DP02	77001	PX	CPT	Frequent	0.107
DP02	D03_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.106
DP02	Q9957	PX	HCPCS	Any	0.106
DP02	K29	DX	10	Any	0.103
DP02	I77	DX	10	Any	0.102
DP02	R79	DX	10	Any	0.101
DP02	66984	PX	CPT	Often	0.100
DP02	E86	DX	10	Any	0.098
DP02	K76	DX	10	Any	0.098
DP02	83540	PX	CPT	Any	0.097
DP02	G47	DX	10	Frequent	0.095
DP02	Z79	DX	10	Any	0.092
DP02	N13	DX	10	Frequent	0.092
DP02	A9575	PX	HCPCS	Any	0.091
DP02	J1650	PX	HCPCS	Often	0.089
DP02	R25	DX	10	Frequent	0.089
DP02	E78	DX	10	Any	0.088
DP02	C107	RX	CLASS	Often	0.087
DP02	Z68	DX	10	Any	0.083
DP02	H52	DX	10	Often	0.082
DP02	80053	PX	CPT	Frequent	0.082
DP02	86900	PX	CPT	Any	0.082
DP02	86901	PX	CPT	Any	0.082

Appendix I. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP02	99285	PX	CPT	Frequent	0.081
DP02	83550	PX	CPT	Any	0.081
DP02	66984	PX	CPT	Any	0.080
DP02	92136	PX	CPT	Any	0.079
DP02	86038	PX	CPT	Any	0.079
DP02	87635	PX	CPT	Any	0.079
DP02	C140	RX	CLASS	Often	0.079
DP02	83735	PX	CPT	Frequent	0.078
DP02	81001	PX	CPT	Any	0.078
DP02	G25	DX	10	Any	0.078
DP02	Z88	DX	10	Any	0.078
DP02	C8929	PX	HCPCS	Any	0.077
DP02	86850	PX	CPT	Any	0.077
DP02	74177	PX	CPT	Any	0.077
DP02	R07	DX	10	Often	0.076
DP02	E66	DX	10	Any	0.075
DP02	A9270	PX	HCPCS	Any	0.075
DP02	96160	PX	CPT	Any	0.074
DP02	R74	DX	10	Frequent	0.074
DP02	N63	DX	10	Frequent	0.074
DP02	J2785	PX	HCPCS	Any	0.074
DP02	83690	PX	CPT	Any	0.073
DP02	85014	PX	CPT	Any	0.073
DP02	C1142	RX	CLASS	Frequent	0.072
DP02	83880	PX	CPT	Any	0.071
DP02	B96	DX	10	Any	0.071
DP02	J1650	PX	HCPCS	Any	0.071
DP02	C1894	PX	HCPCS	Any	0.071
DP02	C42	RX	CLASS	Any	0.070
DP02	R10	DX	10	Often	0.069
DP02	R07	DX	10	Frequent	0.069
DP02	I08	DX	10	Any	0.068
DP02	87040	PX	CPT	Any	0.068
DP02	V2103	PX	HCPCS	Any	0.068
DP02	C987	RX	CLASS	Any	0.068
DP02	C140	RX	CLASS	Any	0.067

Appendix I. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP02	I12	DX	10	Frequent	0.067
DP02	D64	DX	10	Often	0.066
DP02	G47	DX	10	Any	0.065
DP02	M16	DX	10	Often	0.065
DP02	E66	DX	10	Frequent	0.064
DP02	F31	DX	10	Any	0.063
DP02	92012	PX	CPT	Any	0.063
DP02	K76	DX	10	Often	0.063
DP02	C107	RX	CLASS	Any	0.062
DP02	C390	RX	CLASS	Frequent	0.062
DP02	A9552	PX	HCPCS	Any	0.062
DP02	C78	DX	10	Frequent	0.062
DP02	C390	RX	CLASS	Often	0.062
DP02	93005	PX	CPT	Any	0.061
DP02	Z68	DX	10	Frequent	0.061
DP02	N63	DX	10	Any	0.061
DP02	Z17	DX	10	Often	0.060
DP02	V2020	PX	HCPCS	Any	0.060
DP02	84439	PX	CPT	Frequent	0.059
DP02	78815	PX	CPT	Any	0.058
DP03	K92	DX	10	Any	0.042
DP03	D64	DX	10	Often	0.034
DP03	D64	DX	10	Any	0.032
DP03	99308	PX	CPT	Often	0.030
DP03	D64	DX	10	Frequent	0.028
DP03	N18	DX	10	Any	0.028
DP03	K92	DX	10	Frequent	0.027
DP03	99308	PX	CPT	Any	0.027
DP03	K92	DX	10	Often	0.026
DP03	99232	PX	CPT	Any	0.026
DP03	99309	PX	CPT	Any	0.025
DP03	N18	DX	10	Often	0.024
DP03	99239	PX	CPT	Any	0.024
DP03	K21	DX	10	Any	0.023
DP03	D50	DX	10	Often	0.023
DP03	99285	PX	CPT	Any	0.023

Appendix I. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP03	99309	PX	CPT	Often	0.023
DP03	M62	DX	10	Any	0.021
DP03	I12	DX	10	Any	0.021
DP03	99223	PX	CPT	Any	0.021
DP03	K21	DX	10	Often	0.021
DP03	99223	PX	CPT	Frequent	0.021
DP03	99232	PX	CPT	Often	0.021
DP03	A0428	PX	HCPCS	Any	0.021
DP03	D50	DX	10	Any	0.020
DP03	731	PX	CPT	Any	0.020
DP03	99308	PX	CPT	Frequent	0.020
DP03	99233	PX	CPT	Any	0.020
DP03	99222	PX	CPT	Any	0.020
DP03	R13	DX	10	Any	0.020
DP03	99309	PX	CPT	Frequent	0.020
DP03	D62	DX	10	Often	0.019
DP03	Z99	DX	10	Any	0.018
DP03	N18	DX	10	Frequent	0.018
DP03	Z79	DX	10	Often	0.018
DP03	D50	DX	10	Frequent	0.018
DP03	C58	RX	CLASS	Often	0.017
DP03	P9016	PX	HCPCS	Any	0.017
DP03	74177	PX	CPT	Any	0.017
DP03	30233N1	PX	10	Any	0.016
DP03	C58	RX	CLASS	Any	0.016
DP03	D62	DX	10	Any	0.016
DP03	Z79	DX	10	Any	0.015
DP03	D06_INT_UNIQ_Q4	PX	HCPCS	Q4ServiceInt	0.015
DP03	R41	DX	10	Any	0.015
DP03	M62	DX	10	Often	0.015
DP03	N17	DX	10	Any	0.014
DP03	A0427	PX	HCPCS	Any	0.014
DP03	J2405	PX	HCPCS	Any	0.014
DP03	G93	DX	10	Any	0.014
DP03	D62	DX	10	Frequent	0.013
DP03	E87	DX	10	Often	0.013

Appendix I. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP03	R11	DX	10	Any	0.013
DP03	K25	DX	10	Any	0.013
DP03	99306	PX	CPT	Any	0.013
DP03	Z79	DX	10	Frequent	0.013
DP03	43235	PX	CPT	Any	0.012
DP03	D06_INT_ALL_Q4	PX	HCPCS	Q4ServiceInt	0.012
DP03	K21	DX	10	Frequent	0.012
DP03	C58	RX	CLASS	Frequent	0.012
DP03	87040	PX	CPT	Any	0.012
DP03	85610	PX	CPT	Any	0.012
DP03	82948	PX	CPT	Any	0.012
DP03	96365	PX	CPT	Frequent	0.012
DP03	C386	RX	CLASS	Frequent	0.012
DP03	R26	DX	10	Any	0.012
DP03	I63	DX	10	Often	0.012
DP03	Q9967	PX	HCPCS	Any	0.011
DP03	96376	PX	CPT	Any	0.011
DP03	0DB68ZX	PX	10	Any	0.011
DP03	96375	PX	CPT	Any	0.011
DP03	B96	DX	10	Any	0.011
DP03	C388	RX	CLASS	Any	0.011
DP03	D03_INT_UNIQ_Q4	RX	CLASS	Q4ServiceInt	0.011
DP03	K44	DX	10	Any	0.011
DP03	71045	PX	CPT	Any	0.011
DP03	85025	PX	CPT	Frequent	0.011
DP03	J96	DX	10	Frequent	0.011
DP03	I12	DX	10	Frequent	0.011
DP03	D72	DX	10	Often	0.011
DP03	G0010	PX	HCPCS	Frequent	0.010
DP03	C386	RX	CLASS	Any	0.010
DP03	I50	DX	10	Frequent	0.010
DP03	Q0092	PX	HCPCS	Any	0.010
DP03	I10	DX	10	Often	0.010
DP03	M62	DX	10	Frequent	0.010
DP03	G93	DX	10	Often	0.010
DP03	G93	DX	10	Frequent	0.010

Appendix I. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP03	5A1D70Z	PX	10	Any	0.010
DP03	G0378	PX	HCPCS	Any	0.010
DP03	I10	DX	10	Any	0.010
DP03	E11	DX	10	Often	0.010
DP03	E83	DX	10	Any	0.010
DP03	99152	PX	CPT	Any	0.010
DP03	J43	DX	10	Any	0.010
DP03	Z51	DX	10	Any	0.010
DP03	I48	DX	10	Often	0.010
DP03	99217	PX	CPT	Any	0.010
DP03	84100	PX	CPT	Any	0.010
DP03	K22	DX	10	Any	0.010
DP04	K92	DX	10	Any	0.042
DP04	D62	DX	10	Any	0.039
DP04	K92	DX	10	Often	0.038
DP04	99223	PX	CPT	Any	0.037
DP04	731	PX	CPT	Any	0.037
DP04	99233	PX	CPT	Any	0.035
DP04	99222	PX	CPT	Any	0.034
DP04	N18	DX	10	Any	0.033
DP04	D64	DX	10	Often	0.031
DP04	N18	DX	10	Often	0.027
DP04	K25	DX	10	Any	0.026
DP04	30233N1	PX	10	Any	0.025
DP04	D64	DX	10	Frequent	0.025
DP04	K92	DX	10	Frequent	0.023
DP04	0DB68ZX	PX	10	Any	0.022
DP04	99232	PX	CPT	Any	0.022
DP04	N17	DX	10	Often	0.021
DP04	R10	DX	10	Any	0.021
DP04	K21	DX	10	Any	0.021
DP04	99285	PX	CPT	Any	0.020
DP04	99239	PX	CPT	Any	0.020
DP04	D64	DX	10	Any	0.020
DP04	0DJ08ZZ	PX	10	Any	0.019
DP04	D50	DX	10	Any	0.018

Appendix I. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP04	I12	DX	10	Any	0.018
DP04	D50	DX	10	Often	0.017
DP04	R11	DX	10	Any	0.017
DP04	D06_INT_UNIQ_Q1	PX	10	Q1ServiceInt	0.017
DP04	D06_INT_ALL_Q1	PX	10	Q1ServiceInt	0.017
DP04	R06	DX	10	Any	0.016
DP04	K25	DX	10	Frequent	0.015
DP04	N18	DX	10	Frequent	0.015
DP04	74177	PX	CPT	Any	0.015
DP04	R13	DX	10	Any	0.015
DP04	I25	DX	10	Often	0.015
DP04	N17	DX	10	Any	0.014
DP04	71045	PX	CPT	Any	0.014
DP04	71045	PX	CPT	Frequent	0.014
DP04	N17	DX	10	Frequent	0.014
DP04	Z79	DX	10	Frequent	0.014
DP04	I25	DX	10	Frequent	0.014
DP04	J96	DX	10	Frequent	0.014
DP04	99232	PX	CPT	Frequent	0.014
DP04	0DB78ZX	PX	10	Any	0.013
DP04	99285	PX	CPT	Frequent	0.013
DP04	I95	DX	10	Any	0.013
DP04	88305	PX	CPT	Any	0.013
DP04	R19	DX	10	Any	0.013
DP04	R06	DX	10	Often	0.013
DP04	K21	DX	10	Frequent	0.013
DP04	R10	DX	10	Often	0.013
DP04	93010	PX	CPT	Any	0.013
DP04	J44	DX	10	Often	0.012
DP04	J44	DX	10	Any	0.012
DP04	74176	PX	CPT	Any	0.012
DP04	C1097	RX	CLASS	Any	0.012
DP04	Q9967	PX	HCPCS	Any	0.012
DP04	99223	PX	CPT	Frequent	0.011
DP04	0DH63UZ	PX	10	Any	0.011
DP04	R10	DX	10	Frequent	0.011

Appendix I. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP04	I69	DX	10	Any	0.011
DP04	99233	PX	CPT	Frequent	0.011
DP04	96375	PX	CPT	Frequent	0.011
DP04	D04_INT_ALL_Q4	PX	CPT	Q4ServiceInt	0.011
DP04	A41	DX	10	Any	0.011
DP04	K74	DX	10	Any	0.011
DP04	C58	RX	CLASS	Frequent	0.011
DP04	K29	DX	10	Any	0.011
DP04	I69	DX	10	Often	0.010
DP04	3E0G76Z	PX	10	Any	0.010
DP04	0DB98ZX	PX	10	Any	0.010
DP04	I63	DX	10	Often	0.010
DP04	D50	DX	10	Frequent	0.010
DP04	83690	PX	CPT	Any	0.010
DP04	G93	DX	10	Often	0.010
DP04	84156	PX	CPT	Any	0.010
DP04	R13	DX	10	Often	0.010
DP04	G0378	PX	HCPCS	Any	0.010
DP04	C58	RX	CLASS	Often	0.010
DP04	D62	DX	10	Frequent	0.010
DP04	I12	DX	10	Often	0.010
DP04	I69	DX	10	Frequent	0.010
DP04	88342	PX	CPT	Any	0.010
DP04	K74	DX	10	Often	0.010
DP04	E87	DX	10	Frequent	0.010
DP04	D03_INT_UNIQ_Q4	RX	CLASS	Q4ServiceInt	0.010
DP04	I25	DX	10	Any	0.010
DP04	J18	DX	10	Any	0.010
DP04	99309	PX	CPT	Any	0.010
DP04	D06_INT_ALL_Q3	PX	10	Q3ServiceInt	0.010
DP04	I63	DX	10	Any	0.010
DP04	K57	DX	10	Any	0.009
DP04	99308	PX	CPT	Any	0.009
DP04	R53	DX	10	Any	0.009
DP04	K31	DX	10	Frequent	0.009
DP04	84100	PX	CPT	Any	0.009

Appendix I. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP04	96375	PX	CPT	Any	0.009
DP04	G93	DX	10	Frequent	0.009
DP04	96376	PX	CPT	Any	0.009
DP04	99291	PX	CPT	Any	0.009
DP05	73560	PX	CPT	Any	0.342
DP05	99309	PX	CPT	Frequent	0.334
DP05	D63	DX	10	Often	0.303
DP05	E43	DX	10	Any	0.266
DP05	C782	RX	CLASS	Any	0.249
DP05	99316	PX	CPT	Any	0.248
DP05	D64	DX	10	Any	0.246
DP05	G0157	PX	HCPCS	Any	0.230
DP05	B96	DX	10	Frequent	0.228
DP05	99231	PX	CPT	Any	0.227
DP05	J81	DX	10	Any	0.214
DP05	Z68	DX	10	Frequent	0.204
DP05	76770	PX	CPT	Any	0.203
DP05	E11	DX	10	Often	0.200
DP05	A41	DX	10	Any	0.199
DP05	D63	DX	10	Any	0.199
DP05	85060	PX	CPT	Any	0.197
DP05	R49	DX	10	Any	0.195
DP05	82962	PX	CPT	Any	0.192
DP05	I13	DX	10	Often	0.192
DP05	73502	PX	CPT	Frequent	0.190
DP05	81001	PX	CPT	Frequent	0.185
DP05	C1033	RX	CLASS	Frequent	0.184
DP05	C1033	RX	CLASS	Often	0.182
DP05	R13	DX	10	Frequent	0.180
DP05	K21	DX	10	Frequent	0.177
DP05	73560	PX	CPT	Often	0.176
DP05	M48	DX	10	Any	0.175
DP05	E11	DX	10	Frequent	0.171
DP05	I34	DX	10	Frequent	0.167
DP05	G0299	PX	HCPCS	Frequent	0.167
DP05	G0299	PX	HCPCS	Often	0.167

Appendix I. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP05	R13	DX	10	Any	0.164
DP05	I12	DX	10	Any	0.163
DP05	86140	PX	CPT	Any	0.161
DP05	N18	DX	10	Often	0.160
DP05	M51	DX	10	Often	0.159
DP05	R52	DX	10	Frequent	0.157
DP05	99239	PX	CPT	Frequent	0.156
DP05	74176	PX	CPT	Any	0.151
DP05	C487	RX	CLASS	Any	0.149
DP05	G93	DX	10	Frequent	0.147
DP05	71250	PX	CPT	Any	0.147
DP05	G93	DX	10	Often	0.145
DP05	J1885	PX	HCPCS	Any	0.145
DP05	C825	RX	CLASS	Any	0.143
DP05	J3475	PX	HCPCS	Any	0.142
DP05	L03	DX	10	Frequent	0.142
DP05	K74	DX	10	Often	0.141
DP05	M48	DX	10	Often	0.141
DP05	Y92	DX	10	Any	0.138
DP05	88112	PX	CPT	Frequent	0.138
DP05	C1033	RX	CLASS	Any	0.137
DP05	H01	DX	10	Any	0.135
DP05	J1650	PX	HCPCS	Any	0.134
DP05	R50	DX	10	Frequent	0.134
DP05	R74	DX	10	Frequent	0.134
DP05	E44	DX	10	Any	0.130
DP05	A0425	PX	HCPCS	Frequent	0.130
DP05	Z79	DX	10	Frequent	0.130
DP05	99284	PX	CPT	Frequent	0.129
DP05	H01	DX	10	Often	0.128
DP05	99310	PX	CPT	Any	0.124
DP05	009U3ZX	PX	10	Any	0.123
DP05	D03_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.123
DP05	G0300	PX	HCPCS	Any	0.123
DP05	C829	RX	CLASS	Any	0.122
DP05	Z72	DX	10	Any	0.122

Appendix I. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP05	E46	DX	10	Frequent	0.119
DP05	M54	DX	10	Frequent	0.118
DP05	85025	PX	CPT	Any	0.118
DP05	G89	DX	10	Frequent	0.118
DP05	99222	PX	CPT	Any	0.117
DP05	R22	DX	10	Any	0.117
DP05	83735	PX	CPT	Any	0.116
DP05	E66	DX	10	Frequent	0.116
DP05	Z68	DX	10	Any	0.115
DP05	99232	PX	CPT	Frequent	0.114
DP05	R53	DX	10	Often	0.113
DP05	87086	PX	CPT	Any	0.112
DP05	C822	RX	CLASS	Any	0.112
DP05	A41	DX	10	Frequent	0.111
DP05	D69	DX	10	Frequent	0.111
DP05	K74	DX	10	Any	0.110
DP05	C713	RX	CLASS	Any	0.110
DP05	H02	DX	10	Any	0.109
DP05	731	PX	CPT	Any	0.107
DP05	R47	DX	10	Any	0.107
DP05	02HV33Z	PX	10	Any	0.106
DP05	R32	DX	10	Any	0.106
DP05	I50	DX	10	Frequent	0.106
DP05	M62	DX	10	Any	0.105
DP05	A0427	PX	HCPCS	Any	0.105
DP05	93308	PX	CPT	Any	0.105
DP05	N39	DX	10	Any	0.105
DP05	M51	DX	10	Any	0.104
DP05	C42	RX	CLASS	Any	0.104
DP05	R18	DX	10	Any	0.104
DP05	80053	PX	CPT	Frequent	0.103
DP05	I10	DX	10	Frequent	0.103

Appendix J. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP01	K92	DX	10	Any	0.052
DP01	99223	PX	CPT	Any	0.038
DP01	99222	PX	CPT	Any	0.038
DP01	K92	DX	10	Often	0.037
DP01	99232	PX	CPT	Any	0.035
DP01	D62	DX	10	Any	0.032
DP01	99285	PX	CPT	Any	0.032
DP01	D50	DX	10	Any	0.031
DP01	731	PX	CPT	Any	0.031
DP01	99233	PX	CPT	Any	0.028
DP01	D02_INT_ALL_Q4	DX	10	Q4ServiceInt	0.028
DP01	71045	PX	CPT	Any	0.027
DP01	D64	DX	10	Often	0.026
DP01	Z79	DX	10	Often	0.026
DP01	D64	DX	10	Any	0.026
DP01	D02_INT_UNIQ_Q4	DX	10	Q4ServiceInt	0.025
DP01	K92	DX	10	Frequent	0.025
DP01	D50	DX	10	Often	0.025
DP01	99285	PX	CPT	Often	0.024
DP01	99223	PX	CPT	Often	0.023
DP01	R06	DX	10	Any	0.023
DP01	N17	DX	10	Any	0.022
DP01	R06	DX	10	Often	0.022
DP01	93010	PX	CPT	Any	0.021
DP01	99232	PX	CPT	Often	0.021
DP01	D62	DX	10	Often	0.021
DP01	N18	DX	10	Any	0.020
DP01	99233	PX	CPT	Often	0.020
DP01	Z79	DX	10	Frequent	0.020
DP01	D64	DX	10	Frequent	0.020
DP01	R06	DX	10	Frequent	0.019
DP01	71045	PX	CPT	Often	0.019
DP01	93010	PX	CPT	Frequent	0.019
DP01	I48	DX	10	Often	0.019
DP01	K21	DX	10	Frequent	0.018
DP01	99222	PX	CPT	Frequent	0.018

Appendix J. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP01	K21	DX	10	Any	0.018
DP01	99291	PX	CPT	Any	0.017
DP01	N18	DX	10	Often	0.017
DP01	I25	DX	10	Often	0.017
DP01	99231	PX	CPT	Any	0.017
DP01	A0425	PX	HCPCS	Any	0.017
DP01	Z79	DX	10	Any	0.017
DP01	74177	PX	CPT	Any	0.017
DP01	K21	DX	10	Often	0.016
DP01	Z87	DX	10	Often	0.016
DP01	Z87	DX	10	Any	0.016
DP01	Z95	DX	10	Any	0.016
DP01	0DB68ZX	PX	10	Any	0.016
DP01	R26	DX	10	Any	0.016
DP01	K25	DX	10	Any	0.016
DP01	R10	DX	10	Any	0.016
DP01	D05_INT_UNIQ_Q2	PX	10	Q2ServiceInt	0.015
DP01	A0427	PX	HCPCS	Any	0.015
DP01	I25	DX	10	Any	0.015
DP01	D05_INT_ALL_Q2	PX	10	Q2ServiceInt	0.015
DP01	I48	DX	10	Frequent	0.015
DP01	I50	DX	10	Often	0.014
DP01	71045	PX	CPT	Frequent	0.014
DP01	Z20	DX	10	Any	0.014
DP01	A41	DX	10	Any	0.014
DP01	85025	PX	CPT	Frequent	0.014
DP01	I12	DX	10	Any	0.014
DP01	Z87	DX	10	Frequent	0.013
DP01	74176	PX	CPT	Any	0.013
DP01	I48	DX	10	Any	0.013
DP01	F03	DX	10	Any	0.013
DP01	R11	DX	10	Any	0.013
DP01	K44	DX	10	Any	0.013
DP01	N17	DX	10	Often	0.013
DP01	99239	PX	CPT	Any	0.013
DP01	D06_INT_UNIQ_Q4	PX	HCPCS	Q4ServiceInt	0.013

Appendix J. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP01	J44	DX	10	Any	0.013
DP01	99223	PX	CPT	Frequent	0.013
DP01	83880	PX	CPT	Any	0.013
DP01	Z95	DX	10	Often	0.013
DP01	J90	DX	10	Any	0.013
DP01	93306	PX	CPT	Any	0.013
DP01	Z20	DX	10	Often	0.012
DP01	J44	DX	10	Frequent	0.012
DP01	0DJ08ZZ	PX	10	Any	0.012
DP01	R10	DX	10	Often	0.012
DP01	D04_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.012
DP01	J96	DX	10	Any	0.012
DP01	J98	DX	10	Any	0.012
DP01	99232	PX	CPT	Frequent	0.012
DP01	E86	DX	10	Any	0.012
DP01	P9016	PX	HCPCS	Any	0.012
DP01	99309	PX	CPT	Any	0.011
DP01	G0378	PX	HCPCS	Any	0.011
DP01	K29	DX	10	Any	0.011
DP01	J44	DX	10	Often	0.011
DP01	R11	DX	10	Often	0.011
DP01	K31	DX	10	Any	0.011
DP01	E87	DX	10	Any	0.011
DP01	93005	PX	CPT	Any	0.011
DP01	B96	DX	10	Any	0.011
DP01	84484	PX	CPT	Any	0.011
DP01	85610	PX	CPT	Any	0.011
DP01	A0428	PX	HCPCS	Any	0.011
DP02	K22	DX	10	Often	0.169
DP02	K22	DX	10	Frequent	0.167
DP02	K22	DX	10	Any	0.162
DP02	D01_INT_UNIQ_Q4	DX	10	Q4ServiceInt	0.161
DP02	D64	DX	10	Any	0.156
DP02	99233	PX	CPT	Any	0.141
DP02	D62	DX	10	Any	0.127
DP02	99239	PX	CPT	Any	0.122

Appendix J. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP02	D01_INT_ALL_Q4	DX	10	Q4ServiceInt	0.119
DP02	30233N1	PX	10	Any	0.113
DP02	G0452	PX	HCPCS	Any	0.112
DP02	C172	RX	CLASS	Frequent	0.109
DP02	B35	DX	10	Often	0.108
DP02	99284	PX	CPT	Any	0.107
DP02	D03_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.107
DP02	Z79	DX	10	Any	0.107
DP02	K92	DX	10	Any	0.105
DP02	D50	DX	10	Any	0.102
DP02	U0003	PX	HCPCS	Any	0.101
DP02	E66	DX	10	Any	0.095
DP02	71260	PX	CPT	Any	0.095
DP02	0UT20ZZ	PX	10	Any	0.094
DP02	0UT70ZZ	PX	10	Any	0.094
DP02	B35	DX	10	Any	0.093
DP02	85025	PX	CPT	Frequent	0.093
DP02	71045	PX	CPT	Any	0.092
DP02	99072	PX	CPT	Frequent	0.092
DP02	F10	DX	10	Frequent	0.090
DP02	N17	DX	10	Any	0.089
DP02	99285	PX	CPT	Any	0.088
DP02	D05_INT_ALL_Q4	PX	HCPCS	Q4ServiceInt	0.088
DP02	Z20	DX	10	Any	0.085
DP02	M62	DX	10	Any	0.084
DP02	99291	PX	CPT	Any	0.084
DP02	K83	DX	10	Frequent	0.083
DP02	D05_INT_UNIQ_Q4	PX	HCPCS	Q4ServiceInt	0.083
DP02	C1894	PX	HCPCS	Any	0.083
DP02	D64	DX	10	Often	0.082
DP02	Z79	DX	10	Often	0.082
DP02	W19	DX	10	Frequent	0.080
DP02	E66	DX	10	Frequent	0.079
DP02	A4565	PX	HCPCS	Any	0.077
DP02	G0482	PX	HCPCS	Any	0.077
DP02	I27	DX	10	Any	0.077

Appendix J. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP02	80053	PX	CPT	Frequent	0.076
DP02	K21	DX	10	Frequent	0.075
DP02	R53	DX	10	Any	0.075
DP02	88342	PX	CPT	Any	0.075
DP02	43239	PX	CPT	Any	0.074
DP02	74177	PX	CPT	Any	0.074
DP02	K86	DX	10	Any	0.074
DP02	G0378	PX	HCPCS	Any	0.072
DP02	U0005	PX	HCPCS	Any	0.072
DP02	A41	DX	10	Any	0.072
DP02	88307	PX	CPT	Any	0.072
DP02	99222	PX	CPT	Any	0.071
DP02	K44	DX	10	Any	0.070
DP02	K83	DX	10	Any	0.069
DP02	99232	PX	CPT	Any	0.068
DP02	99306	PX	CPT	Any	0.067
DP02	Z68	DX	10	Any	0.067
DP02	Z20	DX	10	Often	0.065
DP02	99358	PX	CPT	Any	0.064
DP02	G0127	PX	HCPCS	Any	0.064
DP02	85025	PX	CPT	Any	0.063
DP02	Z68	DX	10	Frequent	0.063
DP02	Q9967	PX	HCPCS	Any	0.062
DP02	82962	PX	CPT	Any	0.060
DP02	71045	PX	CPT	Often	0.059
DP02	83605	PX	CPT	Any	0.059
DP02	99309	PX	CPT	Any	0.059
DP02	K83	DX	10	Often	0.059
DP02	E11	DX	10	Frequent	0.059
DP02	Z48	DX	10	Frequent	0.059
DP02	F10	DX	10	Any	0.058
DP02	C806	RX	CLASS	Any	0.058
DP02	97530	PX	CPT	Any	0.058
DP02	G89	DX	10	Frequent	0.057
DP02	C713	RX	CLASS	Frequent	0.057
DP02	G47	DX	10	Any	0.057

Appendix J. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP02	K92	DX	10	Often	0.057
DP02	C806	RX	CLASS	Often	0.056
DP02	731	PX	CPT	Any	0.056
DP02	C806	RX	CLASS	Frequent	0.056
DP02	04V03EZ	PX	10	Any	0.056
DP02	0DBU0ZZ	PX	10	Any	0.056
DP02	0UT90ZZ	PX	10	Any	0.056
DP02	C1085	RX	CLASS	Any	0.056
DP02	C581	RX	CLASS	Any	0.056
DP02	J9271	PX	HCPCS	Often	0.056
DP02	C1085	RX	CLASS	Often	0.056
DP02	C545	RX	CLASS	Often	0.056
DP02	N17	DX	10	Often	0.055
DP02	99072	PX	CPT	Often	0.055
DP02	99223	PX	CPT	Any	0.055
DP02	D03_INT_ALL_Q4	PX	CPT	Q4ServiceInt	0.055
DP02	J2001	PX	HCPCS	Any	0.054
DP02	G47	DX	10	Often	0.054
DP02	R10	DX	10	Any	0.053
DP02	J0696	PX	HCPCS	Any	0.053
DP03	K92	DX	10	Any	0.059
DP03	99233	PX	CPT	Any	0.054
DP03	99222	PX	CPT	Any	0.053
DP03	99232	PX	CPT	Any	0.052
DP03	99223	PX	CPT	Any	0.052
DP03	K92	DX	10	Often	0.052
DP03	99232	PX	CPT	Often	0.045
DP03	D64	DX	10	Often	0.043
DP03	99239	PX	CPT	Any	0.043
DP03	D62	DX	10	Any	0.040
DP03	D64	DX	10	Any	0.038
DP03	99233	PX	CPT	Often	0.038
DP03	D02_INT_ALL_Q4	DX	10	Q4ServiceInt	0.036
DP03	D50	DX	10	Often	0.033
DP03	D04_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.032
DP03	99222	PX	CPT	Frequent	0.032

Appendix J. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP03	93010	PX	CPT	Frequent	0.032
DP03	K92	DX	10	Frequent	0.032
DP03	0DB68ZX	PX	10	Any	0.032
DP03	99231	PX	CPT	Any	0.031
DP03	74176	PX	CPT	Any	0.031
DP03	99223	PX	CPT	Often	0.030
DP03	71045	PX	CPT	Any	0.029
DP03	A0425	PX	HCPCS	Frequent	0.029
DP03	D50	DX	10	Any	0.029
DP03	D02_INT_UNIQ_Q4	DX	10	Q4ServiceInt	0.028
DP03	N17	DX	10	Any	0.028
DP03	99232	PX	CPT	Frequent	0.028
DP03	731	PX	CPT	Any	0.028
DP03	99285	PX	CPT	Any	0.026
DP03	D64	DX	10	Frequent	0.026
DP03	99285	PX	CPT	Frequent	0.024
DP03	D04_INT_ALL_Q4	PX	CPT	Q4ServiceInt	0.024
DP03	D62	DX	10	Often	0.024
DP03	A0425	PX	HCPCS	Any	0.024
DP03	D06_INT_UNIQ_Q4	PX	HCPCS	Q4ServiceInt	0.024
DP03	K21	DX	10	Any	0.024
DP03	71045	PX	CPT	Frequent	0.023
DP03	99233	PX	CPT	Frequent	0.023
DP03	D06_INT_ALL_Q4	PX	HCPCS	Q4ServiceInt	0.021
DP03	J44	DX	10	Often	0.020
DP03	99238	PX	CPT	Any	0.020
DP03	J90	DX	10	Any	0.020
DP03	74177	PX	CPT	Any	0.020
DP03	99223	PX	CPT	Frequent	0.019
DP03	R53	DX	10	Often	0.019
DP03	E87	DX	10	Often	0.019
DP03	J44	DX	10	Frequent	0.019
DP03	E44	DX	10	Any	0.019
DP03	K21	DX	10	Often	0.018
DP03	93010	PX	CPT	Any	0.018
DP03	K25	DX	10	Often	0.018

Appendix J. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP03	N17	DX	10	Often	0.018
DP03	A0429	PX	HCPCS	Any	0.018
DP03	731	PX	CPT	Frequent	0.018
DP03	71045	PX	CPT	Often	0.018
DP03	K25	DX	10	Any	0.018
DP03	30233N1	PX	10	Any	0.018
DP03	J44	DX	10	Any	0.017
DP03	P9016	PX	HCPCS	Any	0.017
DP03	E87	DX	10	Any	0.017
DP03	D04_INT_UNIQ_Q1	PX	CPT	Q1ServiceInt	0.016
DP03	D02_INT_UNIQ_Q1	DX	10	Q1ServiceInt	0.015
DP03	A0428	PX	HCPCS	Any	0.015
DP03	D50	DX	10	Frequent	0.015
DP03	I95	DX	10	Any	0.015
DP03	I10	DX	10	Often	0.015
DP03	99308	PX	CPT	Any	0.014
DP03	R53	DX	10	Frequent	0.014
DP03	J96	DX	10	Any	0.014
DP03	99306	PX	CPT	Any	0.014
DP03	D05_INT_ALL_Q4	PX	10	Q4ServiceInt	0.014
DP03	Z87	DX	10	Any	0.013
DP03	D05_INT_UNIQ_Q3	PX	10	Q3ServiceInt	0.013
DP03	K25	DX	10	Frequent	0.013
DP03	K29	DX	10	Any	0.013
DP03	80048	PX	CPT	Any	0.013
DP03	99309	PX	CPT	Any	0.012
DP03	Z79	DX	10	Any	0.012
DP03	D05_INT_UNIQ_Q4	PX	10	Q4ServiceInt	0.012
DP03	I50	DX	10	Any	0.012
DP03	85025	PX	CPT	Frequent	0.012
DP03	N17	DX	10	Frequent	0.012
DP03	Z87	DX	10	Often	0.012
DP03	D05_INT_ALL_Q3	PX	10	Q3ServiceInt	0.012
DP03	J43	DX	10	Any	0.012
DP03	71275	PX	CPT	Any	0.012
DP03	99221	PX	CPT	Any	0.012

Appendix J. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP03	D02_INT_ALL_Q1	DX	10	Q1ServiceInt	0.012
DP03	D72	DX	10	Any	0.012
DP03	99305	PX	CPT	Any	0.012
DP03	E1390	PX	HCPCS	Any	0.012
DP03	W19	DX	10	Any	0.012
DP03	71250	PX	CPT	Any	0.011
DP03	R91	DX	10	Any	0.011
DP03	E11	DX	10	Often	0.011
DP03	0DJD8ZZ	PX	10	Any	0.011
DP03	0DB98ZX	PX	10	Any	0.011
DP03	86850	PX	CPT	Any	0.011
DP03	99335	PX	CPT	Any	0.011
DP04	99232	PX	CPT	Any	0.055
DP04	99233	PX	CPT	Any	0.052
DP04	99223	PX	CPT	Any	0.049
DP04	99222	PX	CPT	Any	0.046
DP04	K92	DX	10	Any	0.038
DP04	71045	PX	CPT	Any	0.038
DP04	K92	DX	10	Often	0.038
DP04	99232	PX	CPT	Frequent	0.036
DP04	99239	PX	CPT	Any	0.034
DP04	A0425	PX	HCPCS	Any	0.034
DP04	93010	PX	CPT	Any	0.033
DP04	99285	PX	CPT	Any	0.032
DP04	D02_INT_UNIQ_Q4	DX	10	Q4ServiceInt	0.032
DP04	D64	DX	10	Often	0.031
DP04	D62	DX	10	Any	0.028
DP04	N17	DX	10	Any	0.028
DP04	93010	PX	CPT	Frequent	0.027
DP04	D02_INT_ALL_Q4	DX	10	Q4ServiceInt	0.026
DP04	99233	PX	CPT	Frequent	0.026
DP04	A0427	PX	HCPCS	Any	0.025
DP04	731	PX	CPT	Any	0.025
DP04	D64	DX	10	Any	0.025
DP04	I50	DX	10	Any	0.024
DP04	0DB68ZX	PX	10	Any	0.024

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Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP04	R11	DX	10	Any	0.024
DP04	D07_INT_ALL_Q4	PX	HCPCS	Q4ServiceInt	0.024
DP04	D50	DX	10	Any	0.023
DP04	0DJ08ZZ	PX	10	Any	0.023
DP04	J44	DX	10	Often	0.023
DP04	J98	DX	10	Any	0.023
DP04	D64	DX	10	Frequent	0.022
DP04	I48	DX	10	Any	0.021
DP04	99231	PX	CPT	Any	0.021
DP04	I48	DX	10	Often	0.021
DP04	I50	DX	10	Often	0.021
DP04	D04_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.020
DP04	71045	PX	CPT	Frequent	0.020
DP04	N17	DX	10	Often	0.020
DP04	99291	PX	CPT	Any	0.020
DP04	74176	PX	CPT	Any	0.020
DP04	K92	DX	10	Frequent	0.020
DP04	99285	PX	CPT	Frequent	0.020
DP04	85025	PX	CPT	Frequent	0.019
DP04	R91	DX	10	Any	0.019
DP04	99223	PX	CPT	Frequent	0.018
DP04	I48	DX	10	Frequent	0.018
DP04	E87	DX	10	Any	0.018
DP04	J90	DX	10	Any	0.018
DP04	J44	DX	10	Any	0.017
DP04	D50	DX	10	Often	0.017
DP04	Z79	DX	10	Often	0.017
DP04	99221	PX	CPT	Any	0.016
DP04	I50	DX	10	Frequent	0.016
DP04	J18	DX	10	Any	0.016
DP04	N17	DX	10	Frequent	0.016
DP04	43235	PX	CPT	Any	0.015
DP04	A0425	PX	HCPCS	Frequent	0.015
DP04	I25	DX	10	Frequent	0.015
DP04	D07_INT_UNIQ_Q4	PX	HCPCS	Q4ServiceInt	0.015
DP04	K21	DX	10	Any	0.015

Appendix J. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP04	Z20	DX	10	Any	0.015
DP04	I95	DX	10	Any	0.014
DP04	J90	DX	10	Frequent	0.014
DP04	Z74	DX	10	Any	0.014
DP04	88342	PX	CPT	Any	0.014
DP04	I25	DX	10	Often	0.014
DP04	D04_INT_ALL_Q4	PX	CPT	Q4ServiceInt	0.014
DP04	R13	DX	10	Any	0.014
DP04	D06_INT_UNIQ_Q2	PX	10	Q2ServiceInt	0.014
DP04	R06	DX	10	Any	0.014
DP04	96365	PX	CPT	Any	0.014
DP04	D06_INT_ALL_Q2	PX	10	Q2ServiceInt	0.014
DP04	74177	PX	CPT	Any	0.013
DP04	Z79	DX	10	Frequent	0.013
DP04	74018	PX	CPT	Any	0.013
DP04	80053	PX	CPT	Frequent	0.013
DP04	I25	DX	10	Any	0.013
DP04	K25	DX	10	Any	0.013
DP04	K22	DX	10	Frequent	0.013
DP04	E87	DX	10	Often	0.013
DP04	K80	DX	10	Any	0.013
DP04	0DJD8ZZ	PX	10	Any	0.013
DP04	K29	DX	10	Any	0.012
DP04	R10	DX	10	Any	0.012
DP04	E86	DX	10	Any	0.012
DP04	J44	DX	10	Frequent	0.012
DP04	K31	DX	10	Any	0.012
DP04	93306	PX	CPT	Any	0.012
DP04	Z79	DX	10	Any	0.012
DP04	K29	DX	10	Often	0.012
DP04	D02_INT_UNIQ_Q1	DX	10	Q1ServiceInt	0.011
DP04	D03_INT_UNIQ_Q4	RX	CLASS	Q4ServiceInt	0.011
DP04	99284	PX	CPT	Any	0.011
DP04	R53	DX	10	Frequent	0.011
DP04	J96	DX	10	Any	0.011
DP04	J18	DX	10	Often	0.011

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Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP04	D07_INT_UNIQ_Q1	PX	HCPCS	Q1ServiceInt	0.011
DP04	R53	DX	10	Any	0.011
DP04	96375	PX	CPT	Frequent	0.011
DP04	A41	DX	10	Any	0.011
DP05	V2303	PX	HCPCS	Any	0.284
DP05	A4565	PX	HCPCS	Any	0.203
DP05	C384	RX	CLASS	Often	0.193
DP05	80069	PX	CPT	Frequent	0.167
DP05	L03	DX	10	Any	0.155
DP05	C587	RX	CLASS	Any	0.150
DP05	C150	RX	CLASS	Often	0.150
DP05	C150	RX	CLASS	Any	0.148
DP05	99215	PX	CPT	Frequent	0.147
DP05	93970	PX	CPT	Frequent	0.146
DP05	M15	DX	10	Frequent	0.146
DP05	G0152	PX	HCPCS	Frequent	0.144
DP05	Z95	DX	10	Often	0.142
DP05	99308	PX	CPT	Any	0.136
DP05	99490	PX	CPT	Any	0.134
DP05	Z87	DX	10	Any	0.130
DP05	L97	DX	10	Often	0.127
DP05	Z87	DX	10	Frequent	0.124
DP05	93971	PX	CPT	Any	0.124
DP05	99100	PX	CPT	Any	0.123
DP05	D01_INT_ALL_Q4	DX	10	Q4ServiceInt	0.122
DP05	E0156	PX	HCPCS	Any	0.122
DP05	C384	RX	CLASS	Any	0.121
DP05	D12	DX	10	Frequent	0.119
DP05	R77	DX	10	Any	0.116
DP05	99337	PX	CPT	Frequent	0.115
DP05	T4527	PX	HCPCS	Often	0.115
DP05	D72	DX	10	Any	0.113
DP05	R13	DX	10	Frequent	0.112
DP05	Z87	DX	10	Often	0.111
DP05	M15	DX	10	Often	0.110
DP05	90785	PX	CPT	Frequent	0.108

Appendix J. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP05	93296	PX	CPT	Any	0.107
DP05	11721	PX	CPT	Often	0.106
DP05	Q0092	PX	HCPCS	Any	0.106
DP05	Z51	DX	10	Any	0.105
DP05	I82	DX	10	Any	0.101
DP05	N39	DX	10	Frequent	0.101
DP05	99337	PX	CPT	Any	0.101
DP05	142	PX	CPT	Any	0.101
DP05	1126F	PX	CPT	Any	0.100
DP05	99225	PX	CPT	Any	0.099
DP05	D63	DX	10	Frequent	0.099
DP05	99222	PX	CPT	Any	0.097
DP05	E66	DX	10	Frequent	0.097
DP05	76942	PX	CPT	Any	0.095
DP05	S5170	PX	HCPCS	Any	0.095
DP05	C61	DX	10	Frequent	0.095
DP05	M15	DX	10	Any	0.095
DP05	G0153	PX	HCPCS	Any	0.090
DP05	H0046	PX	HCPCS	Any	0.089
DP05	G30	DX	10	Frequent	0.089
DP05	C384	RX	CLASS	Frequent	0.088
DP05	99232	PX	CPT	Frequent	0.088
DP05	99239	PX	CPT	Frequent	0.087
DP05	R97	DX	10	Frequent	0.086
DP05	R97	DX	10	Often	0.086
DP05	L97	DX	10	Any	0.083
DP05	K59	DX	10	Frequent	0.083
DP05	M19	DX	10	Any	0.082
DP05	99309	PX	CPT	Any	0.081
DP05	S5170	PX	HCPCS	Often	0.081
DP05	M79	DX	10	Often	0.081
DP05	Z90	DX	10	Frequent	0.080
DP05	G30	DX	10	Often	0.080
DP05	99309	PX	CPT	Frequent	0.080
DP05	99337	PX	CPT	Often	0.079
DP05	R97	DX	10	Any	0.078

Appendix J. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP05	R09	DX	10	Frequent	0.077
DP05	Z02	DX	10	Frequent	0.077
DP05	A9552	PX	HCPCS	Any	0.077
DP05	I49	DX	10	Any	0.077
DP05	Q9967	PX	HCPCS	Any	0.076
DP05	Z51	DX	10	Frequent	0.075
DP05	G62	DX	10	Any	0.075
DP05	L03	DX	10	Often	0.075
DP05	M79	DX	10	Any	0.075
DP05	11720	PX	CPT	Any	0.073
DP05	99233	PX	CPT	Frequent	0.073
DP05	P9603	PX	HCPCS	Any	0.073
DP05	I26	DX	10	Often	0.073
DP05	I11	DX	10	Any	0.072
DP05	C1189	RX	CLASS	Often	0.072
DP05	F33	DX	10	Any	0.072
DP05	I73	DX	10	Often	0.072
DP05	F32	DX	10	Often	0.071
DP05	N39	DX	10	Any	0.071
DP05	R60	DX	10	Any	0.070
DP05	99232	PX	CPT	Any	0.070
DP05	D01_INT_UNIQ_Q4	DX	10	Q4ServiceInt	0.070
DP05	76376	PX	CPT	Any	0.070
DP05	1170F	PX	CPT	Any	0.070
DP05	99308	PX	CPT	Frequent	0.068
DP05	R0070	PX	HCPCS	Any	0.068
DP05	I47	DX	10	Frequent	0.068
DP05	I73	DX	10	Any	0.068
DP05	J44	DX	10	Any	0.068
DP05	5A09357	PX	10	Any	0.067
DP05	Z92	DX	10	Frequent	0.067
DP05	S9129	PX	HCPCS	Often	0.067

Appendix K. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP01	N18	DX	10	Any	0.062
DP01	Z99	DX	10	Often	0.058
DP01	N17	DX	10	Any	0.057
DP01	0J2TXYZ	PX	10	Any	0.055
DP01	N18	DX	10	Often	0.054
DP01	D63	DX	10	Any	0.051
DP01	N18	DX	10	Frequent	0.051
DP01	93010	PX	CPT	Frequent	0.050
DP01	E87	DX	10	Often	0.049
DP01	D04_INT_ALL_Q4	PX	CPT	Q4ServiceInt	0.047
DP01	99233	PX	CPT	Frequent	0.047
DP01	E87	DX	10	Any	0.047
DP01	81001	PX	CPT	Frequent	0.046
DP01	Z99	DX	10	Any	0.044
DP01	E87	DX	10	Frequent	0.043
DP01	Z99	DX	10	Frequent	0.043
DP01	99285	PX	CPT	Frequent	0.043
DP01	I13	DX	10	Any	0.043
DP01	99233	PX	CPT	Any	0.043
DP01	I12	DX	10	Any	0.042
DP01	A0425	PX	HCPCS	Any	0.041
DP01	99233	PX	CPT	Often	0.041
DP01	90999	PX	CPT	Any	0.041
DP01	D02_INT_UNIQ_Q4	DX	10	Q4ServiceInt	0.040
DP01	99285	PX	CPT	Often	0.040
DP01	A0425	PX	HCPCS	Frequent	0.040
DP01	71045	PX	CPT	Frequent	0.038
DP01	71045	PX	CPT	Often	0.038
DP01	99223	PX	CPT	Often	0.038
DP01	99232	PX	CPT	Often	0.038
DP01	J96	DX	10	Any	0.038
DP01	I69	DX	10	Often	0.037
DP01	99291	PX	CPT	Any	0.037
DP01	731	PX	CPT	Any	0.037
DP01	71045	PX	CPT	Any	0.036
DP01	Z88	DX	10	Often	0.036

Appendix K. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP01	A0427	PX	HCPCS	Any	0.036
DP01	99285	PX	CPT	Any	0.036
DP01	D04_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.035
DP01	R69	DX	10	Any	0.035
DP01	N25	DX	10	Any	0.034
DP01	D02_INT_ALL_Q4	DX	10	Q4ServiceInt	0.034
DP01	D06_INT_ALL_Q4	PX	HCPCS	Q4ServiceInt	0.033
DP01	J98	DX	10	Any	0.033
DP01	99239	PX	CPT	Any	0.033
DP01	D63	DX	10	Often	0.033
DP01	K31	DX	10	Any	0.033
DP01	A41	DX	10	Often	0.033
DP01	A0428	PX	HCPCS	Any	0.033
DP01	Z45	DX	10	Any	0.032
DP01	93010	PX	CPT	Any	0.032
DP01	85025	PX	CPT	Frequent	0.032
DP01	Z88	DX	10	Any	0.032
DP01	I12	DX	10	Frequent	0.032
DP01	A41	DX	10	Frequent	0.032
DP01	N17	DX	10	Often	0.031
DP01	99222	PX	CPT	Any	0.031
DP01	99232	PX	CPT	Frequent	0.030
DP01	C1085	RX	CLASS	Any	0.030
DP01	88305	PX	CPT	Any	0.030
DP01	82947	PX	CPT	Frequent	0.029
DP01	N17	DX	10	Frequent	0.029
DP01	99232	PX	CPT	Any	0.029
DP01	80053	PX	CPT	Frequent	0.028
DP01	A0428	PX	HCPCS	Frequent	0.028
DP01	99223	PX	CPT	Frequent	0.028
DP01	80053	PX	CPT	Any	0.027
DP01	C1124	RX	CLASS	Any	0.027
DP01	88305	PX	CPT	Frequent	0.026
DP01	K21	DX	10	Frequent	0.026
DP01	I12	DX	10	Often	0.026
DP01	99239	PX	CPT	Frequent	0.026

Appendix K. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP01	J7030	PX	HCPCS	Any	0.026
DP01	Z79	DX	10	Often	0.026
DP01	C58	RX	CLASS	Often	0.025
DP01	99221	PX	CPT	Any	0.025
DP01	I69	DX	10	Any	0.025
DP01	J96	DX	10	Often	0.024
DP01	I69	DX	10	Frequent	0.024
DP01	Z86	DX	10	Frequent	0.024
DP01	T81	DX	10	Frequent	0.024
DP01	71250	PX	CPT	Any	0.024
DP01	Z74	DX	10	Frequent	0.024
DP01	J45	DX	10	Any	0.024
DP01	Z91	DX	10	Frequent	0.024
DP01	N25	DX	10	Often	0.024
DP01	99284	PX	CPT	Any	0.024
DP01	93005	PX	CPT	Any	0.024
DP01	Z79	DX	10	Any	0.024
DP01	A0100	PX	HCPCS	Any	0.024
DP01	76937	PX	CPT	Any	0.024
DP01	C420	RX	CLASS	Often	0.023
DP01	R53	DX	10	Frequent	0.023
DP01	Z20	DX	10	Frequent	0.023
DP01	C58	RX	CLASS	Any	0.023
DP01	84132	PX	CPT	Any	0.023
DP01	84484	PX	CPT	Any	0.022
DP01	G0299	PX	HCPCS	Any	0.022
DP01	99283	PX	CPT	Any	0.022
DP01	J45	DX	10	Frequent	0.021
DP02	05HB33Z	PX	10	Any	0.265
DP02	C131	RX	CLASS	Any	0.265
DP02	C138	RX	CLASS	Often	0.265
DP02	E66	DX	10	Frequent	0.211
DP02	Z98	DX	10	Frequent	0.191
DP02	J0690	PX	HCPCS	Any	0.176
DP02	84100	PX	CPT	Any	0.172
DP02	Z68	DX	10	Any	0.171

Appendix K. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP02	J1642	PX	HCPCS	Any	0.169
DP02	84100	PX	CPT	Frequent	0.160
DP02	K22	DX	10	Any	0.160
DP02	K44	DX	10	Any	0.153
DP02	J2795	PX	HCPCS	Any	0.152
DP02	74246	PX	CPT	Frequent	0.149
DP02	K22	DX	10	Often	0.144
DP02	J0171	PX	HCPCS	Any	0.143
DP02	93010	PX	CPT	Any	0.129
DP02	C138	RX	CLASS	Any	0.127
DP02	E66	DX	10	Often	0.124
DP02	74246	PX	CPT	Any	0.121
DP02	R55	DX	10	Often	0.120
DP02	Z98	DX	10	Often	0.117
DP02	82040	PX	CPT	Frequent	0.113
DP02	K42	DX	10	Any	0.110
DP02	88305	PX	CPT	Any	0.110
DP02	E28	DX	10	Frequent	0.107
DP02	D04_INT_UNIQ_Q2	PX	10	Q2ServiceInt	0.107
DP02	M75	DX	10	Frequent	0.103
DP02	93010	PX	CPT	Frequent	0.103
DP02	R50	DX	10	Frequent	0.102
DP02	Z91	DX	10	Frequent	0.101
DP02	Z01	DX	10	Frequent	0.100
DP02	84550	PX	CPT	Any	0.099
DP02	M75	DX	10	Often	0.098
DP02	J1650	PX	HCPCS	Frequent	0.098
DP02	86850	PX	CPT	Any	0.096
DP02	71045	PX	CPT	Often	0.096
DP02	K92	DX	10	Frequent	0.094
DP02	R80	DX	10	Frequent	0.093
DP02	96366	PX	CPT	Frequent	0.093
DP02	E87	DX	10	Any	0.093
DP02	Z68	DX	10	Frequent	0.093
DP02	E66	DX	10	Any	0.093
DP02	20610	PX	CPT	Any	0.092

Appendix K. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP02	Z98	DX	10	Any	0.091
DP02	I51	DX	10	Frequent	0.089
DP02	M19	DX	10	Frequent	0.087
DP02	88307	PX	CPT	Any	0.086
DP02	99396	PX	CPT	Any	0.086
DP02	A4627	PX	HCPCS	Any	0.086
DP02	M19	DX	10	Often	0.085
DP02	71045	PX	CPT	Any	0.083
DP02	H04	DX	10	Any	0.083
DP02	K44	DX	10	Frequent	0.082
DP02	G47	DX	10	Any	0.081
DP02	J1650	PX	HCPCS	Any	0.080
DP02	J7620	PX	HCPCS	Any	0.080
DP02	73030	PX	CPT	Any	0.080
DP02	99291	PX	CPT	Any	0.079
DP02	92012	PX	CPT	Any	0.078
DP02	K92	DX	10	Often	0.077
DP02	R41	DX	10	Frequent	0.076
DP02	C782	RX	CLASS	Any	0.076
DP02	I95	DX	10	Any	0.076
DP02	D50	DX	10	Frequent	0.075
DP02	E55	DX	10	Any	0.075
DP02	D04_INT_ALL_Q2	PX	10	Q2ServiceInt	0.075
DP02	731	PX	CPT	Any	0.075
DP02	J2001	PX	HCPCS	Any	0.074
DP02	M19	DX	10	Any	0.074
DP02	70553	PX	CPT	Often	0.073
DP02	82962	PX	CPT	Any	0.073
DP02	86901	PX	CPT	Any	0.071
DP02	D04_INT_ALL_Q1	PX	10	Q1ServiceInt	0.070
DP02	83970	PX	CPT	Any	0.069
DP02	70450	PX	CPT	Any	0.069
DP02	T78	DX	10	Any	0.068
DP02	J2060	PX	HCPCS	Any	0.068
DP02	86900	PX	CPT	Any	0.067
DP02	M75	DX	10	Any	0.067

Appendix K. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP02	83735	PX	CPT	Frequent	0.067
DP02	97802	PX	CPT	Any	0.067
DP02	80305	PX	CPT	Any	0.066
DP02	99232	PX	CPT	Frequent	0.066
DP02	C428	RX	CLASS	Any	0.066
DP02	J3301	PX	HCPCS	Any	0.065
DP02	Z99	DX	10	Frequent	0.065
DP02	E55	DX	10	Frequent	0.065
DP02	B96	DX	10	Frequent	0.062
DP02	Z09	DX	10	Any	0.062
DP02	D04_INT_UNIQ_Q1	PX	10	Q1ServiceInt	0.062
DP02	93005	PX	CPT	Any	0.061
DP02	J1644	PX	HCPCS	Any	0.060
DP02	70553	PX	CPT	Any	0.060
DP02	Z78	DX	10	Any	0.060
DP02	C401	RX	CLASS	Any	0.059
DP02	92133	PX	CPT	Any	0.059
DP02	85730	PX	CPT	Any	0.058
DP02	83880	PX	CPT	Any	0.058
DP02	N39	DX	10	Frequent	0.056
DP03	Z3A	DX	10	Any	0.088
DP03	Z36	DX	10	Any	0.077
DP03	Z34	DX	10	Any	0.069
DP03	Z36	DX	10	Frequent	0.060
DP03	O99	DX	10	Any	0.059
DP03	Z3A	DX	10	Often	0.058
DP03	Z3A	DX	10	Frequent	0.056
DP03	O26	DX	10	Any	0.054
DP03	Z36	DX	10	Often	0.053
DP03	O99	DX	10	Often	0.052
DP03	O09	DX	10	Any	0.050
DP03	O09	DX	10	Often	0.047
DP03	O09	DX	10	Frequent	0.043
DP03	Z34	DX	10	Often	0.041
DP03	O99	DX	10	Frequent	0.039
DP03	O26	DX	10	Often	0.037

Appendix K. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP03	Z34	DX	10	Frequent	0.033
DP03	731	PX	CPT	Any	0.032
DP03	86850	PX	CPT	Any	0.029
DP03	I10	DX	10	Any	0.026
DP03	86901	PX	CPT	Any	0.024
DP03	E66	DX	10	Frequent	0.023
DP03	84156	PX	CPT	Any	0.022
DP03	86900	PX	CPT	Any	0.022
DP03	O26	DX	10	Frequent	0.022
DP03	I10	DX	10	Often	0.022
DP03	87086	PX	CPT	Any	0.021
DP03	E66	DX	10	Often	0.021
DP03	D04_INT_ALL_Q4	PX	CPT	Q4ServiceInt	0.021
DP03	K21	DX	10	Any	0.020
DP03	K92	DX	10	Any	0.020
DP03	43239	PX	CPT	Any	0.019
DP03	K76	DX	10	Any	0.019
DP03	C1110	RX	CLASS	Any	0.019
DP03	Z32	DX	10	Any	0.018
DP03	I10	DX	10	Frequent	0.017
DP03	86803	PX	CPT	Any	0.017
DP03	E66	DX	10	Any	0.017
DP03	E0603	PX	HCPCS	Any	0.017
DP03	Z39	DX	10	Any	0.017
DP03	E11	DX	10	Often	0.017
DP03	K92	DX	10	Often	0.016
DP03	Z68	DX	10	Frequent	0.016
DP03	C58	RX	CLASS	Any	0.015
DP03	N18	DX	10	Often	0.015
DP03	99223	PX	CPT	Any	0.015
DP03	D04_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.015
DP03	99284	PX	CPT	Any	0.015
DP03	C1124	RX	CLASS	Any	0.015
DP03	88305	PX	CPT	Any	0.015
DP03	K21	DX	10	Frequent	0.015
DP03	E11	DX	10	Any	0.015

Appendix K. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP03	36415	PX	CPT	Frequent	0.014
DP03	84702	PX	CPT	Any	0.014
DP03	C58	RX	CLASS	Frequent	0.013
DP03	88342	PX	CPT	Any	0.013
DP03	G47	DX	10	Any	0.013
DP03	43239	PX	CPT	Often	0.013
DP03	C1110	RX	CLASS	Frequent	0.013
DP03	K22	DX	10	Any	0.013
DP03	74177	PX	CPT	Any	0.012
DP03	99283	PX	CPT	Any	0.012
DP03	K20	DX	10	Any	0.012
DP03	C1124	RX	CLASS	Often	0.012
DP03	C1124	RX	CLASS	Frequent	0.012
DP03	96374	PX	CPT	Any	0.012
DP03	83970	PX	CPT	Any	0.012
DP03	N18	DX	10	Any	0.012
DP03	R11	DX	10	Any	0.012
DP03	87340	PX	CPT	Any	0.011
DP03	0DB68ZX	PX	10	Any	0.011
DP03	99284	PX	CPT	Frequent	0.011
DP03	87591	PX	CPT	Any	0.011
DP03	87491	PX	CPT	Any	0.011
DP03	R10	DX	10	Any	0.011
DP03	A0425	PX	HCPCS	Any	0.011
DP03	99239	PX	CPT	Any	0.011
DP03	81025	PX	CPT	Any	0.011
DP03	C1175	RX	CLASS	Any	0.011
DP03	K31	DX	10	Any	0.010
DP03	84425	PX	CPT	Any	0.010
DP03	797	PX	CPT	Any	0.010
DP03	D06_INT_UNIQ_Q4	PX	HCPCS	Q4ServiceInt	0.010
DP03	87389	PX	CPT	Any	0.010
DP03	J1200	PX	HCPCS	Any	0.010
DP03	A0429	PX	HCPCS	Any	0.010
DP03	K22	DX	10	Often	0.010
DP03	K92	DX	10	Frequent	0.010

Appendix K. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP03	Z98	DX	10	Any	0.010
DP03	0TY00Z0	PX	10	Any	0.010
DP03	88313	PX	CPT	Any	0.010
DP03	99215	PX	CPT	Frequent	0.010
DP03	99152	PX	CPT	Any	0.010
DP03	K29	DX	10	Any	0.009
DP03	Z32	DX	10	Frequent	0.009
DP03	R11	DX	10	Often	0.009
DP03	Z68	DX	10	Any	0.009
DP03	N18	DX	10	Frequent	0.009
DP03	E78	DX	10	Often	0.009
DP03	Q9967	PX	HCPCS	Any	0.009
DP04	Z34	DX	10	Often	0.103
DP04	Z34	DX	10	Frequent	0.081
DP04	Z3A	DX	10	Often	0.080
DP04	Z36	DX	10	Any	0.076
DP04	Z34	DX	10	Any	0.074
DP04	O99	DX	10	Any	0.070
DP04	Z3A	DX	10	Frequent	0.069
DP04	O99	DX	10	Often	0.064
DP04	Z3A	DX	10	Any	0.059
DP04	O99	DX	10	Frequent	0.057
DP04	86900	PX	CPT	Any	0.050
DP04	Z36	DX	10	Often	0.049
DP04	86901	PX	CPT	Any	0.048
DP04	N18	DX	10	Often	0.048
DP04	I10	DX	10	Any	0.047
DP04	86850	PX	CPT	Any	0.046
DP04	87340	PX	CPT	Any	0.046
DP04	Z36	DX	10	Frequent	0.041
DP04	731	PX	CPT	Any	0.041
DP04	N18	DX	10	Any	0.040
DP04	D04_INT_ALL_Q4	PX	CPT	Q4ServiceInt	0.040
DP04	O09	DX	10	Any	0.037
DP04	C131	RX	CLASS	Frequent	0.036
DP04	D02_INT_UNIQ_Q4	DX	10	Q4ServiceInt	0.036

Appendix K. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP04	D02_INT_ALL_Q4	DX	10	Q4ServiceInt	0.036
DP04	K29	DX	10	Any	0.035
DP04	E0603	PX	HCPCS	Any	0.035
DP04	C1124	RX	CLASS	Any	0.034
DP04	G0439	PX	HCPCS	Any	0.033
DP04	K21	DX	10	Any	0.033
DP04	87086	PX	CPT	Any	0.032
DP04	K21	DX	10	Frequent	0.032
DP04	D04_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.031
DP04	5A1D70Z	PX	10	Any	0.029
DP04	99238	PX	CPT	Any	0.029
DP04	36415	PX	CPT	Frequent	0.027
DP04	84100	PX	CPT	Frequent	0.027
DP04	86780	PX	CPT	Any	0.027
DP04	99231	PX	CPT	Any	0.026
DP04	K29	DX	10	Frequent	0.026
DP04	I10	DX	10	Often	0.025
DP04	43239	PX	CPT	Any	0.025
DP04	Z99	DX	10	Frequent	0.024
DP04	D07_INT_ALL_Q4	PX	HCPCS	Q4ServiceInt	0.024
DP04	I50	DX	10	Often	0.023
DP04	K31	DX	10	Any	0.023
DP04	R16	DX	10	Any	0.023
DP04	K76	DX	10	Any	0.023
DP04	C187	RX	CLASS	Any	0.023
DP04	G93	DX	10	Frequent	0.023
DP04	86803	PX	CPT	Any	0.023
DP04	93010	PX	CPT	Frequent	0.022
DP04	K44	DX	10	Any	0.022
DP04	Z39	DX	10	Any	0.022
DP04	C187	RX	CLASS	Often	0.022
DP04	D03_INT_UNIQ_Q4	RX	CLASS	Q4ServiceInt	0.022
DP04	C1124	RX	CLASS	Often	0.022
DP04	J45	DX	10	Often	0.021
DP04	81001	PX	CPT	Any	0.021
DP04	K22	DX	10	Any	0.021

Appendix K. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP04	C1085	RX	CLASS	Any	0.021
DP04	88312	PX	CPT	Any	0.021
DP04	G0463	PX	HCPCS	Frequent	0.021
DP04	3E0R305	PX	10	Frequent	0.020
DP04	G0463	PX	HCPCS	Any	0.020
DP04	C131	RX	CLASS	Often	0.020
DP04	R11	DX	10	Frequent	0.020
DP04	87186	PX	CPT	Any	0.020
DP04	C41	RX	CLASS	Any	0.020
DP04	99284	PX	CPT	Any	0.020
DP04	J45	DX	10	Any	0.019
DP04	C1124	RX	CLASS	Frequent	0.019
DP04	K25	DX	10	Any	0.019
DP04	E66	DX	10	Frequent	0.019
DP04	99152	PX	CPT	Any	0.019
DP04	Z74	DX	10	Any	0.019
DP04	R16	DX	10	Frequent	0.019
DP04	C935	RX	CLASS	Any	0.019
DP04	I10	DX	10	Frequent	0.018
DP04	C1049	RX	CLASS	Any	0.018
DP04	E66	DX	10	Often	0.018
DP04	N18	DX	10	Frequent	0.018
DP04	G93	DX	10	Any	0.018
DP04	Z86	DX	10	Frequent	0.018
DP04	Z86	DX	10	Any	0.017
DP04	88313	PX	CPT	Any	0.017
DP04	I50	DX	10	Any	0.017
DP04	88305	PX	CPT	Any	0.017
DP04	C689	RX	CLASS	Often	0.017
DP04	J2357	PX	HCPCS	Any	0.017
DP04	Z78	DX	10	Any	0.017
DP04	0W9G3ZZ	PX	10	Any	0.017
DP04	R10	DX	10	Any	0.017
DP04	0DBN8ZX	PX	10	Any	0.017
DP04	3E0R305	PX	10	Any	0.016
DP04	R10	DX	10	Frequent	0.016

Appendix K. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP04	M10	DX	10	Any	0.016
DP04	99213	PX	CPT	Often	0.016
DP04	85025	PX	CPT	Frequent	0.016
DP04	K76	DX	10	Frequent	0.016
DP05	O09	DX	10	Any	0.305
DP05	Z36	DX	10	Any	0.274
DP05	86762	PX	CPT	Any	0.237
DP05	O09	DX	10	Often	0.230
DP05	Z3A	DX	10	Any	0.227
DP05	Z36	DX	10	Often	0.204
DP05	O26	DX	10	Any	0.201
DP05	Z34	DX	10	Any	0.182
DP05	86780	PX	CPT	Any	0.175
DP05	O99	DX	10	Any	0.169
DP05	O99	DX	10	Frequent	0.155
DP05	76801	PX	CPT	Often	0.143
DP05	76816	PX	CPT	Often	0.138
DP05	O09	DX	10	Frequent	0.136
DP05	87340	PX	CPT	Any	0.136
DP05	86850	PX	CPT	Any	0.135
DP05	82950	PX	CPT	Any	0.135
DP05	O26	DX	10	Often	0.134
DP05	Z3A	DX	10	Often	0.130
DP05	76801	PX	CPT	Any	0.129
DP05	Z36	DX	10	Frequent	0.129
DP05	86901	PX	CPT	Any	0.120
DP05	76816	PX	CPT	Any	0.119
DP05	86900	PX	CPT	Any	0.117
DP05	5A1955Z	PX	10	Any	0.113
DP05	76817	PX	CPT	Any	0.111
DP05	76817	PX	CPT	Often	0.106
DP05	K70	DX	10	Any	0.105
DP05	86803	PX	CPT	Any	0.103
DP05	O36	DX	10	Any	0.103
DP05	K20	DX	10	Any	0.103
DP05	81001	PX	CPT	Any	0.098

Appendix K. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP05	84156	PX	CPT	Any	0.098
DP05	0T778DZ	PX	10	Any	0.098
DP05	O21	DX	10	Any	0.097
DP05	O99	DX	10	Often	0.097
DP05	O26	DX	10	Frequent	0.092
DP05	K70	DX	10	Often	0.089
DP05	C1179	RX	CLASS	Any	0.087
DP05	H2035	PX	HCPCS	Any	0.087
DP05	N17	DX	10	Any	0.085
DP05	99239	PX	CPT	Any	0.080
DP05	731	PX	CPT	Any	0.074
DP05	J0696	PX	HCPCS	Any	0.072
DP05	87591	PX	CPT	Any	0.070
DP05	87491	PX	CPT	Any	0.069
DP05	H2015	PX	HCPCS	Frequent	0.068
DP05	Z3A	DX	10	Frequent	0.068
DP05	87086	PX	CPT	Any	0.066
DP05	74018	PX	CPT	Any	0.063
DP05	81025	PX	CPT	Any	0.062
DP05	87389	PX	CPT	Any	0.060
DP05	76815	PX	CPT	Frequent	0.059
DP05	H0038	PX	HCPCS	Any	0.059
DP05	43239	PX	CPT	Any	0.057
DP05	Z96	DX	10	Often	0.057
DP05	99233	PX	CPT	Any	0.057
DP05	D68	DX	10	Any	0.057
DP05	99283	PX	CPT	Any	0.056
DP05	D03_INT_ALL_Q4	PX	CPT	Q4ServiceInt	0.055
DP05	99223	PX	CPT	Any	0.055
DP05	C62	RX	CLASS	Any	0.055
DP05	C1110	RX	CLASS	Any	0.054
DP05	F10	DX	10	Any	0.053
DP05	Z34	DX	10	Often	0.053
DP05	J1170	PX	HCPCS	Any	0.052
DP05	99284	PX	CPT	Frequent	0.052
DP05	99231	PX	CPT	Any	0.052

Appendix K. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP05	R16	DX	10	Any	0.051
DP05	H2035	PX	HCPCS	Frequent	0.051
DP05	Z02	DX	10	Any	0.050
DP05	85049	PX	CPT	Any	0.050
DP05	J2765	PX	HCPCS	Any	0.050
DP05	87040	PX	CPT	Any	0.049
DP05	K44	DX	10	Any	0.049
DP05	C204	RX	CLASS	Any	0.049
DP05	Z96	DX	10	Frequent	0.048
DP05	J0295	PX	HCPCS	Any	0.048
DP05	96376	PX	CPT	Any	0.048
DP05	HZ2ZZZZ	PX	10	Any	0.047
DP05	74177	PX	CPT	Any	0.046
DP05	K31	DX	10	Any	0.046
DP05	99222	PX	CPT	Any	0.046
DP05	Z68	DX	10	Any	0.046
DP05	F10	DX	10	Often	0.046
DP05	76815	PX	CPT	Any	0.045
DP05	A0100	PX	HCPCS	Any	0.045
DP05	83605	PX	CPT	Any	0.045
DP05	E66	DX	10	Any	0.044
DP05	H2035	PX	HCPCS	Often	0.044
DP05	F15	DX	10	Often	0.044
DP05	N17	DX	10	Frequent	0.044
DP05	J2250	PX	HCPCS	Any	0.043
DP05	S0215	PX	HCPCS	Any	0.042
DP05	E10	DX	10	Often	0.042
DP05	97803	PX	CPT	Any	0.042
DP05	E83	DX	10	Any	0.042
DP05	E87	DX	10	Frequent	0.041
DP05	Z32	DX	10	Any	0.041
DP05	96361	PX	CPT	Any	0.041

Appendix L. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 50-64 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP01	N18	DX	10	Any	0.050
DP01	K92	DX	10	Often	0.044
DP01	N18	DX	10	Often	0.043
DP01	K92	DX	10	Any	0.039
DP01	A0428	PX	HCPCS	Any	0.036
DP01	A0425	PX	HCPCS	Frequent	0.031
DP01	Z99	DX	10	Any	0.029
DP01	Z99	DX	10	Often	0.028
DP01	E11	DX	10	Frequent	0.026
DP01	I12	DX	10	Any	0.026
DP01	D50	DX	10	Any	0.025
DP01	731	PX	CPT	Any	0.023
DP01	99232	PX	CPT	Often	0.023
DP01	99309	PX	CPT	Often	0.022
DP01	I13	DX	10	Any	0.022
DP01	J96	DX	10	Any	0.021
DP01	99233	PX	CPT	Frequent	0.021
DP01	R10	DX	10	Any	0.021
DP01	A0429	PX	HCPCS	Any	0.020
DP01	99309	PX	CPT	Any	0.020
DP01	I12	DX	10	Often	0.020
DP01	02HV33Z	PX	10	Any	0.020
DP01	99308	PX	CPT	Any	0.020
DP01	J96	DX	10	Often	0.019
DP01	A0428	PX	HCPCS	Frequent	0.019
DP01	D02_INT_ALL_Q4	DX	10	Q4ServiceInt	0.019
DP01	K29	DX	10	Any	0.019
DP01	Z74	DX	10	Any	0.018
DP01	I69	DX	10	Often	0.018
DP01	R18	DX	10	Any	0.018
DP01	I50	DX	10	Often	0.018
DP01	Z46	DX	10	Any	0.017
DP01	I50	DX	10	Any	0.017
DP01	A41	DX	10	Any	0.017
DP01	K74	DX	10	Any	0.017
DP01	J96	DX	10	Frequent	0.017

Appendix L. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 50-64 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP01	E11	DX	10	Often	0.017
DP01	99232	PX	CPT	Frequent	0.017
DP01	A0425	PX	HCPCS	Any	0.017
DP01	D62	DX	10	Any	0.016
DP01	D50	DX	10	Often	0.016
DP01	N18	DX	10	Frequent	0.016
DP01	74177	PX	CPT	Any	0.016
DP01	K31	DX	10	Any	0.016
DP01	K74	DX	10	Often	0.016
DP01	99291	PX	CPT	Frequent	0.015
DP01	D05_INT_UNIQ_Q4	PX	10	Q4ServiceInt	0.015
DP01	K92	DX	10	Frequent	0.015
DP01	D63	DX	10	Any	0.015
DP01	99223	PX	CPT	Often	0.015
DP01	99308	PX	CPT	Frequent	0.015
DP01	R10	DX	10	Often	0.015
DP01	30233N1	PX	10	Any	0.015
DP01	Z74	DX	10	Frequent	0.015
DP01	A41	DX	10	Often	0.015
DP01	D05_INT_ALL_Q4	PX	10	Q4ServiceInt	0.015
DP01	I12	DX	10	Frequent	0.015
DP01	R11	DX	10	Any	0.015
DP01	N17	DX	10	Any	0.014
DP01	C225	RX	CLASS	Often	0.014
DP01	J18	DX	10	Any	0.014
DP01	C422	RX	CLASS	Any	0.014
DP01	I69	DX	10	Any	0.014
DP01	36556	PX	CPT	Any	0.014
DP01	I63	DX	10	Any	0.014
DP01	C225	RX	CLASS	Any	0.014
DP01	R27	DX	10	Any	0.014
DP01	R09	DX	10	Any	0.014
DP01	99231	PX	CPT	Any	0.014
DP01	G0299	PX	HCPCS	Any	0.014
DP01	88305	PX	CPT	Any	0.013
DP01	99306	PX	CPT	Any	0.013

Appendix L. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 50-64 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP01	Z89	DX	10	Any	0.013
DP01	80048	PX	CPT	Any	0.013
DP01	83735	PX	CPT	Any	0.013
DP01	99309	PX	CPT	Frequent	0.013
DP01	36620	PX	CPT	Any	0.013
DP01	99233	PX	CPT	Any	0.013
DP01	E78	DX	10	Frequent	0.013
DP01	Z87	DX	10	Frequent	0.012
DP01	76705	PX	CPT	Any	0.012
DP01	E78	DX	10	Often	0.012
DP01	K22	DX	10	Often	0.012
DP01	99231	PX	CPT	Frequent	0.012
DP01	I10	DX	10	Frequent	0.012
DP01	D04_INT_ALL_Q4	PX	CPT	Q4ServiceInt	0.012
DP01	J98	DX	10	Frequent	0.012
DP01	0BH17EZ	PX	10	Any	0.012
DP01	K74	DX	10	Frequent	0.012
DP01	99233	PX	CPT	Often	0.012
DP01	D64	DX	10	Any	0.012
DP01	Z46	DX	10	Often	0.012
DP01	71045	PX	CPT	Any	0.012
DP01	93010	PX	CPT	Frequent	0.011
DP01	D63	DX	10	Often	0.011
DP01	L03	DX	10	Often	0.011
DP01	99238	PX	CPT	Any	0.011
DP01	43235	PX	CPT	Any	0.011
DP01	R26	DX	10	Any	0.011
DP01	G93	DX	10	Often	0.011
DP02	0UT20ZZ	PX	10	Any	0.254
DP02	0UT70ZZ	PX	10	Any	0.254
DP02	J9206	PX	HCPCS	Any	0.127
DP02	C713	RX	CLASS	Frequent	0.120
DP02	84402	PX	CPT	Any	0.118
DP02	J1650	PX	HCPCS	Any	0.114
DP02	96413	PX	CPT	Frequent	0.106
DP02	C772	RX	CLASS	Any	0.104

Appendix L. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 50-64 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP02	K22	DX	10	Frequent	0.104
DP02	I82	DX	10	Any	0.104
DP02	86160	PX	CPT	Any	0.103
DP02	S9500	PX	HCPCS	Any	0.100
DP02	C772	RX	CLASS	Frequent	0.100
DP02	R13	DX	10	Any	0.097
DP02	K22	DX	10	Often	0.094
DP02	E29	DX	10	Any	0.093
DP02	G0103	PX	HCPCS	Any	0.092
DP02	N28	DX	10	Frequent	0.086
DP02	E78	DX	10	Any	0.085
DP02	S0164	PX	HCPCS	Any	0.083
DP02	D02_INT_UNIQ_Q3	RX	CLASS	Q3ServiceInt	0.083
DP02	D04_INT_UNIQ_Q4	PX	10	Q4ServiceInt	0.082
DP02	K57	DX	10	Any	0.080
DP02	M48	DX	10	Frequent	0.078
DP02	80061	PX	CPT	Any	0.074
DP02	43239	PX	CPT	Frequent	0.072
DP02	Z68	DX	10	Frequent	0.069
DP02	77080	PX	CPT	Often	0.069
DP02	R13	DX	10	Frequent	0.068
DP02	G0475	PX	HCPCS	Any	0.067
DP02	D04_INT_ALL_Q4	PX	10	Q4ServiceInt	0.067
DP02	82040	PX	CPT	Frequent	0.066
DP02	D12	DX	10	Frequent	0.065
DP02	72040	PX	CPT	Any	0.064
DP02	72100	PX	CPT	Often	0.062
DP02	96413	PX	CPT	Often	0.062
DP02	J9299	PX	HCPCS	Any	0.061
DP02	J3411	PX	HCPCS	Any	0.060
DP02	C1143	RX	CLASS	Any	0.059
DP02	N30	DX	10	Frequent	0.059
DP02	C65	RX	CLASS	Any	0.059
DP02	99443	PX	CPT	Frequent	0.059
DP02	C713	RX	CLASS	Often	0.059
DP02	M53	DX	10	Any	0.058

Appendix L. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 50-64 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP02	G0008	PX	HCPCS	Any	0.058
DP02	77080	PX	CPT	Any	0.058
DP02	J7050	PX	HCPCS	Frequent	0.057
DP02	K44	DX	10	Frequent	0.056
DP02	Z00	DX	10	Any	0.055
DP02	R73	DX	10	Any	0.055
DP02	K22	DX	10	Any	0.055
DP02	84165	PX	CPT	Any	0.055
DP02	Z11	DX	10	Any	0.054
DP02	85027	PX	CPT	Any	0.054
DP02	C65	RX	CLASS	Often	0.053
DP02	72100	PX	CPT	Any	0.052
DP02	Q0162	PX	HCPCS	Any	0.052
DP02	97530	PX	CPT	Any	0.052
DP02	82947	PX	CPT	Frequent	0.050
DP02	E86	DX	10	Any	0.049
DP02	R13	DX	10	Often	0.049
DP02	81001	PX	CPT	Any	0.048
DP02	82310	PX	CPT	Frequent	0.047
DP02	84403	PX	CPT	Any	0.046
DP02	N17	DX	10	Frequent	0.046
DP02	70491	PX	CPT	Any	0.045
DP02	84520	PX	CPT	Frequent	0.044
DP02	C180	RX	CLASS	Any	0.044
DP02	72148	PX	CPT	Any	0.044
DP02	M81	DX	10	Any	0.043
DP02	C101	RX	CLASS	Frequent	0.043
DP02	K31	DX	10	Often	0.043
DP02	C753	RX	CLASS	Any	0.043
DP02	A9585	PX	HCPCS	Any	0.043
DP02	99024	PX	CPT	Any	0.043
DP02	R05	DX	10	Any	0.043
DP02	R79	DX	10	Frequent	0.043
DP02	B37	DX	10	Any	0.042
DP02	R53	DX	10	Any	0.042
DP02	81015	PX	CPT	Frequent	0.041

Appendix L. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 50-64 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP02	70450	PX	CPT	Any	0.040
DP02	K44	DX	10	Any	0.040
DP02	M81	DX	10	Frequent	0.039
DP02	C1022	RX	CLASS	Frequent	0.039
DP02	J2060	PX	HCPCS	Any	0.039
DP02	C207	RX	CLASS	Any	0.039
DP02	D50	DX	10	Any	0.039
DP02	82746	PX	CPT	Any	0.039
DP02	D50	DX	10	Often	0.038
DP02	84460	PX	CPT	Frequent	0.038
DP02	R91	DX	10	Any	0.038
DP02	E66	DX	10	Frequent	0.038
DP02	R09	DX	10	Any	0.037
DP02	82247	PX	CPT	Frequent	0.037
DP02	G1004	PX	HCPCS	Any	0.037
DP02	82247	PX	CPT	Any	0.037
DP02	Z01	DX	10	Frequent	0.036
DP02	C835	RX	CLASS	Any	0.036
DP02	D05_INT_ALL_Q2	PX	HCPCS	Q2ServiceInt	0.036
DP02	R93	DX	10	Any	0.036
DP03	N18	DX	10	Any	0.030
DP03	N18	DX	10	Often	0.025
DP03	N18	DX	10	Frequent	0.019
DP03	K92	DX	10	Frequent	0.016
DP03	I12	DX	10	Any	0.014
DP03	R10	DX	10	Any	0.013
DP03	K92	DX	10	Often	0.013
DP03	G0463	PX	HCPCS	Any	0.012
DP03	K92	DX	10	Any	0.012
DP03	R11	DX	10	Any	0.012
DP03	G93	DX	10	Frequent	0.012
DP03	731	PX	CPT	Any	0.012
DP03	D04_INT_ALL_Q4	PX	CPT	Q4ServiceInt	0.012
DP03	K21	DX	10	Any	0.011
DP03	K44	DX	10	Any	0.011
DP03	J96	DX	10	Often	0.011

Appendix L. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 50-64 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP03	C1175	RX	CLASS	Any	0.011
DP03	99233	PX	CPT	Often	0.011
DP03	99232	PX	CPT	Frequent	0.011
DP03	84100	PX	CPT	Any	0.011
DP03	J96	DX	10	Frequent	0.011
DP03	G93	DX	10	Any	0.011
DP03	70450	PX	CPT	Any	0.010
DP03	J90	DX	10	Any	0.010
DP03	R11	DX	10	Frequent	0.010
DP03	99223	PX	CPT	Frequent	0.010
DP03	99239	PX	CPT	Any	0.010
DP03	D62	DX	10	Often	0.010
DP03	I12	DX	10	Often	0.010
DP03	0DB68ZX	PX	10	Any	0.010
DP03	D62	DX	10	Any	0.010
DP03	77063	PX	CPT	Any	0.010
DP03	C58	RX	CLASS	Any	0.010
DP03	R10	DX	10	Often	0.010
DP03	Z99	DX	10	Frequent	0.009
DP03	K21	DX	10	Frequent	0.009
DP03	77067	PX	CPT	Any	0.009
DP03	99233	PX	CPT	Frequent	0.009
DP03	G0463	PX	HCPCS	Often	0.009
DP03	D05_INT_ALL_Q4	PX	10	Q4ServiceInt	0.009
DP03	C58	RX	CLASS	Frequent	0.009
DP03	D02_INT_UNIQ_Q4	DX	10	Q4ServiceInt	0.009
DP03	J96	DX	10	Any	0.009
DP03	D05_INT_UNIQ_Q4	PX	10	Q4ServiceInt	0.009
DP03	D62	DX	10	Frequent	0.009
DP03	99222	PX	CPT	Any	0.009
DP03	74177	PX	CPT	Any	0.008
DP03	I51	DX	10	Any	0.008
DP03	K25	DX	10	Any	0.008
DP03	R10	DX	10	Frequent	0.008
DP03	Q9967	PX	HCPCS	Any	0.008
DP03	G93	DX	10	Often	0.008

Appendix L. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 50-64 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP03	C388	RX	CLASS	Often	0.008
DP03	R13	DX	10	Any	0.008
DP03	A0427	PX	HCPCS	Any	0.008
DP03	83735	PX	CPT	Any	0.008
DP03	0DJ08ZZ	PX	10	Any	0.008
DP03	99214	PX	CPT	Frequent	0.008
DP03	I12	DX	10	Frequent	0.008
DP03	D64	DX	10	Often	0.008
DP03	99215	PX	CPT	Any	0.007
DP03	76937	PX	CPT	Any	0.007
DP03	R11	DX	10	Often	0.007
DP03	Z74	DX	10	Any	0.007
DP03	99220	PX	CPT	Any	0.007
DP03	D04_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.007
DP03	A0425	PX	HCPCS	Any	0.007
DP03	43235	PX	CPT	Any	0.007
DP03	99284	PX	CPT	Frequent	0.007
DP03	E66	DX	10	Frequent	0.007
DP03	88342	PX	CPT	Any	0.007
DP03	0TY00Z0	PX	10	Any	0.007
DP03	80069	PX	CPT	Any	0.007
DP03	B96	DX	10	Any	0.007
DP03	Z46	DX	10	Any	0.007
DP03	K44	DX	10	Often	0.007
DP03	R91	DX	10	Any	0.007
DP03	K57	DX	10	Any	0.007
DP03	D50	DX	10	Any	0.007
DP03	C388	RX	CLASS	Any	0.007
DP03	99213	PX	CPT	Frequent	0.006
DP03	Z99	DX	10	Any	0.006
DP03	R09	DX	10	Any	0.006
DP03	E87	DX	10	Any	0.006
DP03	E86	DX	10	Any	0.006
DP03	I63	DX	10	Any	0.006
DP03	I48	DX	10	Frequent	0.006
DP03	R19	DX	10	Any	0.006

Appendix L. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 50-64 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP03	99254	PX	CPT	Any	0.006
DP03	K29	DX	10	Any	0.006
DP03	K25	DX	10	Often	0.006
DP03	D06_INT_UNIQ_Q4	PX	HCPCS	Q4ServiceInt	0.006
DP03	J2930	PX	HCPCS	Any	0.006
DP03	0DB78ZX	PX	10	Any	0.006
DP03	R22	DX	10	Any	0.006
DP03	G0463	PX	HCPCS	Frequent	0.006
DP03	K76	DX	10	Any	0.006
DP03	K31	DX	10	Often	0.006
DP03	I73	DX	10	Any	0.006
DP03	D02_INT_ALL_Q4	DX	10	Q4ServiceInt	0.006
DP04	D02_INT_ALL_Q4	DX	10	Q4ServiceInt	0.038
DP04	G0463	PX	HCPCS	Any	0.036
DP04	D02_INT_UNIQ_Q4	DX	10	Q4ServiceInt	0.032
DP04	N18	DX	10	Often	0.031
DP04	D04_INT_ALL_Q4	PX	CPT	Q4ServiceInt	0.030
DP04	N18	DX	10	Any	0.030
DP04	J96	DX	10	Any	0.027
DP04	M79	DX	10	Any	0.027
DP04	D03_INT_UNIQ_Q4	RX	CLASS	Q4ServiceInt	0.026
DP04	D04_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.025
DP04	G0463	PX	HCPCS	Often	0.025
DP04	D07_INT_ALL_Q4	PX	HCPCS	Q4ServiceInt	0.022
DP04	G62	DX	10	Any	0.021
DP04	99214	PX	CPT	Often	0.021
DP04	M79	DX	10	Frequent	0.021
DP04	M79	DX	10	Often	0.020
DP04	M05	DX	10	Any	0.020
DP04	I73	DX	10	Any	0.020
DP04	D06_INT_UNIQ_Q4	PX	10	Q4ServiceInt	0.020
DP04	Z74	DX	10	Any	0.019
DP04	E11	DX	10	Often	0.017
DP04	R26	DX	10	Any	0.017
DP04	D06_INT_ALL_Q4	PX	10	Q4ServiceInt	0.017
DP04	G0378	PX	HCPCS	Any	0.017

Appendix L. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 50-64 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP04	0DB68ZX	PX	10	Any	0.016
DP04	99214	PX	CPT	Frequent	0.016
DP04	C1097	RX	CLASS	Any	0.016
DP04	Z79	DX	10	Often	0.015
DP04	I73	DX	10	Frequent	0.015
DP04	M05	DX	10	Frequent	0.015
DP04	N18	DX	10	Frequent	0.015
DP04	E11	DX	10	Frequent	0.015
DP04	G62	DX	10	Frequent	0.015
DP04	J45	DX	10	Frequent	0.015
DP04	99214	PX	CPT	Any	0.015
DP04	A0425	PX	HCPCS	Frequent	0.015
DP04	I25	DX	10	Frequent	0.014
DP04	D03_INT_ALL_Q4	RX	CLASS	Q4ServiceInt	0.014
DP04	I12	DX	10	Any	0.014
DP04	99348	PX	CPT	Any	0.014
DP04	G0463	PX	HCPCS	Frequent	0.014
DP04	99215	PX	CPT	Any	0.014
DP04	86140	PX	CPT	Any	0.014
DP04	R69	DX	10	Any	0.014
DP04	J1200	PX	HCPCS	Any	0.014
DP04	A9585	PX	HCPCS	Any	0.013
DP04	R29	DX	10	Any	0.013
DP04	K92	DX	10	Any	0.013
DP04	A0428	PX	HCPCS	Any	0.013
DP04	C1097	RX	CLASS	Often	0.013
DP04	D63	DX	10	Any	0.013
DP04	99053	PX	CPT	Any	0.013
DP04	Z79	DX	10	Any	0.013
DP04	77063	PX	CPT	Any	0.013
DP04	J44	DX	10	Any	0.013
DP04	Z99	DX	10	Frequent	0.013
DP04	84100	PX	CPT	Any	0.013
DP04	E1390	PX	HCPCS	Any	0.013
DP04	J44	DX	10	Often	0.012
DP04	I12	DX	10	Often	0.012

Appendix L. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 50-64 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP04	G89	DX	10	Frequent	0.012
DP04	J96	DX	10	Frequent	0.012
DP04	R69	DX	10	Frequent	0.012
DP04	80069	PX	CPT	Frequent	0.012
DP04	J96	DX	10	Often	0.012
DP04	77067	PX	CPT	Any	0.012
DP04	R29	DX	10	Often	0.012
DP04	K22	DX	10	Any	0.012
DP04	84100	PX	CPT	Frequent	0.012
DP04	70450	PX	CPT	Any	0.012
DP04	K21	DX	10	Frequent	0.011
DP04	G0151	PX	HCPCS	Frequent	0.011
DP04	J44	DX	10	Frequent	0.011
DP04	Y92	DX	10	Any	0.011
DP04	R20	DX	10	Frequent	0.011
DP04	80069	PX	CPT	Any	0.011
DP04	C749	RX	CLASS	Frequent	0.011
DP04	M06	DX	10	Any	0.011
DP04	J45	DX	10	Often	0.011
DP04	G89	DX	10	Any	0.011
DP04	I11	DX	10	Any	0.010
DP04	D07_INT_UNIQ_Q4	PX	HCPCS	Q4ServiceInt	0.010
DP04	R26	DX	10	Often	0.010
DP04	99220	PX	CPT	Any	0.010
DP04	I25	DX	10	Often	0.010
DP04	A0425	PX	HCPCS	Any	0.010
DP04	Z91	DX	10	Any	0.010
DP04	Z74	DX	10	Frequent	0.010
DP04	T78	DX	10	Any	0.010
DP04	30233N1	PX	10	Any	0.010
DP04	3E04305	PX	10	Any	0.010
DP04	K92	DX	10	Often	0.010
DP04	87086	PX	CPT	Any	0.010
DP04	K21	DX	10	Any	0.010
DP04	D62	DX	10	Any	0.010
DP04	I50	DX	10	Any	0.010

Appendix L. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 50-64 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP04	M05	DX	10	Often	0.010
DP04	70553	PX	CPT	Any	0.010
DP04	C1186	RX	CLASS	Often	0.010
DP04	K20	DX	10	Any	0.010
DP05	T2023	PX	HCPCS	Frequent	0.255
DP05	K70	DX	10	Any	0.194
DP05	K74	DX	10	Any	0.192
DP05	K70	DX	10	Often	0.178
DP05	K74	DX	10	Often	0.164
DP05	K70	DX	10	Frequent	0.133
DP05	K92	DX	10	Often	0.132
DP05	43235	PX	CPT	Any	0.129
DP05	T2023	PX	HCPCS	Often	0.125
DP05	R18	DX	10	Any	0.121
DP05	T2003	PX	HCPCS	Often	0.105
DP05	T2023	PX	HCPCS	Any	0.100
DP05	F10	DX	10	Any	0.097
DP05	J43	DX	10	Any	0.094
DP05	R22	DX	10	Any	0.093
DP05	K92	DX	10	Any	0.089
DP05	T2003	PX	HCPCS	Frequent	0.088
DP05	V5160	PX	HCPCS	Any	0.087
DP05	F10	DX	10	Frequent	0.086
DP05	86039	PX	CPT	Any	0.085
DP05	76700	PX	CPT	Any	0.080
DP05	F10	DX	10	Often	0.078
DP05	K29	DX	10	Any	0.076
DP05	G0180	PX	HCPCS	Any	0.076
DP05	K22	DX	10	Any	0.074
DP05	V5261	PX	HCPCS	Any	0.072
DP05	76705	PX	CPT	Any	0.067
DP05	76937	PX	CPT	Frequent	0.067
DP05	A4371	PX	HCPCS	Frequent	0.065
DP05	86704	PX	CPT	Any	0.065
DP05	G0179	PX	HCPCS	Often	0.065
DP05	H90	DX	10	Frequent	0.064

Appendix L. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 50-64 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP05	70486	PX	CPT	Often	0.062
DP05	02HV33Z	PX	10	Any	0.060
DP05	C342	RX	CLASS	Any	0.059
DP05	C1751	PX	HCPCS	Any	0.058
DP05	86706	PX	CPT	Any	0.058
DP05	83690	PX	CPT	Any	0.058
DP05	K20	DX	10	Any	0.058
DP05	T2003	PX	HCPCS	Any	0.057
DP05	F17	DX	10	Often	0.055
DP05	S0215	PX	HCPCS	Often	0.055
DP05	G0463	PX	HCPCS	Any	0.055
DP05	S0215	PX	HCPCS	Any	0.054
DP05	Z91	DX	10	Frequent	0.054
DP05	82248	PX	CPT	Any	0.054
DP05	74177	PX	CPT	Any	0.053
DP05	L4360	PX	HCPCS	Any	0.053
DP05	K21	DX	10	Frequent	0.053
DP05	M43	DX	10	Frequent	0.052
DP05	E87	DX	10	Often	0.050
DP05	D05_INT_ALL_Q4	PX	HCPCS	Q4ServiceInt	0.050
DP05	J1815	PX	HCPCS	Any	0.050
DP05	93306	PX	CPT	Any	0.050
DP05	R26	DX	10	Any	0.050
DP05	Z92	DX	10	Frequent	0.048
DP05	R19	DX	10	Any	0.048
DP05	F17	DX	10	Any	0.048
DP05	C42	RX	CLASS	Any	0.048
DP05	87389	PX	CPT	Any	0.047
DP05	83540	PX	CPT	Any	0.047
DP05	R10	DX	10	Often	0.047
DP05	C1725	PX	HCPCS	Any	0.046
DP05	77001	PX	CPT	Frequent	0.045
DP05	R19	DX	10	Frequent	0.044
DP05	J0696	PX	HCPCS	Any	0.043
DP05	99238	PX	CPT	Any	0.043
DP05	A0427	PX	HCPCS	Any	0.043

Appendix L. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 50-64 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP05	D75	DX	10	Any	0.043
DP05	85730	PX	CPT	Any	0.043
DP05	A0425	PX	HCPCS	Any	0.042
DP05	R10	DX	10	Any	0.042
DP05	R91	DX	10	Any	0.042
DP05	L57	DX	10	Frequent	0.042
DP05	70486	PX	CPT	Any	0.042
DP05	K25	DX	10	Frequent	0.042
DP05	D64	DX	10	Any	0.041
DP05	C738	RX	CLASS	Any	0.041
DP05	K74	DX	10	Frequent	0.040
DP05	99204	PX	CPT	Any	0.040
DP05	77001	PX	CPT	Any	0.040
DP05	88342	PX	CPT	Often	0.040
DP05	99239	PX	CPT	Any	0.039
DP05	R73	DX	10	Any	0.039
DP05	I95	DX	10	Any	0.038
DP05	72100	PX	CPT	Any	0.038
DP05	76700	PX	CPT	Frequent	0.037
DP05	K25	DX	10	Any	0.037
DP05	84466	PX	CPT	Any	0.037
DP05	70450	PX	CPT	Often	0.037
DP05	C42	RX	CLASS	Frequent	0.037
DP05	D03_INT_ALL_Q4	PX	CPT	Q4ServiceInt	0.037
DP05	C894	RX	CLASS	Any	0.036
DP05	J1642	PX	HCPCS	Any	0.036
DP05	99211	PX	CPT	Any	0.036
DP05	97035	PX	CPT	Frequent	0.036
DP05	C77	DX	10	Frequent	0.035
DP05	0WQF0ZZ	PX	10	Any	0.035
DP05	D64	DX	10	Frequent	0.035
DP05	K44	DX	10	Any	0.035

Appendix M. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP01	K92	DX	10	Any	0.052
DP01	K92	DX	10	Often	0.043
DP01	D62	DX	10	Any	0.038
DP01	D62	DX	10	Often	0.035
DP01	K92	DX	10	Frequent	0.034
DP01	N18	DX	10	Any	0.033
DP01	N18	DX	10	Often	0.029
DP01	D50	DX	10	Any	0.028
DP01	99223	PX	CPT	Any	0.026
DP01	99306	PX	CPT	Any	0.025
DP01	731	PX	CPT	Any	0.024
DP01	K25	DX	10	Any	0.023
DP01	99308	PX	CPT	Any	0.023
DP01	A0428	PX	HCPCS	Any	0.022
DP01	99309	PX	CPT	Any	0.022
DP01	R11	DX	10	Any	0.021
DP01	D50	DX	10	Often	0.021
DP01	0DJ08ZZ	PX	10	Any	0.021
DP01	30233N1	PX	10	Any	0.020
DP01	0DB68ZX	PX	10	Any	0.020
DP01	99232	PX	CPT	Any	0.019
DP01	D64	DX	10	Often	0.019
DP01	R26	DX	10	Any	0.019
DP01	D64	DX	10	Any	0.018
DP01	K25	DX	10	Often	0.018
DP01	Z91	DX	10	Any	0.018
DP01	D64	DX	10	Frequent	0.017
DP01	D62	DX	10	Frequent	0.017
DP01	N17	DX	10	Any	0.017
DP01	I12	DX	10	Any	0.017
DP01	R06	DX	10	Any	0.016
DP01	R10	DX	10	Any	0.015
DP01	99223	PX	CPT	Often	0.015
DP01	E86	DX	10	Any	0.015
DP01	84100	PX	CPT	Any	0.015
DP01	R29	DX	10	Any	0.015

Appendix M. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP01	K25	DX	10	Frequent	0.015
DP01	M62	DX	10	Any	0.015
DP01	99233	PX	CPT	Any	0.014
DP01	D50	DX	10	Frequent	0.014
DP01	R11	DX	10	Often	0.014
DP01	K21	DX	10	Frequent	0.014
DP01	99222	PX	CPT	Any	0.014
DP01	99285	PX	CPT	Any	0.014
DP01	Z74	DX	10	Frequent	0.013
DP01	74177	PX	CPT	Any	0.013
DP01	74176	PX	CPT	Any	0.013
DP01	99310	PX	CPT	Any	0.013
DP01	R13	DX	10	Any	0.013
DP01	C58	RX	CLASS	Often	0.013
DP01	D04_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.012
DP01	E11	DX	10	Often	0.012
DP01	A0427	PX	HCPCS	Any	0.012
DP01	R26	DX	10	Often	0.012
DP01	88342	PX	CPT	Any	0.012
DP01	F17	DX	10	Any	0.012
DP01	43235	PX	CPT	Any	0.012
DP01	N18	DX	10	Frequent	0.012
DP01	I95	DX	10	Any	0.012
DP01	R11	DX	10	Frequent	0.012
DP01	83970	PX	CPT	Any	0.012
DP01	N17	DX	10	Often	0.012
DP01	R06	DX	10	Often	0.011
DP01	E11	DX	10	Any	0.011
DP01	J98	DX	10	Frequent	0.011
DP01	93010	PX	CPT	Any	0.011
DP01	K29	DX	10	Any	0.011
DP01	G93	DX	10	Often	0.011
DP01	K31	DX	10	Any	0.011
DP01	I12	DX	10	Often	0.011
DP01	A0428	PX	HCPCS	Frequent	0.011
DP01	B96	DX	10	Any	0.011

Appendix M. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP01	J44	DX	10	Any	0.011
DP01	E11	DX	10	Frequent	0.011
DP01	A0425	PX	HCPCS	Frequent	0.010
DP01	99309	PX	CPT	Often	0.010
DP01	R27	DX	10	Any	0.010
DP01	0W3P8ZZ	PX	10	Any	0.010
DP01	71045	PX	CPT	Any	0.010
DP01	R41	DX	10	Any	0.010
DP01	76705	PX	CPT	Any	0.010
DP01	J44	DX	10	Often	0.010
DP01	99308	PX	CPT	Frequent	0.010
DP01	C58	RX	CLASS	Any	0.010
DP01	81001	PX	CPT	Any	0.010
DP01	I48	DX	10	Often	0.010
DP01	K21	DX	10	Often	0.010
DP01	R10	DX	10	Often	0.010
DP01	G93	DX	10	Any	0.010
DP01	F17	DX	10	Often	0.010
DP01	I63	DX	10	Frequent	0.009
DP01	Z79	DX	10	Often	0.009
DP01	84156	PX	CPT	Any	0.009
DP01	0DB98ZX	PX	10	Any	0.009
DP01	93010	PX	CPT	Frequent	0.009
DP01	99291	PX	CPT	Any	0.009
DP01	R07	DX	10	Any	0.009
DP01	Z74	DX	10	Any	0.009
DP01	D04_INT_ALL_Q4	PX	CPT	Q4ServiceInt	0.009
DP01	83880	PX	CPT	Any	0.009
DP02	S9501	PX	HCPCS	Frequent	0.369
DP02	V2304	PX	HCPCS	Any	0.255
DP02	S9501	PX	HCPCS	Often	0.234
DP02	99285	PX	CPT	Any	0.184
DP02	99225	PX	CPT	Any	0.184
DP02	F10	DX	10	Frequent	0.169
DP02	B2111ZZ	PX	10	Any	0.162
DP02	84156	PX	CPT	Any	0.151

Appendix M. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP02	99239	PX	CPT	Any	0.149
DP02	E78	DX	10	Frequent	0.147
DP02	R07	DX	10	Any	0.144
DP02	85379	PX	CPT	Any	0.140
DP02	D64	DX	10	Any	0.139
DP02	R18	DX	10	Any	0.134
DP02	80053	PX	CPT	Any	0.132
DP02	C1010	RX	CLASS	Any	0.130
DP02	A9270	PX	HCPCS	Frequent	0.128
DP02	93010	PX	CPT	Any	0.123
DP02	K92	DX	10	Any	0.120
DP02	85025	PX	CPT	Any	0.118
DP02	86140	PX	CPT	Any	0.112
DP02	D03_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.110
DP02	K76	DX	10	Any	0.108
DP02	77001	PX	CPT	Frequent	0.107
DP02	Q9957	PX	HCPCS	Any	0.106
DP02	K29	DX	10	Any	0.104
DP02	I77	DX	10	Any	0.104
DP02	E86	DX	10	Any	0.102
DP02	R79	DX	10	Any	0.102
DP02	66984	PX	CPT	Often	0.100
DP02	83540	PX	CPT	Any	0.100
DP02	G47	DX	10	Frequent	0.095
DP02	Z79	DX	10	Any	0.094
DP02	A9575	PX	HCPCS	Any	0.091
DP02	N13	DX	10	Frequent	0.091
DP02	E78	DX	10	Any	0.091
DP02	R25	DX	10	Frequent	0.089
DP02	J1650	PX	HCPCS	Frequent	0.089
DP02	J1650	PX	HCPCS	Often	0.089
DP02	C107	RX	CLASS	Often	0.087
DP02	86900	PX	CPT	Any	0.086
DP02	86901	PX	CPT	Any	0.086
DP02	83550	PX	CPT	Any	0.085
DP02	99285	PX	CPT	Frequent	0.084

Appendix M. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP02	Z68	DX	10	Any	0.084
DP02	H52	DX	10	Frequent	0.083
DP02	H52	DX	10	Often	0.083
DP02	86850	PX	CPT	Any	0.082
DP02	80053	PX	CPT	Frequent	0.081
DP02	74177	PX	CPT	Any	0.080
DP02	66984	PX	CPT	Any	0.080
DP02	Z88	DX	10	Any	0.080
DP02	92136	PX	CPT	Any	0.080
DP02	81001	PX	CPT	Any	0.080
DP02	87635	PX	CPT	Any	0.080
DP02	C140	RX	CLASS	Often	0.079
DP02	G25	DX	10	Any	0.079
DP02	86038	PX	CPT	Any	0.079
DP02	83735	PX	CPT	Frequent	0.078
DP02	85014	PX	CPT	Any	0.078
DP02	E66	DX	10	Any	0.077
DP02	A9270	PX	HCPCS	Any	0.077
DP02	C8929	PX	HCPCS	Any	0.077
DP02	R07	DX	10	Often	0.076
DP02	96160	PX	CPT	Any	0.076
DP02	N63	DX	10	Frequent	0.075
DP02	C42	RX	CLASS	Any	0.074
DP02	83690	PX	CPT	Any	0.074
DP02	R74	DX	10	Frequent	0.074
DP02	J1650	PX	HCPCS	Any	0.072
DP02	C1142	RX	CLASS	Frequent	0.072
DP02	R10	DX	10	Often	0.071
DP02	B96	DX	10	Any	0.071
DP02	C1894	PX	HCPCS	Any	0.071
DP02	I08	DX	10	Any	0.070
DP02	87040	PX	CPT	Any	0.070
DP02	D64	DX	10	Often	0.069
DP02	K76	DX	10	Often	0.069
DP02	C140	RX	CLASS	Any	0.068
DP02	J2785	PX	HCPCS	Any	0.068

Appendix M. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP02	V2103	PX	HCPCS	Any	0.068
DP02	C987	RX	CLASS	Any	0.068
DP02	R07	DX	10	Frequent	0.068
DP02	83880	PX	CPT	Any	0.068
DP02	G47	DX	10	Any	0.067
DP02	M16	DX	10	Often	0.066
DP02	E66	DX	10	Frequent	0.065
DP02	92012	PX	CPT	Any	0.064
DP02	C107	RX	CLASS	Any	0.063
DP02	I12	DX	10	Frequent	0.063
DP02	C390	RX	CLASS	Frequent	0.062
DP02	A9552	PX	HCPCS	Any	0.062
DP02	C78	DX	10	Frequent	0.062
DP02	C390	RX	CLASS	Often	0.062
DP02	93005	PX	CPT	Any	0.061
DP02	Z68	DX	10	Frequent	0.061
DP02	76937	PX	CPT	Any	0.061
DP02	V2020	PX	HCPCS	Any	0.061
DP02	D02_INT_ALL_Q4	RX	CLASS	Q4ServiceInt	0.060
DP02	N63	DX	10	Any	0.060
DP03	K92	DX	10	Any	0.042
DP03	D64	DX	10	Often	0.034
DP03	D64	DX	10	Any	0.032
DP03	99308	PX	CPT	Often	0.030
DP03	D64	DX	10	Frequent	0.028
DP03	N18	DX	10	Any	0.027
DP03	K92	DX	10	Frequent	0.027
DP03	99308	PX	CPT	Any	0.027
DP03	K92	DX	10	Often	0.026
DP03	99232	PX	CPT	Any	0.026
DP03	99309	PX	CPT	Any	0.025
DP03	99239	PX	CPT	Any	0.024
DP03	N18	DX	10	Often	0.024
DP03	K21	DX	10	Any	0.023
DP03	D50	DX	10	Often	0.023
DP03	99285	PX	CPT	Any	0.023

Appendix M. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP03	99309	PX	CPT	Often	0.023
DP03	M62	DX	10	Any	0.021
DP03	99223	PX	CPT	Any	0.021
DP03	I12	DX	10	Any	0.021
DP03	99223	PX	CPT	Frequent	0.021
DP03	K21	DX	10	Often	0.021
DP03	99232	PX	CPT	Often	0.021
DP03	A0428	PX	HCPCS	Any	0.020
DP03	D50	DX	10	Any	0.020
DP03	731	PX	CPT	Any	0.020
DP03	99308	PX	CPT	Frequent	0.020
DP03	99222	PX	CPT	Any	0.020
DP03	99233	PX	CPT	Any	0.020
DP03	R13	DX	10	Any	0.020
DP03	99309	PX	CPT	Frequent	0.020
DP03	D62	DX	10	Often	0.019
DP03	Z99	DX	10	Any	0.018
DP03	N18	DX	10	Frequent	0.018
DP03	Z79	DX	10	Often	0.018
DP03	D50	DX	10	Frequent	0.018
DP03	C58	RX	CLASS	Often	0.017
DP03	P9016	PX	HCPCS	Any	0.017
DP03	74177	PX	CPT	Any	0.017
DP03	30233N1	PX	10	Any	0.016
DP03	C58	RX	CLASS	Any	0.016
DP03	D62	DX	10	Any	0.016
DP03	Z79	DX	10	Any	0.015
DP03	D06_INT_UNIQ_Q4	PX	HCPCS	Q4ServiceInt	0.015
DP03	R41	DX	10	Any	0.015
DP03	M62	DX	10	Often	0.015
DP03	A0427	PX	HCPCS	Any	0.015
DP03	N17	DX	10	Any	0.015
DP03	J2405	PX	HCPCS	Any	0.014
DP03	G93	DX	10	Any	0.014
DP03	D62	DX	10	Frequent	0.014
DP03	E87	DX	10	Often	0.013

Appendix M. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP03	R11	DX	10	Any	0.013
DP03	K25	DX	10	Any	0.013
DP03	99306	PX	CPT	Any	0.013
DP03	Z79	DX	10	Frequent	0.013
DP03	D06_INT_ALL_Q4	PX	HCPCS	Q4ServiceInt	0.012
DP03	43235	PX	CPT	Any	0.012
DP03	K21	DX	10	Frequent	0.012
DP03	C58	RX	CLASS	Frequent	0.012
DP03	87040	PX	CPT	Any	0.012
DP03	85610	PX	CPT	Any	0.012
DP03	82948	PX	CPT	Any	0.012
DP03	96365	PX	CPT	Frequent	0.012
DP03	C386	RX	CLASS	Frequent	0.012
DP03	R26	DX	10	Any	0.012
DP03	I63	DX	10	Often	0.012
DP03	Q9967	PX	HCPCS	Any	0.011
DP03	96376	PX	CPT	Any	0.011
DP03	96375	PX	CPT	Any	0.011
DP03	0DB68ZX	PX	10	Any	0.011
DP03	B96	DX	10	Any	0.011
DP03	C388	RX	CLASS	Any	0.011
DP03	D03_INT_UNIQ_Q4	RX	CLASS	Q4ServiceInt	0.011
DP03	K44	DX	10	Any	0.011
DP03	71045	PX	CPT	Any	0.011
DP03	85025	PX	CPT	Frequent	0.011
DP03	J96	DX	10	Frequent	0.011
DP03	D72	DX	10	Often	0.011
DP03	I12	DX	10	Frequent	0.011
DP03	G0010	PX	HCPCS	Frequent	0.010
DP03	C386	RX	CLASS	Any	0.010
DP03	I50	DX	10	Frequent	0.010
DP03	I10	DX	10	Often	0.010
DP03	G93	DX	10	Often	0.010
DP03	M62	DX	10	Frequent	0.010
DP03	G93	DX	10	Frequent	0.010
DP03	5A1D70Z	PX	10	Any	0.010

Appendix M. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP03	Q0092	PX	HCPCS	Any	0.010
DP03	G0378	PX	HCPCS	Any	0.010
DP03	I10	DX	10	Any	0.010
DP03	E83	DX	10	Any	0.010
DP03	E11	DX	10	Often	0.010
DP03	99152	PX	CPT	Any	0.010
DP03	J43	DX	10	Any	0.010
DP03	Z51	DX	10	Any	0.010
DP03	I48	DX	10	Often	0.010
DP03	99217	PX	CPT	Any	0.010
DP03	84100	PX	CPT	Any	0.010
DP03	K22	DX	10	Any	0.009
DP04	K92	DX	10	Any	0.043
DP04	D62	DX	10	Any	0.040
DP04	K92	DX	10	Often	0.038
DP04	99223	PX	CPT	Any	0.038
DP04	731	PX	CPT	Any	0.037
DP04	99233	PX	CPT	Any	0.036
DP04	99222	PX	CPT	Any	0.035
DP04	N18	DX	10	Any	0.032
DP04	D64	DX	10	Often	0.032
DP04	N18	DX	10	Often	0.026
DP04	K25	DX	10	Any	0.026
DP04	30233N1	PX	10	Any	0.025
DP04	D64	DX	10	Frequent	0.025
DP04	K92	DX	10	Frequent	0.023
DP04	99232	PX	CPT	Any	0.023
DP04	0DB68ZX	PX	10	Any	0.022
DP04	N17	DX	10	Often	0.022
DP04	99285	PX	CPT	Any	0.021
DP04	99239	PX	CPT	Any	0.021
DP04	R10	DX	10	Any	0.021
DP04	K21	DX	10	Any	0.021
DP04	D64	DX	10	Any	0.020
DP04	0DJ08ZZ	PX	10	Any	0.019
DP04	D50	DX	10	Any	0.019

Appendix M. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP04	I12	DX	10	Any	0.018
DP04	D50	DX	10	Often	0.018
DP04	R11	DX	10	Any	0.018
DP04	D06_INT_UNIQ_Q1	PX	10	Q1ServiceInt	0.017
DP04	D06_INT_ALL_Q1	PX	10	Q1ServiceInt	0.017
DP04	R06	DX	10	Any	0.017
DP04	K25	DX	10	Frequent	0.015
DP04	74177	PX	CPT	Any	0.015
DP04	N17	DX	10	Any	0.015
DP04	I25	DX	10	Often	0.015
DP04	R13	DX	10	Any	0.015
DP04	N18	DX	10	Frequent	0.015
DP04	71045	PX	CPT	Any	0.015
DP04	71045	PX	CPT	Frequent	0.014
DP04	99232	PX	CPT	Frequent	0.014
DP04	I25	DX	10	Frequent	0.014
DP04	N17	DX	10	Frequent	0.014
DP04	Z79	DX	10	Frequent	0.014
DP04	J96	DX	10	Frequent	0.014
DP04	99285	PX	CPT	Frequent	0.014
DP04	I95	DX	10	Any	0.014
DP04	0DB78ZX	PX	10	Any	0.014
DP04	93010	PX	CPT	Any	0.013
DP04	R19	DX	10	Any	0.013
DP04	88305	PX	CPT	Any	0.013
DP04	R06	DX	10	Often	0.013
DP04	K21	DX	10	Frequent	0.013
DP04	R10	DX	10	Often	0.013
DP04	J44	DX	10	Often	0.013
DP04	J44	DX	10	Any	0.012
DP04	74176	PX	CPT	Any	0.012
DP04	99223	PX	CPT	Frequent	0.012
DP04	C1097	RX	CLASS	Any	0.012
DP04	99233	PX	CPT	Frequent	0.012
DP04	Q9967	PX	HCPCS	Any	0.012
DP04	R10	DX	10	Frequent	0.011

Appendix M. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP04	I69	DX	10	Any	0.011
DP04	0DH63UZ	PX	10	Any	0.011
DP04	96375	PX	CPT	Frequent	0.011
DP04	A41	DX	10	Any	0.011
DP04	K74	DX	10	Any	0.011
DP04	C58	RX	CLASS	Frequent	0.011
DP04	K29	DX	10	Any	0.011
DP04	D04_INT_ALL_Q4	PX	CPT	Q4ServiceInt	0.011
DP04	D50	DX	10	Frequent	0.011
DP04	I69	DX	10	Often	0.011
DP04	0DB98ZX	PX	10	Any	0.010
DP04	3E0G76Z	PX	10	Any	0.010
DP04	83690	PX	CPT	Any	0.010
DP04	I63	DX	10	Often	0.010
DP04	D62	DX	10	Frequent	0.010
DP04	R13	DX	10	Often	0.010
DP04	C58	RX	CLASS	Often	0.010
DP04	G0378	PX	HCPCS	Any	0.010
DP04	I25	DX	10	Any	0.010
DP04	84156	PX	CPT	Any	0.010
DP04	G93	DX	10	Often	0.010
DP04	88342	PX	CPT	Any	0.010
DP04	I69	DX	10	Frequent	0.010
DP04	K74	DX	10	Often	0.010
DP04	E87	DX	10	Frequent	0.010
DP04	J18	DX	10	Any	0.010
DP04	I12	DX	10	Often	0.010
DP04	D03_INT_UNIQ_Q4	RX	CLASS	Q4ServiceInt	0.010
DP04	99291	PX	CPT	Any	0.010
DP04	D06_INT_ALL_Q3	PX	10	Q3ServiceInt	0.010
DP04	R53	DX	10	Any	0.010
DP04	K57	DX	10	Any	0.010
DP04	I63	DX	10	Any	0.009
DP04	K31	DX	10	Frequent	0.009
DP04	96375	PX	CPT	Any	0.009
DP04	84100	PX	CPT	Any	0.009

Appendix M. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP04	99309	PX	CPT	Any	0.009
DP04	96376	PX	CPT	Any	0.009
DP04	99308	PX	CPT	Any	0.009
DP04	G93	DX	10	Frequent	0.009
DP05	R52	DX	10	Frequent	0.326
DP05	D64	DX	10	Any	0.308
DP05	99309	PX	CPT	Frequent	0.284
DP05	J81	DX	10	Any	0.282
DP05	73560	PX	CPT	Any	0.274
DP05	99231	PX	CPT	Any	0.272
DP05	E43	DX	10	Any	0.269
DP05	E43	DX	10	Frequent	0.257
DP05	D63	DX	10	Often	0.256
DP05	0D1B0Z4	PX	10	Any	0.241
DP05	0DB80ZZ	PX	10	Any	0.241
DP05	0DN80ZZ	PX	10	Any	0.241
DP05	0WQF0ZZ	PX	10	Any	0.241
DP05	85060	PX	CPT	Any	0.225
DP05	R13	DX	10	Any	0.220
DP05	K21	DX	10	Frequent	0.220
DP05	02PYX3Z	PX	10	Any	0.213
DP05	C782	RX	CLASS	Any	0.210
DP05	B96	DX	10	Frequent	0.207
DP05	99222	PX	CPT	Any	0.204
DP05	G0157	PX	HCPCS	Any	0.201
DP05	R22	DX	10	Any	0.200
DP05	R13	DX	10	Frequent	0.192
DP05	99239	PX	CPT	Frequent	0.192
DP05	76770	PX	CPT	Any	0.188
DP05	A41	DX	10	Any	0.182
DP05	74176	PX	CPT	Any	0.181
DP05	I13	DX	10	Often	0.181
DP05	99316	PX	CPT	Any	0.179
DP05	D63	DX	10	Any	0.177
DP05	K31	DX	10	Any	0.171
DP05	93880	PX	CPT	Any	0.170

Appendix M. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP05	R49	DX	10	Any	0.169
DP05	Z68	DX	10	Frequent	0.168
DP05	73502	PX	CPT	Frequent	0.168
DP05	82962	PX	CPT	Any	0.164
DP05	E11	DX	10	Often	0.164
DP05	C1033	RX	CLASS	Frequent	0.162
DP05	C1033	RX	CLASS	Often	0.160
DP05	02HV33Z	PX	10	Any	0.159
DP05	81001	PX	CPT	Frequent	0.154
DP05	R47	DX	10	Any	0.153
DP05	73560	PX	CPT	Often	0.153
DP05	99239	PX	CPT	Any	0.152
DP05	N18	DX	10	Often	0.150
DP05	I12	DX	10	Any	0.149
DP05	74018	PX	CPT	Any	0.149
DP05	I34	DX	10	Frequent	0.146
DP05	M48	DX	10	Any	0.146
DP05	E11	DX	10	Frequent	0.145
DP05	N39	DX	10	Any	0.139
DP05	99310	PX	CPT	Any	0.139
DP05	M51	DX	10	Often	0.137
DP05	D03_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.137
DP05	E87	DX	10	Any	0.137
DP05	Z79	DX	10	Frequent	0.133
DP05	A0427	PX	HCPCS	Any	0.133
DP05	86140	PX	CPT	Any	0.131
DP05	C487	RX	CLASS	Any	0.131
DP05	71250	PX	CPT	Any	0.130
DP05	Y92	DX	10	Any	0.127
DP05	G93	DX	10	Frequent	0.126
DP05	G45	DX	10	Any	0.125
DP05	M48	DX	10	Often	0.123
DP05	M62	DX	10	Any	0.123
DP05	G93	DX	10	Often	0.122
DP05	A0425	PX	HCPCS	Frequent	0.121
DP05	J1885	PX	HCPCS	Any	0.121

Appendix M. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP05	C1033	RX	CLASS	Any	0.120
DP05	I10	DX	10	Frequent	0.120
DP05	C825	RX	CLASS	Any	0.120
DP05	K74	DX	10	Often	0.117
DP05	R50	DX	10	Frequent	0.117
DP05	R74	DX	10	Frequent	0.117
DP05	Z48	DX	10	Frequent	0.117
DP05	88112	PX	CPT	Frequent	0.116
DP05	Z74	DX	10	Any	0.115
DP05	93971	PX	CPT	Any	0.115
DP05	H01	DX	10	Any	0.114
DP05	Z72	DX	10	Any	0.114
DP05	E44	DX	10	Any	0.114
DP05	D50	DX	10	Any	0.109
DP05	H01	DX	10	Often	0.109
DP05	03CG3ZZ	PX	10	Any	0.109
DP05	R10	DX	10	Often	0.108
DP05	E0240	PX	HCPCS	Any	0.107
DP05	90791	PX	CPT	Any	0.106
DP05	E46	DX	10	Frequent	0.106
DP05	J3475	PX	HCPCS	Any	0.105
DP05	G0299	PX	HCPCS	Often	0.105
DP05	R06	DX	10	Any	0.105
DP05	A41	DX	10	Frequent	0.105
DP05	R11	DX	10	Any	0.104
DP05	J1650	PX	HCPCS	Any	0.104
DP05	G89	DX	10	Frequent	0.103
DP05	D03_INT_ALL_Q4	PX	CPT	Q4ServiceInt	0.103
DP05	C829	RX	CLASS	Any	0.102
DP05	R29	DX	10	Any	0.101
DP05	99233	PX	CPT	Any	0.101
DP05	K44	DX	10	Frequent	0.101

Appendix N. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP01	K92	DX	10	Any	0.052
DP01	99223	PX	CPT	Any	0.038
DP01	99222	PX	CPT	Any	0.038
DP01	K92	DX	10	Often	0.037
DP01	99232	PX	CPT	Any	0.035
DP01	D62	DX	10	Any	0.032
DP01	99285	PX	CPT	Any	0.032
DP01	D50	DX	10	Any	0.031
DP01	731	PX	CPT	Any	0.031
DP01	99233	PX	CPT	Any	0.028
DP01	D02_INT_ALL_Q4	DX	10	Q4ServiceInt	0.028
DP01	71045	PX	CPT	Any	0.028
DP01	D64	DX	10	Often	0.026
DP01	Z79	DX	10	Often	0.026
DP01	D64	DX	10	Any	0.026
DP01	D02_INT_UNIQ_Q4	DX	10	Q4ServiceInt	0.025
DP01	K92	DX	10	Frequent	0.025
DP01	D50	DX	10	Often	0.025
DP01	99285	PX	CPT	Often	0.024
DP01	99223	PX	CPT	Often	0.023
DP01	R06	DX	10	Any	0.023
DP01	N17	DX	10	Any	0.022
DP01	R06	DX	10	Often	0.022
DP01	93010	PX	CPT	Any	0.021
DP01	99232	PX	CPT	Often	0.021
DP01	D62	DX	10	Often	0.021
DP01	N18	DX	10	Any	0.020
DP01	99233	PX	CPT	Often	0.020
DP01	Z79	DX	10	Frequent	0.020
DP01	D64	DX	10	Frequent	0.020
DP01	R06	DX	10	Frequent	0.019
DP01	71045	PX	CPT	Often	0.019
DP01	93010	PX	CPT	Frequent	0.019
DP01	I48	DX	10	Often	0.019
DP01	K21	DX	10	Frequent	0.018
DP01	99222	PX	CPT	Frequent	0.018

Appendix N. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP01	K21	DX	10	Any	0.018
DP01	99291	PX	CPT	Any	0.018
DP01	N18	DX	10	Often	0.017
DP01	I25	DX	10	Often	0.017
DP01	99231	PX	CPT	Any	0.017
DP01	A0425	PX	HCPCS	Any	0.017
DP01	Z79	DX	10	Any	0.017
DP01	74177	PX	CPT	Any	0.017
DP01	K21	DX	10	Often	0.016
DP01	Z87	DX	10	Often	0.016
DP01	Z95	DX	10	Any	0.016
DP01	Z87	DX	10	Any	0.016
DP01	0DB68ZX	PX	10	Any	0.016
DP01	R26	DX	10	Any	0.016
DP01	K25	DX	10	Any	0.016
DP01	R10	DX	10	Any	0.016
DP01	D05_INT_UNIQ_Q2	PX	10	Q2ServiceInt	0.015
DP01	A0427	PX	HCPCS	Any	0.015
DP01	I25	DX	10	Any	0.015
DP01	D05_INT_ALL_Q2	PX	10	Q2ServiceInt	0.015
DP01	I48	DX	10	Frequent	0.015
DP01	71045	PX	CPT	Frequent	0.014
DP01	I50	DX	10	Often	0.014
DP01	Z20	DX	10	Any	0.014
DP01	A41	DX	10	Any	0.014
DP01	85025	PX	CPT	Frequent	0.014
DP01	I12	DX	10	Any	0.014
DP01	Z87	DX	10	Frequent	0.013
DP01	74176	PX	CPT	Any	0.013
DP01	I48	DX	10	Any	0.013
DP01	F03	DX	10	Any	0.013
DP01	R11	DX	10	Any	0.013
DP01	N17	DX	10	Often	0.013
DP01	K44	DX	10	Any	0.013
DP01	99239	PX	CPT	Any	0.013
DP01	D06_INT_UNIQ_Q4	PX	HCPCS	Q4ServiceInt	0.013

Appendix N. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP01	J44	DX	10	Any	0.013
DP01	99223	PX	CPT	Frequent	0.013
DP01	83880	PX	CPT	Any	0.013
DP01	Z95	DX	10	Often	0.013
DP01	J90	DX	10	Any	0.013
DP01	93306	PX	CPT	Any	0.013
DP01	Z20	DX	10	Often	0.012
DP01	J44	DX	10	Frequent	0.012
DP01	0DJ08ZZ	PX	10	Any	0.012
DP01	R10	DX	10	Often	0.012
DP01	D04_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.012
DP01	J96	DX	10	Any	0.012
DP01	J98	DX	10	Any	0.012
DP01	99232	PX	CPT	Frequent	0.012
DP01	E86	DX	10	Any	0.012
DP01	P9016	PX	HCPCS	Any	0.012
DP01	99309	PX	CPT	Any	0.011
DP01	G0378	PX	HCPCS	Any	0.011
DP01	K29	DX	10	Any	0.011
DP01	J44	DX	10	Often	0.011
DP01	R11	DX	10	Often	0.011
DP01	E87	DX	10	Any	0.011
DP01	K31	DX	10	Any	0.011
DP01	93005	PX	CPT	Any	0.011
DP01	B96	DX	10	Any	0.011
DP01	84484	PX	CPT	Any	0.011
DP01	85610	PX	CPT	Any	0.011
DP01	D50	DX	10	Frequent	0.011
DP02	K22	DX	10	Any	0.193
DP02	D01_INT_UNIQ_Q4	DX	10	Q4ServiceInt	0.181
DP02	D64	DX	10	Any	0.174
DP02	D62	DX	10	Any	0.163
DP02	99233	PX	CPT	Any	0.163
DP02	K22	DX	10	Often	0.160
DP02	K22	DX	10	Frequent	0.158
DP02	K92	DX	10	Any	0.142

Appendix N. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP02	99239	PX	CPT	Any	0.136
DP02	D50	DX	10	Any	0.130
DP02	D01_INT_ALL_Q4	DX	10	Q4ServiceInt	0.126
DP02	30233N1	PX	10	Any	0.117
DP02	71260	PX	CPT	Any	0.116
DP02	Z79	DX	10	Any	0.113
DP02	43239	PX	CPT	Any	0.112
DP02	99284	PX	CPT	Any	0.112
DP02	G0452	PX	HCPCS	Any	0.107
DP02	C172	RX	CLASS	Frequent	0.105
DP02	71045	PX	CPT	Any	0.102
DP02	M62	DX	10	Any	0.102
DP02	99285	PX	CPT	Any	0.102
DP02	B35	DX	10	Often	0.101
DP02	99291	PX	CPT	Any	0.100
DP02	D64	DX	10	Often	0.100
DP02	731	PX	CPT	Any	0.099
DP02	0W3P8ZZ	PX	10	Any	0.097
DP02	D03_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.095
DP02	88342	PX	CPT	Any	0.094
DP02	N17	DX	10	Any	0.093
DP02	Z20	DX	10	Any	0.093
DP02	88307	PX	CPT	Any	0.092
DP02	U0003	PX	HCPCS	Any	0.090
DP02	B35	DX	10	Any	0.090
DP02	0UT20ZZ	PX	10	Any	0.090
DP02	0UT70ZZ	PX	10	Any	0.090
DP02	74177	PX	CPT	Any	0.090
DP02	Z79	DX	10	Often	0.090
DP02	99072	PX	CPT	Frequent	0.088
DP02	D05_INT_ALL_Q4	PX	HCPCS	Q4ServiceInt	0.087
DP02	E66	DX	10	Any	0.087
DP02	0DB68ZX	PX	10	Any	0.086
DP02	F10	DX	10	Frequent	0.085
DP02	85025	PX	CPT	Frequent	0.085
DP02	K25	DX	10	Any	0.084

Appendix N. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP02	99232	PX	CPT	Any	0.084
DP02	99222	PX	CPT	Any	0.083
DP02	99223	PX	CPT	Any	0.079
DP02	K83	DX	10	Frequent	0.079
DP02	W19	DX	10	Frequent	0.078
DP02	43235	PX	CPT	Any	0.078
DP02	E66	DX	10	Frequent	0.077
DP02	I27	DX	10	Any	0.077
DP02	A4565	PX	HCPCS	Any	0.074
DP02	G0482	PX	HCPCS	Any	0.074
DP02	D05_INT_UNIQ_Q4	PX	HCPCS	Q4ServiceInt	0.074
DP02	A41	DX	10	Any	0.072
DP02	80053	PX	CPT	Frequent	0.072
DP02	K76	DX	10	Any	0.072
DP02	K21	DX	10	Frequent	0.071
DP02	K86	DX	10	Any	0.071
DP02	R53	DX	10	Any	0.069
DP02	K44	DX	10	Any	0.069
DP02	85025	PX	CPT	Any	0.068
DP02	G0378	PX	HCPCS	Any	0.068
DP02	I95	DX	10	Often	0.067
DP02	C1894	PX	HCPCS	Any	0.067
DP02	K83	DX	10	Any	0.065
DP02	Z66	DX	10	Any	0.065
DP02	R10	DX	10	Any	0.065
DP02	Z68	DX	10	Frequent	0.064
DP02	99306	PX	CPT	Any	0.064
DP02	D64	DX	10	Frequent	0.063
DP02	88305	PX	CPT	Any	0.063
DP02	Z68	DX	10	Any	0.063
DP02	0DJD8ZZ	PX	10	Any	0.062
DP02	D50	DX	10	Frequent	0.062
DP02	99358	PX	CPT	Any	0.061
DP02	Z20	DX	10	Often	0.060
DP02	U0005	PX	HCPCS	Any	0.060
DP02	Z99	DX	10	Often	0.059

Appendix N. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP02	82570	PX	CPT	Any	0.059
DP02	99309	PX	CPT	Any	0.059
DP02	83605	PX	CPT	Any	0.058
DP02	R79	DX	10	Any	0.058
DP02	99231	PX	CPT	Any	0.058
DP02	G89	DX	10	Frequent	0.058
DP02	Q9967	PX	HCPCS	Any	0.057
DP02	71045	PX	CPT	Often	0.056
DP02	82962	PX	CPT	Any	0.056
DP02	N17	DX	10	Often	0.056
DP02	97530	PX	CPT	Any	0.056
DP02	K83	DX	10	Often	0.056
DP02	F10	DX	10	Any	0.055
DP02	88341	PX	CPT	Any	0.055
DP02	J1756	PX	HCPCS	Any	0.054
DP02	C713	RX	CLASS	Frequent	0.053
DP02	04V03EZ	PX	10	Any	0.053
DP02	0DBU0ZZ	PX	10	Any	0.053
DP02	0UT90ZZ	PX	10	Any	0.053
DP02	C1085	RX	CLASS	Any	0.053
DP03	K92	DX	10	Any	0.061
DP03	99222	PX	CPT	Any	0.054
DP03	K92	DX	10	Often	0.054
DP03	99233	PX	CPT	Any	0.054
DP03	99232	PX	CPT	Any	0.053
DP03	99223	PX	CPT	Any	0.052
DP03	99232	PX	CPT	Often	0.045
DP03	D64	DX	10	Often	0.044
DP03	99239	PX	CPT	Any	0.043
DP03	D62	DX	10	Any	0.040
DP03	D64	DX	10	Any	0.039
DP03	99233	PX	CPT	Often	0.038
DP03	D02_INT_ALL_Q4	DX	10	Q4ServiceInt	0.037
DP03	99222	PX	CPT	Frequent	0.033
DP03	D04_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.033
DP03	D50	DX	10	Often	0.033

Appendix N. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP03	93010	PX	CPT	Frequent	0.032
DP03	K92	DX	10	Frequent	0.032
DP03	0DB68ZX	PX	10	Any	0.032
DP03	99231	PX	CPT	Any	0.031
DP03	99223	PX	CPT	Often	0.031
DP03	74176	PX	CPT	Any	0.031
DP03	71045	PX	CPT	Any	0.030
DP03	D50	DX	10	Any	0.030
DP03	A0425	PX	HCPCS	Frequent	0.029
DP03	731	PX	CPT	Any	0.029
DP03	D02_INT_UNIQ_Q4	DX	10	Q4ServiceInt	0.028
DP03	N17	DX	10	Any	0.028
DP03	99232	PX	CPT	Frequent	0.028
DP03	D64	DX	10	Frequent	0.027
DP03	99285	PX	CPT	Any	0.026
DP03	D04_INT_ALL_Q4	PX	CPT	Q4ServiceInt	0.025
DP03	99285	PX	CPT	Frequent	0.024
DP03	D62	DX	10	Often	0.024
DP03	A0425	PX	HCPCS	Any	0.024
DP03	D06_INT_UNIQ_Q4	PX	HCPCS	Q4ServiceInt	0.024
DP03	K21	DX	10	Any	0.024
DP03	71045	PX	CPT	Frequent	0.024
DP03	D06_INT_ALL_Q4	PX	HCPCS	Q4ServiceInt	0.021
DP03	K25	DX	10	Often	0.020
DP03	99238	PX	CPT	Any	0.020
DP03	74177	PX	CPT	Any	0.020
DP03	J44	DX	10	Often	0.020
DP03	K25	DX	10	Any	0.020
DP03	99223	PX	CPT	Frequent	0.020
DP03	J90	DX	10	Any	0.020
DP03	30233N1	PX	10	Any	0.019
DP03	E87	DX	10	Often	0.019
DP03	R53	DX	10	Often	0.019
DP03	99233	PX	CPT	Frequent	0.019
DP03	J44	DX	10	Frequent	0.019
DP03	E44	DX	10	Any	0.019

Appendix N. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP03	K21	DX	10	Often	0.019
DP03	93010	PX	CPT	Any	0.018
DP03	A0429	PX	HCPCS	Any	0.018
DP03	N17	DX	10	Often	0.018
DP03	71045	PX	CPT	Often	0.018
DP03	731	PX	CPT	Frequent	0.018
DP03	E87	DX	10	Any	0.017
DP03	J44	DX	10	Any	0.017
DP03	P9016	PX	HCPCS	Any	0.017
DP03	D04_INT_UNIQ_Q1	PX	CPT	Q1ServiceInt	0.016
DP03	D02_INT_UNIQ_Q1	DX	10	Q1ServiceInt	0.015
DP03	A0428	PX	HCPCS	Any	0.015
DP03	K25	DX	10	Frequent	0.015
DP03	D50	DX	10	Frequent	0.015
DP03	I95	DX	10	Any	0.015
DP03	I10	DX	10	Often	0.015
DP03	99308	PX	CPT	Any	0.014
DP03	R53	DX	10	Frequent	0.014
DP03	K29	DX	10	Any	0.014
DP03	D05_INT_ALL_Q4	PX	10	Q4ServiceInt	0.014
DP03	99306	PX	CPT	Any	0.014
DP03	J96	DX	10	Any	0.014
DP03	D05_INT_UNIQ_Q3	PX	10	Q3ServiceInt	0.014
DP03	Z87	DX	10	Any	0.014
DP03	80048	PX	CPT	Any	0.013
DP03	D05_INT_ALL_Q3	PX	10	Q3ServiceInt	0.013
DP03	D05_INT_UNIQ_Q4	PX	10	Q4ServiceInt	0.012
DP03	99309	PX	CPT	Any	0.012
DP03	Z79	DX	10	Any	0.012
DP03	85025	PX	CPT	Frequent	0.012
DP03	71275	PX	CPT	Any	0.012
DP03	I50	DX	10	Any	0.012
DP03	N17	DX	10	Frequent	0.012
DP03	43239	PX	CPT	Any	0.012
DP03	Z87	DX	10	Often	0.012
DP03	J43	DX	10	Any	0.012

Appendix N. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP03	D02_INT_ALL_Q1	DX	10	Q1ServiceInt	0.012
DP03	99221	PX	CPT	Any	0.012
DP03	D72	DX	10	Any	0.012
DP03	E1390	PX	HCPCS	Any	0.012
DP03	W19	DX	10	Any	0.012
DP03	0DB78ZX	PX	10	Any	0.012
DP03	99305	PX	CPT	Any	0.012
DP03	71250	PX	CPT	Any	0.011
DP03	0DJD8ZZ	PX	10	Any	0.011
DP03	R91	DX	10	Any	0.011
DP03	G0378	PX	HCPCS	Any	0.011
DP03	E11	DX	10	Often	0.011
DP04	99232	PX	CPT	Any	0.056
DP04	99233	PX	CPT	Any	0.052
DP04	99223	PX	CPT	Any	0.050
DP04	99222	PX	CPT	Any	0.046
DP04	K92	DX	10	Any	0.040
DP04	K92	DX	10	Often	0.039
DP04	71045	PX	CPT	Any	0.039
DP04	99232	PX	CPT	Frequent	0.036
DP04	A0425	PX	HCPCS	Any	0.034
DP04	99239	PX	CPT	Any	0.034
DP04	93010	PX	CPT	Any	0.033
DP04	99285	PX	CPT	Any	0.032
DP04	D02_INT_UNIQ_Q4	DX	10	Q4ServiceInt	0.032
DP04	D64	DX	10	Often	0.031
DP04	D62	DX	10	Any	0.029
DP04	N17	DX	10	Any	0.028
DP04	93010	PX	CPT	Frequent	0.027
DP04	D02_INT_ALL_Q4	DX	10	Q4ServiceInt	0.026
DP04	0DB68ZX	PX	10	Any	0.026
DP04	731	PX	CPT	Any	0.026
DP04	99233	PX	CPT	Frequent	0.026
DP04	A0427	PX	HCPCS	Any	0.025
DP04	R11	DX	10	Any	0.025
DP04	D64	DX	10	Any	0.025

Appendix N. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP04	0DJ08ZZ	PX	10	Any	0.024
DP04	I50	DX	10	Any	0.024
DP04	D07_INT_ALL_Q4	PX	HCPCS	Q4ServiceInt	0.023
DP04	D50	DX	10	Any	0.023
DP04	J44	DX	10	Often	0.023
DP04	J98	DX	10	Any	0.023
DP04	D64	DX	10	Frequent	0.022
DP04	K92	DX	10	Frequent	0.021
DP04	I48	DX	10	Any	0.021
DP04	99231	PX	CPT	Any	0.021
DP04	I50	DX	10	Often	0.021
DP04	I48	DX	10	Often	0.021
DP04	D04_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.020
DP04	71045	PX	CPT	Frequent	0.020
DP04	99291	PX	CPT	Any	0.020
DP04	74176	PX	CPT	Any	0.020
DP04	N17	DX	10	Often	0.020
DP04	99285	PX	CPT	Frequent	0.020
DP04	85025	PX	CPT	Frequent	0.019
DP04	R91	DX	10	Any	0.019
DP04	99223	PX	CPT	Frequent	0.018
DP04	I48	DX	10	Frequent	0.018
DP04	J90	DX	10	Any	0.018
DP04	E87	DX	10	Any	0.018
DP04	43235	PX	CPT	Any	0.017
DP04	99221	PX	CPT	Any	0.017
DP04	J44	DX	10	Any	0.017
DP04	D50	DX	10	Often	0.017
DP04	Z79	DX	10	Often	0.016
DP04	I50	DX	10	Frequent	0.016
DP04	J18	DX	10	Any	0.016
DP04	N17	DX	10	Frequent	0.016
DP04	A0425	PX	HCPCS	Frequent	0.015
DP04	I25	DX	10	Frequent	0.015
DP04	88342	PX	CPT	Any	0.015
DP04	K21	DX	10	Any	0.015

Appendix N. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP04	D07_INT_UNIQ_Q4	PX	HCPCS	Q4ServiceInt	0.015
DP04	Z20	DX	10	Any	0.015
DP04	I95	DX	10	Any	0.015
DP04	K25	DX	10	Any	0.015
DP04	Z74	DX	10	Any	0.015
DP04	J90	DX	10	Frequent	0.014
DP04	I25	DX	10	Often	0.014
DP04	D04_INT_ALL_Q4	PX	CPT	Q4ServiceInt	0.014
DP04	R13	DX	10	Any	0.014
DP04	96365	PX	CPT	Any	0.014
DP04	D06_INT_UNIQ_Q2	PX	10	Q2ServiceInt	0.014
DP04	R06	DX	10	Any	0.014
DP04	D06_INT_ALL_Q2	PX	10	Q2ServiceInt	0.013
DP04	K29	DX	10	Any	0.013
DP04	74177	PX	CPT	Any	0.013
DP04	74018	PX	CPT	Any	0.013
DP04	Z79	DX	10	Frequent	0.013
DP04	I25	DX	10	Any	0.013
DP04	80053	PX	CPT	Frequent	0.013
DP04	K22	DX	10	Frequent	0.013
DP04	E87	DX	10	Often	0.013
DP04	K80	DX	10	Any	0.013
DP04	0DJD8ZZ	PX	10	Any	0.012
DP04	R10	DX	10	Any	0.012
DP04	J44	DX	10	Frequent	0.012
DP04	E86	DX	10	Any	0.012
DP04	93306	PX	CPT	Any	0.012
DP04	Z79	DX	10	Any	0.012
DP04	K31	DX	10	Any	0.012
DP04	D02_INT_UNIQ_Q1	DX	10	Q1ServiceInt	0.012
DP04	K29	DX	10	Often	0.011
DP04	D03_INT_UNIQ_Q4	RX	CLASS	Q4ServiceInt	0.011
DP04	J96	DX	10	Any	0.011
DP04	99284	PX	CPT	Any	0.011
DP04	J18	DX	10	Often	0.011
DP04	R53	DX	10	Frequent	0.011

Appendix N. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP04	D07_INT_UNIQ_Q1	PX	HCPCS	Q1ServiceInt	0.011
DP04	R53	DX	10	Any	0.011
DP04	A41	DX	10	Any	0.011
DP04	96375	PX	CPT	Frequent	0.011
DP05	A4565	PX	HCPCS	Any	0.206
DP05	V2303	PX	HCPCS	Any	0.206
DP05	T45	DX	10	Any	0.188
DP05	L03	DX	10	Any	0.154
DP05	G2025	PX	HCPCS	Any	0.152
DP05	C587	RX	CLASS	Any	0.152
DP05	T1021	PX	HCPCS	Often	0.152
DP05	C150	RX	CLASS	Often	0.152
DP05	G0152	PX	HCPCS	Frequent	0.152
DP05	C150	RX	CLASS	Any	0.150
DP05	T4527	PX	HCPCS	Often	0.146
DP05	80069	PX	CPT	Frequent	0.144
DP05	M15	DX	10	Frequent	0.144
DP05	Z95	DX	10	Often	0.140
DP05	C384	RX	CLASS	Frequent	0.139
DP05	99100	PX	CPT	Any	0.136
DP05	Z87	DX	10	Any	0.134
DP05	99215	PX	CPT	Frequent	0.133
DP05	99308	PX	CPT	Any	0.133
DP05	D01_INT_ALL_Q4	DX	10	Q4ServiceInt	0.128
DP05	93971	PX	CPT	Any	0.128
DP05	99490	PX	CPT	Any	0.126
DP05	L97	DX	10	Often	0.125
DP05	R77	DX	10	Any	0.125
DP05	E0156	PX	HCPCS	Any	0.124
DP05	Z87	DX	10	Frequent	0.124
DP05	11721	PX	CPT	Often	0.121
DP05	93296	PX	CPT	Any	0.119
DP05	76942	PX	CPT	Any	0.119
DP05	D72	DX	10	Any	0.116
DP05	Q0092	PX	HCPCS	Any	0.116
DP05	M15	DX	10	Often	0.114

Appendix N. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP05	C824	RX	CLASS	Any	0.112
DP05	I82	DX	10	Any	0.110
DP05	90785	PX	CPT	Frequent	0.110
DP05	Z87	DX	10	Often	0.110
DP05	R13	DX	10	Frequent	0.108
DP05	N39	DX	10	Frequent	0.105
DP05	99222	PX	CPT	Any	0.104
DP05	M15	DX	10	Any	0.103
DP05	E66	DX	10	Frequent	0.103
DP05	D63	DX	10	Frequent	0.102
DP05	142	PX	CPT	Any	0.101
DP05	C384	RX	CLASS	Often	0.100
DP05	99309	PX	CPT	Any	0.100
DP05	D12	DX	10	Frequent	0.100
DP05	1126F	PX	CPT	Any	0.100
DP05	Z51	DX	10	Any	0.099
DP05	99225	PX	CPT	Any	0.098
DP05	L97	DX	10	Any	0.096
DP05	99337	PX	CPT	Any	0.095
DP05	G30	DX	10	Frequent	0.093
DP05	99337	PX	CPT	Frequent	0.092
DP05	C384	RX	CLASS	Any	0.089
DP05	H0046	PX	HCPCS	Any	0.089
DP05	M79	DX	10	Often	0.088
DP05	K59	DX	10	Frequent	0.086
DP05	M79	DX	10	Any	0.086
DP05	99239	PX	CPT	Frequent	0.086
DP05	R97	DX	10	Frequent	0.085
DP05	R97	DX	10	Often	0.085
DP05	G30	DX	10	Often	0.084
DP05	99232	PX	CPT	Any	0.084
DP05	99232	PX	CPT	Frequent	0.083
DP05	99309	PX	CPT	Frequent	0.083
DP05	Z51	DX	10	Frequent	0.080
DP05	S72	DX	10	Frequent	0.080
DP05	J44	DX	10	Any	0.079

Appendix N. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP05	G62	DX	10	Any	0.079
DP05	R97	DX	10	Any	0.078
DP05	I73	DX	10	Often	0.077
DP05	R09	DX	10	Frequent	0.077
DP05	I73	DX	10	Any	0.077
DP05	A9552	PX	HCPCS	Any	0.076
DP05	C1189	RX	CLASS	Often	0.076
DP05	Q9967	PX	HCPCS	Any	0.075
DP05	C62	RX	CLASS	Frequent	0.075
DP05	I26	DX	10	Often	0.075
DP05	F32	DX	10	Often	0.075
DP05	D01_INT_UNIQ_Q4	DX	10	Q4ServiceInt	0.075
DP05	I49	DX	10	Any	0.075
DP05	99233	PX	CPT	Frequent	0.075
DP05	L03	DX	10	Often	0.074
DP05	5A09357	PX	10	Any	0.074
DP05	Z92	DX	10	Frequent	0.074
DP05	R60	DX	10	Any	0.074
DP05	Z90	DX	10	Frequent	0.073
DP05	M10	DX	10	Any	0.073
DP05	N39	DX	10	Any	0.073
DP05	A0100	PX	HCPCS	Often	0.073
DP05	C62	RX	CLASS	Often	0.073
DP05	76376	PX	CPT	Any	0.072
DP05	G0153	PX	HCPCS	Any	0.072
DP05	11720	PX	CPT	Any	0.071
DP05	93010	PX	CPT	Frequent	0.070
DP05	99337	PX	CPT	Often	0.070
DP05	I11	DX	10	Any	0.070
DP05	11721	PX	CPT	Any	0.070
DP05	1170F	PX	CPT	Any	0.069
DP05	C140	RX	CLASS	Often	0.069

Appendix O. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP01	N18	DX	10	Any	0.061
DP01	Z99	DX	10	Often	0.057
DP01	N17	DX	10	Any	0.056
DP01	0J2TXYZ	PX	10	Any	0.055
DP01	N18	DX	10	Often	0.053
DP01	D63	DX	10	Any	0.050
DP01	93010	PX	CPT	Frequent	0.049
DP01	N18	DX	10	Frequent	0.049
DP01	E87	DX	10	Often	0.048
DP01	D04_INT_ALL_Q4	PX	CPT	Q4ServiceInt	0.047
DP01	E87	DX	10	Any	0.046
DP01	81001	PX	CPT	Frequent	0.046
DP01	99233	PX	CPT	Frequent	0.046
DP01	Z99	DX	10	Frequent	0.043
DP01	Z99	DX	10	Any	0.043
DP01	I13	DX	10	Any	0.043
DP01	99285	PX	CPT	Frequent	0.043
DP01	E87	DX	10	Frequent	0.042
DP01	99233	PX	CPT	Any	0.042
DP01	A0425	PX	HCPCS	Any	0.041
DP01	90999	PX	CPT	Any	0.041
DP01	99233	PX	CPT	Often	0.040
DP01	I12	DX	10	Any	0.040
DP01	D02_INT_UNIQ_Q4	DX	10	Q4ServiceInt	0.040
DP01	99285	PX	CPT	Often	0.040
DP01	A0425	PX	HCPCS	Frequent	0.040
DP01	71045	PX	CPT	Often	0.038
DP01	71045	PX	CPT	Frequent	0.038
DP01	I69	DX	10	Often	0.037
DP01	99223	PX	CPT	Often	0.037
DP01	731	PX	CPT	Any	0.037
DP01	99232	PX	CPT	Often	0.037
DP01	J96	DX	10	Any	0.036
DP01	99291	PX	CPT	Any	0.036
DP01	Z88	DX	10	Often	0.036
DP01	71045	PX	CPT	Any	0.036

Appendix O. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP01	99285	PX	CPT	Any	0.035
DP01	A0427	PX	HCPCS	Any	0.035
DP01	D04_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.035
DP01	R69	DX	10	Any	0.035
DP01	N25	DX	10	Any	0.034
DP01	D02_INT_ALL_Q4	DX	10	Q4ServiceInt	0.033
DP01	K31	DX	10	Any	0.033
DP01	D06_INT_ALL_Q4	PX	HCPCS	Q4ServiceInt	0.033
DP01	99239	PX	CPT	Any	0.032
DP01	J98	DX	10	Any	0.032
DP01	Z88	DX	10	Any	0.032
DP01	93010	PX	CPT	Any	0.032
DP01	A0428	PX	HCPCS	Any	0.032
DP01	85025	PX	CPT	Frequent	0.032
DP01	D63	DX	10	Often	0.032
DP01	A41	DX	10	Often	0.031
DP01	Z45	DX	10	Any	0.031
DP01	A41	DX	10	Frequent	0.030
DP01	99222	PX	CPT	Any	0.030
DP01	I12	DX	10	Frequent	0.030
DP01	C1085	RX	CLASS	Any	0.030
DP01	88305	PX	CPT	Any	0.030
DP01	99232	PX	CPT	Frequent	0.029
DP01	N17	DX	10	Often	0.029
DP01	82947	PX	CPT	Frequent	0.029
DP01	80053	PX	CPT	Frequent	0.028
DP01	99232	PX	CPT	Any	0.028
DP01	80053	PX	CPT	Any	0.027
DP01	A0428	PX	HCPCS	Frequent	0.027
DP01	99223	PX	CPT	Frequent	0.027
DP01	C1124	RX	CLASS	Any	0.027
DP01	88305	PX	CPT	Frequent	0.027
DP01	K21	DX	10	Frequent	0.026
DP01	N17	DX	10	Frequent	0.026
DP01	99239	PX	CPT	Frequent	0.026
DP01	J7030	PX	HCPCS	Any	0.026

Appendix O. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP01	C58	RX	CLASS	Often	0.025
DP01	Z79	DX	10	Often	0.025
DP01	I12	DX	10	Often	0.025
DP01	I69	DX	10	Any	0.025
DP01	99221	PX	CPT	Any	0.024
DP01	I69	DX	10	Frequent	0.024
DP01	T81	DX	10	Frequent	0.024
DP01	Z91	DX	10	Frequent	0.024
DP01	N25	DX	10	Often	0.024
DP01	R53	DX	10	Frequent	0.024
DP01	J45	DX	10	Any	0.024
DP01	A0100	PX	HCPCS	Any	0.024
DP01	76937	PX	CPT	Any	0.024
DP01	99284	PX	CPT	Any	0.024
DP01	J96	DX	10	Often	0.024
DP01	Z79	DX	10	Any	0.024
DP01	93005	PX	CPT	Any	0.024
DP01	C420	RX	CLASS	Often	0.023
DP01	Z74	DX	10	Frequent	0.023
DP01	Z86	DX	10	Frequent	0.023
DP01	71250	PX	CPT	Any	0.023
DP01	Z20	DX	10	Frequent	0.023
DP01	84132	PX	CPT	Any	0.023
DP01	C58	RX	CLASS	Any	0.023
DP01	G0299	PX	HCPCS	Any	0.022
DP01	R10	DX	10	Frequent	0.022
DP01	99283	PX	CPT	Any	0.022
DP01	84484	PX	CPT	Any	0.022
DP02	Z98	DX	10	Frequent	0.276
DP02	74246	PX	CPT	Frequent	0.215
DP02	74246	PX	CPT	Any	0.176
DP02	R55	DX	10	Often	0.172
DP02	Z98	DX	10	Often	0.170
DP02	82040	PX	CPT	Frequent	0.156
DP02	86850	PX	CPT	Any	0.141
DP02	Z98	DX	10	Any	0.134

Appendix O. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP02	R80	DX	10	Frequent	0.133
DP02	20610	PX	CPT	Any	0.133
DP02	84100	PX	CPT	Frequent	0.131
DP02	88307	PX	CPT	Any	0.122
DP02	I51	DX	10	Frequent	0.120
DP02	K44	DX	10	Frequent	0.120
DP02	A4627	PX	HCPCS	Any	0.119
DP02	J0690	PX	HCPCS	Any	0.114
DP02	E55	DX	10	Any	0.109
DP02	Z68	DX	10	Any	0.107
DP02	C782	RX	CLASS	Any	0.106
DP02	D50	DX	10	Frequent	0.106
DP02	86901	PX	CPT	Any	0.105
DP02	83970	PX	CPT	Any	0.105
DP02	K22	DX	10	Any	0.104
DP02	93010	PX	CPT	Any	0.103
DP02	K44	DX	10	Any	0.100
DP02	97802	PX	CPT	Any	0.100
DP02	86900	PX	CPT	Any	0.099
DP02	J3301	PX	HCPCS	Any	0.096
DP02	K22	DX	10	Often	0.094
DP02	E28	DX	10	Frequent	0.093
DP02	93010	PX	CPT	Frequent	0.091
DP02	C98	RX	CLASS	Any	0.091
DP02	82306	PX	CPT	Any	0.089
DP02	E55	DX	10	Frequent	0.089
DP02	J1644	PX	HCPCS	Any	0.085
DP02	82962	PX	CPT	Any	0.083
DP02	74176	PX	CPT	Any	0.081
DP02	K63	DX	10	Any	0.081
DP02	I45	DX	10	Any	0.079
DP02	84100	PX	CPT	Any	0.077
DP02	G47	DX	10	Any	0.076
DP02	J1940	PX	HCPCS	Any	0.075
DP02	R80	DX	10	Any	0.075
DP02	N18	DX	10	Often	0.074

Appendix O. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP02	R13	DX	10	Often	0.073
DP02	R13	DX	10	Any	0.071
DP02	93005	PX	CPT	Any	0.067
DP02	Z30	DX	10	Any	0.066
DP02	Z01	DX	10	Frequent	0.066
DP02	D04_INT_UNIQ_Q2	PX	10	Q2ServiceInt	0.064
DP02	E87	DX	10	Any	0.062
DP02	K80	DX	10	Any	0.062
DP02	84550	PX	CPT	Any	0.062
DP02	C1135	RX	CLASS	Any	0.061
DP02	I51	DX	10	Any	0.058
DP02	E66	DX	10	Any	0.058
DP02	N18	DX	10	Frequent	0.057
DP02	N18	DX	10	Any	0.054
DP02	99396	PX	CPT	Any	0.054
DP02	J1750	PX	HCPCS	Any	0.053
DP02	C689	RX	CLASS	Any	0.053
DP02	R10	DX	10	Any	0.052
DP02	82607	PX	CPT	Any	0.052
DP02	R55	DX	10	Any	0.050
DP02	76705	PX	CPT	Often	0.049
DP02	C1189	RX	CLASS	Any	0.048
DP02	83880	PX	CPT	Any	0.048
DP02	F17	DX	10	Any	0.047
DP02	E66	DX	10	Often	0.046
DP02	E78	DX	10	Frequent	0.046
DP02	99215	PX	CPT	Any	0.045
DP02	J3010	PX	HCPCS	Any	0.045
DP02	83690	PX	CPT	Any	0.045
DP02	D72	DX	10	Any	0.044
DP02	J2001	PX	HCPCS	Any	0.044
DP02	C1189	RX	CLASS	Frequent	0.043
DP02	C401	RX	CLASS	Any	0.043
DP02	D50	DX	10	Any	0.043
DP02	E11	DX	10	Often	0.043
DP02	D04_INT_ALL_Q2	PX	10	Q2ServiceInt	0.041

Appendix O. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP02	71045	PX	CPT	Often	0.041
DP02	C225	RX	CLASS	Any	0.041
DP02	D64	DX	10	Any	0.039
DP02	Z90	DX	10	Any	0.038
DP02	73562	PX	CPT	Any	0.038
DP02	E78	DX	10	Any	0.036
DP02	76705	PX	CPT	Any	0.036
DP02	I49	DX	10	Any	0.036
DP02	I10	DX	10	Any	0.035
DP02	U0003	PX	HCPCS	Any	0.035
DP02	81025	PX	CPT	Any	0.034
DP02	88305	PX	CPT	Any	0.033
DP02	C826	RX	CLASS	Any	0.033
DP02	71045	PX	CPT	Any	0.032
DP02	J2704	PX	HCPCS	Any	0.032
DP02	Z88	DX	10	Often	0.031
DP02	C1186	RX	CLASS	Any	0.031
DP02	R94	DX	10	Any	0.031
DP02	N92	DX	10	Frequent	0.031
DP02	K21	DX	10	Any	0.030
DP03	Z3A	DX	10	Any	0.088
DP03	Z36	DX	10	Any	0.077
DP03	Z34	DX	10	Any	0.069
DP03	Z36	DX	10	Frequent	0.060
DP03	O99	DX	10	Any	0.059
DP03	Z3A	DX	10	Often	0.058
DP03	Z3A	DX	10	Frequent	0.056
DP03	O26	DX	10	Any	0.054
DP03	Z36	DX	10	Often	0.053
DP03	O99	DX	10	Often	0.052
DP03	O09	DX	10	Any	0.050
DP03	O09	DX	10	Often	0.047
DP03	O09	DX	10	Frequent	0.043
DP03	Z34	DX	10	Often	0.041
DP03	O99	DX	10	Frequent	0.039
DP03	O26	DX	10	Often	0.037

Appendix O. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP03	Z34	DX	10	Frequent	0.033
DP03	731	PX	CPT	Any	0.032
DP03	86850	PX	CPT	Any	0.029
DP03	I10	DX	10	Any	0.026
DP03	86901	PX	CPT	Any	0.024
DP03	E66	DX	10	Frequent	0.023
DP03	84156	PX	CPT	Any	0.022
DP03	86900	PX	CPT	Any	0.022
DP03	O26	DX	10	Frequent	0.022
DP03	I10	DX	10	Often	0.022
DP03	87086	PX	CPT	Any	0.021
DP03	E66	DX	10	Often	0.021
DP03	D04_INT_ALL_Q4	PX	CPT	Q4ServiceInt	0.021
DP03	K21	DX	10	Any	0.020
DP03	K92	DX	10	Any	0.020
DP03	43239	PX	CPT	Any	0.019
DP03	K76	DX	10	Any	0.019
DP03	C1110	RX	CLASS	Any	0.019
DP03	Z32	DX	10	Any	0.018
DP03	I10	DX	10	Frequent	0.017
DP03	86803	PX	CPT	Any	0.017
DP03	E66	DX	10	Any	0.017
DP03	E0603	PX	HCPCS	Any	0.017
DP03	Z39	DX	10	Any	0.017
DP03	E11	DX	10	Often	0.017
DP03	K92	DX	10	Often	0.016
DP03	Z68	DX	10	Frequent	0.016
DP03	C58	RX	CLASS	Any	0.015
DP03	N18	DX	10	Often	0.015
DP03	99223	PX	CPT	Any	0.015
DP03	D04_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.015
DP03	99284	PX	CPT	Any	0.015
DP03	C1124	RX	CLASS	Any	0.015
DP03	88305	PX	CPT	Any	0.015
DP03	K21	DX	10	Frequent	0.015
DP03	E11	DX	10	Any	0.014

Appendix O. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP03	36415	PX	CPT	Frequent	0.014
DP03	84702	PX	CPT	Any	0.014
DP03	C58	RX	CLASS	Frequent	0.013
DP03	88342	PX	CPT	Any	0.013
DP03	G47	DX	10	Any	0.013
DP03	43239	PX	CPT	Often	0.013
DP03	C1110	RX	CLASS	Frequent	0.013
DP03	K22	DX	10	Any	0.013
DP03	74177	PX	CPT	Any	0.012
DP03	99283	PX	CPT	Any	0.012
DP03	K20	DX	10	Any	0.012
DP03	C1124	RX	CLASS	Often	0.012
DP03	C1124	RX	CLASS	Frequent	0.012
DP03	96374	PX	CPT	Any	0.012
DP03	83970	PX	CPT	Any	0.012
DP03	N18	DX	10	Any	0.012
DP03	R11	DX	10	Any	0.012
DP03	87340	PX	CPT	Any	0.011
DP03	0DB68ZX	PX	10	Any	0.011
DP03	99284	PX	CPT	Frequent	0.011
DP03	87591	PX	CPT	Any	0.011
DP03	87491	PX	CPT	Any	0.011
DP03	R10	DX	10	Any	0.011
DP03	A0425	PX	HCPCS	Any	0.011
DP03	81025	PX	CPT	Any	0.011
DP03	99239	PX	CPT	Any	0.011
DP03	C1175	RX	CLASS	Any	0.011
DP03	K31	DX	10	Any	0.010
DP03	84425	PX	CPT	Any	0.010
DP03	797	PX	CPT	Any	0.010
DP03	87389	PX	CPT	Any	0.010
DP03	D06_INT_UNIQ_Q4	PX	HCPCS	Q4ServiceInt	0.010
DP03	J1200	PX	HCPCS	Any	0.010
DP03	A0429	PX	HCPCS	Any	0.010
DP03	K22	DX	10	Often	0.010
DP03	K92	DX	10	Frequent	0.010

Appendix O. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP03	Z98	DX	10	Any	0.010
DP03	0TY00Z0	PX	10	Any	0.010
DP03	88313	PX	CPT	Any	0.010
DP03	99215	PX	CPT	Frequent	0.010
DP03	99152	PX	CPT	Any	0.010
DP03	K29	DX	10	Any	0.009
DP03	Z32	DX	10	Frequent	0.009
DP03	R11	DX	10	Often	0.009
DP03	Z68	DX	10	Any	0.009
DP03	N18	DX	10	Frequent	0.009
DP03	E78	DX	10	Often	0.009
DP03	Q9967	PX	HCPCS	Any	0.009
DP04	Z34	DX	10	Often	0.103
DP04	Z34	DX	10	Frequent	0.081
DP04	Z3A	DX	10	Often	0.080
DP04	Z36	DX	10	Any	0.076
DP04	Z34	DX	10	Any	0.074
DP04	O99	DX	10	Any	0.070
DP04	Z3A	DX	10	Frequent	0.069
DP04	O99	DX	10	Often	0.064
DP04	Z3A	DX	10	Any	0.059
DP04	O99	DX	10	Frequent	0.057
DP04	86900	PX	CPT	Any	0.050
DP04	Z36	DX	10	Often	0.049
DP04	86901	PX	CPT	Any	0.049
DP04	N18	DX	10	Often	0.049
DP04	86850	PX	CPT	Any	0.047
DP04	I10	DX	10	Any	0.047
DP04	87340	PX	CPT	Any	0.046
DP04	D04_INT_ALL_Q4	PX	CPT	Q4ServiceInt	0.041
DP04	Z36	DX	10	Frequent	0.041
DP04	731	PX	CPT	Any	0.041
DP04	N18	DX	10	Any	0.040
DP04	O09	DX	10	Any	0.037
DP04	D02_INT_UNIQ_Q4	DX	10	Q4ServiceInt	0.036
DP04	D02_INT_ALL_Q4	DX	10	Q4ServiceInt	0.036

Appendix O. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP04	C131	RX	CLASS	Frequent	0.036
DP04	K29	DX	10	Any	0.035
DP04	E0603	PX	HCPCS	Any	0.035
DP04	C1124	RX	CLASS	Any	0.034
DP04	G0439	PX	HCPCS	Any	0.033
DP04	K21	DX	10	Any	0.033
DP04	87086	PX	CPT	Any	0.032
DP04	K21	DX	10	Frequent	0.032
DP04	D04_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.032
DP04	99238	PX	CPT	Any	0.029
DP04	5A1D70Z	PX	10	Any	0.029
DP04	84100	PX	CPT	Frequent	0.027
DP04	36415	PX	CPT	Frequent	0.027
DP04	86780	PX	CPT	Any	0.027
DP04	99231	PX	CPT	Any	0.026
DP04	K29	DX	10	Frequent	0.025
DP04	43239	PX	CPT	Any	0.025
DP04	I10	DX	10	Often	0.025
DP04	D07_INT_ALL_Q4	PX	HCPCS	Q4ServiceInt	0.024
DP04	Z99	DX	10	Frequent	0.024
DP04	I50	DX	10	Often	0.023
DP04	K31	DX	10	Any	0.023
DP04	R16	DX	10	Any	0.023
DP04	C187	RX	CLASS	Any	0.023
DP04	K76	DX	10	Any	0.023
DP04	G93	DX	10	Frequent	0.023
DP04	86803	PX	CPT	Any	0.023
DP04	93010	PX	CPT	Frequent	0.023
DP04	K44	DX	10	Any	0.022
DP04	Z39	DX	10	Any	0.022
DP04	C187	RX	CLASS	Often	0.022
DP04	D03_INT_UNIQ_Q4	RX	CLASS	Q4ServiceInt	0.022
DP04	C1124	RX	CLASS	Often	0.022
DP04	J45	DX	10	Often	0.021
DP04	81001	PX	CPT	Any	0.021
DP04	K22	DX	10	Any	0.021

Appendix O. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP04	C1085	RX	CLASS	Any	0.021
DP04	G0463	PX	HCPCS	Frequent	0.021
DP04	3E0R305	PX	10	Frequent	0.020
DP04	88312	PX	CPT	Any	0.020
DP04	G0463	PX	HCPCS	Any	0.020
DP04	C131	RX	CLASS	Often	0.020
DP04	87186	PX	CPT	Any	0.020
DP04	99284	PX	CPT	Any	0.020
DP04	C41	RX	CLASS	Any	0.020
DP04	R11	DX	10	Frequent	0.020
DP04	J45	DX	10	Any	0.019
DP04	C1124	RX	CLASS	Frequent	0.019
DP04	E66	DX	10	Frequent	0.019
DP04	Z74	DX	10	Any	0.019
DP04	99152	PX	CPT	Any	0.019
DP04	K25	DX	10	Any	0.019
DP04	N18	DX	10	Frequent	0.019
DP04	R16	DX	10	Frequent	0.019
DP04	C935	RX	CLASS	Any	0.018
DP04	I10	DX	10	Frequent	0.018
DP04	C1049	RX	CLASS	Any	0.018
DP04	E66	DX	10	Often	0.018
DP04	G93	DX	10	Any	0.018
DP04	Z86	DX	10	Frequent	0.018
DP04	Z86	DX	10	Any	0.018
DP04	I50	DX	10	Any	0.018
DP04	88313	PX	CPT	Any	0.017
DP04	88305	PX	CPT	Any	0.017
DP04	Z78	DX	10	Any	0.017
DP04	C689	RX	CLASS	Often	0.017
DP04	J2357	PX	HCPCS	Any	0.017
DP04	0W9G3ZZ	PX	10	Any	0.017
DP04	0DBN8ZX	PX	10	Any	0.017
DP04	R10	DX	10	Any	0.017
DP04	3E0R305	PX	10	Any	0.016
DP04	85025	PX	CPT	Frequent	0.016

Appendix O. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP04	M10	DX	10	Any	0.016
DP04	R10	DX	10	Frequent	0.016
DP04	99213	PX	CPT	Often	0.016
DP04	K76	DX	10	Frequent	0.016
DP05	O09	DX	10	Any	0.299
DP05	Z36	DX	10	Any	0.275
DP05	86762	PX	CPT	Any	0.234
DP05	Z3A	DX	10	Any	0.220
DP05	O09	DX	10	Often	0.214
DP05	Z36	DX	10	Often	0.200
DP05	O26	DX	10	Any	0.191
DP05	Z34	DX	10	Any	0.176
DP05	86780	PX	CPT	Any	0.174
DP05	O99	DX	10	Any	0.165
DP05	76801	PX	CPT	Often	0.141
DP05	O99	DX	10	Frequent	0.136
DP05	86850	PX	CPT	Any	0.134
DP05	87340	PX	CPT	Any	0.134
DP05	76801	PX	CPT	Any	0.130
DP05	82950	PX	CPT	Any	0.130
DP05	Z3A	DX	10	Often	0.127
DP05	O09	DX	10	Frequent	0.125
DP05	5A1955Z	PX	10	Any	0.123
DP05	O26	DX	10	Often	0.123
DP05	86901	PX	CPT	Any	0.121
DP05	76816	PX	CPT	Often	0.120
DP05	86900	PX	CPT	Any	0.119
DP05	76816	PX	CPT	Any	0.110
DP05	0T778DZ	PX	10	Any	0.107
DP05	86803	PX	CPT	Any	0.103
DP05	76817	PX	CPT	Often	0.094
DP05	76817	PX	CPT	Any	0.092
DP05	84156	PX	CPT	Any	0.090
DP05	H2035	PX	HCPCS	Any	0.089
DP05	O36	DX	10	Any	0.088
DP05	81001	PX	CPT	Any	0.088

Appendix O. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP05	O99	DX	10	Often	0.084
DP05	O26	DX	10	Frequent	0.084
DP05	87591	PX	CPT	Any	0.076
DP05	87491	PX	CPT	Any	0.075
DP05	H2015	PX	HCPCS	Frequent	0.075
DP05	J0696	PX	HCPCS	Any	0.073
DP05	87086	PX	CPT	Any	0.070
DP05	K20	DX	10	Any	0.068
DP05	G0481	PX	HCPCS	Frequent	0.066
DP05	74018	PX	CPT	Any	0.066
DP05	Z3A	DX	10	Frequent	0.063
DP05	87389	PX	CPT	Any	0.062
DP05	C1179	RX	CLASS	Any	0.057
DP05	76815	PX	CPT	Frequent	0.057
DP05	Z02	DX	10	Any	0.057
DP05	N17	DX	10	Any	0.055
DP05	Z34	DX	10	Often	0.054
DP05	C1110	RX	CLASS	Any	0.053
DP05	J0295	PX	HCPCS	Any	0.053
DP05	H2035	PX	HCPCS	Often	0.052
DP05	R16	DX	10	Any	0.052
DP05	D03_INT_ALL_Q4	PX	CPT	Q4ServiceInt	0.052
DP05	C62	RX	CLASS	Any	0.052
DP05	H0038	PX	HCPCS	Any	0.051
DP05	81025	PX	CPT	Any	0.050
DP05	A0100	PX	HCPCS	Any	0.049
DP05	E66	DX	10	Any	0.046
DP05	97803	PX	CPT	Any	0.046
DP05	S0215	PX	HCPCS	Any	0.046
DP05	99283	PX	CPT	Any	0.044
DP05	99284	PX	CPT	Frequent	0.044
DP05	HZ2ZZZZ	PX	10	Any	0.043
DP05	76815	PX	CPT	Any	0.043
DP05	93325	PX	CPT	Any	0.043
DP05	E78	DX	10	Frequent	0.042
DP05	Z32	DX	10	Any	0.039

Appendix O. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP05	83605	PX	CPT	Any	0.039
DP05	Z45	DX	10	Any	0.038
DP05	99239	PX	CPT	Any	0.037
DP05	R73	DX	10	Any	0.037
DP05	C545	RX	CLASS	Any	0.037
DP05	F10	DX	10	Often	0.037
DP05	F15	DX	10	Often	0.037
DP05	82077	PX	CPT	Any	0.036
DP05	E87	DX	10	Often	0.036
DP05	T1016	PX	HCPCS	Any	0.035
DP05	D03_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.035
DP05	D04_INT_UNIQ_Q1	PX	10	Q1ServiceInt	0.034
DP05	97802	PX	CPT	Any	0.034
DP05	G93	DX	10	Any	0.034
DP05	D68	DX	10	Any	0.034
DP05	D04_INT_ALL_Q1	PX	10	Q1ServiceInt	0.034
DP05	J1170	PX	HCPCS	Any	0.034
DP05	Z68	DX	10	Any	0.033
DP05	96130	PX	CPT	Any	0.033
DP05	96361	PX	CPT	Any	0.033
DP05	T2023	PX	HCPCS	Any	0.033
DP05	S9480	PX	HCPCS	Any	0.033
DP05	96376	PX	CPT	Any	0.033
DP05	F10	DX	10	Any	0.033
DP05	87040	PX	CPT	Any	0.032
DP05	J2370	PX	HCPCS	Any	0.032
DP05	R21	DX	10	Any	0.032
DP05	J2250	PX	HCPCS	Any	0.032
DP05	K92	DX	10	Frequent	0.032
DP05	C991	RX	CLASS	Any	0.032
DP05	H0001	PX	HCPCS	Any	0.032
DP05	G0463	PX	HCPCS	Any	0.031

Appendix P. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 50-64 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP01	N18	DX	10	Any	0.050
DP01	K92	DX	10	Often	0.044
DP01	N18	DX	10	Often	0.043
DP01	K92	DX	10	Any	0.039
DP01	A0428	PX	HCPCS	Any	0.036
DP01	A0425	PX	HCPCS	Frequent	0.031
DP01	Z99	DX	10	Any	0.029
DP01	Z99	DX	10	Often	0.028
DP01	E11	DX	10	Frequent	0.027
DP01	I12	DX	10	Any	0.026
DP01	D50	DX	10	Any	0.025
DP01	731	PX	CPT	Any	0.023
DP01	99232	PX	CPT	Often	0.023
DP01	99309	PX	CPT	Often	0.022
DP01	I13	DX	10	Any	0.022
DP01	J96	DX	10	Any	0.021
DP01	99233	PX	CPT	Frequent	0.021
DP01	R10	DX	10	Any	0.021
DP01	02HV33Z	PX	10	Any	0.021
DP01	A0429	PX	HCPCS	Any	0.020
DP01	99309	PX	CPT	Any	0.020
DP01	I12	DX	10	Often	0.020
DP01	99308	PX	CPT	Any	0.020
DP01	J96	DX	10	Often	0.019
DP01	A0428	PX	HCPCS	Frequent	0.019
DP01	D02_INT_ALL_Q4	DX	10	Q4ServiceInt	0.019
DP01	K29	DX	10	Any	0.019
DP01	Z74	DX	10	Any	0.018
DP01	I69	DX	10	Often	0.018
DP01	I50	DX	10	Often	0.018
DP01	R18	DX	10	Any	0.018
DP01	Z46	DX	10	Any	0.018
DP01	A41	DX	10	Any	0.018
DP01	I50	DX	10	Any	0.017
DP01	99232	PX	CPT	Frequent	0.017
DP01	J96	DX	10	Frequent	0.017

Appendix P. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 50-64 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP01	E11	DX	10	Often	0.017
DP01	K74	DX	10	Any	0.017
DP01	A0425	PX	HCPCS	Any	0.017
DP01	N18	DX	10	Frequent	0.016
DP01	D62	DX	10	Any	0.016
DP01	D50	DX	10	Often	0.016
DP01	74177	PX	CPT	Any	0.016
DP01	D05_INT_UNIQ_Q4	PX	10	Q4ServiceInt	0.016
DP01	K31	DX	10	Any	0.016
DP01	99291	PX	CPT	Frequent	0.016
DP01	K74	DX	10	Often	0.016
DP01	99223	PX	CPT	Often	0.016
DP01	K92	DX	10	Frequent	0.015
DP01	D63	DX	10	Any	0.015
DP01	D05_INT_ALL_Q4	PX	10	Q4ServiceInt	0.015
DP01	99308	PX	CPT	Frequent	0.015
DP01	A41	DX	10	Often	0.015
DP01	R10	DX	10	Often	0.015
DP01	Z74	DX	10	Frequent	0.015
DP01	N17	DX	10	Any	0.015
DP01	I12	DX	10	Frequent	0.015
DP01	30233N1	PX	10	Any	0.015
DP01	R11	DX	10	Any	0.015
DP01	J18	DX	10	Any	0.014
DP01	C225	RX	CLASS	Often	0.014
DP01	36556	PX	CPT	Any	0.014
DP01	I69	DX	10	Any	0.014
DP01	C422	RX	CLASS	Any	0.014
DP01	I63	DX	10	Any	0.014
DP01	C225	RX	CLASS	Any	0.014
DP01	99231	PX	CPT	Any	0.014
DP01	R27	DX	10	Any	0.014
DP01	R09	DX	10	Any	0.014
DP01	G0299	PX	HCPCS	Any	0.014
DP01	88305	PX	CPT	Any	0.013
DP01	99306	PX	CPT	Any	0.013

Appendix P. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 50-64 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP01	Z89	DX	10	Any	0.013
DP01	99233	PX	CPT	Any	0.013
DP01	80048	PX	CPT	Any	0.013
DP01	36620	PX	CPT	Any	0.013
DP01	83735	PX	CPT	Any	0.013
DP01	99309	PX	CPT	Frequent	0.013
DP01	E78	DX	10	Frequent	0.013
DP01	Z87	DX	10	Frequent	0.012
DP01	99231	PX	CPT	Frequent	0.012
DP01	76705	PX	CPT	Any	0.012
DP01	D04_INT_ALL_Q4	PX	CPT	Q4ServiceInt	0.012
DP01	E78	DX	10	Often	0.012
DP01	I10	DX	10	Frequent	0.012
DP01	K22	DX	10	Often	0.012
DP01	0BH17EZ	PX	10	Any	0.012
DP01	J98	DX	10	Frequent	0.012
DP01	99233	PX	CPT	Often	0.012
DP01	71045	PX	CPT	Any	0.012
DP01	Z46	DX	10	Often	0.012
DP01	93010	PX	CPT	Frequent	0.012
DP01	K74	DX	10	Frequent	0.012
DP01	L03	DX	10	Often	0.012
DP01	D63	DX	10	Often	0.012
DP01	99238	PX	CPT	Any	0.012
DP01	99291	PX	CPT	Any	0.012
DP01	D64	DX	10	Any	0.011
DP01	G93	DX	10	Often	0.011
DP01	L03	DX	10	Any	0.011
DP02	J9206	PX	HCPCS	Any	0.126
DP02	C713	RX	CLASS	Frequent	0.118
DP02	84402	PX	CPT	Any	0.115
DP02	96413	PX	CPT	Frequent	0.115
DP02	J1650	PX	HCPCS	Any	0.109
DP02	86160	PX	CPT	Any	0.107
DP02	K22	DX	10	Frequent	0.104
DP02	I82	DX	10	Any	0.104

Appendix P. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 50-64 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP02	S9500	PX	HCPCS	Any	0.100
DP02	C772	RX	CLASS	Frequent	0.100
DP02	R13	DX	10	Any	0.096
DP02	K22	DX	10	Often	0.094
DP02	G0103	PX	HCPCS	Any	0.092
DP02	E29	DX	10	Any	0.090
DP02	N28	DX	10	Frequent	0.086
DP02	K57	DX	10	Any	0.084
DP02	E78	DX	10	Any	0.084
DP02	D02_INT_UNIQ_Q3	RX	CLASS	Q3ServiceInt	0.083
DP02	S0164	PX	HCPCS	Any	0.081
DP02	M48	DX	10	Frequent	0.078
DP02	80061	PX	CPT	Any	0.074
DP02	D04_INT_ALL_Q4	PX	10	Q4ServiceInt	0.074
DP02	D04_INT_UNIQ_Q4	PX	10	Q4ServiceInt	0.074
DP02	J7050	PX	HCPCS	Frequent	0.072
DP02	43239	PX	CPT	Frequent	0.072
DP02	77080	PX	CPT	Often	0.068
DP02	Z68	DX	10	Frequent	0.068
DP02	R13	DX	10	Frequent	0.068
DP02	G0475	PX	HCPCS	Any	0.067
DP02	96413	PX	CPT	Often	0.066
DP02	D12	DX	10	Frequent	0.065
DP02	72100	PX	CPT	Often	0.064
DP02	72040	PX	CPT	Any	0.064
DP02	82040	PX	CPT	Frequent	0.063
DP02	C772	RX	CLASS	Any	0.060
DP02	J9299	PX	HCPCS	Any	0.060
DP02	J3411	PX	HCPCS	Any	0.060
DP02	99443	PX	CPT	Frequent	0.060
DP02	N30	DX	10	Frequent	0.059
DP02	Q0162	PX	HCPCS	Any	0.059
DP02	C65	RX	CLASS	Any	0.058
DP02	C1143	RX	CLASS	Any	0.058
DP02	G0008	PX	HCPCS	Any	0.058
DP02	77080	PX	CPT	Any	0.057

Appendix P. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 50-64 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP02	N17	DX	10	Frequent	0.057
DP02	84165	PX	CPT	Any	0.057
DP02	Z11	DX	10	Any	0.056
DP02	K44	DX	10	Frequent	0.055
DP02	K22	DX	10	Any	0.055
DP02	C713	RX	CLASS	Often	0.055
DP02	Z00	DX	10	Any	0.055
DP02	72100	PX	CPT	Any	0.053
DP02	R73	DX	10	Any	0.053
DP02	81001	PX	CPT	Any	0.051
DP02	85027	PX	CPT	Any	0.051
DP02	C65	RX	CLASS	Often	0.051
DP02	M53	DX	10	Any	0.051
DP02	70450	PX	CPT	Any	0.050
DP02	R13	DX	10	Often	0.049
DP02	97530	PX	CPT	Any	0.048
DP02	82947	PX	CPT	Frequent	0.047
DP02	N18	DX	10	Often	0.047
DP02	E86	DX	10	Any	0.046
DP02	70491	PX	CPT	Any	0.046
DP02	82310	PX	CPT	Frequent	0.045
DP02	R79	DX	10	Frequent	0.045
DP02	M81	DX	10	Any	0.045
DP02	C180	RX	CLASS	Any	0.044
DP02	72148	PX	CPT	Any	0.044
DP02	81015	PX	CPT	Frequent	0.044
DP02	A9585	PX	HCPCS	Any	0.044
DP02	B37	DX	10	Any	0.044
DP02	84403	PX	CPT	Any	0.043
DP02	R05	DX	10	Any	0.043
DP02	99024	PX	CPT	Any	0.043
DP02	C753	RX	CLASS	Any	0.043
DP02	K31	DX	10	Often	0.043
DP02	C101	RX	CLASS	Frequent	0.043
DP02	G1004	PX	HCPCS	Any	0.042
DP02	R91	DX	10	Any	0.042

Appendix P. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 50-64 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP02	84460	PX	CPT	Frequent	0.040
DP02	C207	RX	CLASS	Any	0.040
DP02	K44	DX	10	Any	0.039
DP02	M81	DX	10	Frequent	0.039
DP02	C1022	RX	CLASS	Frequent	0.039
DP02	J44	DX	10	Frequent	0.039
DP02	82746	PX	CPT	Any	0.038
DP02	R53	DX	10	Any	0.038
DP02	E66	DX	10	Frequent	0.037
DP02	D50	DX	10	Any	0.037
DP02	Z01	DX	10	Frequent	0.036
DP02	J2060	PX	HCPCS	Any	0.036
DP02	D50	DX	10	Often	0.036
DP02	90686	PX	CPT	Any	0.036
DP02	D05_INT_ALL_Q2	PX	HCPCS	Q2ServiceInt	0.036
DP02	C835	RX	CLASS	Any	0.036
DP02	R09	DX	10	Any	0.035
DP02	82247	PX	CPT	Any	0.035
DP02	M17	DX	10	Any	0.035
DP02	84520	PX	CPT	Frequent	0.035
DP03	N18	DX	10	Any	0.030
DP03	N18	DX	10	Often	0.025
DP03	N18	DX	10	Frequent	0.019
DP03	K92	DX	10	Frequent	0.016
DP03	I12	DX	10	Any	0.014
DP03	R10	DX	10	Any	0.013
DP03	K92	DX	10	Often	0.013
DP03	G0463	PX	HCPCS	Any	0.012
DP03	K92	DX	10	Any	0.012
DP03	R11	DX	10	Any	0.012
DP03	G93	DX	10	Frequent	0.012
DP03	731	PX	CPT	Any	0.012
DP03	D04_INT_ALL_Q4	PX	CPT	Q4ServiceInt	0.012
DP03	K21	DX	10	Any	0.011
DP03	K44	DX	10	Any	0.011
DP03	J96	DX	10	Often	0.011

Appendix P. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 50-64 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP03	C1175	RX	CLASS	Any	0.011
DP03	99233	PX	CPT	Often	0.011
DP03	99232	PX	CPT	Frequent	0.011
DP03	G93	DX	10	Any	0.011
DP03	J96	DX	10	Frequent	0.011
DP03	84100	PX	CPT	Any	0.011
DP03	70450	PX	CPT	Any	0.010
DP03	R11	DX	10	Frequent	0.010
DP03	J90	DX	10	Any	0.010
DP03	99223	PX	CPT	Frequent	0.010
DP03	D62	DX	10	Often	0.010
DP03	0DB68ZX	PX	10	Any	0.010
DP03	99239	PX	CPT	Any	0.010
DP03	I12	DX	10	Often	0.010
DP03	D62	DX	10	Any	0.010
DP03	77063	PX	CPT	Any	0.010
DP03	C58	RX	CLASS	Any	0.010
DP03	R10	DX	10	Often	0.010
DP03	K21	DX	10	Frequent	0.009
DP03	Z99	DX	10	Frequent	0.009
DP03	77067	PX	CPT	Any	0.009
DP03	99233	PX	CPT	Frequent	0.009
DP03	G0463	PX	HCPCS	Often	0.009
DP03	C58	RX	CLASS	Frequent	0.009
DP03	D05_INT_ALL_Q4	PX	10	Q4ServiceInt	0.009
DP03	D02_INT_UNIQ_Q4	DX	10	Q4ServiceInt	0.009
DP03	J96	DX	10	Any	0.009
DP03	99222	PX	CPT	Any	0.009
DP03	74177	PX	CPT	Any	0.008
DP03	D62	DX	10	Frequent	0.008
DP03	I51	DX	10	Any	0.008
DP03	D05_INT_UNIQ_Q4	PX	10	Q4ServiceInt	0.008
DP03	K25	DX	10	Any	0.008
DP03	R10	DX	10	Frequent	0.008
DP03	Q9967	PX	HCPCS	Any	0.008
DP03	G93	DX	10	Often	0.008

Appendix P. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 50-64 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP03	C388	RX	CLASS	Often	0.008
DP03	A0427	PX	HCPCS	Any	0.008
DP03	R13	DX	10	Any	0.008
DP03	83735	PX	CPT	Any	0.008
DP03	0DJ08ZZ	PX	10	Any	0.008
DP03	99214	PX	CPT	Frequent	0.008
DP03	I12	DX	10	Frequent	0.008
DP03	D64	DX	10	Often	0.008
DP03	99215	PX	CPT	Any	0.007
DP03	76937	PX	CPT	Any	0.007
DP03	A0425	PX	HCPCS	Any	0.007
DP03	Z74	DX	10	Any	0.007
DP03	99220	PX	CPT	Any	0.007
DP03	R11	DX	10	Often	0.007
DP03	D04_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.007
DP03	99284	PX	CPT	Frequent	0.007
DP03	43235	PX	CPT	Any	0.007
DP03	E66	DX	10	Frequent	0.007
DP03	88342	PX	CPT	Any	0.007
DP03	0TY00Z0	PX	10	Any	0.007
DP03	B96	DX	10	Any	0.007
DP03	80069	PX	CPT	Any	0.007
DP03	Z46	DX	10	Any	0.007
DP03	R91	DX	10	Any	0.007
DP03	K44	DX	10	Often	0.007
DP03	D50	DX	10	Any	0.007
DP03	C388	RX	CLASS	Any	0.007
DP03	K57	DX	10	Any	0.007
DP03	99213	PX	CPT	Frequent	0.006
DP03	Z99	DX	10	Any	0.006
DP03	R09	DX	10	Any	0.006
DP03	E87	DX	10	Any	0.006
DP03	E86	DX	10	Any	0.006
DP03	I63	DX	10	Any	0.006
DP03	I48	DX	10	Frequent	0.006
DP03	R19	DX	10	Any	0.006

Appendix P. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 50-64 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP03	99254	PX	CPT	Any	0.006
DP03	K25	DX	10	Often	0.006
DP03	K29	DX	10	Any	0.006
DP03	D06_INT_UNIQ_Q4	PX	HCPCS	Q4ServiceInt	0.006
DP03	J2930	PX	HCPCS	Any	0.006
DP03	0DB78ZX	PX	10	Any	0.006
DP03	G0463	PX	HCPCS	Frequent	0.006
DP03	R22	DX	10	Any	0.006
DP03	K31	DX	10	Often	0.006
DP03	K76	DX	10	Any	0.006
DP03	I73	DX	10	Any	0.006
DP03	D02_INT_ALL_Q4	DX	10	Q4ServiceInt	0.006
DP04	D02_INT_ALL_Q4	DX	10	Q4ServiceInt	0.038
DP04	G0463	PX	HCPCS	Any	0.036
DP04	D02_INT_UNIQ_Q4	DX	10	Q4ServiceInt	0.033
DP04	D04_INT_ALL_Q4	PX	CPT	Q4ServiceInt	0.030
DP04	N18	DX	10	Often	0.030
DP04	N18	DX	10	Any	0.029
DP04	J96	DX	10	Any	0.027
DP04	M79	DX	10	Any	0.027
DP04	D03_INT_UNIQ_Q4	RX	CLASS	Q4ServiceInt	0.026
DP04	D04_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.025
DP04	G0463	PX	HCPCS	Often	0.025
DP04	G62	DX	10	Any	0.022
DP04	D07_INT_ALL_Q4	PX	HCPCS	Q4ServiceInt	0.022
DP04	M79	DX	10	Frequent	0.021
DP04	99214	PX	CPT	Often	0.021
DP04	D06_INT_UNIQ_Q4	PX	10	Q4ServiceInt	0.020
DP04	M79	DX	10	Often	0.020
DP04	M05	DX	10	Any	0.020
DP04	I73	DX	10	Any	0.020
DP04	Z74	DX	10	Any	0.019
DP04	D06_INT_ALL_Q4	PX	10	Q4ServiceInt	0.018
DP04	E11	DX	10	Often	0.017
DP04	R26	DX	10	Any	0.016
DP04	G0378	PX	HCPCS	Any	0.016

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Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP04	C1097	RX	CLASS	Any	0.016
DP04	99214	PX	CPT	Frequent	0.015
DP04	Z79	DX	10	Often	0.015
DP04	M05	DX	10	Frequent	0.015
DP04	A0425	PX	HCPCS	Frequent	0.015
DP04	I73	DX	10	Frequent	0.015
DP04	G62	DX	10	Frequent	0.015
DP04	E11	DX	10	Frequent	0.015
DP04	I25	DX	10	Frequent	0.015
DP04	J45	DX	10	Frequent	0.015
DP04	99214	PX	CPT	Any	0.015
DP04	99348	PX	CPT	Any	0.014
DP04	G0463	PX	HCPCS	Frequent	0.014
DP04	D03_INT_ALL_Q4	RX	CLASS	Q4ServiceInt	0.014
DP04	N18	DX	10	Frequent	0.014
DP04	99215	PX	CPT	Any	0.014
DP04	86140	PX	CPT	Any	0.014
DP04	R69	DX	10	Any	0.014
DP04	J1200	PX	HCPCS	Any	0.014
DP04	A9585	PX	HCPCS	Any	0.013
DP04	R29	DX	10	Any	0.013
DP04	A0428	PX	HCPCS	Any	0.013
DP04	I12	DX	10	Any	0.013
DP04	J44	DX	10	Any	0.013
DP04	99053	PX	CPT	Any	0.013
DP04	C1097	RX	CLASS	Often	0.013
DP04	J44	DX	10	Often	0.013
DP04	0DB68ZX	PX	10	Any	0.013
DP04	D63	DX	10	Any	0.013
DP04	E1390	PX	HCPCS	Any	0.013
DP04	Z99	DX	10	Frequent	0.013
DP04	Z79	DX	10	Any	0.013
DP04	77063	PX	CPT	Any	0.013
DP04	J96	DX	10	Frequent	0.013
DP04	I12	DX	10	Often	0.012
DP04	J44	DX	10	Frequent	0.012

Appendix P. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 50-64 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP04	J96	DX	10	Often	0.012
DP04	84100	PX	CPT	Any	0.012
DP04	G89	DX	10	Frequent	0.012
DP04	R69	DX	10	Frequent	0.012
DP04	K22	DX	10	Any	0.012
DP04	R29	DX	10	Often	0.012
DP04	G0151	PX	HCPCS	Frequent	0.012
DP04	80069	PX	CPT	Frequent	0.012
DP04	77067	PX	CPT	Any	0.012
DP04	K21	DX	10	Frequent	0.012
DP04	84100	PX	CPT	Frequent	0.011
DP04	Y92	DX	10	Any	0.011
DP04	70450	PX	CPT	Any	0.011
DP04	K92	DX	10	Any	0.011
DP04	R20	DX	10	Frequent	0.011
DP04	C749	RX	CLASS	Frequent	0.011
DP04	80069	PX	CPT	Any	0.011
DP04	M06	DX	10	Any	0.011
DP04	R26	DX	10	Often	0.011
DP04	D07_INT_UNIQ_Q4	PX	HCPCS	Q4ServiceInt	0.011
DP04	A0425	PX	HCPCS	Any	0.011
DP04	Z74	DX	10	Frequent	0.011
DP04	I25	DX	10	Often	0.011
DP04	J45	DX	10	Often	0.011
DP04	Z91	DX	10	Any	0.011
DP04	I11	DX	10	Any	0.010
DP04	T78	DX	10	Any	0.010
DP04	G89	DX	10	Any	0.010
DP04	3E04305	PX	10	Any	0.010
DP04	I50	DX	10	Any	0.010
DP04	87086	PX	CPT	Any	0.010
DP04	G0299	PX	HCPCS	Any	0.010
DP04	M05	DX	10	Often	0.010
DP04	99220	PX	CPT	Any	0.010
DP04	Z48	DX	10	Any	0.010
DP04	C1186	RX	CLASS	Often	0.010

Appendix P. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 50-64 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP04	70553	PX	CPT	Any	0.010
DP04	K20	DX	10	Any	0.010
DP04	K21	DX	10	Any	0.010
DP04	30233N1	PX	10	Any	0.009
DP05	T2023	PX	HCPCS	Frequent	0.292
DP05	K74	DX	10	Any	0.168
DP05	K70	DX	10	Any	0.164
DP05	K70	DX	10	Often	0.147
DP05	T2023	PX	HCPCS	Often	0.144
DP05	K74	DX	10	Often	0.135
DP05	T2003	PX	HCPCS	Often	0.121
DP05	T2023	PX	HCPCS	Any	0.115
DP05	T2003	PX	HCPCS	Frequent	0.101
DP05	J43	DX	10	Any	0.101
DP05	86039	PX	CPT	Any	0.101
DP05	V5160	PX	HCPCS	Any	0.100
DP05	K70	DX	10	Frequent	0.097
DP05	R18	DX	10	Any	0.088
DP05	V5261	PX	HCPCS	Any	0.083
DP05	G0180	PX	HCPCS	Any	0.080
DP05	H90	DX	10	Frequent	0.077
DP05	86704	PX	CPT	Any	0.076
DP05	70486	PX	CPT	Often	0.075
DP05	A4371	PX	HCPCS	Frequent	0.075
DP05	G0179	PX	HCPCS	Often	0.075
DP05	C342	RX	CLASS	Any	0.070
DP05	S0215	PX	HCPCS	Often	0.068
DP05	S0215	PX	HCPCS	Any	0.067
DP05	86706	PX	CPT	Any	0.066
DP05	T2003	PX	HCPCS	Any	0.066
DP05	C42	RX	CLASS	Any	0.064
DP05	F17	DX	10	Often	0.064
DP05	R26	DX	10	Any	0.062
DP05	F17	DX	10	Any	0.062
DP05	M43	DX	10	Frequent	0.062
DP05	L4360	PX	HCPCS	Any	0.061

Appendix P. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 50-64 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP05	93306	PX	CPT	Any	0.059
DP05	F10	DX	10	Any	0.057
DP05	76700	PX	CPT	Any	0.057
DP05	87389	PX	CPT	Any	0.056
DP05	83540	PX	CPT	Any	0.056
DP05	G0463	PX	HCPCS	Any	0.054
DP05	C1725	PX	HCPCS	Any	0.054
DP05	R22	DX	10	Any	0.053
DP05	83690	PX	CPT	Any	0.052
DP05	76705	PX	CPT	Any	0.052
DP05	70486	PX	CPT	Any	0.051
DP05	L57	DX	10	Frequent	0.050
DP05	K22	DX	10	Any	0.050
DP05	K21	DX	10	Frequent	0.048
DP05	99223	PX	CPT	Any	0.047
DP05	82248	PX	CPT	Any	0.046
DP05	88342	PX	CPT	Often	0.046
DP05	C42	RX	CLASS	Frequent	0.046
DP05	84466	PX	CPT	Any	0.045
DP05	02HV33Z	PX	10	Any	0.044
DP05	A0425	PX	HCPCS	Any	0.044
DP05	97035	PX	CPT	Frequent	0.042
DP05	99238	PX	CPT	Any	0.042
DP05	J44	DX	10	Often	0.042
DP05	99204	PX	CPT	Any	0.041
DP05	C48	RX	CLASS	Any	0.041
DP05	74177	PX	CPT	Any	0.041
DP05	F10	DX	10	Often	0.041
DP05	K74	DX	10	Frequent	0.041
DP05	0WQF0ZZ	PX	10	Any	0.040
DP05	A4385	PX	HCPCS	Any	0.040
DP05	43239	PX	CPT	Any	0.040
DP05	F10	DX	10	Frequent	0.040
DP05	R19	DX	10	Any	0.039
DP05	C1119	RX	CLASS	Frequent	0.039
DP05	A0427	PX	HCPCS	Any	0.039

Appendix P. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 50-64 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP05	H0046	PX	HCPCS	Any	0.039
DP05	C215	RX	CLASS	Any	0.039
DP05	99605	PX	CPT	Any	0.039
DP05	G0103	PX	HCPCS	Any	0.039
DP05	C826	RX	CLASS	Any	0.039
DP05	R59	DX	10	Frequent	0.038
DP05	D12	DX	10	Any	0.038
DP05	82728	PX	CPT	Any	0.038
DP05	D12	DX	10	Often	0.037
DP05	C1894	PX	HCPCS	Any	0.037
DP05	K31	DX	10	Any	0.037
DP05	C1132	RX	CLASS	Any	0.037
DP05	J0330	PX	HCPCS	Any	0.036
DP05	99211	PX	CPT	Any	0.036
DP05	72100	PX	CPT	Any	0.036
DP05	D64	DX	10	Frequent	0.036
DP05	L40	DX	10	Often	0.036
DP05	82150	PX	CPT	Any	0.035
DP05	C42	RX	CLASS	Often	0.035
DP05	87081	PX	CPT	Any	0.035
DP05	R73	DX	10	Any	0.034
DP05	R91	DX	10	Any	0.034
DP05	R19	DX	10	Frequent	0.034
DP05	88312	PX	CPT	Any	0.034
DP05	G0500	PX	HCPCS	Any	0.033
DP05	Z68	DX	10	Any	0.032
DP05	H90	DX	10	Any	0.031
DP05	C693	RX	CLASS	Any	0.031
DP05	Z91	DX	10	Frequent	0.031
DP05	G56	DX	10	Frequent	0.031
DP05	J43	DX	10	Frequent	0.031
DP05	H91	DX	10	Any	0.031

Appendix Q. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP01	K92	DX	10	Any	0.052
DP01	K92	DX	10	Often	0.043
DP01	D62	DX	10	Any	0.037
DP01	D62	DX	10	Often	0.035
DP01	K92	DX	10	Frequent	0.034
DP01	N18	DX	10	Any	0.033
DP01	N18	DX	10	Often	0.029
DP01	D50	DX	10	Any	0.028
DP01	99223	PX	CPT	Any	0.026
DP01	99306	PX	CPT	Any	0.025
DP01	731	PX	CPT	Any	0.024
DP01	K25	DX	10	Any	0.023
DP01	99308	PX	CPT	Any	0.023
DP01	A0428	PX	HCPCS	Any	0.022
DP01	99309	PX	CPT	Any	0.022
DP01	R11	DX	10	Any	0.021
DP01	D50	DX	10	Often	0.021
DP01	0DJ08ZZ	PX	10	Any	0.021
DP01	30233N1	PX	10	Any	0.020
DP01	0DB68ZX	PX	10	Any	0.020
DP01	99232	PX	CPT	Any	0.019
DP01	R26	DX	10	Any	0.019
DP01	D64	DX	10	Often	0.019
DP01	K25	DX	10	Often	0.018
DP01	D64	DX	10	Any	0.018
DP01	Z91	DX	10	Any	0.018
DP01	D64	DX	10	Frequent	0.017
DP01	D62	DX	10	Frequent	0.017
DP01	N17	DX	10	Any	0.017
DP01	I12	DX	10	Any	0.017
DP01	R06	DX	10	Any	0.016
DP01	R10	DX	10	Any	0.015
DP01	99223	PX	CPT	Often	0.015
DP01	E86	DX	10	Any	0.015
DP01	84100	PX	CPT	Any	0.015
DP01	R29	DX	10	Any	0.015

Appendix Q. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP01	K25	DX	10	Frequent	0.015
DP01	M62	DX	10	Any	0.015
DP01	D50	DX	10	Frequent	0.014
DP01	99233	PX	CPT	Any	0.014
DP01	R11	DX	10	Often	0.014
DP01	K21	DX	10	Frequent	0.014
DP01	99222	PX	CPT	Any	0.014
DP01	99285	PX	CPT	Any	0.013
DP01	Z74	DX	10	Frequent	0.013
DP01	74177	PX	CPT	Any	0.013
DP01	99310	PX	CPT	Any	0.013
DP01	74176	PX	CPT	Any	0.013
DP01	R13	DX	10	Any	0.013
DP01	C58	RX	CLASS	Often	0.013
DP01	D04_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.013
DP01	E11	DX	10	Often	0.012
DP01	R26	DX	10	Often	0.012
DP01	88342	PX	CPT	Any	0.012
DP01	A0427	PX	HCPCS	Any	0.012
DP01	43235	PX	CPT	Any	0.012
DP01	F17	DX	10	Any	0.012
DP01	N18	DX	10	Frequent	0.012
DP01	R11	DX	10	Frequent	0.012
DP01	I95	DX	10	Any	0.012
DP01	83970	PX	CPT	Any	0.012
DP01	N17	DX	10	Often	0.012
DP01	J98	DX	10	Frequent	0.011
DP01	E11	DX	10	Any	0.011
DP01	R06	DX	10	Often	0.011
DP01	K29	DX	10	Any	0.011
DP01	G93	DX	10	Often	0.011
DP01	93010	PX	CPT	Any	0.011
DP01	K31	DX	10	Any	0.011
DP01	I12	DX	10	Often	0.011
DP01	A0428	PX	HCPCS	Frequent	0.011
DP01	J44	DX	10	Any	0.011

Appendix Q. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP01	B96	DX	10	Any	0.011
DP01	E11	DX	10	Frequent	0.011
DP01	A0425	PX	HCPCS	Frequent	0.011
DP01	99309	PX	CPT	Often	0.010
DP01	R27	DX	10	Any	0.010
DP01	R41	DX	10	Any	0.010
DP01	0W3P8ZZ	PX	10	Any	0.010
DP01	99308	PX	CPT	Frequent	0.010
DP01	76705	PX	CPT	Any	0.010
DP01	71045	PX	CPT	Any	0.010
DP01	J44	DX	10	Often	0.010
DP01	C58	RX	CLASS	Any	0.010
DP01	81001	PX	CPT	Any	0.010
DP01	I48	DX	10	Often	0.010
DP01	K21	DX	10	Often	0.010
DP01	R10	DX	10	Often	0.010
DP01	G93	DX	10	Any	0.010
DP01	F17	DX	10	Often	0.010
DP01	I63	DX	10	Frequent	0.009
DP01	Z79	DX	10	Often	0.009
DP01	84156	PX	CPT	Any	0.009
DP01	Z74	DX	10	Any	0.009
DP01	D04_INT_ALL_Q4	PX	CPT	Q4ServiceInt	0.009
DP01	0DB98ZX	PX	10	Any	0.009
DP01	R07	DX	10	Any	0.009
DP01	93010	PX	CPT	Frequent	0.009
DP01	83880	PX	CPT	Any	0.009
DP01	99291	PX	CPT	Any	0.009
DP02	S9501	PX	HCPCS	Frequent	0.368
DP02	V2304	PX	HCPCS	Any	0.254
DP02	S9501	PX	HCPCS	Often	0.234
DP02	99225	PX	CPT	Any	0.179
DP02	99285	PX	CPT	Any	0.178
DP02	F10	DX	10	Frequent	0.169
DP02	84156	PX	CPT	Any	0.154
DP02	B2111ZZ	PX	10	Any	0.153

Appendix Q. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP02	E78	DX	10	Frequent	0.143
DP02	R07	DX	10	Any	0.143
DP02	85379	PX	CPT	Any	0.140
DP02	99239	PX	CPT	Any	0.139
DP02	R18	DX	10	Any	0.133
DP02	D64	DX	10	Any	0.131
DP02	80053	PX	CPT	Any	0.131
DP02	C1010	RX	CLASS	Any	0.129
DP02	A9270	PX	HCPCS	Frequent	0.126
DP02	93010	PX	CPT	Any	0.121
DP02	86140	PX	CPT	Any	0.119
DP02	K92	DX	10	Any	0.118
DP02	85025	PX	CPT	Any	0.117
DP02	77001	PX	CPT	Frequent	0.107
DP02	D03_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.106
DP02	Q9957	PX	HCPCS	Any	0.106
DP02	K29	DX	10	Any	0.103
DP02	I77	DX	10	Any	0.102
DP02	R79	DX	10	Any	0.101
DP02	66984	PX	CPT	Often	0.100
DP02	E86	DX	10	Any	0.098
DP02	K76	DX	10	Any	0.098
DP02	83540	PX	CPT	Any	0.097
DP02	G47	DX	10	Frequent	0.095
DP02	Z79	DX	10	Any	0.092
DP02	N13	DX	10	Frequent	0.092
DP02	A9575	PX	HCPCS	Any	0.091
DP02	J1650	PX	HCPCS	Often	0.089
DP02	R25	DX	10	Frequent	0.089
DP02	E78	DX	10	Any	0.088
DP02	C107	RX	CLASS	Often	0.087
DP02	Z68	DX	10	Any	0.083
DP02	H52	DX	10	Often	0.082
DP02	80053	PX	CPT	Frequent	0.082
DP02	86900	PX	CPT	Any	0.082
DP02	86901	PX	CPT	Any	0.082

Appendix Q. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP02	99285	PX	CPT	Frequent	0.081
DP02	83550	PX	CPT	Any	0.081
DP02	66984	PX	CPT	Any	0.080
DP02	92136	PX	CPT	Any	0.079
DP02	86038	PX	CPT	Any	0.079
DP02	87635	PX	CPT	Any	0.079
DP02	C140	RX	CLASS	Often	0.079
DP02	83735	PX	CPT	Frequent	0.078
DP02	81001	PX	CPT	Any	0.078
DP02	G25	DX	10	Any	0.078
DP02	Z88	DX	10	Any	0.078
DP02	C8929	PX	HCPCS	Any	0.077
DP02	86850	PX	CPT	Any	0.077
DP02	74177	PX	CPT	Any	0.077
DP02	R07	DX	10	Often	0.076
DP02	E66	DX	10	Any	0.075
DP02	A9270	PX	HCPCS	Any	0.075
DP02	96160	PX	CPT	Any	0.074
DP02	R74	DX	10	Frequent	0.074
DP02	N63	DX	10	Frequent	0.074
DP02	J2785	PX	HCPCS	Any	0.074
DP02	83690	PX	CPT	Any	0.073
DP02	85014	PX	CPT	Any	0.073
DP02	C1142	RX	CLASS	Frequent	0.072
DP02	83880	PX	CPT	Any	0.071
DP02	B96	DX	10	Any	0.071
DP02	J1650	PX	HCPCS	Any	0.071
DP02	C1894	PX	HCPCS	Any	0.071
DP02	C42	RX	CLASS	Any	0.070
DP02	R10	DX	10	Often	0.069
DP02	R07	DX	10	Frequent	0.069
DP02	I08	DX	10	Any	0.068
DP02	87040	PX	CPT	Any	0.068
DP02	V2103	PX	HCPCS	Any	0.068
DP02	C987	RX	CLASS	Any	0.068
DP02	C140	RX	CLASS	Any	0.067

Appendix Q. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP02	I12	DX	10	Frequent	0.067
DP02	D64	DX	10	Often	0.066
DP02	G47	DX	10	Any	0.065
DP02	M16	DX	10	Often	0.065
DP02	E66	DX	10	Frequent	0.064
DP02	F31	DX	10	Any	0.063
DP02	92012	PX	CPT	Any	0.063
DP02	K76	DX	10	Often	0.063
DP02	C107	RX	CLASS	Any	0.062
DP02	C390	RX	CLASS	Frequent	0.062
DP02	A9552	PX	HCPCS	Any	0.062
DP02	C78	DX	10	Frequent	0.062
DP02	C390	RX	CLASS	Often	0.062
DP02	93005	PX	CPT	Any	0.061
DP02	Z68	DX	10	Frequent	0.061
DP02	N63	DX	10	Any	0.061
DP02	Z17	DX	10	Often	0.060
DP02	V2020	PX	HCPCS	Any	0.060
DP02	84439	PX	CPT	Frequent	0.059
DP02	78815	PX	CPT	Any	0.058
DP03	K92	DX	10	Any	0.042
DP03	D64	DX	10	Often	0.034
DP03	D64	DX	10	Any	0.032
DP03	99308	PX	CPT	Often	0.030
DP03	D64	DX	10	Frequent	0.028
DP03	N18	DX	10	Any	0.028
DP03	K92	DX	10	Frequent	0.027
DP03	99308	PX	CPT	Any	0.027
DP03	K92	DX	10	Often	0.026
DP03	99232	PX	CPT	Any	0.026
DP03	99309	PX	CPT	Any	0.025
DP03	N18	DX	10	Often	0.024
DP03	99239	PX	CPT	Any	0.024
DP03	K21	DX	10	Any	0.023
DP03	D50	DX	10	Often	0.023
DP03	99285	PX	CPT	Any	0.023

Appendix Q. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP03	99309	PX	CPT	Often	0.023
DP03	M62	DX	10	Any	0.021
DP03	I12	DX	10	Any	0.021
DP03	99223	PX	CPT	Any	0.021
DP03	K21	DX	10	Often	0.021
DP03	99223	PX	CPT	Frequent	0.021
DP03	99232	PX	CPT	Often	0.021
DP03	A0428	PX	HCPCS	Any	0.021
DP03	D50	DX	10	Any	0.020
DP03	731	PX	CPT	Any	0.020
DP03	99308	PX	CPT	Frequent	0.020
DP03	99233	PX	CPT	Any	0.020
DP03	99222	PX	CPT	Any	0.020
DP03	R13	DX	10	Any	0.020
DP03	99309	PX	CPT	Frequent	0.020
DP03	D62	DX	10	Often	0.019
DP03	Z99	DX	10	Any	0.018
DP03	N18	DX	10	Frequent	0.018
DP03	Z79	DX	10	Often	0.018
DP03	D50	DX	10	Frequent	0.018
DP03	C58	RX	CLASS	Often	0.017
DP03	P9016	PX	HCPCS	Any	0.017
DP03	74177	PX	CPT	Any	0.017
DP03	30233N1	PX	10	Any	0.016
DP03	C58	RX	CLASS	Any	0.016
DP03	D62	DX	10	Any	0.016
DP03	Z79	DX	10	Any	0.015
DP03	D06_INT_UNIQ_Q4	PX	HCPCS	Q4ServiceInt	0.015
DP03	R41	DX	10	Any	0.015
DP03	M62	DX	10	Often	0.015
DP03	N17	DX	10	Any	0.014
DP03	A0427	PX	HCPCS	Any	0.014
DP03	J2405	PX	HCPCS	Any	0.014
DP03	G93	DX	10	Any	0.014
DP03	D62	DX	10	Frequent	0.013
DP03	E87	DX	10	Often	0.013

Appendix Q. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP03	R11	DX	10	Any	0.013
DP03	K25	DX	10	Any	0.013
DP03	99306	PX	CPT	Any	0.013
DP03	Z79	DX	10	Frequent	0.013
DP03	43235	PX	CPT	Any	0.012
DP03	D06_INT_ALL_Q4	PX	HCPCS	Q4ServiceInt	0.012
DP03	K21	DX	10	Frequent	0.012
DP03	C58	RX	CLASS	Frequent	0.012
DP03	87040	PX	CPT	Any	0.012
DP03	85610	PX	CPT	Any	0.012
DP03	82948	PX	CPT	Any	0.012
DP03	96365	PX	CPT	Frequent	0.012
DP03	C386	RX	CLASS	Frequent	0.012
DP03	R26	DX	10	Any	0.012
DP03	I63	DX	10	Often	0.012
DP03	Q9967	PX	HCPCS	Any	0.011
DP03	96376	PX	CPT	Any	0.011
DP03	0DB68ZX	PX	10	Any	0.011
DP03	96375	PX	CPT	Any	0.011
DP03	B96	DX	10	Any	0.011
DP03	C388	RX	CLASS	Any	0.011
DP03	D03_INT_UNIQ_Q4	RX	CLASS	Q4ServiceInt	0.011
DP03	K44	DX	10	Any	0.011
DP03	71045	PX	CPT	Any	0.011
DP03	85025	PX	CPT	Frequent	0.011
DP03	J96	DX	10	Frequent	0.011
DP03	I12	DX	10	Frequent	0.011
DP03	D72	DX	10	Often	0.011
DP03	G0010	PX	HCPCS	Frequent	0.010
DP03	C386	RX	CLASS	Any	0.010
DP03	I50	DX	10	Frequent	0.010
DP03	Q0092	PX	HCPCS	Any	0.010
DP03	I10	DX	10	Often	0.010
DP03	M62	DX	10	Frequent	0.010
DP03	G93	DX	10	Often	0.010
DP03	G93	DX	10	Frequent	0.010

Appendix Q. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP03	5A1D70Z	PX	10	Any	0.010
DP03	G0378	PX	HCPCS	Any	0.010
DP03	I10	DX	10	Any	0.010
DP03	E11	DX	10	Often	0.010
DP03	E83	DX	10	Any	0.010
DP03	99152	PX	CPT	Any	0.010
DP03	J43	DX	10	Any	0.010
DP03	Z51	DX	10	Any	0.010
DP03	I48	DX	10	Often	0.010
DP03	99217	PX	CPT	Any	0.010
DP03	84100	PX	CPT	Any	0.010
DP03	K22	DX	10	Any	0.010
DP04	K92	DX	10	Any	0.042
DP04	D62	DX	10	Any	0.039
DP04	K92	DX	10	Often	0.038
DP04	99223	PX	CPT	Any	0.037
DP04	731	PX	CPT	Any	0.037
DP04	99233	PX	CPT	Any	0.035
DP04	99222	PX	CPT	Any	0.034
DP04	N18	DX	10	Any	0.033
DP04	D64	DX	10	Often	0.031
DP04	N18	DX	10	Often	0.027
DP04	K25	DX	10	Any	0.026
DP04	30233N1	PX	10	Any	0.025
DP04	D64	DX	10	Frequent	0.025
DP04	K92	DX	10	Frequent	0.023
DP04	0DB68ZX	PX	10	Any	0.022
DP04	99232	PX	CPT	Any	0.022
DP04	N17	DX	10	Often	0.021
DP04	R10	DX	10	Any	0.021
DP04	K21	DX	10	Any	0.021
DP04	99285	PX	CPT	Any	0.020
DP04	99239	PX	CPT	Any	0.020
DP04	D64	DX	10	Any	0.020
DP04	0DJ08ZZ	PX	10	Any	0.019
DP04	D50	DX	10	Any	0.018

Appendix Q. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP04	I12	DX	10	Any	0.018
DP04	D50	DX	10	Often	0.017
DP04	R11	DX	10	Any	0.017
DP04	D06_INT_UNIQ_Q1	PX	10	Q1ServiceInt	0.017
DP04	D06_INT_ALL_Q1	PX	10	Q1ServiceInt	0.017
DP04	R06	DX	10	Any	0.016
DP04	K25	DX	10	Frequent	0.015
DP04	N18	DX	10	Frequent	0.015
DP04	74177	PX	CPT	Any	0.015
DP04	R13	DX	10	Any	0.015
DP04	I25	DX	10	Often	0.015
DP04	N17	DX	10	Any	0.014
DP04	71045	PX	CPT	Any	0.014
DP04	71045	PX	CPT	Frequent	0.014
DP04	N17	DX	10	Frequent	0.014
DP04	Z79	DX	10	Frequent	0.014
DP04	I25	DX	10	Frequent	0.014
DP04	J96	DX	10	Frequent	0.014
DP04	99232	PX	CPT	Frequent	0.014
DP04	0DB78ZX	PX	10	Any	0.013
DP04	99285	PX	CPT	Frequent	0.013
DP04	I95	DX	10	Any	0.013
DP04	88305	PX	CPT	Any	0.013
DP04	R19	DX	10	Any	0.013
DP04	R06	DX	10	Often	0.013
DP04	K21	DX	10	Frequent	0.013
DP04	R10	DX	10	Often	0.013
DP04	93010	PX	CPT	Any	0.013
DP04	J44	DX	10	Often	0.012
DP04	J44	DX	10	Any	0.012
DP04	74176	PX	CPT	Any	0.012
DP04	C1097	RX	CLASS	Any	0.012
DP04	Q9967	PX	HCPCS	Any	0.012
DP04	99223	PX	CPT	Frequent	0.011
DP04	0DH63UZ	PX	10	Any	0.011
DP04	R10	DX	10	Frequent	0.011

Appendix Q. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP04	I69	DX	10	Any	0.011
DP04	99233	PX	CPT	Frequent	0.011
DP04	96375	PX	CPT	Frequent	0.011
DP04	D04_INT_ALL_Q4	PX	CPT	Q4ServiceInt	0.011
DP04	A41	DX	10	Any	0.011
DP04	K74	DX	10	Any	0.011
DP04	C58	RX	CLASS	Frequent	0.011
DP04	K29	DX	10	Any	0.011
DP04	I69	DX	10	Often	0.010
DP04	3E0G76Z	PX	10	Any	0.010
DP04	0DB98ZX	PX	10	Any	0.010
DP04	I63	DX	10	Often	0.010
DP04	D50	DX	10	Frequent	0.010
DP04	83690	PX	CPT	Any	0.010
DP04	G93	DX	10	Often	0.010
DP04	84156	PX	CPT	Any	0.010
DP04	R13	DX	10	Often	0.010
DP04	G0378	PX	HCPCS	Any	0.010
DP04	C58	RX	CLASS	Often	0.010
DP04	D62	DX	10	Frequent	0.010
DP04	I12	DX	10	Often	0.010
DP04	I69	DX	10	Frequent	0.010
DP04	88342	PX	CPT	Any	0.010
DP04	K74	DX	10	Often	0.010
DP04	E87	DX	10	Frequent	0.010
DP04	D03_INT_UNIQ_Q4	RX	CLASS	Q4ServiceInt	0.010
DP04	I25	DX	10	Any	0.010
DP04	J18	DX	10	Any	0.010
DP04	99309	PX	CPT	Any	0.010
DP04	D06_INT_ALL_Q3	PX	10	Q3ServiceInt	0.010
DP04	I63	DX	10	Any	0.010
DP04	K57	DX	10	Any	0.009
DP04	99308	PX	CPT	Any	0.009
DP04	R53	DX	10	Any	0.009
DP04	K31	DX	10	Frequent	0.009
DP04	84100	PX	CPT	Any	0.009

Appendix Q. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP04	96375	PX	CPT	Any	0.009
DP04	G93	DX	10	Frequent	0.009
DP04	96376	PX	CPT	Any	0.009
DP04	99291	PX	CPT	Any	0.009
DP05	73560	PX	CPT	Any	0.342
DP05	99309	PX	CPT	Frequent	0.334
DP05	D63	DX	10	Often	0.303
DP05	E43	DX	10	Any	0.266
DP05	C782	RX	CLASS	Any	0.249
DP05	99316	PX	CPT	Any	0.248
DP05	D64	DX	10	Any	0.246
DP05	G0157	PX	HCPCS	Any	0.230
DP05	B96	DX	10	Frequent	0.228
DP05	99231	PX	CPT	Any	0.227
DP05	J81	DX	10	Any	0.214
DP05	Z68	DX	10	Frequent	0.204
DP05	76770	PX	CPT	Any	0.203
DP05	E11	DX	10	Often	0.200
DP05	A41	DX	10	Any	0.199
DP05	D63	DX	10	Any	0.199
DP05	85060	PX	CPT	Any	0.197
DP05	R49	DX	10	Any	0.195
DP05	82962	PX	CPT	Any	0.192
DP05	I13	DX	10	Often	0.192
DP05	73502	PX	CPT	Frequent	0.190
DP05	81001	PX	CPT	Frequent	0.185
DP05	C1033	RX	CLASS	Frequent	0.184
DP05	C1033	RX	CLASS	Often	0.182
DP05	R13	DX	10	Frequent	0.180
DP05	K21	DX	10	Frequent	0.177
DP05	73560	PX	CPT	Often	0.176
DP05	M48	DX	10	Any	0.175
DP05	E11	DX	10	Frequent	0.171
DP05	I34	DX	10	Frequent	0.167
DP05	G0299	PX	HCPCS	Frequent	0.167
DP05	G0299	PX	HCPCS	Often	0.167

Appendix Q. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP05	R13	DX	10	Any	0.164
DP05	I12	DX	10	Any	0.163
DP05	86140	PX	CPT	Any	0.161
DP05	N18	DX	10	Often	0.160
DP05	M51	DX	10	Often	0.159
DP05	R52	DX	10	Frequent	0.157
DP05	99239	PX	CPT	Frequent	0.156
DP05	74176	PX	CPT	Any	0.151
DP05	C487	RX	CLASS	Any	0.149
DP05	G93	DX	10	Frequent	0.147
DP05	71250	PX	CPT	Any	0.147
DP05	G93	DX	10	Often	0.145
DP05	J1885	PX	HCPCS	Any	0.145
DP05	C825	RX	CLASS	Any	0.143
DP05	J3475	PX	HCPCS	Any	0.142
DP05	L03	DX	10	Frequent	0.142
DP05	K74	DX	10	Often	0.141
DP05	M48	DX	10	Often	0.141
DP05	Y92	DX	10	Any	0.138
DP05	88112	PX	CPT	Frequent	0.138
DP05	C1033	RX	CLASS	Any	0.137
DP05	H01	DX	10	Any	0.135
DP05	J1650	PX	HCPCS	Any	0.134
DP05	R50	DX	10	Frequent	0.134
DP05	R74	DX	10	Frequent	0.134
DP05	E44	DX	10	Any	0.130
DP05	A0425	PX	HCPCS	Frequent	0.130
DP05	Z79	DX	10	Frequent	0.130
DP05	99284	PX	CPT	Frequent	0.129
DP05	H01	DX	10	Often	0.128
DP05	99310	PX	CPT	Any	0.124
DP05	009U3ZX	PX	10	Any	0.123
DP05	D03_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.123
DP05	G0300	PX	HCPCS	Any	0.123
DP05	C829	RX	CLASS	Any	0.122
DP05	Z72	DX	10	Any	0.122

Appendix Q. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP05	E46	DX	10	Frequent	0.119
DP05	M54	DX	10	Frequent	0.118
DP05	85025	PX	CPT	Any	0.118
DP05	G89	DX	10	Frequent	0.118
DP05	99222	PX	CPT	Any	0.117
DP05	R22	DX	10	Any	0.117
DP05	83735	PX	CPT	Any	0.116
DP05	E66	DX	10	Frequent	0.116
DP05	Z68	DX	10	Any	0.115
DP05	99232	PX	CPT	Frequent	0.114
DP05	R53	DX	10	Often	0.113
DP05	87086	PX	CPT	Any	0.112
DP05	C822	RX	CLASS	Any	0.112
DP05	A41	DX	10	Frequent	0.111
DP05	D69	DX	10	Frequent	0.111
DP05	K74	DX	10	Any	0.110
DP05	C713	RX	CLASS	Any	0.110
DP05	H02	DX	10	Any	0.109
DP05	731	PX	CPT	Any	0.107
DP05	R47	DX	10	Any	0.107
DP05	02HV33Z	PX	10	Any	0.106
DP05	R32	DX	10	Any	0.106
DP05	I50	DX	10	Frequent	0.106
DP05	M62	DX	10	Any	0.105
DP05	A0427	PX	HCPCS	Any	0.105
DP05	93308	PX	CPT	Any	0.105
DP05	N39	DX	10	Any	0.105
DP05	M51	DX	10	Any	0.104
DP05	C42	RX	CLASS	Any	0.104
DP05	R18	DX	10	Any	0.104
DP05	80053	PX	CPT	Frequent	0.103
DP05	I10	DX	10	Frequent	0.103

Appendix R. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP01	K92	DX	10	Any	0.052
DP01	99223	PX	CPT	Any	0.038
DP01	99222	PX	CPT	Any	0.038
DP01	K92	DX	10	Often	0.037
DP01	99232	PX	CPT	Any	0.035
DP01	D62	DX	10	Any	0.032
DP01	99285	PX	CPT	Any	0.032
DP01	D50	DX	10	Any	0.031
DP01	731	PX	CPT	Any	0.031
DP01	99233	PX	CPT	Any	0.028
DP01	D02_INT_ALL_Q4	DX	10	Q4ServiceInt	0.028
DP01	71045	PX	CPT	Any	0.027
DP01	D64	DX	10	Often	0.026
DP01	Z79	DX	10	Often	0.026
DP01	D64	DX	10	Any	0.026
DP01	D02_INT_UNIQ_Q4	DX	10	Q4ServiceInt	0.025
DP01	K92	DX	10	Frequent	0.025
DP01	D50	DX	10	Often	0.025
DP01	99285	PX	CPT	Often	0.024
DP01	99223	PX	CPT	Often	0.023
DP01	R06	DX	10	Any	0.023
DP01	N17	DX	10	Any	0.022
DP01	R06	DX	10	Often	0.022
DP01	93010	PX	CPT	Any	0.021
DP01	99232	PX	CPT	Often	0.021
DP01	D62	DX	10	Often	0.021
DP01	N18	DX	10	Any	0.020
DP01	99233	PX	CPT	Often	0.020
DP01	Z79	DX	10	Frequent	0.020
DP01	D64	DX	10	Frequent	0.020
DP01	R06	DX	10	Frequent	0.019
DP01	71045	PX	CPT	Often	0.019
DP01	93010	PX	CPT	Frequent	0.019
DP01	I48	DX	10	Often	0.019
DP01	K21	DX	10	Frequent	0.018
DP01	99222	PX	CPT	Frequent	0.018

Appendix R. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP01	K21	DX	10	Any	0.018
DP01	99291	PX	CPT	Any	0.017
DP01	N18	DX	10	Often	0.017
DP01	I25	DX	10	Often	0.017
DP01	99231	PX	CPT	Any	0.017
DP01	A0425	PX	HCPCS	Any	0.017
DP01	Z79	DX	10	Any	0.017
DP01	74177	PX	CPT	Any	0.017
DP01	K21	DX	10	Often	0.016
DP01	Z87	DX	10	Often	0.016
DP01	Z87	DX	10	Any	0.016
DP01	Z95	DX	10	Any	0.016
DP01	0DB68ZX	PX	10	Any	0.016
DP01	R26	DX	10	Any	0.016
DP01	K25	DX	10	Any	0.016
DP01	R10	DX	10	Any	0.016
DP01	D05_INT_UNIQ_Q2	PX	10	Q2ServiceInt	0.015
DP01	A0427	PX	HCPCS	Any	0.015
DP01	I25	DX	10	Any	0.015
DP01	D05_INT_ALL_Q2	PX	10	Q2ServiceInt	0.015
DP01	I48	DX	10	Frequent	0.015
DP01	I50	DX	10	Often	0.014
DP01	71045	PX	CPT	Frequent	0.014
DP01	Z20	DX	10	Any	0.014
DP01	A41	DX	10	Any	0.014
DP01	85025	PX	CPT	Frequent	0.014
DP01	I12	DX	10	Any	0.014
DP01	Z87	DX	10	Frequent	0.013
DP01	74176	PX	CPT	Any	0.013
DP01	I48	DX	10	Any	0.013
DP01	F03	DX	10	Any	0.013
DP01	R11	DX	10	Any	0.013
DP01	K44	DX	10	Any	0.013
DP01	N17	DX	10	Often	0.013
DP01	99239	PX	CPT	Any	0.013
DP01	D06_INT_UNIQ_Q4	PX	HCPCS	Q4ServiceInt	0.013

Appendix R. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP01	J44	DX	10	Any	0.013
DP01	99223	PX	CPT	Frequent	0.013
DP01	83880	PX	CPT	Any	0.013
DP01	Z95	DX	10	Often	0.013
DP01	J90	DX	10	Any	0.013
DP01	93306	PX	CPT	Any	0.013
DP01	Z20	DX	10	Often	0.012
DP01	J44	DX	10	Frequent	0.012
DP01	0DJ08ZZ	PX	10	Any	0.012
DP01	R10	DX	10	Often	0.012
DP01	D04_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.012
DP01	J96	DX	10	Any	0.012
DP01	J98	DX	10	Any	0.012
DP01	99232	PX	CPT	Frequent	0.012
DP01	E86	DX	10	Any	0.012
DP01	P9016	PX	HCPCS	Any	0.012
DP01	99309	PX	CPT	Any	0.011
DP01	G0378	PX	HCPCS	Any	0.011
DP01	K29	DX	10	Any	0.011
DP01	J44	DX	10	Often	0.011
DP01	R11	DX	10	Often	0.011
DP01	K31	DX	10	Any	0.011
DP01	E87	DX	10	Any	0.011
DP01	93005	PX	CPT	Any	0.011
DP01	B96	DX	10	Any	0.011
DP01	84484	PX	CPT	Any	0.011
DP01	85610	PX	CPT	Any	0.011
DP01	A0428	PX	HCPCS	Any	0.011
DP02	K22	DX	10	Often	0.169
DP02	K22	DX	10	Frequent	0.167
DP02	K22	DX	10	Any	0.162
DP02	D01_INT_UNIQ_Q4	DX	10	Q4ServiceInt	0.161
DP02	D64	DX	10	Any	0.156
DP02	99233	PX	CPT	Any	0.141
DP02	D62	DX	10	Any	0.127
DP02	99239	PX	CPT	Any	0.122

Appendix R. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP02	D01_INT_ALL_Q4	DX	10	Q4ServiceInt	0.119
DP02	30233N1	PX	10	Any	0.113
DP02	G0452	PX	HCPCS	Any	0.112
DP02	C172	RX	CLASS	Frequent	0.109
DP02	B35	DX	10	Often	0.108
DP02	99284	PX	CPT	Any	0.107
DP02	D03_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.107
DP02	Z79	DX	10	Any	0.107
DP02	K92	DX	10	Any	0.105
DP02	D50	DX	10	Any	0.102
DP02	U0003	PX	HCPCS	Any	0.101
DP02	E66	DX	10	Any	0.095
DP02	71260	PX	CPT	Any	0.095
DP02	0UT20ZZ	PX	10	Any	0.094
DP02	0UT70ZZ	PX	10	Any	0.094
DP02	B35	DX	10	Any	0.093
DP02	85025	PX	CPT	Frequent	0.093
DP02	71045	PX	CPT	Any	0.092
DP02	99072	PX	CPT	Frequent	0.092
DP02	F10	DX	10	Frequent	0.090
DP02	N17	DX	10	Any	0.089
DP02	99285	PX	CPT	Any	0.088
DP02	D05_INT_ALL_Q4	PX	HCPCS	Q4ServiceInt	0.088
DP02	Z20	DX	10	Any	0.085
DP02	M62	DX	10	Any	0.084
DP02	99291	PX	CPT	Any	0.084
DP02	K83	DX	10	Frequent	0.083
DP02	D05_INT_UNIQ_Q4	PX	HCPCS	Q4ServiceInt	0.083
DP02	C1894	PX	HCPCS	Any	0.083
DP02	D64	DX	10	Often	0.082
DP02	Z79	DX	10	Often	0.082
DP02	W19	DX	10	Frequent	0.080
DP02	E66	DX	10	Frequent	0.079
DP02	A4565	PX	HCPCS	Any	0.077
DP02	G0482	PX	HCPCS	Any	0.077
DP02	I27	DX	10	Any	0.077

Appendix R. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP02	80053	PX	CPT	Frequent	0.076
DP02	K21	DX	10	Frequent	0.075
DP02	R53	DX	10	Any	0.075
DP02	88342	PX	CPT	Any	0.075
DP02	43239	PX	CPT	Any	0.074
DP02	74177	PX	CPT	Any	0.074
DP02	K86	DX	10	Any	0.074
DP02	G0378	PX	HCPCS	Any	0.072
DP02	U0005	PX	HCPCS	Any	0.072
DP02	A41	DX	10	Any	0.072
DP02	88307	PX	CPT	Any	0.072
DP02	99222	PX	CPT	Any	0.071
DP02	K44	DX	10	Any	0.070
DP02	K83	DX	10	Any	0.069
DP02	99232	PX	CPT	Any	0.068
DP02	99306	PX	CPT	Any	0.067
DP02	Z68	DX	10	Any	0.067
DP02	Z20	DX	10	Often	0.065
DP02	99358	PX	CPT	Any	0.064
DP02	G0127	PX	HCPCS	Any	0.064
DP02	85025	PX	CPT	Any	0.063
DP02	Z68	DX	10	Frequent	0.063
DP02	Q9967	PX	HCPCS	Any	0.062
DP02	82962	PX	CPT	Any	0.060
DP02	71045	PX	CPT	Often	0.059
DP02	83605	PX	CPT	Any	0.059
DP02	99309	PX	CPT	Any	0.059
DP02	K83	DX	10	Often	0.059
DP02	E11	DX	10	Frequent	0.059
DP02	Z48	DX	10	Frequent	0.059
DP02	F10	DX	10	Any	0.058
DP02	C806	RX	CLASS	Any	0.058
DP02	97530	PX	CPT	Any	0.058
DP02	G89	DX	10	Frequent	0.057
DP02	C713	RX	CLASS	Frequent	0.057
DP02	G47	DX	10	Any	0.057

Appendix R. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP02	K92	DX	10	Often	0.057
DP02	C806	RX	CLASS	Often	0.056
DP02	731	PX	CPT	Any	0.056
DP02	C806	RX	CLASS	Frequent	0.056
DP02	04V03EZ	PX	10	Any	0.056
DP02	0DBU0ZZ	PX	10	Any	0.056
DP02	0UT90ZZ	PX	10	Any	0.056
DP02	C1085	RX	CLASS	Any	0.056
DP02	C581	RX	CLASS	Any	0.056
DP02	J9271	PX	HCPCS	Often	0.056
DP02	C1085	RX	CLASS	Often	0.056
DP02	C545	RX	CLASS	Often	0.056
DP02	N17	DX	10	Often	0.055
DP02	99072	PX	CPT	Often	0.055
DP02	99223	PX	CPT	Any	0.055
DP02	D03_INT_ALL_Q4	PX	CPT	Q4ServiceInt	0.055
DP02	J2001	PX	HCPCS	Any	0.054
DP02	G47	DX	10	Often	0.054
DP02	R10	DX	10	Any	0.053
DP02	J0696	PX	HCPCS	Any	0.053
DP03	K92	DX	10	Any	0.059
DP03	99233	PX	CPT	Any	0.054
DP03	99222	PX	CPT	Any	0.053
DP03	99232	PX	CPT	Any	0.052
DP03	99223	PX	CPT	Any	0.052
DP03	K92	DX	10	Often	0.052
DP03	99232	PX	CPT	Often	0.045
DP03	D64	DX	10	Often	0.043
DP03	99239	PX	CPT	Any	0.043
DP03	D62	DX	10	Any	0.040
DP03	D64	DX	10	Any	0.038
DP03	99233	PX	CPT	Often	0.038
DP03	D02_INT_ALL_Q4	DX	10	Q4ServiceInt	0.036
DP03	D50	DX	10	Often	0.033
DP03	D04_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.032
DP03	99222	PX	CPT	Frequent	0.032

Appendix R. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP03	93010	PX	CPT	Frequent	0.032
DP03	K92	DX	10	Frequent	0.032
DP03	0DB68ZX	PX	10	Any	0.032
DP03	99231	PX	CPT	Any	0.031
DP03	74176	PX	CPT	Any	0.031
DP03	99223	PX	CPT	Often	0.030
DP03	71045	PX	CPT	Any	0.029
DP03	A0425	PX	HCPCS	Frequent	0.029
DP03	D50	DX	10	Any	0.029
DP03	D02_INT_UNIQ_Q4	DX	10	Q4ServiceInt	0.028
DP03	N17	DX	10	Any	0.028
DP03	99232	PX	CPT	Frequent	0.028
DP03	731	PX	CPT	Any	0.028
DP03	99285	PX	CPT	Any	0.026
DP03	D64	DX	10	Frequent	0.026
DP03	99285	PX	CPT	Frequent	0.024
DP03	D04_INT_ALL_Q4	PX	CPT	Q4ServiceInt	0.024
DP03	D62	DX	10	Often	0.024
DP03	A0425	PX	HCPCS	Any	0.024
DP03	D06_INT_UNIQ_Q4	PX	HCPCS	Q4ServiceInt	0.024
DP03	K21	DX	10	Any	0.024
DP03	71045	PX	CPT	Frequent	0.023
DP03	99233	PX	CPT	Frequent	0.023
DP03	D06_INT_ALL_Q4	PX	HCPCS	Q4ServiceInt	0.021
DP03	J44	DX	10	Often	0.020
DP03	99238	PX	CPT	Any	0.020
DP03	J90	DX	10	Any	0.020
DP03	74177	PX	CPT	Any	0.020
DP03	99223	PX	CPT	Frequent	0.019
DP03	R53	DX	10	Often	0.019
DP03	E87	DX	10	Often	0.019
DP03	J44	DX	10	Frequent	0.019
DP03	E44	DX	10	Any	0.019
DP03	K21	DX	10	Often	0.018
DP03	93010	PX	CPT	Any	0.018
DP03	K25	DX	10	Often	0.018

Appendix R. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP03	N17	DX	10	Often	0.018
DP03	A0429	PX	HCPCS	Any	0.018
DP03	731	PX	CPT	Frequent	0.018
DP03	71045	PX	CPT	Often	0.018
DP03	K25	DX	10	Any	0.018
DP03	30233N1	PX	10	Any	0.018
DP03	J44	DX	10	Any	0.017
DP03	P9016	PX	HCPCS	Any	0.017
DP03	E87	DX	10	Any	0.017
DP03	D04_INT_UNIQ_Q1	PX	CPT	Q1ServiceInt	0.016
DP03	D02_INT_UNIQ_Q1	DX	10	Q1ServiceInt	0.015
DP03	A0428	PX	HCPCS	Any	0.015
DP03	D50	DX	10	Frequent	0.015
DP03	I95	DX	10	Any	0.015
DP03	I10	DX	10	Often	0.015
DP03	99308	PX	CPT	Any	0.014
DP03	R53	DX	10	Frequent	0.014
DP03	J96	DX	10	Any	0.014
DP03	99306	PX	CPT	Any	0.014
DP03	D05_INT_ALL_Q4	PX	10	Q4ServiceInt	0.014
DP03	Z87	DX	10	Any	0.013
DP03	D05_INT_UNIQ_Q3	PX	10	Q3ServiceInt	0.013
DP03	K25	DX	10	Frequent	0.013
DP03	K29	DX	10	Any	0.013
DP03	80048	PX	CPT	Any	0.013
DP03	99309	PX	CPT	Any	0.012
DP03	Z79	DX	10	Any	0.012
DP03	D05_INT_UNIQ_Q4	PX	10	Q4ServiceInt	0.012
DP03	I50	DX	10	Any	0.012
DP03	85025	PX	CPT	Frequent	0.012
DP03	N17	DX	10	Frequent	0.012
DP03	Z87	DX	10	Often	0.012
DP03	D05_INT_ALL_Q3	PX	10	Q3ServiceInt	0.012
DP03	J43	DX	10	Any	0.012
DP03	71275	PX	CPT	Any	0.012
DP03	99221	PX	CPT	Any	0.012

Appendix R. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP03	D02_INT_ALL_Q1	DX	10	Q1ServiceInt	0.012
DP03	D72	DX	10	Any	0.012
DP03	99305	PX	CPT	Any	0.012
DP03	E1390	PX	HCPCS	Any	0.012
DP03	W19	DX	10	Any	0.012
DP03	71250	PX	CPT	Any	0.011
DP03	R91	DX	10	Any	0.011
DP03	E11	DX	10	Often	0.011
DP03	0DJD8ZZ	PX	10	Any	0.011
DP03	0DB98ZX	PX	10	Any	0.011
DP03	86850	PX	CPT	Any	0.011
DP03	99335	PX	CPT	Any	0.011
DP04	99232	PX	CPT	Any	0.055
DP04	99233	PX	CPT	Any	0.052
DP04	99223	PX	CPT	Any	0.049
DP04	99222	PX	CPT	Any	0.046
DP04	K92	DX	10	Any	0.038
DP04	71045	PX	CPT	Any	0.038
DP04	K92	DX	10	Often	0.038
DP04	99232	PX	CPT	Frequent	0.036
DP04	99239	PX	CPT	Any	0.034
DP04	A0425	PX	HCPCS	Any	0.034
DP04	93010	PX	CPT	Any	0.033
DP04	99285	PX	CPT	Any	0.032
DP04	D02_INT_UNIQ_Q4	DX	10	Q4ServiceInt	0.032
DP04	D64	DX	10	Often	0.031
DP04	D62	DX	10	Any	0.028
DP04	N17	DX	10	Any	0.028
DP04	93010	PX	CPT	Frequent	0.027
DP04	D02_INT_ALL_Q4	DX	10	Q4ServiceInt	0.026
DP04	99233	PX	CPT	Frequent	0.026
DP04	A0427	PX	HCPCS	Any	0.025
DP04	731	PX	CPT	Any	0.025
DP04	D64	DX	10	Any	0.025
DP04	I50	DX	10	Any	0.024
DP04	0DB68ZX	PX	10	Any	0.024

Appendix R. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP04	R11	DX	10	Any	0.024
DP04	D07_INT_ALL_Q4	PX	HCPCS	Q4ServiceInt	0.024
DP04	D50	DX	10	Any	0.023
DP04	0DJ08ZZ	PX	10	Any	0.023
DP04	J44	DX	10	Often	0.023
DP04	J98	DX	10	Any	0.023
DP04	D64	DX	10	Frequent	0.022
DP04	I48	DX	10	Any	0.021
DP04	99231	PX	CPT	Any	0.021
DP04	I48	DX	10	Often	0.021
DP04	I50	DX	10	Often	0.021
DP04	D04_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.020
DP04	71045	PX	CPT	Frequent	0.020
DP04	N17	DX	10	Often	0.020
DP04	99291	PX	CPT	Any	0.020
DP04	74176	PX	CPT	Any	0.020
DP04	K92	DX	10	Frequent	0.020
DP04	99285	PX	CPT	Frequent	0.020
DP04	85025	PX	CPT	Frequent	0.019
DP04	R91	DX	10	Any	0.019
DP04	99223	PX	CPT	Frequent	0.018
DP04	I48	DX	10	Frequent	0.018
DP04	E87	DX	10	Any	0.018
DP04	J90	DX	10	Any	0.018
DP04	J44	DX	10	Any	0.017
DP04	D50	DX	10	Often	0.017
DP04	Z79	DX	10	Often	0.017
DP04	99221	PX	CPT	Any	0.016
DP04	I50	DX	10	Frequent	0.016
DP04	J18	DX	10	Any	0.016
DP04	N17	DX	10	Frequent	0.016
DP04	43235	PX	CPT	Any	0.015
DP04	A0425	PX	HCPCS	Frequent	0.015
DP04	I25	DX	10	Frequent	0.015
DP04	D07_INT_UNIQ_Q4	PX	HCPCS	Q4ServiceInt	0.015
DP04	K21	DX	10	Any	0.015

Appendix R. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP04	Z20	DX	10	Any	0.015
DP04	I95	DX	10	Any	0.014
DP04	J90	DX	10	Frequent	0.014
DP04	Z74	DX	10	Any	0.014
DP04	88342	PX	CPT	Any	0.014
DP04	I25	DX	10	Often	0.014
DP04	D04_INT_ALL_Q4	PX	CPT	Q4ServiceInt	0.014
DP04	R13	DX	10	Any	0.014
DP04	D06_INT_UNIQ_Q2	PX	10	Q2ServiceInt	0.014
DP04	R06	DX	10	Any	0.014
DP04	96365	PX	CPT	Any	0.014
DP04	D06_INT_ALL_Q2	PX	10	Q2ServiceInt	0.014
DP04	74177	PX	CPT	Any	0.013
DP04	Z79	DX	10	Frequent	0.013
DP04	74018	PX	CPT	Any	0.013
DP04	80053	PX	CPT	Frequent	0.013
DP04	I25	DX	10	Any	0.013
DP04	K25	DX	10	Any	0.013
DP04	K22	DX	10	Frequent	0.013
DP04	E87	DX	10	Often	0.013
DP04	K80	DX	10	Any	0.013
DP04	0DJD8ZZ	PX	10	Any	0.013
DP04	K29	DX	10	Any	0.012
DP04	R10	DX	10	Any	0.012
DP04	E86	DX	10	Any	0.012
DP04	J44	DX	10	Frequent	0.012
DP04	K31	DX	10	Any	0.012
DP04	93306	PX	CPT	Any	0.012
DP04	Z79	DX	10	Any	0.012
DP04	K29	DX	10	Often	0.012
DP04	D02_INT_UNIQ_Q1	DX	10	Q1ServiceInt	0.011
DP04	D03_INT_UNIQ_Q4	RX	CLASS	Q4ServiceInt	0.011
DP04	99284	PX	CPT	Any	0.011
DP04	R53	DX	10	Frequent	0.011
DP04	J96	DX	10	Any	0.011
DP04	J18	DX	10	Often	0.011

Appendix R. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP04	D07_INT_UNIQ_Q1	PX	HCPCS	Q1ServiceInt	0.011
DP04	R53	DX	10	Any	0.011
DP04	96375	PX	CPT	Frequent	0.011
DP04	A41	DX	10	Any	0.011
DP05	V2303	PX	HCPCS	Any	0.284
DP05	A4565	PX	HCPCS	Any	0.203
DP05	C384	RX	CLASS	Often	0.193
DP05	80069	PX	CPT	Frequent	0.167
DP05	L03	DX	10	Any	0.155
DP05	C587	RX	CLASS	Any	0.150
DP05	C150	RX	CLASS	Often	0.150
DP05	C150	RX	CLASS	Any	0.148
DP05	99215	PX	CPT	Frequent	0.147
DP05	93970	PX	CPT	Frequent	0.146
DP05	M15	DX	10	Frequent	0.146
DP05	G0152	PX	HCPCS	Frequent	0.144
DP05	Z95	DX	10	Often	0.142
DP05	99308	PX	CPT	Any	0.136
DP05	99490	PX	CPT	Any	0.134
DP05	Z87	DX	10	Any	0.130
DP05	L97	DX	10	Often	0.127
DP05	Z87	DX	10	Frequent	0.124
DP05	93971	PX	CPT	Any	0.124
DP05	99100	PX	CPT	Any	0.123
DP05	D01_INT_ALL_Q4	DX	10	Q4ServiceInt	0.122
DP05	E0156	PX	HCPCS	Any	0.122
DP05	C384	RX	CLASS	Any	0.121
DP05	D12	DX	10	Frequent	0.119
DP05	R77	DX	10	Any	0.116
DP05	99337	PX	CPT	Frequent	0.115
DP05	T4527	PX	HCPCS	Often	0.115
DP05	D72	DX	10	Any	0.113
DP05	R13	DX	10	Frequent	0.112
DP05	Z87	DX	10	Often	0.111
DP05	M15	DX	10	Often	0.110
DP05	90785	PX	CPT	Frequent	0.108

Appendix R. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP05	93296	PX	CPT	Any	0.107
DP05	11721	PX	CPT	Often	0.106
DP05	Q0092	PX	HCPCS	Any	0.106
DP05	Z51	DX	10	Any	0.105
DP05	I82	DX	10	Any	0.101
DP05	N39	DX	10	Frequent	0.101
DP05	99337	PX	CPT	Any	0.101
DP05	142	PX	CPT	Any	0.101
DP05	1126F	PX	CPT	Any	0.100
DP05	99225	PX	CPT	Any	0.099
DP05	D63	DX	10	Frequent	0.099
DP05	99222	PX	CPT	Any	0.097
DP05	E66	DX	10	Frequent	0.097
DP05	76942	PX	CPT	Any	0.095
DP05	S5170	PX	HCPCS	Any	0.095
DP05	C61	DX	10	Frequent	0.095
DP05	M15	DX	10	Any	0.095
DP05	G0153	PX	HCPCS	Any	0.090
DP05	H0046	PX	HCPCS	Any	0.089
DP05	G30	DX	10	Frequent	0.089
DP05	C384	RX	CLASS	Frequent	0.088
DP05	99232	PX	CPT	Frequent	0.088
DP05	99239	PX	CPT	Frequent	0.087
DP05	R97	DX	10	Frequent	0.086
DP05	R97	DX	10	Often	0.086
DP05	L97	DX	10	Any	0.083
DP05	K59	DX	10	Frequent	0.083
DP05	M19	DX	10	Any	0.082
DP05	99309	PX	CPT	Any	0.081
DP05	S5170	PX	HCPCS	Often	0.081
DP05	M79	DX	10	Often	0.081
DP05	Z90	DX	10	Frequent	0.080
DP05	G30	DX	10	Often	0.080
DP05	99309	PX	CPT	Frequent	0.080
DP05	99337	PX	CPT	Often	0.079
DP05	R97	DX	10	Any	0.078

Appendix R. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP05	R09	DX	10	Frequent	0.077
DP05	Z02	DX	10	Frequent	0.077
DP05	A9552	PX	HCPCS	Any	0.077
DP05	I49	DX	10	Any	0.077
DP05	Q9967	PX	HCPCS	Any	0.076
DP05	Z51	DX	10	Frequent	0.075
DP05	G62	DX	10	Any	0.075
DP05	L03	DX	10	Often	0.075
DP05	M79	DX	10	Any	0.075
DP05	11720	PX	CPT	Any	0.073
DP05	99233	PX	CPT	Frequent	0.073
DP05	P9603	PX	HCPCS	Any	0.073
DP05	I26	DX	10	Often	0.073
DP05	I11	DX	10	Any	0.072
DP05	C1189	RX	CLASS	Often	0.072
DP05	F33	DX	10	Any	0.072
DP05	I73	DX	10	Often	0.072
DP05	F32	DX	10	Often	0.071
DP05	N39	DX	10	Any	0.071
DP05	R60	DX	10	Any	0.070
DP05	99232	PX	CPT	Any	0.070
DP05	D01_INT_UNIQ_Q4	DX	10	Q4ServiceInt	0.070
DP05	76376	PX	CPT	Any	0.070
DP05	1170F	PX	CPT	Any	0.070
DP05	99308	PX	CPT	Frequent	0.068
DP05	R0070	PX	HCPCS	Any	0.068
DP05	I47	DX	10	Frequent	0.068
DP05	I73	DX	10	Any	0.068
DP05	J44	DX	10	Any	0.068
DP05	5A09357	PX	10	Any	0.067
DP05	Z92	DX	10	Frequent	0.067
DP05	S9129	PX	HCPCS	Often	0.067

Appendix S. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Proton Pump Inhibitor and Famotidine New Users with an hdPS Model in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP)

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP01	K92	DX	10	Any	0.058
DP01	N18	DX	10	Any	0.050
DP01	K92	DX	10	Often	0.047
DP01	N18	DX	10	Often	0.041
DP01	D62	DX	10	Any	0.032
DP01	D50	DX	10	Any	0.030
DP01	I12	DX	10	Any	0.029
DP01	K92	DX	10	Frequent	0.029
DP01	R26	DX	10	Any	0.029
DP01	99309	PX	CPT	Any	0.027
DP01	D62	DX	10	Often	0.026
DP01	731	PX	CPT	Any	0.025
DP01	A0428	PX	HCPCS	Any	0.025
DP01	99308	PX	CPT	Any	0.024
DP01	0DB68ZX	PX	10	Any	0.023
DP01	99306	PX	CPT	Any	0.022
DP01	D50	DX	10	Often	0.022
DP01	99223	PX	CPT	Any	0.022
DP01	D64	DX	10	Often	0.021
DP01	30233N1	PX	10	Any	0.020
DP01	D64	DX	10	Frequent	0.020
DP01	I12	DX	10	Often	0.020
DP01	0DJ08ZZ	PX	10	Any	0.019
DP01	99222	PX	CPT	Any	0.019
DP01	N18	DX	10	Frequent	0.019
DP01	83970	PX	CPT	Any	0.018
DP01	D64	DX	10	Any	0.018
DP01	R41	DX	10	Any	0.017
DP01	99308	PX	CPT	Frequent	0.017
DP01	K21	DX	10	Frequent	0.017
DP01	99232	PX	CPT	Any	0.017
DP01	D62	DX	10	Frequent	0.016
DP01	R10	DX	10	Any	0.016
DP01	A0425	PX	HCPCS	Frequent	0.016
DP01	R06	DX	10	Any	0.016
DP01	R41	DX	10	Often	0.016

Appendix S. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Proton Pump Inhibitor and Famotidine New Users with an hdPS Model in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP)

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP01	R26	DX	10	Often	0.015
DP01	K25	DX	10	Any	0.015
DP01	99309	PX	CPT	Often	0.015
DP01	R06	DX	10	Often	0.015
DP01	I13	DX	10	Any	0.015
DP01	43235	PX	CPT	Any	0.015
DP01	M62	DX	10	Any	0.014
DP01	F03	DX	10	Any	0.014
DP01	0W3P8ZZ	PX	10	Any	0.014
DP01	R27	DX	10	Any	0.014
DP01	R11	DX	10	Any	0.014
DP01	E78	DX	10	Any	0.014
DP01	99310	PX	CPT	Any	0.013
DP01	Z79	DX	10	Often	0.013
DP01	Z74	DX	10	Frequent	0.013
DP01	84100	PX	CPT	Any	0.013
DP01	99285	PX	CPT	Any	0.013
DP01	C58	RX	CLASS	Often	0.013
DP01	N25	DX	10	Any	0.013
DP01	99223	PX	CPT	Often	0.013
DP01	K21	DX	10	Often	0.012
DP01	88305	PX	CPT	Any	0.012
DP01	E86	DX	10	Any	0.012
DP01	K74	DX	10	Any	0.012
DP01	I69	DX	10	Often	0.012
DP01	N17	DX	10	Any	0.012
DP01	K25	DX	10	Often	0.012
DP01	I69	DX	10	Any	0.012
DP01	74177	PX	CPT	Any	0.012
DP01	C58	RX	CLASS	Any	0.012
DP01	74176	PX	CPT	Any	0.012
DP01	99309	PX	CPT	Frequent	0.011
DP01	0DB98ZX	PX	10	Any	0.011
DP01	99285	PX	CPT	Often	0.011
DP01	84156	PX	CPT	Any	0.011
DP01	J44	DX	10	Often	0.011

Appendix S. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Proton Pump Inhibitor and Famotidine New Users with an hdPS Model in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP)

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP01	I63	DX	10	Any	0.011
DP01	E11	DX	10	Often	0.011
DP01	I70	DX	10	Any	0.011
DP01	99222	PX	CPT	Frequent	0.011
DP01	R06	DX	10	Frequent	0.011
DP01	C422	RX	CLASS	Any	0.011
DP01	Z79	DX	10	Frequent	0.011
DP01	E78	DX	10	Often	0.011
DP01	99233	PX	CPT	Any	0.011
DP01	70450	PX	CPT	Any	0.010
DP01	B96	DX	10	Any	0.010
DP01	80069	PX	CPT	Any	0.010
DP01	R13	DX	10	Any	0.010
DP01	Z74	DX	10	Any	0.010
DP01	81001	PX	CPT	Any	0.010
DP01	R29	DX	10	Any	0.010
DP01	R0070	PX	HCPCS	Any	0.010
DP01	M62	DX	10	Often	0.010
DP01	B35	DX	10	Any	0.010
DP01	43239	PX	CPT	Often	0.010
DP01	G93	DX	10	Any	0.010
DP01	99291	PX	CPT	Any	0.010
DP01	83880	PX	CPT	Any	0.010
DP01	I12	DX	10	Frequent	0.010
DP01	I50	DX	10	Any	0.010
DP01	Q0092	PX	HCPCS	Any	0.010
DP01	I10	DX	10	Any	0.010
DP01	R41	DX	10	Frequent	0.010
DP02	K92	DX	10	Often	0.164
DP02	K92	DX	10	Any	0.152
DP02	D04_INT_UNIQ_Q4	PX	10	Q4ServiceInt	0.131
DP02	D04_INT_ALL_Q4	PX	10	Q4ServiceInt	0.119
DP02	0DB68ZX	PX	10	Any	0.113
DP02	E66	DX	10	Frequent	0.112
DP02	731	PX	CPT	Any	0.109
DP02	0UT20ZZ	PX	10	Any	0.109

Appendix S. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Proton Pump Inhibitor and Famotidine New Users with an hdPS Model in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP)

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP02	43235	PX	CPT	Any	0.106
DP02	K22	DX	10	Any	0.100
DP02	76937	PX	CPT	Any	0.091
DP02	K92	DX	10	Frequent	0.090
DP02	C138	RX	CLASS	Frequent	0.089
DP02	0UT70ZZ	PX	10	Any	0.088
DP02	84100	PX	CPT	Any	0.082
DP02	Z68	DX	10	Frequent	0.082
DP02	D64	DX	10	Any	0.081
DP02	99152	PX	CPT	Any	0.077
DP02	N18	DX	10	Often	0.077
DP02	N18	DX	10	Any	0.074
DP02	K76	DX	10	Any	0.074
DP02	70450	PX	CPT	Any	0.068
DP02	92012	PX	CPT	Any	0.067
DP02	D62	DX	10	Frequent	0.067
DP02	88305	PX	CPT	Any	0.067
DP02	74177	PX	CPT	Any	0.065
DP02	99285	PX	CPT	Any	0.064
DP02	D62	DX	10	Any	0.063
DP02	84156	PX	CPT	Any	0.063
DP02	C422	RX	CLASS	Any	0.060
DP02	Z68	DX	10	Any	0.060
DP02	83690	PX	CPT	Any	0.058
DP02	K22	DX	10	Frequent	0.057
DP02	E66	DX	10	Any	0.057
DP02	80053	PX	CPT	Any	0.057
DP02	H02	DX	10	Often	0.056
DP02	0W3P8ZZ	PX	10	Any	0.055
DP02	R10	DX	10	Any	0.055
DP02	84100	PX	CPT	Frequent	0.054
DP02	30233N1	PX	10	Any	0.054
DP02	R16	DX	10	Any	0.053
DP02	R74	DX	10	Frequent	0.053
DP02	R29	DX	10	Any	0.052
DP02	K22	DX	10	Often	0.052

Appendix S. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Proton Pump Inhibitor and Famotidine New Users with an hdPS Model in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP)

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP02	V2304	PX	HCPCS	Any	0.051
DP02	Z09	DX	10	Any	0.051
DP02	S9500	PX	HCPCS	Any	0.050
DP02	Z01	DX	10	Frequent	0.050
DP02	90662	PX	CPT	Any	0.049
DP02	I12	DX	10	Any	0.049
DP02	0DJD8ZZ	PX	10	Any	0.048
DP02	71045	PX	CPT	Any	0.048
DP02	84295	PX	CPT	Any	0.048
DP02	Z91	DX	10	Any	0.048
DP02	99284	PX	CPT	Any	0.048
DP02	P9016	PX	HCPCS	Any	0.048
DP02	N18	DX	10	Frequent	0.046
DP02	K44	DX	10	Any	0.046
DP02	84132	PX	CPT	Any	0.046
DP02	83540	PX	CPT	Any	0.046
DP02	0DJ08ZZ	PX	10	Any	0.046
DP02	J3010	PX	HCPCS	Any	0.046
DP02	82565	PX	CPT	Any	0.046
DP02	H43	DX	10	Any	0.045
DP02	I44	DX	10	Any	0.045
DP02	85014	PX	CPT	Any	0.044
DP02	84156	PX	CPT	Frequent	0.042
DP02	76705	PX	CPT	Any	0.042
DP02	0FT40ZZ	PX	10	Any	0.042
DP02	70553	PX	CPT	Any	0.042
DP02	84520	PX	CPT	Any	0.042
DP02	88307	PX	CPT	Any	0.041
DP02	93010	PX	CPT	Any	0.041
DP02	C58	RX	CLASS	Any	0.041
DP02	C422	RX	CLASS	Often	0.040
DP02	99239	PX	CPT	Any	0.040
DP02	83550	PX	CPT	Any	0.040
DP02	J0878	PX	HCPCS	Often	0.039
DP02	70553	PX	CPT	Often	0.039
DP02	74177	PX	CPT	Often	0.039

Appendix S. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Proton Pump Inhibitor and Famotidine New Users with an hdPS Model in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP)

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP02	J2997	PX	HCPCS	Any	0.039
DP02	G0010	PX	HCPCS	Any	0.039
DP02	J2704	PX	HCPCS	Any	0.038
DP02	K25	DX	10	Any	0.038
DP02	99222	PX	CPT	Any	0.038
DP02	K31	DX	10	Often	0.038
DP02	H52	DX	10	Frequent	0.037
DP02	Z91	DX	10	Frequent	0.037
DP02	R74	DX	10	Any	0.037
DP02	85018	PX	CPT	Frequent	0.037
DP02	D63	DX	10	Any	0.037
DP02	82570	PX	CPT	Any	0.036
DP02	D63	DX	10	Often	0.036
DP02	K76	DX	10	Frequent	0.036
DP02	N17	DX	10	Frequent	0.036
DP02	74176	PX	CPT	Any	0.036
DP02	G93	DX	10	Any	0.035
DP02	I12	DX	10	Often	0.035
DP02	Z88	DX	10	Any	0.035
DP02	I49	DX	10	Frequent	0.035
DP03	N18	DX	10	Any	0.058
DP03	N18	DX	10	Often	0.045
DP03	K92	DX	10	Frequent	0.036
DP03	I12	DX	10	Any	0.035
DP03	K92	DX	10	Any	0.033
DP03	K92	DX	10	Often	0.032
DP03	D62	DX	10	Any	0.027
DP03	A0425	PX	HCPCS	Any	0.024
DP03	N18	DX	10	Frequent	0.024
DP03	K21	DX	10	Any	0.023
DP03	D62	DX	10	Often	0.022
DP03	G0463	PX	HCPCS	Any	0.021
DP03	D04_INT_ALL_Q4	PX	CPT	Q4ServiceInt	0.021
DP03	R13	DX	10	Any	0.020
DP03	I12	DX	10	Often	0.020
DP03	731	PX	CPT	Any	0.020

Appendix S. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Proton Pump Inhibitor and Famotidine New Users with an hdPS Model in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP)

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP03	D02_INT_UNIQ_Q4	DX	10	Q4ServiceInt	0.020
DP03	I63	DX	10	Any	0.019
DP03	D64	DX	10	Frequent	0.019
DP03	J96	DX	10	Often	0.019
DP03	G93	DX	10	Any	0.019
DP03	A0428	PX	HCPCS	Any	0.019
DP03	D64	DX	10	Often	0.019
DP03	R26	DX	10	Any	0.019
DP03	I50	DX	10	Any	0.019
DP03	0DB68ZX	PX	10	Any	0.018
DP03	D02_INT_ALL_Q4	DX	10	Q4ServiceInt	0.017
DP03	R41	DX	10	Any	0.017
DP03	30233N1	PX	10	Any	0.017
DP03	D62	DX	10	Frequent	0.017
DP03	70450	PX	CPT	Any	0.016
DP03	J96	DX	10	Frequent	0.016
DP03	C1097	RX	CLASS	Any	0.016
DP03	C689	RX	CLASS	Any	0.015
DP03	11721	PX	CPT	Any	0.015
DP03	A0427	PX	HCPCS	Any	0.015
DP03	I73	DX	10	Any	0.015
DP03	D63	DX	10	Any	0.015
DP03	K22	DX	10	Any	0.015
DP03	D03_INT_UNIQ_Q4	RX	CLASS	Q4ServiceInt	0.015
DP03	Z74	DX	10	Any	0.014
DP03	J96	DX	10	Any	0.014
DP03	K44	DX	10	Any	0.014
DP03	C58	RX	CLASS	Any	0.014
DP03	G0463	PX	HCPCS	Often	0.014
DP03	G93	DX	10	Often	0.014
DP03	C58	RX	CLASS	Frequent	0.014
DP03	88305	PX	CPT	Any	0.014
DP03	D03_INT_ALL_Q4	RX	CLASS	Q4ServiceInt	0.013
DP03	R60	DX	10	Any	0.013
DP03	99239	PX	CPT	Any	0.013
DP03	43235	PX	CPT	Any	0.013

Appendix S. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Proton Pump Inhibitor and Famotidine New Users with an hdPS Model in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP)

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP03	D50	DX	10	Any	0.013
DP03	I12	DX	10	Frequent	0.013
DP03	E66	DX	10	Frequent	0.013
DP03	D06_INT_UNIQ_Q4	PX	HCPCS	Q4ServiceInt	0.013
DP03	C689	RX	CLASS	Often	0.013
DP03	99222	PX	CPT	Any	0.013
DP03	G93	DX	10	Frequent	0.013
DP03	I25	DX	10	Any	0.013
DP03	P9016	PX	HCPCS	Any	0.013
DP03	R09	DX	10	Any	0.013
DP03	C422	RX	CLASS	Any	0.012
DP03	74177	PX	CPT	Any	0.012
DP03	84156	PX	CPT	Any	0.012
DP03	C1097	RX	CLASS	Often	0.012
DP03	I63	DX	10	Often	0.012
DP03	Z99	DX	10	Any	0.012
DP03	99214	PX	CPT	Frequent	0.012
DP03	K21	DX	10	Frequent	0.012
DP03	R26	DX	10	Often	0.012
DP03	D50	DX	10	Often	0.012
DP03	R13	DX	10	Often	0.012
DP03	99215	PX	CPT	Frequent	0.012
DP03	R13	DX	10	Frequent	0.012
DP03	Q0092	PX	HCPCS	Any	0.012
DP03	Z99	DX	10	Frequent	0.012
DP03	C388	RX	CLASS	Any	0.011
DP03	D64	DX	10	Any	0.011
DP03	93306	PX	CPT	Any	0.011
DP03	G0463	PX	HCPCS	Frequent	0.011
DP03	A0429	PX	HCPCS	Any	0.011
DP03	88342	PX	CPT	Any	0.011
DP03	Q9967	PX	HCPCS	Any	0.011
DP03	M79	DX	10	Any	0.011
DP03	I51	DX	10	Any	0.011
DP03	B35	DX	10	Any	0.011
DP03	99215	PX	CPT	Any	0.011

Appendix S. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Proton Pump Inhibitor and Famotidine New Users with an hdPS Model in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP)

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP03	D04_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.011
DP03	C42	RX	CLASS	Any	0.011
DP03	C42	RX	CLASS	Often	0.010
DP03	R91	DX	10	Any	0.010
DP03	C225	RX	CLASS	Any	0.010
DP03	I70	DX	10	Any	0.010
DP03	M81	DX	10	Any	0.010
DP03	D63	DX	10	Often	0.010
DP03	J90	DX	10	Any	0.010
DP03	I49	DX	10	Any	0.010
DP03	M79	DX	10	Often	0.010
DP03	R10	DX	10	Any	0.010
DP04	N18	DX	10	Any	0.076
DP04	D02_INT_UNIQ_Q4	DX	10	Q4ServiceInt	0.063
DP04	N18	DX	10	Often	0.057
DP04	D02_INT_ALL_Q4	DX	10	Q4ServiceInt	0.054
DP04	I10	DX	10	Often	0.047
DP04	I12	DX	10	Any	0.046
DP04	I10	DX	10	Any	0.046
DP04	99309	PX	CPT	Any	0.043
DP04	K92	DX	10	Any	0.042
DP04	K92	DX	10	Often	0.041
DP04	R26	DX	10	Any	0.040
DP04	99308	PX	CPT	Any	0.039
DP04	I25	DX	10	Any	0.039
DP04	K92	DX	10	Frequent	0.038
DP04	C689	RX	CLASS	Often	0.038
DP04	731	PX	CPT	Any	0.038
DP04	D04_INT_ALL_Q4	PX	CPT	Q4ServiceInt	0.038
DP04	I11	DX	10	Any	0.038
DP04	C689	RX	CLASS	Any	0.037
DP04	Z74	DX	10	Any	0.035
DP04	I10	DX	10	Frequent	0.035
DP04	E78	DX	10	Any	0.035
DP04	I73	DX	10	Any	0.034
DP04	D04_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.034

Appendix S. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Proton Pump Inhibitor and Famotidine New Users with an hdPS Model in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP)

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP04	N18	DX	10	Frequent	0.034
DP04	A0428	PX	HCPCS	Any	0.034
DP04	A0425	PX	HCPCS	Frequent	0.034
DP04	I12	DX	10	Often	0.033
DP04	I50	DX	10	Any	0.033
DP04	R41	DX	10	Any	0.033
DP04	E78	DX	10	Often	0.032
DP04	R60	DX	10	Any	0.032
DP04	0DB68ZX	PX	10	Any	0.031
DP04	E11	DX	10	Often	0.030
DP04	C1097	RX	CLASS	Any	0.030
DP04	C225	RX	CLASS	Any	0.030
DP04	99306	PX	CPT	Any	0.029
DP04	Z79	DX	10	Any	0.029
DP04	C401	RX	CLASS	Any	0.028
DP04	Z74	DX	10	Frequent	0.028
DP04	E11	DX	10	Any	0.027
DP04	R69	DX	10	Any	0.027
DP04	D62	DX	10	Any	0.027
DP04	R26	DX	10	Often	0.026
DP04	M19	DX	10	Any	0.026
DP04	G0463	PX	HCPCS	Any	0.026
DP04	I25	DX	10	Often	0.026
DP04	D07_INT_ALL_Q4	PX	HCPCS	Q4ServiceInt	0.026
DP04	I48	DX	10	Any	0.026
DP04	A0425	PX	HCPCS	Any	0.025
DP04	99214	PX	CPT	Often	0.025
DP04	E78	DX	10	Frequent	0.025
DP04	I50	DX	10	Often	0.024
DP04	D02_INT_ALL_Q1	DX	10	Q1ServiceInt	0.024
DP04	0DJ08ZZ	PX	10	Any	0.024
DP04	K25	DX	10	Any	0.024
DP04	I70	DX	10	Any	0.024
DP04	K31	DX	10	Any	0.024
DP04	G93	DX	10	Often	0.023
DP04	99214	PX	CPT	Any	0.023

Appendix S. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Proton Pump Inhibitor and Famotidine New Users with an hdPS Model in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP)

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP04	C422	RX	CLASS	Any	0.023
DP04	D02_INT_UNIQ_Q1	DX	10	Q1ServiceInt	0.022
DP04	B35	DX	10	Any	0.022
DP04	C401	RX	CLASS	Often	0.022
DP04	N39	DX	10	Any	0.022
DP04	99348	PX	CPT	Any	0.022
DP04	C1097	RX	CLASS	Often	0.021
DP04	D07_INT_UNIQ_Q4	PX	HCPCS	Q4ServiceInt	0.021
DP04	80048	PX	CPT	Any	0.021
DP04	E11	DX	10	Frequent	0.021
DP04	99214	PX	CPT	Frequent	0.021
DP04	I13	DX	10	Any	0.021
DP04	Z96	DX	10	Any	0.021
DP04	N39	DX	10	Frequent	0.021
DP04	R27	DX	10	Any	0.021
DP04	Z79	DX	10	Often	0.021
DP04	Z95	DX	10	Any	0.020
DP04	R69	DX	10	Frequent	0.020
DP04	G0463	PX	HCPCS	Often	0.020
DP04	G93	DX	10	Any	0.020
DP04	C225	RX	CLASS	Often	0.020
DP04	D03_INT_UNIQ_Q4	RX	CLASS	Q4ServiceInt	0.019
DP04	I11	DX	10	Often	0.019
DP04	A0428	PX	HCPCS	Frequent	0.019
DP04	G0299	PX	HCPCS	Any	0.019
DP04	W19	DX	10	Any	0.019
DP04	70450	PX	CPT	Any	0.019
DP04	K21	DX	10	Any	0.019
DP04	93306	PX	CPT	Any	0.019
DP04	K22	DX	10	Any	0.019
DP04	K22	DX	10	Frequent	0.019
DP04	11721	PX	CPT	Any	0.018
DP04	99309	PX	CPT	Frequent	0.018
DP04	1159F	PX	CPT	Any	0.018
DP04	C42	RX	CLASS	Any	0.018
DP04	30233N1	PX	10	Any	0.018

Appendix S. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Proton Pump Inhibitor and Famotidine New Users with an hdPS Model in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP)

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP04	88342	PX	CPT	Any	0.018
DP04	J96	DX	10	Any	0.018
DP04	88305	PX	CPT	Any	0.018
DP04	80053	PX	CPT	Any	0.018
DP05	K20	DX	10	Any	0.158
DP05	731	PX	CPT	Any	0.150
DP05	K44	DX	10	Any	0.137
DP05	K92	DX	10	Often	0.124
DP05	K22	DX	10	Any	0.122
DP05	K92	DX	10	Any	0.117
DP05	K31	DX	10	Any	0.112
DP05	0DJ08ZZ	PX	10	Any	0.107
DP05	0DN84ZZ	PX	10	Any	0.106
DP05	R13	DX	10	Any	0.098
DP05	K29	DX	10	Any	0.088
DP05	99239	PX	CPT	Any	0.083
DP05	F10	DX	10	Any	0.081
DP05	87340	PX	CPT	Any	0.079
DP05	K92	DX	10	Frequent	0.077
DP05	C62	RX	CLASS	Any	0.077
DP05	0W9G3ZZ	PX	10	Any	0.077
DP05	D64	DX	10	Any	0.077
DP05	D62	DX	10	Any	0.074
DP05	43235	PX	CPT	Any	0.074
DP05	A0427	PX	HCPCS	Any	0.072
DP05	99222	PX	CPT	Any	0.069
DP05	H0001	PX	HCPCS	Any	0.067
DP05	81001	PX	CPT	Any	0.067
DP05	43239	PX	CPT	Any	0.066
DP05	74177	PX	CPT	Any	0.065
DP05	R52	DX	10	Frequent	0.064
DP05	R13	DX	10	Frequent	0.064
DP05	F10	DX	10	Often	0.063
DP05	D68	DX	10	Any	0.062
DP05	A0425	PX	HCPCS	Any	0.062
DP05	F10	DX	10	Frequent	0.061

Appendix S. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Proton Pump Inhibitor and Famotidine New Users with an hdPS Model in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP)

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP05	73502	PX	CPT	Frequent	0.061
DP05	R32	DX	10	Any	0.060
DP05	D04_INT_ALL_Q2	PX	10	Q2ServiceInt	0.059
DP05	K76	DX	10	Any	0.058
DP05	K22	DX	10	Frequent	0.058
DP05	D04_INT_UNIQ_Q2	PX	10	Q2ServiceInt	0.057
DP05	99231	PX	CPT	Any	0.057
DP05	99605	PX	CPT	Any	0.056
DP05	C915	RX	CLASS	Frequent	0.056
DP05	H2035	PX	HCPCS	Any	0.056
DP05	K21	DX	10	Frequent	0.053
DP05	K44	DX	10	Frequent	0.051
DP05	74177	PX	CPT	Often	0.050
DP05	D05_INT_ALL_Q4	PX	HCPCS	Q4ServiceInt	0.050
DP05	88305	PX	CPT	Any	0.050
DP05	0DB68ZX	PX	10	Any	0.048
DP05	99607	PX	CPT	Any	0.048
DP05	3E02340	PX	10	Any	0.047
DP05	74018	PX	CPT	Any	0.047
DP05	I42	DX	10	Any	0.046
DP05	C868	RX	CLASS	Frequent	0.045
DP05	86803	PX	CPT	Any	0.044
DP05	84156	PX	CPT	Any	0.044
DP05	Z02	DX	10	Any	0.043
DP05	30233N1	PX	10	Any	0.043
DP05	0D1B0Z4	PX	10	Any	0.042
DP05	99233	PX	CPT	Frequent	0.042
DP05	K31	DX	10	Frequent	0.042
DP05	V5261	PX	HCPCS	Any	0.042
DP05	R0070	PX	HCPCS	Any	0.042
DP05	99233	PX	CPT	Any	0.042
DP05	3E04305	PX	10	Any	0.041
DP05	A0100	PX	HCPCS	Any	0.041
DP05	F15	DX	10	Often	0.040
DP05	K25	DX	10	Frequent	0.040
DP05	M43	DX	10	Frequent	0.040

Appendix S. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Proton Pump Inhibitor and Famotidine New Users with an hdPS Model in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP)

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP05	V5160	PX	HCPCS	Any	0.039
DP05	A41	DX	10	Any	0.039
DP05	R00	DX	10	Any	0.039
DP05	R41	DX	10	Any	0.038
DP05	K21	DX	10	Any	0.038
DP05	3E03317	PX	10	Any	0.038
DP05	H0038	PX	HCPCS	Frequent	0.038
DP05	B211YZZ	PX	10	Any	0.038
DP05	S0215	PX	HCPCS	Any	0.037
DP05	D03_INT_ALL_Q4	PX	CPT	Q4ServiceInt	0.037
DP05	N17	DX	10	Any	0.037
DP05	D50	DX	10	Any	0.037
DP05	Q0092	PX	HCPCS	Any	0.037
DP05	88305	PX	CPT	Often	0.036
DP05	R10	DX	10	Frequent	0.036
DP05	Q9967	PX	HCPCS	Any	0.036
DP05	J18	DX	10	Any	0.036
DP05	T1013	PX	HCPCS	Any	0.036
DP05	70551	PX	CPT	Any	0.036
DP05	R14	DX	10	Any	0.035
DP05	93970	PX	CPT	Any	0.035
DP05	Z72	DX	10	Any	0.035
DP05	R52	DX	10	Any	0.034
DP05	D05_INT_UNIQ_Q4	PX	HCPCS	Q4ServiceInt	0.034
DP05	D03_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.034
DP05	76705	PX	CPT	Any	0.034
DP05	D64	DX	10	Frequent	0.034
DP05	74018	PX	CPT	Frequent	0.033
DP05	D04_INT_UNIQ_Q3	PX	10	Q3ServiceInt	0.033
DP05	C689	RX	CLASS	Any	0.033
DP05	J43	DX	10	Frequent	0.032
DP05	M81	DX	10	Any	0.032

Appendix T. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP01	0J2TXYZ	PX	10	Any	0.214
DP01	N17	DX	10	Any	0.103
DP01	99233	PX	CPT	Frequent	0.089
DP01	I69	DX	10	Often	0.084
DP01	J96	DX	10	Any	0.083
DP01	Z99	DX	10	Often	0.075
DP01	E87	DX	10	Frequent	0.072
DP01	N17	DX	10	Often	0.072
DP01	T81	DX	10	Frequent	0.072
DP01	71045	PX	CPT	Frequent	0.068
DP01	R69	DX	10	Any	0.068
DP01	T81	DX	10	Often	0.068
DP01	99232	PX	CPT	Frequent	0.064
DP01	T78	DX	10	Any	0.064
DP01	Z99	DX	10	Any	0.060
DP01	C371	RX	CLASS	Frequent	0.060
DP01	T81	DX	10	Any	0.059
DP01	0BH17EZ	PX	10	Any	0.058
DP01	Z74	DX	10	Frequent	0.057
DP01	J96	DX	10	Often	0.056
DP01	A41	DX	10	Frequent	0.056
DP01	93010	PX	CPT	Frequent	0.055
DP01	99233	PX	CPT	Often	0.055
DP01	N18	DX	10	Any	0.055
DP01	A41	DX	10	Often	0.054
DP01	I69	DX	10	Frequent	0.053
DP01	99232	PX	CPT	Often	0.052
DP01	T78	DX	10	Frequent	0.052
DP01	Z45	DX	10	Any	0.052
DP01	76937	PX	CPT	Any	0.052
DP01	D04_INT_ALL_Q4	PX	CPT	Q4ServiceInt	0.052
DP01	99291	PX	CPT	Frequent	0.050
DP01	Z91	DX	10	Frequent	0.050
DP01	Z99	DX	10	Frequent	0.049
DP01	D63	DX	10	Any	0.048
DP01	A0428	PX	HCPCS	Any	0.048

Appendix T. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP01	J96	DX	10	Frequent	0.048
DP01	E87	DX	10	Any	0.047
DP01	99233	PX	CPT	Any	0.046
DP01	E87	DX	10	Often	0.046
DP01	A41	DX	10	Any	0.046
DP01	A0425	PX	HCPCS	Frequent	0.045
DP01	C349	RX	CLASS	Any	0.045
DP01	99291	PX	CPT	Any	0.045
DP01	I69	DX	10	Any	0.044
DP01	G0299	PX	HCPCS	Any	0.044
DP01	A0425	PX	HCPCS	Any	0.044
DP01	D05_INT_UNIQ_Q4	PX	10	Q4ServiceInt	0.043
DP01	99223	PX	CPT	Often	0.043
DP01	99221	PX	CPT	Any	0.043
DP01	I12	DX	10	Any	0.043
DP01	I42	DX	10	Often	0.043
DP01	82310	PX	CPT	Frequent	0.042
DP01	5A1945Z	PX	10	Any	0.042
DP01	Z88	DX	10	Often	0.042
DP01	R91	DX	10	Any	0.042
DP01	A0427	PX	HCPCS	Any	0.042
DP01	5A1D70Z	PX	10	Any	0.041
DP01	D02_INT_ALL_Q4	DX	10	Q4ServiceInt	0.041
DP01	99223	PX	CPT	Frequent	0.041
DP01	82947	PX	CPT	Frequent	0.041
DP01	71045	PX	CPT	Often	0.040
DP01	82565	PX	CPT	Any	0.040
DP01	L02	DX	10	Frequent	0.039
DP01	Z88	DX	10	Any	0.039
DP01	R41	DX	10	Any	0.039
DP01	J18	DX	10	Any	0.037
DP01	N17	DX	10	Frequent	0.036
DP01	Q9950	PX	HCPCS	Any	0.036
DP01	D06_INT_ALL_Q4	PX	HCPCS	Q4ServiceInt	0.036
DP01	R52	DX	10	Frequent	0.036
DP01	E0562	PX	HCPCS	Any	0.036

Appendix T. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP01	85025	PX	CPT	Frequent	0.035
DP01	Z86	DX	10	Frequent	0.035
DP01	Z79	DX	10	Often	0.034
DP01	G0463	PX	HCPCS	Frequent	0.034
DP01	D04_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.034
DP01	D02_INT_UNIQ_Q4	DX	10	Q4ServiceInt	0.033
DP01	D05_INT_ALL_Q4	PX	10	Q4ServiceInt	0.033
DP01	B24BZZ4	PX	10	Any	0.033
DP01	Z74	DX	10	Any	0.033
DP01	C1760	PX	HCPCS	Any	0.033
DP01	C420	RX	CLASS	Often	0.032
DP01	L02	DX	10	Any	0.032
DP01	Z86	DX	10	Often	0.032
DP01	C1085	RX	CLASS	Any	0.031
DP01	A4657	PX	HCPCS	Often	0.031
DP01	E0601	PX	HCPCS	Any	0.030
DP01	J1756	PX	HCPCS	Frequent	0.030
DP01	K21	DX	10	Frequent	0.030
DP01	J0887	PX	HCPCS	Often	0.030
DP01	I42	DX	10	Any	0.030
DP01	G0463	PX	HCPCS	Often	0.030
DP01	30233K1	PX	10	Any	0.029
DP01	99285	PX	CPT	Frequent	0.029
DP01	G0157	PX	HCPCS	Any	0.029
DP01	84520	PX	CPT	Any	0.029
DP01	80053	PX	CPT	Any	0.029
DP01	A0428	PX	HCPCS	Frequent	0.029
DP01	99222	PX	CPT	Any	0.029
DP02	05HB33Z	PX	10	Any	0.441
DP02	C131	RX	CLASS	Any	0.441
DP02	C138	RX	CLASS	Often	0.441
DP02	J0690	PX	HCPCS	Any	0.301
DP02	J1642	PX	HCPCS	Any	0.287
DP02	J2795	PX	HCPCS	Any	0.258
DP02	J0171	PX	HCPCS	Any	0.243
DP02	C138	RX	CLASS	Any	0.217

Appendix T. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP02	84100	PX	CPT	Any	0.213
DP02	86850	PX	CPT	Any	0.194
DP02	82040	PX	CPT	Frequent	0.193
DP02	Z68	DX	10	Frequent	0.189
DP02	M75	DX	10	Frequent	0.188
DP02	Z91	DX	10	Frequent	0.184
DP02	M75	DX	10	Often	0.182
DP02	E66	DX	10	Frequent	0.179
DP02	84550	PX	CPT	Any	0.174
DP02	R80	DX	10	Frequent	0.169
DP02	96366	PX	CPT	Frequent	0.169
DP02	J1650	PX	HCPCS	Frequent	0.168
DP02	84100	PX	CPT	Frequent	0.162
DP02	M19	DX	10	Frequent	0.158
DP02	M19	DX	10	Often	0.153
DP02	I51	DX	10	Frequent	0.153
DP02	73030	PX	CPT	Any	0.150
DP02	H04	DX	10	Any	0.149
DP02	A4627	PX	HCPCS	Any	0.147
DP02	86901	PX	CPT	Any	0.146
DP02	Z68	DX	10	Any	0.141
DP02	86900	PX	CPT	Any	0.139
DP02	J1650	PX	HCPCS	Any	0.139
DP02	M19	DX	10	Any	0.138
DP02	J7620	PX	HCPCS	Any	0.138
DP02	83970	PX	CPT	Any	0.137
DP02	92012	PX	CPT	Any	0.136
DP02	70553	PX	CPT	Often	0.136
DP02	J2001	PX	HCPCS	Any	0.135
DP02	R41	DX	10	Frequent	0.134
DP02	93010	PX	CPT	Any	0.132
DP02	C782	RX	CLASS	Any	0.131
DP02	D04_INT_ALL_Q1	PX	10	Q1ServiceInt	0.130
DP02	J2060	PX	HCPCS	Any	0.127
DP02	M75	DX	10	Any	0.125
DP02	T78	DX	10	Any	0.122

Appendix T. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP02	Z09	DX	10	Any	0.119
DP02	C428	RX	CLASS	Any	0.118
DP02	D04_INT_UNIQ_Q1	PX	10	Q1ServiceInt	0.114
DP02	C98	RX	CLASS	Any	0.113
DP02	Z99	DX	10	Frequent	0.113
DP02	71045	PX	CPT	Often	0.112
DP02	70553	PX	CPT	Any	0.112
DP02	Z78	DX	10	Any	0.108
DP02	83880	PX	CPT	Any	0.108
DP02	J1644	PX	HCPCS	Any	0.105
DP02	94640	PX	CPT	Any	0.104
DP02	92133	PX	CPT	Any	0.103
DP02	Z91	DX	10	Any	0.103
DP02	R41	DX	10	Any	0.102
DP02	I45	DX	10	Any	0.101
DP02	G47	DX	10	Any	0.099
DP02	Z99	DX	10	Any	0.099
DP02	J2930	PX	HCPCS	Any	0.098
DP02	R80	DX	10	Any	0.096
DP02	E87	DX	10	Any	0.095
DP02	71045	PX	CPT	Any	0.094
DP02	J1940	PX	HCPCS	Any	0.093
DP02	E28	DX	10	Frequent	0.093
DP02	J38	DX	10	Frequent	0.093
DP02	J3475	PX	HCPCS	Any	0.092
DP02	N18	DX	10	Often	0.092
DP02	99199	PX	CPT	Any	0.092
DP02	R49	DX	10	Any	0.091
DP02	92083	PX	CPT	Any	0.087
DP02	L29	DX	10	Any	0.086
DP02	Z01	DX	10	Frequent	0.085
DP02	U0004	PX	HCPCS	Frequent	0.084
DP02	93005	PX	CPT	Any	0.083
DP02	99291	PX	CPT	Any	0.083
DP02	99232	PX	CPT	Frequent	0.083
DP02	82962	PX	CPT	Any	0.083

Appendix T. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP02	R63	DX	10	Frequent	0.082
DP02	Z48	DX	10	Any	0.078
DP02	H93	DX	10	Any	0.078
DP02	K80	DX	10	Any	0.078
DP02	99285	PX	CPT	Any	0.076
DP02	86200	PX	CPT	Any	0.076
DP02	E66	DX	10	Any	0.075
DP02	M26	DX	10	Any	0.074
DP02	R63	DX	10	Any	0.073
DP02	J38	DX	10	Any	0.073
DP02	I51	DX	10	Any	0.072
DP02	N18	DX	10	Frequent	0.070
DP02	Z45	DX	10	Frequent	0.070
DP02	83516	PX	CPT	Any	0.069
DP02	A9585	PX	HCPCS	Any	0.068
DP02	N18	DX	10	Any	0.068
DP02	81003	PX	CPT	Frequent	0.066
DP02	C689	RX	CLASS	Any	0.066
DP02	83735	PX	CPT	Frequent	0.065
DP02	E55	DX	10	Any	0.065
DP03	731	PX	CPT	Any	0.042
DP03	K22	DX	10	Any	0.039
DP03	43239	PX	CPT	Any	0.038
DP03	Z3A	DX	10	Any	0.038
DP03	K92	DX	10	Any	0.037
DP03	K92	DX	10	Frequent	0.036
DP03	K21	DX	10	Any	0.035
DP03	K92	DX	10	Often	0.035
DP03	O09	DX	10	Any	0.035
DP03	I10	DX	10	Any	0.031
DP03	43239	PX	CPT	Often	0.031
DP03	86850	PX	CPT	Any	0.030
DP03	88305	PX	CPT	Any	0.029
DP03	K31	DX	10	Any	0.029
DP03	K22	DX	10	Often	0.029
DP03	84156	PX	CPT	Any	0.026

Appendix T. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP03	N18	DX	10	Often	0.025
DP03	E66	DX	10	Frequent	0.025
DP03	C1110	RX	CLASS	Frequent	0.025
DP03	86901	PX	CPT	Any	0.025
DP03	88342	PX	CPT	Any	0.024
DP03	86900	PX	CPT	Any	0.024
DP03	K20	DX	10	Frequent	0.023
DP03	I10	DX	10	Often	0.023
DP03	99223	PX	CPT	Any	0.023
DP03	D04_INT_ALL_Q4	PX	CPT	Q4ServiceInt	0.023
DP03	O99	DX	10	Any	0.023
DP03	E11	DX	10	Often	0.023
DP03	Z98	DX	10	Any	0.022
DP03	88313	PX	CPT	Any	0.022
DP03	C58	RX	CLASS	Any	0.022
DP03	C58	RX	CLASS	Frequent	0.022
DP03	O09	DX	10	Frequent	0.022
DP03	87086	PX	CPT	Any	0.021
DP03	E66	DX	10	Often	0.021
DP03	K20	DX	10	Any	0.021
DP03	E66	DX	10	Any	0.021
DP03	O26	DX	10	Frequent	0.020
DP03	83970	PX	CPT	Any	0.020
DP03	Z68	DX	10	Frequent	0.019
DP03	K29	DX	10	Any	0.019
DP03	O09	DX	10	Often	0.019
DP03	E11	DX	10	Any	0.019
DP03	K44	DX	10	Any	0.019
DP03	B24BZZ4	PX	10	Any	0.019
DP03	K44	DX	10	Often	0.019
DP03	0DB68ZX	PX	10	Any	0.018
DP03	A0429	PX	HCPCS	Any	0.018
DP03	84702	PX	CPT	Any	0.017
DP03	R10	DX	10	Any	0.017
DP03	36415	PX	CPT	Frequent	0.017
DP03	A0425	PX	HCPCS	Any	0.017

Appendix T. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP03	C1110	RX	CLASS	Any	0.017
DP03	N18	DX	10	Frequent	0.017
DP03	J2704	PX	HCPCS	Any	0.017
DP03	R11	DX	10	Any	0.017
DP03	N18	DX	10	Any	0.017
DP03	Q9967	PX	HCPCS	Any	0.017
DP03	O26	DX	10	Often	0.016
DP03	O99	DX	10	Frequent	0.016
DP03	D04_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.016
DP03	99239	PX	CPT	Any	0.016
DP03	G40	DX	10	Frequent	0.015
DP03	Z3A	DX	10	Frequent	0.015
DP03	R09	DX	10	Frequent	0.015
DP03	C1124	RX	CLASS	Any	0.015
DP03	J1200	PX	HCPCS	Any	0.015
DP03	N17	DX	10	Frequent	0.015
DP03	88305	PX	CPT	Frequent	0.014
DP03	R09	DX	10	Any	0.014
DP03	G40	DX	10	Often	0.014
DP03	K31	DX	10	Often	0.014
DP03	99152	PX	CPT	Any	0.014
DP03	G47	DX	10	Any	0.014
DP03	99215	PX	CPT	Frequent	0.014
DP03	I10	DX	10	Frequent	0.014
DP03	Z98	DX	10	Often	0.013
DP03	N91	DX	10	Any	0.013
DP03	Z68	DX	10	Any	0.013
DP03	96374	PX	CPT	Any	0.013
DP03	C313	RX	CLASS	Any	0.013
DP03	A0427	PX	HCPCS	Any	0.013
DP03	88175	PX	CPT	Any	0.013
DP03	74177	PX	CPT	Any	0.013
DP03	D06_INT_UNIQ_Q4	PX	HCPCS	Q4ServiceInt	0.013
DP03	R11	DX	10	Often	0.012
DP03	0DBK8ZX	PX	10	Any	0.012
DP03	R13	DX	10	Any	0.012

Appendix T. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP03	K76	DX	10	Any	0.012
DP03	O99	DX	10	Often	0.012
DP03	0DB78ZX	PX	10	Any	0.012
DP03	3E0G8GC	PX	10	Any	0.012
DP03	N17	DX	10	Often	0.012
DP03	K21	DX	10	Frequent	0.012
DP03	70553	PX	CPT	Any	0.012
DP03	81025	PX	CPT	Any	0.012
DP03	K29	DX	10	Often	0.012
DP03	C872	RX	CLASS	Any	0.012
DP03	J2805	PX	HCPCS	Any	0.012
DP03	E0603	PX	HCPCS	Any	0.011
DP04	C187	RX	CLASS	Any	0.115
DP04	C187	RX	CLASS	Often	0.109
DP04	N18	DX	10	Often	0.103
DP04	K31	DX	10	Any	0.102
DP04	N18	DX	10	Any	0.087
DP04	K25	DX	10	Any	0.087
DP04	K92	DX	10	Any	0.082
DP04	R26	DX	10	Frequent	0.081
DP04	G93	DX	10	Frequent	0.081
DP04	731	PX	CPT	Any	0.080
DP04	86850	PX	CPT	Any	0.078
DP04	86900	PX	CPT	Any	0.078
DP04	K29	DX	10	Any	0.077
DP04	99238	PX	CPT	Any	0.076
DP04	86901	PX	CPT	Any	0.075
DP04	K92	DX	10	Frequent	0.075
DP04	I10	DX	10	Any	0.074
DP04	3E0336Z	PX	10	Any	0.073
DP04	5A1D70Z	PX	10	Any	0.072
DP04	88313	PX	CPT	Any	0.065
DP04	Z74	DX	10	Any	0.065
DP04	C371	RX	CLASS	Any	0.063
DP04	K25	DX	10	Frequent	0.058
DP04	D04_INT_ALL_Q4	PX	CPT	Q4ServiceInt	0.056

Appendix T. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP04	K29	DX	10	Frequent	0.056
DP04	K21	DX	10	Any	0.055
DP04	D02_INT_ALL_Q4	DX	10	Q4ServiceInt	0.053
DP04	43239	PX	CPT	Any	0.053
DP04	C1049	RX	CLASS	Any	0.053
DP04	G93	DX	10	Any	0.053
DP04	A0428	PX	HCPCS	Any	0.053
DP04	C1085	RX	CLASS	Any	0.052
DP04	K76	DX	10	Any	0.052
DP04	81001	PX	CPT	Any	0.052
DP04	I50	DX	10	Often	0.052
DP04	Z99	DX	10	Frequent	0.051
DP04	I95	DX	10	Any	0.051
DP04	87340	PX	CPT	Any	0.051
DP04	Z91	DX	10	Any	0.051
DP04	Z86	DX	10	Frequent	0.051
DP04	D02_INT_UNIQ_Q4	DX	10	Q4ServiceInt	0.050
DP04	3E043XZ	PX	10	Any	0.050
DP04	C734	RX	CLASS	Any	0.049
DP04	K21	DX	10	Frequent	0.049
DP04	R16	DX	10	Any	0.048
DP04	R10	DX	10	Frequent	0.048
DP04	K76	DX	10	Frequent	0.047
DP04	5A09357	PX	10	Any	0.047
DP04	0W3P8ZZ	PX	10	Any	0.047
DP04	84100	PX	CPT	Frequent	0.046
DP04	D64	DX	10	Any	0.046
DP04	K31	DX	10	Frequent	0.046
DP04	M10	DX	10	Any	0.046
DP04	99152	PX	CPT	Any	0.045
DP04	J1610	PX	HCPCS	Any	0.045
DP04	93010	PX	CPT	Frequent	0.044
DP04	D04_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.044
DP04	J2357	PX	HCPCS	Any	0.044
DP04	0W9G3ZZ	PX	10	Any	0.044
DP04	I10	DX	10	Often	0.043

Appendix T. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP04	02H633Z	PX	10	Any	0.043
DP04	C446	RX	CLASS	Frequent	0.043
DP04	0BH17EZ	PX	10	Any	0.042
DP04	I50	DX	10	Any	0.041
DP04	99231	PX	CPT	Any	0.041
DP04	E66	DX	10	Frequent	0.040
DP04	K59	DX	10	Any	0.040
DP04	A9270	PX	HCPCS	Frequent	0.040
DP04	R10	DX	10	Often	0.040
DP04	K20	DX	10	Any	0.039
DP04	C446	RX	CLASS	Any	0.039
DP04	R10	DX	10	Any	0.039
DP04	0DJ08ZZ	PX	10	Any	0.039
DP04	J9999	PX	HCPCS	Frequent	0.039
DP04	C689	RX	CLASS	Often	0.038
DP04	L50	DX	10	Any	0.038
DP04	N17	DX	10	Often	0.037
DP04	E66	DX	10	Often	0.037
DP04	A0426	PX	HCPCS	Any	0.037
DP04	Z96	DX	10	Frequent	0.036
DP04	99284	PX	CPT	Any	0.036
DP04	A9276	PX	HCPCS	Often	0.035
DP04	R26	DX	10	Any	0.035
DP04	86803	PX	CPT	Any	0.035
DP04	C729	RX	CLASS	Any	0.035
DP04	D64	DX	10	Frequent	0.035
DP04	Z86	DX	10	Any	0.035
DP04	86706	PX	CPT	Any	0.034
DP04	C935	RX	CLASS	Any	0.034
DP04	84702	PX	CPT	Any	0.034
DP04	C446	RX	CLASS	Often	0.034
DP04	G0463	PX	HCPCS	Any	0.033
DP04	R11	DX	10	Frequent	0.033
DP04	J1439	PX	HCPCS	Any	0.032
DP04	A0425	PX	HCPCS	Any	0.032
DP04	82570	PX	CPT	Any	0.032

Appendix T. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP04	84702	PX	CPT	Frequent	0.031
DP04	N18	DX	10	Frequent	0.031
DP04	G0463	PX	HCPCS	Frequent	0.031
DP04	76705	PX	CPT	Any	0.031
DP05	K20	DX	10	Any	0.293
DP05	H2015	PX	HCPCS	Frequent	0.247
DP05	H2035	PX	HCPCS	Any	0.224
DP05	5A1955Z	PX	10	Any	0.209
DP05	J0295	PX	HCPCS	Any	0.209
DP05	86803	PX	CPT	Any	0.138
DP05	K22	DX	10	Frequent	0.135
DP05	K92	DX	10	Frequent	0.131
DP05	87340	PX	CPT	Any	0.128
DP05	C545	RX	CLASS	Any	0.127
DP05	86780	PX	CPT	Any	0.126
DP05	H0038	PX	HCPCS	Any	0.126
DP05	T2023	PX	HCPCS	Any	0.125
DP05	K22	DX	10	Any	0.124
DP05	H0001	PX	HCPCS	Any	0.121
DP05	F15	DX	10	Often	0.114
DP05	K44	DX	10	Any	0.107
DP05	F15	DX	10	Frequent	0.105
DP05	A0100	PX	HCPCS	Any	0.101
DP05	J0696	PX	HCPCS	Any	0.097
DP05	H2035	PX	HCPCS	Often	0.096
DP05	731	PX	CPT	Any	0.095
DP05	S0215	PX	HCPCS	Any	0.095
DP05	J7298	PX	HCPCS	Any	0.093
DP05	77063	PX	CPT	Frequent	0.090
DP05	43239	PX	CPT	Any	0.082
DP05	74018	PX	CPT	Any	0.080
DP05	81001	PX	CPT	Any	0.080
DP05	L50	DX	10	Any	0.079
DP05	99283	PX	CPT	Any	0.078
DP05	C689	RX	CLASS	Often	0.077
DP05	Z45	DX	10	Any	0.076

Appendix T. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP05	C689	RX	CLASS	Frequent	0.075
DP05	88305	PX	CPT	Often	0.074
DP05	88305	PX	CPT	Any	0.072
DP05	77067	PX	CPT	Frequent	0.072
DP05	20610	PX	CPT	Any	0.070
DP05	G62	DX	10	Any	0.069
DP05	Z02	DX	10	Any	0.069
DP05	C161	RX	CLASS	Frequent	0.068
DP05	73110	PX	CPT	Frequent	0.067
DP05	73130	PX	CPT	Any	0.067
DP05	M79	DX	10	Frequent	0.066
DP05	K21	DX	10	Any	0.065
DP05	Z59	DX	10	Any	0.065
DP05	F39	DX	10	Frequent	0.064
DP05	T1016	PX	HCPCS	Any	0.064
DP05	Z59	DX	10	Frequent	0.061
DP05	87040	PX	CPT	Any	0.060
DP05	K92	DX	10	Any	0.060
DP05	H2015	PX	HCPCS	Any	0.058
DP05	H61	DX	10	Any	0.057
DP05	G0500	PX	HCPCS	Any	0.057
DP05	87389	PX	CPT	Any	0.056
DP05	58300	PX	CPT	Any	0.056
DP05	C689	RX	CLASS	Any	0.056
DP05	0W9G3ZZ	PX	10	Any	0.056
DP05	90837	PX	CPT	Often	0.055
DP05	L08	DX	10	Any	0.053
DP05	83880	PX	CPT	Any	0.052
DP05	K31	DX	10	Any	0.052
DP05	E78	DX	10	Frequent	0.052
DP05	H0001	PX	HCPCS	Frequent	0.050
DP05	D62	DX	10	Any	0.049
DP05	D03_INT_ALL_Q4	PX	CPT	Q4ServiceInt	0.049
DP05	73562	PX	CPT	Any	0.049
DP05	99217	PX	CPT	Any	0.047
DP05	D03_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.047

Appendix T. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 18-49 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP05	E66	DX	10	Any	0.047
DP05	73110	PX	CPT	Any	0.046
DP05	R22	DX	10	Any	0.046
DP05	K29	DX	10	Any	0.045
DP05	R03	DX	10	Frequent	0.045
DP05	N20	DX	10	Any	0.045
DP05	R41	DX	10	Any	0.045
DP05	87636	PX	CPT	Any	0.044
DP05	M17	DX	10	Any	0.044
DP05	76705	PX	CPT	Often	0.044
DP05	C417	RX	CLASS	Often	0.044
DP05	D02_INT_UNIQ_Q4	RX	CLASS	Q4ServiceInt	0.043
DP05	C774	RX	CLASS	Frequent	0.043
DP05	87591	PX	CPT	Any	0.042
DP05	J3301	PX	HCPCS	Any	0.042
DP05	U0004	PX	HCPCS	Any	0.042
DP05	N28	DX	10	Any	0.042
DP05	87491	PX	CPT	Any	0.042
DP05	R45	DX	10	Often	0.042
DP05	C693	RX	CLASS	Often	0.041
DP05	R41	DX	10	Frequent	0.041
DP05	F31	DX	10	Often	0.041
DP05	G93	DX	10	Any	0.041
DP05	F39	DX	10	Any	0.041
DP05	J2250	PX	HCPCS	Any	0.041
DP05	99231	PX	CPT	Any	0.040
DP05	R60	DX	10	Frequent	0.040
DP05	73130	PX	CPT	Often	0.040
DP05	R40	DX	10	Frequent	0.040
DP05	99215	PX	CPT	Any	0.040
DP05	C490	RX	CLASS	Any	0.040
DP05	90837	PX	CPT	Frequent	0.040

Appendix U. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 50-64 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP01	N18	DX	10	Any	0.066
DP01	N18	DX	10	Often	0.055
DP01	K92	DX	10	Any	0.038
DP01	A0428	PX	HCPCS	Any	0.038
DP01	I12	DX	10	Any	0.037
DP01	A0425	PX	HCPCS	Frequent	0.037
DP01	Z99	DX	10	Any	0.035
DP01	E11	DX	10	Frequent	0.035
DP01	K92	DX	10	Often	0.034
DP01	Z99	DX	10	Often	0.034
DP01	J96	DX	10	Often	0.032
DP01	99232	PX	CPT	Often	0.032
DP01	I13	DX	10	Any	0.031
DP01	J96	DX	10	Any	0.030
DP01	99309	PX	CPT	Any	0.030
DP01	99291	PX	CPT	Frequent	0.029
DP01	99308	PX	CPT	Frequent	0.029
DP01	02HV33Z	PX	10	Any	0.028
DP01	99308	PX	CPT	Any	0.028
DP01	J96	DX	10	Frequent	0.027
DP01	99233	PX	CPT	Frequent	0.027
DP01	99309	PX	CPT	Often	0.026
DP01	A0428	PX	HCPCS	Frequent	0.026
DP01	I50	DX	10	Often	0.026
DP01	99232	PX	CPT	Frequent	0.025
DP01	36556	PX	CPT	Any	0.025
DP01	I12	DX	10	Often	0.025
DP01	Z46	DX	10	Any	0.025
DP01	A41	DX	10	Any	0.024
DP01	C225	RX	CLASS	Often	0.024
DP01	K74	DX	10	Any	0.024
DP01	D02_INT_ALL_Q4	DX	10	Q4ServiceInt	0.023
DP01	0BH17EZ	PX	10	Any	0.023
DP01	I50	DX	10	Any	0.023
DP01	A0429	PX	HCPCS	Any	0.023
DP01	731	PX	CPT	Any	0.023

Appendix U. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 50-64 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP01	N17	DX	10	Any	0.022
DP01	K74	DX	10	Often	0.022
DP01	J18	DX	10	Any	0.022
DP01	R09	DX	10	Any	0.021
DP01	E11	DX	10	Often	0.021
DP01	C225	RX	CLASS	Any	0.021
DP01	I12	DX	10	Frequent	0.021
DP01	Z74	DX	10	Frequent	0.020
DP01	I63	DX	10	Any	0.020
DP01	A0425	PX	HCPCS	Any	0.020
DP01	R18	DX	10	Any	0.020
DP01	N18	DX	10	Frequent	0.020
DP01	J98	DX	10	Frequent	0.020
DP01	99306	PX	CPT	Any	0.020
DP01	80048	PX	CPT	Any	0.019
DP01	5A09357	PX	10	Any	0.019
DP01	88305	PX	CPT	Any	0.019
DP01	99223	PX	CPT	Often	0.019
DP01	R27	DX	10	Any	0.019
DP01	C422	RX	CLASS	Any	0.018
DP01	Z74	DX	10	Any	0.018
DP01	43239	PX	CPT	Any	0.018
DP01	Z68	DX	10	Frequent	0.018
DP01	D50	DX	10	Any	0.018
DP01	D05_INT_UNIQ_Q4	PX	10	Q4ServiceInt	0.018
DP01	D63	DX	10	Any	0.018
DP01	G0299	PX	HCPCS	Any	0.018
DP01	E78	DX	10	Frequent	0.017
DP01	A41	DX	10	Often	0.017
DP01	99231	PX	CPT	Frequent	0.017
DP01	I11	DX	10	Any	0.017
DP01	36620	PX	CPT	Any	0.017
DP01	L03	DX	10	Any	0.017
DP01	E78	DX	10	Often	0.017
DP01	D05_INT_ALL_Q4	PX	10	Q4ServiceInt	0.017
DP01	88312	PX	CPT	Any	0.016

Appendix U. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 50-64 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP01	80069	PX	CPT	Any	0.016
DP01	Z46	DX	10	Often	0.016
DP01	R11	DX	10	Any	0.016
DP01	R26	DX	10	Any	0.016
DP01	G93	DX	10	Any	0.015
DP01	J90	DX	10	Often	0.015
DP01	99233	PX	CPT	Often	0.015
DP01	Z89	DX	10	Any	0.015
DP01	J18	DX	10	Often	0.015
DP01	B35	DX	10	Any	0.015
DP01	J90	DX	10	Any	0.015
DP01	K22	DX	10	Any	0.015
DP01	99231	PX	CPT	Any	0.015
DP01	G93	DX	10	Often	0.015
DP01	99309	PX	CPT	Frequent	0.015
DP01	76937	PX	CPT	Any	0.015
DP01	83735	PX	CPT	Any	0.015
DP01	E78	DX	10	Any	0.014
DP01	K74	DX	10	Frequent	0.014
DP01	K31	DX	10	Any	0.014
DP01	R16	DX	10	Any	0.014
DP01	E11	DX	10	Any	0.014
DP01	R41	DX	10	Often	0.014
DP01	L03	DX	10	Often	0.014
DP01	D06_INT_ALL_Q4	PX	HCPCS	Q4ServiceInt	0.014
DP01	K22	DX	10	Often	0.014
DP01	R69	DX	10	Any	0.014
DP01	99233	PX	CPT	Any	0.014
DP02	0UT20ZZ	PX	10	Any	0.610
DP02	0UT70ZZ	PX	10	Any	0.610
DP02	84402	PX	CPT	Any	0.351
DP02	E29	DX	10	Any	0.274
DP02	D04_INT_ALL_Q4	PX	10	Q4ServiceInt	0.245
DP02	D04_INT_UNIQ_Q4	PX	10	Q4ServiceInt	0.245
DP02	72040	PX	CPT	Any	0.191
DP02	G0475	PX	HCPCS	Any	0.189

Appendix U. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 50-64 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP02	C65	RX	CLASS	Any	0.174
DP02	C772	RX	CLASS	Any	0.154
DP02	C65	RX	CLASS	Often	0.153
DP02	N18	DX	10	Often	0.145
DP02	M17	DX	10	Any	0.135
DP02	84403	PX	CPT	Any	0.133
DP02	99024	PX	CPT	Any	0.127
DP02	E66	DX	10	Frequent	0.126
DP02	R09	DX	10	Any	0.116
DP02	Z01	DX	10	Frequent	0.115
DP02	C753	RX	CLASS	Any	0.113
DP02	N95	DX	10	Frequent	0.099
DP02	D25	DX	10	Any	0.095
DP02	92250	PX	CPT	Any	0.094
DP02	Z68	DX	10	Frequent	0.094
DP02	R05	DX	10	Any	0.093
DP02	73030	PX	CPT	Any	0.092
DP02	E78	DX	10	Any	0.091
DP02	C265	RX	CLASS	Any	0.090
DP02	88307	PX	CPT	Any	0.084
DP02	Z00	DX	10	Any	0.083
DP02	76830	PX	CPT	Any	0.083
DP02	I12	DX	10	Any	0.081
DP02	84153	PX	CPT	Any	0.080
DP02	S46	DX	10	Any	0.080
DP02	E29	DX	10	Frequent	0.080
DP02	97140	PX	CPT	Any	0.077
DP02	I49	DX	10	Frequent	0.076
DP02	S46	DX	10	Frequent	0.074
DP02	C265	RX	CLASS	Often	0.074
DP02	R73	DX	10	Any	0.073
DP02	70450	PX	CPT	Any	0.072
DP02	97530	PX	CPT	Any	0.071
DP02	93005	PX	CPT	Any	0.068
DP02	N18	DX	10	Any	0.068
DP02	M10	DX	10	Any	0.067

Appendix U. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 50-64 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP02	R91	DX	10	Any	0.066
DP02	R19	DX	10	Any	0.066
DP02	K57	DX	10	Any	0.065
DP02	U0005	PX	HCPCS	Any	0.064
DP02	D02_INT_ALL_Q3	RX	CLASS	Q3ServiceInt	0.061
DP02	99231	PX	CPT	Any	0.061
DP02	87081	PX	CPT	Any	0.061
DP02	R29	DX	10	Any	0.061
DP02	I12	DX	10	Often	0.060
DP02	R05	DX	10	Often	0.059
DP02	97110	PX	CPT	Often	0.058
DP02	C782	RX	CLASS	Often	0.056
DP02	C401	RX	CLASS	Often	0.055
DP02	99232	PX	CPT	Any	0.055
DP02	D72	DX	10	Any	0.054
DP02	J98	DX	10	Any	0.054
DP02	97530	PX	CPT	Often	0.053
DP02	M19	DX	10	Any	0.052
DP02	Z90	DX	10	Any	0.051
DP02	H53	DX	10	Any	0.051
DP02	C835	RX	CLASS	Any	0.051
DP02	C782	RX	CLASS	Any	0.050
DP02	93010	PX	CPT	Any	0.049
DP02	C401	RX	CLASS	Any	0.049
DP02	86803	PX	CPT	Any	0.046
DP02	R93	DX	10	Any	0.045
DP02	C422	RX	CLASS	Any	0.045
DP02	R00	DX	10	Any	0.045
DP02	D02_INT_UNIQ_Q3	RX	CLASS	Q3ServiceInt	0.044
DP02	74177	PX	CPT	Any	0.043
DP02	85027	PX	CPT	Any	0.042
DP02	Z96	DX	10	Any	0.041
DP02	80053	PX	CPT	Any	0.041
DP02	84550	PX	CPT	Any	0.039
DP02	E78	DX	10	Frequent	0.039
DP02	Z01	DX	10	Any	0.038

Appendix U. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 50-64 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP02	81001	PX	CPT	Any	0.038
DP02	G1004	PX	HCPCS	Any	0.038
DP02	H43	DX	10	Any	0.037
DP02	M75	DX	10	Often	0.037
DP02	84443	PX	CPT	Any	0.035
DP02	D01_INT_ALL_Q3	DX	10	Q3ServiceInt	0.034
DP02	I87	DX	10	Any	0.032
DP02	R53	DX	10	Any	0.032
DP02	C1124	RX	CLASS	Any	0.032
DP02	99222	PX	CPT	Any	0.031
DP02	F32	DX	10	Any	0.030
DP02	99441	PX	CPT	Any	0.029
DP02	Z86	DX	10	Any	0.029
DP02	88142	PX	CPT	Any	0.028
DP02	99214	PX	CPT	Frequent	0.028
DP02	Z98	DX	10	Any	0.028
DP02	71045	PX	CPT	Any	0.027
DP02	90686	PX	CPT	Any	0.027
DP02	88305	PX	CPT	Often	0.027
DP02	E88	DX	10	Any	0.026
DP03	N18	DX	10	Any	0.040
DP03	N18	DX	10	Often	0.035
DP03	N18	DX	10	Frequent	0.026
DP03	J96	DX	10	Frequent	0.021
DP03	I12	DX	10	Any	0.021
DP03	J96	DX	10	Often	0.019
DP03	G93	DX	10	Frequent	0.019
DP03	G93	DX	10	Any	0.019
DP03	G0463	PX	HCPCS	Any	0.017
DP03	Z99	DX	10	Frequent	0.016
DP03	43239	PX	CPT	Any	0.016
DP03	J90	DX	10	Any	0.015
DP03	J96	DX	10	Any	0.014
DP03	D04_INT_ALL_Q4	PX	CPT	Q4ServiceInt	0.014
DP03	43239	PX	CPT	Often	0.014
DP03	K92	DX	10	Frequent	0.014

Appendix U. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 50-64 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP03	99233	PX	CPT	Often	0.014
DP03	G93	DX	10	Often	0.013
DP03	I51	DX	10	Any	0.013
DP03	I12	DX	10	Often	0.013
DP03	70450	PX	CPT	Any	0.013
DP03	99239	PX	CPT	Any	0.012
DP03	C1175	RX	CLASS	Any	0.012
DP03	C58	RX	CLASS	Frequent	0.012
DP03	99223	PX	CPT	Frequent	0.012
DP03	99233	PX	CPT	Frequent	0.012
DP03	D05_INT_ALL_Q4	PX	10	Q4ServiceInt	0.011
DP03	Z99	DX	10	Any	0.011
DP03	93970	PX	CPT	Any	0.011
DP03	Q9967	PX	HCPCS	Any	0.011
DP03	C778	RX	CLASS	Any	0.011
DP03	I73	DX	10	Any	0.011
DP03	D05_INT_UNIQ_Q4	PX	10	Q4ServiceInt	0.011
DP03	80069	PX	CPT	Any	0.011
DP03	77067	PX	CPT	Any	0.011
DP03	K44	DX	10	Any	0.011
DP03	C58	RX	CLASS	Any	0.010
DP03	99232	PX	CPT	Frequent	0.010
DP03	D62	DX	10	Any	0.010
DP03	R10	DX	10	Frequent	0.010
DP03	G0463	PX	HCPCS	Often	0.010
DP03	D62	DX	10	Frequent	0.010
DP03	00B70ZZ	PX	10	Any	0.010
DP03	I12	DX	10	Frequent	0.010
DP03	Z46	DX	10	Any	0.010
DP03	77063	PX	CPT	Any	0.010
DP03	76937	PX	CPT	Any	0.009
DP03	99222	PX	CPT	Any	0.009
DP03	D02_INT_UNIQ_Q4	DX	10	Q4ServiceInt	0.009
DP03	C9113	PX	HCPCS	Any	0.009
DP03	E66	DX	10	Frequent	0.009
DP03	82150	PX	CPT	Any	0.009

Appendix U. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 50-64 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP03	3E013GC	PX	10	Any	0.009
DP03	A0425	PX	HCPCS	Any	0.009
DP03	J2930	PX	HCPCS	Any	0.009
DP03	D64	DX	10	Often	0.009
DP03	R10	DX	10	Any	0.009
DP03	99214	PX	CPT	Frequent	0.009
DP03	84100	PX	CPT	Any	0.009
DP03	D62	DX	10	Often	0.009
DP03	84156	PX	CPT	Any	0.009
DP03	R91	DX	10	Any	0.009
DP03	R09	DX	10	Any	0.009
DP03	D04_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.009
DP03	J2920	PX	HCPCS	Any	0.008
DP03	C388	RX	CLASS	Often	0.008
DP03	A0427	PX	HCPCS	Any	0.008
DP03	K21	DX	10	Frequent	0.008
DP03	B96	DX	10	Any	0.008
DP03	A0428	PX	HCPCS	Any	0.008
DP03	G0463	PX	HCPCS	Frequent	0.008
DP03	R11	DX	10	Any	0.008
DP03	021109W	PX	10	Any	0.008
DP03	74177	PX	CPT	Any	0.008
DP03	I48	DX	10	Frequent	0.008
DP03	99220	PX	CPT	Any	0.008
DP03	5A1955Z	PX	10	Any	0.008
DP03	D64	DX	10	Frequent	0.008
DP03	0BH17EZ	PX	10	Any	0.008
DP03	0DB68ZX	PX	10	Any	0.008
DP03	R22	DX	10	Any	0.008
DP03	J1200	PX	HCPCS	Any	0.008
DP03	76937	PX	CPT	Frequent	0.008
DP03	00U20KZ	PX	10	Any	0.008
DP03	Z74	DX	10	Any	0.008
DP03	30233N1	PX	10	Any	0.008
DP03	K21	DX	10	Any	0.008
DP03	99284	PX	CPT	Frequent	0.007

Appendix U. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 50-64 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP03	R41	DX	10	Any	0.007
DP03	D06_INT_UNIQ_Q4	PX	HCPCS	Q4ServiceInt	0.007
DP03	Z46	DX	10	Frequent	0.007
DP03	K76	DX	10	Any	0.007
DP03	E87	DX	10	Any	0.007
DP03	R06	DX	10	Frequent	0.007
DP03	82570	PX	CPT	Any	0.007
DP03	R11	DX	10	Frequent	0.007
DP03	K57	DX	10	Often	0.007
DP03	J90	DX	10	Often	0.007
DP03	K57	DX	10	Any	0.007
DP03	R10	DX	10	Often	0.007
DP04	G0463	PX	HCPCS	Any	0.057
DP04	G0463	PX	HCPCS	Often	0.039
DP04	M79	DX	10	Any	0.034
DP04	30243Y0	PX	10	Any	0.031
DP04	I73	DX	10	Any	0.030
DP04	R13	DX	10	Any	0.028
DP04	P9604	PX	HCPCS	Frequent	0.027
DP04	3E04305	PX	10	Any	0.027
DP04	J96	DX	10	Any	0.027
DP04	99348	PX	CPT	Any	0.027
DP04	D02_INT_ALL_Q4	DX	10	Q4ServiceInt	0.027
DP04	D06_INT_UNIQ_Q4	PX	10	Q4ServiceInt	0.026
DP04	B96	DX	10	Any	0.025
DP04	M05	DX	10	Any	0.025
DP04	R69	DX	10	Any	0.024
DP04	D04_INT_ALL_Q4	PX	CPT	Q4ServiceInt	0.024
DP04	D02_INT_UNIQ_Q4	DX	10	Q4ServiceInt	0.023
DP04	G62	DX	10	Any	0.022
DP04	N18	DX	10	Often	0.022
DP04	M79	DX	10	Frequent	0.022
DP04	R13	DX	10	Frequent	0.022
DP04	0DB68ZX	PX	10	Any	0.022
DP04	D06_INT_ALL_Q4	PX	10	Q4ServiceInt	0.022
DP04	77067	PX	CPT	Any	0.021

Appendix U. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 50-64 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP04	77063	PX	CPT	Any	0.021
DP04	93922	PX	CPT	Any	0.020
DP04	R21	DX	10	Any	0.020
DP04	G0463	PX	HCPCS	Frequent	0.020
DP04	I34	DX	10	Frequent	0.019
DP04	I25	DX	10	Frequent	0.019
DP04	D03_INT_UNIQ_Q4	RX	CLASS	Q4ServiceInt	0.019
DP04	Z74	DX	10	Any	0.019
DP04	M79	DX	10	Often	0.019
DP04	I73	DX	10	Frequent	0.018
DP04	99214	PX	CPT	Often	0.018
DP04	99214	PX	CPT	Frequent	0.018
DP04	D07_INT_ALL_Q4	PX	HCPCS	Q4ServiceInt	0.018
DP04	N18	DX	10	Any	0.018
DP04	V2200	PX	HCPCS	Any	0.018
DP04	K29	DX	10	Any	0.018
DP04	84100	PX	CPT	Frequent	0.017
DP04	D04_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.017
DP04	85014	PX	CPT	Any	0.017
DP04	C1097	RX	CLASS	Often	0.017
DP04	N39	DX	10	Frequent	0.016
DP04	84100	PX	CPT	Any	0.016
DP04	C689	RX	CLASS	Often	0.016
DP04	G93	DX	10	Any	0.015
DP04	I34	DX	10	Any	0.015
DP04	Z91	DX	10	Any	0.015
DP04	B35	DX	10	Any	0.015
DP04	N18	DX	10	Frequent	0.015
DP04	R69	DX	10	Frequent	0.015
DP04	M05	DX	10	Frequent	0.015
DP04	I70	DX	10	Frequent	0.014
DP04	J44	DX	10	Frequent	0.014
DP04	E11	DX	10	Frequent	0.014
DP04	I12	DX	10	Often	0.014
DP04	82784	PX	CPT	Any	0.014
DP04	R26	DX	10	Any	0.014

Appendix U. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 50-64 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP04	I70	DX	10	Any	0.014
DP04	45385	PX	CPT	Any	0.014
DP04	C205	RX	CLASS	Frequent	0.014
DP04	G0467	PX	HCPCS	Any	0.014
DP04	I51	DX	10	Frequent	0.013
DP04	Z48	DX	10	Any	0.013
DP04	E11	DX	10	Often	0.013
DP04	C1186	RX	CLASS	Often	0.013
DP04	I25	DX	10	Often	0.013
DP04	C663	RX	CLASS	Frequent	0.013
DP04	R60	DX	10	Frequent	0.013
DP04	J96	DX	10	Often	0.013
DP04	83970	PX	CPT	Any	0.013
DP04	30233N1	PX	10	Any	0.013
DP04	I65	DX	10	Frequent	0.013
DP04	A0425	PX	HCPCS	Frequent	0.013
DP04	85018	PX	CPT	Any	0.013
DP04	84153	PX	CPT	Any	0.013
DP04	F10	DX	10	Frequent	0.013
DP04	A9585	PX	HCPCS	Any	0.013
DP04	C42	RX	CLASS	Any	0.013
DP04	0DBM8ZX	PX	10	Any	0.013
DP04	K0553	PX	HCPCS	Often	0.013
DP04	C1100	RX	CLASS	Often	0.013
DP04	C1097	RX	CLASS	Any	0.013
DP04	Z99	DX	10	Frequent	0.013
DP04	99442	PX	CPT	Any	0.012
DP04	K74	DX	10	Any	0.012
DP04	R26	DX	10	Often	0.012
DP04	92012	PX	CPT	Any	0.012
DP04	C261	RX	CLASS	Any	0.012
DP04	5A1935Z	PX	10	Any	0.012
DP04	Z74	DX	10	Frequent	0.012
DP04	C154	RX	CLASS	Often	0.012
DP04	J96	DX	10	Frequent	0.012
DP04	J44	DX	10	Any	0.012

Appendix U. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 50-64 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP04	E0570	PX	HCPCS	Often	0.012
DP04	J18	DX	10	Any	0.012
DP04	R06	DX	10	Frequent	0.012
DP04	D68	DX	10	Any	0.012
DP05	V5160	PX	HCPCS	Any	0.287
DP05	V5261	PX	HCPCS	Any	0.240
DP05	L4360	PX	HCPCS	Any	0.177
DP05	86039	PX	CPT	Any	0.159
DP05	J43	DX	10	Any	0.152
DP05	97035	PX	CPT	Frequent	0.143
DP05	02HV33Z	PX	10	Any	0.138
DP05	K74	DX	10	Often	0.135
DP05	C42	RX	CLASS	Frequent	0.132
DP05	R59	DX	10	Frequent	0.127
DP05	C1132	RX	CLASS	Any	0.120
DP05	K74	DX	10	Any	0.119
DP05	C42	RX	CLASS	Often	0.118
DP05	H90	DX	10	Frequent	0.117
DP05	A0425	PX	HCPCS	Any	0.116
DP05	88312	PX	CPT	Any	0.115
DP05	99223	PX	CPT	Any	0.109
DP05	S0215	PX	HCPCS	Any	0.109
DP05	K22	DX	10	Frequent	0.107
DP05	Z91	DX	10	Frequent	0.107
DP05	Z79	DX	10	Often	0.107
DP05	H91	DX	10	Any	0.104
DP05	S0215	PX	HCPCS	Often	0.104
DP05	F17	DX	10	Any	0.101
DP05	Z72	DX	10	Frequent	0.101
DP05	Z79	DX	10	Frequent	0.100
DP05	G56	DX	10	Frequent	0.097
DP05	J43	DX	10	Frequent	0.097
DP05	C42	RX	CLASS	Any	0.096
DP05	A0100	PX	HCPCS	Any	0.096
DP05	M43	DX	10	Frequent	0.095
DP05	93306	PX	CPT	Any	0.092

Appendix U. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 50-64 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP05	A0427	PX	HCPCS	Any	0.091
DP05	K22	DX	10	Any	0.089
DP05	R22	DX	10	Any	0.087
DP05	F17	DX	10	Often	0.086
DP05	C62	RX	CLASS	Any	0.084
DP05	C567	RX	CLASS	Frequent	0.084
DP05	88312	PX	CPT	Frequent	0.081
DP05	86431	PX	CPT	Any	0.081
DP05	C1124	RX	CLASS	Frequent	0.080
DP05	99232	PX	CPT	Any	0.080
DP05	J1642	PX	HCPCS	Any	0.079
DP05	T1013	PX	HCPCS	Any	0.079
DP05	43239	PX	CPT	Any	0.077
DP05	86704	PX	CPT	Any	0.077
DP05	97035	PX	CPT	Any	0.075
DP05	88342	PX	CPT	Often	0.075
DP05	99204	PX	CPT	Any	0.073
DP05	K44	DX	10	Frequent	0.073
DP05	97035	PX	CPT	Often	0.072
DP05	K44	DX	10	Any	0.072
DP05	H0001	PX	HCPCS	Any	0.071
DP05	73502	PX	CPT	Frequent	0.070
DP05	80307	PX	CPT	Frequent	0.070
DP05	99282	PX	CPT	Any	0.070
DP05	A0100	PX	HCPCS	Often	0.069
DP05	A9552	PX	HCPCS	Frequent	0.069
DP05	J18	DX	10	Any	0.069
DP05	C894	RX	CLASS	Any	0.068
DP05	86706	PX	CPT	Any	0.067
DP05	R26	DX	10	Any	0.065
DP05	99238	PX	CPT	Any	0.063
DP05	R13	DX	10	Any	0.063
DP05	K31	DX	10	Any	0.063
DP05	99605	PX	CPT	Any	0.061
DP05	Z79	DX	10	Any	0.061
DP05	R91	DX	10	Any	0.060

Appendix U. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 50-64 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP05	F10	DX	10	Often	0.059
DP05	C129	RX	CLASS	Any	0.059
DP05	C129	RX	CLASS	Often	0.059
DP05	88341	PX	CPT	Often	0.059
DP05	R73	DX	10	Any	0.059
DP05	J0330	PX	HCPCS	Any	0.059
DP05	F10	DX	10	Frequent	0.058
DP05	72100	PX	CPT	Any	0.058
DP05	C896	RX	CLASS	Any	0.058
DP05	C749	RX	CLASS	Frequent	0.057
DP05	87389	PX	CPT	Any	0.057
DP05	D64	DX	10	Frequent	0.057
DP05	V2784	PX	HCPCS	Any	0.057
DP05	C1143	RX	CLASS	Any	0.056
DP05	V2020	PX	HCPCS	Any	0.054
DP05	V5266	PX	HCPCS	Any	0.054
DP05	I10	DX	10	Any	0.054
DP05	70450	PX	CPT	Often	0.054
DP05	Z02	DX	10	Any	0.053
DP05	731	PX	CPT	Any	0.053
DP05	C413	RX	CLASS	Often	0.053
DP05	S39	DX	10	Frequent	0.052
DP05	80307	PX	CPT	Any	0.052
DP05	V2203	PX	HCPCS	Any	0.051
DP05	I51	DX	10	Any	0.051
DP05	72125	PX	CPT	Any	0.050
DP05	H90	DX	10	Any	0.050
DP05	97811	PX	CPT	Any	0.049
DP05	97112	PX	CPT	Often	0.049
DP05	K21	DX	10	Frequent	0.047
DP05	J2270	PX	HCPCS	Any	0.046
DP05	Z11	DX	10	Frequent	0.046

Appendix V. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP01	K92	DX	10	Any	0.064
DP01	K92	DX	10	Often	0.052
DP01	K92	DX	10	Frequent	0.046
DP01	D62	DX	10	Any	0.040
DP01	N18	DX	10	Any	0.039
DP01	D62	DX	10	Often	0.039
DP01	99306	PX	CPT	Any	0.033
DP01	N18	DX	10	Often	0.032
DP01	0DJ08ZZ	PX	10	Any	0.032
DP01	99308	PX	CPT	Any	0.029
DP01	99223	PX	CPT	Any	0.028
DP01	D50	DX	10	Any	0.028
DP01	99309	PX	CPT	Any	0.028
DP01	R26	DX	10	Any	0.027
DP01	A0428	PX	HCPCS	Any	0.026
DP01	D62	DX	10	Frequent	0.025
DP01	30233N1	PX	10	Any	0.025
DP01	43235	PX	CPT	Any	0.023
DP01	D64	DX	10	Often	0.022
DP01	0DB68ZX	PX	10	Any	0.021
DP01	D64	DX	10	Frequent	0.021
DP01	D50	DX	10	Often	0.021
DP01	D64	DX	10	Any	0.021
DP01	I12	DX	10	Any	0.020
DP01	99232	PX	CPT	Any	0.020
DP01	R10	DX	10	Any	0.020
DP01	M62	DX	10	Any	0.020
DP01	731	PX	CPT	Any	0.020
DP01	N17	DX	10	Any	0.019
DP01	83970	PX	CPT	Any	0.019
DP01	99310	PX	CPT	Any	0.019
DP01	J98	DX	10	Frequent	0.018
DP01	99223	PX	CPT	Often	0.018
DP01	R06	DX	10	Any	0.017
DP01	5A1955Z	PX	10	Any	0.017
DP01	84100	PX	CPT	Any	0.016

Appendix V. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP01	E11	DX	10	Often	0.016
DP01	K25	DX	10	Often	0.016
DP01	K25	DX	10	Any	0.015
DP01	84156	PX	CPT	Any	0.015
DP01	99309	PX	CPT	Often	0.015
DP01	Z74	DX	10	Frequent	0.015
DP01	K25	DX	10	Frequent	0.015
DP01	R26	DX	10	Often	0.015
DP01	E86	DX	10	Any	0.015
DP01	99222	PX	CPT	Any	0.015
DP01	N18	DX	10	Frequent	0.015
DP01	E11	DX	10	Any	0.015
DP01	74176	PX	CPT	Any	0.015
DP01	R29	DX	10	Any	0.014
DP01	R41	DX	10	Any	0.014
DP01	K21	DX	10	Frequent	0.014
DP01	G93	DX	10	Often	0.014
DP01	F17	DX	10	Any	0.014
DP01	N17	DX	10	Often	0.014
DP01	99308	PX	CPT	Frequent	0.014
DP01	D04_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.014
DP01	99233	PX	CPT	Any	0.014
DP01	Z91	DX	10	Any	0.014
DP01	R19	DX	10	Any	0.014
DP01	0W3P8ZZ	PX	10	Any	0.013
DP01	K86	DX	10	Any	0.013
DP01	E11	DX	10	Frequent	0.013
DP01	R11	DX	10	Any	0.013
DP01	R13	DX	10	Any	0.013
DP01	81001	PX	CPT	Any	0.013
DP01	I95	DX	10	Any	0.013
DP01	G93	DX	10	Any	0.013
DP01	K74	DX	10	Any	0.013
DP01	C58	RX	CLASS	Often	0.012
DP01	R0070	PX	HCPCS	Any	0.012
DP01	I48	DX	10	Often	0.012

Appendix V. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP01	I12	DX	10	Often	0.012
DP01	82570	PX	CPT	Any	0.012
DP01	R27	DX	10	Any	0.012
DP01	43239	PX	CPT	Often	0.012
DP01	Z46	DX	10	Frequent	0.012
DP01	J44	DX	10	Often	0.012
DP01	L89	DX	10	Often	0.012
DP01	0DB98ZX	PX	10	Any	0.012
DP01	K74	DX	10	Frequent	0.012
DP01	88305	PX	CPT	Any	0.012
DP01	F17	DX	10	Often	0.012
DP01	A0427	PX	HCPCS	Any	0.012
DP01	A0428	PX	HCPCS	Frequent	0.011
DP01	N25	DX	10	Any	0.011
DP01	K86	DX	10	Frequent	0.011
DP01	0DB78ZX	PX	10	Any	0.011
DP01	74177	PX	CPT	Any	0.011
DP01	B96	DX	10	Any	0.011
DP01	K86	DX	10	Often	0.011
DP01	R06	DX	10	Often	0.011
DP01	I48	DX	10	Frequent	0.011
DP01	C58	RX	CLASS	Any	0.011
DP01	5A1D70Z	PX	10	Any	0.011
DP01	R80	DX	10	Any	0.011
DP01	M62	DX	10	Often	0.011
DP01	99309	PX	CPT	Frequent	0.011
DP01	77067	PX	CPT	Any	0.011
DP01	99285	PX	CPT	Any	0.011
DP02	S9501	PX	HCPCS	Frequent	0.434
DP02	V2304	PX	HCPCS	Any	0.301
DP02	S9501	PX	HCPCS	Often	0.276
DP02	F10	DX	10	Frequent	0.204
DP02	84156	PX	CPT	Any	0.187
DP02	B2111ZZ	PX	10	Any	0.183
DP02	A9575	PX	HCPCS	Any	0.176
DP02	99239	PX	CPT	Any	0.156

Appendix V. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP02	D64	DX	10	Any	0.155
DP02	C1010	RX	CLASS	Any	0.154
DP02	99285	PX	CPT	Any	0.147
DP02	K92	DX	10	Any	0.142
DP02	E78	DX	10	Frequent	0.133
DP02	R07	DX	10	Any	0.131
DP02	K29	DX	10	Any	0.130
DP02	77001	PX	CPT	Frequent	0.126
DP02	83540	PX	CPT	Any	0.120
DP02	66984	PX	CPT	Often	0.119
DP02	80053	PX	CPT	Any	0.119
DP02	K76	DX	10	Any	0.109
DP02	E86	DX	10	Any	0.108
DP02	86140	PX	CPT	Any	0.106
DP02	R25	DX	10	Frequent	0.105
DP02	85025	PX	CPT	Any	0.105
DP02	93010	PX	CPT	Any	0.105
DP02	H52	DX	10	Often	0.103
DP02	C107	RX	CLASS	Often	0.103
DP02	83550	PX	CPT	Any	0.101
DP02	G25	DX	10	Any	0.098
DP02	Z88	DX	10	Any	0.097
DP02	66984	PX	CPT	Any	0.096
DP02	92136	PX	CPT	Any	0.096
DP02	C140	RX	CLASS	Often	0.095
DP02	99225	PX	CPT	Any	0.095
DP02	74177	PX	CPT	Any	0.094
DP02	83735	PX	CPT	Frequent	0.092
DP02	I12	DX	10	Frequent	0.090
DP02	C78	DX	10	Frequent	0.090
DP02	F31	DX	10	Any	0.089
DP02	R10	DX	10	Often	0.088
DP02	86900	PX	CPT	Any	0.088
DP02	86901	PX	CPT	Any	0.088
DP02	C1142	RX	CLASS	Frequent	0.088
DP02	N63	DX	10	Frequent	0.088

Appendix V. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP02	B96	DX	10	Any	0.086
DP02	R74	DX	10	Frequent	0.086
DP02	C1894	PX	HCPCS	Any	0.085
DP02	N13	DX	10	Frequent	0.085
DP02	C42	RX	CLASS	Any	0.084
DP02	C140	RX	CLASS	Any	0.083
DP02	K76	DX	10	Often	0.083
DP02	85014	PX	CPT	Any	0.083
DP02	E78	DX	10	Any	0.082
DP02	I08	DX	10	Any	0.082
DP02	V2103	PX	HCPCS	Any	0.081
DP02	C987	RX	CLASS	Any	0.081
DP02	86850	PX	CPT	Any	0.080
DP02	M16	DX	10	Often	0.080
DP02	87040	PX	CPT	Any	0.079
DP02	92012	PX	CPT	Any	0.079
DP02	E66	DX	10	Frequent	0.078
DP02	D02_INT_ALL_Q4	RX	CLASS	Q4ServiceInt	0.077
DP02	A9552	PX	HCPCS	Any	0.076
DP02	C390	RX	CLASS	Frequent	0.076
DP02	H52	DX	10	Any	0.076
DP02	C390	RX	CLASS	Often	0.076
DP02	R79	DX	10	Any	0.075
DP02	C107	RX	CLASS	Any	0.074
DP02	V2020	PX	HCPCS	Any	0.074
DP02	85379	PX	CPT	Any	0.074
DP02	Z17	DX	10	Often	0.074
DP02	78815	PX	CPT	Any	0.072
DP02	I10	DX	10	Frequent	0.072
DP02	Z79	DX	10	Any	0.072
DP02	C58	RX	CLASS	Any	0.070
DP02	D03_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.069
DP02	84439	PX	CPT	Frequent	0.069
DP02	82040	PX	CPT	Any	0.069
DP02	I21	DX	10	Any	0.068
DP02	76937	PX	CPT	Any	0.067

Appendix V. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP02	Z83	DX	10	Any	0.066
DP02	I10	DX	10	Any	0.066
DP02	Z80	DX	10	Frequent	0.066
DP02	C1153	RX	CLASS	Often	0.065
DP02	C422	RX	CLASS	Any	0.065
DP02	C984	RX	CLASS	Frequent	0.065
DP02	73502	PX	CPT	Often	0.064
DP02	I10	DX	10	Often	0.063
DP02	99214	PX	CPT	Often	0.063
DP02	82746	PX	CPT	Any	0.063
DP02	Z01	DX	10	Frequent	0.063
DP02	C1153	RX	CLASS	Any	0.063
DP02	R68	DX	10	Any	0.063
DP02	C422	RX	CLASS	Often	0.062
DP02	K44	DX	10	Any	0.061
DP02	I12	DX	10	Any	0.060
DP02	76770	PX	CPT	Any	0.060
DP02	H43	DX	10	Any	0.059
DP02	83605	PX	CPT	Any	0.059
DP02	G0279	PX	HCPCS	Frequent	0.058
DP03	99308	PX	CPT	Often	0.050
DP03	D64	DX	10	Often	0.050
DP03	K92	DX	10	Any	0.048
DP03	99308	PX	CPT	Any	0.047
DP03	D64	DX	10	Any	0.044
DP03	K92	DX	10	Frequent	0.043
DP03	99309	PX	CPT	Any	0.043
DP03	D64	DX	10	Frequent	0.040
DP03	N18	DX	10	Any	0.038
DP03	99309	PX	CPT	Often	0.035
DP03	99232	PX	CPT	Any	0.035
DP03	99239	PX	CPT	Any	0.033
DP03	A0428	PX	HCPCS	Any	0.033
DP03	99309	PX	CPT	Frequent	0.033
DP03	K92	DX	10	Often	0.032
DP03	N18	DX	10	Often	0.031

Appendix V. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP03	D50	DX	10	Often	0.031
DP03	99232	PX	CPT	Often	0.030
DP03	99223	PX	CPT	Frequent	0.029
DP03	K21	DX	10	Any	0.029
DP03	99285	PX	CPT	Any	0.028
DP03	99308	PX	CPT	Frequent	0.028
DP03	30233N1	PX	10	Any	0.027
DP03	D50	DX	10	Any	0.027
DP03	99233	PX	CPT	Any	0.027
DP03	99222	PX	CPT	Any	0.027
DP03	I12	DX	10	Any	0.027
DP03	99223	PX	CPT	Any	0.026
DP03	P9016	PX	HCPCS	Any	0.024
DP03	Z99	DX	10	Any	0.023
DP03	M62	DX	10	Any	0.023
DP03	N18	DX	10	Frequent	0.023
DP03	D62	DX	10	Any	0.022
DP03	D62	DX	10	Often	0.022
DP03	K21	DX	10	Often	0.022
DP03	99306	PX	CPT	Any	0.022
DP03	G93	DX	10	Any	0.022
DP03	R13	DX	10	Any	0.021
DP03	C58	RX	CLASS	Often	0.020
DP03	R41	DX	10	Any	0.020
DP03	Z79	DX	10	Any	0.020
DP03	N17	DX	10	Any	0.020
DP03	J2405	PX	HCPCS	Any	0.019
DP03	Q0092	PX	HCPCS	Any	0.019
DP03	99152	PX	CPT	Any	0.019
DP03	5A1D70Z	PX	10	Any	0.019
DP03	D62	DX	10	Frequent	0.019
DP03	Z79	DX	10	Often	0.019
DP03	D06_INT_UNIQ_Q4	PX	HCPCS	Q4ServiceInt	0.018
DP03	A0427	PX	HCPCS	Any	0.018
DP03	43235	PX	CPT	Any	0.018
DP03	M62	DX	10	Often	0.017

Appendix V. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP03	J2920	PX	HCPCS	Frequent	0.017
DP03	A41	DX	10	Often	0.017
DP03	C58	RX	CLASS	Any	0.017
DP03	R26	DX	10	Any	0.016
DP03	I63	DX	10	Often	0.016
DP03	G93	DX	10	Often	0.016
DP03	E87	DX	10	Often	0.016
DP03	731	PX	CPT	Any	0.016
DP03	74176	PX	CPT	Any	0.016
DP03	J96	DX	10	Frequent	0.016
DP03	K21	DX	10	Frequent	0.016
DP03	I48	DX	10	Frequent	0.015
DP03	85610	PX	CPT	Any	0.015
DP03	D72	DX	10	Often	0.015
DP03	C386	RX	CLASS	Frequent	0.015
DP03	Z51	DX	10	Any	0.015
DP03	G0010	PX	HCPCS	Frequent	0.015
DP03	D50	DX	10	Frequent	0.015
DP03	I50	DX	10	Frequent	0.015
DP03	N17	DX	10	Often	0.015
DP03	74177	PX	CPT	Any	0.015
DP03	D06_INT_ALL_Q4	PX	HCPCS	Q4ServiceInt	0.014
DP03	G93	DX	10	Frequent	0.014
DP03	K29	DX	10	Often	0.014
DP03	R11	DX	10	Any	0.014
DP03	84100	PX	CPT	Any	0.014
DP03	71045	PX	CPT	Any	0.013
DP03	C58	RX	CLASS	Frequent	0.013
DP03	3E033XZ	PX	10	Any	0.013
DP03	Q9967	PX	HCPCS	Any	0.013
DP03	R19	DX	10	Any	0.013
DP03	Z79	DX	10	Frequent	0.013
DP03	G0378	PX	HCPCS	Any	0.013
DP03	87040	PX	CPT	Any	0.013
DP03	I10	DX	10	Any	0.013
DP03	C386	RX	CLASS	Any	0.013

Appendix V. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP03	I63	DX	10	Any	0.013
DP03	I95	DX	10	Often	0.013
DP03	85025	PX	CPT	Frequent	0.013
DP03	I95	DX	10	Any	0.013
DP03	84156	PX	CPT	Any	0.013
DP03	0DB68ZX	PX	10	Any	0.012
DP03	M62	DX	10	Frequent	0.012
DP03	99217	PX	CPT	Any	0.012
DP03	C9113	PX	HCPCS	Any	0.012
DP03	R26	DX	10	Often	0.012
DP03	D03_INT_UNIQ_Q4	RX	CLASS	Q4ServiceInt	0.012
DP03	I44	DX	10	Any	0.012
DP04	D64	DX	10	Often	0.043
DP04	99233	PX	CPT	Any	0.040
DP04	99223	PX	CPT	Any	0.038
DP04	731	PX	CPT	Any	0.037
DP04	D62	DX	10	Any	0.035
DP04	N18	DX	10	Any	0.035
DP04	99222	PX	CPT	Any	0.033
DP04	N18	DX	10	Often	0.031
DP04	K21	DX	10	Any	0.031
DP04	K92	DX	10	Often	0.029
DP04	30233N1	PX	10	Any	0.028
DP04	R10	DX	10	Any	0.028
DP04	D64	DX	10	Any	0.028
DP04	K92	DX	10	Any	0.028
DP04	D64	DX	10	Frequent	0.027
DP04	N17	DX	10	Often	0.026
DP04	R13	DX	10	Any	0.025
DP04	D50	DX	10	Any	0.024
DP04	99232	PX	CPT	Any	0.024
DP04	99239	PX	CPT	Any	0.023
DP04	D06_INT_ALL_Q1	PX	10	Q1ServiceInt	0.022
DP04	43239	PX	CPT	Any	0.022
DP04	D06_INT_UNIQ_Q1	PX	10	Q1ServiceInt	0.022
DP04	I12	DX	10	Any	0.022

Appendix V. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP04	R11	DX	10	Any	0.022
DP04	99285	PX	CPT	Any	0.021
DP04	K25	DX	10	Any	0.020
DP04	N17	DX	10	Frequent	0.020
DP04	D50	DX	10	Often	0.020
DP04	88305	PX	CPT	Any	0.020
DP04	I25	DX	10	Frequent	0.020
DP04	R06	DX	10	Any	0.019
DP04	R13	DX	10	Often	0.019
DP04	N18	DX	10	Frequent	0.019
DP04	71045	PX	CPT	Frequent	0.017
DP04	K74	DX	10	Any	0.017
DP04	96375	PX	CPT	Frequent	0.017
DP04	K21	DX	10	Frequent	0.017
DP04	0DJ08ZZ	PX	10	Any	0.017
DP04	J96	DX	10	Frequent	0.016
DP04	C1097	RX	CLASS	Any	0.016
DP04	83970	PX	CPT	Any	0.016
DP04	0DJD8ZZ	PX	10	Any	0.016
DP04	R06	DX	10	Often	0.016
DP04	74176	PX	CPT	Any	0.016
DP04	71045	PX	CPT	Any	0.016
DP04	99220	PX	CPT	Any	0.016
DP04	J44	DX	10	Often	0.016
DP04	I25	DX	10	Often	0.015
DP04	R10	DX	10	Frequent	0.015
DP04	J18	DX	10	Any	0.015
DP04	J44	DX	10	Any	0.015
DP04	Z79	DX	10	Frequent	0.015
DP04	R19	DX	10	Any	0.015
DP04	99232	PX	CPT	Frequent	0.015
DP04	G40	DX	10	Often	0.015
DP04	N17	DX	10	Any	0.015
DP04	K25	DX	10	Frequent	0.015
DP04	99285	PX	CPT	Frequent	0.015
DP04	R10	DX	10	Often	0.015

Appendix V. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP04	84156	PX	CPT	Any	0.014
DP04	45385	PX	CPT	Any	0.014
DP04	88342	PX	CPT	Any	0.014
DP04	0DB68ZX	PX	10	Any	0.014
DP04	D03_INT_UNIQ_Q4	RX	CLASS	Q4ServiceInt	0.014
DP04	R09	DX	10	Any	0.014
DP04	99223	PX	CPT	Frequent	0.014
DP04	Q9967	PX	HCPCS	Any	0.014
DP04	C58	RX	CLASS	Frequent	0.014
DP04	D04_INT_ALL_Q4	PX	CPT	Q4ServiceInt	0.014
DP04	K57	DX	10	Any	0.014
DP04	99233	PX	CPT	Frequent	0.014
DP04	I69	DX	10	Any	0.013
DP04	C877	RX	CLASS	Frequent	0.013
DP04	85018	PX	CPT	Any	0.013
DP04	D03_INT_ALL_Q4	RX	CLASS	Q4ServiceInt	0.013
DP04	83690	PX	CPT	Any	0.013
DP04	D50	DX	10	Frequent	0.013
DP04	93010	PX	CPT	Any	0.013
DP04	D12	DX	10	Often	0.013
DP04	G93	DX	10	Often	0.013
DP04	I69	DX	10	Often	0.013
DP04	R63	DX	10	Any	0.012
DP04	R09	DX	10	Frequent	0.012
DP04	S09	DX	10	Any	0.012
DP04	K22	DX	10	Any	0.012
DP04	A41	DX	10	Any	0.012
DP04	B96	DX	10	Any	0.012
DP04	G62	DX	10	Any	0.012
DP04	96376	PX	CPT	Any	0.012
DP04	99309	PX	CPT	Any	0.012
DP04	I25	DX	10	Any	0.012
DP04	96375	PX	CPT	Any	0.012
DP04	C713	RX	CLASS	Any	0.012
DP04	I63	DX	10	Often	0.012
DP04	C58	RX	CLASS	Often	0.012

Appendix V. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP04	74177	PX	CPT	Any	0.012
DP04	85025	PX	CPT	Frequent	0.012
DP04	K74	DX	10	Often	0.012
DP04	D12	DX	10	Any	0.012
DP05	I34	DX	10	Frequent	0.550
DP05	G93	DX	10	Often	0.521
DP05	K74	DX	10	Often	0.498
DP05	C825	RX	CLASS	Any	0.494
DP05	G93	DX	10	Frequent	0.494
DP05	73560	PX	CPT	Any	0.483
DP05	H01	DX	10	Any	0.471
DP05	D63	DX	10	Often	0.471
DP05	88112	PX	CPT	Frequent	0.452
DP05	R52	DX	10	Frequent	0.450
DP05	H01	DX	10	Often	0.437
DP05	C822	RX	CLASS	Any	0.404
DP05	731	PX	CPT	Any	0.399
DP05	R74	DX	10	Frequent	0.389
DP05	K74	DX	10	Any	0.382
DP05	C42	RX	CLASS	Any	0.381
DP05	93308	PX	CPT	Any	0.364
DP05	E46	DX	10	Frequent	0.362
DP05	R18	DX	10	Any	0.345
DP05	B96	DX	10	Frequent	0.340
DP05	K31	DX	10	Any	0.336
DP05	A41	DX	10	Any	0.326
DP05	72148	PX	CPT	Any	0.319
DP05	85060	PX	CPT	Any	0.318
DP05	K76	DX	10	Frequent	0.317
DP05	I50	DX	10	Frequent	0.316
DP05	D69	DX	10	Frequent	0.315
DP05	G93	DX	10	Any	0.312
DP05	81001	PX	CPT	Frequent	0.310
DP05	74018	PX	CPT	Any	0.305
DP05	D63	DX	10	Any	0.305
DP05	R13	DX	10	Frequent	0.295

Appendix V. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP05	I42	DX	10	Frequent	0.294
DP05	88112	PX	CPT	Any	0.292
DP05	E0601	PX	HCPCS	Any	0.287
DP05	G31	DX	10	Any	0.286
DP05	I13	DX	10	Often	0.285
DP05	R13	DX	10	Any	0.284
DP05	E0570	PX	HCPCS	Often	0.282
DP05	73502	PX	CPT	Frequent	0.281
DP05	86140	PX	CPT	Any	0.280
DP05	97116	PX	CPT	Any	0.279
DP05	I42	DX	10	Any	0.274
DP05	E0156	PX	HCPCS	Any	0.269
DP05	M51	DX	10	Often	0.268
DP05	C1186	RX	CLASS	Any	0.267
DP05	E43	DX	10	Any	0.266
DP05	M43	DX	10	Any	0.255
DP05	74230	PX	CPT	Any	0.252
DP05	I27	DX	10	Often	0.239
DP05	G31	DX	10	Frequent	0.239
DP05	D04_INT_ALL_Q2	PX	10	Q2ServiceInt	0.237
DP05	D04_INT_UNIQ_Q2	PX	10	Q2ServiceInt	0.237
DP05	76700	PX	CPT	Any	0.235
DP05	74176	PX	CPT	Any	0.233
DP05	E0260	PX	HCPCS	Any	0.225
DP05	I89	DX	10	Frequent	0.224
DP05	T4535	PX	HCPCS	Any	0.224
DP05	93971	PX	CPT	Frequent	0.223
DP05	E0601	PX	HCPCS	Often	0.223
DP05	82105	PX	CPT	Any	0.221
DP05	85652	PX	CPT	Any	0.219
DP05	96372	PX	CPT	Any	0.214
DP05	I82	DX	10	Any	0.211
DP05	99605	PX	CPT	Any	0.208
DP05	J1885	PX	HCPCS	Any	0.207
DP05	78452	PX	CPT	Any	0.205
DP05	I69	DX	10	Often	0.205

Appendix V. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: 65-74 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP05	A0426	PX	HCPCS	Any	0.203
DP05	A7005	PX	HCPCS	Any	0.203
DP05	82962	PX	CPT	Any	0.201
DP05	G89	DX	10	Frequent	0.200
DP05	99607	PX	CPT	Any	0.200
DP05	C1142	RX	CLASS	Frequent	0.197
DP05	87086	PX	CPT	Any	0.194
DP05	M54	DX	10	Frequent	0.194
DP05	97535	PX	CPT	Any	0.193
DP05	E44	DX	10	Any	0.190
DP05	M51	DX	10	Any	0.183
DP05	Z72	DX	10	Any	0.182
DP05	97161	PX	CPT	Any	0.180
DP05	J45	DX	10	Frequent	0.179
DP05	M48	DX	10	Any	0.179
DP05	E66	DX	10	Frequent	0.177
DP05	K21	DX	10	Frequent	0.176
DP05	C693	RX	CLASS	Often	0.175
DP05	C98	RX	CLASS	Any	0.175
DP05	99284	PX	CPT	Frequent	0.174
DP05	I34	DX	10	Any	0.170
DP05	R93	DX	10	Any	0.170
DP05	G0480	PX	HCPCS	Any	0.169
DP05	I13	DX	10	Frequent	0.169
DP05	C713	RX	CLASS	Any	0.167
DP05	A7030	PX	HCPCS	Any	0.155
DP05	I12	DX	10	Any	0.155
DP05	J1815	PX	HCPCS	Any	0.155
DP05	Q9967	PX	HCPCS	Any	0.154
DP05	G0180	PX	HCPCS	Any	0.153
DP05	74177	PX	CPT	Any	0.153
DP05	N18	DX	10	Often	0.151

Appendix W. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP01	K92	DX	10	Any	0.061
DP01	K92	DX	10	Often	0.044
DP01	99223	PX	CPT	Any	0.039
DP01	99222	PX	CPT	Any	0.038
DP01	D50	DX	10	Any	0.038
DP01	D62	DX	10	Any	0.036
DP01	99232	PX	CPT	Any	0.035
DP01	99285	PX	CPT	Any	0.032
DP01	N17	DX	10	Any	0.030
DP01	Z79	DX	10	Often	0.030
DP01	731	PX	CPT	Any	0.030
DP01	D64	DX	10	Any	0.029
DP01	99233	PX	CPT	Any	0.029
DP01	D64	DX	10	Often	0.029
DP01	D02_INT_UNIQ_Q4	DX	10	Q4ServiceInt	0.028
DP01	71045	PX	CPT	Any	0.028
DP01	K92	DX	10	Frequent	0.028
DP01	99223	PX	CPT	Often	0.027
DP01	99285	PX	CPT	Often	0.027
DP01	D02_INT_ALL_Q4	DX	10	Q4ServiceInt	0.027
DP01	0DB68ZX	PX	10	Any	0.027
DP01	D50	DX	10	Often	0.026
DP01	R06	DX	10	Often	0.026
DP01	N18	DX	10	Any	0.026
DP01	Z79	DX	10	Frequent	0.025
DP01	R06	DX	10	Any	0.025
DP01	D64	DX	10	Frequent	0.024
DP01	99233	PX	CPT	Often	0.024
DP01	N18	DX	10	Often	0.023
DP01	71045	PX	CPT	Often	0.023
DP01	K21	DX	10	Any	0.022
DP01	D62	DX	10	Often	0.022
DP01	93010	PX	CPT	Any	0.022
DP01	Z87	DX	10	Often	0.021
DP01	I25	DX	10	Often	0.021
DP01	K25	DX	10	Any	0.021

Appendix W. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP01	99232	PX	CPT	Often	0.021
DP01	N17	DX	10	Often	0.020
DP01	99291	PX	CPT	Any	0.020
DP01	99231	PX	CPT	Any	0.020
DP01	I25	DX	10	Any	0.020
DP01	R06	DX	10	Frequent	0.020
DP01	93010	PX	CPT	Frequent	0.020
DP01	99222	PX	CPT	Frequent	0.020
DP01	I48	DX	10	Often	0.019
DP01	K21	DX	10	Frequent	0.019
DP01	0W3P8ZZ	PX	10	Any	0.019
DP01	K21	DX	10	Often	0.019
DP01	Z87	DX	10	Any	0.019
DP01	71045	PX	CPT	Frequent	0.018
DP01	Z79	DX	10	Any	0.018
DP01	30233N1	PX	10	Any	0.018
DP01	Z95	DX	10	Any	0.018
DP01	K29	DX	10	Frequent	0.018
DP01	J96	DX	10	Any	0.018
DP01	A0425	PX	HCPCS	Any	0.017
DP01	85025	PX	CPT	Frequent	0.017
DP01	I12	DX	10	Any	0.017
DP01	J90	DX	10	Any	0.017
DP01	R26	DX	10	Any	0.017
DP01	I50	DX	10	Often	0.017
DP01	K62	DX	10	Any	0.017
DP01	J44	DX	10	Frequent	0.017
DP01	J44	DX	10	Any	0.016
DP01	93306	PX	CPT	Any	0.016
DP01	J44	DX	10	Often	0.016
DP01	A0427	PX	HCPCS	Any	0.016
DP01	99223	PX	CPT	Frequent	0.016
DP01	83880	PX	CPT	Any	0.016
DP01	J98	DX	10	Any	0.015
DP01	I48	DX	10	Frequent	0.015
DP01	Z95	DX	10	Often	0.015

Appendix W. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP01	D06_INT_UNIQ_Q4	PX	HCPCS	Q4ServiceInt	0.015
DP01	D05_INT_UNIQ_Q2	PX	10	Q2ServiceInt	0.015
DP01	I95	DX	10	Any	0.015
DP01	D05_INT_ALL_Q2	PX	10	Q2ServiceInt	0.015
DP01	G0378	PX	HCPCS	Any	0.015
DP01	0DJ08ZZ	PX	10	Any	0.015
DP01	83970	PX	CPT	Any	0.015
DP01	I48	DX	10	Any	0.014
DP01	E87	DX	10	Any	0.014
DP01	C58	RX	CLASS	Often	0.014
DP01	74177	PX	CPT	Any	0.014
DP01	K44	DX	10	Any	0.014
DP01	Z87	DX	10	Frequent	0.014
DP01	R10	DX	10	Any	0.014
DP01	R91	DX	10	Any	0.013
DP01	99309	PX	CPT	Any	0.013
DP01	93005	PX	CPT	Any	0.013
DP01	99239	PX	CPT	Any	0.013
DP01	J18	DX	10	Any	0.013
DP01	E86	DX	10	Any	0.013
DP01	Z20	DX	10	Any	0.013
DP01	D04_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.013
DP01	0DB98ZX	PX	10	Any	0.013
DP01	D62	DX	10	Frequent	0.013
DP01	I12	DX	10	Often	0.013
DP01	43239	PX	CPT	Often	0.013
DP01	74176	PX	CPT	Any	0.013
DP01	K20	DX	10	Any	0.013
DP02	G0452	PX	HCPCS	Any	0.550
DP02	71260	PX	CPT	Any	0.385
DP02	K22	DX	10	Any	0.355
DP02	J9271	PX	HCPCS	Often	0.279
DP02	K76	DX	10	Any	0.233
DP02	K22	DX	10	Frequent	0.232
DP02	G56	DX	10	Frequent	0.224
DP02	731	PX	CPT	Any	0.219

Appendix W. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP02	C172	RX	CLASS	Frequent	0.203
DP02	43239	PX	CPT	Frequent	0.190
DP02	K83	DX	10	Any	0.190
DP02	G0400	PX	HCPCS	Any	0.188
DP02	U0002	PX	HCPCS	Any	0.188
DP02	J84	DX	10	Frequent	0.185
DP02	K31	DX	10	Any	0.182
DP02	K22	DX	10	Often	0.180
DP02	43239	PX	CPT	Any	0.175
DP02	K29	DX	10	Any	0.174
DP02	85025	PX	CPT	Frequent	0.166
DP02	G31	DX	10	Frequent	0.161
DP02	99291	PX	CPT	Any	0.158
DP02	88307	PX	CPT	Any	0.155
DP02	94729	PX	CPT	Any	0.152
DP02	D05_INT_UNIQ_Q4	PX	HCPCS	Q4ServiceInt	0.151
DP02	K31	DX	10	Often	0.148
DP02	G47	DX	10	Frequent	0.144
DP02	R20	DX	10	Frequent	0.143
DP02	J2930	PX	HCPCS	Any	0.143
DP02	K86	DX	10	Frequent	0.141
DP02	K86	DX	10	Any	0.141
DP02	R59	DX	10	Any	0.141
DP02	K31	DX	10	Frequent	0.140
DP02	99306	PX	CPT	Any	0.139
DP02	96160	PX	CPT	Any	0.138
DP02	83921	PX	CPT	Any	0.137
DP02	D01_INT_ALL_Q4	DX	10	Q4ServiceInt	0.135
DP02	D64	DX	10	Any	0.132
DP02	99284	PX	CPT	Any	0.131
DP02	C1894	PX	HCPCS	Any	0.131
DP02	H93	DX	10	Any	0.128
DP02	71250	PX	CPT	Any	0.127
DP02	Z66	DX	10	Any	0.127
DP02	74177	PX	CPT	Any	0.126
DP02	71260	PX	CPT	Often	0.125

Appendix W. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP02	82570	PX	CPT	Any	0.122
DP02	K86	DX	10	Often	0.121
DP02	82043	PX	CPT	Any	0.120
DP02	80051	PX	CPT	Any	0.120
DP02	Z48	DX	10	Frequent	0.119
DP02	99233	PX	CPT	Any	0.118
DP02	82247	PX	CPT	Frequent	0.118
DP02	84439	PX	CPT	Any	0.117
DP02	J84	DX	10	Often	0.116
DP02	99222	PX	CPT	Any	0.115
DP02	96413	PX	CPT	Any	0.114
DP02	E66	DX	10	Frequent	0.113
DP02	J1200	PX	HCPCS	Any	0.113
DP02	J3010	PX	HCPCS	Any	0.112
DP02	J0696	PX	HCPCS	Any	0.112
DP02	K83	DX	10	Frequent	0.111
DP02	87205	PX	CPT	Any	0.110
DP02	C8929	PX	HCPCS	Any	0.109
DP02	I67	DX	10	Any	0.109
DP02	92557	PX	CPT	Any	0.109
DP02	85027	PX	CPT	Any	0.107
DP02	G89	DX	10	Frequent	0.105
DP02	99232	PX	CPT	Any	0.105
DP02	D05_INT_ALL_Q4	PX	HCPCS	Q4ServiceInt	0.105
DP02	A41	DX	10	Any	0.104
DP02	82803	PX	CPT	Any	0.104
DP02	D04_INT_ALL_Q2	PX	10	Q2ServiceInt	0.104
DP02	D04_INT_UNIQ_Q2	PX	10	Q2ServiceInt	0.104
DP02	76705	PX	CPT	Often	0.103
DP02	96372	PX	CPT	Frequent	0.103
DP02	C1097	RX	CLASS	Often	0.102
DP02	J2001	PX	HCPCS	Any	0.102
DP02	G47	DX	10	Often	0.102
DP02	R09	DX	10	Frequent	0.101
DP02	99239	PX	CPT	Any	0.100
DP02	D03_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.100

Appendix W. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP02	R74	DX	10	Frequent	0.100
DP02	I12	DX	10	Frequent	0.099
DP02	C806	RX	CLASS	Any	0.098
DP02	E86	DX	10	Frequent	0.098
DP02	C679	RX	CLASS	Any	0.098
DP02	K83	DX	10	Often	0.098
DP02	J0690	PX	HCPCS	Any	0.098
DP02	R59	DX	10	Often	0.098
DP02	76536	PX	CPT	Often	0.098
DP02	G56	DX	10	Any	0.096
DP02	U0005	PX	HCPCS	Any	0.096
DP02	82947	PX	CPT	Any	0.094
DP02	94010	PX	CPT	Any	0.094
DP02	88305	PX	CPT	Any	0.094
DP02	C749	RX	CLASS	Any	0.094
DP02	C172	RX	CLASS	Often	0.094
DP02	H53	DX	10	Frequent	0.094
DP02	80053	PX	CPT	Frequent	0.093
DP02	R91	DX	10	Any	0.091
DP02	88342	PX	CPT	Frequent	0.090
DP03	K92	DX	10	Often	0.075
DP03	K92	DX	10	Any	0.071
DP03	D62	DX	10	Any	0.064
DP03	99233	PX	CPT	Any	0.064
DP03	99223	PX	CPT	Any	0.061
DP03	99232	PX	CPT	Any	0.055
DP03	99232	PX	CPT	Often	0.051
DP03	99233	PX	CPT	Often	0.051
DP03	99222	PX	CPT	Any	0.050
DP03	D62	DX	10	Often	0.046
DP03	D64	DX	10	Often	0.044
DP03	99239	PX	CPT	Any	0.043
DP03	K92	DX	10	Frequent	0.040
DP03	K25	DX	10	Often	0.039
DP03	D64	DX	10	Any	0.039
DP03	D02_INT_ALL_Q4	DX	10	Q4ServiceInt	0.038

Appendix W. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP03	99231	PX	CPT	Any	0.038
DP03	93010	PX	CPT	Frequent	0.037
DP03	0DB68ZX	PX	10	Any	0.037
DP03	D04_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.037
DP03	99232	PX	CPT	Frequent	0.035
DP03	731	PX	CPT	Any	0.035
DP03	K25	DX	10	Any	0.035
DP03	99223	PX	CPT	Often	0.034
DP03	K21	DX	10	Any	0.033
DP03	D02_INT_UNIQ_Q4	DX	10	Q4ServiceInt	0.033
DP03	J44	DX	10	Frequent	0.032
DP03	J44	DX	10	Often	0.032
DP03	74176	PX	CPT	Any	0.031
DP03	71045	PX	CPT	Any	0.030
DP03	99222	PX	CPT	Frequent	0.029
DP03	D50	DX	10	Often	0.028
DP03	J44	DX	10	Any	0.028
DP03	99233	PX	CPT	Frequent	0.027
DP03	71250	PX	CPT	Any	0.027
DP03	D04_INT_ALL_Q4	PX	CPT	Q4ServiceInt	0.027
DP03	71045	PX	CPT	Frequent	0.027
DP03	N17	DX	10	Any	0.026
DP03	99223	PX	CPT	Frequent	0.026
DP03	43235	PX	CPT	Any	0.026
DP03	J90	DX	10	Any	0.026
DP03	D64	DX	10	Frequent	0.026
DP03	A0425	PX	HCPCS	Any	0.026
DP03	99238	PX	CPT	Any	0.025
DP03	D05_INT_ALL_Q3	PX	10	Q3ServiceInt	0.025
DP03	A0425	PX	HCPCS	Frequent	0.025
DP03	D05_INT_ALL_Q4	PX	10	Q4ServiceInt	0.024
DP03	D05_INT_UNIQ_Q3	PX	10	Q3ServiceInt	0.024
DP03	D06_INT_UNIQ_Q4	PX	HCPCS	Q4ServiceInt	0.024
DP03	99285	PX	CPT	Any	0.023
DP03	D05_INT_UNIQ_Q4	PX	10	Q4ServiceInt	0.023
DP03	30233N1	PX	10	Any	0.023

Appendix W. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP03	99291	PX	CPT	Any	0.023
DP03	J43	DX	10	Any	0.023
DP03	93010	PX	CPT	Any	0.022
DP03	K80	DX	10	Any	0.022
DP03	P9016	PX	HCPCS	Any	0.021
DP03	J96	DX	10	Any	0.021
DP03	D04_INT_UNIQ_Q1	PX	CPT	Q1ServiceInt	0.021
DP03	E44	DX	10	Any	0.020
DP03	D50	DX	10	Any	0.020
DP03	D06_INT_ALL_Q4	PX	HCPCS	Q4ServiceInt	0.020
DP03	99285	PX	CPT	Frequent	0.020
DP03	R91	DX	10	Any	0.020
DP03	R13	DX	10	Any	0.020
DP03	K21	DX	10	Often	0.019
DP03	A0428	PX	HCPCS	Any	0.019
DP03	K25	DX	10	Frequent	0.019
DP03	71045	PX	CPT	Often	0.018
DP03	I10	DX	10	Often	0.018
DP03	43239	PX	CPT	Often	0.018
DP03	71275	PX	CPT	Any	0.018
DP03	I50	DX	10	Any	0.018
DP03	I10	DX	10	Any	0.018
DP03	E87	DX	10	Any	0.018
DP03	R53	DX	10	Often	0.017
DP03	E1390	PX	HCPCS	Any	0.017
DP03	K63	DX	10	Any	0.017
DP03	74177	PX	CPT	Any	0.017
DP03	99308	PX	CPT	Any	0.017
DP03	D62	DX	10	Frequent	0.017
DP03	A0426	PX	HCPCS	Any	0.017
DP03	99306	PX	CPT	Any	0.017
DP03	K29	DX	10	Any	0.016
DP03	E11	DX	10	Any	0.016
DP03	74018	PX	CPT	Any	0.016
DP03	D50	DX	10	Frequent	0.016
DP03	I13	DX	10	Any	0.016

Appendix W. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP03	N40	DX	10	Often	0.016
DP03	E87	DX	10	Often	0.016
DP03	0DJD8ZZ	PX	10	Any	0.016
DP03	K20	DX	10	Any	0.015
DP03	J43	DX	10	Often	0.015
DP03	99221	PX	CPT	Any	0.015
DP03	D02_INT_UNIQ_Q1	DX	10	Q1ServiceInt	0.015
DP03	0DB98ZX	PX	10	Any	0.015
DP03	E11	DX	10	Often	0.015
DP03	99309	PX	CPT	Any	0.014
DP03	Q5001	PX	HCPCS	Frequent	0.014
DP03	76705	PX	CPT	Any	0.014
DP04	99232	PX	CPT	Any	0.064
DP04	99222	PX	CPT	Any	0.061
DP04	K92	DX	10	Any	0.059
DP04	731	PX	CPT	Any	0.057
DP04	99233	PX	CPT	Any	0.055
DP04	K92	DX	10	Often	0.053
DP04	99223	PX	CPT	Any	0.053
DP04	0DB68ZX	PX	10	Any	0.048
DP04	99232	PX	CPT	Frequent	0.044
DP04	K31	DX	10	Any	0.044
DP04	93010	PX	CPT	Any	0.042
DP04	71045	PX	CPT	Any	0.042
DP04	0DJ08ZZ	PX	10	Any	0.040
DP04	D50	DX	10	Any	0.039
DP04	K80	DX	10	Any	0.039
DP04	N17	DX	10	Any	0.037
DP04	K22	DX	10	Frequent	0.037
DP04	D02_INT_UNIQ_Q4	DX	10	Q4ServiceInt	0.037
DP04	99239	PX	CPT	Any	0.036
DP04	D62	DX	10	Any	0.036
DP04	93010	PX	CPT	Frequent	0.035
DP04	A0425	PX	HCPCS	Any	0.035
DP04	K22	DX	10	Any	0.035
DP04	99285	PX	CPT	Any	0.034

Appendix W. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP04	D64	DX	10	Often	0.033
DP04	88342	PX	CPT	Any	0.033
DP04	D50	DX	10	Often	0.033
DP04	J44	DX	10	Often	0.031
DP04	K29	DX	10	Any	0.031
DP04	D02_INT_ALL_Q4	DX	10	Q4ServiceInt	0.030
DP04	K57	DX	10	Any	0.030
DP04	D64	DX	10	Any	0.030
DP04	D07_INT_ALL_Q4	PX	HCPCS	Q4ServiceInt	0.030
DP04	J98	DX	10	Any	0.029
DP04	74176	PX	CPT	Any	0.029
DP04	R91	DX	10	Any	0.029
DP04	I50	DX	10	Any	0.028
DP04	I50	DX	10	Often	0.028
DP04	99233	PX	CPT	Frequent	0.027
DP04	D06_INT_ALL_Q2	PX	10	Q2ServiceInt	0.027
DP04	85025	PX	CPT	Frequent	0.027
DP04	I25	DX	10	Frequent	0.027
DP04	71045	PX	CPT	Frequent	0.027
DP04	K92	DX	10	Frequent	0.026
DP04	J90	DX	10	Any	0.026
DP04	99231	PX	CPT	Any	0.026
DP04	R11	DX	10	Any	0.026
DP04	I48	DX	10	Any	0.026
DP04	D06_INT_UNIQ_Q2	PX	10	Q2ServiceInt	0.025
DP04	96365	PX	CPT	Any	0.025
DP04	A0427	PX	HCPCS	Any	0.025
DP04	K21	DX	10	Any	0.025
DP04	I50	DX	10	Frequent	0.025
DP04	K25	DX	10	Any	0.025
DP04	N17	DX	10	Often	0.025
DP04	J44	DX	10	Any	0.025
DP04	43239	PX	CPT	Any	0.024
DP04	D04_INT_UNIQ_Q4	PX	CPT	Q4ServiceInt	0.024
DP04	D64	DX	10	Frequent	0.024
DP04	K44	DX	10	Any	0.024

Appendix W. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP04	P9016	PX	HCPCS	Frequent	0.024
DP04	D50	DX	10	Frequent	0.024
DP04	74177	PX	CPT	Any	0.023
DP04	99285	PX	CPT	Frequent	0.023
DP04	E86	DX	10	Any	0.023
DP04	99291	PX	CPT	Any	0.023
DP04	Z79	DX	10	Often	0.023
DP04	J18	DX	10	Any	0.023
DP04	E87	DX	10	Any	0.022
DP04	D07_INT_UNIQ_Q4	PX	HCPCS	Q4ServiceInt	0.022
DP04	I48	DX	10	Often	0.022
DP04	99221	PX	CPT	Any	0.021
DP04	K29	DX	10	Often	0.021
DP04	99223	PX	CPT	Frequent	0.021
DP04	88305	PX	CPT	Any	0.020
DP04	P9016	PX	HCPCS	Any	0.020
DP04	J90	DX	10	Frequent	0.020
DP04	82728	PX	CPT	Any	0.019
DP04	I95	DX	10	Any	0.019
DP04	I25	DX	10	Often	0.019
DP04	Z79	DX	10	Frequent	0.019
DP04	A0425	PX	HCPCS	Frequent	0.019
DP04	E1390	PX	HCPCS	Any	0.019
DP04	G0378	PX	HCPCS	Any	0.018
DP04	0W3P8ZZ	PX	10	Any	0.018
DP04	J44	DX	10	Frequent	0.018
DP04	85610	PX	CPT	Any	0.017
DP04	R10	DX	10	Any	0.017
DP04	82728	PX	CPT	Frequent	0.017
DP04	Z95	DX	10	Any	0.017
DP04	I48	DX	10	Frequent	0.017
DP04	Z74	DX	10	Any	0.017
DP04	N17	DX	10	Frequent	0.017
DP04	K57	DX	10	Frequent	0.017
DP04	J18	DX	10	Often	0.017
DP04	Z79	DX	10	Any	0.017

Appendix W. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP04	80053	PX	CPT	Frequent	0.017
DP04	86901	PX	CPT	Any	0.017
DP04	86850	PX	CPT	Any	0.016
DP04	I25	DX	10	Any	0.016
DP05	I50	DX	10	Any	0.347
DP05	Z95	DX	10	Often	0.322
DP05	99308	PX	CPT	Any	0.311
DP05	90785	PX	CPT	Frequent	0.311
DP05	H0046	PX	HCPCS	Any	0.292
DP05	L03	DX	10	Often	0.268
DP05	99222	PX	CPT	Any	0.266
DP05	L03	DX	10	Any	0.258
DP05	93296	PX	CPT	Any	0.253
DP05	I47	DX	10	Frequent	0.244
DP05	R0070	PX	HCPCS	Any	0.236
DP05	S72	DX	10	Frequent	0.225
DP05	I26	DX	10	Often	0.222
DP05	I47	DX	10	Any	0.222
DP05	R13	DX	10	Frequent	0.221
DP05	R91	DX	10	Any	0.219
DP05	K22	DX	10	Any	0.211
DP05	D62	DX	10	Any	0.211
DP05	93971	PX	CPT	Any	0.210
DP05	Q0092	PX	HCPCS	Any	0.208
DP05	D72	DX	10	Any	0.204
DP05	L97	DX	10	Often	0.203
DP05	R04	DX	10	Any	0.202
DP05	C1150	RX	CLASS	Frequent	0.202
DP05	11721	PX	CPT	Often	0.201
DP05	C1769	PX	HCPCS	Any	0.195
DP05	S72	DX	10	Often	0.194
DP05	S72	DX	10	Any	0.190
DP05	R09	DX	10	Frequent	0.190
DP05	R23	DX	10	Any	0.189
DP05	M10	DX	10	Often	0.189
DP05	5A09357	PX	10	Any	0.187

Appendix W. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP05	B4152	PX	HCPCS	Any	0.187
DP05	90785	PX	CPT	Any	0.187
DP05	I26	DX	10	Any	0.185
DP05	90834	PX	CPT	Any	0.183
DP05	D50	DX	10	Frequent	0.181
DP05	D50	DX	10	Any	0.177
DP05	I50	DX	10	Often	0.177
DP05	Z87	DX	10	Any	0.177
DP05	S79	DX	10	Any	0.173
DP05	D04_INT_UNIQ_Q2	PX	10	Q2ServiceInt	0.173
DP05	I82	DX	10	Any	0.169
DP05	D04_INT_ALL_Q2	PX	10	Q2ServiceInt	0.168
DP05	J34	DX	10	Any	0.165
DP05	74018	PX	CPT	Frequent	0.164
DP05	C1150	RX	CLASS	Any	0.164
DP05	V5261	PX	HCPCS	Any	0.158
DP05	J43	DX	10	Frequent	0.156
DP05	I13	DX	10	Often	0.156
DP05	C113	RX	CLASS	Any	0.155
DP05	I73	DX	10	Often	0.154
DP05	R10	DX	10	Frequent	0.151
DP05	I49	DX	10	Any	0.150
DP05	B35	DX	10	Often	0.149
DP05	Z95	DX	10	Any	0.145
DP05	Q3014	PX	HCPCS	Any	0.144
DP05	I50	DX	10	Frequent	0.141
DP05	C384	RX	CLASS	Frequent	0.141
DP05	C384	RX	CLASS	Often	0.139
DP05	Z46	DX	10	Any	0.138
DP05	E87	DX	10	Often	0.138
DP05	Z46	DX	10	Frequent	0.138
DP05	L97	DX	10	Any	0.136
DP05	G45	DX	10	Any	0.135
DP05	R33	DX	10	Often	0.133
DP05	J43	DX	10	Often	0.131
DP05	99215	PX	CPT	Frequent	0.128

Appendix W. Top 100 Codes Ranked by Bias Potential Selected by the High Dimensional Propensity Score Algorithm for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group: ≥ 75 years

Masked DP ID	Code	Code Category	Code Type	Frequency	Ranking
DP05	99232	PX	CPT	Frequent	0.127
DP05	11721	PX	CPT	Any	0.125
DP05	99309	PX	CPT	Frequent	0.125
DP05	M89	DX	10	Any	0.124
DP05	87088	PX	CPT	Any	0.124
DP05	81001	PX	CPT	Any	0.122
DP05	99232	PX	CPT	Any	0.122
DP05	I13	DX	10	Any	0.121
DP05	99239	PX	CPT	Frequent	0.121
DP05	I11	DX	10	Any	0.119
DP05	C1114	RX	CLASS	Any	0.116
DP05	Z87	DX	10	Frequent	0.114
DP05	73552	PX	CPT	Frequent	0.113
DP05	I48	DX	10	Any	0.113
DP05	87186	PX	CPT	Any	0.111
DP05	G45	DX	10	Frequent	0.111
DP05	99308	PX	CPT	Frequent	0.111
DP05	C384	RX	CLASS	Any	0.108
DP05	D01_INT_ALL_Q4	DX	10	Q4ServiceInt	0.108
DP05	R30	DX	10	Any	0.108
DP05	I95	DX	10	Frequent	0.106
DP05	99233	PX	CPT	Any	0.106
DP05	Z87	DX	10	Often	0.104
DP05	93793	PX	CPT	Any	0.104
DP05	N30	DX	10	Any	0.103
DP05	87077	PX	CPT	Any	0.102
DP05	C693	RX	CLASS	Any	0.102
DP05	P9603	PX	HCPCS	Frequent	0.101
DP05	99233	PX	CPT	Frequent	0.100
DP05	M10	DX	10	Any	0.100
DP05	C496	RX	CLASS	Any	0.099
DP05	Z78	DX	10	Any	0.099

Appendix X. Distribution of Inverse Probability of Treatment Weights After Trimming for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with User-Specified PS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Weight: Average Treatment Effect in the Treated (ATT)

Masked DP ID	Number of Patients	Minimum	Maximum	Mean	Standard Deviation
Aggregated	*****	1.000	9.178	1.692	1.736
DP01	*****	1.000	7.211	1.676	1.611
DP02	*****	1.000	5.816	1.585	1.239
DP03	*****	1.000	8.021	1.701	1.763
DP04	*****	1.000	9.178	1.708	1.878
DP05	*****	1.000	7.733	1.648	1.549

*****Data are not presented in these cells due to a small sample size or to assure a small cell cannot be recalculated through the cells presented.

Appendix Y. Distribution of Inverse Probability of Treatment Weights After Trimming for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with User-Specified PS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group, Weight: Average Treatment Effect in the Treated (ATT)

Masked DP ID	Number of Patients	Minimum	Maximum	Mean	Standard Deviation
Overall					
Aggregated	*****	1.000	9.178	1.692	1.736
DP01	*****	1.000	7.211	1.676	1.611
DP02	*****	1.000	5.816	1.585	1.239
DP03	*****	1.000	8.021	1.701	1.763
DP04	*****	1.000	9.178	1.708	1.878
DP05	*****	1.000	7.733	1.648	1.549
Age Group: 18-49 years					
Aggregated	*****	1.000	10.714	1.709	1.868
DP01	*****	1.000	8.613	1.701	1.798
DP02	*****	1.000	6.701	1.606	1.355
DP03	*****	1.000	8.495	1.702	1.794
DP04	*****	1.000	10.714	1.747	2.142
DP05	*****	1.000	7.942	1.645	1.551
Age Group: 50-64 years					
Aggregated	*****	1.000	10.373	1.724	1.917
DP01	*****	1.000	8.018	1.712	1.811
DP02	*****	1.000	6.624	1.638	1.444
DP03	*****	1.000	8.247	1.720	1.861
DP04	*****	1.000	10.373	1.756	2.171
DP05	*****	1.000	8.245	1.686	1.717
Age Group: 65-74 years					
Aggregated	*****	1.000	7.892	1.673	1.602
DP01	*****	1.000	7.176	1.681	1.632
DP02	*****	1.000	5.498	1.523	1.056
DP03	*****	1.000	7.061	1.671	1.582
DP04	*****	1.000	7.256	1.669	1.582
DP05	*****	1.000	7.892	1.566	1.378
Age Group: ≥ 75 years					
Aggregated	*****	1.000	7.004	1.631	1.409
DP01	*****	1.000	6.562	1.641	1.444
DP02	*****	1.000	5.193	1.461	0.913
DP03	*****	1.000	6.408	1.626	1.387
DP04	*****	1.000	6.429	1.622	1.368
DP05	*****	1.000	7.004	1.509	1.172

*****Data are not presented in these cells due to a small sample size or to assure a small cell cannot be recalculated through the cells presented.

Appendix Z. Distribution of Inverse Probability of Treatment Weights After Trimming for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with User-Specified PS with IPTW ATT Adjustment, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Weight: Average Treatment Effect in the Treated (ATT)

Masked DP ID	Number of Patients	Minimum	Maximum	Mean	Standard Deviation
Aggregated	*****	0.406	25.709	1.703	1.782
DP01	*****	1.000	25.709	1.685	1.650
DP02	*****	1.000	12.229	1.593	1.270
DP03	*****	0.406	13.917	1.711	1.802
DP04	*****	1.000	20.282	1.722	1.945
DP05	*****	1.000	12.239	1.660	1.601

*****Data are not presented in these cells due to a small sample size or to assure a small cell cannot be recalculated through the cells presented.

Appendix AA. Distribution of Inverse Probability of Treatment Weights After Trimming for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with User-Specified PS with IPTW ATT Adjustment, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group, Weight: Average Treatment Effect in the Treated (ATT)

Masked DP ID	Number of Patients	Minimum	Maximum	Mean	Standard Deviation
Overall					
Aggregated	*****	0.406	25.709	1.703	1.782
DP01	*****	1.000	25.709	1.685	1.650
DP02	*****	1.000	12.229	1.593	1.270
DP03	*****	0.406	13.917	1.711	1.802
DP04	*****	1.000	20.282	1.722	1.945
DP05	*****	1.000	12.239	1.660	1.601
Age Group: 18-49 years					
Aggregated	*****	0.649	21.219	1.722	1.929
DP01	*****	1.000	13.955	1.713	1.851
DP02	*****	1.000	12.126	1.618	1.407
DP03	*****	0.649	15.842	1.713	1.841
DP04	*****	0.821	21.219	1.766	2.236
DP05	*****	1.000	14.775	1.660	1.625
Age Group: 50-64 years					
Aggregated	*****	1.000	19.075	1.735	1.963
DP01	*****	1.000	13.810	1.721	1.844
DP02	*****	1.000	9.796	1.644	1.468
DP03	*****	1.000	13.212	1.730	1.902
DP04	*****	1.000	19.075	1.771	2.239
DP05	*****	1.000	15.113	1.698	1.772
Age Group: 65-74 years					
Aggregated	*****	0.752	15.185	1.683	1.638
DP01	*****	1.000	14.337	1.691	1.669
DP02	*****	0.939	8.843	1.534	1.103
DP03	*****	1.000	11.756	1.679	1.613
DP04	*****	1.000	12.555	1.678	1.618
DP05	*****	0.752	15.185	1.592	1.530
Age Group: ≥ 75 years					
Aggregated	*****	0.712	21.368	1.640	1.450
DP01	*****	1.000	21.368	1.651	1.485
DP02	*****	0.916	8.634	1.472	0.973
DP03	*****	1.000	13.106	1.635	1.423
DP04	*****	1.000	19.422	1.631	1.411
DP05	*****	0.712	11.998	1.523	1.253

*****Data are not presented in these cells due to a small sample size or to assure a small cell cannot be recalculated through the cells presented.

Appendix AB. Distribution of Inverse Probability of Treatment Weights After Trimming for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Weight: Average Treatment Effect in the Treated (ATT)

Masked DP ID	Number of Patients	Minimum	Maximum	Mean	Standard Deviation
Aggregated	*****	1.000	9.736	1.670	1.726
DP01	*****	1.000	8.028	1.643	1.585
DP02	*****	1.000	6.967	1.553	1.259
DP03	*****	1.000	8.758	1.683	1.758
DP04	*****	1.000	9.736	1.691	1.874
DP05	*****	1.000	8.411	1.618	1.548

*****Data are not presented in these cells due to a small sample size or to assure a small cell cannot be recalculated through the cells presented.

Appendix AC. Distribution of Inverse Probability of Treatment Weights After Trimming for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group, Weight: Average Treatment Effect in the Treated (ATT)

Masked DP ID	Number of Patients	Minimum	Maximum	Mean	Standard Deviation
Overall					
Aggregated	*****	1.000	9.736	1.670	1.726
DP01	*****	1.000	8.028	1.643	1.585
DP02	*****	1.000	6.967	1.553	1.259
DP03	*****	1.000	8.758	1.683	1.758
DP04	*****	1.000	9.736	1.691	1.874
DP05	*****	1.000	8.411	1.618	1.548
Age Group: 18-49 years					
Aggregated	*****	1.000	11.593	1.694	1.884
DP01	*****	1.000	9.439	1.685	1.819
DP02	*****	1.000	8.184	1.581	1.421
DP03	*****	1.000	9.044	1.688	1.800
DP04	*****	1.000	11.593	1.735	2.177
DP05	*****	1.000	8.114	1.617	1.547
Age Group: 50-64 years					
Aggregated	*****	1.000	11.312	1.705	1.920
DP01	*****	1.000	8.970	1.682	1.792
DP02	*****	1.000	9.135	1.598	1.541
DP03	*****	1.000	9.139	1.704	1.864
DP04	*****	1.000	11.312	1.741	2.183
DP05	*****	1.000	10.142	1.642	1.749
Age Group: 65-74 years					
Aggregated	*****	0.376	11.447	1.646	1.593
DP01	*****	1.000	8.002	1.652	1.612
DP02	*****	0.796	7.434	1.498	1.190
DP03	*****	1.000	8.190	1.643	1.582
DP04	*****	1.000	7.929	1.648	1.576
DP05	*****	0.376	11.447	1.498	1.634
Age Group: ≥ 75 years					
Aggregated	*****	0.425	11.809	1.590	1.377
DP01	*****	1.000	7.463	1.598	1.405
DP02	*****	0.837	7.482	1.419	1.053
DP03	*****	1.000	7.217	1.585	1.351
DP04	*****	1.000	7.118	1.586	1.337
DP05	*****	0.425	11.809	1.446	1.533

*****Data are not presented in these cells due to a small sample size or to assure a small cell cannot be recalculated through the cells presented.

Appendix AD. Distribution of Inverse Probability of Treatment Weights After Trimming for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Weight: Average Treatment Effect in the Treated (ATT)

Masked DP ID	Number of Patients	Minimum	Maximum	Mean	Standard Deviation
Aggregated	*****	0.065	224.051	1.703	1.999
DP01	*****	1.000	93.183	1.686	1.959
DP02	*****	0.332	224.051	1.600	2.386
DP03	*****	0.065	113.976	1.710	1.937
DP04	*****	1.000	115.013	1.722	2.124
DP05	*****	0.419	130.133	1.661	2.047

*****Data are not presented in these cells due to a small sample size or to assure a small cell cannot be recalculated through the cells presented.

Appendix AE. Distribution of Inverse Probability of Treatment Weights After Trimming for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group, Weight: Average Treatment Effect in the Treated (ATT)

Masked DP ID	Number of Patients	Minimum	Maximum	Mean	Standard Deviation
Overall					
Aggregated	*****	0.065	224.051	1.703	1.999
DP01	*****	1.000	93.183	1.686	1.959
DP02	*****	0.332	224.051	1.600	2.386
DP03	*****	0.065	113.976	1.710	1.937
DP04	*****	1.000	115.013	1.722	2.124
DP05	*****	0.419	130.133	1.661	2.047
Age Group: 18-49 years					
Aggregated	*****	0.155	189.426	1.723	2.085
DP01	*****	0.528	33.264	1.712	1.976
DP02	*****	0.626	69.442	1.630	1.954
DP03	*****	0.245	35.312	1.714	1.950
DP04	*****	0.569	70.725	1.769	2.395
DP05	*****	0.155	189.426	1.669	2.609
Age Group: 50-64 years					
Aggregated	*****	0.340	110.726	1.735	2.127
DP01	*****	0.972	75.792	1.723	2.088
DP02	*****	0.633	92.378	1.654	2.219
DP03	*****	0.703	110.726	1.729	2.026
DP04	*****	1.000	108.335	1.771	2.385
DP05	*****	0.340	32.283	1.685	2.054
Age Group: 65-74 years					
Aggregated	*****	0.171	106.352	1.683	1.921
DP01	*****	0.995	106.352	1.692	1.986
DP02	*****	0.258	25.078	1.534	1.480
DP03	*****	0.444	100.974	1.678	1.907
DP04	*****	0.683	53.065	1.677	1.780
DP05	*****	0.171	75.132	1.586	2.693
Age Group: ≥ 75 years					
Aggregated	*****	0.224	99.561	1.641	1.869
DP01	*****	1.000	95.879	1.652	1.928
DP02	*****	0.378	33.097	1.474	1.567
DP03	*****	1.000	76.113	1.629	1.744
DP04	*****	1.000	68.638	1.631	1.746
DP05	*****	0.224	99.561	1.626	3.954

*****Data are not presented in these cells due to a small sample size or to assure a small cell cannot be recalculated through the cells presented.

Appendix AF. Distribution of Propensity Score Stratum Weights After Trimming for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Weight: Average Treatment Effect in the Treated (ATT)

Masked DP ID	Number of Patients	Minimum	Maximum	Mean	Standard Deviation
Aggregated	*****	0.296	13.976	1.000	0.174
DP01	*****	0.480	7.478	1.000	0.201
DP02	*****	0.360	13.976	1.000	0.315
DP03	*****	0.502	3.988	1.000	0.142
DP04	*****	0.470	4.694	1.000	0.169
DP05	*****	0.296	6.144	1.000	0.238

*****Data are not presented in these cells due to a small sample size or to assure a small cell cannot be recalculated through the cells presented.

Appendix AG. Distribution of Propensity Score Stratum Weights After Trimming for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Fine Stratification Adjustment in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group, Weight: Average Treatment Effect in the Treated (ATT)

Masked DP ID	Number of Patients	Minimum	Maximum	Mean	Standard Deviation
Overall					
Aggregated	*****	0.296	13.976	1.000	0.174
DP01	*****	0.480	7.478	1.000	0.201
DP02	*****	0.360	13.976	1.000	0.315
DP03	*****	0.502	3.988	1.000	0.142
DP04	*****	0.470	4.694	1.000	0.169
DP05	*****	0.296	6.144	1.000	0.238
Age Group: 18-49 years					
Aggregated	*****	0.280	12.020	1.000	0.151
DP01	*****	0.365	4.114	1.000	0.173
DP02	*****	0.293	7.095	1.000	0.284
DP03	*****	0.362	2.700	1.000	0.138
DP04	*****	0.319	2.816	1.000	0.139
DP05	*****	0.280	12.020	1.000	0.287
Age Group: 50-64 years					
Aggregated	*****	0.254	7.787	1.000	0.140
DP01	*****	0.436	4.133	1.000	0.154
DP02	*****	0.254	7.787	1.000	0.305
DP03	*****	0.529	3.621	1.000	0.125
DP04	*****	0.443	2.996	1.000	0.131
DP05	*****	0.263	4.729	1.000	0.234
Age Group: 65-74 years					
Aggregated	*****	0.149	9.096	1.000	0.195
DP01	*****	0.485	7.035	1.000	0.186
DP02	*****	0.238	6.294	1.000	0.369
DP03	*****	0.448	8.698	1.000	0.210
DP04	*****	0.547	5.350	1.000	0.170
DP05	*****	0.149	9.096	1.000	0.561
Age Group: ≥ 75 years					
Aggregated	*****	0.234	21.144	1.000	0.280
DP01	*****	0.480	10.224	1.000	0.260
DP02	*****	0.294	13.285	1.000	0.537
DP03	*****	0.503	21.144	1.000	0.333
DP04	*****	0.476	9.659	1.000	0.252
DP05	*****	0.234	6.451	1.000	0.599

*****Data are not presented in these cells due to a small sample size or to assure a small cell cannot be recalculated through the cells presented.

Appendix AH. Distribution of Overlap Weights for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Weight: Average Treatment Effect in the Treated (ATT)

Masked DP ID	Number of Patients	Minimum	Maximum	Mean	Standard Deviation
Aggregated	*****	0.000	0.996	0.249	0.250
DP01	*****	0.003	0.996	0.261	0.250
DP02	*****	0.000	0.996	0.313	0.242
DP03	*****	0.001	0.995	0.244	0.250
DP04	*****	0.003	0.992	0.234	0.250
DP05	*****	0.000	0.994	0.272	0.249

*****Data are not presented in these cells due to a small sample size or to assure a small cell cannot be recalculated through the cells presented.

Appendix AI. Distribution of Overlap Weights for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS-Generated Overlap Weights in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group, Weight: Average Treatment Effect in the Treated (ATT)

Masked DP ID	Number of Patients	Minimum	Maximum	Mean	Standard Deviation
Overall					
Aggregated	*****	0.000	0.996	0.249	0.250
DP01	*****	0.003	0.996	0.261	0.250
DP02	*****	0.000	0.996	0.313	0.242
DP03	*****	0.001	0.995	0.244	0.250
DP04	*****	0.003	0.992	0.234	0.250
DP05	*****	0.000	0.994	0.272	0.249
Age Group: 18-49 years					
Aggregated	*****	0.000	0.996	0.234	0.249
DP01	*****	0.011	0.972	0.242	0.250
DP02	*****	0.000	0.981	0.294	0.246
DP03	*****	0.013	0.995	0.242	0.250
DP04	*****	0.005	0.986	0.203	0.245
DP05	*****	0.000	0.996	0.271	0.249
Age Group: 50-64 years					
Aggregated	*****	0.000	0.994	0.226	0.248
DP01	*****	0.005	0.987	0.237	0.250
DP02	*****	0.000	0.989	0.279	0.248
DP03	*****	0.002	0.994	0.231	0.249
DP04	*****	0.004	0.992	0.200	0.245
DP05	*****	0.000	0.985	0.245	0.250
Age Group: 65-74 years					
Aggregated	*****	0.000	0.992	0.262	0.250
DP01	*****	0.001	0.991	0.257	0.250
DP02	*****	0.000	0.962	0.331	0.237
DP03	*****	0.001	0.992	0.264	0.250
DP04	*****	0.003	0.984	0.266	0.250
DP05	*****	0.000	0.977	0.270	0.249
Age Group: ≥ 75 years					
Aggregated	*****	0.000	0.993	0.288	0.247
DP01	*****	0.003	0.990	0.282	0.248
DP02	*****	0.000	0.992	0.353	0.228
DP03	*****	0.000	0.989	0.291	0.247
DP04	*****	0.003	0.986	0.295	0.246
DP05	*****	0.000	0.993	0.292	0.246

*****Data are not presented in these cells due to a small sample size or to assure a small cell cannot be recalculated through the cells presented.

Appendix AJ. Distribution of Inverse Probability of Treatment Weights After Trimming for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Weight: Average Treatment Effect (ATE)

Masked DP ID	Number of Patients	Minimum	Maximum	Mean	Standard Deviation
Aggregated	*****	1.025	10.736	1.967	2.003
DP01	*****	1.025	9.028	1.958	1.867
DP02	*****	1.030	7.967	1.961	1.530
DP03	*****	1.051	9.758	1.973	2.037
DP04	*****	1.039	10.736	1.969	2.144
DP05	*****	1.029	9.411	1.961	1.819

*****Data are not presented in these cells due to a small sample size or to assure a small cell cannot be recalculated through the cells presented.

Appendix AK. Distribution of Inverse Probability of Treatment Weights After Trimming for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group, Weight: Average Treatment Effect (ATE)

Masked DP ID	Number of Patients	Minimum	Maximum	Mean	Standard Deviation
Overall					
Aggregated	*****	1.025	10.736	1.967	2.003
DP01	*****	1.025	9.028	1.958	1.867
DP02	*****	1.030	7.967	1.961	1.530
DP03	*****	1.051	9.758	1.973	2.037
DP04	*****	1.039	10.736	1.969	2.144
DP05	*****	1.029	9.411	1.961	1.819
Age Group: 18-49 years					
Aggregated	*****	1.033	12.593	1.973	2.154
DP01	*****	1.050	10.439	1.974	2.092
DP02	*****	1.036	9.184	1.962	1.686
DP03	*****	1.055	10.044	1.975	2.076
DP04	*****	1.043	12.593	1.969	2.438
DP05	*****	1.033	9.114	1.957	1.820
Age Group: 50-64 years					
Aggregated	*****	1.021	12.312	1.970	2.193
DP01	*****	1.035	9.970	1.962	2.069
DP02	*****	1.021	10.135	1.953	1.802
DP03	*****	1.051	10.139	1.975	2.141
DP04	*****	1.044	12.312	1.970	2.447
DP05	*****	1.022	11.142	1.948	2.013
Age Group: 65-74 years					
Aggregated	*****	1.016	12.447	1.964	1.874
DP01	*****	1.028	9.002	1.962	1.895
DP02	*****	1.051	8.434	1.972	1.434
DP03	*****	1.030	9.190	1.964	1.862
DP04	*****	1.044	8.929	1.971	1.858
DP05	*****	1.016	12.447	1.922	1.852
Age Group: ≥ 75 years					
Aggregated	*****	1.012	12.809	1.951	1.657
DP01	*****	1.022	8.463	1.949	1.687
DP02	*****	1.033	8.482	1.950	1.276
DP03	*****	1.020	8.217	1.951	1.632
DP04	*****	1.029	8.118	1.958	1.618
DP05	*****	1.012	12.809	1.926	1.740

*****Data are not presented in these cells due to a small sample size or to assure a small cell cannot be recalculated through the cells presented.

Appendix AL. Distribution of Inverse Probability of Treatment Weights After Trimming for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Weight: Average Treatment Effect (ATE)

Masked DP ID	Number of Patients	Minimum	Maximum	Mean	Standard Deviation
Aggregated	*****	1.004	225.051	2.000	2.253
DP01	*****	1.004	94.183	2.000	2.206
DP02	*****	1.005	225.051	2.009	2.551
DP03	*****	1.005	114.976	1.999	2.202
DP04	*****	1.009	116.013	2.000	2.376
DP05	*****	1.007	131.133	2.005	2.271

*****Data are not presented in these cells due to a small sample size or to assure a small cell cannot be recalculated through the cells presented.

Appendix AM. Distribution of Inverse Probability of Treatment Weights After Trimming for COVID-19 Hospitalization among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATE Adjustment, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group, Weight: Average Treatment Effect (ATE)

Masked DP ID	Number of Patients	Minimum	Maximum	Mean	Standard Deviation
Overall					
Aggregated	*****	1.004	225.051	2.000	2.253
DP01	*****	1.004	94.183	2.000	2.206
DP02	*****	1.005	225.051	2.009	2.551
DP03	*****	1.005	114.976	1.999	2.202
DP04	*****	1.009	116.013	2.000	2.376
DP05	*****	1.007	131.133	2.005	2.271
Age Group: 18-49 years					
Aggregated	*****	1.008	190.426	2.002	2.342
DP01	*****	1.030	34.264	2.000	2.238
DP02	*****	1.015	70.442	2.011	2.169
DP03	*****	1.028	36.312	2.001	2.216
DP04	*****	1.014	71.725	2.003	2.644
DP05	*****	1.008	190.426	2.011	2.792
Age Group: 50-64 years					
Aggregated	*****	1.005	111.726	2.000	2.386
DP01	*****	1.013	76.792	2.003	2.343
DP02	*****	1.011	93.378	2.009	2.423
DP03	*****	1.009	111.726	1.999	2.292
DP04	*****	1.009	109.335	2.000	2.637
DP05	*****	1.005	33.283	1.991	2.295
Age Group: 65-74 years					
Aggregated	*****	1.008	107.352	2.001	2.172
DP01	*****	1.009	107.352	2.002	2.234
DP02	*****	1.040	26.078	2.011	1.694
DP03	*****	1.008	101.974	1.999	2.157
DP04	*****	1.016	54.065	2.000	2.044
DP05	*****	1.013	76.132	2.010	2.848
Age Group: ≥ 75 years					
Aggregated	*****	1.008	100.561	2.002	2.100
DP01	*****	1.010	96.879	2.002	2.159
DP02	*****	1.022	34.097	2.006	1.739
DP03	*****	1.008	77.113	1.995	1.984
DP04	*****	1.015	69.638	2.003	1.984
DP05	*****	1.010	100.561	2.107	4.062

*****Data are not presented in these cells due to a small sample size or to assure a small cell cannot be recalculated through the cells presented.

Appendix AN. Distribution of Inverse Probability of Treatment Weights After Trimming for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with User-Specified PS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Weight: Average Treatment Effect in the Treated (ATT)

Masked DP ID	Number of Patients	Minimum	Maximum	Mean	Standard Deviation
Aggregated	*****	1.000	9.180	1.692	1.736
DP01	*****	1.000	7.211	1.676	1.611
DP02	*****	1.000	5.816	1.585	1.239
DP03	*****	1.000	8.020	1.701	1.763
DP04	*****	1.000	9.180	1.708	1.878
DP05	*****	1.000	7.741	1.648	1.550

*****Data are not presented in these cells due to a small sample size or to assure a small cell cannot be recalculated through the cells presented.

Appendix AO. Distribution of Inverse Probability of Treatment Weights After Trimming for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with User-Specified PS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group, Weight: Average Treatment Effect in the Treated (ATT)

Masked DP ID	Number of Patients	Minimum	Maximum	Mean	Standard Deviation
Overall					
Aggregated	*****	1.000	9.180	1.692	1.736
DP01	*****	1.000	7.211	1.676	1.611
DP02	*****	1.000	5.816	1.585	1.239
DP03	*****	1.000	8.020	1.701	1.763
DP04	*****	1.000	9.180	1.708	1.878
DP05	*****	1.000	7.741	1.648	1.550
Age Group: 18-49 years					
Aggregated	*****	1.000	10.716	1.709	1.868
DP01	*****	1.000	8.621	1.701	1.798
DP02	*****	1.000	6.701	1.606	1.355
DP03	*****	1.000	8.495	1.702	1.794
DP04	*****	1.000	10.716	1.747	2.142
DP05	*****	1.000	7.942	1.645	1.551
Age Group: 50-64 years					
Aggregated	*****	1.000	10.373	1.724	1.917
DP01	*****	1.000	8.014	1.712	1.810
DP02	*****	1.000	6.624	1.638	1.444
DP03	*****	1.000	8.247	1.720	1.861
DP04	*****	1.000	10.373	1.756	2.171
DP05	*****	1.000	8.196	1.684	1.713
Age Group: 65-74 years					
Aggregated	*****	1.000	7.902	1.673	1.602
DP01	*****	1.000	7.176	1.681	1.631
DP02	*****	1.000	5.498	1.523	1.056
DP03	*****	1.000	7.062	1.671	1.582
DP04	*****	1.000	7.264	1.669	1.583
DP05	*****	1.000	7.902	1.567	1.379
Age Group: ≥ 75 years					
Aggregated	*****	1.000	6.911	1.631	1.409
DP01	*****	1.000	6.558	1.641	1.444
DP02	*****	1.000	5.193	1.461	0.913
DP03	*****	1.000	6.399	1.626	1.387
DP04	*****	1.000	6.428	1.622	1.368
DP05	*****	1.000	6.911	1.504	1.160

*****Data are not presented in these cells due to a small sample size or to assure a small cell cannot be recalculated through the cells presented.

Appendix AP. Distribution of Inverse Probability of Treatment Weights After Trimming for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with User-Specified PS with IPTW ATT Adjustment, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Weight: Average Treatment Effect in the Treated (ATT)

Masked DP ID	Number of Patients	Minimum	Maximum	Mean	Standard Deviation
Aggregated	*****	0.844	25.797	1.703	1.782
DP01	*****	1.000	25.797	1.685	1.650
DP02	*****	1.000	12.229	1.593	1.270
DP03	*****	0.844	13.913	1.711	1.802
DP04	*****	1.000	20.301	1.722	1.945
DP05	*****	1.000	13.308	1.660	1.603

*****Data are not presented in these cells due to a small sample size or to assure a small cell cannot be recalculated through the cells presented.

Appendix AQ. Distribution of Inverse Probability of Treatment Weights After Trimming for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with User-Specified PS with IPTW ATT Adjustment, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group, Weight: Average Treatment Effect in the Treated (ATT)

Masked DP ID	Number of Patients	Minimum	Maximum	Mean	Standard Deviation
Overall					
Aggregated	*****	0.844	25.797	1.703	1.782
DP01	*****	1.000	25.797	1.685	1.650
DP02	*****	1.000	12.229	1.593	1.270
DP03	*****	0.844	13.913	1.711	1.802
DP04	*****	1.000	20.301	1.722	1.945
DP05	*****	1.000	13.308	1.660	1.603
Age Group: 18-49 years					
Aggregated	*****	0.650	23.416	1.722	1.929
DP01	*****	1.000	13.925	1.713	1.850
DP02	*****	1.000	12.126	1.618	1.407
DP03	*****	0.650	15.501	1.713	1.841
DP04	*****	0.821	23.416	1.766	2.238
DP05	*****	1.000	14.775	1.660	1.625
Age Group: 50-64 years					
Aggregated	*****	1.000	19.075	1.735	1.963
DP01	*****	1.000	13.869	1.721	1.845
DP02	*****	1.000	9.796	1.644	1.468
DP03	*****	1.000	13.198	1.730	1.902
DP04	*****	1.000	19.075	1.771	2.239
DP05	*****	1.000	13.535	1.696	1.762
Age Group: 65-74 years					
Aggregated	*****	0.939	14.797	1.683	1.638
DP01	*****	1.000	14.300	1.691	1.669
DP02	*****	0.939	8.843	1.534	1.103
DP03	*****	1.000	11.045	1.679	1.613
DP04	*****	1.000	12.583	1.678	1.618
DP05	*****	0.967	14.797	1.592	1.527
Age Group: ≥ 75 years					
Aggregated	*****	0.667	21.516	1.640	1.450
DP01	*****	1.000	21.516	1.651	1.485
DP02	*****	0.916	8.634	1.472	0.973
DP03	*****	1.000	13.026	1.635	1.423
DP04	*****	1.000	19.466	1.631	1.411
DP05	*****	0.667	10.902	1.513	1.216

*****Data are not presented in these cells due to a small sample size or to assure a small cell cannot be recalculated through the cells presented.

Appendix AR. Distribution of Inverse Probability of Treatment Weights After Trimming for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Weight: Average Treatment Effect in the Treated (ATT)

Masked DP ID	Number of Patients	Minimum	Maximum	Mean	Standard Deviation
Aggregated	*****	1.000	9.713	1.670	1.726
DP01	*****	1.000	7.974	1.643	1.583
DP02	*****	1.000	6.766	1.554	1.252
DP03	*****	1.000	8.774	1.685	1.762
DP04	*****	1.000	9.713	1.690	1.870
DP05	*****	1.000	8.423	1.615	1.537

*****Data are not presented in these cells due to a small sample size or to assure a small cell cannot be recalculated through the cells presented.

Appendix AS. Distribution of Inverse Probability of Treatment Weights After Trimming for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, 1% Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group, Weight: Average Treatment Effect in the Treated (ATT)

Masked DP ID	Number of Patients	Minimum	Maximum	Mean	Standard Deviation
Overall					
Aggregated	*****	1.000	9.713	1.670	1.726
DP01	*****	1.000	7.974	1.643	1.583
DP02	*****	1.000	6.766	1.554	1.252
DP03	*****	1.000	8.774	1.685	1.762
DP04	*****	1.000	9.713	1.690	1.870
DP05	*****	1.000	8.423	1.615	1.537
Age Group: 18-49 years					
Aggregated	*****	1.000	11.609	1.693	1.882
DP01	*****	1.000	9.102	1.692	1.820
DP02	*****	1.000	7.790	1.572	1.390
DP03	*****	1.000	9.184	1.687	1.805
DP04	*****	1.000	11.609	1.731	2.161
DP05	*****	1.000	8.885	1.611	1.574
Age Group: 50-64 years					
Aggregated	*****	1.000	11.230	1.707	1.919
DP01	*****	1.000	8.962	1.680	1.785
DP02	*****	1.000	8.787	1.614	1.536
DP03	*****	1.000	9.000	1.708	1.867
DP04	*****	1.000	11.230	1.740	2.179
DP05	*****	1.000	9.439	1.640	1.715
Age Group: 65-74 years					
Aggregated	*****	0.504	9.432	1.646	1.591
DP01	*****	1.000	8.026	1.651	1.611
DP02	*****	0.797	7.327	1.502	1.197
DP03	*****	1.000	7.987	1.643	1.576
DP04	*****	1.000	8.064	1.648	1.582
DP05	*****	0.504	9.432	1.497	1.471
Age Group: ≥ 75 years					
Aggregated	*****	0.352	9.275	1.588	1.373
DP01	*****	1.000	7.415	1.597	1.403
DP02	*****	0.771	6.273	1.398	0.972
DP03	*****	1.000	7.407	1.585	1.355
DP04	*****	1.000	7.069	1.583	1.330
DP05	*****	0.352	9.275	1.412	1.262

*****Data are not presented in these cells due to a small sample size or to assure a small cell cannot be recalculated through the cells presented.

Appendix AT. Distribution of Inverse Probability of Treatment Weights After Trimming for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Weight: Average Treatment Effect in the Treated (ATT)

Masked DP ID	Number of Patients	Minimum	Maximum	Mean	Standard Deviation
Aggregated	*****	0.081	170.896	1.704	2.025
DP01	*****	1.000	170.896	1.687	2.035
DP02	*****	0.190	125.993	1.599	2.029
DP03	*****	0.081	126.594	1.711	1.937
DP04	*****	1.000	140.777	1.724	2.159
DP05	*****	0.479	127.368	1.665	2.101

*****Data are not presented in these cells due to a small sample size or to assure a small cell cannot be recalculated through the cells presented.

Appendix AU. Distribution of Inverse Probability of Treatment Weights After Trimming for Severe COVID-19 Outcome or Death among Proton Pump Inhibitor and Famotidine New Users with hdPS with IPTW ATT Adjustment, No Truncation in the Sentinel Distributed Database from April 1, 2020 to January 31, 2024, by Data Partner (DP), Age Group, Weight: Average Treatment Effect in the Treated (ATT)

Masked DP ID	Number of Patients	Minimum	Maximum	Mean	Standard Deviation
Overall					
Aggregated	*****	0.081	170.896	1.704	2.025
DP01	*****	1.000	170.896	1.687	2.035
DP02	*****	0.190	125.993	1.599	2.029
DP03	*****	0.081	126.594	1.711	1.937
DP04	*****	1.000	140.777	1.724	2.159
DP05	*****	0.479	127.368	1.665	2.101
Age Group: 18-49 years					
Aggregated	*****	0.247	69.126	1.724	2.082
DP01	*****	0.597	40.216	1.713	1.935
DP02	*****	0.247	54.551	1.623	1.873
DP03	*****	0.401	65.928	1.714	1.960
DP04	*****	0.572	69.126	1.771	2.450
DP05	*****	0.488	49.515	1.655	1.960
Age Group: 50-64 years					
Aggregated	*****	0.435	179.327	1.735	2.127
DP01	*****	1.000	47.853	1.721	2.046
DP02	*****	0.719	31.404	1.652	1.804
DP03	*****	0.503	179.327	1.730	2.056
DP04	*****	1.000	70.212	1.770	2.360
DP05	*****	0.435	46.420	1.704	2.241
Age Group: 65-74 years					
Aggregated	*****	0.208	221.567	1.684	2.002
DP01	*****	0.909	157.421	1.692	2.021
DP02	*****	0.267	18.560	1.533	1.440
DP03	*****	0.602	221.567	1.684	2.215
DP04	*****	1.000	52.197	1.678	1.789
DP05	*****	0.208	55.391	1.594	2.417
Age Group: ≥ 75 years					
Aggregated	*****	0.230	136.456	1.641	1.956
DP01	*****	1.000	113.035	1.652	1.991
DP02	*****	0.355	113.231	1.507	2.881
DP03	*****	0.924	97.065	1.633	1.832
DP04	*****	1.000	136.456	1.632	1.889
DP05	*****	0.230	45.218	1.499	2.232

*****Data are not presented in these cells due to a small sample size or to assure a small cell cannot be recalculated through the cells presented.

Appendix AV. List of Generic and Brand Names of Medical Products Used to Define Exposures in this Request

Generic Name	Brand Name
Proton Pump Inhibitors	
Heartburn Treatment	esomeprazole magnesium
Heartburn Treatment 24 Hour	lansoprazole
Konvomep	omeprazole/sodium bicarbonate
LANSOPRAZOLE	FIRST-Lansoprazole
Nexium	esomeprazole magnesium
OMEPRAZOLE	FIRST-Omeprazole
OMEPRAZOLE	Omeprazole+SyrSpend SF Alka
dexlansoprazole	Dexilant
dexlansoprazole	dexlansoprazole
esomeprazole magnesium	Nexium
esomeprazole magnesium	Nexium 24HR
esomeprazole magnesium	Nexium Packet
esomeprazole magnesium	esomeprazole magnesium
esomeprazole magnesium/glycerin	Esomep-EZS
esomeprazole strontium	esomeprazole strontium
lansoprazole	Heartburn Treatment 24 Hour
lansoprazole	Prevacid
lansoprazole	Prevacid 24Hr
lansoprazole	Prevacid SoluTab
lansoprazole	lansoprazole
naproxen-esomeprazole	naproxen/esomeprazole magnesium
naproxen/esomeprazole magnesium	Vimovo
naproxen/esomeprazole magnesium	naproxen-esomeprazole
omeprazole	omeprazole
omeprazole magnesium	Acid Reducer (omeprazole)
omeprazole magnesium	Prilosec
omeprazole magnesium	Prilosec OTC
omeprazole magnesium	omeprazole magnesium
omeprazole-sodium bicarbonate	omeprazole/sodium bicarbonate
omeprazole/sodium bicarbonate	OmePPi
omeprazole/sodium bicarbonate	Zegerid
omeprazole/sodium bicarbonate	Zegerid OTC
omeprazole/sodium bicarbonate	omeprazole-sodium bicarbonate
pantoprazole	pantoprazole sodium
pantoprazole sodium	Protonix
pantoprazole sodium	pantoprazole
rabeprazole	rabeprazole sodium
rabeprazole sodium	AcipHex
rabeprazole sodium	AcipHex Sprinkle
rabeprazole sodium	rabeprazole
Famotidine	
Acid Controller	famotidine
Acid Reducer (famotidine)	famotidine
Dual Action Complete	famotidine/calcium carbonate/magnesium hydroxide
Duexis	ibuprofen/famotidine
Zantac-360 (famotidine)	famotidine
famotidine	Acid Controller

Appendix AV. List of Generic and Brand Names of Medical Products Used to Define Exposures in this Request

Generic Name	Brand Name
famotidine	Acid Reducer (famotidine)
famotidine	Acid-Pep
famotidine	Heartburn Prevention
famotidine	Heartburn Relief (famotidine)
famotidine	Pepcid
famotidine	Pepcid AC
famotidine	Pepcid AC Maximum Strength
famotidine	Zantac-360 (famotidine)
famotidine	famotidine
famotidine/calcium carbonate/magnesium hydroxide	Acid Controller Complete
famotidine/calcium carbonate/magnesium hydroxide	Acid Reducer Complete (famot)
famotidine/calcium carbonate/magnesium hydroxide	Complete
famotidine/calcium carbonate/magnesium hydroxide	Dual Action Complete
famotidine/calcium carbonate/magnesium hydroxide	Pepcid Complete
famotidine/calcium carbonate/magnesium hydroxide	Tums Dual Action (famotidine)
ibuprofen-famotidine	ibuprofen/famotidine

Appendix AW. List of Generic and Brand Names of Medical Products Used to Define Exposure Incidence Criteria in this Request

Generic Name	Brand Name
H2 Receptor Antagonists	
RANITIDINE HCL	Deprizine
cimetidine	Acid Reducer (cimetidine)
cimetidine	Heartburn Relief (cimetidine)
cimetidine	Tagamet HB
cimetidine	cimetidine
cimetidine HCl	cimetidine HCl
famotidine	Acid Controller
famotidine	Acid Reducer (famotidine)
famotidine	Acid-Pep
famotidine	Heartburn Prevention
famotidine	Heartburn Relief (famotidine)
famotidine	Pepcid
famotidine	Pepcid AC
famotidine	Pepcid AC Maximum Strength
famotidine	Zantac-360 (famotidine)
famotidine	famotidine
famotidine/calcium carbonate/magnesium hydroxide	Acid Controller Complete
famotidine/calcium carbonate/magnesium hydroxide	Acid Reducer Complete (famot)
famotidine/calcium carbonate/magnesium hydroxide	Acid Reducer-Antacid
famotidine/calcium carbonate/magnesium hydroxide	Complete
famotidine/calcium carbonate/magnesium hydroxide	Dual Action Complete
famotidine/calcium carbonate/magnesium hydroxide	Pepcid Complete
famotidine/calcium carbonate/magnesium hydroxide	Tums Dual Action (famotidine)
nizatidine	nizatidine
ranitidine HCl	Acid Control (ranitidine)
ranitidine HCl	Acid Reducer (ranitidine)
ranitidine HCl	Heartburn Relief (ranitidine)
ranitidine HCl	Wal-Zan 150
ranitidine HCl	Wal-Zan 75
ranitidine HCl	Zantac
ranitidine HCl	Zantac 75
ranitidine HCl	Zantac Maximum Strength
ranitidine HCl	ranitidine HCl

Appendix AX. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Revenue (RE) Codes Used to Define Outcomes in this Request

Code	Description	Code Category	Code Type
COVID-19			
U07.1	COVID-19	Diagnosis	ICD-10-CM
Intensive Care Unit Stay			
0188T	Remote real-time interactive video-conferenced critical care, evaluation and management of the critically ill or critically injured patient; first 30-74 minutes	Procedure	CPT-3
0189T	Remote real-time interactive video-conferenced critical care, evaluation and management of the critically ill or critically injured patient; each additional 30 minutes (List separately in addition to code for primary service)	Procedure	CPT-3
0200	General classification for intensive care unit (ICU)	Procedure	RE
0201	Surgical ICU	Procedure	RE
0202	Medical ICU	Procedure	RE
0203	Pediatric ICU	Procedure	RE
0204	Psychiatric ICU	Procedure	RE
0206	Intermediate ICU	Procedure	RE
0207	Burn care	Procedure	RE
0208	Trauma care	Procedure	RE
0209	Other intensive care	Procedure	RE
0210	General classification cardiac care unit (CCU)	Procedure	RE
0211	Myocardial infarction care	Procedure	RE
0212	Pulmonary care	Procedure	RE
0213	Heart transplant	Procedure	RE
0214	Intermediate CCU	Procedure	RE
0219	Other coronary care	Procedure	RE
0581F	Patient transferred directly from anesthetizing location to critical care unit (Peri2)	Procedure	CPT-2
0582F	Patient not transferred directly from anesthetizing location to critical care unit (Peri2)	Procedure	CPT-2
09HN7BZ	Insertion of Airway into Nasopharynx, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
09HN8BZ	Insertion of Airway into Nasopharynx, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
0BH13EZ	Insertion of Endotracheal Airway into Trachea, Percutaneous Approach	Procedure	ICD-10-PCS
0BH17EZ	Insertion of Endotracheal Airway into Trachea, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
0BH18EZ	Insertion of Endotracheal Airway into Trachea, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
0CHY7BZ	Insertion of Airway into Mouth and Throat, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
0CHY8BZ	Insertion of Airway into Mouth and Throat, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
0DH57BZ	Insertion of Airway into Esophagus, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
0DH58BZ	Insertion of Airway into Esophagus, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
0WHQ73Z	Insertion of Infusion Device into Respiratory Tract, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
0WHQ7YZ	Insertion of Other Device into Respiratory Tract, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
31500	Intubation, endotracheal, emergency procedure	Procedure	CPT-4
33946	Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; initiation, veno-venous	Procedure	CPT-4

Appendix AX. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Revenue (RE) Codes Used to Define Outcomes in this Request

Code	Description	Code Category	Code Type
33947	Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; initiation, veno-arterial	Procedure	CPT-4
33948	Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; daily management, each day, veno-venous	Procedure	CPT-4
33949	Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; daily management, each day, veno-arterial	Procedure	CPT-4
33952	Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; insertion of peripheral (arterial and/or venous) cannula(e), percutaneous, 6 years and older (includes fluoroscopic guidance, when performed)	Procedure	CPT-4
33954	Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; insertion of peripheral (arterial and/or venous) cannula(e), open, 6 years and older	Procedure	CPT-4
33956	Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; insertion of central cannula(e) by sternotomy or thoracotomy, 6 years and older	Procedure	CPT-4
33958	Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; reposition peripheral (arterial and/or venous) cannula(e), percutaneous, 6 years and older (includes fluoroscopic guidance, when performed)	Procedure	CPT-4
33960	Prolonged extracorporeal circulation for cardiopulmonary insufficiency; initial day	Procedure	CPT-4
33961	Prolonged extracorporeal circulation for cardiopulmonary insufficiency; each subsequent day	Procedure	CPT-4
33962	Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; reposition peripheral (arterial and/or venous) cannula(e), open, 6 years and older (includes fluoroscopic guidance, when performed)	Procedure	CPT-4
33964	Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; reposition central cannula(e) by sternotomy or thoracotomy, 6 years and older (includes fluoroscopic guidance, when performed)	Procedure	CPT-4
33966	Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; removal of peripheral (arterial and/or venous) cannula(e), percutaneous, 6 years and older	Procedure	CPT-4
33984	Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; removal of peripheral (arterial and/or venous) cannula(e), open, 6 years and older	Procedure	CPT-4
33986	Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; removal of central cannula(e) by sternotomy or thoracotomy, 6 years and older	Procedure	CPT-4
33987	Arterial exposure with creation of graft conduit (eg, chimney graft) to facilitate arterial perfusion for ECMO/ECLS (List separately in addition to code for primary procedure)	Procedure	CPT-4
33988	Insertion of left heart vent by thoracic incision (eg, sternotomy, thoracotomy) for ECMO/ECLS	Procedure	CPT-4

Appendix AX. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Revenue (RE) Codes Used to Define Outcomes in this Request

Code	Description	Code Category	Code Type
33989	Removal of left heart vent by thoracic incision (eg, sternotomy, thoracotomy) for ECMO/ECLS	Procedure	CPT-4
36822	Insertion of cannula(s) for prolonged extracorporeal circulation for cardiopulmonary insufficiency (ECMO) (separate procedure)	Procedure	CPT-4
3E030XZ	Introduction of Vasopressor into Peripheral Vein, Open Approach	Procedure	ICD-10-PCS
3E033XZ	Introduction of Vasopressor into Peripheral Vein, Percutaneous Approach	Procedure	ICD-10-PCS
3E040XZ	Introduction of Vasopressor into Central Vein, Open Approach	Procedure	ICD-10-PCS
3E043XZ	Introduction of Vasopressor into Central Vein, Percutaneous Approach	Procedure	ICD-10-PCS
3E050XZ	Introduction of Vasopressor into Peripheral Artery, Open Approach	Procedure	ICD-10-PCS
3E053XZ	Introduction of Vasopressor into Peripheral Artery, Percutaneous Approach	Procedure	ICD-10-PCS
3E060XZ	Introduction of Vasopressor into Central Artery, Open Approach	Procedure	ICD-10-PCS
3E063XZ	Introduction of Vasopressor into Central Artery, Percutaneous Approach	Procedure	ICD-10-PCS
4168F	Patient receiving care in the intensive care unit (ICU) and receiving mechanical ventilation, 24 hours or less (CRIT)	Procedure	CPT-2
94002	Ventilation assist and management, initiation of pressure or volume preset ventilators for assisted or controlled breathing; hospital inpatient/observation, initial day	Procedure	CPT-4
94003	Ventilation assist and management, initiation of pressure or volume preset ventilators for assisted or controlled breathing; hospital inpatient/observation, each subsequent day	Procedure	CPT-4
99160	Critical Care, Initial, Including The Diagnostic And Therapeutic Services And Direction Of Care Of The Critically Ill Or Multiply Injured Or Comatose Patient, Requiring The Prolonged Presence Of The Physician; First Hour	Procedure	CPT-4
99162	Critical Care, Initial, Including The Diagnostic And Therapeutic Services And Direction Of Care Of The Critically Ill Or Multiply Injured Or Comatose Patient, Requiring The Prolonged Presence Of The Physician; Each Additional 30 Minutes	Procedure	CPT-4
99171	Critical Care, Subsequent Follow-up Visit; Brief Examination, Evaluation And/or Treatment For Same Illness	Procedure	CPT-4
99289	Critical care services delivered by a physician, face-to-face, during an interfacility transport of critically ill or critically injured pediatric patient, 24 months of age or less; first 30-74 minutes of hands on care during transport	Procedure	CPT-4
99290	Critical care services delivered by a physician, face-to-face, during an interfacility transport of critically ill or critically injured pediatric patient, 24 months of age or less; each additional 30 minutes (List separately in addition to code for primary service)	Procedure	CPT-4
99291	Critical care, evaluation and management of the critically ill or critically injured patient; first 30-74 minutes	Procedure	CPT-4
99292	Critical care, evaluation and management of the critically ill or critically injured patient; each additional 30 minutes (List separately in addition to code for primary service)	Procedure	CPT-4
99293	Initial inpatient pediatric critical care, per day, for the evaluation and management of a critically ill infant or young child, 29 days through 24 months of age	Procedure	CPT-4

Appendix AX. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Revenue (RE) Codes Used to Define Outcomes in this Request

Code	Description	Code Category	Code Type
99294	Subsequent inpatient pediatric critical care, per day, for the evaluation and management of a critically ill infant or young child, 29 days through 24 months of age	Procedure	CPT-4
99295	Initial inpatient neonatal critical care, per day, for the evaluation and management of a critically ill neonate, 28 days of age or less	Procedure	CPT-4
99296	Subsequent inpatient neonatal critical care, per day, for the evaluation and management of a critically ill neonate, 28 days of age or less	Procedure	CPT-4
99466	Critical care face-to-face services, during an interfacility transport of critically ill or critically injured pediatric patient, 24 months of age or younger; first 30-74 minutes of hands-on care during transport	Procedure	CPT-4
99467	Critical care face-to-face services, during an interfacility transport of critically ill or critically injured pediatric patient, 24 months of age or younger; each additional 30 minutes (List separately in addition to code for primary service)	Procedure	CPT-4
99468	Initial inpatient neonatal critical care, per day, for the evaluation and management of a critically ill neonate, 28 days of age or younger	Procedure	CPT-4
99469	Subsequent inpatient neonatal critical care, per day, for the evaluation and management of a critically ill neonate, 28 days of age or younger	Procedure	CPT-4
99471	Initial inpatient pediatric critical care, per day, for the evaluation and management of a critically ill infant or young child, 29 days through 24 months of age	Procedure	CPT-4
99472	Subsequent inpatient pediatric critical care, per day, for the evaluation and management of a critically ill infant or young child, 29 days through 24 months of age	Procedure	CPT-4
99475	Initial inpatient pediatric critical care, per day, for the evaluation and management of a critically ill infant or young child, 2 through 5 years of age	Procedure	CPT-4
99476	Subsequent inpatient pediatric critical care, per day, for the evaluation and management of a critically ill infant or young child, 2 through 5 years of age	Procedure	CPT-4
99477	Initial hospital care, per day, for the evaluation and management of the neonate, 28 days of age or younger, who requires intensive observation, frequent interventions, and other intensive care services	Procedure	CPT-4
99478	Subsequent intensive care, per day, for the evaluation and management of the recovering very low birth weight infant (present body weight less than 1500 grams)	Procedure	CPT-4
99479	Subsequent intensive care, per day, for the evaluation and management of the recovering low birth weight infant (present body weight of 1500-2500 grams)	Procedure	CPT-4
99480	Subsequent intensive care, per day, for the evaluation and management of the recovering infant (present body weight of 2501-5000 grams)	Procedure	CPT-4
99485	Supervision by a control physician of interfacility transport care of the critically ill or critically injured pediatric patient, 24 months of age or younger, includes two-way communication with transport team before transport, at the referring facility and during the transport, including data interpretation and report; first 30 minutes	Procedure	CPT-4

Appendix AX. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Revenue (RE) Codes Used to Define Outcomes in this Request

Code	Description	Code Category	Code Type
99486	Supervision by a control physician of interfacility transport care of the critically ill or critically injured pediatric patient, 24 months of age or younger, includes two-way communication with transport team before transport, at the referring facility and during the transport, including data interpretation and report; each additional 30 minutes (List separately in addition to code for primary procedure)	Procedure	CPT-4
A0396	ALS specialized service disposable supplies; esophageal intubation	Procedure	HCPCS
A4483	Moisture exchanger, disposable, for use with invasive mechanical ventilation	Procedure	HCPCS
E0472	Respiratory assist device, bi-level pressure capability, with backup rate feature, used with invasive interface, e.g., tracheostomy tube (intermittent assist device with continuous positive airway pressure device)	Procedure	HCPCS
E0481	Intrapulmonary percussive ventilation system and related accessories	Procedure	HCPCS
G0240	Critical care service delivered by a physician, face to face; during interfacility transport of a critically ill or critically injured patient; first 30-74 minutes of active transport	Procedure	HCPCS
G0390	Trauma response team associated with hospital critical care service	Procedure	HCPCS
G0508	Telehealth consultation, critical care, initial, physicians typically spend 60 minutes communicating with the patient and providers via telehealth	Procedure	HCPCS
G0509	Telehealth consultation, critical care, subsequent, physicians typically spend 50 minutes communicating with the patient and providers via telehealth	Procedure	HCPCS
G8569	Prolonged postoperative intubation (> 24 hrs) required	Procedure	HCPCS
J0171	Injection, adrenalin, epinephrine, 0.1 mg	Procedure	HCPCS
J1250	Injection, dobutamine HCl, per 250 mg	Procedure	HCPCS
J1265	Injection, dopamine HCl, 40 mg	Procedure	HCPCS
Mechanical Ventilation			
0BH13EZ	Insertion of Endotracheal Airway into Trachea, Percutaneous Approach	Procedure	ICD-10-PCS
0BH17EZ	Insertion of Endotracheal Airway into Trachea, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
0BH18EZ	Insertion of Endotracheal Airway into Trachea, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
0CHY7BZ	Insertion of Airway into Mouth and Throat, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
0CHY8BZ	Insertion of Airway into Mouth and Throat, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
0DH57BZ	Insertion of Airway into Esophagus, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
0DH58BZ	Insertion of Airway into Esophagus, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
0DL57DZ	Occlusion of Esophagus with Intraluminal Device, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
0DL58DZ	Occlusion of Esophagus with Intraluminal Device, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
0WHQ73Z	Insertion of Infusion Device into Respiratory Tract, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
0WHQ7YZ	Insertion of Other Device into Respiratory Tract, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
31500	Intubation, endotracheal, emergency procedure	Procedure	CPT-4
31719	Transtracheal (percutaneous) Introduction Of Indwelling Tube For Therapy (eg, Tickle Tube, Catheter For Oxygen Administration)	Procedure	CPT-4

Appendix AX. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Revenue (RE) Codes Used to Define Outcomes in this Request

Code	Description	Code Category	Code Type
31730	Transtracheal (percutaneous) introduction of needle wire dilator/stent or indwelling tube for oxygen therapy	Procedure	CPT-4
33946	Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; initiation, veno-venous	Procedure	CPT-4
33947	Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; initiation, veno-arterial	Procedure	CPT-4
33948	Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; daily management, each day, veno-venous	Procedure	CPT-4
33949	Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; daily management, each day, veno-arterial	Procedure	CPT-4
33952	Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; insertion of peripheral (arterial and/or venous) cannula(e), percutaneous, 6 years and older (includes fluoroscopic guidance, when performed)	Procedure	CPT-4
33954	Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; insertion of peripheral (arterial and/or venous) cannula(e), open, 6 years and older	Procedure	CPT-4
33956	Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; insertion of central cannula(e) by sternotomy or thoracotomy, 6 years and older	Procedure	CPT-4
33958	Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; reposition peripheral (arterial and/or venous) cannula(e), percutaneous, 6 years and older (includes fluoroscopic guidance, when performed)	Procedure	CPT-4
33962	Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; reposition peripheral (arterial and/or venous) cannula(e), open, 6 years and older (includes fluoroscopic guidance, when performed)	Procedure	CPT-4
33964	Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; reposition central cannula(e) by sternotomy or thoracotomy, 6 years and older (includes fluoroscopic guidance, when performed)	Procedure	CPT-4
33966	Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; removal of peripheral (arterial and/or venous) cannula(e), percutaneous, 6 years and older	Procedure	CPT-4
33984	Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; removal of peripheral (arterial and/or venous) cannula(e), open, 6 years and older	Procedure	CPT-4
33986	Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; removal of central cannula(e) by sternotomy or thoracotomy, 6 years and older	Procedure	CPT-4
33987	Arterial exposure with creation of graft conduit (eg, chimney graft) to facilitate arterial perfusion for ECMO/ECLS (List separately in addition to code for primary procedure)	Procedure	CPT-4
33988	Insertion of left heart vent by thoracic incision (eg, sternotomy, thoracotomy) for ECMO/ECLS	Procedure	CPT-4

Appendix AX. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Revenue (RE) Codes Used to Define Outcomes in this Request

Code	Description	Code Category	Code Type
33989	Removal of left heart vent by thoracic incision (eg, sternotomy, thoracotomy) for ECMO/ECLS	Procedure	CPT-4
4168F	Patient receiving care in the intensive care unit (ICU) and receiving mechanical ventilation, 24 hours or less (CRIT)	Procedure	CPT-2
5A09	Assistance / Respiratory	Procedure	ICD-10-PCS
5A0920Z	Assistance with Respiratory Filtration, Continuous	Procedure	ICD-10-PCS
5A09357	Assistance with Respiratory Ventilation, Less than 24 Consecutive Hours, Continuous Positive Airway Pressure	Procedure	ICD-10-PCS
5A09358	Assistance with Respiratory Ventilation, Less than 24 Consecutive Hours, Intermittent Positive Airway Pressure	Procedure	ICD-10-PCS
5A09359	Assistance with Respiratory Ventilation, Less than 24 Consecutive Hours, Continuous Negative Airway Pressure	Procedure	ICD-10-PCS
5A0935A	Assistance with Respiratory Ventilation, Less than 24 Consecutive Hours, High Nasal Flow/Velocity	Procedure	ICD-10-PCS
5A0935B	Assistance with Respiratory Ventilation, Less than 24 Consecutive Hours, Intermittent Negative Airway Pressure	Procedure	ICD-10-PCS
5A0935Z	Assistance with Respiratory Ventilation, Less than 24 Consecutive Hours	Procedure	ICD-10-PCS
5A09457	Assistance with Respiratory Ventilation, 24-96 Consecutive Hours, Continuous Positive Airway Pressure	Procedure	ICD-10-PCS
5A09458	Assistance with Respiratory Ventilation, 24-96 Consecutive Hours, Intermittent Positive Airway Pressure	Procedure	ICD-10-PCS
5A09459	Assistance with Respiratory Ventilation, 24-96 Consecutive Hours, Continuous Negative Airway Pressure	Procedure	ICD-10-PCS
5A0945A	Assistance with Respiratory Ventilation, 24-96 Consecutive Hours, High Nasal Flow/Velocity	Procedure	ICD-10-PCS
5A0945B	Assistance with Respiratory Ventilation, 24-96 Consecutive Hours, Intermittent Negative Airway Pressure	Procedure	ICD-10-PCS
5A0945Z	Assistance with Respiratory Ventilation, 24-96 Consecutive Hours	Procedure	ICD-10-PCS
5A09557	Assistance with Respiratory Ventilation, Greater than 96 Consecutive Hours, Continuous Positive Airway Pressure	Procedure	ICD-10-PCS
5A09558	Assistance with Respiratory Ventilation, Greater than 96 Consecutive Hours, Intermittent Positive Airway Pressure	Procedure	ICD-10-PCS
5A09559	Assistance with Respiratory Ventilation, Greater than 96 Consecutive Hours, Continuous Negative Airway Pressure	Procedure	ICD-10-PCS
5A0955A	Assistance with Respiratory Ventilation, Greater than 96 Consecutive Hours, High Nasal Flow/Velocity	Procedure	ICD-10-PCS
5A0955B	Assistance with Respiratory Ventilation, Greater than 96 Consecutive Hours, Intermittent Negative Airway Pressure	Procedure	ICD-10-PCS
5A0955Z	Assistance with Respiratory Ventilation, Greater than 96 Consecutive Hours	Procedure	ICD-10-PCS
5A1935Z	Respiratory Ventilation, Less than 24 Consecutive Hours	Procedure	ICD-10-PCS
5A1945Z	Respiratory Ventilation, 24-96 Consecutive Hours	Procedure	ICD-10-PCS
5A1955Z	Respiratory Ventilation, Greater than 96 Consecutive Hours	Procedure	ICD-10-PCS

Appendix AX. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Revenue (RE) Codes Used to Define Outcomes in this Request

Code	Description	Code Category	Code Type
94002	Ventilation assist and management, initiation of pressure or volume preset ventilators for assisted or controlled breathing; hospital inpatient/observation, initial day	Procedure	CPT-4
94003	Ventilation assist and management, initiation of pressure or volume preset ventilators for assisted or controlled breathing; hospital inpatient/observation, each subsequent day	Procedure	CPT-4
94004	Ventilation assist and management, initiation of pressure or volume preset ventilators for assisted or controlled breathing; nursing facility, per day	Procedure	CPT-4
94656	Ventilation assist and management, initiation of pressure or volume preset ventilators for assisted or controlled breathing; first day	Procedure	CPT-4
94657	Ventilation assist and management, initiation of pressure or volume preset ventilators for assisted or controlled breathing; subsequent days	Procedure	CPT-4
A0396	ALS specialized service disposable supplies; esophageal intubation	Procedure	HCPCS
A4483	Moisture exchanger, disposable, for use with invasive mechanical ventilation	Procedure	HCPCS
A4608	Transtracheal oxygen catheter, each	Procedure	HCPCS
A4623	Tracheostomy, inner cannula	Procedure	HCPCS
A4624	Tracheal suction catheter, any type other than closed system, each	Procedure	HCPCS
Z99.1	Dependence on respirator	Diagnosis	ICD-10-CM
Z99.11	Dependence on respirator [ventilator] status	Diagnosis	ICD-10-CM
Z99.12	Encounter for respirator [ventilator] dependence during power failure	Diagnosis	ICD-10-CM

Appendix AY. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), and International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Inclusion Criteria in this Request

Code	Description	Code Category	Code Type
Gastroesophageal Reflux Disease (GERD)			
0057T	Upper gastrointestinal endoscopy, including esophagus, stomach, and either the duodenum and/or jejunum as appropriate, with delivery of thermal energy to the muscle of the lower esophageal sphincter and/or gastric cardia, for treatment of gastroesophageal reflux disease	Procedure	CPT-3
0133T	Upper gastrointestinal endoscopy, including esophagus, stomach, and either the duodenum and/or jejunum as appropriate, with injection of implant material into and along the muscle of the lower esophageal sphincter (eg, for treatment of gastroesophageal reflux disease)	Procedure	CPT-3
1070F	Alarm symptoms (involuntary weight loss, dysphagia, or gastrointestinal bleeding) assessed; none present (GERD)	Procedure	CPT-2
1071F	Alarm symptoms (involuntary weight loss, dysphagia, or gastrointestinal bleeding) assessed; 1 or more present (GERD)	Procedure	CPT-2
1118F	GERD symptoms assessed after 12 months of therapy (GERD)	Procedure	CPT-2
3130F	Upper gastrointestinal endoscopy performed (GERD)	Procedure	CPT-2
3132F	Documentation of referral for upper gastrointestinal endoscopy (GERD)	Procedure	CPT-2
3140F	Upper gastrointestinal endoscopy report indicates suspicion of Barrett's esophagus (GERD)	Procedure	CPT-2
3141F	Upper gastrointestinal endoscopy report indicates no suspicion of Barrett's esophagus (GERD)	Procedure	CPT-2
3142F	Barium swallow test ordered (GERD)	Procedure	CPT-2
3143F	Documentation of order for barium swallow test (GERD)5	Procedure	CPT-2
3150F	Forceps esophageal biopsy performed (GERD)	Procedure	CPT-2
3200F	Barium swallow test not ordered (GERD)	Procedure	CPT-2
4185F	Continuous (12-months) therapy with proton pump inhibitor (PPI) or histamine H2 receptor antagonist (H2RA) received (GERD)	Procedure	CPT-2
4186F	No continuous (12-months) therapy with either proton pump inhibitor (PPI) or histamine H2 receptor antagonist (H2RA) received (GERD)	Procedure	CPT-2
43257	Esophagogastroduodenoscopy, flexible, transoral; with delivery of thermal energy to the muscle of lower esophageal sphincter and/or gastric cardia, for treatment of gastroesophageal reflux disease	Procedure	CPT-4
C9712	Insertion of a pH capsule for measurement and monitoring of gastroesophageal reflux disease, includes data collection and interpretation	Procedure	HCPCS
K21	Gastro-esophageal reflux disease	Diagnosis	ICD-10-CM
K21.0	Gastro-esophageal reflux disease with esophagitis	Diagnosis	ICD-10-CM
K21.00	Gastro-esophageal reflux disease with esophagitis, without bleeding	Diagnosis	ICD-10-CM
K21.01	Gastro-esophageal reflux disease with esophagitis, with bleeding	Diagnosis	ICD-10-CM
K21.9	Gastro-esophageal reflux disease without esophagitis	Diagnosis	ICD-10-CM
M1056	Prescribed anticoagulant medication during the performance period, history of GI bleeding, history of intracranial bleeding, bleeding disorder and specific provider documented reasons: allergy to aspirin or antiplatelets, use of nonsteroidal antiinflammatory agents, drug-drug interaction, uncontrolled hypertension > 180/110 mm Hg or gastroesophageal reflux disease	Procedure	HCPCS

Appendix AY. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), and International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Inclusion Criteria in this Request

Code	Description	Code Category	Code Type
S2215	Upper gastrointestinal endoscopy, including esophagus, stomach, and either the duodenum and/or jejunum as appropriate; with injection of implant material into and along the muscle of the lower esophageal sphincter for treatment of gastroesophageal reflux disease	Procedure	HCPCS
COVID-19 Diagnosis			
B97.29	Other coronavirus as the cause of diseases classified elsewhere	Diagnosis	ICD-10-CM
U07.1	COVID-19	Diagnosis	ICD-10-CM

Appendix AZ. List of SARS-CoV-2 Laboratory Tests Used to Define Exclusion Criteria in this Request

Laboratory Test Name	Laboratory Test Type	Specimen Source	Lab Result
SARS-CoV-2	Polymerase Chain Reaction (PCR)	bronchoalveolar lavage	Positive
SARS-CoV-2	Polymerase Chain Reaction (PCR)	blood	Positive
SARS-CoV-2	Polymerase Chain Reaction (PCR)	nasopharyngeal swab	Positive
SARS-CoV-2	Polymerase Chain Reaction (PCR)	nasopharyngeal wash	Positive
SARS-CoV-2	Polymerase Chain Reaction (PCR)	plasma	Positive
SARS-CoV-2	Polymerase Chain Reaction (PCR)	saliva	Positive
SARS-CoV-2	Polymerase Chain Reaction (PCR)	serum	Positive
SARS-CoV-2	Polymerase Chain Reaction (PCR)	sputum	Positive
SARS-CoV-2	Polymerase Chain Reaction (PCR)	serum/plasma	Positive
SARS-CoV-2	Polymerase Chain Reaction (PCR)	throat swab, oropharyngeal swab	Positive
SARS-CoV-2	Polymerase Chain Reaction (PCR)	unknown/missing	Positive

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
Diabetes			
E08	Diabetes mellitus due to underlying condition	Diagnosis	ICD-10-CM
E08.0	Diabetes mellitus due to underlying condition with hyperosmolarity	Diagnosis	ICD-10-CM
E08.00	Diabetes mellitus due to underlying condition with hyperosmolarity without nonketotic hyperglycemic-hyperosmolar coma (NKHHC)	Diagnosis	ICD-10-CM
E08.01	Diabetes mellitus due to underlying condition with hyperosmolarity with coma	Diagnosis	ICD-10-CM
E08.1	Diabetes mellitus due to underlying condition with ketoacidosis	Diagnosis	ICD-10-CM
E08.10	Diabetes mellitus due to underlying condition with ketoacidosis without coma	Diagnosis	ICD-10-CM
E08.11	Diabetes mellitus due to underlying condition with ketoacidosis with coma	Diagnosis	ICD-10-CM
E08.2	Diabetes mellitus due to underlying condition with kidney complications	Diagnosis	ICD-10-CM
E08.21	Diabetes mellitus due to underlying condition with diabetic nephropathy	Diagnosis	ICD-10-CM
E08.22	Diabetes mellitus due to underlying condition with diabetic chronic kidney disease	Diagnosis	ICD-10-CM
E08.29	Diabetes mellitus due to underlying condition with other diabetic kidney complication	Diagnosis	ICD-10-CM
E08.3	Diabetes mellitus due to underlying condition with ophthalmic complications	Diagnosis	ICD-10-CM
E08.31	Diabetes mellitus due to underlying condition with unspecified diabetic retinopathy	Diagnosis	ICD-10-CM
E08.311	Diabetes mellitus due to underlying condition with unspecified diabetic retinopathy with macular edema	Diagnosis	ICD-10-CM
E08.319	Diabetes mellitus due to underlying condition with unspecified diabetic retinopathy without macular edema	Diagnosis	ICD-10-CM
E08.32	Diabetes mellitus due to underlying condition with mild nonproliferative diabetic	Diagnosis	ICD-10-CM
E08.321	Diabetes mellitus due to underlying condition with mild nonproliferative diabetic retinopathy with macular edema	Diagnosis	ICD-10-CM
E08.3211	Diabetes mellitus due to underlying condition with mild nonproliferative diabetic retinopathy with macular edema, right eye	Diagnosis	ICD-10-CM
E08.3212	Diabetes mellitus due to underlying condition with mild nonproliferative diabetic retinopathy with macular edema, left eye	Diagnosis	ICD-10-CM
E08.3213	Diabetes mellitus due to underlying condition with mild nonproliferative diabetic retinopathy with macular edema, bilateral	Diagnosis	ICD-10-CM
E08.3219	Diabetes mellitus due to underlying condition with mild nonproliferative diabetic retinopathy with macular edema, unspecified eye	Diagnosis	ICD-10-CM
E08.329	Diabetes mellitus due to underlying condition with mild nonproliferative diabetic retinopathy without macular edema	Diagnosis	ICD-10-CM
E08.3291	Diabetes mellitus due to underlying condition with mild nonproliferative diabetic retinopathy without macular edema, right eye	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
E08.3292	Diabetes mellitus due to underlying condition with mild nonproliferative diabetic retinopathy without macular edema, left eye	Diagnosis	ICD-10-CM
E08.3293	Diabetes mellitus due to underlying condition with mild nonproliferative diabetic retinopathy without macular edema, bilateral	Diagnosis	ICD-10-CM
E08.3299	Diabetes mellitus due to underlying condition with mild nonproliferative diabetic retinopathy without macular edema, unspecified eye	Diagnosis	ICD-10-CM
E08.33	Diabetes mellitus due to underlying condition with moderate nonproliferative diabetic retinopathy	Diagnosis	ICD-10-CM
E08.331	Diabetes mellitus due to underlying condition with moderate nonproliferative diabetic retinopathy with macular edema	Diagnosis	ICD-10-CM
E08.3311	Diabetes mellitus due to underlying condition with moderate nonproliferative diabetic retinopathy with macular edema, right eye	Diagnosis	ICD-10-CM
E08.3312	Diabetes mellitus due to underlying condition with moderate nonproliferative diabetic retinopathy with macular edema, left eye	Diagnosis	ICD-10-CM
E08.3313	Diabetes mellitus due to underlying condition with moderate nonproliferative diabetic retinopathy with macular edema, bilateral	Diagnosis	ICD-10-CM
E08.3319	Diabetes mellitus due to underlying condition with moderate nonproliferative diabetic retinopathy with macular edema, unspecified eye	Diagnosis	ICD-10-CM
E08.339	Diabetes mellitus due to underlying condition with moderate nonproliferative diabetic retinopathy without macular edema	Diagnosis	ICD-10-CM
E08.3391	Diabetes mellitus due to underlying condition with moderate nonproliferative diabetic retinopathy without macular edema, right eye	Diagnosis	ICD-10-CM
E08.3392	Diabetes mellitus due to underlying condition with moderate nonproliferative diabetic retinopathy without macular edema, left eye	Diagnosis	ICD-10-CM
E08.3393	Diabetes mellitus due to underlying condition with moderate nonproliferative diabetic retinopathy without macular edema, bilateral	Diagnosis	ICD-10-CM
E08.3399	Diabetes mellitus due to underlying condition with moderate nonproliferative diabetic retinopathy without macular edema, unspecified eye	Diagnosis	ICD-10-CM
E08.34	Diabetes mellitus due to underlying condition with severe nonproliferative diabetic	Diagnosis	ICD-10-CM
E08.341	Diabetes mellitus due to underlying condition with severe nonproliferative diabetic retinopathy with macular edema	Diagnosis	ICD-10-CM
E08.3411	Diabetes mellitus due to underlying condition with severe nonproliferative diabetic retinopathy with macular edema, right eye	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
E08.3412	Diabetes mellitus due to underlying condition with severe nonproliferative diabetic retinopathy with macular edema, left eye	Diagnosis	ICD-10-CM
E08.3413	Diabetes mellitus due to underlying condition with severe nonproliferative diabetic retinopathy with macular edema, bilateral	Diagnosis	ICD-10-CM
E08.3419	Diabetes mellitus due to underlying condition with severe nonproliferative diabetic retinopathy with macular edema, unspecified eye	Diagnosis	ICD-10-CM
E08.349	Diabetes mellitus due to underlying condition with severe nonproliferative diabetic retinopathy without macular edema	Diagnosis	ICD-10-CM
E08.3491	Diabetes mellitus due to underlying condition with severe nonproliferative diabetic retinopathy without macular edema, right eye	Diagnosis	ICD-10-CM
E08.3492	Diabetes mellitus due to underlying condition with severe nonproliferative diabetic retinopathy without macular edema, left eye	Diagnosis	ICD-10-CM
E08.3493	Diabetes mellitus due to underlying condition with severe nonproliferative diabetic retinopathy without macular edema, bilateral	Diagnosis	ICD-10-CM
E08.3499	Diabetes mellitus due to underlying condition with severe nonproliferative diabetic retinopathy without macular edema, unspecified eye	Diagnosis	ICD-10-CM
E08.35	Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy	Diagnosis	ICD-10-CM
E08.351	Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy with macular edema	Diagnosis	ICD-10-CM
E08.3511	Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy with macular edema, right eye	Diagnosis	ICD-10-CM
E08.3512	Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy with macular edema, left eye	Diagnosis	ICD-10-CM
E08.3513	Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy with macular edema, bilateral	Diagnosis	ICD-10-CM
E08.3519	Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy with macular edema, unspecified eye	Diagnosis	ICD-10-CM
E08.352	Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy with traction retinal detachment involving the macula	Diagnosis	ICD-10-CM
E08.3521	Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy with traction retinal detachment involving the macula, right eye	Diagnosis	ICD-10-CM
E08.3522	Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy with traction retinal detachment involving the macula, left eye	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
E08.3523	Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy with traction retinal detachment involving the macula, bilateral	Diagnosis	ICD-10-CM
E08.3529	Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy with traction retinal detachment involving the macula, unspecified eye	Diagnosis	ICD-10-CM
E08.353	Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy with traction retinal detachment not involving the macula	Diagnosis	ICD-10-CM
E08.3531	Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, right eye	Diagnosis	ICD-10-CM
E08.3532	Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, left eye	Diagnosis	ICD-10-CM
E08.3533	Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, bilateral	Diagnosis	ICD-10-CM
E08.3539	Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, unspecified eye	Diagnosis	ICD-10-CM
E08.354	Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment	Diagnosis	ICD-10-CM
E08.3541	Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment, right eye	Diagnosis	ICD-10-CM
E08.3542	Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment, left eye	Diagnosis	ICD-10-CM
E08.3543	Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment, bilateral	Diagnosis	ICD-10-CM
E08.3549	Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment, unspecified eye	Diagnosis	ICD-10-CM
E08.355	Diabetes mellitus due to underlying condition with stable proliferative diabetic	Diagnosis	ICD-10-CM
E08.3551	Diabetes mellitus due to underlying condition with stable proliferative diabetic retinopathy, right eye	Diagnosis	ICD-10-CM
E08.3552	Diabetes mellitus due to underlying condition with stable proliferative diabetic retinopathy, left eye	Diagnosis	ICD-10-CM
E08.3553	Diabetes mellitus due to underlying condition with stable proliferative diabetic retinopathy, bilateral	Diagnosis	ICD-10-CM
E08.3559	Diabetes mellitus due to underlying condition with stable proliferative diabetic retinopathy, unspecified eye	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
E08.359	Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy without macular edema	Diagnosis	ICD-10-CM
E08.3591	Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy without macular edema, right eye	Diagnosis	ICD-10-CM
E08.3592	Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy without macular edema, left eye	Diagnosis	ICD-10-CM
E08.3593	Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy without macular edema, bilateral	Diagnosis	ICD-10-CM
E08.3599	Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy without macular edema, unspecified eye	Diagnosis	ICD-10-CM
E08.36	Diabetes mellitus due to underlying condition with diabetic cataract	Diagnosis	ICD-10-CM
E08.37	Diabetes mellitus due to underlying condition with diabetic macular edema, resolved following treatment	Diagnosis	ICD-10-CM
E08.37X1	Diabetes mellitus due to underlying condition with diabetic macular edema, resolved following treatment, right eye	Diagnosis	ICD-10-CM
E08.37X2	Diabetes mellitus due to underlying condition with diabetic macular edema, resolved following treatment, left eye	Diagnosis	ICD-10-CM
E08.37X3	Diabetes mellitus due to underlying condition with diabetic macular edema, resolved following treatment, bilateral	Diagnosis	ICD-10-CM
E08.37X9	Diabetes mellitus due to underlying condition with diabetic macular edema, resolved following treatment, unspecified eye	Diagnosis	ICD-10-CM
E08.39	Diabetes mellitus due to underlying condition with other diabetic ophthalmic	Diagnosis	ICD-10-CM
E08.4	Diabetes mellitus due to underlying condition with neurological complications	Diagnosis	ICD-10-CM
E08.40	Diabetes mellitus due to underlying condition with diabetic neuropathy, unspecified	Diagnosis	ICD-10-CM
E08.41	Diabetes mellitus due to underlying condition with diabetic mononeuropathy	Diagnosis	ICD-10-CM
E08.42	Diabetes mellitus due to underlying condition with diabetic polyneuropathy	Diagnosis	ICD-10-CM
E08.43	Diabetes mellitus due to underlying condition with diabetic autonomic	Diagnosis	ICD-10-CM
E08.44	Diabetes mellitus due to underlying condition with diabetic amyotrophy	Diagnosis	ICD-10-CM
E08.49	Diabetes mellitus due to underlying condition with other diabetic neurological	Diagnosis	ICD-10-CM
E08.5	Diabetes mellitus due to underlying condition with circulatory complications	Diagnosis	ICD-10-CM
E08.51	Diabetes mellitus due to underlying condition with diabetic peripheral angiopathy without gangrene	Diagnosis	ICD-10-CM
E08.52	Diabetes mellitus due to underlying condition with diabetic peripheral angiopathy with gangrene	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
E08.59	Diabetes mellitus due to underlying condition with other circulatory complications	Diagnosis	ICD-10-CM
E08.6	Diabetes mellitus due to underlying condition with other specified complications	Diagnosis	ICD-10-CM
E08.61	Diabetes mellitus due to underlying condition with diabetic arthropathy	Diagnosis	ICD-10-CM
E08.610	Diabetes mellitus due to underlying condition with diabetic neuropathic arthropathy	Diagnosis	ICD-10-CM
E08.618	Diabetes mellitus due to underlying condition with other diabetic arthropathy	Diagnosis	ICD-10-CM
E08.62	Diabetes mellitus due to underlying condition with skin complications	Diagnosis	ICD-10-CM
E08.620	Diabetes mellitus due to underlying condition with diabetic dermatitis	Diagnosis	ICD-10-CM
E08.621	Diabetes mellitus due to underlying condition with foot ulcer	Diagnosis	ICD-10-CM
E08.622	Diabetes mellitus due to underlying condition with other skin ulcer	Diagnosis	ICD-10-CM
E08.628	Diabetes mellitus due to underlying condition with other skin complications	Diagnosis	ICD-10-CM
E08.63	Diabetes mellitus due to underlying condition with oral complications	Diagnosis	ICD-10-CM
E08.630	Diabetes mellitus due to underlying condition with periodontal disease	Diagnosis	ICD-10-CM
E08.638	Diabetes mellitus due to underlying condition with other oral complications	Diagnosis	ICD-10-CM
E08.64	Diabetes mellitus due to underlying condition with hypoglycemia	Diagnosis	ICD-10-CM
E08.641	Diabetes mellitus due to underlying condition with hypoglycemia with coma	Diagnosis	ICD-10-CM
E08.649	Diabetes mellitus due to underlying condition with hypoglycemia without coma	Diagnosis	ICD-10-CM
E08.65	Diabetes mellitus due to underlying condition with hyperglycemia	Diagnosis	ICD-10-CM
E08.69	Diabetes mellitus due to underlying condition with other specified complication	Diagnosis	ICD-10-CM
E08.8	Diabetes mellitus due to underlying condition with unspecified complications	Diagnosis	ICD-10-CM
E08.9	Diabetes mellitus due to underlying condition without complications	Diagnosis	ICD-10-CM
E09	Drug or chemical induced diabetes mellitus	Diagnosis	ICD-10-CM
E09.0	Drug or chemical induced diabetes mellitus with hyperosmolarity	Diagnosis	ICD-10-CM
E09.00	Drug or chemical induced diabetes mellitus with hyperosmolarity without nonketotic hyperglycemic-hyperosmolar coma (NKHHC)	Diagnosis	ICD-10-CM
E09.01	Drug or chemical induced diabetes mellitus with hyperosmolarity with coma	Diagnosis	ICD-10-CM
E09.1	Drug or chemical induced diabetes mellitus with ketoacidosis	Diagnosis	ICD-10-CM
E09.10	Drug or chemical induced diabetes mellitus with ketoacidosis without coma	Diagnosis	ICD-10-CM
E09.11	Drug or chemical induced diabetes mellitus with ketoacidosis with coma	Diagnosis	ICD-10-CM
E09.2	Drug or chemical induced diabetes mellitus with kidney complications	Diagnosis	ICD-10-CM
E09.21	Drug or chemical induced diabetes mellitus with diabetic nephropathy	Diagnosis	ICD-10-CM
E09.22	Drug or chemical induced diabetes mellitus with diabetic chronic kidney disease	Diagnosis	ICD-10-CM
E09.29	Drug or chemical induced diabetes mellitus with other diabetic kidney complication	Diagnosis	ICD-10-CM
E09.3	Drug or chemical induced diabetes mellitus with ophthalmic complications	Diagnosis	ICD-10-CM
E09.31	Drug or chemical induced diabetes mellitus with unspecified diabetic retinopathy	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
E09.311	Drug or chemical induced diabetes mellitus with unspecified diabetic retinopathy with macular edema	Diagnosis	ICD-10-CM
E09.319	Drug or chemical induced diabetes mellitus with unspecified diabetic retinopathy without macular edema	Diagnosis	ICD-10-CM
E09.32	Drug or chemical induced diabetes mellitus with mild nonproliferative diabetic	Diagnosis	ICD-10-CM
E09.321	Drug or chemical induced diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema	Diagnosis	ICD-10-CM
E09.3211	Drug or chemical induced diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, right eye	Diagnosis	ICD-10-CM
E09.3212	Drug or chemical induced diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, left eye	Diagnosis	ICD-10-CM
E09.3213	Drug or chemical induced diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, bilateral	Diagnosis	ICD-10-CM
E09.3219	Drug or chemical induced diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, unspecified eye	Diagnosis	ICD-10-CM
E09.329	Drug or chemical induced diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema	Diagnosis	ICD-10-CM
E09.3291	Drug or chemical induced diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, right eye	Diagnosis	ICD-10-CM
E09.3292	Drug or chemical induced diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, left eye	Diagnosis	ICD-10-CM
E09.3293	Drug or chemical induced diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, bilateral	Diagnosis	ICD-10-CM
E09.3299	Drug or chemical induced diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, unspecified eye	Diagnosis	ICD-10-CM
E09.33	Drug or chemical induced diabetes mellitus with moderate nonproliferative diabetic	Diagnosis	ICD-10-CM
E09.331	Drug or chemical induced diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema	Diagnosis	ICD-10-CM
E09.3311	Drug or chemical induced diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, right eye	Diagnosis	ICD-10-CM
E09.3312	Drug or chemical induced diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, left eye	Diagnosis	ICD-10-CM
E09.3313	Drug or chemical induced diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, bilateral	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
E09.3319	Drug or chemical induced diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, unspecified eye	Diagnosis	ICD-10-CM
E09.339	Drug or chemical induced diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema	Diagnosis	ICD-10-CM
E09.3391	Drug or chemical induced diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, right eye	Diagnosis	ICD-10-CM
E09.3392	Drug or chemical induced diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, left eye	Diagnosis	ICD-10-CM
E09.3393	Drug or chemical induced diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, bilateral	Diagnosis	ICD-10-CM
E09.3399	Drug or chemical induced diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, unspecified eye	Diagnosis	ICD-10-CM
E09.34	Drug or chemical induced diabetes mellitus with severe nonproliferative diabetic	Diagnosis	ICD-10-CM
E09.341	Drug or chemical induced diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema	Diagnosis	ICD-10-CM
E09.3411	Drug or chemical induced diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, right eye	Diagnosis	ICD-10-CM
E09.3412	Drug or chemical induced diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, left eye	Diagnosis	ICD-10-CM
E09.3413	Drug or chemical induced diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, bilateral	Diagnosis	ICD-10-CM
E09.3419	Drug or chemical induced diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, unspecified eye	Diagnosis	ICD-10-CM
E09.349	Drug or chemical induced diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema	Diagnosis	ICD-10-CM
E09.3491	Drug or chemical induced diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema, right eye	Diagnosis	ICD-10-CM
E09.3492	Drug or chemical induced diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema, left eye	Diagnosis	ICD-10-CM
E09.3493	Drug or chemical induced diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema, bilateral	Diagnosis	ICD-10-CM
E09.3499	Drug or chemical induced diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema, unspecified eye	Diagnosis	ICD-10-CM
E09.35	Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
E09.351	Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy with macular edema	Diagnosis	ICD-10-CM
E09.3511	Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy with macular edema, right eye	Diagnosis	ICD-10-CM
E09.3512	Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy with macular edema, left eye	Diagnosis	ICD-10-CM
E09.3513	Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy with macular edema, bilateral	Diagnosis	ICD-10-CM
E09.3519	Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy with macular edema, unspecified eye	Diagnosis	ICD-10-CM
E09.352	Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula	Diagnosis	ICD-10-CM
E09.3521	Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula, right eye	Diagnosis	ICD-10-CM
E09.3522	Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula, left eye	Diagnosis	ICD-10-CM
E09.3523	Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula, bilateral	Diagnosis	ICD-10-CM
E09.3529	Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula, unspecified eye	Diagnosis	ICD-10-CM
E09.353	Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula	Diagnosis	ICD-10-CM
E09.3531	Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, right eye	Diagnosis	ICD-10-CM
E09.3532	Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, left eye	Diagnosis	ICD-10-CM
E09.3533	Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, bilateral	Diagnosis	ICD-10-CM
E09.3539	Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, unspecified eye	Diagnosis	ICD-10-CM
E09.354	Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
E09.3541	Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment, right eye	Diagnosis	ICD-10-CM
E09.3542	Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment, left eye	Diagnosis	ICD-10-CM
E09.3543	Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment, bilateral	Diagnosis	ICD-10-CM
E09.3549	Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment, unspecified eye	Diagnosis	ICD-10-CM
E09.355	Drug or chemical induced diabetes mellitus with stable proliferative diabetic	Diagnosis	ICD-10-CM
E09.3551	Drug or chemical induced diabetes mellitus with stable proliferative diabetic retinopathy, right eye	Diagnosis	ICD-10-CM
E09.3552	Drug or chemical induced diabetes mellitus with stable proliferative diabetic retinopathy, left eye	Diagnosis	ICD-10-CM
E09.3553	Drug or chemical induced diabetes mellitus with stable proliferative diabetic retinopathy, bilateral	Diagnosis	ICD-10-CM
E09.3559	Drug or chemical induced diabetes mellitus with stable proliferative diabetic retinopathy, unspecified eye	Diagnosis	ICD-10-CM
E09.359	Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy without macular edema	Diagnosis	ICD-10-CM
E09.3591	Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy without macular edema, right eye	Diagnosis	ICD-10-CM
E09.3592	Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy without macular edema, left eye	Diagnosis	ICD-10-CM
E09.3593	Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy without macular edema, bilateral	Diagnosis	ICD-10-CM
E09.3599	Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy without macular edema, unspecified eye	Diagnosis	ICD-10-CM
E09.36	Drug or chemical induced diabetes mellitus with diabetic cataract	Diagnosis	ICD-10-CM
E09.37	Drug or chemical induced diabetes mellitus with diabetic macular edema, resolved following treatment	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
E09.37X1	Drug or chemical induced diabetes mellitus with diabetic macular edema, resolved following treatment, right eye	Diagnosis	ICD-10-CM
E09.37X2	Drug or chemical induced diabetes mellitus with diabetic macular edema, resolved following treatment, left eye	Diagnosis	ICD-10-CM
E09.37X3	Drug or chemical induced diabetes mellitus with diabetic macular edema, resolved following treatment, bilateral	Diagnosis	ICD-10-CM
E09.37X9	Drug or chemical induced diabetes mellitus with diabetic macular edema, resolved following treatment, unspecified eye	Diagnosis	ICD-10-CM
E09.39	Drug or chemical induced diabetes mellitus with other diabetic ophthalmic	Diagnosis	ICD-10-CM
E09.4	Drug or chemical induced diabetes mellitus with neurological complications	Diagnosis	ICD-10-CM
E09.40	Drug or chemical induced diabetes mellitus with neurological complications with diabetic neuropathy, unspecified	Diagnosis	ICD-10-CM
E09.41	Drug or chemical induced diabetes mellitus with neurological complications with diabetic mononeuropathy	Diagnosis	ICD-10-CM
E09.42	Drug or chemical induced diabetes mellitus with neurological complications with diabetic polyneuropathy	Diagnosis	ICD-10-CM
E09.43	Drug or chemical induced diabetes mellitus with neurological complications with diabetic autonomic (poly)neuropathy	Diagnosis	ICD-10-CM
E09.44	Drug or chemical induced diabetes mellitus with neurological complications with diabetic amyotrophy	Diagnosis	ICD-10-CM
E09.49	Drug or chemical induced diabetes mellitus with neurological complications with other diabetic neurological complication	Diagnosis	ICD-10-CM
E09.5	Drug or chemical induced diabetes mellitus with circulatory complications	Diagnosis	ICD-10-CM
E09.51	Drug or chemical induced diabetes mellitus with diabetic peripheral angiopathy without gangrene	Diagnosis	ICD-10-CM
E09.52	Drug or chemical induced diabetes mellitus with diabetic peripheral angiopathy with	Diagnosis	ICD-10-CM
E09.59	Drug or chemical induced diabetes mellitus with other circulatory complications	Diagnosis	ICD-10-CM
E09.6	Drug or chemical induced diabetes mellitus with other specified complications	Diagnosis	ICD-10-CM
E09.61	Drug or chemical induced diabetes mellitus with diabetic arthropathy	Diagnosis	ICD-10-CM
E09.610	Drug or chemical induced diabetes mellitus with diabetic neuropathic arthropathy	Diagnosis	ICD-10-CM
E09.618	Drug or chemical induced diabetes mellitus with other diabetic arthropathy	Diagnosis	ICD-10-CM
E09.62	Drug or chemical induced diabetes mellitus with skin complications	Diagnosis	ICD-10-CM
E09.620	Drug or chemical induced diabetes mellitus with diabetic dermatitis	Diagnosis	ICD-10-CM
E09.621	Drug or chemical induced diabetes mellitus with foot ulcer	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
E09.622	Drug or chemical induced diabetes mellitus with other skin ulcer	Diagnosis	ICD-10-CM
E09.628	Drug or chemical induced diabetes mellitus with other skin complications	Diagnosis	ICD-10-CM
E09.63	Drug or chemical induced diabetes mellitus with oral complications	Diagnosis	ICD-10-CM
E09.630	Drug or chemical induced diabetes mellitus with periodontal disease	Diagnosis	ICD-10-CM
E09.638	Drug or chemical induced diabetes mellitus with other oral complications	Diagnosis	ICD-10-CM
E09.64	Drug or chemical induced diabetes mellitus with hypoglycemia	Diagnosis	ICD-10-CM
E09.641	Drug or chemical induced diabetes mellitus with hypoglycemia with coma	Diagnosis	ICD-10-CM
E09.649	Drug or chemical induced diabetes mellitus with hypoglycemia without coma	Diagnosis	ICD-10-CM
E09.65	Drug or chemical induced diabetes mellitus with hyperglycemia	Diagnosis	ICD-10-CM
E09.69	Drug or chemical induced diabetes mellitus with other specified complication	Diagnosis	ICD-10-CM
E09.8	Drug or chemical induced diabetes mellitus with unspecified complications	Diagnosis	ICD-10-CM
E09.9	Drug or chemical induced diabetes mellitus without complications	Diagnosis	ICD-10-CM
E10	Type 1 diabetes mellitus	Diagnosis	ICD-10-CM
E10.1	Type 1 diabetes mellitus with ketoacidosis	Diagnosis	ICD-10-CM
E10.10	Type 1 diabetes mellitus with ketoacidosis without coma	Diagnosis	ICD-10-CM
E10.11	Type 1 diabetes mellitus with ketoacidosis with coma	Diagnosis	ICD-10-CM
E10.2	Type 1 diabetes mellitus with kidney complications	Diagnosis	ICD-10-CM
E10.21	Type 1 diabetes mellitus with diabetic nephropathy	Diagnosis	ICD-10-CM
E10.22	Type 1 diabetes mellitus with diabetic chronic kidney disease	Diagnosis	ICD-10-CM
E10.29	Type 1 diabetes mellitus with other diabetic kidney complication	Diagnosis	ICD-10-CM
E10.3	Type 1 diabetes mellitus with ophthalmic complications	Diagnosis	ICD-10-CM
E10.31	Type 1 diabetes mellitus with unspecified diabetic retinopathy	Diagnosis	ICD-10-CM
E10.311	Type 1 diabetes mellitus with unspecified diabetic retinopathy with macular edema	Diagnosis	ICD-10-CM
E10.319	Type 1 diabetes mellitus with unspecified diabetic retinopathy without macular edema	Diagnosis	ICD-10-CM
E10.32	Type 1 diabetes mellitus with mild nonproliferative diabetic retinopathy	Diagnosis	ICD-10-CM
E10.321	Type 1 diabetes mellitus with mild nonproliferative diabetic retinopathy with macular	Diagnosis	ICD-10-CM
E10.3211	Type 1 diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, right eye	Diagnosis	ICD-10-CM
E10.3212	Type 1 diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, left eye	Diagnosis	ICD-10-CM
E10.3213	Type 1 diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, bilateral	Diagnosis	ICD-10-CM
E10.3219	Type 1 diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, unspecified eye	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
E10.329	Type 1 diabetes mellitus with mild nonproliferative diabetic retinopathy without	Diagnosis	ICD-10-CM
E10.3291	Type 1 diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, right eye	Diagnosis	ICD-10-CM
E10.3292	Type 1 diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, left eye	Diagnosis	ICD-10-CM
E10.3293	Type 1 diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, bilateral	Diagnosis	ICD-10-CM
E10.3299	Type 1 diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, unspecified eye	Diagnosis	ICD-10-CM
E10.33	Type 1 diabetes mellitus with moderate nonproliferative diabetic retinopathy	Diagnosis	ICD-10-CM
E10.331	Type 1 diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema	Diagnosis	ICD-10-CM
E10.3311	Type 1 diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, right eye	Diagnosis	ICD-10-CM
E10.3312	Type 1 diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, left eye	Diagnosis	ICD-10-CM
E10.3313	Type 1 diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, bilateral	Diagnosis	ICD-10-CM
E10.3319	Type 1 diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, unspecified eye	Diagnosis	ICD-10-CM
E10.339	Type 1 diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema	Diagnosis	ICD-10-CM
E10.3391	Type 1 diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, right eye	Diagnosis	ICD-10-CM
E10.3392	Type 1 diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, left eye	Diagnosis	ICD-10-CM
E10.3393	Type 1 diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, bilateral	Diagnosis	ICD-10-CM
E10.3399	Type 1 diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, unspecified eye	Diagnosis	ICD-10-CM
E10.34	Type 1 diabetes mellitus with severe nonproliferative diabetic retinopathy	Diagnosis	ICD-10-CM
E10.341	Type 1 diabetes mellitus with severe nonproliferative diabetic retinopathy with	Diagnosis	ICD-10-CM
E10.3411	Type 1 diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, right eye	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
E10.3412	Type 1 diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, left eye	Diagnosis	ICD-10-CM
E10.3413	Type 1 diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, bilateral	Diagnosis	ICD-10-CM
E10.3419	Type 1 diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, unspecified eye	Diagnosis	ICD-10-CM
E10.349	Type 1 diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema	Diagnosis	ICD-10-CM
E10.3491	Type 1 diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema, right eye	Diagnosis	ICD-10-CM
E10.3492	Type 1 diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema, left eye	Diagnosis	ICD-10-CM
E10.3493	Type 1 diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema, bilateral	Diagnosis	ICD-10-CM
E10.3499	Type 1 diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema, unspecified eye	Diagnosis	ICD-10-CM
E10.35	Type 1 diabetes mellitus with proliferative diabetic retinopathy	Diagnosis	ICD-10-CM
E10.351	Type 1 diabetes mellitus with proliferative diabetic retinopathy with macular edema	Diagnosis	ICD-10-CM
E10.3511	Type 1 diabetes mellitus with proliferative diabetic retinopathy with macular edema,	Diagnosis	ICD-10-CM
E10.3512	Type 1 diabetes mellitus with proliferative diabetic retinopathy with macular edema,	Diagnosis	ICD-10-CM
E10.3513	Type 1 diabetes mellitus with proliferative diabetic retinopathy with macular edema,	Diagnosis	ICD-10-CM
E10.3519	Type 1 diabetes mellitus with proliferative diabetic retinopathy with macular edema, unspecified eye	Diagnosis	ICD-10-CM
E10.352	Type 1 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula	Diagnosis	ICD-10-CM
E10.3521	Type 1 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula, right eye	Diagnosis	ICD-10-CM
E10.3522	Type 1 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula, left eye	Diagnosis	ICD-10-CM
E10.3523	Type 1 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula, bilateral	Diagnosis	ICD-10-CM
E10.3529	Type 1 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula, unspecified eye	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
E10.353	Type 1 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula	Diagnosis	ICD-10-CM
E10.3531	Type 1 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, right eye	Diagnosis	ICD-10-CM
E10.3532	Type 1 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, left eye	Diagnosis	ICD-10-CM
E10.3533	Type 1 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, bilateral	Diagnosis	ICD-10-CM
E10.3539	Type 1 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, unspecified eye	Diagnosis	ICD-10-CM
E10.354	Type 1 diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment	Diagnosis	ICD-10-CM
E10.3541	Type 1 diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment, right eye	Diagnosis	ICD-10-CM
E10.3542	Type 1 diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment, left eye	Diagnosis	ICD-10-CM
E10.3543	Type 1 diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment, bilateral	Diagnosis	ICD-10-CM
E10.3549	Type 1 diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment, unspecified eye	Diagnosis	ICD-10-CM
E10.355	Type 1 diabetes mellitus with stable proliferative diabetic retinopathy	Diagnosis	ICD-10-CM
E10.3551	Type 1 diabetes mellitus with stable proliferative diabetic retinopathy, right eye	Diagnosis	ICD-10-CM
E10.3552	Type 1 diabetes mellitus with stable proliferative diabetic retinopathy, left eye	Diagnosis	ICD-10-CM
E10.3553	Type 1 diabetes mellitus with stable proliferative diabetic retinopathy, bilateral	Diagnosis	ICD-10-CM
E10.3559	Type 1 diabetes mellitus with stable proliferative diabetic retinopathy, unspecified eye	Diagnosis	ICD-10-CM
E10.359	Type 1 diabetes mellitus with proliferative diabetic retinopathy without macular	Diagnosis	ICD-10-CM
E10.3591	Type 1 diabetes mellitus with proliferative diabetic retinopathy without macular edema, right eye	Diagnosis	ICD-10-CM
E10.3592	Type 1 diabetes mellitus with proliferative diabetic retinopathy without macular	Diagnosis	ICD-10-CM
E10.3593	Type 1 diabetes mellitus with proliferative diabetic retinopathy without macular edema, bilateral	Diagnosis	ICD-10-CM
E10.3599	Type 1 diabetes mellitus with proliferative diabetic retinopathy without macular edema, unspecified eye	Diagnosis	ICD-10-CM
E10.36	Type 1 diabetes mellitus with diabetic cataract	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
E10.37	Type 1 diabetes mellitus with diabetic macular edema, resolved following treatment	Diagnosis	ICD-10-CM
E10.37X1	Type 1 diabetes mellitus with diabetic macular edema, resolved following treatment,	Diagnosis	ICD-10-CM
E10.37X2	Type 1 diabetes mellitus with diabetic macular edema, resolved following treatment,	Diagnosis	ICD-10-CM
E10.37X3	Type 1 diabetes mellitus with diabetic macular edema, resolved following treatment,	Diagnosis	ICD-10-CM
E10.37X9	Type 1 diabetes mellitus with diabetic macular edema, resolved following treatment, unspecified eye	Diagnosis	ICD-10-CM
E10.39	Type 1 diabetes mellitus with other diabetic ophthalmic complication	Diagnosis	ICD-10-CM
E10.4	Type 1 diabetes mellitus with neurological complications	Diagnosis	ICD-10-CM
E10.40	Type 1 diabetes mellitus with diabetic neuropathy, unspecified	Diagnosis	ICD-10-CM
E10.41	Type 1 diabetes mellitus with diabetic mononeuropathy	Diagnosis	ICD-10-CM
E10.42	Type 1 diabetes mellitus with diabetic polyneuropathy	Diagnosis	ICD-10-CM
E10.43	Type 1 diabetes mellitus with diabetic autonomic (poly)neuropathy	Diagnosis	ICD-10-CM
E10.44	Type 1 diabetes mellitus with diabetic amyotrophy	Diagnosis	ICD-10-CM
E10.49	Type 1 diabetes mellitus with other diabetic neurological complication	Diagnosis	ICD-10-CM
E10.5	Type 1 diabetes mellitus with circulatory complications	Diagnosis	ICD-10-CM
E10.51	Type 1 diabetes mellitus with diabetic peripheral angiopathy without gangrene	Diagnosis	ICD-10-CM
E10.52	Type 1 diabetes mellitus with diabetic peripheral angiopathy with gangrene	Diagnosis	ICD-10-CM
E10.59	Type 1 diabetes mellitus with other circulatory complications	Diagnosis	ICD-10-CM
E10.6	Type 1 diabetes mellitus with other specified complications	Diagnosis	ICD-10-CM
E10.61	Type 1 diabetes mellitus with diabetic arthropathy	Diagnosis	ICD-10-CM
E10.610	Type 1 diabetes mellitus with diabetic neuropathic arthropathy	Diagnosis	ICD-10-CM
E10.618	Type 1 diabetes mellitus with other diabetic arthropathy	Diagnosis	ICD-10-CM
E10.62	Type 1 diabetes mellitus with skin complications	Diagnosis	ICD-10-CM
E10.620	Type 1 diabetes mellitus with diabetic dermatitis	Diagnosis	ICD-10-CM
E10.621	Type 1 diabetes mellitus with foot ulcer	Diagnosis	ICD-10-CM
E10.622	Type 1 diabetes mellitus with other skin ulcer	Diagnosis	ICD-10-CM
E10.628	Type 1 diabetes mellitus with other skin complications	Diagnosis	ICD-10-CM
E10.63	Type 1 diabetes mellitus with oral complications	Diagnosis	ICD-10-CM
E10.630	Type 1 diabetes mellitus with periodontal disease	Diagnosis	ICD-10-CM
E10.638	Type 1 diabetes mellitus with other oral complications	Diagnosis	ICD-10-CM
E10.64	Type 1 diabetes mellitus with hypoglycemia	Diagnosis	ICD-10-CM
E10.641	Type 1 diabetes mellitus with hypoglycemia with coma	Diagnosis	ICD-10-CM
E10.649	Type 1 diabetes mellitus with hypoglycemia without coma	Diagnosis	ICD-10-CM
E10.65	Type 1 diabetes mellitus with hyperglycemia	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
E10.69	Type 1 diabetes mellitus with other specified complication	Diagnosis	ICD-10-CM
E10.8	Type 1 diabetes mellitus with unspecified complications	Diagnosis	ICD-10-CM
E10.9	Type 1 diabetes mellitus without complications	Diagnosis	ICD-10-CM
E11	Type 2 diabetes mellitus	Diagnosis	ICD-10-CM
E11.0	Type 2 diabetes mellitus with hyperosmolarity	Diagnosis	ICD-10-CM
E11.00	Type 2 diabetes mellitus with hyperosmolarity without nonketotic hyperglycemic-hyperosmolar coma (NKHHC)	Diagnosis	ICD-10-CM
E11.01	Type 2 diabetes mellitus with hyperosmolarity with coma	Diagnosis	ICD-10-CM
E11.1	Type 2 diabetes mellitus with ketoacidosis	Diagnosis	ICD-10-CM
E11.10	Type 2 diabetes mellitus with ketoacidosis without coma	Diagnosis	ICD-10-CM
E11.11	Type 2 diabetes mellitus with ketoacidosis with coma	Diagnosis	ICD-10-CM
E11.2	Type 2 diabetes mellitus with kidney complications	Diagnosis	ICD-10-CM
E11.21	Type 2 diabetes mellitus with diabetic nephropathy	Diagnosis	ICD-10-CM
E11.22	Type 2 diabetes mellitus with diabetic chronic kidney disease	Diagnosis	ICD-10-CM
E11.29	Type 2 diabetes mellitus with other diabetic kidney complication	Diagnosis	ICD-10-CM
E11.3	Type 2 diabetes mellitus with ophthalmic complications	Diagnosis	ICD-10-CM
E11.31	Type 2 diabetes mellitus with unspecified diabetic retinopathy	Diagnosis	ICD-10-CM
E11.311	Type 2 diabetes mellitus with unspecified diabetic retinopathy with macular edema	Diagnosis	ICD-10-CM
E11.319	Type 2 diabetes mellitus with unspecified diabetic retinopathy without macular edema	Diagnosis	ICD-10-CM
E11.32	Type 2 diabetes mellitus with mild nonproliferative diabetic retinopathy	Diagnosis	ICD-10-CM
E11.321	Type 2 diabetes mellitus with mild nonproliferative diabetic retinopathy with macular	Diagnosis	ICD-10-CM
E11.3211	Type 2 diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, right eye	Diagnosis	ICD-10-CM
E11.3212	Type 2 diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, left eye	Diagnosis	ICD-10-CM
E11.3213	Type 2 diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, bilateral	Diagnosis	ICD-10-CM
E11.3219	Type 2 diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, unspecified eye	Diagnosis	ICD-10-CM
E11.329	Type 2 diabetes mellitus with mild nonproliferative diabetic retinopathy without	Diagnosis	ICD-10-CM
E11.3291	Type 2 diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, right eye	Diagnosis	ICD-10-CM
E11.3292	Type 2 diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, left eye	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
E11.3293	Type 2 diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, bilateral	Diagnosis	ICD-10-CM
E11.3299	Type 2 diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, unspecified eye	Diagnosis	ICD-10-CM
E11.33	Type 2 diabetes mellitus with moderate nonproliferative diabetic retinopathy	Diagnosis	ICD-10-CM
E11.331	Type 2 diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema	Diagnosis	ICD-10-CM
E11.3311	Type 2 diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, right eye	Diagnosis	ICD-10-CM
E11.3312	Type 2 diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, left eye	Diagnosis	ICD-10-CM
E11.3313	Type 2 diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, bilateral	Diagnosis	ICD-10-CM
E11.3319	Type 2 diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, unspecified eye	Diagnosis	ICD-10-CM
E11.339	Type 2 diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema	Diagnosis	ICD-10-CM
E11.3391	Type 2 diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, right eye	Diagnosis	ICD-10-CM
E11.3392	Type 2 diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, left eye	Diagnosis	ICD-10-CM
E11.3393	Type 2 diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, bilateral	Diagnosis	ICD-10-CM
E11.3399	Type 2 diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, unspecified eye	Diagnosis	ICD-10-CM
E11.34	Type 2 diabetes mellitus with severe nonproliferative diabetic retinopathy	Diagnosis	ICD-10-CM
E11.341	Type 2 diabetes mellitus with severe nonproliferative diabetic retinopathy with	Diagnosis	ICD-10-CM
E11.3411	Type 2 diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, right eye	Diagnosis	ICD-10-CM
E11.3412	Type 2 diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, left eye	Diagnosis	ICD-10-CM
E11.3413	Type 2 diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, bilateral	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
E11.3419	Type 2 diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, unspecified eye	Diagnosis	ICD-10-CM
E11.349	Type 2 diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema	Diagnosis	ICD-10-CM
E11.3491	Type 2 diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema, right eye	Diagnosis	ICD-10-CM
E11.3492	Type 2 diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema, left eye	Diagnosis	ICD-10-CM
E11.3493	Type 2 diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema, bilateral	Diagnosis	ICD-10-CM
E11.3499	Type 2 diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema, unspecified eye	Diagnosis	ICD-10-CM
E11.35	Type 2 diabetes mellitus with proliferative diabetic retinopathy	Diagnosis	ICD-10-CM
E11.351	Type 2 diabetes mellitus with proliferative diabetic retinopathy with macular edema	Diagnosis	ICD-10-CM
E11.3511	Type 2 diabetes mellitus with proliferative diabetic retinopathy with macular edema,	Diagnosis	ICD-10-CM
E11.3512	Type 2 diabetes mellitus with proliferative diabetic retinopathy with macular edema,	Diagnosis	ICD-10-CM
E11.3513	Type 2 diabetes mellitus with proliferative diabetic retinopathy with macular edema,	Diagnosis	ICD-10-CM
E11.3519	Type 2 diabetes mellitus with proliferative diabetic retinopathy with macular edema, unspecified eye	Diagnosis	ICD-10-CM
E11.352	Type 2 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula	Diagnosis	ICD-10-CM
E11.3521	Type 2 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula, right eye	Diagnosis	ICD-10-CM
E11.3522	Type 2 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula, left eye	Diagnosis	ICD-10-CM
E11.3523	Type 2 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula, bilateral	Diagnosis	ICD-10-CM
E11.3529	Type 2 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula, unspecified eye	Diagnosis	ICD-10-CM
E11.353	Type 2 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula	Diagnosis	ICD-10-CM
E11.3531	Type 2 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, right eye	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
E11.3532	Type 2 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, left eye	Diagnosis	ICD-10-CM
E11.3533	Type 2 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, bilateral	Diagnosis	ICD-10-CM
E11.3539	Type 2 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, unspecified eye	Diagnosis	ICD-10-CM
E11.354	Type 2 diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment	Diagnosis	ICD-10-CM
E11.3541	Type 2 diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment, right eye	Diagnosis	ICD-10-CM
E11.3542	Type 2 diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment, left eye	Diagnosis	ICD-10-CM
E11.3543	Type 2 diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment, bilateral	Diagnosis	ICD-10-CM
E11.3549	Type 2 diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment, unspecified eye	Diagnosis	ICD-10-CM
E11.355	Type 2 diabetes mellitus with stable proliferative diabetic retinopathy	Diagnosis	ICD-10-CM
E11.3551	Type 2 diabetes mellitus with stable proliferative diabetic retinopathy, right eye	Diagnosis	ICD-10-CM
E11.3552	Type 2 diabetes mellitus with stable proliferative diabetic retinopathy, left eye	Diagnosis	ICD-10-CM
E11.3553	Type 2 diabetes mellitus with stable proliferative diabetic retinopathy, bilateral	Diagnosis	ICD-10-CM
E11.3559	Type 2 diabetes mellitus with stable proliferative diabetic retinopathy, unspecified eye	Diagnosis	ICD-10-CM
E11.359	Type 2 diabetes mellitus with proliferative diabetic retinopathy without macular	Diagnosis	ICD-10-CM
E11.3591	Type 2 diabetes mellitus with proliferative diabetic retinopathy without macular edema, right eye	Diagnosis	ICD-10-CM
E11.3592	Type 2 diabetes mellitus with proliferative diabetic retinopathy without macular	Diagnosis	ICD-10-CM
E11.3593	Type 2 diabetes mellitus with proliferative diabetic retinopathy without macular edema, bilateral	Diagnosis	ICD-10-CM
E11.3599	Type 2 diabetes mellitus with proliferative diabetic retinopathy without macular edema, unspecified eye	Diagnosis	ICD-10-CM
E11.36	Type 2 diabetes mellitus with diabetic cataract	Diagnosis	ICD-10-CM
E11.37	Type 2 diabetes mellitus with diabetic macular edema, resolved following treatment	Diagnosis	ICD-10-CM
E11.37X1	Type 2 diabetes mellitus with diabetic macular edema, resolved following treatment,	Diagnosis	ICD-10-CM
E11.37X2	Type 2 diabetes mellitus with diabetic macular edema, resolved following treatment,	Diagnosis	ICD-10-CM
E11.37X3	Type 2 diabetes mellitus with diabetic macular edema, resolved following treatment,	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
E11.37X9	Type 2 diabetes mellitus with diabetic macular edema, resolved following treatment, unspecified eye	Diagnosis	ICD-10-CM
E11.39	Type 2 diabetes mellitus with other diabetic ophthalmic complication	Diagnosis	ICD-10-CM
E11.4	Type 2 diabetes mellitus with neurological complications	Diagnosis	ICD-10-CM
E11.40	Type 2 diabetes mellitus with diabetic neuropathy, unspecified	Diagnosis	ICD-10-CM
E11.41	Type 2 diabetes mellitus with diabetic mononeuropathy	Diagnosis	ICD-10-CM
E11.42	Type 2 diabetes mellitus with diabetic polyneuropathy	Diagnosis	ICD-10-CM
E11.43	Type 2 diabetes mellitus with diabetic autonomic (poly)neuropathy	Diagnosis	ICD-10-CM
E11.44	Type 2 diabetes mellitus with diabetic amyotrophy	Diagnosis	ICD-10-CM
E11.49	Type 2 diabetes mellitus with other diabetic neurological complication	Diagnosis	ICD-10-CM
E11.5	Type 2 diabetes mellitus with circulatory complications	Diagnosis	ICD-10-CM
E11.51	Type 2 diabetes mellitus with diabetic peripheral angiopathy without gangrene	Diagnosis	ICD-10-CM
E11.52	Type 2 diabetes mellitus with diabetic peripheral angiopathy with gangrene	Diagnosis	ICD-10-CM
E11.59	Type 2 diabetes mellitus with other circulatory complications	Diagnosis	ICD-10-CM
E11.6	Type 2 diabetes mellitus with other specified complications	Diagnosis	ICD-10-CM
E11.61	Type 2 diabetes mellitus with diabetic arthropathy	Diagnosis	ICD-10-CM
E11.610	Type 2 diabetes mellitus with diabetic neuropathic arthropathy	Diagnosis	ICD-10-CM
E11.618	Type 2 diabetes mellitus with other diabetic arthropathy	Diagnosis	ICD-10-CM
E11.62	Type 2 diabetes mellitus with skin complications	Diagnosis	ICD-10-CM
E11.620	Type 2 diabetes mellitus with diabetic dermatitis	Diagnosis	ICD-10-CM
E11.621	Type 2 diabetes mellitus with foot ulcer	Diagnosis	ICD-10-CM
E11.622	Type 2 diabetes mellitus with other skin ulcer	Diagnosis	ICD-10-CM
E11.628	Type 2 diabetes mellitus with other skin complications	Diagnosis	ICD-10-CM
E11.63	Type 2 diabetes mellitus with oral complications	Diagnosis	ICD-10-CM
E11.630	Type 2 diabetes mellitus with periodontal disease	Diagnosis	ICD-10-CM
E11.638	Type 2 diabetes mellitus with other oral complications	Diagnosis	ICD-10-CM
E11.64	Type 2 diabetes mellitus with hypoglycemia	Diagnosis	ICD-10-CM
E11.641	Type 2 diabetes mellitus with hypoglycemia with coma	Diagnosis	ICD-10-CM
E11.649	Type 2 diabetes mellitus with hypoglycemia without coma	Diagnosis	ICD-10-CM
E11.65	Type 2 diabetes mellitus with hyperglycemia	Diagnosis	ICD-10-CM
E11.69	Type 2 diabetes mellitus with other specified complication	Diagnosis	ICD-10-CM
E11.8	Type 2 diabetes mellitus with unspecified complications	Diagnosis	ICD-10-CM
E11.9	Type 2 diabetes mellitus without complications	Diagnosis	ICD-10-CM
E13	Other specified diabetes mellitus	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
E13.0	Other specified diabetes mellitus with hyperosmolarity	Diagnosis	ICD-10-CM
E13.00	Other specified diabetes mellitus with hyperosmolarity without nonketotic hyperglycemic-hyperosmolar coma (NKHHC)	Diagnosis	ICD-10-CM
E13.01	Other specified diabetes mellitus with hyperosmolarity with coma	Diagnosis	ICD-10-CM
E13.1	Other specified diabetes mellitus with ketoacidosis	Diagnosis	ICD-10-CM
E13.10	Other specified diabetes mellitus with ketoacidosis without coma	Diagnosis	ICD-10-CM
E13.11	Other specified diabetes mellitus with ketoacidosis with coma	Diagnosis	ICD-10-CM
E13.2	Other specified diabetes mellitus with kidney complications	Diagnosis	ICD-10-CM
E13.21	Other specified diabetes mellitus with diabetic nephropathy	Diagnosis	ICD-10-CM
E13.22	Other specified diabetes mellitus with diabetic chronic kidney disease	Diagnosis	ICD-10-CM
E13.29	Other specified diabetes mellitus with other diabetic kidney complication	Diagnosis	ICD-10-CM
E13.3	Other specified diabetes mellitus with ophthalmic complications	Diagnosis	ICD-10-CM
E13.31	Other specified diabetes mellitus with unspecified diabetic retinopathy	Diagnosis	ICD-10-CM
E13.311	Other specified diabetes mellitus with unspecified diabetic retinopathy with macular	Diagnosis	ICD-10-CM
E13.319	Other specified diabetes mellitus with unspecified diabetic retinopathy without	Diagnosis	ICD-10-CM
E13.32	Other specified diabetes mellitus with mild nonproliferative diabetic retinopathy	Diagnosis	ICD-10-CM
E13.321	Other specified diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema	Diagnosis	ICD-10-CM
E13.3211	Other specified diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, right eye	Diagnosis	ICD-10-CM
E13.3212	Other specified diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, left eye	Diagnosis	ICD-10-CM
E13.3213	Other specified diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, bilateral	Diagnosis	ICD-10-CM
E13.3219	Other specified diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, unspecified eye	Diagnosis	ICD-10-CM
E13.329	Other specified diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema	Diagnosis	ICD-10-CM
E13.3291	Other specified diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, right eye	Diagnosis	ICD-10-CM
E13.3292	Other specified diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, left eye	Diagnosis	ICD-10-CM
E13.3293	Other specified diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, bilateral	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
E13.3299	Other specified diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, unspecified eye	Diagnosis	ICD-10-CM
E13.33	Other specified diabetes mellitus with moderate nonproliferative diabetic retinopathy	Diagnosis	ICD-10-CM
E13.331	Other specified diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema	Diagnosis	ICD-10-CM
E13.3311	Other specified diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, right eye	Diagnosis	ICD-10-CM
E13.3312	Other specified diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, left eye	Diagnosis	ICD-10-CM
E13.3313	Other specified diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, bilateral	Diagnosis	ICD-10-CM
E13.3319	Other specified diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, unspecified eye	Diagnosis	ICD-10-CM
E13.339	Other specified diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema	Diagnosis	ICD-10-CM
E13.3391	Other specified diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, right eye	Diagnosis	ICD-10-CM
E13.3392	Other specified diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, left eye	Diagnosis	ICD-10-CM
E13.3393	Other specified diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, bilateral	Diagnosis	ICD-10-CM
E13.3399	Other specified diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, unspecified eye	Diagnosis	ICD-10-CM
E13.34	Other specified diabetes mellitus with severe nonproliferative diabetic retinopathy	Diagnosis	ICD-10-CM
E13.341	Other specified diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema	Diagnosis	ICD-10-CM
E13.3411	Other specified diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, right eye	Diagnosis	ICD-10-CM
E13.3412	Other specified diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, left eye	Diagnosis	ICD-10-CM
E13.3413	Other specified diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, bilateral	Diagnosis	ICD-10-CM
E13.3419	Other specified diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, unspecified eye	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
E13.349	Other specified diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema	Diagnosis	ICD-10-CM
E13.3491	Other specified diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema, right eye	Diagnosis	ICD-10-CM
E13.3492	Other specified diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema, left eye	Diagnosis	ICD-10-CM
E13.3493	Other specified diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema, bilateral	Diagnosis	ICD-10-CM
E13.3499	Other specified diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema, unspecified eye	Diagnosis	ICD-10-CM
E13.35	Other specified diabetes mellitus with proliferative diabetic retinopathy	Diagnosis	ICD-10-CM
E13.351	Other specified diabetes mellitus with proliferative diabetic retinopathy with macular	Diagnosis	ICD-10-CM
E13.3511	Other specified diabetes mellitus with proliferative diabetic retinopathy with macular edema, right eye	Diagnosis	ICD-10-CM
E13.3512	Other specified diabetes mellitus with proliferative diabetic retinopathy with macular edema, left eye	Diagnosis	ICD-10-CM
E13.3513	Other specified diabetes mellitus with proliferative diabetic retinopathy with macular edema, bilateral	Diagnosis	ICD-10-CM
E13.3519	Other specified diabetes mellitus with proliferative diabetic retinopathy with macular edema, unspecified eye	Diagnosis	ICD-10-CM
E13.352	Other specified diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula	Diagnosis	ICD-10-CM
E13.3521	Other specified diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula, right eye	Diagnosis	ICD-10-CM
E13.3522	Other specified diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula, left eye	Diagnosis	ICD-10-CM
E13.3523	Other specified diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula, bilateral	Diagnosis	ICD-10-CM
E13.3529	Other specified diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula, unspecified eye	Diagnosis	ICD-10-CM
E13.353	Other specified diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula	Diagnosis	ICD-10-CM
E13.3531	Other specified diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, right eye	Diagnosis	ICD-10-CM

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Code	Description	Code Category	Code Type
E13.3532	Other specified diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, left eye	Diagnosis	ICD-10-CM
E13.3533	Other specified diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, bilateral	Diagnosis	ICD-10-CM
E13.3539	Other specified diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, unspecified eye	Diagnosis	ICD-10-CM
E13.354	Other specified diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment	Diagnosis	ICD-10-CM
E13.3541	Other specified diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment, right	Diagnosis	ICD-10-CM
E13.3542	Other specified diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment, left	Diagnosis	ICD-10-CM
E13.3543	Other specified diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment,	Diagnosis	ICD-10-CM
E13.3549	Other specified diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment,	Diagnosis	ICD-10-CM
E13.355	Other specified diabetes mellitus with stable proliferative diabetic retinopathy	Diagnosis	ICD-10-CM
E13.3551	Other specified diabetes mellitus with stable proliferative diabetic retinopathy, right	Diagnosis	ICD-10-CM
E13.3552	Other specified diabetes mellitus with stable proliferative diabetic retinopathy, left eye	Diagnosis	ICD-10-CM
E13.3553	Other specified diabetes mellitus with stable proliferative diabetic retinopathy,	Diagnosis	ICD-10-CM
E13.3559	Other specified diabetes mellitus with stable proliferative diabetic retinopathy,	Diagnosis	ICD-10-CM
E13.359	Other specified diabetes mellitus with proliferative diabetic retinopathy without	Diagnosis	ICD-10-CM
E13.3591	Other specified diabetes mellitus with proliferative diabetic retinopathy without macular edema, right eye	Diagnosis	ICD-10-CM
E13.3592	Other specified diabetes mellitus with proliferative diabetic retinopathy without macular edema, left eye	Diagnosis	ICD-10-CM
E13.3593	Other specified diabetes mellitus with proliferative diabetic retinopathy without macular edema, bilateral	Diagnosis	ICD-10-CM
E13.3599	Other specified diabetes mellitus with proliferative diabetic retinopathy without macular edema, unspecified eye	Diagnosis	ICD-10-CM
E13.36	Other specified diabetes mellitus with diabetic cataract	Diagnosis	ICD-10-CM
E13.37	Other specified diabetes mellitus with diabetic macular edema, resolved following	Diagnosis	ICD-10-CM
E13.37X1	Other specified diabetes mellitus with diabetic macular edema, resolved following treatment, right eye	Diagnosis	ICD-10-CM

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Code	Description	Code Category	Code Type
E13.37X2	Other specified diabetes mellitus with diabetic macular edema, resolved following treatment, left eye	Diagnosis	ICD-10-CM
E13.37X3	Other specified diabetes mellitus with diabetic macular edema, resolved following treatment, bilateral	Diagnosis	ICD-10-CM
E13.37X9	Other specified diabetes mellitus with diabetic macular edema, resolved following treatment, unspecified eye	Diagnosis	ICD-10-CM
E13.39	Other specified diabetes mellitus with other diabetic ophthalmic complication	Diagnosis	ICD-10-CM
E13.4	Other specified diabetes mellitus with neurological complications	Diagnosis	ICD-10-CM
E13.40	Other specified diabetes mellitus with diabetic neuropathy, unspecified	Diagnosis	ICD-10-CM
E13.41	Other specified diabetes mellitus with diabetic mononeuropathy	Diagnosis	ICD-10-CM
E13.42	Other specified diabetes mellitus with diabetic polyneuropathy	Diagnosis	ICD-10-CM
E13.43	Other specified diabetes mellitus with diabetic autonomic (poly)neuropathy	Diagnosis	ICD-10-CM
E13.44	Other specified diabetes mellitus with diabetic amyotrophy	Diagnosis	ICD-10-CM
E13.49	Other specified diabetes mellitus with other diabetic neurological complication	Diagnosis	ICD-10-CM
E13.5	Other specified diabetes mellitus with circulatory complications	Diagnosis	ICD-10-CM
E13.51	Other specified diabetes mellitus with diabetic peripheral angiopathy without	Diagnosis	ICD-10-CM
E13.52	Other specified diabetes mellitus with diabetic peripheral angiopathy with gangrene	Diagnosis	ICD-10-CM
E13.59	Other specified diabetes mellitus with other circulatory complications	Diagnosis	ICD-10-CM
E13.6	Other specified diabetes mellitus with other specified complications	Diagnosis	ICD-10-CM
E13.61	Other specified diabetes mellitus with diabetic arthropathy	Diagnosis	ICD-10-CM
E13.610	Other specified diabetes mellitus with diabetic neuropathic arthropathy	Diagnosis	ICD-10-CM
E13.618	Other specified diabetes mellitus with other diabetic arthropathy	Diagnosis	ICD-10-CM
E13.62	Other specified diabetes mellitus with skin complications	Diagnosis	ICD-10-CM
E13.620	Other specified diabetes mellitus with diabetic dermatitis	Diagnosis	ICD-10-CM
E13.621	Other specified diabetes mellitus with foot ulcer	Diagnosis	ICD-10-CM
E13.622	Other specified diabetes mellitus with other skin ulcer	Diagnosis	ICD-10-CM
E13.628	Other specified diabetes mellitus with other skin complications	Diagnosis	ICD-10-CM
E13.63	Other specified diabetes mellitus with oral complications	Diagnosis	ICD-10-CM
E13.630	Other specified diabetes mellitus with periodontal disease	Diagnosis	ICD-10-CM
E13.638	Other specified diabetes mellitus with other oral complications	Diagnosis	ICD-10-CM
E13.64	Other specified diabetes mellitus with hypoglycemia	Diagnosis	ICD-10-CM
E13.641	Other specified diabetes mellitus with hypoglycemia with coma	Diagnosis	ICD-10-CM
E13.649	Other specified diabetes mellitus with hypoglycemia without coma	Diagnosis	ICD-10-CM
E13.65	Other specified diabetes mellitus with hyperglycemia	Diagnosis	ICD-10-CM

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Code	Description	Code Category	Code Type
E13.69	Other specified diabetes mellitus with other specified complication	Diagnosis	ICD-10-CM
E13.8	Other specified diabetes mellitus with unspecified complications	Diagnosis	ICD-10-CM
E13.9	Other specified diabetes mellitus without complications	Diagnosis	ICD-10-CM
O24.0	Pre-existing type 1 diabetes mellitus, in pregnancy, childbirth and the puerperium	Diagnosis	ICD-10-CM
O24.01	Pre-existing type 1 diabetes mellitus, in pregnancy	Diagnosis	ICD-10-CM
O24.011	Pre-existing type 1 diabetes mellitus, in pregnancy, first trimester	Diagnosis	ICD-10-CM
O24.012	Pre-existing type 1 diabetes mellitus, in pregnancy, second trimester	Diagnosis	ICD-10-CM
O24.013	Pre-existing type 1 diabetes mellitus, in pregnancy, third trimester	Diagnosis	ICD-10-CM
O24.019	Pre-existing type 1 diabetes mellitus, in pregnancy, unspecified trimester	Diagnosis	ICD-10-CM
O24.02	Pre-existing type 1 diabetes mellitus, in childbirth	Diagnosis	ICD-10-CM
O24.03	Pre-existing type 1 diabetes mellitus, in the puerperium	Diagnosis	ICD-10-CM
O24.1	Pre-existing type 2 diabetes mellitus, in pregnancy, childbirth and the puerperium	Diagnosis	ICD-10-CM
O24.11	Pre-existing type 2 diabetes mellitus, in pregnancy	Diagnosis	ICD-10-CM
O24.111	Pre-existing type 2 diabetes mellitus, in pregnancy, first trimester	Diagnosis	ICD-10-CM
O24.112	Pre-existing type 2 diabetes mellitus, in pregnancy, second trimester	Diagnosis	ICD-10-CM
O24.113	Pre-existing type 2 diabetes mellitus, in pregnancy, third trimester	Diagnosis	ICD-10-CM
O24.119	Pre-existing type 2 diabetes mellitus, in pregnancy, unspecified trimester	Diagnosis	ICD-10-CM
O24.12	Pre-existing type 2 diabetes mellitus, in childbirth	Diagnosis	ICD-10-CM
O24.13	Pre-existing type 2 diabetes mellitus, in the puerperium	Diagnosis	ICD-10-CM
O24.3	Unspecified pre-existing diabetes mellitus in pregnancy, childbirth and the puerperium	Diagnosis	ICD-10-CM
O24.31	Unspecified pre-existing diabetes mellitus in pregnancy	Diagnosis	ICD-10-CM
O24.311	Unspecified pre-existing diabetes mellitus in pregnancy, first trimester	Diagnosis	ICD-10-CM
O24.312	Unspecified pre-existing diabetes mellitus in pregnancy, second trimester	Diagnosis	ICD-10-CM
O24.313	Unspecified pre-existing diabetes mellitus in pregnancy, third trimester	Diagnosis	ICD-10-CM
O24.319	Unspecified pre-existing diabetes mellitus in pregnancy, unspecified trimester	Diagnosis	ICD-10-CM
O24.32	Unspecified pre-existing diabetes mellitus in childbirth	Diagnosis	ICD-10-CM
O24.33	Unspecified pre-existing diabetes mellitus in the puerperium	Diagnosis	ICD-10-CM
O24.4	Gestational diabetes mellitus	Diagnosis	ICD-10-CM
O24.41	Gestational diabetes mellitus in pregnancy	Diagnosis	ICD-10-CM
O24.410	Gestational diabetes mellitus in pregnancy, diet controlled	Diagnosis	ICD-10-CM
O24.414	Gestational diabetes mellitus in pregnancy, insulin controlled	Diagnosis	ICD-10-CM
O24.415	Gestational diabetes mellitus in pregnancy, controlled by oral hypoglycemic drugs	Diagnosis	ICD-10-CM
O24.419	Gestational diabetes mellitus in pregnancy, unspecified control	Diagnosis	ICD-10-CM
O24.42	Gestational diabetes mellitus in childbirth	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
O24.420	Gestational diabetes mellitus in childbirth, diet controlled	Diagnosis	ICD-10-CM
O24.424	Gestational diabetes mellitus in childbirth, insulin controlled	Diagnosis	ICD-10-CM
O24.425	Gestational diabetes mellitus in childbirth, controlled by oral hypoglycemic drugs	Diagnosis	ICD-10-CM
O24.429	Gestational diabetes mellitus in childbirth, unspecified control	Diagnosis	ICD-10-CM
O24.43	Gestational diabetes mellitus in the puerperium	Diagnosis	ICD-10-CM
O24.430	Gestational diabetes mellitus in the puerperium, diet controlled	Diagnosis	ICD-10-CM
O24.434	Gestational diabetes mellitus in the puerperium, insulin controlled	Diagnosis	ICD-10-CM
O24.435	Gestational diabetes mellitus in puerperium, controlled by oral hypoglycemic drugs	Diagnosis	ICD-10-CM
O24.439	Gestational diabetes mellitus in the puerperium, unspecified control	Diagnosis	ICD-10-CM
O24.8	Other pre-existing diabetes mellitus in pregnancy, childbirth, and the puerperium	Diagnosis	ICD-10-CM
O24.81	Other pre-existing diabetes mellitus in pregnancy	Diagnosis	ICD-10-CM
O24.811	Other pre-existing diabetes mellitus in pregnancy, first trimester	Diagnosis	ICD-10-CM
O24.812	Other pre-existing diabetes mellitus in pregnancy, second trimester	Diagnosis	ICD-10-CM
O24.813	Other pre-existing diabetes mellitus in pregnancy, third trimester	Diagnosis	ICD-10-CM
O24.819	Other pre-existing diabetes mellitus in pregnancy, unspecified trimester	Diagnosis	ICD-10-CM
O24.82	Other pre-existing diabetes mellitus in childbirth	Diagnosis	ICD-10-CM
O24.83	Other pre-existing diabetes mellitus in the puerperium	Diagnosis	ICD-10-CM
O24.9	Unspecified diabetes mellitus in pregnancy, childbirth and the puerperium	Diagnosis	ICD-10-CM
O24.91	Unspecified diabetes mellitus in pregnancy	Diagnosis	ICD-10-CM
O24.911	Unspecified diabetes mellitus in pregnancy, first trimester	Diagnosis	ICD-10-CM
O24.912	Unspecified diabetes mellitus in pregnancy, second trimester	Diagnosis	ICD-10-CM
O24.913	Unspecified diabetes mellitus in pregnancy, third trimester	Diagnosis	ICD-10-CM
O24.919	Unspecified diabetes mellitus in pregnancy, unspecified trimester	Diagnosis	ICD-10-CM
O24.92	Unspecified diabetes mellitus in childbirth	Diagnosis	ICD-10-CM
O24.93	Unspecified diabetes mellitus in the puerperium	Diagnosis	ICD-10-CM
Obesity			
E66.01	Morbid (severe) obesity due to excess calories	Diagnosis	ICD-10-CM
E66.09	Other obesity due to excess calories	Diagnosis	ICD-10-CM
E66.1	Drug-induced obesity	Diagnosis	ICD-10-CM
E66.2	Morbid (severe) obesity with alveolar hypoventilation	Diagnosis	ICD-10-CM
E66.8	Other obesity	Diagnosis	ICD-10-CM
E66.9	Obesity, unspecified	Diagnosis	ICD-10-CM
Z68.30	Body mass index [BMI]30.0-30.9, adult	Diagnosis	ICD-10-CM
Z68.31	Body mass index [BMI] 31.0-31.9, adult	Diagnosis	ICD-10-CM

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Code	Description	Code Category	Code Type
Z68.32	Body mass index [BMI] 32.0-32.9, adult	Diagnosis	ICD-10-CM
Z68.33	Body mass index [BMI] 33.0-33.9, adult	Diagnosis	ICD-10-CM
Z68.34	Body mass index [BMI] 34.0-34.9, adult	Diagnosis	ICD-10-CM
Z68.35	Body mass index [BMI] 35.0-35.9, adult	Diagnosis	ICD-10-CM
Z68.36	Body mass index [BMI] 36.0-36.9, adult	Diagnosis	ICD-10-CM
Z68.37	Body mass index [BMI] 37.0-37.9, adult	Diagnosis	ICD-10-CM
Z68.38	Body mass index [BMI] 38.0-38.9, adult	Diagnosis	ICD-10-CM
Z68.39	Body mass index [BMI] 39.0-39.9, adult	Diagnosis	ICD-10-CM
Z68.41	Body mass index [BMI]40.0-44.9, adult	Diagnosis	ICD-10-CM
Z68.42	Body mass index [BMI] 45.0-49.9, adult	Diagnosis	ICD-10-CM
Z68.43	Body mass index [BMI] 50.0-59.9, adult	Diagnosis	ICD-10-CM
Z68.44	Body mass index [BMI] 60.0-69.9, adult	Diagnosis	ICD-10-CM
Z68.45	Body mass index [BMI] 70 or greater, adult	Diagnosis	ICD-10-CM
Hypertension			
H35.031	Hypertensive retinopathy, right eye	Diagnosis	ICD-10-CM
H35.032	Hypertensive retinopathy, left eye	Diagnosis	ICD-10-CM
H35.033	Hypertensive retinopathy, bilateral	Diagnosis	ICD-10-CM
H35.039	Hypertensive retinopathy, unspecified eye	Diagnosis	ICD-10-CM
I10	Essential (primary) hypertension	Diagnosis	ICD-10-CM
I11.0	Hypertensive heart disease with heart failure	Diagnosis	ICD-10-CM
I11.9	Hypertensive heart disease without heart failure	Diagnosis	ICD-10-CM
I12.0	Hypertensive chronic kidney disease with stage 5 chronic kidney disease or end stage renal disease	Diagnosis	ICD-10-CM
I12.9	Hypertensive chronic kidney disease with stage 1 through stage 4 chronic kidney disease, or unspecified chronic kidney disease	Diagnosis	ICD-10-CM
I13.0	Hypertensive heart and chronic kidney disease with heart failure and stage 1 through stage 4 chronic kidney disease, or unspecified chronic kidney disease	Diagnosis	ICD-10-CM
I13.10	Hypertensive heart and chronic kidney disease without heart failure, with stage 1 through stage 4 chronic kidney disease, or unspecified chronic kidney disease	Diagnosis	ICD-10-CM
I13.11	Hypertensive heart and chronic kidney disease without heart failure, with stage 5 chronic kidney disease, or end stage renal disease	Diagnosis	ICD-10-CM
I13.2	Hypertensive heart and chronic kidney disease with heart failure and with stage 5 chronic kidney disease, or end stage renal disease	Diagnosis	ICD-10-CM
I15.0	Renovascular hypertension	Diagnosis	ICD-10-CM

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Code	Description	Code Category	Code Type
I15.1	Hypertension secondary to other renal disorders	Diagnosis	ICD-10-CM
I15.2	Hypertension secondary to endocrine disorders	Diagnosis	ICD-10-CM
I15.8	Other secondary hypertension	Diagnosis	ICD-10-CM
I15.9	Secondary hypertension, unspecified	Diagnosis	ICD-10-CM
I67.4	Hypertensive encephalopathy	Diagnosis	ICD-10-CM
N26.2	Page kidney	Diagnosis	ICD-10-CM
Hospitalized Stroke/Transient Ishchemic Attack			
G45.0	Vertebro-basilar artery syndrome	Diagnosis	ICD-10-CM
G45.1	Carotid artery syndrome (hemispheric)	Diagnosis	ICD-10-CM
G45.2	Multiple and bilateral precerebral artery syndromes	Diagnosis	ICD-10-CM
G45.8	Other transient cerebral ischemic attacks and related syndromes	Diagnosis	ICD-10-CM
G45.9	Transient cerebral ischemic attack, unspecified	Diagnosis	ICD-10-CM
G46.0	Middle cerebral artery syndrome	Diagnosis	ICD-10-CM
G46.1	Anterior cerebral artery syndrome	Diagnosis	ICD-10-CM
G46.2	Posterior cerebral artery syndrome	Diagnosis	ICD-10-CM
G46.3	Brain stem stroke syndrome	Diagnosis	ICD-10-CM
G46.4	Cerebellar stroke syndrome	Diagnosis	ICD-10-CM
G46.5	Pure motor lacunar syndrome	Diagnosis	ICD-10-CM
G46.6	Pure sensory lacunar syndrome	Diagnosis	ICD-10-CM
G46.7	Other lacunar syndromes	Diagnosis	ICD-10-CM
G46.8	Other vascular syndromes of brain in cerebrovascular diseases	Diagnosis	ICD-10-CM
G97.31	Intraoperative hemorrhage and hematoma of a nervous system organ or structure complicating a nervous system procedure	Diagnosis	ICD-10-CM
G97.32	Intraoperative hemorrhage and hematoma of a nervous system organ or structure complicating other procedure	Diagnosis	ICD-10-CM
I60.00	Nontraumatic subarachnoid hemorrhage from unspecified carotid siphon and	Diagnosis	ICD-10-CM
I60.01	Nontraumatic subarachnoid hemorrhage from right carotid siphon and bifurcation	Diagnosis	ICD-10-CM
I60.02	Nontraumatic subarachnoid hemorrhage from left carotid siphon and bifurcation	Diagnosis	ICD-10-CM
I60.10	Nontraumatic subarachnoid hemorrhage from unspecified middle cerebral artery	Diagnosis	ICD-10-CM
I60.11	Nontraumatic subarachnoid hemorrhage from right middle cerebral artery	Diagnosis	ICD-10-CM
I60.12	Nontraumatic subarachnoid hemorrhage from left middle cerebral artery	Diagnosis	ICD-10-CM
I60.20	Nontraumatic subarachnoid hemorrhage from unspecified anterior communicating	Diagnosis	ICD-10-CM
I60.21	Nontraumatic subarachnoid hemorrhage from right anterior communicating artery	Diagnosis	ICD-10-CM
I60.22	Nontraumatic subarachnoid hemorrhage from left anterior communicating artery	Diagnosis	ICD-10-CM

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Code	Description	Code Category	Code Type
I60.30	Nontraumatic subarachnoid hemorrhage from unspecified posterior communicating	Diagnosis	ICD-10-CM
I60.31	Nontraumatic subarachnoid hemorrhage from right posterior communicating artery	Diagnosis	ICD-10-CM
I60.32	Nontraumatic subarachnoid hemorrhage from left posterior communicating artery	Diagnosis	ICD-10-CM
I60.4	Nontraumatic subarachnoid hemorrhage from basilar artery	Diagnosis	ICD-10-CM
I60.50	Nontraumatic subarachnoid hemorrhage from unspecified vertebral artery	Diagnosis	ICD-10-CM
I60.51	Nontraumatic subarachnoid hemorrhage from right vertebral artery	Diagnosis	ICD-10-CM
I60.52	Nontraumatic subarachnoid hemorrhage from left vertebral artery	Diagnosis	ICD-10-CM
I60.6	Nontraumatic subarachnoid hemorrhage from other intracranial arteries	Diagnosis	ICD-10-CM
I60.7	Nontraumatic subarachnoid hemorrhage from unspecified intracranial artery	Diagnosis	ICD-10-CM
I60.8	Other nontraumatic subarachnoid hemorrhage	Diagnosis	ICD-10-CM
I60.9	Nontraumatic subarachnoid hemorrhage, unspecified	Diagnosis	ICD-10-CM
I61.0	Nontraumatic intracerebral hemorrhage in hemisphere, subcortical	Diagnosis	ICD-10-CM
I61.1	Nontraumatic intracerebral hemorrhage in hemisphere, cortical	Diagnosis	ICD-10-CM
I61.2	Nontraumatic intracerebral hemorrhage in hemisphere, unspecified	Diagnosis	ICD-10-CM
I61.3	Nontraumatic intracerebral hemorrhage in brain stem	Diagnosis	ICD-10-CM
I61.4	Nontraumatic intracerebral hemorrhage in cerebellum	Diagnosis	ICD-10-CM
I61.5	Nontraumatic intracerebral hemorrhage, intraventricular	Diagnosis	ICD-10-CM
I61.6	Nontraumatic intracerebral hemorrhage, multiple localized	Diagnosis	ICD-10-CM
I61.8	Other nontraumatic intracerebral hemorrhage	Diagnosis	ICD-10-CM
I61.9	Nontraumatic intracerebral hemorrhage, unspecified	Diagnosis	ICD-10-CM
I63.00	Cerebral infarction due to thrombosis of unspecified precerebral artery	Diagnosis	ICD-10-CM
I63.011	Cerebral infarction due to thrombosis of right vertebral artery	Diagnosis	ICD-10-CM
I63.012	Cerebral infarction due to thrombosis of left vertebral artery	Diagnosis	ICD-10-CM
I63.013	Cerebral infarction due to thrombosis of bilateral vertebral arteries	Diagnosis	ICD-10-CM
I63.019	Cerebral infarction due to thrombosis of unspecified vertebral artery	Diagnosis	ICD-10-CM
I63.02	Cerebral infarction due to thrombosis of basilar artery	Diagnosis	ICD-10-CM
I63.031	Cerebral infarction due to thrombosis of right carotid artery	Diagnosis	ICD-10-CM
I63.032	Cerebral infarction due to thrombosis of left carotid artery	Diagnosis	ICD-10-CM
I63.039	Cerebral infarction due to thrombosis of unspecified carotid artery	Diagnosis	ICD-10-CM
I63.09	Cerebral infarction due to thrombosis of other precerebral artery	Diagnosis	ICD-10-CM
I63.10	Cerebral infarction due to embolism of unspecified precerebral artery	Diagnosis	ICD-10-CM
I63.111	Cerebral infarction due to embolism of right vertebral artery	Diagnosis	ICD-10-CM
I63.112	Cerebral infarction due to embolism of left vertebral artery	Diagnosis	ICD-10-CM
I63.119	Cerebral infarction due to embolism of unspecified vertebral artery	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
I63.12	Cerebral infarction due to embolism of basilar artery	Diagnosis	ICD-10-CM
I63.131	Cerebral infarction due to embolism of right carotid artery	Diagnosis	ICD-10-CM
I63.132	Cerebral infarction due to embolism of left carotid artery	Diagnosis	ICD-10-CM
I63.139	Cerebral infarction due to embolism of unspecified carotid artery	Diagnosis	ICD-10-CM
I63.19	Cerebral infarction due to embolism of other precerebral artery	Diagnosis	ICD-10-CM
I63.20	Cerebral infarction due to unspecified occlusion or stenosis of unspecified precerebral	Diagnosis	ICD-10-CM
I63.211	Cerebral infarction due to unspecified occlusion or stenosis of right vertebral artery	Diagnosis	ICD-10-CM
I63.212	Cerebral infarction due to unspecified occlusion or stenosis of left vertebral artery	Diagnosis	ICD-10-CM
I63.213	Cerebral infarction due to unspecified occlusion or stenosis of bilateral vertebral	Diagnosis	ICD-10-CM
I63.219	Cerebral infarction due to unspecified occlusion or stenosis of unspecified vertebral	Diagnosis	ICD-10-CM
I63.22	Cerebral infarction due to unspecified occlusion or stenosis of basilar artery	Diagnosis	ICD-10-CM
I63.231	Cerebral infarction due to unspecified occlusion or stenosis of right carotid arteries	Diagnosis	ICD-10-CM
I63.232	Cerebral infarction due to unspecified occlusion or stenosis of left carotid arteries	Diagnosis	ICD-10-CM
I63.233	Cerebral infarction due to unspecified occlusion or stenosis of bilateral carotid arteries	Diagnosis	ICD-10-CM
I63.239	Cerebral infarction due to unspecified occlusion or stenosis of unspecified carotid	Diagnosis	ICD-10-CM
I63.29	Cerebral infarction due to unspecified occlusion or stenosis of other precerebral	Diagnosis	ICD-10-CM
I63.30	Cerebral infarction due to thrombosis of unspecified cerebral artery	Diagnosis	ICD-10-CM
I63.311	Cerebral infarction due to thrombosis of right middle cerebral artery	Diagnosis	ICD-10-CM
I63.312	Cerebral infarction due to thrombosis of left middle cerebral artery	Diagnosis	ICD-10-CM
I63.313	Cerebral infarction due to thrombosis of bilateral middle cerebral arteries	Diagnosis	ICD-10-CM
I63.319	Cerebral infarction due to thrombosis of unspecified middle cerebral artery	Diagnosis	ICD-10-CM
I63.321	Cerebral infarction due to thrombosis of right anterior cerebral artery	Diagnosis	ICD-10-CM
I63.322	Cerebral infarction due to thrombosis of left anterior cerebral artery	Diagnosis	ICD-10-CM
I63.323	Cerebral infarction due to thrombosis of bilateral anterior cerebral arteries	Diagnosis	ICD-10-CM
I63.329	Cerebral infarction due to thrombosis of unspecified anterior cerebral artery	Diagnosis	ICD-10-CM
I63.331	Cerebral infarction due to thrombosis of right posterior cerebral artery	Diagnosis	ICD-10-CM
I63.332	Cerebral infarction due to thrombosis of left posterior cerebral artery	Diagnosis	ICD-10-CM
I63.333	Cerebral infarction due to thrombosis of bilateral posterior cerebral arteries	Diagnosis	ICD-10-CM
I63.339	Cerebral infarction due to thrombosis of unspecified posterior cerebral artery	Diagnosis	ICD-10-CM
I63.341	Cerebral infarction due to thrombosis of right cerebellar artery	Diagnosis	ICD-10-CM
I63.342	Cerebral infarction due to thrombosis of left cerebellar artery	Diagnosis	ICD-10-CM
I63.343	Cerebral infarction due to thrombosis of bilateral cerebellar arteries	Diagnosis	ICD-10-CM
I63.349	Cerebral infarction due to thrombosis of unspecified cerebellar artery	Diagnosis	ICD-10-CM
I63.39	Cerebral infarction due to thrombosis of other cerebral artery	Diagnosis	ICD-10-CM

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Code	Description	Code Category	Code Type
I63.40	Cerebral infarction due to embolism of unspecified cerebral artery	Diagnosis	ICD-10-CM
I63.411	Cerebral infarction due to embolism of right middle cerebral artery	Diagnosis	ICD-10-CM
I63.412	Cerebral infarction due to embolism of left middle cerebral artery	Diagnosis	ICD-10-CM
I63.413	Cerebral infarction due to embolism of bilateral middle cerebral arteries	Diagnosis	ICD-10-CM
I63.419	Cerebral infarction due to embolism of unspecified middle cerebral artery	Diagnosis	ICD-10-CM
I63.421	Cerebral infarction due to embolism of right anterior cerebral artery	Diagnosis	ICD-10-CM
I63.422	Cerebral infarction due to embolism of left anterior cerebral artery	Diagnosis	ICD-10-CM
I63.423	Cerebral infarction due to embolism of bilateral anterior cerebral arteries	Diagnosis	ICD-10-CM
I63.429	Cerebral infarction due to embolism of unspecified anterior cerebral artery	Diagnosis	ICD-10-CM
I63.431	Cerebral infarction due to embolism of right posterior cerebral artery	Diagnosis	ICD-10-CM
I63.432	Cerebral infarction due to embolism of left posterior cerebral artery	Diagnosis	ICD-10-CM
I63.433	Cerebral infarction due to embolism of bilateral posterior cerebral arteries	Diagnosis	ICD-10-CM
I63.439	Cerebral infarction due to embolism of unspecified posterior cerebral artery	Diagnosis	ICD-10-CM
I63.441	Cerebral infarction due to embolism of right cerebellar artery	Diagnosis	ICD-10-CM
I63.442	Cerebral infarction due to embolism of left cerebellar artery	Diagnosis	ICD-10-CM
I63.443	Cerebral infarction due to embolism of bilateral cerebellar arteries	Diagnosis	ICD-10-CM
I63.449	Cerebral infarction due to embolism of unspecified cerebellar artery	Diagnosis	ICD-10-CM
I63.49	Cerebral infarction due to embolism of other cerebral artery	Diagnosis	ICD-10-CM
I63.50	Cerebral infarction due to unspecified occlusion or stenosis of unspecified cerebral	Diagnosis	ICD-10-CM
I63.511	Cerebral infarction due to unspecified occlusion or stenosis of right middle cerebral	Diagnosis	ICD-10-CM
I63.512	Cerebral infarction due to unspecified occlusion or stenosis of left middle cerebral	Diagnosis	ICD-10-CM
I63.513	Cerebral infarction due to unspecified occlusion or stenosis of bilateral middle cerebral	Diagnosis	ICD-10-CM
I63.519	Cerebral infarction due to unspecified occlusion or stenosis of unspecified middle cerebral artery	Diagnosis	ICD-10-CM
I63.521	Cerebral infarction due to unspecified occlusion or stenosis of right anterior cerebral	Diagnosis	ICD-10-CM
I63.522	Cerebral infarction due to unspecified occlusion or stenosis of left anterior cerebral	Diagnosis	ICD-10-CM
I63.523	Cerebral infarction due to unspecified occlusion or stenosis of bilateral anterior	Diagnosis	ICD-10-CM
I63.529	Cerebral infarction due to unspecified occlusion or stenosis of unspecified anterior cerebral artery	Diagnosis	ICD-10-CM
I63.531	Cerebral infarction due to unspecified occlusion or stenosis of right posterior cerebral	Diagnosis	ICD-10-CM
I63.532	Cerebral infarction due to unspecified occlusion or stenosis of left posterior cerebral	Diagnosis	ICD-10-CM
I63.533	Cerebral infarction due to unspecified occlusion or stenosis of bilateral posterior cerebral arteries	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
I63.539	Cerebral infarction due to unspecified occlusion or stenosis of unspecified posterior cerebral artery	Diagnosis	ICD-10-CM
I63.541	Cerebral infarction due to unspecified occlusion or stenosis of right cerebellar artery	Diagnosis	ICD-10-CM
I63.542	Cerebral infarction due to unspecified occlusion or stenosis of left cerebellar artery	Diagnosis	ICD-10-CM
I63.543	Cerebral infarction due to unspecified occlusion or stenosis of bilateral cerebellar	Diagnosis	ICD-10-CM
I63.549	Cerebral infarction due to unspecified occlusion or stenosis of unspecified cerebellar	Diagnosis	ICD-10-CM
I63.59	Cerebral infarction due to unspecified occlusion or stenosis of other cerebral artery	Diagnosis	ICD-10-CM
I63.6	Cerebral infarction due to cerebral venous thrombosis, nonpyogenic	Diagnosis	ICD-10-CM
I63.8	Other cerebral infarction	Diagnosis	ICD-10-CM
I63.9	Cerebral infarction, unspecified	Diagnosis	ICD-10-CM
I66.01	Occlusion and stenosis of right middle cerebral artery	Diagnosis	ICD-10-CM
I66.02	Occlusion and stenosis of left middle cerebral artery	Diagnosis	ICD-10-CM
I66.03	Occlusion and stenosis of bilateral middle cerebral arteries	Diagnosis	ICD-10-CM
I66.09	Occlusion and stenosis of unspecified middle cerebral artery	Diagnosis	ICD-10-CM
I66.11	Occlusion and stenosis of right anterior cerebral artery	Diagnosis	ICD-10-CM
I66.12	Occlusion and stenosis of left anterior cerebral artery	Diagnosis	ICD-10-CM
I66.13	Occlusion and stenosis of bilateral anterior cerebral arteries	Diagnosis	ICD-10-CM
I66.19	Occlusion and stenosis of unspecified anterior cerebral artery	Diagnosis	ICD-10-CM
I66.21	Occlusion and stenosis of right posterior cerebral artery	Diagnosis	ICD-10-CM
I66.22	Occlusion and stenosis of left posterior cerebral artery	Diagnosis	ICD-10-CM
I66.23	Occlusion and stenosis of bilateral posterior cerebral arteries	Diagnosis	ICD-10-CM
I66.29	Occlusion and stenosis of unspecified posterior cerebral artery	Diagnosis	ICD-10-CM
I66.3	Occlusion and stenosis of cerebellar arteries	Diagnosis	ICD-10-CM
I66.8	Occlusion and stenosis of other cerebral arteries	Diagnosis	ICD-10-CM
I66.9	Occlusion and stenosis of unspecified cerebral artery	Diagnosis	ICD-10-CM
I67.841	Reversible cerebrovascular vasoconstriction syndrome	Diagnosis	ICD-10-CM
I67.848	Other cerebrovascular vasospasm and vasoconstriction	Diagnosis	ICD-10-CM
I67.89	Other cerebrovascular disease	Diagnosis	ICD-10-CM
I97.810	Intraoperative cerebrovascular infarction during cardiac surgery	Diagnosis	ICD-10-CM
I97.811	Intraoperative cerebrovascular infarction during other surgery	Diagnosis	ICD-10-CM
I97.820	Postprocedural cerebrovascular infarction following cardiac surgery	Diagnosis	ICD-10-CM
I97.821	Postprocedural cerebrovascular infarction following other surgery	Diagnosis	ICD-10-CM
Coronary Revascularization			
00566	Anesthesia for direct coronary artery bypass grafting; without pump oxygenator	Procedure	CPT-4

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
00567	Anesthesia for direct coronary artery bypass grafting; with pump oxygenator	Procedure	CPT-4
01921	Anesthesia for angioplasty	Procedure	CPT-4
0210088	Bypass Coronary Artery, One Artery from Right Internal Mammary with Zooplastic Tissue, Open Approach	Procedure	ICD-10-PCS
0210089	Bypass Coronary Artery, One Artery from Left Internal Mammary with Zooplastic Tissue, Open Approach	Procedure	ICD-10-PCS
021008C	Bypass Coronary Artery, One Artery from Thoracic Artery with Zooplastic Tissue, Open	Procedure	ICD-10-PCS
021008F	Bypass Coronary Artery, One Artery from Abdominal Artery with Zooplastic Tissue, Open Approach	Procedure	ICD-10-PCS
0210098	Bypass Coronary Artery, One Artery from Right Internal Mammary with Autologous Venous Tissue, Open Approach	Procedure	ICD-10-PCS
0210099	Bypass Coronary Artery, One Artery from Left Internal Mammary with Autologous Venous Tissue, Open Approach	Procedure	ICD-10-PCS
021009C	Bypass Coronary Artery, One Artery from Thoracic Artery with Autologous Venous Tissue, Open Approach	Procedure	ICD-10-PCS
021009F	Bypass Coronary Artery, One Artery from Abdominal Artery with Autologous Venous Tissue, Open Approach	Procedure	ICD-10-PCS
02100A8	Bypass Coronary Artery, One Artery from Right Internal Mammary with Autologous Arterial Tissue, Open Approach	Procedure	ICD-10-PCS
02100A9	Bypass Coronary Artery, One Artery from Left Internal Mammary with Autologous Arterial Tissue, Open Approach	Procedure	ICD-10-PCS
02100AC	Bypass Coronary Artery, One Artery from Thoracic Artery with Autologous Arterial Tissue, Open Approach	Procedure	ICD-10-PCS
02100AF	Bypass Coronary Artery, One Artery from Abdominal Artery with Autologous Arterial Tissue, Open Approach	Procedure	ICD-10-PCS
02100J8	Bypass Coronary Artery, One Artery from Right Internal Mammary with Synthetic Substitute, Open Approach	Procedure	ICD-10-PCS
02100J9	Bypass Coronary Artery, One Artery from Left Internal Mammary with Synthetic Substitute, Open Approach	Procedure	ICD-10-PCS
02100JC	Bypass Coronary Artery, One Artery from Thoracic Artery with Synthetic Substitute, Open Approach	Procedure	ICD-10-PCS
02100JF	Bypass Coronary Artery, One Artery from Abdominal Artery with Synthetic Substitute, Open Approach	Procedure	ICD-10-PCS

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Code	Description	Code Category	Code Type
02100K8	Bypass Coronary Artery, One Artery from Right Internal Mammary with Nonautologous Tissue Substitute, Open Approach	Procedure	ICD-10-PCS
02100K9	Bypass Coronary Artery, One Artery from Left Internal Mammary with Nonautologous Tissue Substitute, Open Approach	Procedure	ICD-10-PCS
02100KC	Bypass Coronary Artery, One Artery from Thoracic Artery with Nonautologous Tissue Substitute, Open Approach	Procedure	ICD-10-PCS
02100KF	Bypass Coronary Artery, One Artery from Abdominal Artery with Nonautologous Tissue Substitute, Open Approach	Procedure	ICD-10-PCS
02100Z8	Bypass Coronary Artery, One Artery from Right Internal Mammary, Open Approach	Procedure	ICD-10-PCS
02100Z9	Bypass Coronary Artery, One Artery from Left Internal Mammary, Open Approach	Procedure	ICD-10-PCS
02100ZC	Bypass Coronary Artery, One Artery from Thoracic Artery, Open Approach	Procedure	ICD-10-PCS
02100ZF	Bypass Coronary Artery, One Artery from Abdominal Artery, Open Approach	Procedure	ICD-10-PCS
0210488	Bypass Coronary Artery, One Artery from Right Internal Mammary with Zooplastic Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0210489	Bypass Coronary Artery, One Artery from Left Internal Mammary with Zooplastic Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
021048C	Bypass Coronary Artery, One Artery from Thoracic Artery with Zooplastic Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
021048F	Bypass Coronary Artery, One Artery from Abdominal Artery with Zooplastic Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0210498	Bypass Coronary Artery, One Artery from Right Internal Mammary with Autologous Venous Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0210499	Bypass Coronary Artery, One Artery from Left Internal Mammary with Autologous Venous Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
021049C	Bypass Coronary Artery, One Artery from Thoracic Artery with Autologous Venous Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
021049F	Bypass Coronary Artery, One Artery from Abdominal Artery with Autologous Venous Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02104A8	Bypass Coronary Artery, One Artery from Right Internal Mammary with Autologous Arterial Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02104A9	Bypass Coronary Artery, One Artery from Left Internal Mammary with Autologous Arterial Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02104AC	Bypass Coronary Artery, One Artery from Thoracic Artery with Autologous Arterial Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS

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Code	Description	Code Category	Code Type
02104AF	Bypass Coronary Artery, One Artery from Abdominal Artery with Autologous Arterial Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02104J8	Bypass Coronary Artery, One Artery from Right Internal Mammary with Synthetic Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02104J9	Bypass Coronary Artery, One Artery from Left Internal Mammary with Synthetic Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02104JC	Bypass Coronary Artery, One Artery from Thoracic Artery with Synthetic Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02104JF	Bypass Coronary Artery, One Artery from Abdominal Artery with Synthetic Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02104K8	Bypass Coronary Artery, One Artery from Right Internal Mammary with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02104K9	Bypass Coronary Artery, One Artery from Left Internal Mammary with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02104KC	Bypass Coronary Artery, One Artery from Thoracic Artery with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02104KF	Bypass Coronary Artery, One Artery from Abdominal Artery with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02104Z8	Bypass Coronary Artery, One Artery from Right Internal Mammary, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02104Z9	Bypass Coronary Artery, One Artery from Left Internal Mammary, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02104ZC	Bypass Coronary Artery, One Artery from Thoracic Artery, Percutaneous Endoscopic	Procedure	ICD-10-PCS
02104ZF	Bypass Coronary Artery, One Artery from Abdominal Artery, Percutaneous Endoscopic	Procedure	ICD-10-PCS
0211088	Bypass Coronary Artery, Two Arteries from Right Internal Mammary with Zooplastic Tissue, Open Approach	Procedure	ICD-10-PCS
0211089	Bypass Coronary Artery, Two Arteries from Left Internal Mammary with Zooplastic Tissue, Open Approach	Procedure	ICD-10-PCS
021108C	Bypass Coronary Artery, Two Arteries from Thoracic Artery with Zooplastic Tissue, Open Approach	Procedure	ICD-10-PCS
021108F	Bypass Coronary Artery, Two Arteries from Abdominal Artery with Zooplastic Tissue, Open Approach	Procedure	ICD-10-PCS
0211098	Bypass Coronary Artery, Two Arteries from Right Internal Mammary with Autologous Venous Tissue, Open Approach	Procedure	ICD-10-PCS

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Code	Description	Code Category	Code Type
0211099	Bypass Coronary Artery, Two Arteries from Left Internal Mammary with Autologous Venous Tissue, Open Approach	Procedure	ICD-10-PCS
021109C	Bypass Coronary Artery, Two Arteries from Thoracic Artery with Autologous Venous Tissue, Open Approach	Procedure	ICD-10-PCS
021109F	Bypass Coronary Artery, Two Arteries from Abdominal Artery with Autologous Venous Tissue, Open Approach	Procedure	ICD-10-PCS
02110A8	Bypass Coronary Artery, Two Arteries from Right Internal Mammary with Autologous Arterial Tissue, Open Approach	Procedure	ICD-10-PCS
02110A9	Bypass Coronary Artery, Two Arteries from Left Internal Mammary with Autologous Arterial Tissue, Open Approach	Procedure	ICD-10-PCS
02110AC	Bypass Coronary Artery, Two Arteries from Thoracic Artery with Autologous Arterial Tissue, Open Approach	Procedure	ICD-10-PCS
02110AF	Bypass Coronary Artery, Two Arteries from Abdominal Artery with Autologous Arterial Tissue, Open Approach	Procedure	ICD-10-PCS
02110J8	Bypass Coronary Artery, Two Arteries from Right Internal Mammary with Synthetic Substitute, Open Approach	Procedure	ICD-10-PCS
02110J9	Bypass Coronary Artery, Two Arteries from Left Internal Mammary with Synthetic Substitute, Open Approach	Procedure	ICD-10-PCS
02110JC	Bypass Coronary Artery, Two Arteries from Thoracic Artery with Synthetic Substitute, Open Approach	Procedure	ICD-10-PCS
02110JF	Bypass Coronary Artery, Two Arteries from Abdominal Artery with Synthetic Substitute, Open Approach	Procedure	ICD-10-PCS
02110K8	Bypass Coronary Artery, Two Arteries from Right Internal Mammary with Nonautologous Tissue Substitute, Open Approach	Procedure	ICD-10-PCS
02110K9	Bypass Coronary Artery, Two Arteries from Left Internal Mammary with Nonautologous Tissue Substitute, Open Approach	Procedure	ICD-10-PCS
02110KC	Bypass Coronary Artery, Two Arteries from Thoracic Artery with Nonautologous Tissue Substitute, Open Approach	Procedure	ICD-10-PCS
02110KF	Bypass Coronary Artery, Two Arteries from Abdominal Artery with Nonautologous Tissue Substitute, Open Approach	Procedure	ICD-10-PCS
02110Z8	Bypass Coronary Artery, Two Arteries from Right Internal Mammary, Open Approach	Procedure	ICD-10-PCS
02110Z9	Bypass Coronary Artery, Two Arteries from Left Internal Mammary, Open Approach	Procedure	ICD-10-PCS
02110ZC	Bypass Coronary Artery, Two Arteries from Thoracic Artery, Open Approach	Procedure	ICD-10-PCS
02110ZF	Bypass Coronary Artery, Two Arteries from Abdominal Artery, Open Approach	Procedure	ICD-10-PCS

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Code	Description	Code Category	Code Type
0211488	Bypass Coronary Artery, Two Arteries from Right Internal Mammary with Zooplastic Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0211489	Bypass Coronary Artery, Two Arteries from Left Internal Mammary with Zooplastic Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
021148C	Bypass Coronary Artery, Two Arteries from Thoracic Artery with Zooplastic Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
021148F	Bypass Coronary Artery, Two Arteries from Abdominal Artery with Zooplastic Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0211498	Bypass Coronary Artery, Two Arteries from Right Internal Mammary with Autologous Venous Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0211499	Bypass Coronary Artery, Two Arteries from Left Internal Mammary with Autologous Venous Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
021149C	Bypass Coronary Artery, Two Arteries from Thoracic Artery with Autologous Venous Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
021149F	Bypass Coronary Artery, Two Arteries from Abdominal Artery with Autologous Venous Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02114A8	Bypass Coronary Artery, Two Arteries from Right Internal Mammary with Autologous Arterial Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02114A9	Bypass Coronary Artery, Two Arteries from Left Internal Mammary with Autologous Arterial Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02114AC	Bypass Coronary Artery, Two Arteries from Thoracic Artery with Autologous Arterial Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02114AF	Bypass Coronary Artery, Two Arteries from Abdominal Artery with Autologous Arterial Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02114J8	Bypass Coronary Artery, Two Arteries from Right Internal Mammary with Synthetic Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02114J9	Bypass Coronary Artery, Two Arteries from Left Internal Mammary with Synthetic Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02114JC	Bypass Coronary Artery, Two Arteries from Thoracic Artery with Synthetic Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02114JF	Bypass Coronary Artery, Two Arteries from Abdominal Artery with Synthetic Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02114K8	Bypass Coronary Artery, Two Arteries from Right Internal Mammary with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
02114K9	Bypass Coronary Artery, Two Arteries from Left Internal Mammary with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02114KC	Bypass Coronary Artery, Two Arteries from Thoracic Artery with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02114KF	Bypass Coronary Artery, Two Arteries from Abdominal Artery with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02114Z8	Bypass Coronary Artery, Two Arteries from Right Internal Mammary, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02114Z9	Bypass Coronary Artery, Two Arteries from Left Internal Mammary, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02114ZC	Bypass Coronary Artery, Two Arteries from Thoracic Artery, Percutaneous Endoscopic	Procedure	ICD-10-PCS
02114ZF	Bypass Coronary Artery, Two Arteries from Abdominal Artery, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0212088	Bypass Coronary Artery, Three Arteries from Right Internal Mammary with Zooplastic Tissue, Open Approach	Procedure	ICD-10-PCS
0212089	Bypass Coronary Artery, Three Arteries from Left Internal Mammary with Zooplastic Tissue, Open Approach	Procedure	ICD-10-PCS
021208C	Bypass Coronary Artery, Three Arteries from Thoracic Artery with Zooplastic Tissue, Open Approach	Procedure	ICD-10-PCS
021208F	Bypass Coronary Artery, Three Arteries from Abdominal Artery with Zooplastic Tissue, Open Approach	Procedure	ICD-10-PCS
0212098	Bypass Coronary Artery, Three Arteries from Right Internal Mammary with Autologous Venous Tissue, Open Approach	Procedure	ICD-10-PCS
0212099	Bypass Coronary Artery, Three Arteries from Left Internal Mammary with Autologous Venous Tissue, Open Approach	Procedure	ICD-10-PCS
021209C	Bypass Coronary Artery, Three Arteries from Thoracic Artery with Autologous Venous Tissue, Open Approach	Procedure	ICD-10-PCS
021209F	Bypass Coronary Artery, Three Arteries from Abdominal Artery with Autologous Venous Tissue, Open Approach	Procedure	ICD-10-PCS
02120A8	Bypass Coronary Artery, Three Arteries from Right Internal Mammary with Autologous Arterial Tissue, Open Approach	Procedure	ICD-10-PCS
02120A9	Bypass Coronary Artery, Three Arteries from Left Internal Mammary with Autologous Arterial Tissue, Open Approach	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
02120AC	Bypass Coronary Artery, Three Arteries from Thoracic Artery with Autologous Arterial Tissue, Open Approach	Procedure	ICD-10-PCS
02120AF	Bypass Coronary Artery, Three Arteries from Abdominal Artery with Autologous Arterial Tissue, Open Approach	Procedure	ICD-10-PCS
02120J8	Bypass Coronary Artery, Three Arteries from Right Internal Mammary with Synthetic Substitute, Open Approach	Procedure	ICD-10-PCS
02120J9	Bypass Coronary Artery, Three Arteries from Left Internal Mammary with Synthetic Substitute, Open Approach	Procedure	ICD-10-PCS
02120JC	Bypass Coronary Artery, Three Arteries from Thoracic Artery with Synthetic Substitute, Open Approach	Procedure	ICD-10-PCS
02120JF	Bypass Coronary Artery, Three Arteries from Abdominal Artery with Synthetic Substitute, Open Approach	Procedure	ICD-10-PCS
02120K8	Bypass Coronary Artery, Three Arteries from Right Internal Mammary with Nonautologous Tissue Substitute, Open Approach	Procedure	ICD-10-PCS
02120K9	Bypass Coronary Artery, Three Arteries from Left Internal Mammary with Nonautologous Tissue Substitute, Open Approach	Procedure	ICD-10-PCS
02120KC	Bypass Coronary Artery, Three Arteries from Thoracic Artery with Nonautologous Tissue Substitute, Open Approach	Procedure	ICD-10-PCS
02120KF	Bypass Coronary Artery, Three Arteries from Abdominal Artery with Nonautologous Tissue Substitute, Open Approach	Procedure	ICD-10-PCS
02120Z8	Bypass Coronary Artery, Three Arteries from Right Internal Mammary, Open Approach	Procedure	ICD-10-PCS
02120Z9	Bypass Coronary Artery, Three Arteries from Left Internal Mammary, Open Approach	Procedure	ICD-10-PCS
02120ZC	Bypass Coronary Artery, Three Arteries from Thoracic Artery, Open Approach	Procedure	ICD-10-PCS
02120ZF	Bypass Coronary Artery, Three Arteries from Abdominal Artery, Open Approach	Procedure	ICD-10-PCS
0212488	Bypass Coronary Artery, Three Arteries from Right Internal Mammary with Zooplastic Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0212489	Bypass Coronary Artery, Three Arteries from Left Internal Mammary with Zooplastic Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
021248C	Bypass Coronary Artery, Three Arteries from Thoracic Artery with Zooplastic Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
021248F	Bypass Coronary Artery, Three Arteries from Abdominal Artery with Zooplastic Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0212498	Bypass Coronary Artery, Three Arteries from Right Internal Mammary with Autologous Venous Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
0212499	Bypass Coronary Artery, Three Arteries from Left Internal Mammary with Autologous Venous Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
021249C	Bypass Coronary Artery, Three Arteries from Thoracic Artery with Autologous Venous Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
021249F	Bypass Coronary Artery, Three Arteries from Abdominal Artery with Autologous Venous Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02124A8	Bypass Coronary Artery, Three Arteries from Right Internal Mammary with Autologous Arterial Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02124A9	Bypass Coronary Artery, Three Arteries from Left Internal Mammary with Autologous Arterial Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02124AC	Bypass Coronary Artery, Three Arteries from Thoracic Artery with Autologous Arterial Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02124AF	Bypass Coronary Artery, Three Arteries from Abdominal Artery with Autologous Arterial Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02124J8	Bypass Coronary Artery, Three Arteries from Right Internal Mammary with Synthetic Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02124J9	Bypass Coronary Artery, Three Arteries from Left Internal Mammary with Synthetic Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02124JC	Bypass Coronary Artery, Three Arteries from Thoracic Artery with Synthetic Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02124JF	Bypass Coronary Artery, Three Arteries from Abdominal Artery with Synthetic Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02124K8	Bypass Coronary Artery, Three Arteries from Right Internal Mammary with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02124K9	Bypass Coronary Artery, Three Arteries from Left Internal Mammary with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02124KC	Bypass Coronary Artery, Three Arteries from Thoracic Artery with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02124KF	Bypass Coronary Artery, Three Arteries from Abdominal Artery with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02124Z8	Bypass Coronary Artery, Three Arteries from Right Internal Mammary, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02124Z9	Bypass Coronary Artery, Three Arteries from Left Internal Mammary, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
02124ZC	Bypass Coronary Artery, Three Arteries from Thoracic Artery, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02124ZF	Bypass Coronary Artery, Three Arteries from Abdominal Artery, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0213088	Bypass Coronary Artery, Four or More Arteries from Right Internal Mammary with Zooplastic Tissue, Open Approach	Procedure	ICD-10-PCS
0213089	Bypass Coronary Artery, Four or More Arteries from Left Internal Mammary with Zooplastic Tissue, Open Approach	Procedure	ICD-10-PCS
021308C	Bypass Coronary Artery, Four or More Arteries from Thoracic Artery with Zooplastic Tissue, Open Approach	Procedure	ICD-10-PCS
021308F	Bypass Coronary Artery, Four or More Arteries from Abdominal Artery with Zooplastic Tissue, Open Approach	Procedure	ICD-10-PCS
0213098	Bypass Coronary Artery, Four or More Arteries from Right Internal Mammary with Autologous Venous Tissue, Open Approach	Procedure	ICD-10-PCS
0213099	Bypass Coronary Artery, Four or More Arteries from Left Internal Mammary with Autologous Venous Tissue, Open Approach	Procedure	ICD-10-PCS
021309C	Bypass Coronary Artery, Four or More Arteries from Thoracic Artery with Autologous Venous Tissue, Open Approach	Procedure	ICD-10-PCS
021309F	Bypass Coronary Artery, Four or More Arteries from Abdominal Artery with Autologous Venous Tissue, Open Approach	Procedure	ICD-10-PCS
02130A8	Bypass Coronary Artery, Four or More Arteries from Right Internal Mammary with Autologous Arterial Tissue, Open Approach	Procedure	ICD-10-PCS
02130A9	Bypass Coronary Artery, Four or More Arteries from Left Internal Mammary with Autologous Arterial Tissue, Open Approach	Procedure	ICD-10-PCS
02130AC	Bypass Coronary Artery, Four or More Arteries from Thoracic Artery with Autologous Arterial Tissue, Open Approach	Procedure	ICD-10-PCS
02130AF	Bypass Coronary Artery, Four or More Arteries from Abdominal Artery with Autologous Arterial Tissue, Open Approach	Procedure	ICD-10-PCS
02130J8	Bypass Coronary Artery, Four or More Arteries from Right Internal Mammary with Synthetic Substitute, Open Approach	Procedure	ICD-10-PCS
02130J9	Bypass Coronary Artery, Four or More Arteries from Left Internal Mammary with Synthetic Substitute, Open Approach	Procedure	ICD-10-PCS
02130JC	Bypass Coronary Artery, Four or More Arteries from Thoracic Artery with Synthetic Substitute, Open Approach	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
02130JF	Bypass Coronary Artery, Four or More Arteries from Abdominal Artery with Synthetic Substitute, Open Approach	Procedure	ICD-10-PCS
02130K8	Bypass Coronary Artery, Four or More Arteries from Right Internal Mammary with Nonautologous Tissue Substitute, Open Approach	Procedure	ICD-10-PCS
02130K9	Bypass Coronary Artery, Four or More Arteries from Left Internal Mammary with Nonautologous Tissue Substitute, Open Approach	Procedure	ICD-10-PCS
02130KC	Bypass Coronary Artery, Four or More Arteries from Thoracic Artery with Nonautologous Tissue Substitute, Open Approach	Procedure	ICD-10-PCS
02130KF	Bypass Coronary Artery, Four or More Arteries from Abdominal Artery with Nonautologous Tissue Substitute, Open Approach	Procedure	ICD-10-PCS
02130Z8	Bypass Coronary Artery, Four or More Arteries from Right Internal Mammary, Open	Procedure	ICD-10-PCS
02130Z9	Bypass Coronary Artery, Four or More Arteries from Left Internal Mammary, Open	Procedure	ICD-10-PCS
02130ZC	Bypass Coronary Artery, Four or More Arteries from Thoracic Artery, Open Approach	Procedure	ICD-10-PCS
02130ZF	Bypass Coronary Artery, Four or More Arteries from Abdominal Artery, Open	Procedure	ICD-10-PCS
0213488	Bypass Coronary Artery, Four or More Arteries from Right Internal Mammary with Zooplastic Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0213489	Bypass Coronary Artery, Four or More Arteries from Left Internal Mammary with Zooplastic Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
021348C	Bypass Coronary Artery, Four or More Arteries from Thoracic Artery with Zooplastic Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
021348F	Bypass Coronary Artery, Four or More Arteries from Abdominal Artery with Zooplastic Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0213498	Bypass Coronary Artery, Four or More Arteries from Right Internal Mammary with Autologous Venous Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0213499	Bypass Coronary Artery, Four or More Arteries from Left Internal Mammary with Autologous Venous Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
021349C	Bypass Coronary Artery, Four or More Arteries from Thoracic Artery with Autologous Venous Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
021349F	Bypass Coronary Artery, Four or More Arteries from Abdominal Artery with Autologous Venous Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02134A8	Bypass Coronary Artery, Four or More Arteries from Right Internal Mammary with Autologous Arterial Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02134A9	Bypass Coronary Artery, Four or More Arteries from Left Internal Mammary with Autologous Arterial Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
02134AC	Bypass Coronary Artery, Four or More Arteries from Thoracic Artery with Autologous Arterial Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02134AF	Bypass Coronary Artery, Four or More Arteries from Abdominal Artery with Autologous Arterial Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02134J8	Bypass Coronary Artery, Four or More Arteries from Right Internal Mammary with Synthetic Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02134J9	Bypass Coronary Artery, Four or More Arteries from Left Internal Mammary with Synthetic Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02134JC	Bypass Coronary Artery, Four or More Arteries from Thoracic Artery with Synthetic Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02134JF	Bypass Coronary Artery, Four or More Arteries from Abdominal Artery with Synthetic Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02134K8	Bypass Coronary Artery, Four or More Arteries from Right Internal Mammary with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02134K9	Bypass Coronary Artery, Four or More Arteries from Left Internal Mammary with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02134KC	Bypass Coronary Artery, Four or More Arteries from Thoracic Artery with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02134KF	Bypass Coronary Artery, Four or More Arteries from Abdominal Artery with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02134Z8	Bypass Coronary Artery, Four or More Arteries from Right Internal Mammary, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02134Z9	Bypass Coronary Artery, Four or More Arteries from Left Internal Mammary, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02134ZC	Bypass Coronary Artery, Four or More Arteries from Thoracic Artery, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02134ZF	Bypass Coronary Artery, Four or More Arteries from Abdominal Artery, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0270046	Dilation of Coronary Artery, One Artery, Bifurcation, with Drug-eluting Intraluminal Device, Open Approach	Procedure	ICD-10-PCS
027004Z	Dilation of Coronary Artery, One Artery with Drug-eluting Intraluminal Device, Open	Procedure	ICD-10-PCS
0270056	Dilation of Coronary Artery, One Artery, Bifurcation, with Two Drug-eluting Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
027005Z	Dilation of Coronary Artery, One Artery with Two Drug-eluting Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
0270066	Dilation of Coronary Artery, One Artery, Bifurcation, with Three Drug-eluting Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
027006Z	Dilation of Coronary Artery, One Artery with Three Drug-eluting Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
0270076	Dilation of Coronary Artery, One Artery, Bifurcation, with Four or More Drug-eluting Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
027007Z	Dilation of Coronary Artery, One Artery with Four or More Drug-eluting Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
02700D6	Dilation of Coronary Artery, One Artery, Bifurcation, with Intraluminal Device, Open	Procedure	ICD-10-PCS
02700DZ	Dilation of Coronary Artery, One Artery with Intraluminal Device, Open Approach	Procedure	ICD-10-PCS
02700E6	Dilation of Coronary Artery, One Artery, Bifurcation, with Two Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
02700EZ	Dilation of Coronary Artery, One Artery with Two Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
02700F6	Dilation of Coronary Artery, One Artery, Bifurcation, with Three Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
02700FZ	Dilation of Coronary Artery, One Artery with Three Intraluminal Devices, Open	Procedure	ICD-10-PCS
02700G6	Dilation of Coronary Artery, One Artery, Bifurcation, with Four or More Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
02700GZ	Dilation of Coronary Artery, One Artery with Four or More Intraluminal Devices, Open	Procedure	ICD-10-PCS
02700T6	Dilation of Coronary Artery, One Artery, Bifurcation, with Radioactive Intraluminal Device, Open Approach	Procedure	ICD-10-PCS
02700TZ	Dilation of Coronary Artery, One Artery with Radioactive Intraluminal Device, Open	Procedure	ICD-10-PCS
02700Z6	Dilation of Coronary Artery, One Artery, Bifurcation, Open Approach	Procedure	ICD-10-PCS
02700ZZ	Dilation of Coronary Artery, One Artery, Open Approach	Procedure	ICD-10-PCS
0270346	Dilation of Coronary Artery, One Artery, Bifurcation, with Drug-eluting Intraluminal Device, Percutaneous Approach	Procedure	ICD-10-PCS
027034Z	Dilation of Coronary Artery, One Artery with Drug-eluting Intraluminal Device, Percutaneous Approach	Procedure	ICD-10-PCS
0270356	Dilation of Coronary Artery, One Artery, Bifurcation, with Two Drug-eluting Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
027035Z	Dilation of Coronary Artery, One Artery with Two Drug-eluting Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
0270366	Dilation of Coronary Artery, One Artery, Bifurcation, with Three Drug-eluting Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
027036Z	Dilation of Coronary Artery, One Artery with Three Drug-eluting Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
0270376	Dilation of Coronary Artery, One Artery, Bifurcation, with Four or More Drug-eluting Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
027037Z	Dilation of Coronary Artery, One Artery with Four or More Drug-eluting Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
02703D6	Dilation of Coronary Artery, One Artery, Bifurcation, with Intraluminal Device, Percutaneous Approach	Procedure	ICD-10-PCS
02703DZ	Dilation of Coronary Artery, One Artery with Intraluminal Device, Percutaneous	Procedure	ICD-10-PCS
02703E6	Dilation of Coronary Artery, One Artery, Bifurcation, with Two Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
02703EZ	Dilation of Coronary Artery, One Artery with Two Intraluminal Devices, Percutaneous	Procedure	ICD-10-PCS
02703F6	Dilation of Coronary Artery, One Artery, Bifurcation, with Three Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
02703FZ	Dilation of Coronary Artery, One Artery with Three Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
02703G6	Dilation of Coronary Artery, One Artery, Bifurcation, with Four or More Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
02703GZ	Dilation of Coronary Artery, One Artery with Four or More Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
02703T6	Dilation of Coronary Artery, One Artery, Bifurcation, with Radioactive Intraluminal Device, Percutaneous Approach	Procedure	ICD-10-PCS
02703TZ	Dilation of Coronary Artery, One Artery with Radioactive Intraluminal Device, Percutaneous Approach	Procedure	ICD-10-PCS
02703Z6	Dilation of Coronary Artery, One Artery, Bifurcation, Percutaneous Approach	Procedure	ICD-10-PCS
02703ZZ	Dilation of Coronary Artery, One Artery, Percutaneous Approach	Procedure	ICD-10-PCS
0270446	Dilation of Coronary Artery, One Artery, Bifurcation, with Drug-eluting Intraluminal Device, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
027044Z	Dilation of Coronary Artery, One Artery with Drug-eluting Intraluminal Device, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0270456	Dilation of Coronary Artery, One Artery, Bifurcation, with Two Drug-eluting Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
027045Z	Dilation of Coronary Artery, One Artery with Two Drug-eluting Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0270466	Dilation of Coronary Artery, One Artery, Bifurcation, with Three Drug-eluting Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
027046Z	Dilation of Coronary Artery, One Artery with Three Drug-eluting Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0270476	Dilation of Coronary Artery, One Artery, Bifurcation, with Four or More Drug-eluting Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
027047Z	Dilation of Coronary Artery, One Artery with Four or More Drug-eluting Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02704D6	Dilation of Coronary Artery, One Artery, Bifurcation, with Intraluminal Device, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02704DZ	Dilation of Coronary Artery, One Artery with Intraluminal Device, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02704E6	Dilation of Coronary Artery, One Artery, Bifurcation, with Two Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02704EZ	Dilation of Coronary Artery, One Artery with Two Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02704F6	Dilation of Coronary Artery, One Artery, Bifurcation, with Three Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02704FZ	Dilation of Coronary Artery, One Artery with Three Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02704G6	Dilation of Coronary Artery, One Artery, Bifurcation, with Four or More Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02704GZ	Dilation of Coronary Artery, One Artery with Four or More Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02704T6	Dilation of Coronary Artery, One Artery, Bifurcation, with Radioactive Intraluminal Device, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02704TZ	Dilation of Coronary Artery, One Artery with Radioactive Intraluminal Device, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02704Z6	Dilation of Coronary Artery, One Artery, Bifurcation, Percutaneous Endoscopic	Procedure	ICD-10-PCS
02704ZZ	Dilation of Coronary Artery, One Artery, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0271046	Dilation of Coronary Artery, Two Arteries, Bifurcation, with Drug-eluting Intraluminal Device, Open Approach	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
027104Z	Dilation of Coronary Artery, Two Arteries with Drug-eluting Intraluminal Device, Open	Procedure	ICD-10-PCS
0271056	Dilation of Coronary Artery, Two Arteries, Bifurcation, with Two Drug-eluting Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
027105Z	Dilation of Coronary Artery, Two Arteries with Two Drug-eluting Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
0271066	Dilation of Coronary Artery, Two Arteries, Bifurcation, with Three Drug-eluting Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
027106Z	Dilation of Coronary Artery, Two Arteries with Three Drug-eluting Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
0271076	Dilation of Coronary Artery, Two Arteries, Bifurcation, with Four or More Drug-eluting Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
027107Z	Dilation of Coronary Artery, Two Arteries with Four or More Drug-eluting Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
02710D6	Dilation of Coronary Artery, Two Arteries, Bifurcation, with Intraluminal Device, Open	Procedure	ICD-10-PCS
02710DZ	Dilation of Coronary Artery, Two Arteries with Intraluminal Device, Open Approach	Procedure	ICD-10-PCS
02710E6	Dilation of Coronary Artery, Two Arteries, Bifurcation, with Two Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
02710EZ	Dilation of Coronary Artery, Two Arteries with Two Intraluminal Devices, Open	Procedure	ICD-10-PCS
02710F6	Dilation of Coronary Artery, Two Arteries, Bifurcation, with Three Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
02710FZ	Dilation of Coronary Artery, Two Arteries with Three Intraluminal Devices, Open	Procedure	ICD-10-PCS
02710G6	Dilation of Coronary Artery, Two Arteries, Bifurcation, with Four or More Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
02710GZ	Dilation of Coronary Artery, Two Arteries with Four or More Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
02710T6	Dilation of Coronary Artery, Two Arteries, Bifurcation, with Radioactive Intraluminal Device, Open Approach	Procedure	ICD-10-PCS
02710TZ	Dilation of Coronary Artery, Two Arteries with Radioactive Intraluminal Device, Open	Procedure	ICD-10-PCS
02710Z6	Dilation of Coronary Artery, Two Arteries, Bifurcation, Open Approach	Procedure	ICD-10-PCS
02710ZZ	Dilation of Coronary Artery, Two Arteries, Open Approach	Procedure	ICD-10-PCS
0271346	Dilation of Coronary Artery, Two Arteries, Bifurcation, with Drug-eluting Intraluminal Device, Percutaneous Approach	Procedure	ICD-10-PCS
027134Z	Dilation of Coronary Artery, Two Arteries with Drug-eluting Intraluminal Device, Percutaneous Approach	Procedure	ICD-10-PCS

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Code	Description	Code Category	Code Type
0271356	Dilation of Coronary Artery, Two Arteries, Bifurcation, with Two Drug-eluting Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
027135Z	Dilation of Coronary Artery, Two Arteries with Two Drug-eluting Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
0271366	Dilation of Coronary Artery, Two Arteries, Bifurcation, with Three Drug-eluting Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
027136Z	Dilation of Coronary Artery, Two Arteries with Three Drug-eluting Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
0271376	Dilation of Coronary Artery, Two Arteries, Bifurcation, with Four or More Drug-eluting Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
027137Z	Dilation of Coronary Artery, Two Arteries with Four or More Drug-eluting Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
02713D6	Dilation of Coronary Artery, Two Arteries, Bifurcation, with Intraluminal Device, Percutaneous Approach	Procedure	ICD-10-PCS
02713DZ	Dilation of Coronary Artery, Two Arteries with Intraluminal Device, Percutaneous	Procedure	ICD-10-PCS
02713E6	Dilation of Coronary Artery, Two Arteries, Bifurcation, with Two Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
02713EZ	Dilation of Coronary Artery, Two Arteries with Two Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
02713F6	Dilation of Coronary Artery, Two Arteries, Bifurcation, with Three Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
02713FZ	Dilation of Coronary Artery, Two Arteries with Three Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
02713G6	Dilation of Coronary Artery, Two Arteries, Bifurcation, with Four or More Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
02713GZ	Dilation of Coronary Artery, Two Arteries with Four or More Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
02713T6	Dilation of Coronary Artery, Two Arteries, Bifurcation, with Radioactive Intraluminal Device, Percutaneous Approach	Procedure	ICD-10-PCS
02713TZ	Dilation of Coronary Artery, Two Arteries with Radioactive Intraluminal Device, Percutaneous Approach	Procedure	ICD-10-PCS
02713Z6	Dilation of Coronary Artery, Two Arteries, Bifurcation, Percutaneous Approach	Procedure	ICD-10-PCS
02713ZZ	Dilation of Coronary Artery, Two Arteries, Percutaneous Approach	Procedure	ICD-10-PCS

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Code	Description	Code Category	Code Type
0271446	Dilation of Coronary Artery, Two Arteries, Bifurcation, with Drug-eluting Intraluminal Device, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
027144Z	Dilation of Coronary Artery, Two Arteries with Drug-eluting Intraluminal Device, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0271456	Dilation of Coronary Artery, Two Arteries, Bifurcation, with Two Drug-eluting Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
027145Z	Dilation of Coronary Artery, Two Arteries with Two Drug-eluting Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0271466	Dilation of Coronary Artery, Two Arteries, Bifurcation, with Three Drug-eluting Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
027146Z	Dilation of Coronary Artery, Two Arteries with Three Drug-eluting Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0271476	Dilation of Coronary Artery, Two Arteries, Bifurcation, with Four or More Drug-eluting Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
027147Z	Dilation of Coronary Artery, Two Arteries with Four or More Drug-eluting Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02714D6	Dilation of Coronary Artery, Two Arteries, Bifurcation, with Intraluminal Device, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02714DZ	Dilation of Coronary Artery, Two Arteries with Intraluminal Device, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02714E6	Dilation of Coronary Artery, Two Arteries, Bifurcation, with Two Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02714EZ	Dilation of Coronary Artery, Two Arteries with Two Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02714F6	Dilation of Coronary Artery, Two Arteries, Bifurcation, with Three Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02714FZ	Dilation of Coronary Artery, Two Arteries with Three Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02714G6	Dilation of Coronary Artery, Two Arteries, Bifurcation, with Four or More Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02714GZ	Dilation of Coronary Artery, Two Arteries with Four or More Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02714T6	Dilation of Coronary Artery, Two Arteries, Bifurcation, with Radioactive Intraluminal Device, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
02714TZ	Dilation of Coronary Artery, Two Arteries with Radioactive Intraluminal Device, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02714Z6	Dilation of Coronary Artery, Two Arteries, Bifurcation, Percutaneous Endoscopic	Procedure	ICD-10-PCS
02714ZZ	Dilation of Coronary Artery, Two Arteries, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0272046	Dilation of Coronary Artery, Three Arteries, Bifurcation, with Drug-eluting Intraluminal Device, Open Approach	Procedure	ICD-10-PCS
027204Z	Dilation of Coronary Artery, Three Arteries with Drug-eluting Intraluminal Device, Open Approach	Procedure	ICD-10-PCS
0272056	Dilation of Coronary Artery, Three Arteries, Bifurcation, with Two Drug-eluting Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
027205Z	Dilation of Coronary Artery, Three Arteries with Two Drug-eluting Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
0272066	Dilation of Coronary Artery, Three Arteries, Bifurcation, with Three Drug-eluting Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
027206Z	Dilation of Coronary Artery, Three Arteries with Three Drug-eluting Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
0272076	Dilation of Coronary Artery, Three Arteries, Bifurcation, with Four or More Drug-eluting Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
027207Z	Dilation of Coronary Artery, Three Arteries with Four or More Drug-eluting Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
02720D6	Dilation of Coronary Artery, Three Arteries, Bifurcation, with Intraluminal Device, Open Approach	Procedure	ICD-10-PCS
02720DZ	Dilation of Coronary Artery, Three Arteries with Intraluminal Device, Open Approach	Procedure	ICD-10-PCS
02720E6	Dilation of Coronary Artery, Three Arteries, Bifurcation, with Two Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
02720EZ	Dilation of Coronary Artery, Three Arteries with Two Intraluminal Devices, Open	Procedure	ICD-10-PCS
02720F6	Dilation of Coronary Artery, Three Arteries, Bifurcation, with Three Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
02720FZ	Dilation of Coronary Artery, Three Arteries with Three Intraluminal Devices, Open	Procedure	ICD-10-PCS
02720G6	Dilation of Coronary Artery, Three Arteries, Bifurcation, with Four or More Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
02720GZ	Dilation of Coronary Artery, Three Arteries with Four or More Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
02720T6	Dilation of Coronary Artery, Three Arteries, Bifurcation, with Radioactive Intraluminal Device, Open Approach	Procedure	ICD-10-PCS
02720TZ	Dilation of Coronary Artery, Three Arteries with Radioactive Intraluminal Device, Open	Procedure	ICD-10-PCS
02720Z6	Dilation of Coronary Artery, Three Arteries, Bifurcation, Open Approach	Procedure	ICD-10-PCS
02720ZZ	Dilation of Coronary Artery, Three Arteries, Open Approach	Procedure	ICD-10-PCS
0272346	Dilation of Coronary Artery, Three Arteries, Bifurcation, with Drug-eluting Intraluminal Device, Percutaneous Approach	Procedure	ICD-10-PCS
027234Z	Dilation of Coronary Artery, Three Arteries with Drug-eluting Intraluminal Device, Percutaneous Approach	Procedure	ICD-10-PCS
0272356	Dilation of Coronary Artery, Three Arteries, Bifurcation, with Two Drug-eluting Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
027235Z	Dilation of Coronary Artery, Three Arteries with Two Drug-eluting Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
0272366	Dilation of Coronary Artery, Three Arteries, Bifurcation, with Three Drug-eluting Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
027236Z	Dilation of Coronary Artery, Three Arteries with Three Drug-eluting Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
0272376	Dilation of Coronary Artery, Three Arteries, Bifurcation, with Four or More Drug-eluting Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
027237Z	Dilation of Coronary Artery, Three Arteries with Four or More Drug-eluting Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
02723D6	Dilation of Coronary Artery, Three Arteries, Bifurcation, with Intraluminal Device, Percutaneous Approach	Procedure	ICD-10-PCS
02723DZ	Dilation of Coronary Artery, Three Arteries with Intraluminal Device, Percutaneous	Procedure	ICD-10-PCS
02723E6	Dilation of Coronary Artery, Three Arteries, Bifurcation, with Two Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
02723EZ	Dilation of Coronary Artery, Three Arteries with Two Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
02723F6	Dilation of Coronary Artery, Three Arteries, Bifurcation, with Three Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
02723FZ	Dilation of Coronary Artery, Three Arteries with Three Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
02723G6	Dilation of Coronary Artery, Three Arteries, Bifurcation, with Four or More Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
02723GZ	Dilation of Coronary Artery, Three Arteries with Four or More Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
02723T6	Dilation of Coronary Artery, Three Arteries, Bifurcation, with Radioactive Intraluminal Device, Percutaneous Approach	Procedure	ICD-10-PCS
02723TZ	Dilation of Coronary Artery, Three Arteries with Radioactive Intraluminal Device, Percutaneous Approach	Procedure	ICD-10-PCS
02723Z6	Dilation of Coronary Artery, Three Arteries, Bifurcation, Percutaneous Approach	Procedure	ICD-10-PCS
02723ZZ	Dilation of Coronary Artery, Three Arteries, Percutaneous Approach	Procedure	ICD-10-PCS
0272446	Dilation of Coronary Artery, Three Arteries, Bifurcation, with Drug-eluting Intraluminal Device, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
027244Z	Dilation of Coronary Artery, Three Arteries with Drug-eluting Intraluminal Device, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0272456	Dilation of Coronary Artery, Three Arteries, Bifurcation, with Two Drug-eluting Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
027245Z	Dilation of Coronary Artery, Three Arteries with Two Drug-eluting Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0272466	Dilation of Coronary Artery, Three Arteries, Bifurcation, with Three Drug-eluting Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
027246Z	Dilation of Coronary Artery, Three Arteries with Three Drug-eluting Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0272476	Dilation of Coronary Artery, Three Arteries, Bifurcation, with Four or More Drug-eluting Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
027247Z	Dilation of Coronary Artery, Three Arteries with Four or More Drug-eluting Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02724D6	Dilation of Coronary Artery, Three Arteries, Bifurcation, with Intraluminal Device, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02724DZ	Dilation of Coronary Artery, Three Arteries with Intraluminal Device, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02724E6	Dilation of Coronary Artery, Three Arteries, Bifurcation, with Two Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02724EZ	Dilation of Coronary Artery, Three Arteries with Two Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02724F6	Dilation of Coronary Artery, Three Arteries, Bifurcation, with Three Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS

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Code	Description	Code Category	Code Type
02724FZ	Dilation of Coronary Artery, Three Arteries with Three Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02724G6	Dilation of Coronary Artery, Three Arteries, Bifurcation, with Four or More Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02724GZ	Dilation of Coronary Artery, Three Arteries with Four or More Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02724T6	Dilation of Coronary Artery, Three Arteries, Bifurcation, with Radioactive Intraluminal Device, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02724TZ	Dilation of Coronary Artery, Three Arteries with Radioactive Intraluminal Device, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02724Z6	Dilation of Coronary Artery, Three Arteries, Bifurcation, Percutaneous Endoscopic	Procedure	ICD-10-PCS
02724ZZ	Dilation of Coronary Artery, Three Arteries, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0273046	Dilation of Coronary Artery, Four or More Arteries, Bifurcation, with Drug-eluting Intraluminal Device, Open Approach	Procedure	ICD-10-PCS
027304Z	Dilation of Coronary Artery, Four or More Arteries with Drug-eluting Intraluminal Device, Open Approach	Procedure	ICD-10-PCS
0273056	Dilation of Coronary Artery, Four or More Arteries, Bifurcation, with Two Drug-eluting Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
027305Z	Dilation of Coronary Artery, Four or More Arteries with Two Drug-eluting Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
0273066	Dilation of Coronary Artery, Four or More Arteries, Bifurcation, with Three Drug-eluting Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
027306Z	Dilation of Coronary Artery, Four or More Arteries with Three Drug-eluting Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
0273076	Dilation of Coronary Artery, Four or More Arteries, Bifurcation, with Four or More Drug-eluting Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
027307Z	Dilation of Coronary Artery, Four or More Arteries with Four or More Drug-eluting Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
02730D6	Dilation of Coronary Artery, Four or More Arteries, Bifurcation, with Intraluminal Device, Open Approach	Procedure	ICD-10-PCS
02730DZ	Dilation of Coronary Artery, Four or More Arteries with Intraluminal Device, Open	Procedure	ICD-10-PCS
02730E6	Dilation of Coronary Artery, Four or More Arteries, Bifurcation, with Two Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS

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Code	Description	Code Category	Code Type
02730EZ	Dilation of Coronary Artery, Four or More Arteries with Two Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
02730F6	Dilation of Coronary Artery, Four or More Arteries, Bifurcation, with Three Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
02730FZ	Dilation of Coronary Artery, Four or More Arteries with Three Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
02730G6	Dilation of Coronary Artery, Four or More Arteries, Bifurcation, with Four or More Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
02730GZ	Dilation of Coronary Artery, Four or More Arteries with Four or More Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
02730T6	Dilation of Coronary Artery, Four or More Arteries, Bifurcation, with Radioactive Intraluminal Device, Open Approach	Procedure	ICD-10-PCS
02730TZ	Dilation of Coronary Artery, Four or More Arteries with Radioactive Intraluminal Device, Open Approach	Procedure	ICD-10-PCS
02730Z6	Dilation of Coronary Artery, Four or More Arteries, Bifurcation, Open Approach	Procedure	ICD-10-PCS
02730ZZ	Dilation of Coronary Artery, Four or More Arteries, Open Approach	Procedure	ICD-10-PCS
0273346	Dilation of Coronary Artery, Four or More Arteries, Bifurcation, with Drug-eluting Intraluminal Device, Percutaneous Approach	Procedure	ICD-10-PCS
027334Z	Dilation of Coronary Artery, Four or More Arteries with Drug-eluting Intraluminal Device, Percutaneous Approach	Procedure	ICD-10-PCS
0273356	Dilation of Coronary Artery, Four or More Arteries, Bifurcation, with Two Drug-eluting Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
027335Z	Dilation of Coronary Artery, Four or More Arteries with Two Drug-eluting Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
0273366	Dilation of Coronary Artery, Four or More Arteries, Bifurcation, with Three Drug-eluting Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
027336Z	Dilation of Coronary Artery, Four or More Arteries with Three Drug-eluting Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
0273376	Dilation of Coronary Artery, Four or More Arteries, Bifurcation, with Four or More Drug-eluting Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
027337Z	Dilation of Coronary Artery, Four or More Arteries with Four or More Drug-eluting Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
02733D6	Dilation of Coronary Artery, Four or More Arteries, Bifurcation, with Intraluminal Device, Percutaneous Approach	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
02733DZ	Dilation of Coronary Artery, Four or More Arteries with Intraluminal Device, Percutaneous Approach	Procedure	ICD-10-PCS
02733E6	Dilation of Coronary Artery, Four or More Arteries, Bifurcation, with Two Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
02733EZ	Dilation of Coronary Artery, Four or More Arteries with Two Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
02733F6	Dilation of Coronary Artery, Four or More Arteries, Bifurcation, with Three Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
02733FZ	Dilation of Coronary Artery, Four or More Arteries with Three Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
02733G6	Dilation of Coronary Artery, Four or More Arteries, Bifurcation, with Four or More Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
02733GZ	Dilation of Coronary Artery, Four or More Arteries with Four or More Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
02733T6	Dilation of Coronary Artery, Four or More Arteries, Bifurcation, with Radioactive Intraluminal Device, Percutaneous Approach	Procedure	ICD-10-PCS
02733TZ	Dilation of Coronary Artery, Four or More Arteries with Radioactive Intraluminal Device, Percutaneous Approach	Procedure	ICD-10-PCS
02733Z6	Dilation of Coronary Artery, Four or More Arteries, Bifurcation, Percutaneous	Procedure	ICD-10-PCS
02733ZZ	Dilation of Coronary Artery, Four or More Arteries, Percutaneous Approach	Procedure	ICD-10-PCS
0273446	Dilation of Coronary Artery, Four or More Arteries, Bifurcation, with Drug-eluting Intraluminal Device, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
027344Z	Dilation of Coronary Artery, Four or More Arteries with Drug-eluting Intraluminal Device, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0273456	Dilation of Coronary Artery, Four or More Arteries, Bifurcation, with Two Drug-eluting Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
027345Z	Dilation of Coronary Artery, Four or More Arteries with Two Drug-eluting Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0273466	Dilation of Coronary Artery, Four or More Arteries, Bifurcation, with Three Drug-eluting Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
027346Z	Dilation of Coronary Artery, Four or More Arteries with Three Drug-eluting Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0273476	Dilation of Coronary Artery, Four or More Arteries, Bifurcation, with Four or More Drug-eluting Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
027347Z	Dilation of Coronary Artery, Four or More Arteries with Four or More Drug-eluting Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02734D6	Dilation of Coronary Artery, Four or More Arteries, Bifurcation, with Intraluminal Device, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02734DZ	Dilation of Coronary Artery, Four or More Arteries with Intraluminal Device, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02734E6	Dilation of Coronary Artery, Four or More Arteries, Bifurcation, with Two Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02734EZ	Dilation of Coronary Artery, Four or More Arteries with Two Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02734F6	Dilation of Coronary Artery, Four or More Arteries, Bifurcation, with Three Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02734FZ	Dilation of Coronary Artery, Four or More Arteries with Three Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02734G6	Dilation of Coronary Artery, Four or More Arteries, Bifurcation, with Four or More Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02734GZ	Dilation of Coronary Artery, Four or More Arteries with Four or More Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02734T6	Dilation of Coronary Artery, Four or More Arteries, Bifurcation, with Radioactive Intraluminal Device, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02734TZ	Dilation of Coronary Artery, Four or More Arteries with Radioactive Intraluminal Device, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02734Z6	Dilation of Coronary Artery, Four or More Arteries, Bifurcation, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02734ZZ	Dilation of Coronary Artery, Four or More Arteries, Percutaneous Endoscopic	Procedure	ICD-10-PCS
02C00Z6	Extirpation of Matter from Coronary Artery, One Artery, Bifurcation, Open Approach	Procedure	ICD-10-PCS
02C00ZZ	Extirpation of Matter from Coronary Artery, One Artery, Open Approach	Procedure	ICD-10-PCS
02C10Z6	Extirpation of Matter from Coronary Artery, Two Arteries, Bifurcation, Open Approach	Procedure	ICD-10-PCS
02C10ZZ	Extirpation of Matter from Coronary Artery, Two Arteries, Open Approach	Procedure	ICD-10-PCS
02C20Z6	Extirpation of Matter from Coronary Artery, Three Arteries, Bifurcation, Open	Procedure	ICD-10-PCS
02C20ZZ	Extirpation of Matter from Coronary Artery, Three Arteries, Open Approach	Procedure	ICD-10-PCS
02C30Z6	Extirpation of Matter from Coronary Artery, Four or More Arteries, Bifurcation, Open	Procedure	ICD-10-PCS
02C30ZZ	Extirpation of Matter from Coronary Artery, Four or More Arteries, Open Approach	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
33508	Endoscopy, surgical, including video-assisted harvest of vein(s) for coronary artery bypass procedure (List separately in addition to code for primary procedure)	Procedure	CPT-4
33510	Coronary artery bypass, vein only; single coronary venous graft	Procedure	CPT-4
33511	Coronary artery bypass, vein only; 2 coronary venous grafts	Procedure	CPT-4
33512	Coronary artery bypass, vein only; 3 coronary venous grafts	Procedure	CPT-4
33513	Coronary artery bypass, vein only; 4 coronary venous grafts	Procedure	CPT-4
33514	Coronary artery bypass, vein only; 5 coronary venous grafts	Procedure	CPT-4
33516	Coronary artery bypass, vein only; 6 or more coronary venous grafts	Procedure	CPT-4
33517	Coronary artery bypass, using venous graft(s) and arterial graft(s); single vein graft (List separately in addition to code for primary procedure)	Procedure	CPT-4
33518	Coronary artery bypass, using venous graft(s) and arterial graft(s); 2 venous grafts (List separately in addition to code for primary procedure)	Procedure	CPT-4
33519	Coronary artery bypass, using venous graft(s) and arterial graft(s); 3 venous grafts (List separately in addition to code for primary procedure)	Procedure	CPT-4
33520	Coronary Artery Bypass, Nonautogenous Graft (eg, Synthetic Or Cadaver); Single Graft	Procedure	CPT-4
33521	Coronary artery bypass, using venous graft(s) and arterial graft(s); 4 venous grafts (List separately in addition to code for primary procedure)	Procedure	CPT-4
33522	Coronary artery bypass, using venous graft(s) and arterial graft(s); 5 venous grafts (List separately in addition to code for primary procedure)	Procedure	CPT-4
33523	Coronary artery bypass, using venous graft(s) and arterial graft(s); 6 or more venous grafts (List separately in addition to code for primary procedure)	Procedure	CPT-4
33525	Coronary Artery Bypass, Nonautogenous Graft (eg, Synthetic Or Cadaver); Two	Procedure	CPT-4
33528	Coronary Artery Bypass, Nonautogenous Graft (eg, Synthetic Or Cadaver); Three Or More Coronary Grafts	Procedure	CPT-4
33530	Reoperation, coronary artery bypass procedure or valve procedure, more than 1 month after original operation (List separately in addition to code for primary procedure)	Procedure	CPT-4
33533	Coronary artery bypass, using arterial graft(s); single arterial graft	Procedure	CPT-4
33534	Coronary artery bypass, using arterial graft(s); 2 coronary arterial grafts	Procedure	CPT-4
33535	Coronary artery bypass, using arterial graft(s); 3 coronary arterial grafts	Procedure	CPT-4
33536	Coronary artery bypass, using arterial graft(s); 4 or more coronary arterial grafts	Procedure	CPT-4
33570	CORONARY ANGIOPLASTY W/BYPASS	Procedure	CPT-4

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
33572	Coronary endarterectomy, open, any method, of left anterior descending, circumflex, or right coronary artery performed in conjunction with coronary artery bypass graft procedure, each vessel (List separately in addition to primary procedure)	Procedure	CPT-4
35500	Harvest of upper extremity vein, 1 segment, for lower extremity or coronary artery bypass procedure (List separately in addition to code for primary procedure)	Procedure	CPT-4
35600	Harvest of upper extremity artery, 1 segment, for coronary artery bypass procedure (List separately in addition to code for primary procedure)	Procedure	CPT-4
37236	Transcatheter placement of an intravascular stent(s) (except lower extremity artery(s) for occlusive disease, cervical carotid, extracranial vertebral or intrathoracic carotid, intracranial, or coronary), open or percutaneous, including radiological supervision and interpretation and including all angioplasty within the same vessel, when performed; initial artery	Procedure	CPT-4
37237	Transcatheter placement of an intravascular stent(s) (except lower extremity artery(s) for occlusive disease, cervical carotid, extracranial vertebral or intrathoracic carotid, intracranial, or coronary), open or percutaneous, including radiological supervision and interpretation and including all angioplasty within the same vessel, when performed; each additional artery (List separately in addition to code for primary procedure)	Procedure	CPT-4
37246	Transluminal balloon angioplasty (except lower extremity artery(ies) for occlusive disease, intracranial, coronary, pulmonary, or dialysis circuit), open or percutaneous, including all imaging and radiological supervision and interpretation necessary to perform the angioplasty within the same artery; initial artery	Procedure	CPT-4
37247	Transluminal balloon angioplasty (except lower extremity artery(ies) for occlusive disease, intracranial, coronary, pulmonary, or dialysis circuit), open or percutaneous, including all imaging and radiological supervision and interpretation necessary to perform the angioplasty within the same artery; each additional artery (List separately in addition to code for primary procedure)	Procedure	CPT-4
4110F	Internal mammary artery graft performed for primary, isolated coronary artery bypass graft procedure (CABG)	Procedure	CPT-2
75972	Percutaneous Transluminal Angioplasty, Unilateral;	Procedure	CPT-4
75973	Percutaneous Transluminal Angioplasty, Unilateral;	Procedure	CPT-4
75974	Percutaneous Transluminal Angioplasty, Bilateral, Single Catheter;	Procedure	CPT-4
75975	Percutaneous Transluminal Angioplasty, Bilateral, Single Catheter;	Procedure	CPT-4
75976	Percutaneous Transluminal Angioplasty, Bilateral, Dual Catheters;	Procedure	CPT-4
75977	Percutaneous Transluminal Angioplasty, Bilateral, Dual Catheters;	Procedure	CPT-4
92920	Percutaneous transluminal coronary angioplasty; single major coronary artery or	Procedure	CPT-4

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
92921	Percutaneous transluminal coronary angioplasty; each additional branch of a major coronary artery (List separately in addition to code for primary procedure)	Procedure	CPT-4
92924	Percutaneous transluminal coronary atherectomy, with coronary angioplasty when performed; single major coronary artery or branch	Procedure	CPT-4
92925	Percutaneous transluminal coronary atherectomy, with coronary angioplasty when performed; each additional branch of a major coronary artery (List separately in addition to code for primary procedure)	Procedure	CPT-4
92928	Percutaneous transcatheter placement of intracoronary stent(s), with coronary angioplasty when performed; single major coronary artery or branch	Procedure	CPT-4
92929	Percutaneous transcatheter placement of intracoronary stent(s), with coronary angioplasty when performed; each additional branch of a major coronary artery (List separately in addition to code for primary procedure)	Procedure	CPT-4
92933	Percutaneous transluminal coronary atherectomy, with intracoronary stent, with coronary angioplasty when performed; single major coronary artery or branch	Procedure	CPT-4
92934	Percutaneous transluminal coronary atherectomy, with intracoronary stent, with coronary angioplasty when performed; each additional branch of a major coronary artery (List separately in addition to code for primary procedure)	Procedure	CPT-4
92937	Percutaneous transluminal revascularization of or through coronary artery bypass graft (internal mammary, free arterial, venous), any combination of intracoronary stent, atherectomy and angioplasty, including distal protection when performed; single vessel	Procedure	CPT-4
92938	Percutaneous transluminal revascularization of or through coronary artery bypass graft (internal mammary, free arterial, venous), any combination of intracoronary stent, atherectomy and angioplasty, including distal protection when performed; each additional branch subtended by the bypass graft (List separately in addition to code for primary procedure)	Procedure	CPT-4
92941	Percutaneous transluminal revascularization of acute total/subtotal occlusion during acute myocardial infarction, coronary artery or coronary artery bypass graft, any combination of intracoronary stent, atherectomy and angioplasty, including aspiration thrombectomy when performed, single vessel	Procedure	CPT-4
92943	Percutaneous transluminal revascularization of chronic total occlusion, coronary artery, coronary artery branch, or coronary artery bypass graft, any combination of intracoronary stent, atherectomy and angioplasty; single vessel	Procedure	CPT-4

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
92944	Percutaneous transluminal revascularization of chronic total occlusion, coronary artery, coronary artery branch, or coronary artery bypass graft, any combination of intracoronary stent, atherectomy and angioplasty; each additional coronary artery, coronary artery branch, or bypass graft (List separately in addition to code for primary procedure)	Procedure	CPT-4
92982	Percutaneous transluminal coronary balloon angioplasty; single vessel	Procedure	CPT-4
92984	Percutaneous transluminal coronary balloon angioplasty; each additional vessel (List separately in addition to code for primary procedure)	Procedure	CPT-4
92995	Percutaneous transluminal coronary atherectomy, by mechanical or other method, with or without balloon angioplasty; single vessel	Procedure	CPT-4
92996	Percutaneous transluminal coronary atherectomy, by mechanical or other method, with or without balloon angioplasty; each additional vessel (List separately in addition to code for primary procedure)	Procedure	CPT-4
C1034	Catheter, coronary angioplasty, surpass superfusion catheter, long 30 surpass superfusion catheter	Procedure	HCPCS
C1100	Guide wire, percutaneous transluminal coronary angioplasty, medtronic ave gt1 guide wire, medtronic ave gt2 fusion guide wire, interventional technologies trackwire, interventional technologies trackwire support, interventional technologies trackwire extra support	Procedure	HCPCS
C1101	Catheter, percutaneous transluminal coronary angioplasty guide, medtronic ave 5f, 6f, 7f, 8f, 9f zuma guide catheter, medtronic ave z2 5f, 6f, 7f, 8f, 9f zuma guide catheter, medtronic ave vector guide catheter, medtronic ave vector x guide catheter. note: only the medtronic ave z2 zuma guide catheters are effective october 1, 2000. the medtronic ave zuma guide catheters were effective august 1, 2000.	Procedure	HCPCS
C1366	Guide wire, percutaneous transluminal coronary angioplasty, hi-torque iron man, hi-torque balance middleweight, hi-torque all star, hi-torque balance heavyweight, hi-torque balance trek	Procedure	HCPCS
C1367	Guide wire, percutaneous transluminal coronary angioplasty, hi-torque cross it, hi-torque cross-it 100xt, hi-torque cross-it 200xt, hi-torque cross-it 300xt, hi-torque wiggle	Procedure	HCPCS
C1725	Catheter, transluminal angioplasty, nonlaser (may include guidance, infusion/perfusion capability)	Procedure	HCPCS
C1885	Catheter, transluminal angioplasty, laser	Procedure	HCPCS
C1930	Catheter, percutaneous transluminal coronary angioplasty, coyote dilatation catheter 20mm/30mm/40mm	Procedure	HCPCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
C1933	Catheter, opti-plast centurion 5.5f pta catheter (shaft length 50 cm to 120 cm), opti-plast xl 5.5f pta catheter (shaft length 75 cm to 120 cm), opti-plast pta catheter (5.5 fr), tru trac 5fr percutaneous transluminal angioplasty balloon dilatation catheter, optiplast xt 5 fr percutaneous transluminal angioplasty catheter (various sizes)	Procedure	HCPCS
C1948	Catheter, pursuit balloon angioplasty catheter, cook accent balloon angioplasty	Procedure	HCPCS
C1981	Catheter ,coronary angioplasty balloon, adante, bonnie, bonnie 15mm, bonnie monorail 30mm or 40mm, bonnie sliding rail, bypass speedy, chubby, chubby sliding rail, coyote 20mm, coyote 9/15/25mm, maxxum, nc ranger, nc ranger 9mm, ranger 20mm, long ranger 30mm or 40mm, nc ranger 16/18mm, nc ranger 22/25/30mm, nc big ranger, quantum ranger, quantum ranger 1/4 sizes, quantum ranger 9/16/18mm, quantum ranger 22/30mm, quantum ranger 25mm, ranger lp 20/30/40, viva/long viva, ace - 1cm, ace - 2cm, ace graft, long ace, pivot cobra (10, 14, 18, 30, 40mm in lengths) note: only the bonnie monorail 30mm or	Procedure	HCPCS
C2605	Catheter, spectranetics extreme laser catheter, spectranetics extreme 0.9mm coronary angioplasty catheter (model 110-001)	Procedure	HCPCS
C2623	Catheter, transluminal angioplasty, drug-coated, nonlaser	Procedure	HCPCS
C3551	Guide wire, percutaneous transluminal coronary angioplasty, choice, luge, patriot, pt graphix intermediate, trooper, mailman 182/300 cm, glidewire gold guidewire, platinum plus guidewire, platinum plus guidewire with glidex hydrophilic coating, jagwire single-use high performance guide wire, merit medical systems extender guidewire, merit medical systems tomcat ptca guidewire, platinum plus guidewire (0.014 and 0.018 in diameters)	Procedure	HCPCS
C8526	Optiplast xt 5f percutaneous transluminal angioplasty catheter (various sizes)	Procedure	HCPCS
C9600	Percutaneous transcatheter placement of drug eluting intracoronary stent(s), with coronary angioplasty when performed; single major coronary artery or branch	Procedure	HCPCS
C9601	Percutaneous transcatheter placement of drug-eluting intracoronary stent(s), with coronary angioplasty when performed; each additional branch of a major coronary artery (list separately in addition to code for primary procedure)	Procedure	HCPCS
C9602	Percutaneous transluminal coronary atherectomy, with drug eluting intracoronary stent, with coronary angioplasty when performed; single major coronary artery or branch	Procedure	HCPCS
C9603	Percutaneous transluminal coronary atherectomy, with drug-eluting intracoronary stent, with coronary angioplasty when performed; each additional branch of a major coronary artery (list separately in addition to code for primary procedure)	Procedure	HCPCS
C9604	Percutaneous transluminal revascularization of or through coronary artery bypass graft (internal mammary, free arterial, venous), any combination of drug-eluting intracoronary stent, atherectomy and angioplasty, including distal protection when performed; single vessel	Procedure	HCPCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
C9605	Percutaneous transluminal revascularization of or through coronary artery bypass graft (internal mammary, free arterial, venous), any combination of drug-eluting intracoronary stent, atherectomy and angioplasty, including distal protection when performed; each additional branch subtended by the bypass graft (list separately in addition to code for primary procedure)	Procedure	HCPCS
C9606	Percutaneous transluminal revascularization of acute total/subtotal occlusion during acute myocardial infarction, coronary artery or coronary artery bypass graft, any combination of drug-eluting intracoronary stent, atherectomy and angioplasty, including aspiration thrombectomy when performed, single vessel	Procedure	HCPCS
C9607	Percutaneous transluminal revascularization of chronic total occlusion, coronary artery, coronary artery branch, or coronary artery bypass graft, any combination of drug-eluting intracoronary stent, atherectomy and angioplasty; single vessel	Procedure	HCPCS
C9608	Percutaneous transluminal revascularization of chronic total occlusion, coronary artery, coronary artery branch, or coronary artery bypass graft, any combination of drug-eluting intracoronary stent, atherectomy and angioplasty; each additional coronary artery, coronary artery branch, or bypass graft (list separately in addition to code for primary procedure)	Procedure	HCPCS
G8158	Patient documented to have received coronary artery bypass graft with use of internal mammary artery	Procedure	HCPCS
G8159	Patient documented to have received coronary artery bypass graft without use of internal mammary artery	Procedure	HCPCS
G8160	Clinician documented that patient was not an eligible candidate for coronary artery bypass graft with use of internal mammary artery measure	Procedure	HCPCS
G8161	Patient with isolated coronary artery bypass graft documented to have received pre-operative beta-blockade	Procedure	HCPCS
G8162	Patient with isolated coronary artery bypass graft not documented to have received preoperative beta-blockade	Procedure	HCPCS
G8163	Clinician documented that patient with isolated coronary artery bypass graft was not an eligible candidate for pre-operative beta-blockade measure	Procedure	HCPCS
G8164	Patient with isolated coronary artery bypass graft documented to have prolonged	Procedure	HCPCS
G8165	Patient with isolated coronary artery bypass graft not documented to have prolonged intubation	Procedure	HCPCS
G8166	Patient with isolated coronary artery bypass graft documented to have required surgical re-exploration	Procedure	HCPCS
G8167	Patient with isolated coronary artery bypass graft did not require surgical re-	Procedure	HCPCS

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Code	Description	Code Category	Code Type
G8170	Patient with isolated coronary artery bypass graft documented to have been discharged on aspirin or clopidogrel	Procedure	HCPCS
G8171	Patient with isolated coronary artery bypass graft not documented to have been discharged on aspirin or clopidogrel	Procedure	HCPCS
G8172	Clinician documented that patient with isolated coronary artery bypass graft was not an eligible candidate for antiplatelet therapy at discharge measure	Procedure	HCPCS
G8497	All quality actions for the applicable measures in the coronary artery bypass graft (CABG) measures group have been performed for this patient	Procedure	HCPCS
G8544	I intend to report the coronary artery bypass graft (CABG) measures group	Procedure	HCPCS
S2205	Minimally invasive direct coronary artery bypass surgery involving mini-thoracotomy or mini-sternotomy surgery, performed under direct vision; using arterial graft(s), single coronary arterial graft	Procedure	HCPCS
S2206	Minimally invasive direct coronary artery bypass surgery involving mini-thoracotomy or mini-sternotomy surgery, performed under direct vision; using arterial graft(s), two coronary arterial grafts	Procedure	HCPCS
S2207	Minimally invasive direct coronary artery bypass surgery involving mini-thoracotomy or mini-sternotomy surgery, performed under direct vision; using venous graft only, single coronary venous graft	Procedure	HCPCS
S2208	Minimally invasive direct coronary artery bypass surgery involving mini-thoracotomy or mini-sternotomy surgery, performed under direct vision; using single arterial and venous graft(s), single venous graft	Procedure	HCPCS
S2209	Minimally invasive direct coronary artery bypass surgery involving mini-thoracotomy or mini-sternotomy surgery, performed under direct vision; using two arterial grafts and single venous graft	Procedure	HCPCS
Atrial Fibrillation			
I48.0	Paroxysmal atrial fibrillation	Diagnosis	ICD-10-CM
I48.1	Persistent atrial fibrillation	Diagnosis	ICD-10-CM
I48.2	Chronic atrial fibrillation	Diagnosis	ICD-10-CM
I48.91	Unspecified atrial fibrillation	Diagnosis	ICD-10-CM
Congestive Heart Failure			
I50.1	Left ventricular failure, unspecified	Diagnosis	ICD-10-CM
I50.20	Unspecified systolic (congestive) heart failure	Diagnosis	ICD-10-CM
I50.21	Acute systolic (congestive) heart failure	Diagnosis	ICD-10-CM
I50.22	Chronic systolic (congestive) heart failure	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
I50.23	Acute on chronic systolic (congestive) heart failure	Diagnosis	ICD-10-CM
I50.30	Unspecified diastolic (congestive) heart failure	Diagnosis	ICD-10-CM
I50.31	Acute diastolic (congestive) heart failure	Diagnosis	ICD-10-CM
I50.32	Chronic diastolic (congestive) heart failure	Diagnosis	ICD-10-CM
I50.33	Acute on chronic diastolic (congestive) heart failure	Diagnosis	ICD-10-CM
I50.40	Unspecified combined systolic (congestive) and diastolic (congestive) heart failure	Diagnosis	ICD-10-CM
I50.41	Acute combined systolic (congestive) and diastolic (congestive) heart failure	Diagnosis	ICD-10-CM
I50.42	Chronic combined systolic (congestive) and diastolic (congestive) heart failure	Diagnosis	ICD-10-CM
I50.43	Acute on chronic combined systolic (congestive) and diastolic (congestive) heart failure	Diagnosis	ICD-10-CM
I50.810	Right heart failure, unspecified	Diagnosis	ICD-10-CM
I50.811	Acute right heart failure	Diagnosis	ICD-10-CM
I50.812	Chronic right heart failure	Diagnosis	ICD-10-CM
I50.813	Acute on chronic right heart failure	Diagnosis	ICD-10-CM
I50.814	Right heart failure due to left heart failure	Diagnosis	ICD-10-CM
I50.82	Biventricular heart failure	Diagnosis	ICD-10-CM
I50.83	High output heart failure	Diagnosis	ICD-10-CM
I50.84	End stage heart failure	Diagnosis	ICD-10-CM
I50.89	Other heart failure	Diagnosis	ICD-10-CM
I50.9	Heart failure, unspecified	Diagnosis	ICD-10-CM
Hospitalized Acute Myocardial Infarction			
I21.01	ST elevation (STEMI) myocardial infarction involving left main coronary artery	Diagnosis	ICD-10-CM
I21.02	ST elevation (STEMI) myocardial infarction involving left anterior descending coronary	Diagnosis	ICD-10-CM
I21.09	ST elevation (STEMI) myocardial infarction involving other coronary artery of anterior	Diagnosis	ICD-10-CM
I21.11	ST elevation (STEMI) myocardial infarction involving right coronary artery	Diagnosis	ICD-10-CM
I21.19	ST elevation (STEMI) myocardial infarction involving other coronary artery of inferior	Diagnosis	ICD-10-CM
I21.21	ST elevation (STEMI) myocardial infarction involving left circumflex coronary artery	Diagnosis	ICD-10-CM
I21.29	ST elevation (STEMI) myocardial infarction involving other sites	Diagnosis	ICD-10-CM
I21.3	ST elevation (STEMI) myocardial infarction of unspecified site	Diagnosis	ICD-10-CM
I21.4	Non-ST elevation (NSTEMI) myocardial infarction	Diagnosis	ICD-10-CM
I21.9	Acute myocardial infarction, unspecified	Diagnosis	ICD-10-CM
I21.A1	Myocardial infarction type 2	Diagnosis	ICD-10-CM
I21.A9	Other myocardial infarction type	Diagnosis	ICD-10-CM
I22.0	Subsequent ST elevation (STEMI) myocardial infarction of anterior wall	Diagnosis	ICD-10-CM
I22.1	Subsequent ST elevation (STEMI) myocardial infarction of inferior wall	Diagnosis	ICD-10-CM

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Code	Description	Code Category	Code Type
I22.2	Subsequent non-ST elevation (NSTEMI) myocardial infarction	Diagnosis	ICD-10-CM
I22.8	Subsequent ST elevation (STEMI) myocardial infarction of other sites	Diagnosis	ICD-10-CM
I22.9	Subsequent ST elevation (STEMI) myocardial infarction of unspecified site	Diagnosis	ICD-10-CM
Other Cerebrovascular Disease			
G45.0	Vertebro-basilar artery syndrome	Diagnosis	ICD-10-CM
G45.1	Carotid artery syndrome (hemispheric)	Diagnosis	ICD-10-CM
G45.2	Multiple and bilateral precerebral artery syndromes	Diagnosis	ICD-10-CM
G45.4	Transient global amnesia	Diagnosis	ICD-10-CM
G45.8	Other transient cerebral ischemic attacks and related syndromes	Diagnosis	ICD-10-CM
G45.9	Transient cerebral ischemic attack, unspecified	Diagnosis	ICD-10-CM
G46.0	Middle cerebral artery syndrome	Diagnosis	ICD-10-CM
G46.1	Anterior cerebral artery syndrome	Diagnosis	ICD-10-CM
G46.2	Posterior cerebral artery syndrome	Diagnosis	ICD-10-CM
G46.3	Brain stem stroke syndrome	Diagnosis	ICD-10-CM
G46.4	Cerebellar stroke syndrome	Diagnosis	ICD-10-CM
G46.5	Pure motor lacunar syndrome	Diagnosis	ICD-10-CM
G46.6	Pure sensory lacunar syndrome	Diagnosis	ICD-10-CM
G46.7	Other lacunar syndromes	Diagnosis	ICD-10-CM
G46.8	Other vascular syndromes of brain in cerebrovascular diseases	Diagnosis	ICD-10-CM
I62.00	Nontraumatic subdural hemorrhage, unspecified	Diagnosis	ICD-10-CM
I62.01	Nontraumatic acute subdural hemorrhage	Diagnosis	ICD-10-CM
I62.02	Nontraumatic subacute subdural hemorrhage	Diagnosis	ICD-10-CM
I62.03	Nontraumatic chronic subdural hemorrhage	Diagnosis	ICD-10-CM
I62.1	Nontraumatic extradural hemorrhage	Diagnosis	ICD-10-CM
I62.9	Nontraumatic intracranial hemorrhage, unspecified	Diagnosis	ICD-10-CM
I65.01	Occlusion and stenosis of right vertebral artery	Diagnosis	ICD-10-CM
I65.02	Occlusion and stenosis of left vertebral artery	Diagnosis	ICD-10-CM
I65.03	Occlusion and stenosis of bilateral vertebral arteries	Diagnosis	ICD-10-CM
I65.09	Occlusion and stenosis of unspecified vertebral artery	Diagnosis	ICD-10-CM
I65.1	Occlusion and stenosis of basilar artery	Diagnosis	ICD-10-CM
I65.21	Occlusion and stenosis of right carotid artery	Diagnosis	ICD-10-CM
I65.22	Occlusion and stenosis of left carotid artery	Diagnosis	ICD-10-CM
I65.23	Occlusion and stenosis of bilateral carotid arteries	Diagnosis	ICD-10-CM
I65.29	Occlusion and stenosis of unspecified carotid artery	Diagnosis	ICD-10-CM

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Code	Description	Code Category	Code Type
I65.8	Occlusion and stenosis of other precerebral arteries	Diagnosis	ICD-10-CM
I65.9	Occlusion and stenosis of unspecified precerebral artery	Diagnosis	ICD-10-CM
I68.0	Cerebral amyloid angiopathy	Diagnosis	ICD-10-CM
I68.2	Cerebral arteritis in other diseases classified elsewhere	Diagnosis	ICD-10-CM
I68.8	Other cerebrovascular disorders in diseases classified elsewhere	Diagnosis	ICD-10-CM
I69.00	Unspecified sequelae of nontraumatic subarachnoid hemorrhage	Diagnosis	ICD-10-CM
I69.010	Attention and concentration deficit following nontraumatic subarachnoid hemorrhage	Diagnosis	ICD-10-CM
I69.011	Memory deficit following nontraumatic subarachnoid hemorrhage	Diagnosis	ICD-10-CM
I69.012	Visuospatial deficit and spatial neglect following nontraumatic subarachnoid	Diagnosis	ICD-10-CM
I69.013	Psychomotor deficit following nontraumatic subarachnoid hemorrhage	Diagnosis	ICD-10-CM
I69.014	Frontal lobe and executive function deficit following nontraumatic subarachnoid	Diagnosis	ICD-10-CM
I69.015	Cognitive social or emotional deficit following nontraumatic subarachnoid hemorrhage	Diagnosis	ICD-10-CM
I69.018	Other symptoms and signs involving cognitive functions following nontraumatic subarachnoid hemorrhage	Diagnosis	ICD-10-CM
I69.019	Unspecified symptoms and signs involving cognitive functions following nontraumatic subarachnoid hemorrhage	Diagnosis	ICD-10-CM
I69.020	Aphasia following nontraumatic subarachnoid hemorrhage	Diagnosis	ICD-10-CM
I69.021	Dysphasia following nontraumatic subarachnoid hemorrhage	Diagnosis	ICD-10-CM
I69.022	Dysarthria following nontraumatic subarachnoid hemorrhage	Diagnosis	ICD-10-CM
I69.023	Fluency disorder following nontraumatic subarachnoid hemorrhage	Diagnosis	ICD-10-CM
I69.028	Other speech and language deficits following nontraumatic subarachnoid hemorrhage	Diagnosis	ICD-10-CM
I69.031	Monoplegia of upper limb following nontraumatic subarachnoid hemorrhage affecting right dominant side	Diagnosis	ICD-10-CM
I69.032	Monoplegia of upper limb following nontraumatic subarachnoid hemorrhage affecting left dominant side	Diagnosis	ICD-10-CM
I69.033	Monoplegia of upper limb following nontraumatic subarachnoid hemorrhage affecting right non-dominant side	Diagnosis	ICD-10-CM
I69.034	Monoplegia of upper limb following nontraumatic subarachnoid hemorrhage affecting left non-dominant side	Diagnosis	ICD-10-CM
I69.039	Monoplegia of upper limb following nontraumatic subarachnoid hemorrhage affecting unspecified side	Diagnosis	ICD-10-CM
I69.041	Monoplegia of lower limb following nontraumatic subarachnoid hemorrhage affecting right dominant side	Diagnosis	ICD-10-CM

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Code	Description	Code Category	Code Type
I69.042	Monoplegia of lower limb following nontraumatic subarachnoid hemorrhage affecting left dominant side	Diagnosis	ICD-10-CM
I69.043	Monoplegia of lower limb following nontraumatic subarachnoid hemorrhage affecting right non-dominant side	Diagnosis	ICD-10-CM
I69.044	Monoplegia of lower limb following nontraumatic subarachnoid hemorrhage affecting left non-dominant side	Diagnosis	ICD-10-CM
I69.049	Monoplegia of lower limb following nontraumatic subarachnoid hemorrhage affecting unspecified side	Diagnosis	ICD-10-CM
I69.051	Hemiplegia and hemiparesis following nontraumatic subarachnoid hemorrhage affecting right dominant side	Diagnosis	ICD-10-CM
I69.052	Hemiplegia and hemiparesis following nontraumatic subarachnoid hemorrhage affecting left dominant side	Diagnosis	ICD-10-CM
I69.053	Hemiplegia and hemiparesis following nontraumatic subarachnoid hemorrhage affecting right non-dominant side	Diagnosis	ICD-10-CM
I69.054	Hemiplegia and hemiparesis following nontraumatic subarachnoid hemorrhage affecting left non-dominant side	Diagnosis	ICD-10-CM
I69.059	Hemiplegia and hemiparesis following nontraumatic subarachnoid hemorrhage affecting unspecified side	Diagnosis	ICD-10-CM
I69.061	Other paralytic syndrome following nontraumatic subarachnoid hemorrhage affecting right dominant side	Diagnosis	ICD-10-CM
I69.062	Other paralytic syndrome following nontraumatic subarachnoid hemorrhage affecting left dominant side	Diagnosis	ICD-10-CM
I69.063	Other paralytic syndrome following nontraumatic subarachnoid hemorrhage affecting right non-dominant side	Diagnosis	ICD-10-CM
I69.064	Other paralytic syndrome following nontraumatic subarachnoid hemorrhage affecting left non-dominant side	Diagnosis	ICD-10-CM
I69.065	Other paralytic syndrome following nontraumatic subarachnoid hemorrhage, bilateral	Diagnosis	ICD-10-CM
I69.069	Other paralytic syndrome following nontraumatic subarachnoid hemorrhage affecting unspecified side	Diagnosis	ICD-10-CM
I69.090	Apraxia following nontraumatic subarachnoid hemorrhage	Diagnosis	ICD-10-CM
I69.091	Dysphagia following nontraumatic subarachnoid hemorrhage	Diagnosis	ICD-10-CM
I69.092	Facial weakness following nontraumatic subarachnoid hemorrhage	Diagnosis	ICD-10-CM
I69.093	Ataxia following nontraumatic subarachnoid hemorrhage	Diagnosis	ICD-10-CM
I69.098	Other sequelae following nontraumatic subarachnoid hemorrhage	Diagnosis	ICD-10-CM

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Code	Description	Code Category	Code Type
I69.10	Unspecified sequelae of nontraumatic intracerebral hemorrhage	Diagnosis	ICD-10-CM
I69.110	Attention and concentration deficit following nontraumatic intracerebral hemorrhage	Diagnosis	ICD-10-CM
I69.111	Memory deficit following nontraumatic intracerebral hemorrhage	Diagnosis	ICD-10-CM
I69.112	Visuospatial deficit and spatial neglect following nontraumatic intracerebral	Diagnosis	ICD-10-CM
I69.113	Psychomotor deficit following nontraumatic intracerebral hemorrhage	Diagnosis	ICD-10-CM
I69.114	Frontal lobe and executive function deficit following nontraumatic intracerebral	Diagnosis	ICD-10-CM
I69.115	Cognitive social or emotional deficit following nontraumatic intracerebral hemorrhage	Diagnosis	ICD-10-CM
I69.118	Other symptoms and signs involving cognitive functions following nontraumatic intracerebral hemorrhage	Diagnosis	ICD-10-CM
I69.119	Unspecified symptoms and signs involving cognitive functions following nontraumatic intracerebral hemorrhage	Diagnosis	ICD-10-CM
I69.120	Aphasia following nontraumatic intracerebral hemorrhage	Diagnosis	ICD-10-CM
I69.121	Dysphasia following nontraumatic intracerebral hemorrhage	Diagnosis	ICD-10-CM
I69.122	Dysarthria following nontraumatic intracerebral hemorrhage	Diagnosis	ICD-10-CM
I69.123	Fluency disorder following nontraumatic intracerebral hemorrhage	Diagnosis	ICD-10-CM
I69.128	Other speech and language deficits following nontraumatic intracerebral hemorrhage	Diagnosis	ICD-10-CM
I69.131	Monoplegia of upper limb following nontraumatic intracerebral hemorrhage affecting right dominant side	Diagnosis	ICD-10-CM
I69.132	Monoplegia of upper limb following nontraumatic intracerebral hemorrhage affecting left dominant side	Diagnosis	ICD-10-CM
I69.133	Monoplegia of upper limb following nontraumatic intracerebral hemorrhage affecting right non-dominant side	Diagnosis	ICD-10-CM
I69.134	Monoplegia of upper limb following nontraumatic intracerebral hemorrhage affecting left non-dominant side	Diagnosis	ICD-10-CM
I69.139	Monoplegia of upper limb following nontraumatic intracerebral hemorrhage affecting unspecified side	Diagnosis	ICD-10-CM
I69.141	Monoplegia of lower limb following nontraumatic intracerebral hemorrhage affecting right dominant side	Diagnosis	ICD-10-CM
I69.142	Monoplegia of lower limb following nontraumatic intracerebral hemorrhage affecting left dominant side	Diagnosis	ICD-10-CM
I69.143	Monoplegia of lower limb following nontraumatic intracerebral hemorrhage affecting right non-dominant side	Diagnosis	ICD-10-CM
I69.144	Monoplegia of lower limb following nontraumatic intracerebral hemorrhage affecting left non-dominant side	Diagnosis	ICD-10-CM

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Code	Description	Code Category	Code Type
I69.149	Monoplegia of lower limb following nontraumatic intracerebral hemorrhage affecting unspecified side	Diagnosis	ICD-10-CM
I69.151	Hemiplegia and hemiparesis following nontraumatic intracerebral hemorrhage affecting right dominant side	Diagnosis	ICD-10-CM
I69.152	Hemiplegia and hemiparesis following nontraumatic intracerebral hemorrhage affecting left dominant side	Diagnosis	ICD-10-CM
I69.153	Hemiplegia and hemiparesis following nontraumatic intracerebral hemorrhage affecting right non-dominant side	Diagnosis	ICD-10-CM
I69.154	Hemiplegia and hemiparesis following nontraumatic intracerebral hemorrhage affecting left non-dominant side	Diagnosis	ICD-10-CM
I69.159	Hemiplegia and hemiparesis following nontraumatic intracerebral hemorrhage affecting unspecified side	Diagnosis	ICD-10-CM
I69.161	Other paralytic syndrome following nontraumatic intracerebral hemorrhage affecting right dominant side	Diagnosis	ICD-10-CM
I69.162	Other paralytic syndrome following nontraumatic intracerebral hemorrhage affecting left dominant side	Diagnosis	ICD-10-CM
I69.163	Other paralytic syndrome following nontraumatic intracerebral hemorrhage affecting right non-dominant side	Diagnosis	ICD-10-CM
I69.164	Other paralytic syndrome following nontraumatic intracerebral hemorrhage affecting left non-dominant side	Diagnosis	ICD-10-CM
I69.165	Other paralytic syndrome following nontraumatic intracerebral hemorrhage, bilateral	Diagnosis	ICD-10-CM
I69.169	Other paralytic syndrome following nontraumatic intracerebral hemorrhage affecting unspecified side	Diagnosis	ICD-10-CM
I69.190	Apraxia following nontraumatic intracerebral hemorrhage	Diagnosis	ICD-10-CM
I69.191	Dysphagia following nontraumatic intracerebral hemorrhage	Diagnosis	ICD-10-CM
I69.192	Facial weakness following nontraumatic intracerebral hemorrhage	Diagnosis	ICD-10-CM
I69.193	Ataxia following nontraumatic intracerebral hemorrhage	Diagnosis	ICD-10-CM
I69.198	Other sequelae of nontraumatic intracerebral hemorrhage	Diagnosis	ICD-10-CM
I69.20	Unspecified sequelae of other nontraumatic intracranial hemorrhage	Diagnosis	ICD-10-CM
I69.210	Attention and concentration deficit following other nontraumatic intracranial	Diagnosis	ICD-10-CM
I69.211	Memory deficit following other nontraumatic intracranial hemorrhage	Diagnosis	ICD-10-CM
I69.212	Visuospatial deficit and spatial neglect following other nontraumatic intracranial	Diagnosis	ICD-10-CM
I69.213	Psychomotor deficit following other nontraumatic intracranial hemorrhage	Diagnosis	ICD-10-CM

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Code	Description	Code Category	Code Type
I69.214	Frontal lobe and executive function deficit following other nontraumatic intracranial hemorrhage	Diagnosis	ICD-10-CM
I69.215	Cognitive social or emotional deficit following other nontraumatic intracranial	Diagnosis	ICD-10-CM
I69.218	Other symptoms and signs involving cognitive functions following other nontraumatic intracranial hemorrhage	Diagnosis	ICD-10-CM
I69.219	Unspecified symptoms and signs involving cognitive functions following other nontraumatic intracranial hemorrhage	Diagnosis	ICD-10-CM
I69.220	Aphasia following other nontraumatic intracranial hemorrhage	Diagnosis	ICD-10-CM
I69.221	Dysphasia following other nontraumatic intracranial hemorrhage	Diagnosis	ICD-10-CM
I69.222	Dysarthria following other nontraumatic intracranial hemorrhage	Diagnosis	ICD-10-CM
I69.223	Fluency disorder following other nontraumatic intracranial hemorrhage	Diagnosis	ICD-10-CM
I69.228	Other speech and language deficits following other nontraumatic intracranial	Diagnosis	ICD-10-CM
I69.231	Monoplegia of upper limb following other nontraumatic intracranial hemorrhage affecting right dominant side	Diagnosis	ICD-10-CM
I69.232	Monoplegia of upper limb following other nontraumatic intracranial hemorrhage affecting left dominant side	Diagnosis	ICD-10-CM
I69.233	Monoplegia of upper limb following other nontraumatic intracranial hemorrhage affecting right non-dominant side	Diagnosis	ICD-10-CM
I69.234	Monoplegia of upper limb following other nontraumatic intracranial hemorrhage affecting left non-dominant side	Diagnosis	ICD-10-CM
I69.239	Monoplegia of upper limb following other nontraumatic intracranial hemorrhage affecting unspecified side	Diagnosis	ICD-10-CM
I69.241	Monoplegia of lower limb following other nontraumatic intracranial hemorrhage affecting right dominant side	Diagnosis	ICD-10-CM
I69.242	Monoplegia of lower limb following other nontraumatic intracranial hemorrhage affecting left dominant side	Diagnosis	ICD-10-CM
I69.243	Monoplegia of lower limb following other nontraumatic intracranial hemorrhage affecting right non-dominant side	Diagnosis	ICD-10-CM
I69.244	Monoplegia of lower limb following other nontraumatic intracranial hemorrhage affecting left non-dominant side	Diagnosis	ICD-10-CM
I69.249	Monoplegia of lower limb following other nontraumatic intracranial hemorrhage affecting unspecified side	Diagnosis	ICD-10-CM
I69.251	Hemiplegia and hemiparesis following other nontraumatic intracranial hemorrhage affecting right dominant side	Diagnosis	ICD-10-CM

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Code	Description	Code Category	Code Type
I69.252	Hemiplegia and hemiparesis following other nontraumatic intracranial hemorrhage affecting left dominant side	Diagnosis	ICD-10-CM
I69.253	Hemiplegia and hemiparesis following other nontraumatic intracranial hemorrhage affecting right non-dominant side	Diagnosis	ICD-10-CM
I69.254	Hemiplegia and hemiparesis following other nontraumatic intracranial hemorrhage affecting left non-dominant side	Diagnosis	ICD-10-CM
I69.259	Hemiplegia and hemiparesis following other nontraumatic intracranial hemorrhage affecting unspecified side	Diagnosis	ICD-10-CM
I69.261	Other paralytic syndrome following other nontraumatic intracranial hemorrhage affecting right dominant side	Diagnosis	ICD-10-CM
I69.262	Other paralytic syndrome following other nontraumatic intracranial hemorrhage affecting left dominant side	Diagnosis	ICD-10-CM
I69.263	Other paralytic syndrome following other nontraumatic intracranial hemorrhage affecting right non-dominant side	Diagnosis	ICD-10-CM
I69.264	Other paralytic syndrome following other nontraumatic intracranial hemorrhage affecting left non-dominant side	Diagnosis	ICD-10-CM
I69.265	Other paralytic syndrome following other nontraumatic intracranial hemorrhage,	Diagnosis	ICD-10-CM
I69.269	Other paralytic syndrome following other nontraumatic intracranial hemorrhage affecting unspecified side	Diagnosis	ICD-10-CM
I69.290	Apraxia following other nontraumatic intracranial hemorrhage	Diagnosis	ICD-10-CM
I69.291	Dysphagia following other nontraumatic intracranial hemorrhage	Diagnosis	ICD-10-CM
I69.292	Facial weakness following other nontraumatic intracranial hemorrhage	Diagnosis	ICD-10-CM
I69.293	Ataxia following other nontraumatic intracranial hemorrhage	Diagnosis	ICD-10-CM
I69.298	Other sequelae of other nontraumatic intracranial hemorrhage	Diagnosis	ICD-10-CM
I69.30	Unspecified sequelae of cerebral infarction	Diagnosis	ICD-10-CM
I69.310	Attention and concentration deficit following cerebral infarction	Diagnosis	ICD-10-CM
I69.311	Memory deficit following cerebral infarction	Diagnosis	ICD-10-CM
I69.312	Visuospatial deficit and spatial neglect following cerebral infarction	Diagnosis	ICD-10-CM
I69.313	Psychomotor deficit following cerebral infarction	Diagnosis	ICD-10-CM
I69.314	Frontal lobe and executive function deficit following cerebral infarction	Diagnosis	ICD-10-CM
I69.315	Cognitive social or emotional deficit following cerebral infarction	Diagnosis	ICD-10-CM
I69.318	Other symptoms and signs involving cognitive functions following cerebral infarction	Diagnosis	ICD-10-CM
I69.319	Unspecified symptoms and signs involving cognitive functions following cerebral	Diagnosis	ICD-10-CM
I69.320	Aphasia following cerebral infarction	Diagnosis	ICD-10-CM

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Code	Description	Code Category	Code Type
I69.321	Dysphasia following cerebral infarction	Diagnosis	ICD-10-CM
I69.322	Dysarthria following cerebral infarction	Diagnosis	ICD-10-CM
I69.323	Fluency disorder following cerebral infarction	Diagnosis	ICD-10-CM
I69.328	Other speech and language deficits following cerebral infarction	Diagnosis	ICD-10-CM
I69.331	Monoplegia of upper limb following cerebral infarction affecting right dominant side	Diagnosis	ICD-10-CM
I69.332	Monoplegia of upper limb following cerebral infarction affecting left dominant side	Diagnosis	ICD-10-CM
I69.333	Monoplegia of upper limb following cerebral infarction affecting right non-dominant	Diagnosis	ICD-10-CM
I69.334	Monoplegia of upper limb following cerebral infarction affecting left non-dominant	Diagnosis	ICD-10-CM
I69.339	Monoplegia of upper limb following cerebral infarction affecting unspecified side	Diagnosis	ICD-10-CM
I69.341	Monoplegia of lower limb following cerebral infarction affecting right dominant side	Diagnosis	ICD-10-CM
I69.342	Monoplegia of lower limb following cerebral infarction affecting left dominant side	Diagnosis	ICD-10-CM
I69.343	Monoplegia of lower limb following cerebral infarction affecting right non-dominant	Diagnosis	ICD-10-CM
I69.344	Monoplegia of lower limb following cerebral infarction affecting left non-dominant	Diagnosis	ICD-10-CM
I69.349	Monoplegia of lower limb following cerebral infarction affecting unspecified side	Diagnosis	ICD-10-CM
I69.351	Hemiplegia and hemiparesis following cerebral infarction affecting right dominant side	Diagnosis	ICD-10-CM
I69.352	Hemiplegia and hemiparesis following cerebral infarction affecting left dominant side	Diagnosis	ICD-10-CM
I69.353	Hemiplegia and hemiparesis following cerebral infarction affecting right non-dominant	Diagnosis	ICD-10-CM
I69.354	Hemiplegia and hemiparesis following cerebral infarction affecting left non-dominant	Diagnosis	ICD-10-CM
I69.359	Hemiplegia and hemiparesis following cerebral infarction affecting unspecified side	Diagnosis	ICD-10-CM
I69.361	Other paralytic syndrome following cerebral infarction affecting right dominant side	Diagnosis	ICD-10-CM
I69.362	Other paralytic syndrome following cerebral infarction affecting left dominant side	Diagnosis	ICD-10-CM
I69.363	Other paralytic syndrome following cerebral infarction affecting right non-dominant	Diagnosis	ICD-10-CM
I69.364	Other paralytic syndrome following cerebral infarction affecting left non-dominant	Diagnosis	ICD-10-CM
I69.365	Other paralytic syndrome following cerebral infarction, bilateral	Diagnosis	ICD-10-CM
I69.369	Other paralytic syndrome following cerebral infarction affecting unspecified side	Diagnosis	ICD-10-CM
I69.390	Apraxia following cerebral infarction	Diagnosis	ICD-10-CM
I69.391	Dysphagia following cerebral infarction	Diagnosis	ICD-10-CM
I69.392	Facial weakness following cerebral infarction	Diagnosis	ICD-10-CM
I69.393	Ataxia following cerebral infarction	Diagnosis	ICD-10-CM
I69.398	Other sequelae of cerebral infarction	Diagnosis	ICD-10-CM
I69.80	Unspecified sequelae of other cerebrovascular disease	Diagnosis	ICD-10-CM
I69.810	Attention and concentration deficit following other cerebrovascular disease	Diagnosis	ICD-10-CM
I69.811	Memory deficit following other cerebrovascular disease	Diagnosis	ICD-10-CM
I69.812	Visuospatial deficit and spatial neglect following other cerebrovascular disease	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
I69.813	Psychomotor deficit following other cerebrovascular disease	Diagnosis	ICD-10-CM
I69.814	Frontal lobe and executive function deficit following other cerebrovascular disease	Diagnosis	ICD-10-CM
I69.815	Cognitive social or emotional deficit following other cerebrovascular disease	Diagnosis	ICD-10-CM
I69.818	Other symptoms and signs involving cognitive functions following other	Diagnosis	ICD-10-CM
I69.819	Unspecified symptoms and signs involving cognitive functions following other cerebrovascular disease	Diagnosis	ICD-10-CM
I69.820	Aphasia following other cerebrovascular disease	Diagnosis	ICD-10-CM
I69.821	Dysphasia following other cerebrovascular disease	Diagnosis	ICD-10-CM
I69.822	Dysarthria following other cerebrovascular disease	Diagnosis	ICD-10-CM
I69.823	Fluency disorder following other cerebrovascular disease	Diagnosis	ICD-10-CM
I69.828	Other speech and language deficits following other cerebrovascular disease	Diagnosis	ICD-10-CM
I69.831	Monoplegia of upper limb following other cerebrovascular disease affecting right	Diagnosis	ICD-10-CM
I69.832	Monoplegia of upper limb following other cerebrovascular disease affecting left	Diagnosis	ICD-10-CM
I69.833	Monoplegia of upper limb following other cerebrovascular disease affecting right non-dominant side	Diagnosis	ICD-10-CM
I69.834	Monoplegia of upper limb following other cerebrovascular disease affecting left non-dominant side	Diagnosis	ICD-10-CM
I69.839	Monoplegia of upper limb following other cerebrovascular disease affecting	Diagnosis	ICD-10-CM
I69.841	Monoplegia of lower limb following other cerebrovascular disease affecting right	Diagnosis	ICD-10-CM
I69.842	Monoplegia of lower limb following other cerebrovascular disease affecting left	Diagnosis	ICD-10-CM
I69.843	Monoplegia of lower limb following other cerebrovascular disease affecting right non-dominant side	Diagnosis	ICD-10-CM
I69.844	Monoplegia of lower limb following other cerebrovascular disease affecting left non-dominant side	Diagnosis	ICD-10-CM
I69.849	Monoplegia of lower limb following other cerebrovascular disease affecting	Diagnosis	ICD-10-CM
I69.851	Hemiplegia and hemiparesis following other cerebrovascular disease affecting right dominant side	Diagnosis	ICD-10-CM
I69.852	Hemiplegia and hemiparesis following other cerebrovascular disease affecting left dominant side	Diagnosis	ICD-10-CM
I69.853	Hemiplegia and hemiparesis following other cerebrovascular disease affecting right non-dominant side	Diagnosis	ICD-10-CM
I69.854	Hemiplegia and hemiparesis following other cerebrovascular disease affecting left non-dominant side	Diagnosis	ICD-10-CM
I69.859	Hemiplegia and hemiparesis following other cerebrovascular disease affecting	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
I69.861	Other paralytic syndrome following other cerebrovascular disease affecting right	Diagnosis	ICD-10-CM
I69.862	Other paralytic syndrome following other cerebrovascular disease affecting left	Diagnosis	ICD-10-CM
I69.863	Other paralytic syndrome following other cerebrovascular disease affecting right non-dominant side	Diagnosis	ICD-10-CM
I69.864	Other paralytic syndrome following other cerebrovascular disease affecting left non-dominant side	Diagnosis	ICD-10-CM
I69.865	Other paralytic syndrome following other cerebrovascular disease, bilateral	Diagnosis	ICD-10-CM
I69.869	Other paralytic syndrome following other cerebrovascular disease affecting	Diagnosis	ICD-10-CM
I69.890	Apraxia following other cerebrovascular disease	Diagnosis	ICD-10-CM
I69.891	Dysphagia following other cerebrovascular disease	Diagnosis	ICD-10-CM
I69.892	Facial weakness following other cerebrovascular disease	Diagnosis	ICD-10-CM
I69.893	Ataxia following other cerebrovascular disease	Diagnosis	ICD-10-CM
I69.898	Other sequelae of other cerebrovascular disease	Diagnosis	ICD-10-CM
I69.90	Unspecified sequelae of unspecified cerebrovascular disease	Diagnosis	ICD-10-CM
I69.910	Attention and concentration deficit following unspecified cerebrovascular disease	Diagnosis	ICD-10-CM
I69.911	Memory deficit following unspecified cerebrovascular disease	Diagnosis	ICD-10-CM
I69.912	Visuospatial deficit and spatial neglect following unspecified cerebrovascular disease	Diagnosis	ICD-10-CM
I69.913	Psychomotor deficit following unspecified cerebrovascular disease	Diagnosis	ICD-10-CM
I69.914	Frontal lobe and executive function deficit following unspecified cerebrovascular	Diagnosis	ICD-10-CM
I69.915	Cognitive social or emotional deficit following unspecified cerebrovascular disease	Diagnosis	ICD-10-CM
I69.918	Other symptoms and signs involving cognitive functions following unspecified cerebrovascular disease	Diagnosis	ICD-10-CM
I69.919	Unspecified symptoms and signs involving cognitive functions following unspecified cerebrovascular disease	Diagnosis	ICD-10-CM
I69.920	Aphasia following unspecified cerebrovascular disease	Diagnosis	ICD-10-CM
I69.921	Dysphasia following unspecified cerebrovascular disease	Diagnosis	ICD-10-CM
I69.922	Dysarthria following unspecified cerebrovascular disease	Diagnosis	ICD-10-CM
I69.923	Fluency disorder following unspecified cerebrovascular disease	Diagnosis	ICD-10-CM
I69.928	Other speech and language deficits following unspecified cerebrovascular disease	Diagnosis	ICD-10-CM
I69.931	Monoplegia of upper limb following unspecified cerebrovascular disease affecting right dominant side	Diagnosis	ICD-10-CM
I69.932	Monoplegia of upper limb following unspecified cerebrovascular disease affecting left dominant side	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
I69.933	Monoplegia of upper limb following unspecified cerebrovascular disease affecting right non-dominant side	Diagnosis	ICD-10-CM
I69.934	Monoplegia of upper limb following unspecified cerebrovascular disease affecting left non-dominant side	Diagnosis	ICD-10-CM
I69.939	Monoplegia of upper limb following unspecified cerebrovascular disease affecting unspecified side	Diagnosis	ICD-10-CM
I69.941	Monoplegia of lower limb following unspecified cerebrovascular disease affecting right dominant side	Diagnosis	ICD-10-CM
I69.942	Monoplegia of lower limb following unspecified cerebrovascular disease affecting left dominant side	Diagnosis	ICD-10-CM
I69.943	Monoplegia of lower limb following unspecified cerebrovascular disease affecting right non-dominant side	Diagnosis	ICD-10-CM
I69.944	Monoplegia of lower limb following unspecified cerebrovascular disease affecting left non-dominant side	Diagnosis	ICD-10-CM
I69.949	Monoplegia of lower limb following unspecified cerebrovascular disease affecting unspecified side	Diagnosis	ICD-10-CM
I69.951	Hemiplegia and hemiparesis following unspecified cerebrovascular disease affecting right dominant side	Diagnosis	ICD-10-CM
I69.952	Hemiplegia and hemiparesis following unspecified cerebrovascular disease affecting left dominant side	Diagnosis	ICD-10-CM
I69.953	Hemiplegia and hemiparesis following unspecified cerebrovascular disease affecting right non-dominant side	Diagnosis	ICD-10-CM
I69.954	Hemiplegia and hemiparesis following unspecified cerebrovascular disease affecting left non-dominant side	Diagnosis	ICD-10-CM
I69.959	Hemiplegia and hemiparesis following unspecified cerebrovascular disease affecting unspecified side	Diagnosis	ICD-10-CM
I69.961	Other paralytic syndrome following unspecified cerebrovascular disease affecting right dominant side	Diagnosis	ICD-10-CM
I69.962	Other paralytic syndrome following unspecified cerebrovascular disease affecting left dominant side	Diagnosis	ICD-10-CM
I69.963	Other paralytic syndrome following unspecified cerebrovascular disease affecting right non-dominant side	Diagnosis	ICD-10-CM
I69.964	Other paralytic syndrome following unspecified cerebrovascular disease affecting left non-dominant side	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
I69.965	Other paralytic syndrome following unspecified cerebrovascular disease, bilateral	Diagnosis	ICD-10-CM
I69.969	Other paralytic syndrome following unspecified cerebrovascular disease affecting unspecified side	Diagnosis	ICD-10-CM
I69.990	Apraxia following unspecified cerebrovascular disease	Diagnosis	ICD-10-CM
I69.991	Dysphagia following unspecified cerebrovascular disease	Diagnosis	ICD-10-CM
I69.992	Facial weakness following unspecified cerebrovascular disease	Diagnosis	ICD-10-CM
I69.993	Ataxia following unspecified cerebrovascular disease	Diagnosis	ICD-10-CM
I69.998	Other sequelae following unspecified cerebrovascular disease	Diagnosis	ICD-10-CM
Chronic Obstructive Pulmonary Disease (COPD)			
J41.0	Simple chronic bronchitis	Diagnosis	ICD-10-CM
J41.1	Mucopurulent chronic bronchitis	Diagnosis	ICD-10-CM
J41.8	Mixed simple and mucopurulent chronic bronchitis	Diagnosis	ICD-10-CM
J42	Unspecified chronic bronchitis	Diagnosis	ICD-10-CM
J43	Emphysema	Diagnosis	ICD-10-CM
J43.0	Unilateral pulmonary emphysema [MacLeod's syndrome]	Diagnosis	ICD-10-CM
J43.1	Panlobular emphysema	Diagnosis	ICD-10-CM
J43.2	Centrilobular emphysema	Diagnosis	ICD-10-CM
J43.8	Other emphysema	Diagnosis	ICD-10-CM
J43.9	Emphysema, unspecified	Diagnosis	ICD-10-CM
J44.0	Chronic obstructive pulmonary disease with (acute) lower respiratory infection	Diagnosis	ICD-10-CM
J44.1	Chronic obstructive pulmonary disease with (acute) exacerbation	Diagnosis	ICD-10-CM
J44.9	Chronic obstructive pulmonary disease, unspecified	Diagnosis	ICD-10-CM
Asthma without COPD			
J45.20	Mild intermittent asthma, uncomplicated	Diagnosis	ICD-10-CM
J45.21	Mild intermittent asthma with (acute) exacerbation	Diagnosis	ICD-10-CM
J45.22	Mild intermittent asthma with status asthmaticus	Diagnosis	ICD-10-CM
J45.30	Mild persistent asthma, uncomplicated	Diagnosis	ICD-10-CM
J45.31	Mild persistent asthma with (acute) exacerbation	Diagnosis	ICD-10-CM
J45.32	Mild persistent asthma with status asthmaticus	Diagnosis	ICD-10-CM
J45.40	Moderate persistent asthma, uncomplicated	Diagnosis	ICD-10-CM
J45.41	Moderate persistent asthma with (acute) exacerbation	Diagnosis	ICD-10-CM
J45.42	Moderate persistent asthma with status asthmaticus	Diagnosis	ICD-10-CM
J45.50	Severe persistent asthma, uncomplicated	Diagnosis	ICD-10-CM
J45.51	Severe persistent asthma with (acute) exacerbation	Diagnosis	ICD-10-CM

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Code	Description	Code Category	Code Type
J45.52	Severe persistent asthma with status asthmaticus	Diagnosis	ICD-10-CM
J45.901	Unspecified asthma with (acute) exacerbation	Diagnosis	ICD-10-CM
J45.902	Unspecified asthma with status asthmaticus	Diagnosis	ICD-10-CM
J45.909	Unspecified asthma, uncomplicated	Diagnosis	ICD-10-CM
J45.990	Exercise induced bronchospasm	Diagnosis	ICD-10-CM
J45.991	Cough variant asthma	Diagnosis	ICD-10-CM
J45.998	Other asthma	Diagnosis	ICD-10-CM
Chronic Liver Disease			
K70	Alcoholic liver disease	Diagnosis	ICD-10-CM
K70.0	Alcoholic fatty liver	Diagnosis	ICD-10-CM
K70.1	Alcoholic hepatitis	Diagnosis	ICD-10-CM
K70.10	Alcoholic hepatitis without ascites	Diagnosis	ICD-10-CM
K70.11	Alcoholic hepatitis with ascites	Diagnosis	ICD-10-CM
K70.2	Alcoholic fibrosis and sclerosis of liver	Diagnosis	ICD-10-CM
K70.3	Alcoholic cirrhosis of liver	Diagnosis	ICD-10-CM
K70.30	Alcoholic cirrhosis of liver without ascites	Diagnosis	ICD-10-CM
K70.31	Alcoholic cirrhosis of liver with ascites	Diagnosis	ICD-10-CM
K70.4	Alcoholic hepatic failure	Diagnosis	ICD-10-CM
K70.40	Alcoholic hepatic failure without coma	Diagnosis	ICD-10-CM
K70.41	Alcoholic hepatic failure with coma	Diagnosis	ICD-10-CM
K70.9	Alcoholic liver disease, unspecified	Diagnosis	ICD-10-CM
K71	Toxic liver disease	Diagnosis	ICD-10-CM
K71.0	Toxic liver disease with cholestasis	Diagnosis	ICD-10-CM
K71.1	Toxic liver disease with hepatic necrosis	Diagnosis	ICD-10-CM
K71.10	Toxic liver disease with hepatic necrosis, without coma	Diagnosis	ICD-10-CM
K71.11	Toxic liver disease with hepatic necrosis, with coma	Diagnosis	ICD-10-CM
K71.2	Toxic liver disease with acute hepatitis	Diagnosis	ICD-10-CM
K71.3	Toxic liver disease with chronic persistent hepatitis	Diagnosis	ICD-10-CM
K71.4	Toxic liver disease with chronic lobular hepatitis	Diagnosis	ICD-10-CM
K71.5	Toxic liver disease with chronic active hepatitis	Diagnosis	ICD-10-CM
K71.50	Toxic liver disease with chronic active hepatitis without ascites	Diagnosis	ICD-10-CM
K71.51	Toxic liver disease with chronic active hepatitis with ascites	Diagnosis	ICD-10-CM
K71.6	Toxic liver disease with hepatitis, not elsewhere classified	Diagnosis	ICD-10-CM
K71.7	Toxic liver disease with fibrosis and cirrhosis of liver	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
K71.8	Toxic liver disease with other disorders of liver	Diagnosis	ICD-10-CM
K71.9	Toxic liver disease, unspecified	Diagnosis	ICD-10-CM
K72	Hepatic failure, not elsewhere classified	Diagnosis	ICD-10-CM
K72.0	Acute and subacute hepatic failure	Diagnosis	ICD-10-CM
K72.00	Acute and subacute hepatic failure without coma	Diagnosis	ICD-10-CM
K72.01	Acute and subacute hepatic failure with coma	Diagnosis	ICD-10-CM
K72.1	Chronic hepatic failure	Diagnosis	ICD-10-CM
K72.10	Chronic hepatic failure without coma	Diagnosis	ICD-10-CM
K72.11	Chronic hepatic failure with coma	Diagnosis	ICD-10-CM
K72.9	Hepatic failure, unspecified	Diagnosis	ICD-10-CM
K72.90	Hepatic failure, unspecified without coma	Diagnosis	ICD-10-CM
K72.91	Hepatic failure, unspecified with coma	Diagnosis	ICD-10-CM
K73	Chronic hepatitis, not elsewhere classified	Diagnosis	ICD-10-CM
K73.0	Chronic persistent hepatitis, not elsewhere classified	Diagnosis	ICD-10-CM
K73.1	Chronic lobular hepatitis, not elsewhere classified	Diagnosis	ICD-10-CM
K73.2	Chronic active hepatitis, not elsewhere classified	Diagnosis	ICD-10-CM
K73.8	Other chronic hepatitis, not elsewhere classified	Diagnosis	ICD-10-CM
K73.9	Chronic hepatitis, unspecified	Diagnosis	ICD-10-CM
K74	Fibrosis and cirrhosis of liver	Diagnosis	ICD-10-CM
K74.0	Hepatic fibrosis	Diagnosis	ICD-10-CM
K74.00	Hepatic fibrosis, unspecified	Diagnosis	ICD-10-CM
K74.01	Hepatic fibrosis, early fibrosis	Diagnosis	ICD-10-CM
K74.02	Hepatic fibrosis, advanced fibrosis	Diagnosis	ICD-10-CM
K74.1	Hepatic sclerosis	Diagnosis	ICD-10-CM
K74.2	Hepatic fibrosis with hepatic sclerosis	Diagnosis	ICD-10-CM
K74.3	Primary biliary cirrhosis	Diagnosis	ICD-10-CM
K74.4	Secondary biliary cirrhosis	Diagnosis	ICD-10-CM
K74.5	Biliary cirrhosis, unspecified	Diagnosis	ICD-10-CM
K74.6	Other and unspecified cirrhosis of liver	Diagnosis	ICD-10-CM
K74.60	Unspecified cirrhosis of liver	Diagnosis	ICD-10-CM
K74.69	Other cirrhosis of liver	Diagnosis	ICD-10-CM
K75	Other inflammatory liver diseases	Diagnosis	ICD-10-CM
K75.0	Abscess of liver	Diagnosis	ICD-10-CM
K75.1	Phlebitis of portal vein	Diagnosis	ICD-10-CM

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Code	Description	Code Category	Code Type
K75.2	Nonspecific reactive hepatitis	Diagnosis	ICD-10-CM
K75.3	Granulomatous hepatitis, not elsewhere classified	Diagnosis	ICD-10-CM
K75.4	Autoimmune hepatitis	Diagnosis	ICD-10-CM
K75.8	Other specified inflammatory liver diseases	Diagnosis	ICD-10-CM
K75.81	Nonalcoholic steatohepatitis (NASH)	Diagnosis	ICD-10-CM
K75.89	Other specified inflammatory liver diseases	Diagnosis	ICD-10-CM
K75.9	Inflammatory liver disease, unspecified	Diagnosis	ICD-10-CM
K76	Other diseases of liver	Diagnosis	ICD-10-CM
K76.0	Fatty (change of) liver, not elsewhere classified	Diagnosis	ICD-10-CM
K76.1	Chronic passive congestion of liver	Diagnosis	ICD-10-CM
K76.2	Central hemorrhagic necrosis of liver	Diagnosis	ICD-10-CM
K76.3	Infarction of liver	Diagnosis	ICD-10-CM
K76.4	Peliosis hepatis	Diagnosis	ICD-10-CM
K76.5	Hepatic veno-occlusive disease	Diagnosis	ICD-10-CM
K76.6	Portal hypertension	Diagnosis	ICD-10-CM
K76.7	Hepatorenal syndrome	Diagnosis	ICD-10-CM
K76.8	Other specified diseases of liver	Diagnosis	ICD-10-CM
K76.81	Hepatopulmonary syndrome	Diagnosis	ICD-10-CM
K76.89	Other specified diseases of liver	Diagnosis	ICD-10-CM
K76.9	Liver disease, unspecified	Diagnosis	ICD-10-CM
K77	Liver disorders in diseases classified elsewhere	Diagnosis	ICD-10-CM
Chronic Kidney Disease			
A18.11	Tuberculosis of kidney and ureter	Diagnosis	ICD-10-CM
A52.75	Syphilis of kidney and ureter	Diagnosis	ICD-10-CM
B52.0	Plasmodium malariae malaria with nephropathy	Diagnosis	ICD-10-CM
C64.1	Malignant neoplasm of right kidney, except renal pelvis	Diagnosis	ICD-10-CM
C64.2	Malignant neoplasm of left kidney, except renal pelvis	Diagnosis	ICD-10-CM
C64.9	Malignant neoplasm of unspecified kidney, except renal pelvis	Diagnosis	ICD-10-CM
C68.9	Malignant neoplasm of urinary organ, unspecified	Diagnosis	ICD-10-CM
D30.00	Benign neoplasm of unspecified kidney	Diagnosis	ICD-10-CM
D30.01	Benign neoplasm of right kidney	Diagnosis	ICD-10-CM
D30.02	Benign neoplasm of left kidney	Diagnosis	ICD-10-CM
D41.00	Neoplasm of uncertain behavior of unspecified kidney	Diagnosis	ICD-10-CM
D41.01	Neoplasm of uncertain behavior of right kidney	Diagnosis	ICD-10-CM

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Code	Description	Code Category	Code Type
D41.02	Neoplasm of uncertain behavior of left kidney	Diagnosis	ICD-10-CM
D41.10	Neoplasm of uncertain behavior of unspecified renal pelvis	Diagnosis	ICD-10-CM
D41.11	Neoplasm of uncertain behavior of right renal pelvis	Diagnosis	ICD-10-CM
D41.12	Neoplasm of uncertain behavior of left renal pelvis	Diagnosis	ICD-10-CM
D41.20	Neoplasm of uncertain behavior of unspecified ureter	Diagnosis	ICD-10-CM
D41.21	Neoplasm of uncertain behavior of right ureter	Diagnosis	ICD-10-CM
D41.22	Neoplasm of uncertain behavior of left ureter	Diagnosis	ICD-10-CM
D59.3	Hemolytic-uremic syndrome	Diagnosis	ICD-10-CM
E08.21	Diabetes mellitus due to underlying condition with diabetic nephropathy	Diagnosis	ICD-10-CM
E08.22	Diabetes mellitus due to underlying condition with diabetic chronic kidney disease	Diagnosis	ICD-10-CM
E08.29	Diabetes mellitus due to underlying condition with other diabetic kidney complication	Diagnosis	ICD-10-CM
E08.65	Diabetes mellitus due to underlying condition with hyperglycemia	Diagnosis	ICD-10-CM
E09.21	Drug or chemical induced diabetes mellitus with diabetic nephropathy	Diagnosis	ICD-10-CM
E09.22	Drug or chemical induced diabetes mellitus with diabetic chronic kidney disease	Diagnosis	ICD-10-CM
E09.29	Drug or chemical induced diabetes mellitus with other diabetic kidney complication	Diagnosis	ICD-10-CM
E10.21	Type 1 diabetes mellitus with diabetic nephropathy	Diagnosis	ICD-10-CM
E10.22	Type 1 diabetes mellitus with diabetic chronic kidney disease	Diagnosis	ICD-10-CM
E10.29	Type 1 diabetes mellitus with other diabetic kidney complication	Diagnosis	ICD-10-CM
E10.65	Type 1 diabetes mellitus with hyperglycemia	Diagnosis	ICD-10-CM
E11.21	Type 2 diabetes mellitus with diabetic nephropathy	Diagnosis	ICD-10-CM
E11.22	Type 2 diabetes mellitus with diabetic chronic kidney disease	Diagnosis	ICD-10-CM
E11.29	Type 2 diabetes mellitus with other diabetic kidney complication	Diagnosis	ICD-10-CM
E11.65	Type 2 diabetes mellitus with hyperglycemia	Diagnosis	ICD-10-CM
E13.21	Other specified diabetes mellitus with diabetic nephropathy	Diagnosis	ICD-10-CM
E13.22	Other specified diabetes mellitus with diabetic chronic kidney disease	Diagnosis	ICD-10-CM
E13.29	Other specified diabetes mellitus with other diabetic kidney complication	Diagnosis	ICD-10-CM
E74.8	Other specified disorders of carbohydrate metabolism	Diagnosis	ICD-10-CM
I12.0	Hypertensive chronic kidney disease with stage 5 chronic kidney disease or end stage renal disease	Diagnosis	ICD-10-CM
I13.11	Hypertensive heart and chronic kidney disease without heart failure, with stage 5 chronic kidney disease, or end stage renal disease	Diagnosis	ICD-10-CM
I13.2	Hypertensive heart and chronic kidney disease with heart failure and with stage 5 chronic kidney disease, or end stage renal disease	Diagnosis	ICD-10-CM
I70.1	Atherosclerosis of renal artery	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
I72.2	Aneurysm of renal artery	Diagnosis	ICD-10-CM
K76.7	Hepatorenal syndrome	Diagnosis	ICD-10-CM
M10.30	Gout due to renal impairment, unspecified site	Diagnosis	ICD-10-CM
M10.311	Gout due to renal impairment, right shoulder	Diagnosis	ICD-10-CM
M10.312	Gout due to renal impairment, left shoulder	Diagnosis	ICD-10-CM
M10.319	Gout due to renal impairment, unspecified shoulder	Diagnosis	ICD-10-CM
M10.321	Gout due to renal impairment, right elbow	Diagnosis	ICD-10-CM
M10.322	Gout due to renal impairment, left elbow	Diagnosis	ICD-10-CM
M10.329	Gout due to renal impairment, unspecified elbow	Diagnosis	ICD-10-CM
M10.331	Gout due to renal impairment, right wrist	Diagnosis	ICD-10-CM
M10.332	Gout due to renal impairment, left wrist	Diagnosis	ICD-10-CM
M10.339	Gout due to renal impairment, unspecified wrist	Diagnosis	ICD-10-CM
M10.341	Gout due to renal impairment, right hand	Diagnosis	ICD-10-CM
M10.342	Gout due to renal impairment, left hand	Diagnosis	ICD-10-CM
M10.349	Gout due to renal impairment, unspecified hand	Diagnosis	ICD-10-CM
M10.351	Gout due to renal impairment, right hip	Diagnosis	ICD-10-CM
M10.352	Gout due to renal impairment, left hip	Diagnosis	ICD-10-CM
M10.359	Gout due to renal impairment, unspecified hip	Diagnosis	ICD-10-CM
M10.361	Gout due to renal impairment, right knee	Diagnosis	ICD-10-CM
M10.362	Gout due to renal impairment, left knee	Diagnosis	ICD-10-CM
M10.369	Gout due to renal impairment, unspecified knee	Diagnosis	ICD-10-CM
M10.371	Gout due to renal impairment, right ankle and foot	Diagnosis	ICD-10-CM
M10.372	Gout due to renal impairment, left ankle and foot	Diagnosis	ICD-10-CM
M10.379	Gout due to renal impairment, unspecified ankle and foot	Diagnosis	ICD-10-CM
M10.38	Gout due to renal impairment, vertebrae	Diagnosis	ICD-10-CM
M10.39	Gout due to renal impairment, multiple sites	Diagnosis	ICD-10-CM
M32.14	Glomerular disease in systemic lupus erythematosus	Diagnosis	ICD-10-CM
M32.15	Tubulo-interstitial nephropathy in systemic lupus erythematosus	Diagnosis	ICD-10-CM
M35.04	Sicca syndrome with tubulo-interstitial nephropathy	Diagnosis	ICD-10-CM
N00.0	Acute nephritic syndrome with minor glomerular abnormality	Diagnosis	ICD-10-CM
N00.1	Acute nephritic syndrome with focal and segmental glomerular lesions	Diagnosis	ICD-10-CM
N00.2	Acute nephritic syndrome with diffuse membranous glomerulonephritis	Diagnosis	ICD-10-CM
N00.3	Acute nephritic syndrome with diffuse mesangial proliferative glomerulonephritis	Diagnosis	ICD-10-CM
N00.4	Acute nephritic syndrome with diffuse endocapillary proliferative glomerulonephritis	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
N00.5	Acute nephritic syndrome with diffuse mesangiocapillary glomerulonephritis	Diagnosis	ICD-10-CM
N00.6	Acute nephritic syndrome with dense deposit disease	Diagnosis	ICD-10-CM
N00.7	Acute nephritic syndrome with diffuse crescentic glomerulonephritis	Diagnosis	ICD-10-CM
N00.8	Acute nephritic syndrome with other morphologic changes	Diagnosis	ICD-10-CM
N00.9	Acute nephritic syndrome with unspecified morphologic changes	Diagnosis	ICD-10-CM
N01.0	Rapidly progressive nephritic syndrome with minor glomerular abnormality	Diagnosis	ICD-10-CM
N01.1	Rapidly progressive nephritic syndrome with focal and segmental glomerular lesions	Diagnosis	ICD-10-CM
N01.2	Rapidly progressive nephritic syndrome with diffuse membranous glomerulonephritis	Diagnosis	ICD-10-CM
N01.3	Rapidly progressive nephritic syndrome with diffuse mesangial proliferative	Diagnosis	ICD-10-CM
N01.4	Rapidly progressive nephritic syndrome with diffuse endocapillary proliferative glomerulonephritis	Diagnosis	ICD-10-CM
N01.5	Rapidly progressive nephritic syndrome with diffuse mesangiocapillary	Diagnosis	ICD-10-CM
N01.6	Rapidly progressive nephritic syndrome with dense deposit disease	Diagnosis	ICD-10-CM
N01.7	Rapidly progressive nephritic syndrome with diffuse crescentic glomerulonephritis	Diagnosis	ICD-10-CM
N01.8	Rapidly progressive nephritic syndrome with other morphologic changes	Diagnosis	ICD-10-CM
N01.9	Rapidly progressive nephritic syndrome with unspecified morphologic changes	Diagnosis	ICD-10-CM
N02.0	Recurrent and persistent hematuria with minor glomerular abnormality	Diagnosis	ICD-10-CM
N02.1	Recurrent and persistent hematuria with focal and segmental glomerular lesions	Diagnosis	ICD-10-CM
N02.2	Recurrent and persistent hematuria with diffuse membranous glomerulonephritis	Diagnosis	ICD-10-CM
N02.3	Recurrent and persistent hematuria with diffuse mesangial proliferative	Diagnosis	ICD-10-CM
N02.4	Recurrent and persistent hematuria with diffuse endocapillary proliferative	Diagnosis	ICD-10-CM
N02.5	Recurrent and persistent hematuria with diffuse mesangiocapillary glomerulonephritis	Diagnosis	ICD-10-CM
N02.6	Recurrent and persistent hematuria with dense deposit disease	Diagnosis	ICD-10-CM
N02.7	Recurrent and persistent hematuria with diffuse crescentic glomerulonephritis	Diagnosis	ICD-10-CM
N02.8	Recurrent and persistent hematuria with other morphologic changes	Diagnosis	ICD-10-CM
N02.9	Recurrent and persistent hematuria with unspecified morphologic changes	Diagnosis	ICD-10-CM
N03.0	Chronic nephritic syndrome with minor glomerular abnormality	Diagnosis	ICD-10-CM
N03.1	Chronic nephritic syndrome with focal and segmental glomerular lesions	Diagnosis	ICD-10-CM
N03.2	Chronic nephritic syndrome with diffuse membranous glomerulonephritis	Diagnosis	ICD-10-CM
N03.3	Chronic nephritic syndrome with diffuse mesangial proliferative glomerulonephritis	Diagnosis	ICD-10-CM
N03.4	Chronic nephritic syndrome with diffuse endocapillary proliferative glomerulonephritis	Diagnosis	ICD-10-CM
N03.5	Chronic nephritic syndrome with diffuse mesangiocapillary glomerulonephritis	Diagnosis	ICD-10-CM
N03.6	Chronic nephritic syndrome with dense deposit disease	Diagnosis	ICD-10-CM
N03.7	Chronic nephritic syndrome with diffuse crescentic glomerulonephritis	Diagnosis	ICD-10-CM

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Code	Description	Code Category	Code Type
N03.8	Chronic nephritic syndrome with other morphologic changes	Diagnosis	ICD-10-CM
N03.9	Chronic nephritic syndrome with unspecified morphologic changes	Diagnosis	ICD-10-CM
N04.0	Nephrotic syndrome with minor glomerular abnormality	Diagnosis	ICD-10-CM
N04.1	Nephrotic syndrome with focal and segmental glomerular lesions	Diagnosis	ICD-10-CM
N04.2	Nephrotic syndrome with diffuse membranous glomerulonephritis	Diagnosis	ICD-10-CM
N04.3	Nephrotic syndrome with diffuse mesangial proliferative glomerulonephritis	Diagnosis	ICD-10-CM
N04.4	Nephrotic syndrome with diffuse endocapillary proliferative glomerulonephritis	Diagnosis	ICD-10-CM
N04.5	Nephrotic syndrome with diffuse mesangiocapillary glomerulonephritis	Diagnosis	ICD-10-CM
N04.6	Nephrotic syndrome with dense deposit disease	Diagnosis	ICD-10-CM
N04.7	Nephrotic syndrome with diffuse crescentic glomerulonephritis	Diagnosis	ICD-10-CM
N04.8	Nephrotic syndrome with other morphologic changes	Diagnosis	ICD-10-CM
N04.9	Nephrotic syndrome with unspecified morphologic changes	Diagnosis	ICD-10-CM
N05.0	Unspecified nephritic syndrome with minor glomerular abnormality	Diagnosis	ICD-10-CM
N05.1	Unspecified nephritic syndrome with focal and segmental glomerular lesions	Diagnosis	ICD-10-CM
N05.2	Unspecified nephritic syndrome with diffuse membranous glomerulonephritis	Diagnosis	ICD-10-CM
N05.3	Unspecified nephritic syndrome with diffuse mesangial proliferative	Diagnosis	ICD-10-CM
N05.4	Unspecified nephritic syndrome with diffuse endocapillary proliferative	Diagnosis	ICD-10-CM
N05.5	Unspecified nephritic syndrome with diffuse mesangiocapillary glomerulonephritis	Diagnosis	ICD-10-CM
N05.6	Unspecified nephritic syndrome with dense deposit disease	Diagnosis	ICD-10-CM
N05.7	Unspecified nephritic syndrome with diffuse crescentic glomerulonephritis	Diagnosis	ICD-10-CM
N05.8	Unspecified nephritic syndrome with other morphologic changes	Diagnosis	ICD-10-CM
N05.9	Unspecified nephritic syndrome with unspecified morphologic changes	Diagnosis	ICD-10-CM
N06.0	Isolated proteinuria with minor glomerular abnormality	Diagnosis	ICD-10-CM
N06.1	Isolated proteinuria with focal and segmental glomerular lesions	Diagnosis	ICD-10-CM
N06.2	Isolated proteinuria with diffuse membranous glomerulonephritis	Diagnosis	ICD-10-CM
N06.3	Isolated proteinuria with diffuse mesangial proliferative glomerulonephritis	Diagnosis	ICD-10-CM
N06.4	Isolated proteinuria with diffuse endocapillary proliferative glomerulonephritis	Diagnosis	ICD-10-CM
N06.5	Isolated proteinuria with diffuse mesangiocapillary glomerulonephritis	Diagnosis	ICD-10-CM
N06.6	Isolated proteinuria with dense deposit disease	Diagnosis	ICD-10-CM
N06.7	Isolated proteinuria with diffuse crescentic glomerulonephritis	Diagnosis	ICD-10-CM
N06.8	Isolated proteinuria with other morphologic lesion	Diagnosis	ICD-10-CM
N06.9	Isolated proteinuria with unspecified morphologic lesion	Diagnosis	ICD-10-CM
N07.0	Hereditary nephropathy, not elsewhere classified with minor glomerular abnormality	Diagnosis	ICD-10-CM
N07.1	Hereditary nephropathy, not elsewhere classified with focal and segmental glomerular	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
N07.2	Hereditary nephropathy, not elsewhere classified with diffuse membranous	Diagnosis	ICD-10-CM
N07.3	Hereditary nephropathy, not elsewhere classified with diffuse mesangial proliferative glomerulonephritis	Diagnosis	ICD-10-CM
N07.4	Hereditary nephropathy, not elsewhere classified with diffuse endocapillary proliferative glomerulonephritis	Diagnosis	ICD-10-CM
N07.5	Hereditary nephropathy, not elsewhere classified with diffuse mesangiocapillary glomerulonephritis	Diagnosis	ICD-10-CM
N07.6	Hereditary nephropathy, not elsewhere classified with dense deposit disease	Diagnosis	ICD-10-CM
N07.7	Hereditary nephropathy, not elsewhere classified with diffuse crescentic	Diagnosis	ICD-10-CM
N07.8	Hereditary nephropathy, not elsewhere classified with other morphologic lesions	Diagnosis	ICD-10-CM
N07.9	Hereditary nephropathy, not elsewhere classified with unspecified morphologic lesions	Diagnosis	ICD-10-CM
N08	Glomerular disorders in diseases classified elsewhere	Diagnosis	ICD-10-CM
N13.0	Hydronephrosis with ureteropelvic junction obstruction	Diagnosis	ICD-10-CM
N13.1	Hydronephrosis with ureteral stricture, not elsewhere classified	Diagnosis	ICD-10-CM
N13.2	Hydronephrosis with renal and ureteral calculous obstruction	Diagnosis	ICD-10-CM
N13.30	Unspecified hydronephrosis	Diagnosis	ICD-10-CM
N13.39	Other hydronephrosis	Diagnosis	ICD-10-CM
N14.0	Analgesic nephropathy	Diagnosis	ICD-10-CM
N14.1	Nephropathy induced by other drugs, medicaments and biological substances	Diagnosis	ICD-10-CM
N14.2	Nephropathy induced by unspecified drug, medicament or biological substance	Diagnosis	ICD-10-CM
N14.3	Nephropathy induced by heavy metals	Diagnosis	ICD-10-CM
N14.4	Toxic nephropathy, not elsewhere classified	Diagnosis	ICD-10-CM
N15.0	Balkan nephropathy	Diagnosis	ICD-10-CM
N15.8	Other specified renal tubulo-interstitial diseases	Diagnosis	ICD-10-CM
N15.9	Renal tubulo-interstitial disease, unspecified	Diagnosis	ICD-10-CM
N16	Renal tubulo-interstitial disorders in diseases classified elsewhere	Diagnosis	ICD-10-CM
N17.0	Acute kidney failure with tubular necrosis	Diagnosis	ICD-10-CM
N17.1	Acute kidney failure with acute cortical necrosis	Diagnosis	ICD-10-CM
N17.2	Acute kidney failure with medullary necrosis	Diagnosis	ICD-10-CM
N17.8	Other acute kidney failure	Diagnosis	ICD-10-CM
N17.9	Acute kidney failure, unspecified	Diagnosis	ICD-10-CM
N18.1	Chronic kidney disease, stage 1	Diagnosis	ICD-10-CM
N18.2	Chronic kidney disease, stage 2 (mild)	Diagnosis	ICD-10-CM
N18.3	Chronic kidney disease, stage 3 (moderate)	Diagnosis	ICD-10-CM

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Code	Description	Code Category	Code Type
N18.4	Chronic kidney disease, stage 4 (severe)	Diagnosis	ICD-10-CM
N18.5	Chronic kidney disease, stage 5	Diagnosis	ICD-10-CM
N18.6	End stage renal disease	Diagnosis	ICD-10-CM
N18.9	Chronic kidney disease, unspecified	Diagnosis	ICD-10-CM
N19	Unspecified kidney failure	Diagnosis	ICD-10-CM
N25.0	Renal osteodystrophy	Diagnosis	ICD-10-CM
N25.1	Nephrogenic diabetes insipidus	Diagnosis	ICD-10-CM
N25.81	Secondary hyperparathyroidism of renal origin	Diagnosis	ICD-10-CM
N25.89	Other disorders resulting from impaired renal tubular function	Diagnosis	ICD-10-CM
N25.9	Disorder resulting from impaired renal tubular function, unspecified	Diagnosis	ICD-10-CM
N26.1	Atrophy of kidney (terminal)	Diagnosis	ICD-10-CM
N26.9	Renal sclerosis, unspecified	Diagnosis	ICD-10-CM
Q61.02	Congenital multiple renal cysts	Diagnosis	ICD-10-CM
Q61.11	Cystic dilatation of collecting ducts	Diagnosis	ICD-10-CM
Q61.19	Other polycystic kidney, infantile type	Diagnosis	ICD-10-CM
Q61.2	Polycystic kidney, adult type	Diagnosis	ICD-10-CM
Q61.3	Polycystic kidney, unspecified	Diagnosis	ICD-10-CM
Q61.4	Renal dysplasia	Diagnosis	ICD-10-CM
Q61.5	Medullary cystic kidney	Diagnosis	ICD-10-CM
Q61.8	Other cystic kidney diseases	Diagnosis	ICD-10-CM
Q62.0	Congenital hydronephrosis	Diagnosis	ICD-10-CM
Q62.10	Congenital occlusion of ureter, unspecified	Diagnosis	ICD-10-CM
Q62.11	Congenital occlusion of ureteropelvic junction	Diagnosis	ICD-10-CM
Q62.12	Congenital occlusion of ureterovesical orifice	Diagnosis	ICD-10-CM
Q62.2	Congenital megaureter	Diagnosis	ICD-10-CM
Q62.31	Congenital ureterocele, orthotopic	Diagnosis	ICD-10-CM
Q62.32	Cecoureterocele	Diagnosis	ICD-10-CM
Q62.39	Other obstructive defects of renal pelvis and ureter	Diagnosis	ICD-10-CM
R94.4	Abnormal results of kidney function studies	Diagnosis	ICD-10-CM
Any Malignant Neoplasm			
B08.72	Yaba pox virus disease	Diagnosis	ICD-10-CM
C00.0	Malignant neoplasm of external upper lip	Diagnosis	ICD-10-CM
C00.1	Malignant neoplasm of external lower lip	Diagnosis	ICD-10-CM
C00.2	Malignant neoplasm of external lip, unspecified	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
C00.3	Malignant neoplasm of upper lip, inner aspect	Diagnosis	ICD-10-CM
C00.4	Malignant neoplasm of lower lip, inner aspect	Diagnosis	ICD-10-CM
C00.5	Malignant neoplasm of lip, unspecified, inner aspect	Diagnosis	ICD-10-CM
C00.6	Malignant neoplasm of commissure of lip, unspecified	Diagnosis	ICD-10-CM
C00.8	Malignant neoplasm of overlapping sites of lip	Diagnosis	ICD-10-CM
C00.9	Malignant neoplasm of lip, unspecified	Diagnosis	ICD-10-CM
C01	Malignant neoplasm of base of tongue	Diagnosis	ICD-10-CM
C02.0	Malignant neoplasm of dorsal surface of tongue	Diagnosis	ICD-10-CM
C02.1	Malignant neoplasm of border of tongue	Diagnosis	ICD-10-CM
C02.2	Malignant neoplasm of ventral surface of tongue	Diagnosis	ICD-10-CM
C02.3	Malignant neoplasm of anterior two-thirds of tongue, part unspecified	Diagnosis	ICD-10-CM
C02.4	Malignant neoplasm of lingual tonsil	Diagnosis	ICD-10-CM
C02.8	Malignant neoplasm of overlapping sites of tongue	Diagnosis	ICD-10-CM
C02.9	Malignant neoplasm of tongue, unspecified	Diagnosis	ICD-10-CM
C03.0	Malignant neoplasm of upper gum	Diagnosis	ICD-10-CM
C03.1	Malignant neoplasm of lower gum	Diagnosis	ICD-10-CM
C03.9	Malignant neoplasm of gum, unspecified	Diagnosis	ICD-10-CM
C04.0	Malignant neoplasm of anterior floor of mouth	Diagnosis	ICD-10-CM
C04.1	Malignant neoplasm of lateral floor of mouth	Diagnosis	ICD-10-CM
C04.8	Malignant neoplasm of overlapping sites of floor of mouth	Diagnosis	ICD-10-CM
C04.9	Malignant neoplasm of floor of mouth, unspecified	Diagnosis	ICD-10-CM
C05.0	Malignant neoplasm of hard palate	Diagnosis	ICD-10-CM
C05.1	Malignant neoplasm of soft palate	Diagnosis	ICD-10-CM
C05.2	Malignant neoplasm of uvula	Diagnosis	ICD-10-CM
C05.8	Malignant neoplasm of overlapping sites of palate	Diagnosis	ICD-10-CM
C05.9	Malignant neoplasm of palate, unspecified	Diagnosis	ICD-10-CM
C06.0	Malignant neoplasm of cheek mucosa	Diagnosis	ICD-10-CM
C06.1	Malignant neoplasm of vestibule of mouth	Diagnosis	ICD-10-CM
C06.2	Malignant neoplasm of retromolar area	Diagnosis	ICD-10-CM
C06.80	Malignant neoplasm of overlapping sites of unspecified parts of mouth	Diagnosis	ICD-10-CM
C06.89	Malignant neoplasm of overlapping sites of other parts of mouth	Diagnosis	ICD-10-CM
C06.9	Malignant neoplasm of mouth, unspecified	Diagnosis	ICD-10-CM
C07	Malignant neoplasm of parotid gland	Diagnosis	ICD-10-CM
C08.0	Malignant neoplasm of submandibular gland	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
C08.1	Malignant neoplasm of sublingual gland	Diagnosis	ICD-10-CM
C08.9	Malignant neoplasm of major salivary gland, unspecified	Diagnosis	ICD-10-CM
C09.0	Malignant neoplasm of tonsillar fossa	Diagnosis	ICD-10-CM
C09.1	Malignant neoplasm of tonsillar pillar (anterior) (posterior)	Diagnosis	ICD-10-CM
C09.8	Malignant neoplasm of overlapping sites of tonsil	Diagnosis	ICD-10-CM
C09.9	Malignant neoplasm of tonsil, unspecified	Diagnosis	ICD-10-CM
C10.0	Malignant neoplasm of vallecula	Diagnosis	ICD-10-CM
C10.1	Malignant neoplasm of anterior surface of epiglottis	Diagnosis	ICD-10-CM
C10.2	Malignant neoplasm of lateral wall of oropharynx	Diagnosis	ICD-10-CM
C10.3	Malignant neoplasm of posterior wall of oropharynx	Diagnosis	ICD-10-CM
C10.4	Malignant neoplasm of branchial cleft	Diagnosis	ICD-10-CM
C10.8	Malignant neoplasm of overlapping sites of oropharynx	Diagnosis	ICD-10-CM
C10.9	Malignant neoplasm of oropharynx, unspecified	Diagnosis	ICD-10-CM
C11.0	Malignant neoplasm of superior wall of nasopharynx	Diagnosis	ICD-10-CM
C11.1	Malignant neoplasm of posterior wall of nasopharynx	Diagnosis	ICD-10-CM
C11.2	Malignant neoplasm of lateral wall of nasopharynx	Diagnosis	ICD-10-CM
C11.3	Malignant neoplasm of anterior wall of nasopharynx	Diagnosis	ICD-10-CM
C11.8	Malignant neoplasm of overlapping sites of nasopharynx	Diagnosis	ICD-10-CM
C11.9	Malignant neoplasm of nasopharynx, unspecified	Diagnosis	ICD-10-CM
C12	Malignant neoplasm of pyriform sinus	Diagnosis	ICD-10-CM
C13.0	Malignant neoplasm of postcricoid region	Diagnosis	ICD-10-CM
C13.1	Malignant neoplasm of aryepiglottic fold, hypopharyngeal aspect	Diagnosis	ICD-10-CM
C13.2	Malignant neoplasm of posterior wall of hypopharynx	Diagnosis	ICD-10-CM
C13.8	Malignant neoplasm of overlapping sites of hypopharynx	Diagnosis	ICD-10-CM
C13.9	Malignant neoplasm of hypopharynx, unspecified	Diagnosis	ICD-10-CM
C14.0	Malignant neoplasm of pharynx, unspecified	Diagnosis	ICD-10-CM
C14.2	Malignant neoplasm of Waldeyer's ring	Diagnosis	ICD-10-CM
C14.8	Malignant neoplasm of overlapping sites of lip, oral cavity and pharynx	Diagnosis	ICD-10-CM
C15.3	Malignant neoplasm of upper third of esophagus	Diagnosis	ICD-10-CM
C15.4	Malignant neoplasm of middle third of esophagus	Diagnosis	ICD-10-CM
C15.5	Malignant neoplasm of lower third of esophagus	Diagnosis	ICD-10-CM
C15.8	Malignant neoplasm of overlapping sites of esophagus	Diagnosis	ICD-10-CM
C15.9	Malignant neoplasm of esophagus, unspecified	Diagnosis	ICD-10-CM
C16.0	Malignant neoplasm of cardia	Diagnosis	ICD-10-CM

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Code	Description	Code Category	Code Type
C16.1	Malignant neoplasm of fundus of stomach	Diagnosis	ICD-10-CM
C16.2	Malignant neoplasm of body of stomach	Diagnosis	ICD-10-CM
C16.3	Malignant neoplasm of pyloric antrum	Diagnosis	ICD-10-CM
C16.4	Malignant neoplasm of pylorus	Diagnosis	ICD-10-CM
C16.5	Malignant neoplasm of lesser curvature of stomach, unspecified	Diagnosis	ICD-10-CM
C16.6	Malignant neoplasm of greater curvature of stomach, unspecified	Diagnosis	ICD-10-CM
C16.8	Malignant neoplasm of overlapping sites of stomach	Diagnosis	ICD-10-CM
C16.9	Malignant neoplasm of stomach, unspecified	Diagnosis	ICD-10-CM
C17.0	Malignant neoplasm of duodenum	Diagnosis	ICD-10-CM
C17.1	Malignant neoplasm of jejunum	Diagnosis	ICD-10-CM
C17.2	Malignant neoplasm of ileum	Diagnosis	ICD-10-CM
C17.3	Meckel's diverticulum, malignant	Diagnosis	ICD-10-CM
C17.8	Malignant neoplasm of overlapping sites of small intestine	Diagnosis	ICD-10-CM
C17.9	Malignant neoplasm of small intestine, unspecified	Diagnosis	ICD-10-CM
C18.0	Malignant neoplasm of cecum	Diagnosis	ICD-10-CM
C18.1	Malignant neoplasm of appendix	Diagnosis	ICD-10-CM
C18.2	Malignant neoplasm of ascending colon	Diagnosis	ICD-10-CM
C18.3	Malignant neoplasm of hepatic flexure	Diagnosis	ICD-10-CM
C18.4	Malignant neoplasm of transverse colon	Diagnosis	ICD-10-CM
C18.5	Malignant neoplasm of splenic flexure	Diagnosis	ICD-10-CM
C18.6	Malignant neoplasm of descending colon	Diagnosis	ICD-10-CM
C18.7	Malignant neoplasm of sigmoid colon	Diagnosis	ICD-10-CM
C18.8	Malignant neoplasm of overlapping sites of colon	Diagnosis	ICD-10-CM
C18.9	Malignant neoplasm of colon, unspecified	Diagnosis	ICD-10-CM
C19	Malignant neoplasm of rectosigmoid junction	Diagnosis	ICD-10-CM
C20	Malignant neoplasm of rectum	Diagnosis	ICD-10-CM
C21.0	Malignant neoplasm of anus, unspecified	Diagnosis	ICD-10-CM
C21.1	Malignant neoplasm of anal canal	Diagnosis	ICD-10-CM
C21.2	Malignant neoplasm of cloacogenic zone	Diagnosis	ICD-10-CM
C21.8	Malignant neoplasm of overlapping sites of rectum, anus and anal canal	Diagnosis	ICD-10-CM
C22.0	Liver cell carcinoma	Diagnosis	ICD-10-CM
C22.1	Intrahepatic bile duct carcinoma	Diagnosis	ICD-10-CM
C22.2	Hepatoblastoma	Diagnosis	ICD-10-CM
C22.3	Angiosarcoma of liver	Diagnosis	ICD-10-CM

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Code	Description	Code Category	Code Type
C22.4	Other sarcomas of liver	Diagnosis	ICD-10-CM
C22.7	Other specified carcinomas of liver	Diagnosis	ICD-10-CM
C22.8	Malignant neoplasm of liver, primary, unspecified as to type	Diagnosis	ICD-10-CM
C22.9	Malignant neoplasm of liver, not specified as primary or secondary	Diagnosis	ICD-10-CM
C23	Malignant neoplasm of gallbladder	Diagnosis	ICD-10-CM
C24.0	Malignant neoplasm of extrahepatic bile duct	Diagnosis	ICD-10-CM
C24.1	Malignant neoplasm of ampulla of Vater	Diagnosis	ICD-10-CM
C24.8	Malignant neoplasm of overlapping sites of biliary tract	Diagnosis	ICD-10-CM
C24.9	Malignant neoplasm of biliary tract, unspecified	Diagnosis	ICD-10-CM
C25.0	Malignant neoplasm of head of pancreas	Diagnosis	ICD-10-CM
C25.1	Malignant neoplasm of body of pancreas	Diagnosis	ICD-10-CM
C25.2	Malignant neoplasm of tail of pancreas	Diagnosis	ICD-10-CM
C25.3	Malignant neoplasm of pancreatic duct	Diagnosis	ICD-10-CM
C25.4	Malignant neoplasm of endocrine pancreas	Diagnosis	ICD-10-CM
C25.7	Malignant neoplasm of other parts of pancreas	Diagnosis	ICD-10-CM
C25.8	Malignant neoplasm of overlapping sites of pancreas	Diagnosis	ICD-10-CM
C25.9	Malignant neoplasm of pancreas, unspecified	Diagnosis	ICD-10-CM
C26.0	Malignant neoplasm of intestinal tract, part unspecified	Diagnosis	ICD-10-CM
C26.1	Malignant neoplasm of spleen	Diagnosis	ICD-10-CM
C26.9	Malignant neoplasm of ill-defined sites within the digestive system	Diagnosis	ICD-10-CM
C30.0	Malignant neoplasm of nasal cavity	Diagnosis	ICD-10-CM
C30.1	Malignant neoplasm of middle ear	Diagnosis	ICD-10-CM
C31.0	Malignant neoplasm of maxillary sinus	Diagnosis	ICD-10-CM
C31.1	Malignant neoplasm of ethmoidal sinus	Diagnosis	ICD-10-CM
C31.2	Malignant neoplasm of frontal sinus	Diagnosis	ICD-10-CM
C31.3	Malignant neoplasm of sphenoid sinus	Diagnosis	ICD-10-CM
C31.8	Malignant neoplasm of overlapping sites of accessory sinuses	Diagnosis	ICD-10-CM
C31.9	Malignant neoplasm of accessory sinus, unspecified	Diagnosis	ICD-10-CM
C32.0	Malignant neoplasm of glottis	Diagnosis	ICD-10-CM
C32.1	Malignant neoplasm of supraglottis	Diagnosis	ICD-10-CM
C32.2	Malignant neoplasm of subglottis	Diagnosis	ICD-10-CM
C32.3	Malignant neoplasm of laryngeal cartilage	Diagnosis	ICD-10-CM
C32.8	Malignant neoplasm of overlapping sites of larynx	Diagnosis	ICD-10-CM
C32.9	Malignant neoplasm of larynx, unspecified	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
C33	Malignant neoplasm of trachea	Diagnosis	ICD-10-CM
C34.00	Malignant neoplasm of unspecified main bronchus	Diagnosis	ICD-10-CM
C34.01	Malignant neoplasm of right main bronchus	Diagnosis	ICD-10-CM
C34.02	Malignant neoplasm of left main bronchus	Diagnosis	ICD-10-CM
C34.10	Malignant neoplasm of upper lobe, unspecified bronchus or lung	Diagnosis	ICD-10-CM
C34.11	Malignant neoplasm of upper lobe, right bronchus or lung	Diagnosis	ICD-10-CM
C34.12	Malignant neoplasm of upper lobe, left bronchus or lung	Diagnosis	ICD-10-CM
C34.2	Malignant neoplasm of middle lobe, bronchus or lung	Diagnosis	ICD-10-CM
C34.30	Malignant neoplasm of lower lobe, unspecified bronchus or lung	Diagnosis	ICD-10-CM
C34.31	Malignant neoplasm of lower lobe, right bronchus or lung	Diagnosis	ICD-10-CM
C34.32	Malignant neoplasm of lower lobe, left bronchus or lung	Diagnosis	ICD-10-CM
C34.80	Malignant neoplasm of overlapping sites of unspecified bronchus and lung	Diagnosis	ICD-10-CM
C34.81	Malignant neoplasm of overlapping sites of right bronchus and lung	Diagnosis	ICD-10-CM
C34.82	Malignant neoplasm of overlapping sites of left bronchus and lung	Diagnosis	ICD-10-CM
C34.90	Malignant neoplasm of unspecified part of unspecified bronchus or lung	Diagnosis	ICD-10-CM
C34.91	Malignant neoplasm of unspecified part of right bronchus or lung	Diagnosis	ICD-10-CM
C34.92	Malignant neoplasm of unspecified part of left bronchus or lung	Diagnosis	ICD-10-CM
C37	Malignant neoplasm of thymus	Diagnosis	ICD-10-CM
C38.0	Malignant neoplasm of heart	Diagnosis	ICD-10-CM
C38.1	Malignant neoplasm of anterior mediastinum	Diagnosis	ICD-10-CM
C38.2	Malignant neoplasm of posterior mediastinum	Diagnosis	ICD-10-CM
C38.3	Malignant neoplasm of mediastinum, part unspecified	Diagnosis	ICD-10-CM
C38.4	Malignant neoplasm of pleura	Diagnosis	ICD-10-CM
C38.8	Malignant neoplasm of overlapping sites of heart, mediastinum and pleura	Diagnosis	ICD-10-CM
C39.0	Malignant neoplasm of upper respiratory tract, part unspecified	Diagnosis	ICD-10-CM
C39.9	Malignant neoplasm of lower respiratory tract, part unspecified	Diagnosis	ICD-10-CM
C40.00	Malignant neoplasm of scapula and long bones of unspecified upper limb	Diagnosis	ICD-10-CM
C40.01	Malignant neoplasm of scapula and long bones of right upper limb	Diagnosis	ICD-10-CM
C40.02	Malignant neoplasm of scapula and long bones of left upper limb	Diagnosis	ICD-10-CM
C40.10	Malignant neoplasm of short bones of unspecified upper limb	Diagnosis	ICD-10-CM
C40.11	Malignant neoplasm of short bones of right upper limb	Diagnosis	ICD-10-CM
C40.12	Malignant neoplasm of short bones of left upper limb	Diagnosis	ICD-10-CM
C40.20	Malignant neoplasm of long bones of unspecified lower limb	Diagnosis	ICD-10-CM
C40.21	Malignant neoplasm of long bones of right lower limb	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
C40.22	Malignant neoplasm of long bones of left lower limb	Diagnosis	ICD-10-CM
C40.30	Malignant neoplasm of short bones of unspecified lower limb	Diagnosis	ICD-10-CM
C40.31	Malignant neoplasm of short bones of right lower limb	Diagnosis	ICD-10-CM
C40.32	Malignant neoplasm of short bones of left lower limb	Diagnosis	ICD-10-CM
C40.80	Malignant neoplasm of overlapping sites of bone and articular cartilage of unspecified	Diagnosis	ICD-10-CM
C40.81	Malignant neoplasm of overlapping sites of bone and articular cartilage of right limb	Diagnosis	ICD-10-CM
C40.82	Malignant neoplasm of overlapping sites of bone and articular cartilage of left limb	Diagnosis	ICD-10-CM
C40.90	Malignant neoplasm of unspecified bones and articular cartilage of unspecified limb	Diagnosis	ICD-10-CM
C40.91	Malignant neoplasm of unspecified bones and articular cartilage of right limb	Diagnosis	ICD-10-CM
C40.92	Malignant neoplasm of unspecified bones and articular cartilage of left limb	Diagnosis	ICD-10-CM
C41.0	Malignant neoplasm of bones of skull and face	Diagnosis	ICD-10-CM
C41.1	Malignant neoplasm of mandible	Diagnosis	ICD-10-CM
C41.2	Malignant neoplasm of vertebral column	Diagnosis	ICD-10-CM
C41.3	Malignant neoplasm of ribs, sternum and clavicle	Diagnosis	ICD-10-CM
C41.4	Malignant neoplasm of pelvic bones, sacrum and coccyx	Diagnosis	ICD-10-CM
C41.9	Malignant neoplasm of bone and articular cartilage, unspecified	Diagnosis	ICD-10-CM
C43.0	Malignant melanoma of lip	Diagnosis	ICD-10-CM
C43.10	Malignant melanoma of unspecified eyelid, including canthus	Diagnosis	ICD-10-CM
C43.11	Malignant melanoma of right eyelid, including canthus	Diagnosis	ICD-10-CM
C43.12	Malignant melanoma of left eyelid, including canthus	Diagnosis	ICD-10-CM
C43.20	Malignant melanoma of unspecified ear and external auricular canal	Diagnosis	ICD-10-CM
C43.21	Malignant melanoma of right ear and external auricular canal	Diagnosis	ICD-10-CM
C43.22	Malignant melanoma of left ear and external auricular canal	Diagnosis	ICD-10-CM
C43.30	Malignant melanoma of unspecified part of face	Diagnosis	ICD-10-CM
C43.31	Malignant melanoma of nose	Diagnosis	ICD-10-CM
C43.39	Malignant melanoma of other parts of face	Diagnosis	ICD-10-CM
C43.4	Malignant melanoma of scalp and neck	Diagnosis	ICD-10-CM
C43.51	Malignant melanoma of anal skin	Diagnosis	ICD-10-CM
C43.52	Malignant melanoma of skin of breast	Diagnosis	ICD-10-CM
C43.59	Malignant melanoma of other part of trunk	Diagnosis	ICD-10-CM
C43.60	Malignant melanoma of unspecified upper limb, including shoulder	Diagnosis	ICD-10-CM
C43.61	Malignant melanoma of right upper limb, including shoulder	Diagnosis	ICD-10-CM
C43.62	Malignant melanoma of left upper limb, including shoulder	Diagnosis	ICD-10-CM
C43.70	Malignant melanoma of unspecified lower limb, including hip	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
C43.71	Malignant melanoma of right lower limb, including hip	Diagnosis	ICD-10-CM
C43.72	Malignant melanoma of left lower limb, including hip	Diagnosis	ICD-10-CM
C43.8	Malignant melanoma of overlapping sites of skin	Diagnosis	ICD-10-CM
C43.9	Malignant melanoma of skin, unspecified	Diagnosis	ICD-10-CM
C44.00	Unspecified malignant neoplasm of skin of lip	Diagnosis	ICD-10-CM
C44.01	Basal cell carcinoma of skin of lip	Diagnosis	ICD-10-CM
C44.02	Squamous cell carcinoma of skin of lip	Diagnosis	ICD-10-CM
C44.09	Other specified malignant neoplasm of skin of lip	Diagnosis	ICD-10-CM
C44.101	Unspecified malignant neoplasm of skin of unspecified eyelid, including canthus	Diagnosis	ICD-10-CM
C44.102	Unspecified malignant neoplasm of skin of right eyelid, including canthus	Diagnosis	ICD-10-CM
C44.109	Unspecified malignant neoplasm of skin of left eyelid, including canthus	Diagnosis	ICD-10-CM
C44.111	Basal cell carcinoma of skin of unspecified eyelid, including canthus	Diagnosis	ICD-10-CM
C44.112	Basal cell carcinoma of skin of right eyelid, including canthus	Diagnosis	ICD-10-CM
C44.119	Basal cell carcinoma of skin of left eyelid, including canthus	Diagnosis	ICD-10-CM
C44.121	Squamous cell carcinoma of skin of unspecified eyelid, including canthus	Diagnosis	ICD-10-CM
C44.122	Squamous cell carcinoma of skin of right eyelid, including canthus	Diagnosis	ICD-10-CM
C44.129	Squamous cell carcinoma of skin of left eyelid, including canthus	Diagnosis	ICD-10-CM
C44.191	Other specified malignant neoplasm of skin of unspecified eyelid, including canthus	Diagnosis	ICD-10-CM
C44.192	Other specified malignant neoplasm of skin of right eyelid, including canthus	Diagnosis	ICD-10-CM
C44.199	Other specified malignant neoplasm of skin of left eyelid, including canthus	Diagnosis	ICD-10-CM
C44.201	Unspecified malignant neoplasm of skin of unspecified ear and external auricular canal	Diagnosis	ICD-10-CM
C44.202	Unspecified malignant neoplasm of skin of right ear and external auricular canal	Diagnosis	ICD-10-CM
C44.209	Unspecified malignant neoplasm of skin of left ear and external auricular canal	Diagnosis	ICD-10-CM
C44.211	Basal cell carcinoma of skin of unspecified ear and external auricular canal	Diagnosis	ICD-10-CM
C44.212	Basal cell carcinoma of skin of right ear and external auricular canal	Diagnosis	ICD-10-CM
C44.219	Basal cell carcinoma of skin of left ear and external auricular canal	Diagnosis	ICD-10-CM
C44.221	Squamous cell carcinoma of skin of unspecified ear and external auricular canal	Diagnosis	ICD-10-CM
C44.222	Squamous cell carcinoma of skin of right ear and external auricular canal	Diagnosis	ICD-10-CM
C44.229	Squamous cell carcinoma of skin of left ear and external auricular canal	Diagnosis	ICD-10-CM
C44.291	Other specified malignant neoplasm of skin of unspecified ear and external auricular	Diagnosis	ICD-10-CM
C44.292	Other specified malignant neoplasm of skin of right ear and external auricular canal	Diagnosis	ICD-10-CM
C44.299	Other specified malignant neoplasm of skin of left ear and external auricular canal	Diagnosis	ICD-10-CM
C44.300	Unspecified malignant neoplasm of skin of unspecified part of face	Diagnosis	ICD-10-CM
C44.301	Unspecified malignant neoplasm of skin of nose	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
C44.309	Unspecified malignant neoplasm of skin of other parts of face	Diagnosis	ICD-10-CM
C44.310	Basal cell carcinoma of skin of unspecified parts of face	Diagnosis	ICD-10-CM
C44.311	Basal cell carcinoma of skin of nose	Diagnosis	ICD-10-CM
C44.319	Basal cell carcinoma of skin of other parts of face	Diagnosis	ICD-10-CM
C44.320	Squamous cell carcinoma of skin of unspecified parts of face	Diagnosis	ICD-10-CM
C44.321	Squamous cell carcinoma of skin of nose	Diagnosis	ICD-10-CM
C44.329	Squamous cell carcinoma of skin of other parts of face	Diagnosis	ICD-10-CM
C44.390	Other specified malignant neoplasm of skin of unspecified parts of face	Diagnosis	ICD-10-CM
C44.391	Other specified malignant neoplasm of skin of nose	Diagnosis	ICD-10-CM
C44.399	Other specified malignant neoplasm of skin of other parts of face	Diagnosis	ICD-10-CM
C44.40	Unspecified malignant neoplasm of skin of scalp and neck	Diagnosis	ICD-10-CM
C44.41	Basal cell carcinoma of skin of scalp and neck	Diagnosis	ICD-10-CM
C44.42	Squamous cell carcinoma of skin of scalp and neck	Diagnosis	ICD-10-CM
C44.49	Other specified malignant neoplasm of skin of scalp and neck	Diagnosis	ICD-10-CM
C44.500	Unspecified malignant neoplasm of anal skin	Diagnosis	ICD-10-CM
C44.501	Unspecified malignant neoplasm of skin of breast	Diagnosis	ICD-10-CM
C44.509	Unspecified malignant neoplasm of skin of other part of trunk	Diagnosis	ICD-10-CM
C44.510	Basal cell carcinoma of anal skin	Diagnosis	ICD-10-CM
C44.511	Basal cell carcinoma of skin of breast	Diagnosis	ICD-10-CM
C44.519	Basal cell carcinoma of skin of other part of trunk	Diagnosis	ICD-10-CM
C44.520	Squamous cell carcinoma of anal skin	Diagnosis	ICD-10-CM
C44.521	Squamous cell carcinoma of skin of breast	Diagnosis	ICD-10-CM
C44.529	Squamous cell carcinoma of skin of other part of trunk	Diagnosis	ICD-10-CM
C44.590	Other specified malignant neoplasm of anal skin	Diagnosis	ICD-10-CM
C44.591	Other specified malignant neoplasm of skin of breast	Diagnosis	ICD-10-CM
C44.599	Other specified malignant neoplasm of skin of other part of trunk	Diagnosis	ICD-10-CM
C44.601	Unspecified malignant neoplasm of skin of unspecified upper limb, including shoulder	Diagnosis	ICD-10-CM
C44.602	Unspecified malignant neoplasm of skin of right upper limb, including shoulder	Diagnosis	ICD-10-CM
C44.609	Unspecified malignant neoplasm of skin of left upper limb, including shoulder	Diagnosis	ICD-10-CM
C44.611	Basal cell carcinoma of skin of unspecified upper limb, including shoulder	Diagnosis	ICD-10-CM
C44.612	Basal cell carcinoma of skin of right upper limb, including shoulder	Diagnosis	ICD-10-CM
C44.619	Basal cell carcinoma of skin of left upper limb, including shoulder	Diagnosis	ICD-10-CM
C44.621	Squamous cell carcinoma of skin of unspecified upper limb, including shoulder	Diagnosis	ICD-10-CM
C44.622	Squamous cell carcinoma of skin of right upper limb, including shoulder	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
C44.629	Squamous cell carcinoma of skin of left upper limb, including shoulder	Diagnosis	ICD-10-CM
C44.691	Other specified malignant neoplasm of skin of unspecified upper limb, including	Diagnosis	ICD-10-CM
C44.692	Other specified malignant neoplasm of skin of right upper limb, including shoulder	Diagnosis	ICD-10-CM
C44.699	Other specified malignant neoplasm of skin of left upper limb, including shoulder	Diagnosis	ICD-10-CM
C44.701	Unspecified malignant neoplasm of skin of unspecified lower limb, including hip	Diagnosis	ICD-10-CM
C44.702	Unspecified malignant neoplasm of skin of right lower limb, including hip	Diagnosis	ICD-10-CM
C44.709	Unspecified malignant neoplasm of skin of left lower limb, including hip	Diagnosis	ICD-10-CM
C44.711	Basal cell carcinoma of skin of unspecified lower limb, including hip	Diagnosis	ICD-10-CM
C44.712	Basal cell carcinoma of skin of right lower limb, including hip	Diagnosis	ICD-10-CM
C44.719	Basal cell carcinoma of skin of left lower limb, including hip	Diagnosis	ICD-10-CM
C44.721	Squamous cell carcinoma of skin of unspecified lower limb, including hip	Diagnosis	ICD-10-CM
C44.722	Squamous cell carcinoma of skin of right lower limb, including hip	Diagnosis	ICD-10-CM
C44.729	Squamous cell carcinoma of skin of left lower limb, including hip	Diagnosis	ICD-10-CM
C44.791	Other specified malignant neoplasm of skin of unspecified lower limb, including hip	Diagnosis	ICD-10-CM
C44.792	Other specified malignant neoplasm of skin of right lower limb, including hip	Diagnosis	ICD-10-CM
C44.799	Other specified malignant neoplasm of skin of left lower limb, including hip	Diagnosis	ICD-10-CM
C44.80	Unspecified malignant neoplasm of overlapping sites of skin	Diagnosis	ICD-10-CM
C44.81	Basal cell carcinoma of overlapping sites of skin	Diagnosis	ICD-10-CM
C44.82	Squamous cell carcinoma of overlapping sites of skin	Diagnosis	ICD-10-CM
C44.89	Other specified malignant neoplasm of overlapping sites of skin	Diagnosis	ICD-10-CM
C44.90	Unspecified malignant neoplasm of skin, unspecified	Diagnosis	ICD-10-CM
C44.91	Basal cell carcinoma of skin, unspecified	Diagnosis	ICD-10-CM
C44.92	Squamous cell carcinoma of skin, unspecified	Diagnosis	ICD-10-CM
C44.99	Other specified malignant neoplasm of skin, unspecified	Diagnosis	ICD-10-CM
C45.0	Mesothelioma of pleura	Diagnosis	ICD-10-CM
C45.1	Mesothelioma of peritoneum	Diagnosis	ICD-10-CM
C45.2	Mesothelioma of pericardium	Diagnosis	ICD-10-CM
C45.7	Mesothelioma of other sites	Diagnosis	ICD-10-CM
C45.9	Mesothelioma, unspecified	Diagnosis	ICD-10-CM
C46.0	Kaposi's sarcoma of skin	Diagnosis	ICD-10-CM
C46.1	Kaposi's sarcoma of soft tissue	Diagnosis	ICD-10-CM
C46.2	Kaposi's sarcoma of palate	Diagnosis	ICD-10-CM
C46.3	Kaposi's sarcoma of lymph nodes	Diagnosis	ICD-10-CM
C46.4	Kaposi's sarcoma of gastrointestinal sites	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
C46.50	Kaposi's sarcoma of unspecified lung	Diagnosis	ICD-10-CM
C46.51	Kaposi's sarcoma of right lung	Diagnosis	ICD-10-CM
C46.52	Kaposi's sarcoma of left lung	Diagnosis	ICD-10-CM
C46.7	Kaposi's sarcoma of other sites	Diagnosis	ICD-10-CM
C46.9	Kaposi's sarcoma, unspecified	Diagnosis	ICD-10-CM
C47.0	Malignant neoplasm of peripheral nerves of head, face and neck	Diagnosis	ICD-10-CM
C47.10	Malignant neoplasm of peripheral nerves of unspecified upper limb, including shoulder	Diagnosis	ICD-10-CM
C47.11	Malignant neoplasm of peripheral nerves of right upper limb, including shoulder	Diagnosis	ICD-10-CM
C47.12	Malignant neoplasm of peripheral nerves of left upper limb, including shoulder	Diagnosis	ICD-10-CM
C47.20	Malignant neoplasm of peripheral nerves of unspecified lower limb, including hip	Diagnosis	ICD-10-CM
C47.21	Malignant neoplasm of peripheral nerves of right lower limb, including hip	Diagnosis	ICD-10-CM
C47.22	Malignant neoplasm of peripheral nerves of left lower limb, including hip	Diagnosis	ICD-10-CM
C47.3	Malignant neoplasm of peripheral nerves of thorax	Diagnosis	ICD-10-CM
C47.4	Malignant neoplasm of peripheral nerves of abdomen	Diagnosis	ICD-10-CM
C47.5	Malignant neoplasm of peripheral nerves of pelvis	Diagnosis	ICD-10-CM
C47.6	Malignant neoplasm of peripheral nerves of trunk, unspecified	Diagnosis	ICD-10-CM
C47.8	Malignant neoplasm of overlapping sites of peripheral nerves and autonomic nervous	Diagnosis	ICD-10-CM
C47.9	Malignant neoplasm of peripheral nerves and autonomic nervous system, unspecified	Diagnosis	ICD-10-CM
C48.0	Malignant neoplasm of retroperitoneum	Diagnosis	ICD-10-CM
C48.1	Malignant neoplasm of specified parts of peritoneum	Diagnosis	ICD-10-CM
C48.2	Malignant neoplasm of peritoneum, unspecified	Diagnosis	ICD-10-CM
C48.8	Malignant neoplasm of overlapping sites of retroperitoneum and peritoneum	Diagnosis	ICD-10-CM
C49.0	Malignant neoplasm of connective and soft tissue of head, face and neck	Diagnosis	ICD-10-CM
C49.10	Malignant neoplasm of connective and soft tissue of unspecified upper limb, including	Diagnosis	ICD-10-CM
C49.11	Malignant neoplasm of connective and soft tissue of right upper limb, including	Diagnosis	ICD-10-CM
C49.12	Malignant neoplasm of connective and soft tissue of left upper limb, including	Diagnosis	ICD-10-CM
C49.20	Malignant neoplasm of connective and soft tissue of unspecified lower limb, including	Diagnosis	ICD-10-CM
C49.21	Malignant neoplasm of connective and soft tissue of right lower limb, including hip	Diagnosis	ICD-10-CM
C49.22	Malignant neoplasm of connective and soft tissue of left lower limb, including hip	Diagnosis	ICD-10-CM
C49.3	Malignant neoplasm of connective and soft tissue of thorax	Diagnosis	ICD-10-CM
C49.4	Malignant neoplasm of connective and soft tissue of abdomen	Diagnosis	ICD-10-CM
C49.5	Malignant neoplasm of connective and soft tissue of pelvis	Diagnosis	ICD-10-CM
C49.6	Malignant neoplasm of connective and soft tissue of trunk, unspecified	Diagnosis	ICD-10-CM
C49.8	Malignant neoplasm of overlapping sites of connective and soft tissue	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
C49.9	Malignant neoplasm of connective and soft tissue, unspecified	Diagnosis	ICD-10-CM
C49.A0	Gastrointestinal stromal tumor, unspecified site	Diagnosis	ICD-10-CM
C49.A1	Gastrointestinal stromal tumor of esophagus	Diagnosis	ICD-10-CM
C49.A2	Gastrointestinal stromal tumor of stomach	Diagnosis	ICD-10-CM
C49.A3	Gastrointestinal stromal tumor of small intestine	Diagnosis	ICD-10-CM
C49.A4	Gastrointestinal stromal tumor of large intestine	Diagnosis	ICD-10-CM
C49.A5	Gastrointestinal stromal tumor of rectum	Diagnosis	ICD-10-CM
C49.A9	Gastrointestinal stromal tumor of other sites	Diagnosis	ICD-10-CM
C50.011	Malignant neoplasm of nipple and areola, right female breast	Diagnosis	ICD-10-CM
C50.012	Malignant neoplasm of nipple and areola, left female breast	Diagnosis	ICD-10-CM
C50.019	Malignant neoplasm of nipple and areola, unspecified female breast	Diagnosis	ICD-10-CM
C50.021	Malignant neoplasm of nipple and areola, right male breast	Diagnosis	ICD-10-CM
C50.022	Malignant neoplasm of nipple and areola, left male breast	Diagnosis	ICD-10-CM
C50.029	Malignant neoplasm of nipple and areola, unspecified male breast	Diagnosis	ICD-10-CM
C50.111	Malignant neoplasm of central portion of right female breast	Diagnosis	ICD-10-CM
C50.112	Malignant neoplasm of central portion of left female breast	Diagnosis	ICD-10-CM
C50.119	Malignant neoplasm of central portion of unspecified female breast	Diagnosis	ICD-10-CM
C50.121	Malignant neoplasm of central portion of right male breast	Diagnosis	ICD-10-CM
C50.122	Malignant neoplasm of central portion of left male breast	Diagnosis	ICD-10-CM
C50.129	Malignant neoplasm of central portion of unspecified male breast	Diagnosis	ICD-10-CM
C50.211	Malignant neoplasm of upper-inner quadrant of right female breast	Diagnosis	ICD-10-CM
C50.212	Malignant neoplasm of upper-inner quadrant of left female breast	Diagnosis	ICD-10-CM
C50.219	Malignant neoplasm of upper-inner quadrant of unspecified female breast	Diagnosis	ICD-10-CM
C50.221	Malignant neoplasm of upper-inner quadrant of right male breast	Diagnosis	ICD-10-CM
C50.222	Malignant neoplasm of upper-inner quadrant of left male breast	Diagnosis	ICD-10-CM
C50.229	Malignant neoplasm of upper-inner quadrant of unspecified male breast	Diagnosis	ICD-10-CM
C50.311	Malignant neoplasm of lower-inner quadrant of right female breast	Diagnosis	ICD-10-CM
C50.312	Malignant neoplasm of lower-inner quadrant of left female breast	Diagnosis	ICD-10-CM
C50.319	Malignant neoplasm of lower-inner quadrant of unspecified female breast	Diagnosis	ICD-10-CM
C50.321	Malignant neoplasm of lower-inner quadrant of right male breast	Diagnosis	ICD-10-CM
C50.322	Malignant neoplasm of lower-inner quadrant of left male breast	Diagnosis	ICD-10-CM
C50.329	Malignant neoplasm of lower-inner quadrant of unspecified male breast	Diagnosis	ICD-10-CM
C50.411	Malignant neoplasm of upper-outer quadrant of right female breast	Diagnosis	ICD-10-CM
C50.412	Malignant neoplasm of upper-outer quadrant of left female breast	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
C50.419	Malignant neoplasm of upper-outer quadrant of unspecified female breast	Diagnosis	ICD-10-CM
C50.421	Malignant neoplasm of upper-outer quadrant of right male breast	Diagnosis	ICD-10-CM
C50.422	Malignant neoplasm of upper-outer quadrant of left male breast	Diagnosis	ICD-10-CM
C50.429	Malignant neoplasm of upper-outer quadrant of unspecified male breast	Diagnosis	ICD-10-CM
C50.511	Malignant neoplasm of lower-outer quadrant of right female breast	Diagnosis	ICD-10-CM
C50.512	Malignant neoplasm of lower-outer quadrant of left female breast	Diagnosis	ICD-10-CM
C50.519	Malignant neoplasm of lower-outer quadrant of unspecified female breast	Diagnosis	ICD-10-CM
C50.521	Malignant neoplasm of lower-outer quadrant of right male breast	Diagnosis	ICD-10-CM
C50.522	Malignant neoplasm of lower-outer quadrant of left male breast	Diagnosis	ICD-10-CM
C50.529	Malignant neoplasm of lower-outer quadrant of unspecified male breast	Diagnosis	ICD-10-CM
C50.611	Malignant neoplasm of axillary tail of right female breast	Diagnosis	ICD-10-CM
C50.612	Malignant neoplasm of axillary tail of left female breast	Diagnosis	ICD-10-CM
C50.619	Malignant neoplasm of axillary tail of unspecified female breast	Diagnosis	ICD-10-CM
C50.621	Malignant neoplasm of axillary tail of right male breast	Diagnosis	ICD-10-CM
C50.622	Malignant neoplasm of axillary tail of left male breast	Diagnosis	ICD-10-CM
C50.629	Malignant neoplasm of axillary tail of unspecified male breast	Diagnosis	ICD-10-CM
C50.811	Malignant neoplasm of overlapping sites of right female breast	Diagnosis	ICD-10-CM
C50.812	Malignant neoplasm of overlapping sites of left female breast	Diagnosis	ICD-10-CM
C50.819	Malignant neoplasm of overlapping sites of unspecified female breast	Diagnosis	ICD-10-CM
C50.821	Malignant neoplasm of overlapping sites of right male breast	Diagnosis	ICD-10-CM
C50.822	Malignant neoplasm of overlapping sites of left male breast	Diagnosis	ICD-10-CM
C50.829	Malignant neoplasm of overlapping sites of unspecified male breast	Diagnosis	ICD-10-CM
C50.911	Malignant neoplasm of unspecified site of right female breast	Diagnosis	ICD-10-CM
C50.912	Malignant neoplasm of unspecified site of left female breast	Diagnosis	ICD-10-CM
C50.919	Malignant neoplasm of unspecified site of unspecified female breast	Diagnosis	ICD-10-CM
C50.921	Malignant neoplasm of unspecified site of right male breast	Diagnosis	ICD-10-CM
C50.922	Malignant neoplasm of unspecified site of left male breast	Diagnosis	ICD-10-CM
C50.929	Malignant neoplasm of unspecified site of unspecified male breast	Diagnosis	ICD-10-CM
C51.0	Malignant neoplasm of labium majus	Diagnosis	ICD-10-CM
C51.1	Malignant neoplasm of labium minus	Diagnosis	ICD-10-CM
C51.2	Malignant neoplasm of clitoris	Diagnosis	ICD-10-CM
C51.8	Malignant neoplasm of overlapping sites of vulva	Diagnosis	ICD-10-CM
C51.9	Malignant neoplasm of vulva, unspecified	Diagnosis	ICD-10-CM
C52	Malignant neoplasm of vagina	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
C53.0	Malignant neoplasm of endocervix	Diagnosis	ICD-10-CM
C53.1	Malignant neoplasm of exocervix	Diagnosis	ICD-10-CM
C53.8	Malignant neoplasm of overlapping sites of cervix uteri	Diagnosis	ICD-10-CM
C53.9	Malignant neoplasm of cervix uteri, unspecified	Diagnosis	ICD-10-CM
C54.0	Malignant neoplasm of isthmus uteri	Diagnosis	ICD-10-CM
C54.1	Malignant neoplasm of endometrium	Diagnosis	ICD-10-CM
C54.2	Malignant neoplasm of myometrium	Diagnosis	ICD-10-CM
C54.3	Malignant neoplasm of fundus uteri	Diagnosis	ICD-10-CM
C54.8	Malignant neoplasm of overlapping sites of corpus uteri	Diagnosis	ICD-10-CM
C54.9	Malignant neoplasm of corpus uteri, unspecified	Diagnosis	ICD-10-CM
C55	Malignant neoplasm of uterus, part unspecified	Diagnosis	ICD-10-CM
C56.1	Malignant neoplasm of right ovary	Diagnosis	ICD-10-CM
C56.2	Malignant neoplasm of left ovary	Diagnosis	ICD-10-CM
C56.9	Malignant neoplasm of unspecified ovary	Diagnosis	ICD-10-CM
C57.00	Malignant neoplasm of unspecified fallopian tube	Diagnosis	ICD-10-CM
C57.01	Malignant neoplasm of right fallopian tube	Diagnosis	ICD-10-CM
C57.02	Malignant neoplasm of left fallopian tube	Diagnosis	ICD-10-CM
C57.10	Malignant neoplasm of unspecified broad ligament	Diagnosis	ICD-10-CM
C57.11	Malignant neoplasm of right broad ligament	Diagnosis	ICD-10-CM
C57.12	Malignant neoplasm of left broad ligament	Diagnosis	ICD-10-CM
C57.20	Malignant neoplasm of unspecified round ligament	Diagnosis	ICD-10-CM
C57.21	Malignant neoplasm of right round ligament	Diagnosis	ICD-10-CM
C57.22	Malignant neoplasm of left round ligament	Diagnosis	ICD-10-CM
C57.3	Malignant neoplasm of parametrium	Diagnosis	ICD-10-CM
C57.4	Malignant neoplasm of uterine adnexa, unspecified	Diagnosis	ICD-10-CM
C57.7	Malignant neoplasm of other specified female genital organs	Diagnosis	ICD-10-CM
C57.8	Malignant neoplasm of overlapping sites of female genital organs	Diagnosis	ICD-10-CM
C57.9	Malignant neoplasm of female genital organ, unspecified	Diagnosis	ICD-10-CM
C58	Malignant neoplasm of placenta	Diagnosis	ICD-10-CM
C60.0	Malignant neoplasm of prepuce	Diagnosis	ICD-10-CM
C60.1	Malignant neoplasm of glans penis	Diagnosis	ICD-10-CM
C60.2	Malignant neoplasm of body of penis	Diagnosis	ICD-10-CM
C60.8	Malignant neoplasm of overlapping sites of penis	Diagnosis	ICD-10-CM
C60.9	Malignant neoplasm of penis, unspecified	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
C61	Malignant neoplasm of prostate	Diagnosis	ICD-10-CM
C62.00	Malignant neoplasm of unspecified undescended testis	Diagnosis	ICD-10-CM
C62.01	Malignant neoplasm of undescended right testis	Diagnosis	ICD-10-CM
C62.02	Malignant neoplasm of undescended left testis	Diagnosis	ICD-10-CM
C62.10	Malignant neoplasm of unspecified descended testis	Diagnosis	ICD-10-CM
C62.11	Malignant neoplasm of descended right testis	Diagnosis	ICD-10-CM
C62.12	Malignant neoplasm of descended left testis	Diagnosis	ICD-10-CM
C62.90	Malignant neoplasm of unspecified testis, unspecified whether descended or	Diagnosis	ICD-10-CM
C62.91	Malignant neoplasm of right testis, unspecified whether descended or undescended	Diagnosis	ICD-10-CM
C62.92	Malignant neoplasm of left testis, unspecified whether descended or undescended	Diagnosis	ICD-10-CM
C63.00	Malignant neoplasm of unspecified epididymis	Diagnosis	ICD-10-CM
C63.01	Malignant neoplasm of right epididymis	Diagnosis	ICD-10-CM
C63.02	Malignant neoplasm of left epididymis	Diagnosis	ICD-10-CM
C63.10	Malignant neoplasm of unspecified spermatic cord	Diagnosis	ICD-10-CM
C63.11	Malignant neoplasm of right spermatic cord	Diagnosis	ICD-10-CM
C63.12	Malignant neoplasm of left spermatic cord	Diagnosis	ICD-10-CM
C63.2	Malignant neoplasm of scrotum	Diagnosis	ICD-10-CM
C63.7	Malignant neoplasm of other specified male genital organs	Diagnosis	ICD-10-CM
C63.8	Malignant neoplasm of overlapping sites of male genital organs	Diagnosis	ICD-10-CM
C63.9	Malignant neoplasm of male genital organ, unspecified	Diagnosis	ICD-10-CM
C64.1	Malignant neoplasm of right kidney, except renal pelvis	Diagnosis	ICD-10-CM
C64.2	Malignant neoplasm of left kidney, except renal pelvis	Diagnosis	ICD-10-CM
C64.9	Malignant neoplasm of unspecified kidney, except renal pelvis	Diagnosis	ICD-10-CM
C65.1	Malignant neoplasm of right renal pelvis	Diagnosis	ICD-10-CM
C65.2	Malignant neoplasm of left renal pelvis	Diagnosis	ICD-10-CM
C65.9	Malignant neoplasm of unspecified renal pelvis	Diagnosis	ICD-10-CM
C66.1	Malignant neoplasm of right ureter	Diagnosis	ICD-10-CM
C66.2	Malignant neoplasm of left ureter	Diagnosis	ICD-10-CM
C66.9	Malignant neoplasm of unspecified ureter	Diagnosis	ICD-10-CM
C67.0	Malignant neoplasm of trigone of bladder	Diagnosis	ICD-10-CM
C67.1	Malignant neoplasm of dome of bladder	Diagnosis	ICD-10-CM
C67.2	Malignant neoplasm of lateral wall of bladder	Diagnosis	ICD-10-CM
C67.3	Malignant neoplasm of anterior wall of bladder	Diagnosis	ICD-10-CM
C67.4	Malignant neoplasm of posterior wall of bladder	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
C67.5	Malignant neoplasm of bladder neck	Diagnosis	ICD-10-CM
C67.6	Malignant neoplasm of ureteric orifice	Diagnosis	ICD-10-CM
C67.7	Malignant neoplasm of urachus	Diagnosis	ICD-10-CM
C67.8	Malignant neoplasm of overlapping sites of bladder	Diagnosis	ICD-10-CM
C67.9	Malignant neoplasm of bladder, unspecified	Diagnosis	ICD-10-CM
C68.0	Malignant neoplasm of urethra	Diagnosis	ICD-10-CM
C68.1	Malignant neoplasm of paraurethral glands	Diagnosis	ICD-10-CM
C68.8	Malignant neoplasm of overlapping sites of urinary organs	Diagnosis	ICD-10-CM
C68.9	Malignant neoplasm of urinary organ, unspecified	Diagnosis	ICD-10-CM
C69.00	Malignant neoplasm of unspecified conjunctiva	Diagnosis	ICD-10-CM
C69.01	Malignant neoplasm of right conjunctiva	Diagnosis	ICD-10-CM
C69.02	Malignant neoplasm of left conjunctiva	Diagnosis	ICD-10-CM
C69.10	Malignant neoplasm of unspecified cornea	Diagnosis	ICD-10-CM
C69.11	Malignant neoplasm of right cornea	Diagnosis	ICD-10-CM
C69.12	Malignant neoplasm of left cornea	Diagnosis	ICD-10-CM
C69.20	Malignant neoplasm of unspecified retina	Diagnosis	ICD-10-CM
C69.21	Malignant neoplasm of right retina	Diagnosis	ICD-10-CM
C69.22	Malignant neoplasm of left retina	Diagnosis	ICD-10-CM
C69.30	Malignant neoplasm of unspecified choroid	Diagnosis	ICD-10-CM
C69.31	Malignant neoplasm of right choroid	Diagnosis	ICD-10-CM
C69.32	Malignant neoplasm of left choroid	Diagnosis	ICD-10-CM
C69.40	Malignant neoplasm of unspecified ciliary body	Diagnosis	ICD-10-CM
C69.41	Malignant neoplasm of right ciliary body	Diagnosis	ICD-10-CM
C69.42	Malignant neoplasm of left ciliary body	Diagnosis	ICD-10-CM
C69.50	Malignant neoplasm of unspecified lacrimal gland and duct	Diagnosis	ICD-10-CM
C69.51	Malignant neoplasm of right lacrimal gland and duct	Diagnosis	ICD-10-CM
C69.52	Malignant neoplasm of left lacrimal gland and duct	Diagnosis	ICD-10-CM
C69.60	Malignant neoplasm of unspecified orbit	Diagnosis	ICD-10-CM
C69.61	Malignant neoplasm of right orbit	Diagnosis	ICD-10-CM
C69.62	Malignant neoplasm of left orbit	Diagnosis	ICD-10-CM
C69.80	Malignant neoplasm of overlapping sites of unspecified eye and adnexa	Diagnosis	ICD-10-CM
C69.81	Malignant neoplasm of overlapping sites of right eye and adnexa	Diagnosis	ICD-10-CM
C69.82	Malignant neoplasm of overlapping sites of left eye and adnexa	Diagnosis	ICD-10-CM
C69.90	Malignant neoplasm of unspecified site of unspecified eye	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
C69.91	Malignant neoplasm of unspecified site of right eye	Diagnosis	ICD-10-CM
C69.92	Malignant neoplasm of unspecified site of left eye	Diagnosis	ICD-10-CM
C70.0	Malignant neoplasm of cerebral meninges	Diagnosis	ICD-10-CM
C70.1	Malignant neoplasm of spinal meninges	Diagnosis	ICD-10-CM
C70.9	Malignant neoplasm of meninges, unspecified	Diagnosis	ICD-10-CM
C71.0	Malignant neoplasm of cerebrum, except lobes and ventricles	Diagnosis	ICD-10-CM
C71.1	Malignant neoplasm of frontal lobe	Diagnosis	ICD-10-CM
C71.2	Malignant neoplasm of temporal lobe	Diagnosis	ICD-10-CM
C71.3	Malignant neoplasm of parietal lobe	Diagnosis	ICD-10-CM
C71.4	Malignant neoplasm of occipital lobe	Diagnosis	ICD-10-CM
C71.5	Malignant neoplasm of cerebral ventricle	Diagnosis	ICD-10-CM
C71.6	Malignant neoplasm of cerebellum	Diagnosis	ICD-10-CM
C71.7	Malignant neoplasm of brain stem	Diagnosis	ICD-10-CM
C71.8	Malignant neoplasm of overlapping sites of brain	Diagnosis	ICD-10-CM
C71.9	Malignant neoplasm of brain, unspecified	Diagnosis	ICD-10-CM
C72.0	Malignant neoplasm of spinal cord	Diagnosis	ICD-10-CM
C72.1	Malignant neoplasm of cauda equina	Diagnosis	ICD-10-CM
C72.20	Malignant neoplasm of unspecified olfactory nerve	Diagnosis	ICD-10-CM
C72.21	Malignant neoplasm of right olfactory nerve	Diagnosis	ICD-10-CM
C72.22	Malignant neoplasm of left olfactory nerve	Diagnosis	ICD-10-CM
C72.30	Malignant neoplasm of unspecified optic nerve	Diagnosis	ICD-10-CM
C72.31	Malignant neoplasm of right optic nerve	Diagnosis	ICD-10-CM
C72.32	Malignant neoplasm of left optic nerve	Diagnosis	ICD-10-CM
C72.40	Malignant neoplasm of unspecified acoustic nerve	Diagnosis	ICD-10-CM
C72.41	Malignant neoplasm of right acoustic nerve	Diagnosis	ICD-10-CM
C72.42	Malignant neoplasm of left acoustic nerve	Diagnosis	ICD-10-CM
C72.50	Malignant neoplasm of unspecified cranial nerve	Diagnosis	ICD-10-CM
C72.59	Malignant neoplasm of other cranial nerves	Diagnosis	ICD-10-CM
C72.9	Malignant neoplasm of central nervous system, unspecified	Diagnosis	ICD-10-CM
C73	Malignant neoplasm of thyroid gland	Diagnosis	ICD-10-CM
C74.00	Malignant neoplasm of cortex of unspecified adrenal gland	Diagnosis	ICD-10-CM
C74.01	Malignant neoplasm of cortex of right adrenal gland	Diagnosis	ICD-10-CM
C74.02	Malignant neoplasm of cortex of left adrenal gland	Diagnosis	ICD-10-CM
C74.10	Malignant neoplasm of medulla of unspecified adrenal gland	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
C74.11	Malignant neoplasm of medulla of right adrenal gland	Diagnosis	ICD-10-CM
C74.12	Malignant neoplasm of medulla of left adrenal gland	Diagnosis	ICD-10-CM
C74.90	Malignant neoplasm of unspecified part of unspecified adrenal gland	Diagnosis	ICD-10-CM
C74.91	Malignant neoplasm of unspecified part of right adrenal gland	Diagnosis	ICD-10-CM
C74.92	Malignant neoplasm of unspecified part of left adrenal gland	Diagnosis	ICD-10-CM
C75.0	Malignant neoplasm of parathyroid gland	Diagnosis	ICD-10-CM
C75.1	Malignant neoplasm of pituitary gland	Diagnosis	ICD-10-CM
C75.2	Malignant neoplasm of craniopharyngeal duct	Diagnosis	ICD-10-CM
C75.3	Malignant neoplasm of pineal gland	Diagnosis	ICD-10-CM
C75.4	Malignant neoplasm of carotid body	Diagnosis	ICD-10-CM
C75.5	Malignant neoplasm of aortic body and other paraganglia	Diagnosis	ICD-10-CM
C75.8	Malignant neoplasm with pluriglandular involvement, unspecified	Diagnosis	ICD-10-CM
C75.9	Malignant neoplasm of endocrine gland, unspecified	Diagnosis	ICD-10-CM
C76.0	Malignant neoplasm of head, face and neck	Diagnosis	ICD-10-CM
C76.1	Malignant neoplasm of thorax	Diagnosis	ICD-10-CM
C76.2	Malignant neoplasm of abdomen	Diagnosis	ICD-10-CM
C76.3	Malignant neoplasm of pelvis	Diagnosis	ICD-10-CM
C76.40	Malignant neoplasm of unspecified upper limb	Diagnosis	ICD-10-CM
C76.41	Malignant neoplasm of right upper limb	Diagnosis	ICD-10-CM
C76.42	Malignant neoplasm of left upper limb	Diagnosis	ICD-10-CM
C76.50	Malignant neoplasm of unspecified lower limb	Diagnosis	ICD-10-CM
C76.51	Malignant neoplasm of right lower limb	Diagnosis	ICD-10-CM
C76.52	Malignant neoplasm of left lower limb	Diagnosis	ICD-10-CM
C76.8	Malignant neoplasm of other specified ill-defined sites	Diagnosis	ICD-10-CM
C77.0	Secondary and unspecified malignant neoplasm of lymph nodes of head, face and neck	Diagnosis	ICD-10-CM
C77.1	Secondary and unspecified malignant neoplasm of intrathoracic lymph nodes	Diagnosis	ICD-10-CM
C77.2	Secondary and unspecified malignant neoplasm of intra-abdominal lymph nodes	Diagnosis	ICD-10-CM
C77.3	Secondary and unspecified malignant neoplasm of axilla and upper limb lymph nodes	Diagnosis	ICD-10-CM
C77.4	Secondary and unspecified malignant neoplasm of inguinal and lower limb lymph	Diagnosis	ICD-10-CM
C77.5	Secondary and unspecified malignant neoplasm of intrapelvic lymph nodes	Diagnosis	ICD-10-CM
C77.8	Secondary and unspecified malignant neoplasm of lymph nodes of multiple regions	Diagnosis	ICD-10-CM
C77.9	Secondary and unspecified malignant neoplasm of lymph node, unspecified	Diagnosis	ICD-10-CM
C78.00	Secondary malignant neoplasm of unspecified lung	Diagnosis	ICD-10-CM
C78.01	Secondary malignant neoplasm of right lung	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
C78.02	Secondary malignant neoplasm of left lung	Diagnosis	ICD-10-CM
C78.1	Secondary malignant neoplasm of mediastinum	Diagnosis	ICD-10-CM
C78.2	Secondary malignant neoplasm of pleura	Diagnosis	ICD-10-CM
C78.30	Secondary malignant neoplasm of unspecified respiratory organ	Diagnosis	ICD-10-CM
C78.39	Secondary malignant neoplasm of other respiratory organs	Diagnosis	ICD-10-CM
C78.4	Secondary malignant neoplasm of small intestine	Diagnosis	ICD-10-CM
C78.5	Secondary malignant neoplasm of large intestine and rectum	Diagnosis	ICD-10-CM
C78.6	Secondary malignant neoplasm of retroperitoneum and peritoneum	Diagnosis	ICD-10-CM
C78.7	Secondary malignant neoplasm of liver and intrahepatic bile duct	Diagnosis	ICD-10-CM
C78.80	Secondary malignant neoplasm of unspecified digestive organ	Diagnosis	ICD-10-CM
C78.89	Secondary malignant neoplasm of other digestive organs	Diagnosis	ICD-10-CM
C79.00	Secondary malignant neoplasm of unspecified kidney and renal pelvis	Diagnosis	ICD-10-CM
C79.01	Secondary malignant neoplasm of right kidney and renal pelvis	Diagnosis	ICD-10-CM
C79.02	Secondary malignant neoplasm of left kidney and renal pelvis	Diagnosis	ICD-10-CM
C79.10	Secondary malignant neoplasm of unspecified urinary organs	Diagnosis	ICD-10-CM
C79.11	Secondary malignant neoplasm of bladder	Diagnosis	ICD-10-CM
C79.19	Secondary malignant neoplasm of other urinary organs	Diagnosis	ICD-10-CM
C79.2	Secondary malignant neoplasm of skin	Diagnosis	ICD-10-CM
C79.31	Secondary malignant neoplasm of brain	Diagnosis	ICD-10-CM
C79.32	Secondary malignant neoplasm of cerebral meninges	Diagnosis	ICD-10-CM
C79.40	Secondary malignant neoplasm of unspecified part of nervous system	Diagnosis	ICD-10-CM
C79.49	Secondary malignant neoplasm of other parts of nervous system	Diagnosis	ICD-10-CM
C79.51	Secondary malignant neoplasm of bone	Diagnosis	ICD-10-CM
C79.52	Secondary malignant neoplasm of bone marrow	Diagnosis	ICD-10-CM
C79.60	Secondary malignant neoplasm of unspecified ovary	Diagnosis	ICD-10-CM
C79.61	Secondary malignant neoplasm of right ovary	Diagnosis	ICD-10-CM
C79.62	Secondary malignant neoplasm of left ovary	Diagnosis	ICD-10-CM
C79.70	Secondary malignant neoplasm of unspecified adrenal gland	Diagnosis	ICD-10-CM
C79.71	Secondary malignant neoplasm of right adrenal gland	Diagnosis	ICD-10-CM
C79.72	Secondary malignant neoplasm of left adrenal gland	Diagnosis	ICD-10-CM
C79.81	Secondary malignant neoplasm of breast	Diagnosis	ICD-10-CM
C79.82	Secondary malignant neoplasm of genital organs	Diagnosis	ICD-10-CM
C79.89	Secondary malignant neoplasm of other specified sites	Diagnosis	ICD-10-CM
C79.9	Secondary malignant neoplasm of unspecified site	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
C80.0	Disseminated malignant neoplasm, unspecified	Diagnosis	ICD-10-CM
C80.1	Malignant (primary) neoplasm, unspecified	Diagnosis	ICD-10-CM
C80.2	Malignant neoplasm associated with transplanted organ	Diagnosis	ICD-10-CM
C81.00	Nodular lymphocyte predominant Hodgkin lymphoma, unspecified site	Diagnosis	ICD-10-CM
C81.01	Nodular lymphocyte predominant Hodgkin lymphoma, lymph nodes of head, face, and	Diagnosis	ICD-10-CM
C81.02	Nodular lymphocyte predominant Hodgkin lymphoma, intrathoracic lymph nodes	Diagnosis	ICD-10-CM
C81.03	Nodular lymphocyte predominant Hodgkin lymphoma, intra-abdominal lymph nodes	Diagnosis	ICD-10-CM
C81.04	Nodular lymphocyte predominant Hodgkin lymphoma, lymph nodes of axilla and	Diagnosis	ICD-10-CM
C81.05	Nodular lymphocyte predominant Hodgkin lymphoma, lymph nodes of inguinal region and lower limb	Diagnosis	ICD-10-CM
C81.06	Nodular lymphocyte predominant Hodgkin lymphoma, intrapelvic lymph nodes	Diagnosis	ICD-10-CM
C81.07	Nodular lymphocyte predominant Hodgkin lymphoma, spleen	Diagnosis	ICD-10-CM
C81.08	Nodular lymphocyte predominant Hodgkin lymphoma, lymph nodes of multiple sites	Diagnosis	ICD-10-CM
C81.09	Nodular lymphocyte predominant Hodgkin lymphoma, extranodal and solid organ	Diagnosis	ICD-10-CM
C81.10	Nodular sclerosis Hodgkin lymphoma, unspecified site	Diagnosis	ICD-10-CM
C81.11	Nodular sclerosis Hodgkin lymphoma, lymph nodes of head, face, and neck	Diagnosis	ICD-10-CM
C81.12	Nodular sclerosis Hodgkin lymphoma, intrathoracic lymph nodes	Diagnosis	ICD-10-CM
C81.13	Nodular sclerosis Hodgkin lymphoma, intra-abdominal lymph nodes	Diagnosis	ICD-10-CM
C81.14	Nodular sclerosis Hodgkin lymphoma, lymph nodes of axilla and upper limb	Diagnosis	ICD-10-CM
C81.15	Nodular sclerosis Hodgkin lymphoma, lymph nodes of inguinal region and lower limb	Diagnosis	ICD-10-CM
C81.16	Nodular sclerosis Hodgkin lymphoma, intrapelvic lymph nodes	Diagnosis	ICD-10-CM
C81.17	Nodular sclerosis Hodgkin lymphoma, spleen	Diagnosis	ICD-10-CM
C81.18	Nodular sclerosis Hodgkin lymphoma, lymph nodes of multiple sites	Diagnosis	ICD-10-CM
C81.19	Nodular sclerosis Hodgkin lymphoma, extranodal and solid organ sites	Diagnosis	ICD-10-CM
C81.20	Mixed cellularity Hodgkin lymphoma, unspecified site	Diagnosis	ICD-10-CM
C81.21	Mixed cellularity Hodgkin lymphoma, lymph nodes of head, face, and neck	Diagnosis	ICD-10-CM
C81.22	Mixed cellularity Hodgkin lymphoma, intrathoracic lymph nodes	Diagnosis	ICD-10-CM
C81.23	Mixed cellularity Hodgkin lymphoma, intra-abdominal lymph nodes	Diagnosis	ICD-10-CM
C81.24	Mixed cellularity Hodgkin lymphoma, lymph nodes of axilla and upper limb	Diagnosis	ICD-10-CM
C81.25	Mixed cellularity Hodgkin lymphoma, lymph nodes of inguinal region and lower limb	Diagnosis	ICD-10-CM
C81.26	Mixed cellularity Hodgkin lymphoma, intrapelvic lymph nodes	Diagnosis	ICD-10-CM
C81.27	Mixed cellularity Hodgkin lymphoma, spleen	Diagnosis	ICD-10-CM
C81.28	Mixed cellularity Hodgkin lymphoma, lymph nodes of multiple sites	Diagnosis	ICD-10-CM
C81.29	Mixed cellularity Hodgkin lymphoma, extranodal and solid organ sites	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
C81.30	Lymphocyte depleted Hodgkin lymphoma, unspecified site	Diagnosis	ICD-10-CM
C81.31	Lymphocyte depleted Hodgkin lymphoma, lymph nodes of head, face, and neck	Diagnosis	ICD-10-CM
C81.32	Lymphocyte depleted Hodgkin lymphoma, intrathoracic lymph nodes	Diagnosis	ICD-10-CM
C81.33	Lymphocyte depleted Hodgkin lymphoma, intra-abdominal lymph nodes	Diagnosis	ICD-10-CM
C81.34	Lymphocyte depleted Hodgkin lymphoma, lymph nodes of axilla and upper limb	Diagnosis	ICD-10-CM
C81.35	Lymphocyte depleted Hodgkin lymphoma, lymph nodes of inguinal region and lower	Diagnosis	ICD-10-CM
C81.36	Lymphocyte depleted Hodgkin lymphoma, intrapelvic lymph nodes	Diagnosis	ICD-10-CM
C81.37	Lymphocyte depleted Hodgkin lymphoma, spleen	Diagnosis	ICD-10-CM
C81.38	Lymphocyte depleted Hodgkin lymphoma, lymph nodes of multiple sites	Diagnosis	ICD-10-CM
C81.39	Lymphocyte depleted Hodgkin lymphoma, extranodal and solid organ sites	Diagnosis	ICD-10-CM
C81.40	Lymphocyte-rich Hodgkin lymphoma, unspecified site	Diagnosis	ICD-10-CM
C81.41	Lymphocyte-rich Hodgkin lymphoma, lymph nodes of head, face, and neck	Diagnosis	ICD-10-CM
C81.42	Lymphocyte-rich Hodgkin lymphoma, intrathoracic lymph nodes	Diagnosis	ICD-10-CM
C81.43	Lymphocyte-rich Hodgkin lymphoma, intra-abdominal lymph nodes	Diagnosis	ICD-10-CM
C81.44	Lymphocyte-rich Hodgkin lymphoma, lymph nodes of axilla and upper limb	Diagnosis	ICD-10-CM
C81.45	Lymphocyte-rich Hodgkin lymphoma, lymph nodes of inguinal region and lower limb	Diagnosis	ICD-10-CM
C81.46	Lymphocyte-rich Hodgkin lymphoma, intrapelvic lymph nodes	Diagnosis	ICD-10-CM
C81.47	Lymphocyte-rich Hodgkin lymphoma, spleen	Diagnosis	ICD-10-CM
C81.48	Lymphocyte-rich Hodgkin lymphoma, lymph nodes of multiple sites	Diagnosis	ICD-10-CM
C81.49	Lymphocyte-rich Hodgkin lymphoma, extranodal and solid organ sites	Diagnosis	ICD-10-CM
C81.70	Other Hodgkin lymphoma, unspecified site	Diagnosis	ICD-10-CM
C81.71	Other Hodgkin lymphoma, lymph nodes of head, face, and neck	Diagnosis	ICD-10-CM
C81.72	Other Hodgkin lymphoma, intrathoracic lymph nodes	Diagnosis	ICD-10-CM
C81.73	Other Hodgkin lymphoma, intra-abdominal lymph nodes	Diagnosis	ICD-10-CM
C81.74	Other Hodgkin lymphoma, lymph nodes of axilla and upper limb	Diagnosis	ICD-10-CM
C81.75	Other Hodgkin lymphoma, lymph nodes of inguinal region and lower limb	Diagnosis	ICD-10-CM
C81.76	Other Hodgkin lymphoma, intrapelvic lymph nodes	Diagnosis	ICD-10-CM
C81.77	Other Hodgkin lymphoma, spleen	Diagnosis	ICD-10-CM
C81.78	Other Hodgkin lymphoma, lymph nodes of multiple sites	Diagnosis	ICD-10-CM
C81.79	Other Hodgkin lymphoma, extranodal and solid organ sites	Diagnosis	ICD-10-CM
C81.90	Hodgkin lymphoma, unspecified, unspecified site	Diagnosis	ICD-10-CM
C81.91	Hodgkin lymphoma, unspecified, lymph nodes of head, face, and neck	Diagnosis	ICD-10-CM
C81.92	Hodgkin lymphoma, unspecified, intrathoracic lymph nodes	Diagnosis	ICD-10-CM
C81.93	Hodgkin lymphoma, unspecified, intra-abdominal lymph nodes	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
C81.94	Hodgkin lymphoma, unspecified, lymph nodes of axilla and upper limb	Diagnosis	ICD-10-CM
C81.95	Hodgkin lymphoma, unspecified, lymph nodes of inguinal region and lower limb	Diagnosis	ICD-10-CM
C81.96	Hodgkin lymphoma, unspecified, intrapelvic lymph nodes	Diagnosis	ICD-10-CM
C81.97	Hodgkin lymphoma, unspecified, spleen	Diagnosis	ICD-10-CM
C81.98	Hodgkin lymphoma, unspecified, lymph nodes of multiple sites	Diagnosis	ICD-10-CM
C81.99	Hodgkin lymphoma, unspecified, extranodal and solid organ sites	Diagnosis	ICD-10-CM
C82.00	Follicular lymphoma grade I, unspecified site	Diagnosis	ICD-10-CM
C82.01	Follicular lymphoma grade I, lymph nodes of head, face, and neck	Diagnosis	ICD-10-CM
C82.02	Follicular lymphoma grade I, intrathoracic lymph nodes	Diagnosis	ICD-10-CM
C82.03	Follicular lymphoma grade I, intra-abdominal lymph nodes	Diagnosis	ICD-10-CM
C82.04	Follicular lymphoma grade I, lymph nodes of axilla and upper limb	Diagnosis	ICD-10-CM
C82.05	Follicular lymphoma grade I, lymph nodes of inguinal region and lower limb	Diagnosis	ICD-10-CM
C82.06	Follicular lymphoma grade I, intrapelvic lymph nodes	Diagnosis	ICD-10-CM
C82.07	Follicular lymphoma grade I, spleen	Diagnosis	ICD-10-CM
C82.08	Follicular lymphoma grade I, lymph nodes of multiple sites	Diagnosis	ICD-10-CM
C82.09	Follicular lymphoma grade I, extranodal and solid organ sites	Diagnosis	ICD-10-CM
C82.10	Follicular lymphoma grade II, unspecified site	Diagnosis	ICD-10-CM
C82.11	Follicular lymphoma grade II, lymph nodes of head, face, and neck	Diagnosis	ICD-10-CM
C82.12	Follicular lymphoma grade II, intrathoracic lymph nodes	Diagnosis	ICD-10-CM
C82.13	Follicular lymphoma grade II, intra-abdominal lymph nodes	Diagnosis	ICD-10-CM
C82.14	Follicular lymphoma grade II, lymph nodes of axilla and upper limb	Diagnosis	ICD-10-CM
C82.15	Follicular lymphoma grade II, lymph nodes of inguinal region and lower limb	Diagnosis	ICD-10-CM
C82.16	Follicular lymphoma grade II, intrapelvic lymph nodes	Diagnosis	ICD-10-CM
C82.17	Follicular lymphoma grade II, spleen	Diagnosis	ICD-10-CM
C82.18	Follicular lymphoma grade II, lymph nodes of multiple sites	Diagnosis	ICD-10-CM
C82.19	Follicular lymphoma grade II, extranodal and solid organ sites	Diagnosis	ICD-10-CM
C82.20	Follicular lymphoma grade III, unspecified, unspecified site	Diagnosis	ICD-10-CM
C82.21	Follicular lymphoma grade III, unspecified, lymph nodes of head, face, and neck	Diagnosis	ICD-10-CM
C82.22	Follicular lymphoma grade III, unspecified, intrathoracic lymph nodes	Diagnosis	ICD-10-CM
C82.23	Follicular lymphoma grade III, unspecified, intra-abdominal lymph nodes	Diagnosis	ICD-10-CM
C82.24	Follicular lymphoma grade III, unspecified, lymph nodes of axilla and upper limb	Diagnosis	ICD-10-CM
C82.25	Follicular lymphoma grade III, unspecified, lymph nodes of inguinal region and lower	Diagnosis	ICD-10-CM
C82.26	Follicular lymphoma grade III, unspecified, intrapelvic lymph nodes	Diagnosis	ICD-10-CM
C82.27	Follicular lymphoma grade III, unspecified, spleen	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
C82.28	Follicular lymphoma grade III, unspecified, lymph nodes of multiple sites	Diagnosis	ICD-10-CM
C82.29	Follicular lymphoma grade III, unspecified, extranodal and solid organ sites	Diagnosis	ICD-10-CM
C82.30	Follicular lymphoma grade IIIa, unspecified site	Diagnosis	ICD-10-CM
C82.31	Follicular lymphoma grade IIIa, lymph nodes of head, face, and neck	Diagnosis	ICD-10-CM
C82.32	Follicular lymphoma grade IIIa, intrathoracic lymph nodes	Diagnosis	ICD-10-CM
C82.33	Follicular lymphoma grade IIIa, intra-abdominal lymph nodes	Diagnosis	ICD-10-CM
C82.34	Follicular lymphoma grade IIIa, lymph nodes of axilla and upper limb	Diagnosis	ICD-10-CM
C82.35	Follicular lymphoma grade IIIa, lymph nodes of inguinal region and lower limb	Diagnosis	ICD-10-CM
C82.36	Follicular lymphoma grade IIIa, intrapelvic lymph nodes	Diagnosis	ICD-10-CM
C82.37	Follicular lymphoma grade IIIa, spleen	Diagnosis	ICD-10-CM
C82.38	Follicular lymphoma grade IIIa, lymph nodes of multiple sites	Diagnosis	ICD-10-CM
C82.39	Follicular lymphoma grade IIIa, extranodal and solid organ sites	Diagnosis	ICD-10-CM
C82.40	Follicular lymphoma grade IIIb, unspecified site	Diagnosis	ICD-10-CM
C82.41	Follicular lymphoma grade IIIb, lymph nodes of head, face, and neck	Diagnosis	ICD-10-CM
C82.42	Follicular lymphoma grade IIIb, intrathoracic lymph nodes	Diagnosis	ICD-10-CM
C82.43	Follicular lymphoma grade IIIb, intra-abdominal lymph nodes	Diagnosis	ICD-10-CM
C82.44	Follicular lymphoma grade IIIb, lymph nodes of axilla and upper limb	Diagnosis	ICD-10-CM
C82.45	Follicular lymphoma grade IIIb, lymph nodes of inguinal region and lower limb	Diagnosis	ICD-10-CM
C82.46	Follicular lymphoma grade IIIb, intrapelvic lymph nodes	Diagnosis	ICD-10-CM
C82.47	Follicular lymphoma grade IIIb, spleen	Diagnosis	ICD-10-CM
C82.48	Follicular lymphoma grade IIIb, lymph nodes of multiple sites	Diagnosis	ICD-10-CM
C82.49	Follicular lymphoma grade IIIb, extranodal and solid organ sites	Diagnosis	ICD-10-CM
C82.50	Diffuse follicle center lymphoma, unspecified site	Diagnosis	ICD-10-CM
C82.51	Diffuse follicle center lymphoma, lymph nodes of head, face, and neck	Diagnosis	ICD-10-CM
C82.52	Diffuse follicle center lymphoma, intrathoracic lymph nodes	Diagnosis	ICD-10-CM
C82.53	Diffuse follicle center lymphoma, intra-abdominal lymph nodes	Diagnosis	ICD-10-CM
C82.54	Diffuse follicle center lymphoma, lymph nodes of axilla and upper limb	Diagnosis	ICD-10-CM
C82.55	Diffuse follicle center lymphoma, lymph nodes of inguinal region and lower limb	Diagnosis	ICD-10-CM
C82.56	Diffuse follicle center lymphoma, intrapelvic lymph nodes	Diagnosis	ICD-10-CM
C82.57	Diffuse follicle center lymphoma, spleen	Diagnosis	ICD-10-CM
C82.58	Diffuse follicle center lymphoma, lymph nodes of multiple sites	Diagnosis	ICD-10-CM
C82.59	Diffuse follicle center lymphoma, extranodal and solid organ sites	Diagnosis	ICD-10-CM
C82.60	Cutaneous follicle center lymphoma, unspecified site	Diagnosis	ICD-10-CM
C82.61	Cutaneous follicle center lymphoma, lymph nodes of head, face, and neck	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
C82.62	Cutaneous follicle center lymphoma, intrathoracic lymph nodes	Diagnosis	ICD-10-CM
C82.63	Cutaneous follicle center lymphoma, intra-abdominal lymph nodes	Diagnosis	ICD-10-CM
C82.64	Cutaneous follicle center lymphoma, lymph nodes of axilla and upper limb	Diagnosis	ICD-10-CM
C82.65	Cutaneous follicle center lymphoma, lymph nodes of inguinal region and lower limb	Diagnosis	ICD-10-CM
C82.66	Cutaneous follicle center lymphoma, intrapelvic lymph nodes	Diagnosis	ICD-10-CM
C82.67	Cutaneous follicle center lymphoma, spleen	Diagnosis	ICD-10-CM
C82.68	Cutaneous follicle center lymphoma, lymph nodes of multiple sites	Diagnosis	ICD-10-CM
C82.69	Cutaneous follicle center lymphoma, extranodal and solid organ sites	Diagnosis	ICD-10-CM
C82.80	Other types of follicular lymphoma, unspecified site	Diagnosis	ICD-10-CM
C82.81	Other types of follicular lymphoma, lymph nodes of head, face, and neck	Diagnosis	ICD-10-CM
C82.82	Other types of follicular lymphoma, intrathoracic lymph nodes	Diagnosis	ICD-10-CM
C82.83	Other types of follicular lymphoma, intra-abdominal lymph nodes	Diagnosis	ICD-10-CM
C82.84	Other types of follicular lymphoma, lymph nodes of axilla and upper limb	Diagnosis	ICD-10-CM
C82.85	Other types of follicular lymphoma, lymph nodes of inguinal region and lower limb	Diagnosis	ICD-10-CM
C82.86	Other types of follicular lymphoma, intrapelvic lymph nodes	Diagnosis	ICD-10-CM
C82.87	Other types of follicular lymphoma, spleen	Diagnosis	ICD-10-CM
C82.88	Other types of follicular lymphoma, lymph nodes of multiple sites	Diagnosis	ICD-10-CM
C82.89	Other types of follicular lymphoma, extranodal and solid organ sites	Diagnosis	ICD-10-CM
C82.90	Follicular lymphoma, unspecified, unspecified site	Diagnosis	ICD-10-CM
C82.91	Follicular lymphoma, unspecified, lymph nodes of head, face, and neck	Diagnosis	ICD-10-CM
C82.92	Follicular lymphoma, unspecified, intrathoracic lymph nodes	Diagnosis	ICD-10-CM
C82.93	Follicular lymphoma, unspecified, intra-abdominal lymph nodes	Diagnosis	ICD-10-CM
C82.94	Follicular lymphoma, unspecified, lymph nodes of axilla and upper limb	Diagnosis	ICD-10-CM
C82.95	Follicular lymphoma, unspecified, lymph nodes of inguinal region and lower limb	Diagnosis	ICD-10-CM
C82.96	Follicular lymphoma, unspecified, intrapelvic lymph nodes	Diagnosis	ICD-10-CM
C82.97	Follicular lymphoma, unspecified, spleen	Diagnosis	ICD-10-CM
C82.98	Follicular lymphoma, unspecified, lymph nodes of multiple sites	Diagnosis	ICD-10-CM
C82.99	Follicular lymphoma, unspecified, extranodal and solid organ sites	Diagnosis	ICD-10-CM
C83.00	Small cell B-cell lymphoma, unspecified site	Diagnosis	ICD-10-CM
C83.01	Small cell B-cell lymphoma, lymph nodes of head, face, and neck	Diagnosis	ICD-10-CM
C83.02	Small cell B-cell lymphoma, intrathoracic lymph nodes	Diagnosis	ICD-10-CM
C83.03	Small cell B-cell lymphoma, intra-abdominal lymph nodes	Diagnosis	ICD-10-CM
C83.04	Small cell B-cell lymphoma, lymph nodes of axilla and upper limb	Diagnosis	ICD-10-CM
C83.05	Small cell B-cell lymphoma, lymph nodes of inguinal region and lower limb	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
C83.06	Small cell B-cell lymphoma, intrapelvic lymph nodes	Diagnosis	ICD-10-CM
C83.07	Small cell B-cell lymphoma, spleen	Diagnosis	ICD-10-CM
C83.08	Small cell B-cell lymphoma, lymph nodes of multiple sites	Diagnosis	ICD-10-CM
C83.09	Small cell B-cell lymphoma, extranodal and solid organ sites	Diagnosis	ICD-10-CM
C83.10	Mantle cell lymphoma, unspecified site	Diagnosis	ICD-10-CM
C83.11	Mantle cell lymphoma, lymph nodes of head, face, and neck	Diagnosis	ICD-10-CM
C83.12	Mantle cell lymphoma, intrathoracic lymph nodes	Diagnosis	ICD-10-CM
C83.13	Mantle cell lymphoma, intra-abdominal lymph nodes	Diagnosis	ICD-10-CM
C83.14	Mantle cell lymphoma, lymph nodes of axilla and upper limb	Diagnosis	ICD-10-CM
C83.15	Mantle cell lymphoma, lymph nodes of inguinal region and lower limb	Diagnosis	ICD-10-CM
C83.16	Mantle cell lymphoma, intrapelvic lymph nodes	Diagnosis	ICD-10-CM
C83.17	Mantle cell lymphoma, spleen	Diagnosis	ICD-10-CM
C83.18	Mantle cell lymphoma, lymph nodes of multiple sites	Diagnosis	ICD-10-CM
C83.19	Mantle cell lymphoma, extranodal and solid organ sites	Diagnosis	ICD-10-CM
C83.30	Diffuse large B-cell lymphoma, unspecified site	Diagnosis	ICD-10-CM
C83.31	Diffuse large B-cell lymphoma, lymph nodes of head, face, and neck	Diagnosis	ICD-10-CM
C83.32	Diffuse large B-cell lymphoma, intrathoracic lymph nodes	Diagnosis	ICD-10-CM
C83.33	Diffuse large B-cell lymphoma, intra-abdominal lymph nodes	Diagnosis	ICD-10-CM
C83.34	Diffuse large B-cell lymphoma, lymph nodes of axilla and upper limb	Diagnosis	ICD-10-CM
C83.35	Diffuse large B-cell lymphoma, lymph nodes of inguinal region and lower limb	Diagnosis	ICD-10-CM
C83.36	Diffuse large B-cell lymphoma, intrapelvic lymph nodes	Diagnosis	ICD-10-CM
C83.37	Diffuse large B-cell lymphoma, spleen	Diagnosis	ICD-10-CM
C83.38	Diffuse large B-cell lymphoma, lymph nodes of multiple sites	Diagnosis	ICD-10-CM
C83.39	Diffuse large B-cell lymphoma, extranodal and solid organ sites	Diagnosis	ICD-10-CM
C83.50	Lymphoblastic (diffuse) lymphoma, unspecified site	Diagnosis	ICD-10-CM
C83.51	Lymphoblastic (diffuse) lymphoma, lymph nodes of head, face, and neck	Diagnosis	ICD-10-CM
C83.52	Lymphoblastic (diffuse) lymphoma, intrathoracic lymph nodes	Diagnosis	ICD-10-CM
C83.53	Lymphoblastic (diffuse) lymphoma, intra-abdominal lymph nodes	Diagnosis	ICD-10-CM
C83.54	Lymphoblastic (diffuse) lymphoma, lymph nodes of axilla and upper limb	Diagnosis	ICD-10-CM
C83.55	Lymphoblastic (diffuse) lymphoma, lymph nodes of inguinal region and lower limb	Diagnosis	ICD-10-CM
C83.56	Lymphoblastic (diffuse) lymphoma, intrapelvic lymph nodes	Diagnosis	ICD-10-CM
C83.57	Lymphoblastic (diffuse) lymphoma, spleen	Diagnosis	ICD-10-CM
C83.58	Lymphoblastic (diffuse) lymphoma, lymph nodes of multiple sites	Diagnosis	ICD-10-CM
C83.59	Lymphoblastic (diffuse) lymphoma, extranodal and solid organ sites	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
C83.70	Burkitt lymphoma, unspecified site	Diagnosis	ICD-10-CM
C83.71	Burkitt lymphoma, lymph nodes of head, face, and neck	Diagnosis	ICD-10-CM
C83.72	Burkitt lymphoma, intrathoracic lymph nodes	Diagnosis	ICD-10-CM
C83.73	Burkitt lymphoma, intra-abdominal lymph nodes	Diagnosis	ICD-10-CM
C83.74	Burkitt lymphoma, lymph nodes of axilla and upper limb	Diagnosis	ICD-10-CM
C83.75	Burkitt lymphoma, lymph nodes of inguinal region and lower limb	Diagnosis	ICD-10-CM
C83.76	Burkitt lymphoma, intrapelvic lymph nodes	Diagnosis	ICD-10-CM
C83.77	Burkitt lymphoma, spleen	Diagnosis	ICD-10-CM
C83.78	Burkitt lymphoma, lymph nodes of multiple sites	Diagnosis	ICD-10-CM
C83.79	Burkitt lymphoma, extranodal and solid organ sites	Diagnosis	ICD-10-CM
C83.80	Other non-follicular lymphoma, unspecified site	Diagnosis	ICD-10-CM
C83.81	Other non-follicular lymphoma, lymph nodes of head, face, and neck	Diagnosis	ICD-10-CM
C83.82	Other non-follicular lymphoma, intrathoracic lymph nodes	Diagnosis	ICD-10-CM
C83.83	Other non-follicular lymphoma, intra-abdominal lymph nodes	Diagnosis	ICD-10-CM
C83.84	Other non-follicular lymphoma, lymph nodes of axilla and upper limb	Diagnosis	ICD-10-CM
C83.85	Other non-follicular lymphoma, lymph nodes of inguinal region and lower limb	Diagnosis	ICD-10-CM
C83.86	Other non-follicular lymphoma, intrapelvic lymph nodes	Diagnosis	ICD-10-CM
C83.87	Other non-follicular lymphoma, spleen	Diagnosis	ICD-10-CM
C83.88	Other non-follicular lymphoma, lymph nodes of multiple sites	Diagnosis	ICD-10-CM
C83.89	Other non-follicular lymphoma, extranodal and solid organ sites	Diagnosis	ICD-10-CM
C83.90	Non-follicular (diffuse) lymphoma, unspecified, unspecified site	Diagnosis	ICD-10-CM
C83.91	Non-follicular (diffuse) lymphoma, unspecified, lymph nodes of head, face, and neck	Diagnosis	ICD-10-CM
C83.92	Non-follicular (diffuse) lymphoma, unspecified, intrathoracic lymph nodes	Diagnosis	ICD-10-CM
C83.93	Non-follicular (diffuse) lymphoma, unspecified, intra-abdominal lymph nodes	Diagnosis	ICD-10-CM
C83.94	Non-follicular (diffuse) lymphoma, unspecified, lymph nodes of axilla and upper limb	Diagnosis	ICD-10-CM
C83.95	Non-follicular (diffuse) lymphoma, unspecified, lymph nodes of inguinal region and	Diagnosis	ICD-10-CM
C83.96	Non-follicular (diffuse) lymphoma, unspecified, intrapelvic lymph nodes	Diagnosis	ICD-10-CM
C83.97	Non-follicular (diffuse) lymphoma, unspecified, spleen	Diagnosis	ICD-10-CM
C83.98	Non-follicular (diffuse) lymphoma, unspecified, lymph nodes of multiple sites	Diagnosis	ICD-10-CM
C83.99	Non-follicular (diffuse) lymphoma, unspecified, extranodal and solid organ sites	Diagnosis	ICD-10-CM
C84.00	Mycosis fungoides, unspecified site	Diagnosis	ICD-10-CM
C84.01	Mycosis fungoides, lymph nodes of head, face, and neck	Diagnosis	ICD-10-CM
C84.02	Mycosis fungoides, intrathoracic lymph nodes	Diagnosis	ICD-10-CM
C84.03	Mycosis fungoides, intra-abdominal lymph nodes	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
C84.04	Mycosis fungoides, lymph nodes of axilla and upper limb	Diagnosis	ICD-10-CM
C84.05	Mycosis fungoides, lymph nodes of inguinal region and lower limb	Diagnosis	ICD-10-CM
C84.06	Mycosis fungoides, intrapelvic lymph nodes	Diagnosis	ICD-10-CM
C84.07	Mycosis fungoides, spleen	Diagnosis	ICD-10-CM
C84.08	Mycosis fungoides, lymph nodes of multiple sites	Diagnosis	ICD-10-CM
C84.09	Mycosis fungoides, extranodal and solid organ sites	Diagnosis	ICD-10-CM
C84.10	Sezary disease, unspecified site	Diagnosis	ICD-10-CM
C84.11	Sezary disease, lymph nodes of head, face, and neck	Diagnosis	ICD-10-CM
C84.12	Sezary disease, intrathoracic lymph nodes	Diagnosis	ICD-10-CM
C84.13	Sezary disease, intra-abdominal lymph nodes	Diagnosis	ICD-10-CM
C84.14	Sezary disease, lymph nodes of axilla and upper limb	Diagnosis	ICD-10-CM
C84.15	Sezary disease, lymph nodes of inguinal region and lower limb	Diagnosis	ICD-10-CM
C84.16	Sezary disease, intrapelvic lymph nodes	Diagnosis	ICD-10-CM
C84.17	Sezary disease, spleen	Diagnosis	ICD-10-CM
C84.18	Sezary disease, lymph nodes of multiple sites	Diagnosis	ICD-10-CM
C84.19	Sezary disease, extranodal and solid organ sites	Diagnosis	ICD-10-CM
C84.40	Peripheral T-cell lymphoma, not classified, unspecified site	Diagnosis	ICD-10-CM
C84.41	Peripheral T-cell lymphoma, not classified, lymph nodes of head, face, and neck	Diagnosis	ICD-10-CM
C84.42	Peripheral T-cell lymphoma, not classified, intrathoracic lymph nodes	Diagnosis	ICD-10-CM
C84.43	Peripheral T-cell lymphoma, not classified, intra-abdominal lymph nodes	Diagnosis	ICD-10-CM
C84.44	Peripheral T-cell lymphoma, not classified, lymph nodes of axilla and upper limb	Diagnosis	ICD-10-CM
C84.45	Peripheral T-cell lymphoma, not classified, lymph nodes of inguinal region and lower	Diagnosis	ICD-10-CM
C84.46	Peripheral T-cell lymphoma, not classified, intrapelvic lymph nodes	Diagnosis	ICD-10-CM
C84.47	Peripheral T-cell lymphoma, not classified, spleen	Diagnosis	ICD-10-CM
C84.48	Peripheral T-cell lymphoma, not classified, lymph nodes of multiple sites	Diagnosis	ICD-10-CM
C84.49	Peripheral T-cell lymphoma, not classified, extranodal and solid organ sites	Diagnosis	ICD-10-CM
C84.60	Anaplastic large cell lymphoma, ALK-positive, unspecified site	Diagnosis	ICD-10-CM
C84.61	Anaplastic large cell lymphoma, ALK-positive, lymph nodes of head, face, and neck	Diagnosis	ICD-10-CM
C84.62	Anaplastic large cell lymphoma, ALK-positive, intrathoracic lymph nodes	Diagnosis	ICD-10-CM
C84.63	Anaplastic large cell lymphoma, ALK-positive, intra-abdominal lymph nodes	Diagnosis	ICD-10-CM
C84.64	Anaplastic large cell lymphoma, ALK-positive, lymph nodes of axilla and upper limb	Diagnosis	ICD-10-CM
C84.65	Anaplastic large cell lymphoma, ALK-positive, lymph nodes of inguinal region and	Diagnosis	ICD-10-CM
C84.66	Anaplastic large cell lymphoma, ALK-positive, intrapelvic lymph nodes	Diagnosis	ICD-10-CM
C84.67	Anaplastic large cell lymphoma, ALK-positive, spleen	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
C84.68	Anaplastic large cell lymphoma, ALK-positive, lymph nodes of multiple sites	Diagnosis	ICD-10-CM
C84.69	Anaplastic large cell lymphoma, ALK-positive, extranodal and solid organ sites	Diagnosis	ICD-10-CM
C84.70	Anaplastic large cell lymphoma, ALK-negative, unspecified site	Diagnosis	ICD-10-CM
C84.71	Anaplastic large cell lymphoma, ALK-negative, lymph nodes of head, face, and neck	Diagnosis	ICD-10-CM
C84.72	Anaplastic large cell lymphoma, ALK-negative, intrathoracic lymph nodes	Diagnosis	ICD-10-CM
C84.73	Anaplastic large cell lymphoma, ALK-negative, intra-abdominal lymph nodes	Diagnosis	ICD-10-CM
C84.74	Anaplastic large cell lymphoma, ALK-negative, lymph nodes of axilla and upper limb	Diagnosis	ICD-10-CM
C84.75	Anaplastic large cell lymphoma, ALK-negative, lymph nodes of inguinal region and	Diagnosis	ICD-10-CM
C84.76	Anaplastic large cell lymphoma, ALK-negative, intrapelvic lymph nodes	Diagnosis	ICD-10-CM
C84.77	Anaplastic large cell lymphoma, ALK-negative, spleen	Diagnosis	ICD-10-CM
C84.78	Anaplastic large cell lymphoma, ALK-negative, lymph nodes of multiple sites	Diagnosis	ICD-10-CM
C84.79	Anaplastic large cell lymphoma, ALK-negative, extranodal and solid organ sites	Diagnosis	ICD-10-CM
C84.90	Mature T/NK-cell lymphomas, unspecified, unspecified site	Diagnosis	ICD-10-CM
C84.91	Mature T/NK-cell lymphomas, unspecified, lymph nodes of head, face, and neck	Diagnosis	ICD-10-CM
C84.92	Mature T/NK-cell lymphomas, unspecified, intrathoracic lymph nodes	Diagnosis	ICD-10-CM
C84.93	Mature T/NK-cell lymphomas, unspecified, intra-abdominal lymph nodes	Diagnosis	ICD-10-CM
C84.94	Mature T/NK-cell lymphomas, unspecified, lymph nodes of axilla and upper limb	Diagnosis	ICD-10-CM
C84.95	Mature T/NK-cell lymphomas, unspecified, lymph nodes of inguinal region and lower	Diagnosis	ICD-10-CM
C84.96	Mature T/NK-cell lymphomas, unspecified, intrapelvic lymph nodes	Diagnosis	ICD-10-CM
C84.97	Mature T/NK-cell lymphomas, unspecified, spleen	Diagnosis	ICD-10-CM
C84.98	Mature T/NK-cell lymphomas, unspecified, lymph nodes of multiple sites	Diagnosis	ICD-10-CM
C84.99	Mature T/NK-cell lymphomas, unspecified, extranodal and solid organ sites	Diagnosis	ICD-10-CM
C84.A0	Cutaneous T-cell lymphoma, unspecified, unspecified site	Diagnosis	ICD-10-CM
C84.A1	Cutaneous T-cell lymphoma, unspecified lymph nodes of head, face, and neck	Diagnosis	ICD-10-CM
C84.A2	Cutaneous T-cell lymphoma, unspecified, intrathoracic lymph nodes	Diagnosis	ICD-10-CM
C84.A3	Cutaneous T-cell lymphoma, unspecified, intra-abdominal lymph nodes	Diagnosis	ICD-10-CM
C84.A4	Cutaneous T-cell lymphoma, unspecified, lymph nodes of axilla and upper limb	Diagnosis	ICD-10-CM
C84.A5	Cutaneous T-cell lymphoma, unspecified, lymph nodes of inguinal region and lower	Diagnosis	ICD-10-CM
C84.A6	Cutaneous T-cell lymphoma, unspecified, intrapelvic lymph nodes	Diagnosis	ICD-10-CM
C84.A7	Cutaneous T-cell lymphoma, unspecified, spleen	Diagnosis	ICD-10-CM
C84.A8	Cutaneous T-cell lymphoma, unspecified, lymph nodes of multiple sites	Diagnosis	ICD-10-CM
C84.A9	Cutaneous T-cell lymphoma, unspecified, extranodal and solid organ sites	Diagnosis	ICD-10-CM
C84.Z0	Other mature T/NK-cell lymphomas, unspecified site	Diagnosis	ICD-10-CM
C84.Z1	Other mature T/NK-cell lymphomas, lymph nodes of head, face, and neck	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
C84.Z2	Other mature T/NK-cell lymphomas, intrathoracic lymph nodes	Diagnosis	ICD-10-CM
C84.Z3	Other mature T/NK-cell lymphomas, intra-abdominal lymph nodes	Diagnosis	ICD-10-CM
C84.Z4	Other mature T/NK-cell lymphomas, lymph nodes of axilla and upper limb	Diagnosis	ICD-10-CM
C84.Z5	Other mature T/NK-cell lymphomas, lymph nodes of inguinal region and lower limb	Diagnosis	ICD-10-CM
C84.Z6	Other mature T/NK-cell lymphomas, intrapelvic lymph nodes	Diagnosis	ICD-10-CM
C84.Z7	Other mature T/NK-cell lymphomas, spleen	Diagnosis	ICD-10-CM
C84.Z8	Other mature T/NK-cell lymphomas, lymph nodes of multiple sites	Diagnosis	ICD-10-CM
C84.Z9	Other mature T/NK-cell lymphomas, extranodal and solid organ sites	Diagnosis	ICD-10-CM
C85.10	Unspecified B-cell lymphoma, unspecified site	Diagnosis	ICD-10-CM
C85.11	Unspecified B-cell lymphoma, lymph nodes of head, face, and neck	Diagnosis	ICD-10-CM
C85.12	Unspecified B-cell lymphoma, intrathoracic lymph nodes	Diagnosis	ICD-10-CM
C85.13	Unspecified B-cell lymphoma, intra-abdominal lymph nodes	Diagnosis	ICD-10-CM
C85.14	Unspecified B-cell lymphoma, lymph nodes of axilla and upper limb	Diagnosis	ICD-10-CM
C85.15	Unspecified B-cell lymphoma, lymph nodes of inguinal region and lower limb	Diagnosis	ICD-10-CM
C85.16	Unspecified B-cell lymphoma, intrapelvic lymph nodes	Diagnosis	ICD-10-CM
C85.17	Unspecified B-cell lymphoma, spleen	Diagnosis	ICD-10-CM
C85.18	Unspecified B-cell lymphoma, lymph nodes of multiple sites	Diagnosis	ICD-10-CM
C85.19	Unspecified B-cell lymphoma, extranodal and solid organ sites	Diagnosis	ICD-10-CM
C85.20	Mediastinal (thymic) large B-cell lymphoma, unspecified site	Diagnosis	ICD-10-CM
C85.21	Mediastinal (thymic) large B-cell lymphoma, lymph nodes of head, face, and neck	Diagnosis	ICD-10-CM
C85.22	Mediastinal (thymic) large B-cell lymphoma, intrathoracic lymph nodes	Diagnosis	ICD-10-CM
C85.23	Mediastinal (thymic) large B-cell lymphoma, intra-abdominal lymph nodes	Diagnosis	ICD-10-CM
C85.24	Mediastinal (thymic) large B-cell lymphoma, lymph nodes of axilla and upper limb	Diagnosis	ICD-10-CM
C85.25	Mediastinal (thymic) large B-cell lymphoma, lymph nodes of inguinal region and lower	Diagnosis	ICD-10-CM
C85.26	Mediastinal (thymic) large B-cell lymphoma, intrapelvic lymph nodes	Diagnosis	ICD-10-CM
C85.27	Mediastinal (thymic) large B-cell lymphoma, spleen	Diagnosis	ICD-10-CM
C85.28	Mediastinal (thymic) large B-cell lymphoma, lymph nodes of multiple sites	Diagnosis	ICD-10-CM
C85.29	Mediastinal (thymic) large B-cell lymphoma, extranodal and solid organ sites	Diagnosis	ICD-10-CM
C85.80	Other specified types of non-Hodgkin lymphoma, unspecified site	Diagnosis	ICD-10-CM
C85.81	Other specified types of non-Hodgkin lymphoma, lymph nodes of head, face, and neck	Diagnosis	ICD-10-CM
C85.82	Other specified types of non-Hodgkin lymphoma, intrathoracic lymph nodes	Diagnosis	ICD-10-CM
C85.83	Other specified types of non-Hodgkin lymphoma, intra-abdominal lymph nodes	Diagnosis	ICD-10-CM
C85.84	Other specified types of non-Hodgkin lymphoma, lymph nodes of axilla and upper limb	Diagnosis	ICD-10-CM
C85.85	Other specified types of non-Hodgkin lymphoma, lymph nodes of inguinal region and	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
C85.86	Other specified types of non-Hodgkin lymphoma, intrapelvic lymph nodes	Diagnosis	ICD-10-CM
C85.87	Other specified types of non-Hodgkin lymphoma, spleen	Diagnosis	ICD-10-CM
C85.88	Other specified types of non-Hodgkin lymphoma, lymph nodes of multiple sites	Diagnosis	ICD-10-CM
C85.89	Other specified types of non-Hodgkin lymphoma, extranodal and solid organ sites	Diagnosis	ICD-10-CM
C85.90	Non-Hodgkin lymphoma, unspecified, unspecified site	Diagnosis	ICD-10-CM
C85.91	Non-Hodgkin lymphoma, unspecified, lymph nodes of head, face, and neck	Diagnosis	ICD-10-CM
C85.92	Non-Hodgkin lymphoma, unspecified, intrathoracic lymph nodes	Diagnosis	ICD-10-CM
C85.93	Non-Hodgkin lymphoma, unspecified, intra-abdominal lymph nodes	Diagnosis	ICD-10-CM
C85.94	Non-Hodgkin lymphoma, unspecified, lymph nodes of axilla and upper limb	Diagnosis	ICD-10-CM
C85.95	Non-Hodgkin lymphoma, unspecified, lymph nodes of inguinal region and lower limb	Diagnosis	ICD-10-CM
C85.96	Non-Hodgkin lymphoma, unspecified, intrapelvic lymph nodes	Diagnosis	ICD-10-CM
C85.97	Non-Hodgkin lymphoma, unspecified, spleen	Diagnosis	ICD-10-CM
C85.98	Non-Hodgkin lymphoma, unspecified, lymph nodes of multiple sites	Diagnosis	ICD-10-CM
C85.99	Non-Hodgkin lymphoma, unspecified, extranodal and solid organ sites	Diagnosis	ICD-10-CM
C86.0	Extranodal NK/T-cell lymphoma, nasal type	Diagnosis	ICD-10-CM
C86.1	Hepatosplenic T-cell lymphoma	Diagnosis	ICD-10-CM
C86.2	Enteropathy-type (intestinal) T-cell lymphoma	Diagnosis	ICD-10-CM
C86.3	Subcutaneous panniculitis-like T-cell lymphoma	Diagnosis	ICD-10-CM
C86.4	Blastic NK-cell lymphoma	Diagnosis	ICD-10-CM
C86.5	Angioimmunoblastic T-cell lymphoma	Diagnosis	ICD-10-CM
C86.6	Primary cutaneous CD30-positive T-cell proliferations	Diagnosis	ICD-10-CM
C88.2	Heavy chain disease	Diagnosis	ICD-10-CM
C88.3	Immunoproliferative small intestinal disease	Diagnosis	ICD-10-CM
C88.4	Extranodal marginal zone B-cell lymphoma of mucosa-associated lymphoid tissue [MALT-lymphoma]	Diagnosis	ICD-10-CM
C88.8	Other malignant immunoproliferative diseases	Diagnosis	ICD-10-CM
C88.9	Malignant immunoproliferative disease, unspecified	Diagnosis	ICD-10-CM
C90.00	Multiple myeloma not having achieved remission	Diagnosis	ICD-10-CM
C90.01	Multiple myeloma in remission	Diagnosis	ICD-10-CM
C90.02	Multiple myeloma in relapse	Diagnosis	ICD-10-CM
C90.10	Plasma cell leukemia not having achieved remission	Diagnosis	ICD-10-CM
C90.11	Plasma cell leukemia in remission	Diagnosis	ICD-10-CM
C90.12	Plasma cell leukemia in relapse	Diagnosis	ICD-10-CM
C90.20	Extramedullary plasmacytoma not having achieved remission	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
C90.21	Extramedullary plasmacytoma in remission	Diagnosis	ICD-10-CM
C90.22	Extramedullary plasmacytoma in relapse	Diagnosis	ICD-10-CM
C90.30	Solitary plasmacytoma not having achieved remission	Diagnosis	ICD-10-CM
C90.31	Solitary plasmacytoma in remission	Diagnosis	ICD-10-CM
C90.32	Solitary plasmacytoma in relapse	Diagnosis	ICD-10-CM
C91.00	Acute lymphoblastic leukemia not having achieved remission	Diagnosis	ICD-10-CM
C91.01	Acute lymphoblastic leukemia, in remission	Diagnosis	ICD-10-CM
C91.02	Acute lymphoblastic leukemia, in relapse	Diagnosis	ICD-10-CM
C91.10	Chronic lymphocytic leukemia of B-cell type not having achieved remission	Diagnosis	ICD-10-CM
C91.11	Chronic lymphocytic leukemia of B-cell type in remission	Diagnosis	ICD-10-CM
C91.12	Chronic lymphocytic leukemia of B-cell type in relapse	Diagnosis	ICD-10-CM
C91.30	Prolymphocytic leukemia of B-cell type not having achieved remission	Diagnosis	ICD-10-CM
C91.31	Prolymphocytic leukemia of B-cell type, in remission	Diagnosis	ICD-10-CM
C91.32	Prolymphocytic leukemia of B-cell type, in relapse	Diagnosis	ICD-10-CM
C91.40	Hairy cell leukemia not having achieved remission	Diagnosis	ICD-10-CM
C91.41	Hairy cell leukemia, in remission	Diagnosis	ICD-10-CM
C91.42	Hairy cell leukemia, in relapse	Diagnosis	ICD-10-CM
C91.50	Adult T-cell lymphoma/leukemia (HTLV-1-associated) not having achieved remission	Diagnosis	ICD-10-CM
C91.51	Adult T-cell lymphoma/leukemia (HTLV-1-associated), in remission	Diagnosis	ICD-10-CM
C91.52	Adult T-cell lymphoma/leukemia (HTLV-1-associated), in relapse	Diagnosis	ICD-10-CM
C91.60	Prolymphocytic leukemia of T-cell type not having achieved remission	Diagnosis	ICD-10-CM
C91.61	Prolymphocytic leukemia of T-cell type, in remission	Diagnosis	ICD-10-CM
C91.62	Prolymphocytic leukemia of T-cell type, in relapse	Diagnosis	ICD-10-CM
C91.90	Lymphoid leukemia, unspecified not having achieved remission	Diagnosis	ICD-10-CM
C91.91	Lymphoid leukemia, unspecified, in remission	Diagnosis	ICD-10-CM
C91.92	Lymphoid leukemia, unspecified, in relapse	Diagnosis	ICD-10-CM
C91.A0	Mature B-cell leukemia Burkitt-type not having achieved remission	Diagnosis	ICD-10-CM
C91.A1	Mature B-cell leukemia Burkitt-type, in remission	Diagnosis	ICD-10-CM
C91.A2	Mature B-cell leukemia Burkitt-type, in relapse	Diagnosis	ICD-10-CM
C91.Z0	Other lymphoid leukemia not having achieved remission	Diagnosis	ICD-10-CM
C91.Z1	Other lymphoid leukemia, in remission	Diagnosis	ICD-10-CM
C91.Z2	Other lymphoid leukemia, in relapse	Diagnosis	ICD-10-CM
C92.00	Acute myeloblastic leukemia, not having achieved remission	Diagnosis	ICD-10-CM
C92.01	Acute myeloblastic leukemia, in remission	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
C92.02	Acute myeloblastic leukemia, in relapse	Diagnosis	ICD-10-CM
C92.10	Chronic myeloid leukemia, BCR/ABL-positive, not having achieved remission	Diagnosis	ICD-10-CM
C92.11	Chronic myeloid leukemia, BCR/ABL-positive, in remission	Diagnosis	ICD-10-CM
C92.12	Chronic myeloid leukemia, BCR/ABL-positive, in relapse	Diagnosis	ICD-10-CM
C92.20	Atypical chronic myeloid leukemia, BCR/ABL-negative, not having achieved remission	Diagnosis	ICD-10-CM
C92.21	Atypical chronic myeloid leukemia, BCR/ABL-negative, in remission	Diagnosis	ICD-10-CM
C92.22	Atypical chronic myeloid leukemia, BCR/ABL-negative, in relapse	Diagnosis	ICD-10-CM
C92.30	Myeloid sarcoma, not having achieved remission	Diagnosis	ICD-10-CM
C92.31	Myeloid sarcoma, in remission	Diagnosis	ICD-10-CM
C92.32	Myeloid sarcoma, in relapse	Diagnosis	ICD-10-CM
C92.40	Acute promyelocytic leukemia, not having achieved remission	Diagnosis	ICD-10-CM
C92.41	Acute promyelocytic leukemia, in remission	Diagnosis	ICD-10-CM
C92.42	Acute promyelocytic leukemia, in relapse	Diagnosis	ICD-10-CM
C92.50	Acute myelomonocytic leukemia, not having achieved remission	Diagnosis	ICD-10-CM
C92.51	Acute myelomonocytic leukemia, in remission	Diagnosis	ICD-10-CM
C92.52	Acute myelomonocytic leukemia, in relapse	Diagnosis	ICD-10-CM
C92.60	Acute myeloid leukemia with 11q23-abnormality not having achieved remission	Diagnosis	ICD-10-CM
C92.61	Acute myeloid leukemia with 11q23-abnormality in remission	Diagnosis	ICD-10-CM
C92.62	Acute myeloid leukemia with 11q23-abnormality in relapse	Diagnosis	ICD-10-CM
C92.90	Myeloid leukemia, unspecified, not having achieved remission	Diagnosis	ICD-10-CM
C92.91	Myeloid leukemia, unspecified in remission	Diagnosis	ICD-10-CM
C92.92	Myeloid leukemia, unspecified in relapse	Diagnosis	ICD-10-CM
C92.A0	Acute myeloid leukemia with multilineage dysplasia, not having achieved remission	Diagnosis	ICD-10-CM
C92.A1	Acute myeloid leukemia with multilineage dysplasia, in remission	Diagnosis	ICD-10-CM
C92.A2	Acute myeloid leukemia with multilineage dysplasia, in relapse	Diagnosis	ICD-10-CM
C92.Z0	Other myeloid leukemia not having achieved remission	Diagnosis	ICD-10-CM
C92.Z1	Other myeloid leukemia, in remission	Diagnosis	ICD-10-CM
C92.Z2	Other myeloid leukemia, in relapse	Diagnosis	ICD-10-CM
C93.00	Acute monoblastic/monocytic leukemia, not having achieved remission	Diagnosis	ICD-10-CM
C93.01	Acute monoblastic/monocytic leukemia, in remission	Diagnosis	ICD-10-CM
C93.02	Acute monoblastic/monocytic leukemia, in relapse	Diagnosis	ICD-10-CM
C93.10	Chronic myelomonocytic leukemia not having achieved remission	Diagnosis	ICD-10-CM
C93.11	Chronic myelomonocytic leukemia, in remission	Diagnosis	ICD-10-CM
C93.12	Chronic myelomonocytic leukemia, in relapse	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
C93.30	Juvenile myelomonocytic leukemia, not having achieved remission	Diagnosis	ICD-10-CM
C93.31	Juvenile myelomonocytic leukemia, in remission	Diagnosis	ICD-10-CM
C93.32	Juvenile myelomonocytic leukemia, in relapse	Diagnosis	ICD-10-CM
C93.90	Monocytic leukemia, unspecified, not having achieved remission	Diagnosis	ICD-10-CM
C93.91	Monocytic leukemia, unspecified in remission	Diagnosis	ICD-10-CM
C93.92	Monocytic leukemia, unspecified in relapse	Diagnosis	ICD-10-CM
C93.Z0	Other monocytic leukemia, not having achieved remission	Diagnosis	ICD-10-CM
C93.Z1	Other monocytic leukemia, in remission	Diagnosis	ICD-10-CM
C93.Z2	Other monocytic leukemia, in relapse	Diagnosis	ICD-10-CM
C94.00	Acute erythroid leukemia, not having achieved remission	Diagnosis	ICD-10-CM
C94.01	Acute erythroid leukemia, in remission	Diagnosis	ICD-10-CM
C94.02	Acute erythroid leukemia, in relapse	Diagnosis	ICD-10-CM
C94.20	Acute megakaryoblastic leukemia not having achieved remission	Diagnosis	ICD-10-CM
C94.21	Acute megakaryoblastic leukemia, in remission	Diagnosis	ICD-10-CM
C94.22	Acute megakaryoblastic leukemia, in relapse	Diagnosis	ICD-10-CM
C94.30	Mast cell leukemia not having achieved remission	Diagnosis	ICD-10-CM
C94.31	Mast cell leukemia, in remission	Diagnosis	ICD-10-CM
C94.32	Mast cell leukemia, in relapse	Diagnosis	ICD-10-CM
C94.80	Other specified leukemias not having achieved remission	Diagnosis	ICD-10-CM
C94.81	Other specified leukemias, in remission	Diagnosis	ICD-10-CM
C94.82	Other specified leukemias, in relapse	Diagnosis	ICD-10-CM
C95.00	Acute leukemia of unspecified cell type not having achieved remission	Diagnosis	ICD-10-CM
C95.01	Acute leukemia of unspecified cell type, in remission	Diagnosis	ICD-10-CM
C95.02	Acute leukemia of unspecified cell type, in relapse	Diagnosis	ICD-10-CM
C95.10	Chronic leukemia of unspecified cell type not having achieved remission	Diagnosis	ICD-10-CM
C95.11	Chronic leukemia of unspecified cell type, in remission	Diagnosis	ICD-10-CM
C95.12	Chronic leukemia of unspecified cell type, in relapse	Diagnosis	ICD-10-CM
C95.90	Leukemia, unspecified not having achieved remission	Diagnosis	ICD-10-CM
C95.91	Leukemia, unspecified, in remission	Diagnosis	ICD-10-CM
C95.92	Leukemia, unspecified, in relapse	Diagnosis	ICD-10-CM
C96.0	Multifocal and multisystemic (disseminated) Langerhans-cell histiocytosis	Diagnosis	ICD-10-CM
C96.20	Malignant mast cell neoplasm, unspecified	Diagnosis	ICD-10-CM
C96.21	Aggressive systemic mastocytosis	Diagnosis	ICD-10-CM
C96.22	Mast cell sarcoma	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
C96.29	Other malignant mast cell neoplasm	Diagnosis	ICD-10-CM
C96.4	Sarcoma of dendritic cells (accessory cells)	Diagnosis	ICD-10-CM
C96.9	Malignant neoplasm of lymphoid, hematopoietic and related tissue, unspecified	Diagnosis	ICD-10-CM
C96.A	Histiocytic sarcoma	Diagnosis	ICD-10-CM
C96.Z	Other specified malignant neoplasms of lymphoid, hematopoietic and related tissue	Diagnosis	ICD-10-CM
D03.0	Melanoma in situ of lip	Diagnosis	ICD-10-CM
D03.10	Melanoma in situ of unspecified eyelid, including canthus	Diagnosis	ICD-10-CM
D03.11	Melanoma in situ of right eyelid, including canthus	Diagnosis	ICD-10-CM
D03.12	Melanoma in situ of left eyelid, including canthus	Diagnosis	ICD-10-CM
D03.20	Melanoma in situ of unspecified ear and external auricular canal	Diagnosis	ICD-10-CM
D03.21	Melanoma in situ of right ear and external auricular canal	Diagnosis	ICD-10-CM
D03.22	Melanoma in situ of left ear and external auricular canal	Diagnosis	ICD-10-CM
D03.30	Melanoma in situ of unspecified part of face	Diagnosis	ICD-10-CM
D03.39	Melanoma in situ of other parts of face	Diagnosis	ICD-10-CM
D03.4	Melanoma in situ of scalp and neck	Diagnosis	ICD-10-CM
D03.51	Melanoma in situ of anal skin	Diagnosis	ICD-10-CM
D03.52	Melanoma in situ of breast (skin) (soft tissue)	Diagnosis	ICD-10-CM
D03.59	Melanoma in situ of other part of trunk	Diagnosis	ICD-10-CM
D03.60	Melanoma in situ of unspecified upper limb, including shoulder	Diagnosis	ICD-10-CM
D03.61	Melanoma in situ of right upper limb, including shoulder	Diagnosis	ICD-10-CM
D03.62	Melanoma in situ of left upper limb, including shoulder	Diagnosis	ICD-10-CM
D03.70	Melanoma in situ of unspecified lower limb, including hip	Diagnosis	ICD-10-CM
D03.71	Melanoma in situ of right lower limb, including hip	Diagnosis	ICD-10-CM
D03.72	Melanoma in situ of left lower limb, including hip	Diagnosis	ICD-10-CM
D03.8	Melanoma in situ of other sites	Diagnosis	ICD-10-CM
D03.9	Melanoma in situ, unspecified	Diagnosis	ICD-10-CM
D3A.00	Benign carcinoid tumor of unspecified site	Diagnosis	ICD-10-CM
D3A.010	Benign carcinoid tumor of the duodenum	Diagnosis	ICD-10-CM
D3A.011	Benign carcinoid tumor of the jejunum	Diagnosis	ICD-10-CM
D3A.012	Benign carcinoid tumor of the ileum	Diagnosis	ICD-10-CM
D3A.019	Benign carcinoid tumor of the small intestine, unspecified portion	Diagnosis	ICD-10-CM
D3A.020	Benign carcinoid tumor of the appendix	Diagnosis	ICD-10-CM
D3A.021	Benign carcinoid tumor of the cecum	Diagnosis	ICD-10-CM
D3A.022	Benign carcinoid tumor of the ascending colon	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
D3A.023	Benign carcinoid tumor of the transverse colon	Diagnosis	ICD-10-CM
D3A.024	Benign carcinoid tumor of the descending colon	Diagnosis	ICD-10-CM
D3A.025	Benign carcinoid tumor of the sigmoid colon	Diagnosis	ICD-10-CM
D3A.026	Benign carcinoid tumor of the rectum	Diagnosis	ICD-10-CM
D3A.029	Benign carcinoid tumor of the large intestine, unspecified portion	Diagnosis	ICD-10-CM
D3A.090	Benign carcinoid tumor of the bronchus and lung	Diagnosis	ICD-10-CM
D3A.091	Benign carcinoid tumor of the thymus	Diagnosis	ICD-10-CM
D3A.092	Benign carcinoid tumor of the stomach	Diagnosis	ICD-10-CM
D3A.093	Benign carcinoid tumor of the kidney	Diagnosis	ICD-10-CM
D3A.094	Benign carcinoid tumor of the foregut, unspecified	Diagnosis	ICD-10-CM
D3A.095	Benign carcinoid tumor of the midgut, unspecified	Diagnosis	ICD-10-CM
D3A.096	Benign carcinoid tumor of the hindgut, unspecified	Diagnosis	ICD-10-CM
D3A.098	Benign carcinoid tumors of other sites	Diagnosis	ICD-10-CM
D3A.8	Other benign neuroendocrine tumors	Diagnosis	ICD-10-CM
D45	Polycythemia vera	Diagnosis	ICD-10-CM
H40.50X0	Glaucoma secondary to other eye disorders, unspecified eye, stage unspecified	Diagnosis	ICD-10-CM
H40.50X1	Glaucoma secondary to other eye disorders, unspecified eye, mild stage	Diagnosis	ICD-10-CM
H40.50X2	Glaucoma secondary to other eye disorders, unspecified eye, moderate stage	Diagnosis	ICD-10-CM
H40.50X3	Glaucoma secondary to other eye disorders, unspecified eye, severe stage	Diagnosis	ICD-10-CM
H40.50X4	Glaucoma secondary to other eye disorders, unspecified eye, indeterminate stage	Diagnosis	ICD-10-CM
H40.51X0	Glaucoma secondary to other eye disorders, right eye, stage unspecified	Diagnosis	ICD-10-CM
H40.51X1	Glaucoma secondary to other eye disorders, right eye, mild stage	Diagnosis	ICD-10-CM
H40.51X2	Glaucoma secondary to other eye disorders, right eye, moderate stage	Diagnosis	ICD-10-CM
H40.51X3	Glaucoma secondary to other eye disorders, right eye, severe stage	Diagnosis	ICD-10-CM
H40.51X4	Glaucoma secondary to other eye disorders, right eye, indeterminate stage	Diagnosis	ICD-10-CM
H40.52X0	Glaucoma secondary to other eye disorders, left eye, stage unspecified	Diagnosis	ICD-10-CM
H40.52X1	Glaucoma secondary to other eye disorders, left eye, mild stage	Diagnosis	ICD-10-CM
H40.52X2	Glaucoma secondary to other eye disorders, left eye, moderate stage	Diagnosis	ICD-10-CM
H40.52X3	Glaucoma secondary to other eye disorders, left eye, severe stage	Diagnosis	ICD-10-CM
H40.52X4	Glaucoma secondary to other eye disorders, left eye, indeterminate stage	Diagnosis	ICD-10-CM
H40.53X0	Glaucoma secondary to other eye disorders, bilateral, stage unspecified	Diagnosis	ICD-10-CM
H40.53X1	Glaucoma secondary to other eye disorders, bilateral, mild stage	Diagnosis	ICD-10-CM
H40.53X2	Glaucoma secondary to other eye disorders, bilateral, moderate stage	Diagnosis	ICD-10-CM
H40.53X3	Glaucoma secondary to other eye disorders, bilateral, severe stage	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
H40.53X4	Glaucoma secondary to other eye disorders, bilateral, indeterminate stage	Diagnosis	ICD-10-CM
M88.0	Osteitis deformans of skull	Diagnosis	ICD-10-CM
M88.1	Osteitis deformans of vertebrae	Diagnosis	ICD-10-CM
M88.811	Osteitis deformans of right shoulder	Diagnosis	ICD-10-CM
M88.812	Osteitis deformans of left shoulder	Diagnosis	ICD-10-CM
M88.819	Osteitis deformans of unspecified shoulder	Diagnosis	ICD-10-CM
M88.821	Osteitis deformans of right upper arm	Diagnosis	ICD-10-CM
M88.822	Osteitis deformans of left upper arm	Diagnosis	ICD-10-CM
M88.829	Osteitis deformans of unspecified upper arm	Diagnosis	ICD-10-CM
M88.831	Osteitis deformans of right forearm	Diagnosis	ICD-10-CM
M88.832	Osteitis deformans of left forearm	Diagnosis	ICD-10-CM
M88.839	Osteitis deformans of unspecified forearm	Diagnosis	ICD-10-CM
M88.841	Osteitis deformans of right hand	Diagnosis	ICD-10-CM
M88.842	Osteitis deformans of left hand	Diagnosis	ICD-10-CM
M88.849	Osteitis deformans of unspecified hand	Diagnosis	ICD-10-CM
M88.851	Osteitis deformans of right thigh	Diagnosis	ICD-10-CM
M88.852	Osteitis deformans of left thigh	Diagnosis	ICD-10-CM
M88.859	Osteitis deformans of unspecified thigh	Diagnosis	ICD-10-CM
M88.861	Osteitis deformans of right lower leg	Diagnosis	ICD-10-CM
M88.862	Osteitis deformans of left lower leg	Diagnosis	ICD-10-CM
M88.869	Osteitis deformans of unspecified lower leg	Diagnosis	ICD-10-CM
M88.871	Osteitis deformans of right ankle and foot	Diagnosis	ICD-10-CM
M88.872	Osteitis deformans of left ankle and foot	Diagnosis	ICD-10-CM
M88.879	Osteitis deformans of unspecified ankle and foot	Diagnosis	ICD-10-CM
M88.88	Osteitis deformans of other bones	Diagnosis	ICD-10-CM
M88.89	Osteitis deformans of multiple sites	Diagnosis	ICD-10-CM
M88.9	Osteitis deformans of unspecified bone	Diagnosis	ICD-10-CM
O34.10	Maternal care for benign tumor of corpus uteri, unspecified trimester	Diagnosis	ICD-10-CM
O34.11	Maternal care for benign tumor of corpus uteri, first trimester	Diagnosis	ICD-10-CM
O34.12	Maternal care for benign tumor of corpus uteri, second trimester	Diagnosis	ICD-10-CM
O34.13	Maternal care for benign tumor of corpus uteri, third trimester	Diagnosis	ICD-10-CM
R97.8	Other abnormal tumor markers	Diagnosis	ICD-10-CM
Z85.00	Personal history of malignant neoplasm of unspecified digestive organ	Diagnosis	ICD-10-CM
Z85.01	Personal history of malignant neoplasm of esophagus	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
Z85.028	Personal history of other malignant neoplasm of stomach	Diagnosis	ICD-10-CM
Z85.038	Personal history of other malignant neoplasm of large intestine	Diagnosis	ICD-10-CM
Z85.048	Personal history of other malignant neoplasm of rectum, rectosigmoid junction, and	Diagnosis	ICD-10-CM
Z85.05	Personal history of malignant neoplasm of liver	Diagnosis	ICD-10-CM
Z85.068	Personal history of other malignant neoplasm of small intestine	Diagnosis	ICD-10-CM
Z85.07	Personal history of malignant neoplasm of pancreas	Diagnosis	ICD-10-CM
Z85.09	Personal history of malignant neoplasm of other digestive organs	Diagnosis	ICD-10-CM
Z85.118	Personal history of other malignant neoplasm of bronchus and lung	Diagnosis	ICD-10-CM
Z85.12	Personal history of malignant neoplasm of trachea	Diagnosis	ICD-10-CM
Z85.20	Personal history of malignant neoplasm of unspecified respiratory organ	Diagnosis	ICD-10-CM
Z85.21	Personal history of malignant neoplasm of larynx	Diagnosis	ICD-10-CM
Z85.22	Personal history of malignant neoplasm of nasal cavities, middle ear, and accessory	Diagnosis	ICD-10-CM
Z85.238	Personal history of other malignant neoplasm of thymus	Diagnosis	ICD-10-CM
Z85.29	Personal history of malignant neoplasm of other respiratory and intrathoracic organs	Diagnosis	ICD-10-CM
Z85.3	Personal history of malignant neoplasm of breast	Diagnosis	ICD-10-CM
Z85.40	Personal history of malignant neoplasm of unspecified female genital organ	Diagnosis	ICD-10-CM
Z85.41	Personal history of malignant neoplasm of cervix uteri	Diagnosis	ICD-10-CM
Z85.42	Personal history of malignant neoplasm of other parts of uterus	Diagnosis	ICD-10-CM
Z85.43	Personal history of malignant neoplasm of ovary	Diagnosis	ICD-10-CM
Z85.44	Personal history of malignant neoplasm of other female genital organs	Diagnosis	ICD-10-CM
Z85.45	Personal history of malignant neoplasm of unspecified male genital organ	Diagnosis	ICD-10-CM
Z85.46	Personal history of malignant neoplasm of prostate	Diagnosis	ICD-10-CM
Z85.47	Personal history of malignant neoplasm of testis	Diagnosis	ICD-10-CM
Z85.48	Personal history of malignant neoplasm of epididymis	Diagnosis	ICD-10-CM
Z85.49	Personal history of malignant neoplasm of other male genital organs	Diagnosis	ICD-10-CM
Z85.50	Personal history of malignant neoplasm of unspecified urinary tract organ	Diagnosis	ICD-10-CM
Z85.51	Personal history of malignant neoplasm of bladder	Diagnosis	ICD-10-CM
Z85.528	Personal history of other malignant neoplasm of kidney	Diagnosis	ICD-10-CM
Z85.53	Personal history of malignant neoplasm of renal pelvis	Diagnosis	ICD-10-CM
Z85.54	Personal history of malignant neoplasm of ureter	Diagnosis	ICD-10-CM
Z85.59	Personal history of malignant neoplasm of other urinary tract organ	Diagnosis	ICD-10-CM
Z85.810	Personal history of malignant neoplasm of tongue	Diagnosis	ICD-10-CM
Z85.818	Personal history of malignant neoplasm of other sites of lip, oral cavity, and pharynx	Diagnosis	ICD-10-CM
Z85.819	Personal history of malignant neoplasm of unspecified site of lip, oral cavity, and	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
Z85.828	Personal history of other malignant neoplasm of skin	Diagnosis	ICD-10-CM
Z85.830	Personal history of malignant neoplasm of bone	Diagnosis	ICD-10-CM
Z85.831	Personal history of malignant neoplasm of soft tissue	Diagnosis	ICD-10-CM
Z85.840	Personal history of malignant neoplasm of eye	Diagnosis	ICD-10-CM
Z85.841	Personal history of malignant neoplasm of brain	Diagnosis	ICD-10-CM
Z85.848	Personal history of malignant neoplasm of other parts of nervous tissue	Diagnosis	ICD-10-CM
Z85.850	Personal history of malignant neoplasm of thyroid	Diagnosis	ICD-10-CM
Z85.858	Personal history of malignant neoplasm of other endocrine glands	Diagnosis	ICD-10-CM
Z85.89	Personal history of malignant neoplasm of other organs and systems	Diagnosis	ICD-10-CM
Z85.9	Personal history of malignant neoplasm, unspecified	Diagnosis	ICD-10-CM
Hemiplegia			
G80.2	Spastic hemiplegic cerebral palsy	Diagnosis	ICD-10-CM
G81.00	Flaccid hemiplegia affecting unspecified side	Diagnosis	ICD-10-CM
G81.01	Flaccid hemiplegia affecting right dominant side	Diagnosis	ICD-10-CM
G81.02	Flaccid hemiplegia affecting left dominant side	Diagnosis	ICD-10-CM
G81.03	Flaccid hemiplegia affecting right nondominant side	Diagnosis	ICD-10-CM
G81.04	Flaccid hemiplegia affecting left nondominant side	Diagnosis	ICD-10-CM
G81.10	Spastic hemiplegia affecting unspecified side	Diagnosis	ICD-10-CM
G81.11	Spastic hemiplegia affecting right dominant side	Diagnosis	ICD-10-CM
G81.12	Spastic hemiplegia affecting left dominant side	Diagnosis	ICD-10-CM
G81.13	Spastic hemiplegia affecting right nondominant side	Diagnosis	ICD-10-CM
G81.14	Spastic hemiplegia affecting left nondominant side	Diagnosis	ICD-10-CM
G81.90	Hemiplegia, unspecified affecting unspecified side	Diagnosis	ICD-10-CM
G81.91	Hemiplegia, unspecified affecting right dominant side	Diagnosis	ICD-10-CM
G81.92	Hemiplegia, unspecified affecting left dominant side	Diagnosis	ICD-10-CM
G81.93	Hemiplegia, unspecified affecting right nondominant side	Diagnosis	ICD-10-CM
G81.94	Hemiplegia, unspecified affecting left nondominant side	Diagnosis	ICD-10-CM
I69.051	Hemiplegia and hemiparesis following nontraumatic subarachnoid hemorrhage affecting right dominant side	Diagnosis	ICD-10-CM
I69.052	Hemiplegia and hemiparesis following nontraumatic subarachnoid hemorrhage affecting left dominant side	Diagnosis	ICD-10-CM
I69.053	Hemiplegia and hemiparesis following nontraumatic subarachnoid hemorrhage affecting right non-dominant side	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
I69.054	Hemiplegia and hemiparesis following nontraumatic subarachnoid hemorrhage affecting left non-dominant side	Diagnosis	ICD-10-CM
I69.059	Hemiplegia and hemiparesis following nontraumatic subarachnoid hemorrhage affecting unspecified side	Diagnosis	ICD-10-CM
I69.151	Hemiplegia and hemiparesis following nontraumatic intracerebral hemorrhage affecting right dominant side	Diagnosis	ICD-10-CM
I69.152	Hemiplegia and hemiparesis following nontraumatic intracerebral hemorrhage affecting left dominant side	Diagnosis	ICD-10-CM
I69.153	Hemiplegia and hemiparesis following nontraumatic intracerebral hemorrhage affecting right non-dominant side	Diagnosis	ICD-10-CM
I69.154	Hemiplegia and hemiparesis following nontraumatic intracerebral hemorrhage affecting left non-dominant side	Diagnosis	ICD-10-CM
I69.159	Hemiplegia and hemiparesis following nontraumatic intracerebral hemorrhage affecting unspecified side	Diagnosis	ICD-10-CM
I69.251	Hemiplegia and hemiparesis following other nontraumatic intracranial hemorrhage affecting right dominant side	Diagnosis	ICD-10-CM
I69.252	Hemiplegia and hemiparesis following other nontraumatic intracranial hemorrhage affecting left dominant side	Diagnosis	ICD-10-CM
I69.253	Hemiplegia and hemiparesis following other nontraumatic intracranial hemorrhage affecting right non-dominant side	Diagnosis	ICD-10-CM
I69.254	Hemiplegia and hemiparesis following other nontraumatic intracranial hemorrhage affecting left non-dominant side	Diagnosis	ICD-10-CM
I69.259	Hemiplegia and hemiparesis following other nontraumatic intracranial hemorrhage affecting unspecified side	Diagnosis	ICD-10-CM
I69.351	Hemiplegia and hemiparesis following cerebral infarction affecting right dominant side	Diagnosis	ICD-10-CM
I69.352	Hemiplegia and hemiparesis following cerebral infarction affecting left dominant side	Diagnosis	ICD-10-CM
I69.353	Hemiplegia and hemiparesis following cerebral infarction affecting right non-dominant	Diagnosis	ICD-10-CM
I69.354	Hemiplegia and hemiparesis following cerebral infarction affecting left non-dominant	Diagnosis	ICD-10-CM
I69.359	Hemiplegia and hemiparesis following cerebral infarction affecting unspecified side	Diagnosis	ICD-10-CM
I69.851	Hemiplegia and hemiparesis following other cerebrovascular disease affecting right dominant side	Diagnosis	ICD-10-CM
I69.852	Hemiplegia and hemiparesis following other cerebrovascular disease affecting left dominant side	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
I69.853	Hemiplegia and hemiparesis following other cerebrovascular disease affecting right non-dominant side	Diagnosis	ICD-10-CM
I69.854	Hemiplegia and hemiparesis following other cerebrovascular disease affecting left non-dominant side	Diagnosis	ICD-10-CM
I69.859	Hemiplegia and hemiparesis following other cerebrovascular disease affecting	Diagnosis	ICD-10-CM
I69.951	Hemiplegia and hemiparesis following unspecified cerebrovascular disease affecting right dominant side	Diagnosis	ICD-10-CM
I69.952	Hemiplegia and hemiparesis following unspecified cerebrovascular disease affecting left dominant side	Diagnosis	ICD-10-CM
I69.953	Hemiplegia and hemiparesis following unspecified cerebrovascular disease affecting right non-dominant side	Diagnosis	ICD-10-CM
I69.954	Hemiplegia and hemiparesis following unspecified cerebrovascular disease affecting left non-dominant side	Diagnosis	ICD-10-CM
I69.959	Hemiplegia and hemiparesis following unspecified cerebrovascular disease affecting unspecified side	Diagnosis	ICD-10-CM
Neurological/Neurodegenerative Conditions			
G10	Huntington's disease	Diagnosis	ICD-10-CM
G20	Parkinson's disease	Diagnosis	ICD-10-CM
Dementia			
F01.50	Vascular dementia without behavioral disturbance	Diagnosis	ICD-10-CM
F01.51	Vascular dementia with behavioral disturbance	Diagnosis	ICD-10-CM
F02.80	Dementia in other diseases classified elsewhere without behavioral disturbance	Diagnosis	ICD-10-CM
F02.81	Dementia in other diseases classified elsewhere with behavioral disturbance	Diagnosis	ICD-10-CM
F03.90	Unspecified dementia without behavioral disturbance	Diagnosis	ICD-10-CM
F03.91	Unspecified dementia with behavioral disturbance	Diagnosis	ICD-10-CM
G30.0	Alzheimer's disease with early onset	Diagnosis	ICD-10-CM
G30.1	Alzheimer's disease with late onset	Diagnosis	ICD-10-CM
G30.8	Other Alzheimer's disease	Diagnosis	ICD-10-CM
G30.9	Alzheimer's disease, unspecified	Diagnosis	ICD-10-CM
G31.09	Other frontotemporal dementia	Diagnosis	ICD-10-CM
G31.83	Dementia with Lewy bodies	Diagnosis	ICD-10-CM
Depression			
F31.31	Bipolar disorder, current episode depressed, mild	Diagnosis	ICD-10-CM
F31.32	Bipolar disorder, current episode depressed, moderate	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
F31.4	Bipolar disorder, current episode depressed, severe, without psychotic features	Diagnosis	ICD-10-CM
F31.5	Bipolar disorder, current episode depressed, severe, with psychotic features	Diagnosis	ICD-10-CM
F31.60	Bipolar disorder, current episode mixed, unspecified	Diagnosis	ICD-10-CM
F31.61	Bipolar disorder, current episode mixed, mild	Diagnosis	ICD-10-CM
F31.62	Bipolar disorder, current episode mixed, moderate	Diagnosis	ICD-10-CM
F31.63	Bipolar disorder, current episode mixed, severe, without psychotic features	Diagnosis	ICD-10-CM
F31.64	Bipolar disorder, current episode mixed, severe, with psychotic features	Diagnosis	ICD-10-CM
F31.75	Bipolar disorder, in partial remission, most recent episode depressed	Diagnosis	ICD-10-CM
F31.76	Bipolar disorder, in full remission, most recent episode depressed	Diagnosis	ICD-10-CM
F31.77	Bipolar disorder, in partial remission, most recent episode mixed	Diagnosis	ICD-10-CM
F31.78	Bipolar disorder, in full remission, most recent episode mixed	Diagnosis	ICD-10-CM
F31.81	Bipolar II disorder	Diagnosis	ICD-10-CM
F32.0	Major depressive disorder, single episode, mild	Diagnosis	ICD-10-CM
F32.1	Major depressive disorder, single episode, moderate	Diagnosis	ICD-10-CM
F32.2	Major depressive disorder, single episode, severe without psychotic features	Diagnosis	ICD-10-CM
F32.3	Major depressive disorder, single episode, severe with psychotic features	Diagnosis	ICD-10-CM
F32.4	Major depressive disorder, single episode, in partial remission	Diagnosis	ICD-10-CM
F32.5	Major depressive disorder, single episode, in full remission	Diagnosis	ICD-10-CM
F32.9	Major depressive disorder, single episode, unspecified	Diagnosis	ICD-10-CM
F33.0	Major depressive disorder, recurrent, mild	Diagnosis	ICD-10-CM
F33.1	Major depressive disorder, recurrent, moderate	Diagnosis	ICD-10-CM
F33.2	Major depressive disorder, recurrent severe without psychotic features	Diagnosis	ICD-10-CM
F33.3	Major depressive disorder, recurrent, severe with psychotic symptoms	Diagnosis	ICD-10-CM
F33.40	Major depressive disorder, recurrent, in remission, unspecified	Diagnosis	ICD-10-CM
F33.41	Major depressive disorder, recurrent, in partial remission	Diagnosis	ICD-10-CM
F33.42	Major depressive disorder, recurrent, in full remission	Diagnosis	ICD-10-CM
F33.9	Major depressive disorder, recurrent, unspecified	Diagnosis	ICD-10-CM
F34.1	Dysthymic disorder	Diagnosis	ICD-10-CM
F43.21	Adjustment disorder with depressed mood	Diagnosis	ICD-10-CM
Schizophrenia			
F20.0	Paranoid schizophrenia	Diagnosis	ICD-10-CM
F20.1	Disorganized schizophrenia	Diagnosis	ICD-10-CM
F20.2	Catatonic schizophrenia	Diagnosis	ICD-10-CM
F20.3	Undifferentiated schizophrenia	Diagnosis	ICD-10-CM

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Code	Description	Code Category	Code Type
F20.5	Residual schizophrenia	Diagnosis	ICD-10-CM
F20.81	Schizophreniform disorder	Diagnosis	ICD-10-CM
F20.89	Other schizophrenia	Diagnosis	ICD-10-CM
F20.9	Schizophrenia, unspecified	Diagnosis	ICD-10-CM
F25.0	Schizoaffective disorder, bipolar type	Diagnosis	ICD-10-CM
F25.1	Schizoaffective disorder, depressive type	Diagnosis	ICD-10-CM
F25.8	Other schizoaffective disorders	Diagnosis	ICD-10-CM
F25.9	Schizoaffective disorder, unspecified	Diagnosis	ICD-10-CM
Rheumatic Disorders			
M05.00	Felty's syndrome, unspecified site	Diagnosis	ICD-10-CM
M05.011	Felty's syndrome, right shoulder	Diagnosis	ICD-10-CM
M05.012	Felty's syndrome, left shoulder	Diagnosis	ICD-10-CM
M05.019	Felty's syndrome, unspecified shoulder	Diagnosis	ICD-10-CM
M05.021	Felty's syndrome, right elbow	Diagnosis	ICD-10-CM
M05.022	Felty's syndrome, left elbow	Diagnosis	ICD-10-CM
M05.029	Felty's syndrome, unspecified elbow	Diagnosis	ICD-10-CM
M05.031	Felty's syndrome, right wrist	Diagnosis	ICD-10-CM
M05.032	Felty's syndrome, left wrist	Diagnosis	ICD-10-CM
M05.039	Felty's syndrome, unspecified wrist	Diagnosis	ICD-10-CM
M05.041	Felty's syndrome, right hand	Diagnosis	ICD-10-CM
M05.042	Felty's syndrome, left hand	Diagnosis	ICD-10-CM
M05.049	Felty's syndrome, unspecified hand	Diagnosis	ICD-10-CM
M05.051	Felty's syndrome, right hip	Diagnosis	ICD-10-CM
M05.052	Felty's syndrome, left hip	Diagnosis	ICD-10-CM
M05.059	Felty's syndrome, unspecified hip	Diagnosis	ICD-10-CM
M05.061	Felty's syndrome, right knee	Diagnosis	ICD-10-CM
M05.062	Felty's syndrome, left knee	Diagnosis	ICD-10-CM
M05.069	Felty's syndrome, unspecified knee	Diagnosis	ICD-10-CM
M05.071	Felty's syndrome, right ankle and foot	Diagnosis	ICD-10-CM
M05.072	Felty's syndrome, left ankle and foot	Diagnosis	ICD-10-CM
M05.079	Felty's syndrome, unspecified ankle and foot	Diagnosis	ICD-10-CM
M05.09	Felty's syndrome, multiple sites	Diagnosis	ICD-10-CM
M05.20	Rheumatoid vasculitis with rheumatoid arthritis of unspecified site	Diagnosis	ICD-10-CM
M05.211	Rheumatoid vasculitis with rheumatoid arthritis of right shoulder	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
M05.212	Rheumatoid vasculitis with rheumatoid arthritis of left shoulder	Diagnosis	ICD-10-CM
M05.219	Rheumatoid vasculitis with rheumatoid arthritis of unspecified shoulder	Diagnosis	ICD-10-CM
M05.221	Rheumatoid vasculitis with rheumatoid arthritis of right elbow	Diagnosis	ICD-10-CM
M05.222	Rheumatoid vasculitis with rheumatoid arthritis of left elbow	Diagnosis	ICD-10-CM
M05.229	Rheumatoid vasculitis with rheumatoid arthritis of unspecified elbow	Diagnosis	ICD-10-CM
M05.231	Rheumatoid vasculitis with rheumatoid arthritis of right wrist	Diagnosis	ICD-10-CM
M05.232	Rheumatoid vasculitis with rheumatoid arthritis of left wrist	Diagnosis	ICD-10-CM
M05.239	Rheumatoid vasculitis with rheumatoid arthritis of unspecified wrist	Diagnosis	ICD-10-CM
M05.241	Rheumatoid vasculitis with rheumatoid arthritis of right hand	Diagnosis	ICD-10-CM
M05.242	Rheumatoid vasculitis with rheumatoid arthritis of left hand	Diagnosis	ICD-10-CM
M05.249	Rheumatoid vasculitis with rheumatoid arthritis of unspecified hand	Diagnosis	ICD-10-CM
M05.251	Rheumatoid vasculitis with rheumatoid arthritis of right hip	Diagnosis	ICD-10-CM
M05.252	Rheumatoid vasculitis with rheumatoid arthritis of left hip	Diagnosis	ICD-10-CM
M05.259	Rheumatoid vasculitis with rheumatoid arthritis of unspecified hip	Diagnosis	ICD-10-CM
M05.261	Rheumatoid vasculitis with rheumatoid arthritis of right knee	Diagnosis	ICD-10-CM
M05.262	Rheumatoid vasculitis with rheumatoid arthritis of left knee	Diagnosis	ICD-10-CM
M05.269	Rheumatoid vasculitis with rheumatoid arthritis of unspecified knee	Diagnosis	ICD-10-CM
M05.271	Rheumatoid vasculitis with rheumatoid arthritis of right ankle and foot	Diagnosis	ICD-10-CM
M05.272	Rheumatoid vasculitis with rheumatoid arthritis of left ankle and foot	Diagnosis	ICD-10-CM
M05.279	Rheumatoid vasculitis with rheumatoid arthritis of unspecified ankle and foot	Diagnosis	ICD-10-CM
M05.29	Rheumatoid vasculitis with rheumatoid arthritis of multiple sites	Diagnosis	ICD-10-CM
M05.30	Rheumatoid heart disease with rheumatoid arthritis of unspecified site	Diagnosis	ICD-10-CM
M05.311	Rheumatoid heart disease with rheumatoid arthritis of right shoulder	Diagnosis	ICD-10-CM
M05.312	Rheumatoid heart disease with rheumatoid arthritis of left shoulder	Diagnosis	ICD-10-CM
M05.319	Rheumatoid heart disease with rheumatoid arthritis of unspecified shoulder	Diagnosis	ICD-10-CM
M05.321	Rheumatoid heart disease with rheumatoid arthritis of right elbow	Diagnosis	ICD-10-CM
M05.322	Rheumatoid heart disease with rheumatoid arthritis of left elbow	Diagnosis	ICD-10-CM
M05.329	Rheumatoid heart disease with rheumatoid arthritis of unspecified elbow	Diagnosis	ICD-10-CM
M05.331	Rheumatoid heart disease with rheumatoid arthritis of right wrist	Diagnosis	ICD-10-CM
M05.332	Rheumatoid heart disease with rheumatoid arthritis of left wrist	Diagnosis	ICD-10-CM
M05.339	Rheumatoid heart disease with rheumatoid arthritis of unspecified wrist	Diagnosis	ICD-10-CM
M05.341	Rheumatoid heart disease with rheumatoid arthritis of right hand	Diagnosis	ICD-10-CM
M05.342	Rheumatoid heart disease with rheumatoid arthritis of left hand	Diagnosis	ICD-10-CM
M05.349	Rheumatoid heart disease with rheumatoid arthritis of unspecified hand	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
M05.351	Rheumatoid heart disease with rheumatoid arthritis of right hip	Diagnosis	ICD-10-CM
M05.352	Rheumatoid heart disease with rheumatoid arthritis of left hip	Diagnosis	ICD-10-CM
M05.359	Rheumatoid heart disease with rheumatoid arthritis of unspecified hip	Diagnosis	ICD-10-CM
M05.361	Rheumatoid heart disease with rheumatoid arthritis of right knee	Diagnosis	ICD-10-CM
M05.362	Rheumatoid heart disease with rheumatoid arthritis of left knee	Diagnosis	ICD-10-CM
M05.369	Rheumatoid heart disease with rheumatoid arthritis of unspecified knee	Diagnosis	ICD-10-CM
M05.371	Rheumatoid heart disease with rheumatoid arthritis of right ankle and foot	Diagnosis	ICD-10-CM
M05.372	Rheumatoid heart disease with rheumatoid arthritis of left ankle and foot	Diagnosis	ICD-10-CM
M05.379	Rheumatoid heart disease with rheumatoid arthritis of unspecified ankle and foot	Diagnosis	ICD-10-CM
M05.39	Rheumatoid heart disease with rheumatoid arthritis of multiple sites	Diagnosis	ICD-10-CM
M05.40	Rheumatoid myopathy with rheumatoid arthritis of unspecified site	Diagnosis	ICD-10-CM
M05.411	Rheumatoid myopathy with rheumatoid arthritis of right shoulder	Diagnosis	ICD-10-CM
M05.412	Rheumatoid myopathy with rheumatoid arthritis of left shoulder	Diagnosis	ICD-10-CM
M05.419	Rheumatoid myopathy with rheumatoid arthritis of unspecified shoulder	Diagnosis	ICD-10-CM
M05.421	Rheumatoid myopathy with rheumatoid arthritis of right elbow	Diagnosis	ICD-10-CM
M05.422	Rheumatoid myopathy with rheumatoid arthritis of left elbow	Diagnosis	ICD-10-CM
M05.429	Rheumatoid myopathy with rheumatoid arthritis of unspecified elbow	Diagnosis	ICD-10-CM
M05.431	Rheumatoid myopathy with rheumatoid arthritis of right wrist	Diagnosis	ICD-10-CM
M05.432	Rheumatoid myopathy with rheumatoid arthritis of left wrist	Diagnosis	ICD-10-CM
M05.439	Rheumatoid myopathy with rheumatoid arthritis of unspecified wrist	Diagnosis	ICD-10-CM
M05.441	Rheumatoid myopathy with rheumatoid arthritis of right hand	Diagnosis	ICD-10-CM
M05.442	Rheumatoid myopathy with rheumatoid arthritis of left hand	Diagnosis	ICD-10-CM
M05.449	Rheumatoid myopathy with rheumatoid arthritis of unspecified hand	Diagnosis	ICD-10-CM
M05.451	Rheumatoid myopathy with rheumatoid arthritis of right hip	Diagnosis	ICD-10-CM
M05.452	Rheumatoid myopathy with rheumatoid arthritis of left hip	Diagnosis	ICD-10-CM
M05.459	Rheumatoid myopathy with rheumatoid arthritis of unspecified hip	Diagnosis	ICD-10-CM
M05.461	Rheumatoid myopathy with rheumatoid arthritis of right knee	Diagnosis	ICD-10-CM
M05.462	Rheumatoid myopathy with rheumatoid arthritis of left knee	Diagnosis	ICD-10-CM
M05.469	Rheumatoid myopathy with rheumatoid arthritis of unspecified knee	Diagnosis	ICD-10-CM
M05.471	Rheumatoid myopathy with rheumatoid arthritis of right ankle and foot	Diagnosis	ICD-10-CM
M05.472	Rheumatoid myopathy with rheumatoid arthritis of left ankle and foot	Diagnosis	ICD-10-CM
M05.479	Rheumatoid myopathy with rheumatoid arthritis of unspecified ankle and foot	Diagnosis	ICD-10-CM
M05.49	Rheumatoid myopathy with rheumatoid arthritis of multiple sites	Diagnosis	ICD-10-CM
M05.50	Rheumatoid polyneuropathy with rheumatoid arthritis of unspecified site	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
M05.511	Rheumatoid polyneuropathy with rheumatoid arthritis of right shoulder	Diagnosis	ICD-10-CM
M05.512	Rheumatoid polyneuropathy with rheumatoid arthritis of left shoulder	Diagnosis	ICD-10-CM
M05.519	Rheumatoid polyneuropathy with rheumatoid arthritis of unspecified shoulder	Diagnosis	ICD-10-CM
M05.521	Rheumatoid polyneuropathy with rheumatoid arthritis of right elbow	Diagnosis	ICD-10-CM
M05.522	Rheumatoid polyneuropathy with rheumatoid arthritis of left elbow	Diagnosis	ICD-10-CM
M05.529	Rheumatoid polyneuropathy with rheumatoid arthritis of unspecified elbow	Diagnosis	ICD-10-CM
M05.531	Rheumatoid polyneuropathy with rheumatoid arthritis of right wrist	Diagnosis	ICD-10-CM
M05.532	Rheumatoid polyneuropathy with rheumatoid arthritis of left wrist	Diagnosis	ICD-10-CM
M05.539	Rheumatoid polyneuropathy with rheumatoid arthritis of unspecified wrist	Diagnosis	ICD-10-CM
M05.541	Rheumatoid polyneuropathy with rheumatoid arthritis of right hand	Diagnosis	ICD-10-CM
M05.542	Rheumatoid polyneuropathy with rheumatoid arthritis of left hand	Diagnosis	ICD-10-CM
M05.549	Rheumatoid polyneuropathy with rheumatoid arthritis of unspecified hand	Diagnosis	ICD-10-CM
M05.551	Rheumatoid polyneuropathy with rheumatoid arthritis of right hip	Diagnosis	ICD-10-CM
M05.552	Rheumatoid polyneuropathy with rheumatoid arthritis of left hip	Diagnosis	ICD-10-CM
M05.559	Rheumatoid polyneuropathy with rheumatoid arthritis of unspecified hip	Diagnosis	ICD-10-CM
M05.561	Rheumatoid polyneuropathy with rheumatoid arthritis of right knee	Diagnosis	ICD-10-CM
M05.562	Rheumatoid polyneuropathy with rheumatoid arthritis of left knee	Diagnosis	ICD-10-CM
M05.569	Rheumatoid polyneuropathy with rheumatoid arthritis of unspecified knee	Diagnosis	ICD-10-CM
M05.571	Rheumatoid polyneuropathy with rheumatoid arthritis of right ankle and foot	Diagnosis	ICD-10-CM
M05.572	Rheumatoid polyneuropathy with rheumatoid arthritis of left ankle and foot	Diagnosis	ICD-10-CM
M05.579	Rheumatoid polyneuropathy with rheumatoid arthritis of unspecified ankle and foot	Diagnosis	ICD-10-CM
M05.59	Rheumatoid polyneuropathy with rheumatoid arthritis of multiple sites	Diagnosis	ICD-10-CM
M05.60	Rheumatoid arthritis of unspecified site with involvement of other organs and systems	Diagnosis	ICD-10-CM
M05.611	Rheumatoid arthritis of right shoulder with involvement of other organs and systems	Diagnosis	ICD-10-CM
M05.612	Rheumatoid arthritis of left shoulder with involvement of other organs and systems	Diagnosis	ICD-10-CM
M05.619	Rheumatoid arthritis of unspecified shoulder with involvement of other organs and	Diagnosis	ICD-10-CM
M05.621	Rheumatoid arthritis of right elbow with involvement of other organs and systems	Diagnosis	ICD-10-CM
M05.622	Rheumatoid arthritis of left elbow with involvement of other organs and systems	Diagnosis	ICD-10-CM
M05.629	Rheumatoid arthritis of unspecified elbow with involvement of other organs and	Diagnosis	ICD-10-CM
M05.631	Rheumatoid arthritis of right wrist with involvement of other organs and systems	Diagnosis	ICD-10-CM
M05.632	Rheumatoid arthritis of left wrist with involvement of other organs and systems	Diagnosis	ICD-10-CM
M05.639	Rheumatoid arthritis of unspecified wrist with involvement of other organs and	Diagnosis	ICD-10-CM
M05.641	Rheumatoid arthritis of right hand with involvement of other organs and systems	Diagnosis	ICD-10-CM
M05.642	Rheumatoid arthritis of left hand with involvement of other organs and systems	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
M05.649	Rheumatoid arthritis of unspecified hand with involvement of other organs and	Diagnosis	ICD-10-CM
M05.651	Rheumatoid arthritis of right hip with involvement of other organs and systems	Diagnosis	ICD-10-CM
M05.652	Rheumatoid arthritis of left hip with involvement of other organs and systems	Diagnosis	ICD-10-CM
M05.659	Rheumatoid arthritis of unspecified hip with involvement of other organs and systems	Diagnosis	ICD-10-CM
M05.661	Rheumatoid arthritis of right knee with involvement of other organs and systems	Diagnosis	ICD-10-CM
M05.662	Rheumatoid arthritis of left knee with involvement of other organs and systems	Diagnosis	ICD-10-CM
M05.669	Rheumatoid arthritis of unspecified knee with involvement of other organs and	Diagnosis	ICD-10-CM
M05.671	Rheumatoid arthritis of right ankle and foot with involvement of other organs and	Diagnosis	ICD-10-CM
M05.672	Rheumatoid arthritis of left ankle and foot with involvement of other organs and	Diagnosis	ICD-10-CM
M05.679	Rheumatoid arthritis of unspecified ankle and foot with involvement of other organs and systems	Diagnosis	ICD-10-CM
M05.69	Rheumatoid arthritis of multiple sites with involvement of other organs and systems	Diagnosis	ICD-10-CM
M05.70	Rheumatoid arthritis with rheumatoid factor of unspecified site without organ or systems involvement	Diagnosis	ICD-10-CM
M05.711	Rheumatoid arthritis with rheumatoid factor of right shoulder without organ or systems involvement	Diagnosis	ICD-10-CM
M05.712	Rheumatoid arthritis with rheumatoid factor of left shoulder without organ or systems involvement	Diagnosis	ICD-10-CM
M05.719	Rheumatoid arthritis with rheumatoid factor of unspecified shoulder without organ or systems involvement	Diagnosis	ICD-10-CM
M05.721	Rheumatoid arthritis with rheumatoid factor of right elbow without organ or systems involvement	Diagnosis	ICD-10-CM
M05.722	Rheumatoid arthritis with rheumatoid factor of left elbow without organ or systems involvement	Diagnosis	ICD-10-CM
M05.729	Rheumatoid arthritis with rheumatoid factor of unspecified elbow without organ or systems involvement	Diagnosis	ICD-10-CM
M05.731	Rheumatoid arthritis with rheumatoid factor of right wrist without organ or systems involvement	Diagnosis	ICD-10-CM
M05.732	Rheumatoid arthritis with rheumatoid factor of left wrist without organ or systems	Diagnosis	ICD-10-CM
M05.739	Rheumatoid arthritis with rheumatoid factor of unspecified wrist without organ or systems involvement	Diagnosis	ICD-10-CM
M05.741	Rheumatoid arthritis with rheumatoid factor of right hand without organ or systems involvement	Diagnosis	ICD-10-CM
M05.742	Rheumatoid arthritis with rheumatoid factor of left hand without organ or systems	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
M05.749	Rheumatoid arthritis with rheumatoid factor of unspecified hand without organ or systems involvement	Diagnosis	ICD-10-CM
M05.751	Rheumatoid arthritis with rheumatoid factor of right hip without organ or systems	Diagnosis	ICD-10-CM
M05.752	Rheumatoid arthritis with rheumatoid factor of left hip without organ or systems	Diagnosis	ICD-10-CM
M05.759	Rheumatoid arthritis with rheumatoid factor of unspecified hip without organ or systems involvement	Diagnosis	ICD-10-CM
M05.761	Rheumatoid arthritis with rheumatoid factor of right knee without organ or systems involvement	Diagnosis	ICD-10-CM
M05.762	Rheumatoid arthritis with rheumatoid factor of left knee without organ or systems	Diagnosis	ICD-10-CM
M05.769	Rheumatoid arthritis with rheumatoid factor of unspecified knee without organ or systems involvement	Diagnosis	ICD-10-CM
M05.771	Rheumatoid arthritis with rheumatoid factor of right ankle and foot without organ or systems involvement	Diagnosis	ICD-10-CM
M05.772	Rheumatoid arthritis with rheumatoid factor of left ankle and foot without organ or systems involvement	Diagnosis	ICD-10-CM
M05.779	Rheumatoid arthritis with rheumatoid factor of unspecified ankle and foot without organ or systems involvement	Diagnosis	ICD-10-CM
M05.79	Rheumatoid arthritis with rheumatoid factor of multiple sites without organ or systems involvement	Diagnosis	ICD-10-CM
M05.80	Other rheumatoid arthritis with rheumatoid factor of unspecified site	Diagnosis	ICD-10-CM
M05.811	Other rheumatoid arthritis with rheumatoid factor of right shoulder	Diagnosis	ICD-10-CM
M05.812	Other rheumatoid arthritis with rheumatoid factor of left shoulder	Diagnosis	ICD-10-CM
M05.819	Other rheumatoid arthritis with rheumatoid factor of unspecified shoulder	Diagnosis	ICD-10-CM
M05.821	Other rheumatoid arthritis with rheumatoid factor of right elbow	Diagnosis	ICD-10-CM
M05.822	Other rheumatoid arthritis with rheumatoid factor of left elbow	Diagnosis	ICD-10-CM
M05.829	Other rheumatoid arthritis with rheumatoid factor of unspecified elbow	Diagnosis	ICD-10-CM
M05.831	Other rheumatoid arthritis with rheumatoid factor of right wrist	Diagnosis	ICD-10-CM
M05.832	Other rheumatoid arthritis with rheumatoid factor of left wrist	Diagnosis	ICD-10-CM
M05.839	Other rheumatoid arthritis with rheumatoid factor of unspecified wrist	Diagnosis	ICD-10-CM
M05.841	Other rheumatoid arthritis with rheumatoid factor of right hand	Diagnosis	ICD-10-CM
M05.842	Other rheumatoid arthritis with rheumatoid factor of left hand	Diagnosis	ICD-10-CM
M05.849	Other rheumatoid arthritis with rheumatoid factor of unspecified hand	Diagnosis	ICD-10-CM
M05.851	Other rheumatoid arthritis with rheumatoid factor of right hip	Diagnosis	ICD-10-CM
M05.852	Other rheumatoid arthritis with rheumatoid factor of left hip	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
M05.859	Other rheumatoid arthritis with rheumatoid factor of unspecified hip	Diagnosis	ICD-10-CM
M05.861	Other rheumatoid arthritis with rheumatoid factor of right knee	Diagnosis	ICD-10-CM
M05.862	Other rheumatoid arthritis with rheumatoid factor of left knee	Diagnosis	ICD-10-CM
M05.869	Other rheumatoid arthritis with rheumatoid factor of unspecified knee	Diagnosis	ICD-10-CM
M05.871	Other rheumatoid arthritis with rheumatoid factor of right ankle and foot	Diagnosis	ICD-10-CM
M05.872	Other rheumatoid arthritis with rheumatoid factor of left ankle and foot	Diagnosis	ICD-10-CM
M05.879	Other rheumatoid arthritis with rheumatoid factor of unspecified ankle and foot	Diagnosis	ICD-10-CM
M05.89	Other rheumatoid arthritis with rheumatoid factor of multiple sites	Diagnosis	ICD-10-CM
M05.9	Rheumatoid arthritis with rheumatoid factor, unspecified	Diagnosis	ICD-10-CM
M06.00	Rheumatoid arthritis without rheumatoid factor, unspecified site	Diagnosis	ICD-10-CM
M06.011	Rheumatoid arthritis without rheumatoid factor, right shoulder	Diagnosis	ICD-10-CM
M06.012	Rheumatoid arthritis without rheumatoid factor, left shoulder	Diagnosis	ICD-10-CM
M06.019	Rheumatoid arthritis without rheumatoid factor, unspecified shoulder	Diagnosis	ICD-10-CM
M06.021	Rheumatoid arthritis without rheumatoid factor, right elbow	Diagnosis	ICD-10-CM
M06.022	Rheumatoid arthritis without rheumatoid factor, left elbow	Diagnosis	ICD-10-CM
M06.029	Rheumatoid arthritis without rheumatoid factor, unspecified elbow	Diagnosis	ICD-10-CM
M06.031	Rheumatoid arthritis without rheumatoid factor, right wrist	Diagnosis	ICD-10-CM
M06.032	Rheumatoid arthritis without rheumatoid factor, left wrist	Diagnosis	ICD-10-CM
M06.039	Rheumatoid arthritis without rheumatoid factor, unspecified wrist	Diagnosis	ICD-10-CM
M06.041	Rheumatoid arthritis without rheumatoid factor, right hand	Diagnosis	ICD-10-CM
M06.042	Rheumatoid arthritis without rheumatoid factor, left hand	Diagnosis	ICD-10-CM
M06.049	Rheumatoid arthritis without rheumatoid factor, unspecified hand	Diagnosis	ICD-10-CM
M06.051	Rheumatoid arthritis without rheumatoid factor, right hip	Diagnosis	ICD-10-CM
M06.052	Rheumatoid arthritis without rheumatoid factor, left hip	Diagnosis	ICD-10-CM
M06.059	Rheumatoid arthritis without rheumatoid factor, unspecified hip	Diagnosis	ICD-10-CM
M06.061	Rheumatoid arthritis without rheumatoid factor, right knee	Diagnosis	ICD-10-CM
M06.062	Rheumatoid arthritis without rheumatoid factor, left knee	Diagnosis	ICD-10-CM
M06.069	Rheumatoid arthritis without rheumatoid factor, unspecified knee	Diagnosis	ICD-10-CM
M06.071	Rheumatoid arthritis without rheumatoid factor, right ankle and foot	Diagnosis	ICD-10-CM
M06.072	Rheumatoid arthritis without rheumatoid factor, left ankle and foot	Diagnosis	ICD-10-CM
M06.079	Rheumatoid arthritis without rheumatoid factor, unspecified ankle and foot	Diagnosis	ICD-10-CM
M06.08	Rheumatoid arthritis without rheumatoid factor, vertebrae	Diagnosis	ICD-10-CM
M06.09	Rheumatoid arthritis without rheumatoid factor, multiple sites	Diagnosis	ICD-10-CM
M06.1	Adult-onset Still's disease	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
M06.20	Rheumatoid bursitis, unspecified site	Diagnosis	ICD-10-CM
M06.211	Rheumatoid bursitis, right shoulder	Diagnosis	ICD-10-CM
M06.212	Rheumatoid bursitis, left shoulder	Diagnosis	ICD-10-CM
M06.219	Rheumatoid bursitis, unspecified shoulder	Diagnosis	ICD-10-CM
M06.221	Rheumatoid bursitis, right elbow	Diagnosis	ICD-10-CM
M06.222	Rheumatoid bursitis, left elbow	Diagnosis	ICD-10-CM
M06.229	Rheumatoid bursitis, unspecified elbow	Diagnosis	ICD-10-CM
M06.231	Rheumatoid bursitis, right wrist	Diagnosis	ICD-10-CM
M06.232	Rheumatoid bursitis, left wrist	Diagnosis	ICD-10-CM
M06.239	Rheumatoid bursitis, unspecified wrist	Diagnosis	ICD-10-CM
M06.241	Rheumatoid bursitis, right hand	Diagnosis	ICD-10-CM
M06.242	Rheumatoid bursitis, left hand	Diagnosis	ICD-10-CM
M06.249	Rheumatoid bursitis, unspecified hand	Diagnosis	ICD-10-CM
M06.251	Rheumatoid bursitis, right hip	Diagnosis	ICD-10-CM
M06.252	Rheumatoid bursitis, left hip	Diagnosis	ICD-10-CM
M06.259	Rheumatoid bursitis, unspecified hip	Diagnosis	ICD-10-CM
M06.261	Rheumatoid bursitis, right knee	Diagnosis	ICD-10-CM
M06.262	Rheumatoid bursitis, left knee	Diagnosis	ICD-10-CM
M06.269	Rheumatoid bursitis, unspecified knee	Diagnosis	ICD-10-CM
M06.271	Rheumatoid bursitis, right ankle and foot	Diagnosis	ICD-10-CM
M06.272	Rheumatoid bursitis, left ankle and foot	Diagnosis	ICD-10-CM
M06.279	Rheumatoid bursitis, unspecified ankle and foot	Diagnosis	ICD-10-CM
M06.28	Rheumatoid bursitis, vertebrae	Diagnosis	ICD-10-CM
M06.29	Rheumatoid bursitis, multiple sites	Diagnosis	ICD-10-CM
M06.30	Rheumatoid nodule, unspecified site	Diagnosis	ICD-10-CM
M06.311	Rheumatoid nodule, right shoulder	Diagnosis	ICD-10-CM
M06.312	Rheumatoid nodule, left shoulder	Diagnosis	ICD-10-CM
M06.319	Rheumatoid nodule, unspecified shoulder	Diagnosis	ICD-10-CM
M06.321	Rheumatoid nodule, right elbow	Diagnosis	ICD-10-CM
M06.322	Rheumatoid nodule, left elbow	Diagnosis	ICD-10-CM
M06.329	Rheumatoid nodule, unspecified elbow	Diagnosis	ICD-10-CM
M06.331	Rheumatoid nodule, right wrist	Diagnosis	ICD-10-CM
M06.332	Rheumatoid nodule, left wrist	Diagnosis	ICD-10-CM
M06.339	Rheumatoid nodule, unspecified wrist	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
M06.341	Rheumatoid nodule, right hand	Diagnosis	ICD-10-CM
M06.342	Rheumatoid nodule, left hand	Diagnosis	ICD-10-CM
M06.349	Rheumatoid nodule, unspecified hand	Diagnosis	ICD-10-CM
M06.351	Rheumatoid nodule, right hip	Diagnosis	ICD-10-CM
M06.352	Rheumatoid nodule, left hip	Diagnosis	ICD-10-CM
M06.359	Rheumatoid nodule, unspecified hip	Diagnosis	ICD-10-CM
M06.361	Rheumatoid nodule, right knee	Diagnosis	ICD-10-CM
M06.362	Rheumatoid nodule, left knee	Diagnosis	ICD-10-CM
M06.369	Rheumatoid nodule, unspecified knee	Diagnosis	ICD-10-CM
M06.371	Rheumatoid nodule, right ankle and foot	Diagnosis	ICD-10-CM
M06.372	Rheumatoid nodule, left ankle and foot	Diagnosis	ICD-10-CM
M06.379	Rheumatoid nodule, unspecified ankle and foot	Diagnosis	ICD-10-CM
M06.38	Rheumatoid nodule, vertebrae	Diagnosis	ICD-10-CM
M06.39	Rheumatoid nodule, multiple sites	Diagnosis	ICD-10-CM
M06.80	Other specified rheumatoid arthritis, unspecified site	Diagnosis	ICD-10-CM
M06.811	Other specified rheumatoid arthritis, right shoulder	Diagnosis	ICD-10-CM
M06.812	Other specified rheumatoid arthritis, left shoulder	Diagnosis	ICD-10-CM
M06.819	Other specified rheumatoid arthritis, unspecified shoulder	Diagnosis	ICD-10-CM
M06.821	Other specified rheumatoid arthritis, right elbow	Diagnosis	ICD-10-CM
M06.822	Other specified rheumatoid arthritis, left elbow	Diagnosis	ICD-10-CM
M06.829	Other specified rheumatoid arthritis, unspecified elbow	Diagnosis	ICD-10-CM
M06.831	Other specified rheumatoid arthritis, right wrist	Diagnosis	ICD-10-CM
M06.832	Other specified rheumatoid arthritis, left wrist	Diagnosis	ICD-10-CM
M06.839	Other specified rheumatoid arthritis, unspecified wrist	Diagnosis	ICD-10-CM
M06.841	Other specified rheumatoid arthritis, right hand	Diagnosis	ICD-10-CM
M06.842	Other specified rheumatoid arthritis, left hand	Diagnosis	ICD-10-CM
M06.849	Other specified rheumatoid arthritis, unspecified hand	Diagnosis	ICD-10-CM
M06.851	Other specified rheumatoid arthritis, right hip	Diagnosis	ICD-10-CM
M06.852	Other specified rheumatoid arthritis, left hip	Diagnosis	ICD-10-CM
M06.859	Other specified rheumatoid arthritis, unspecified hip	Diagnosis	ICD-10-CM
M06.861	Other specified rheumatoid arthritis, right knee	Diagnosis	ICD-10-CM
M06.862	Other specified rheumatoid arthritis, left knee	Diagnosis	ICD-10-CM
M06.869	Other specified rheumatoid arthritis, unspecified knee	Diagnosis	ICD-10-CM
M06.871	Other specified rheumatoid arthritis, right ankle and foot	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
M06.872	Other specified rheumatoid arthritis, left ankle and foot	Diagnosis	ICD-10-CM
M06.879	Other specified rheumatoid arthritis, unspecified ankle and foot	Diagnosis	ICD-10-CM
M06.88	Other specified rheumatoid arthritis, vertebrae	Diagnosis	ICD-10-CM
M06.89	Other specified rheumatoid arthritis, multiple sites	Diagnosis	ICD-10-CM
M06.9	Rheumatoid arthritis, unspecified	Diagnosis	ICD-10-CM
M08.00	Unspecified juvenile rheumatoid arthritis of unspecified site	Diagnosis	ICD-10-CM
M08.011	Unspecified juvenile rheumatoid arthritis, right shoulder	Diagnosis	ICD-10-CM
M08.012	Unspecified juvenile rheumatoid arthritis, left shoulder	Diagnosis	ICD-10-CM
M08.019	Unspecified juvenile rheumatoid arthritis, unspecified shoulder	Diagnosis	ICD-10-CM
M08.021	Unspecified juvenile rheumatoid arthritis, right elbow	Diagnosis	ICD-10-CM
M08.022	Unspecified juvenile rheumatoid arthritis, left elbow	Diagnosis	ICD-10-CM
M08.029	Unspecified juvenile rheumatoid arthritis, unspecified elbow	Diagnosis	ICD-10-CM
M08.031	Unspecified juvenile rheumatoid arthritis, right wrist	Diagnosis	ICD-10-CM
M08.032	Unspecified juvenile rheumatoid arthritis, left wrist	Diagnosis	ICD-10-CM
M08.039	Unspecified juvenile rheumatoid arthritis, unspecified wrist	Diagnosis	ICD-10-CM
M08.041	Unspecified juvenile rheumatoid arthritis, right hand	Diagnosis	ICD-10-CM
M08.042	Unspecified juvenile rheumatoid arthritis, left hand	Diagnosis	ICD-10-CM
M08.049	Unspecified juvenile rheumatoid arthritis, unspecified hand	Diagnosis	ICD-10-CM
M08.051	Unspecified juvenile rheumatoid arthritis, right hip	Diagnosis	ICD-10-CM
M08.052	Unspecified juvenile rheumatoid arthritis, left hip	Diagnosis	ICD-10-CM
M08.059	Unspecified juvenile rheumatoid arthritis, unspecified hip	Diagnosis	ICD-10-CM
M08.061	Unspecified juvenile rheumatoid arthritis, right knee	Diagnosis	ICD-10-CM
M08.062	Unspecified juvenile rheumatoid arthritis, left knee	Diagnosis	ICD-10-CM
M08.069	Unspecified juvenile rheumatoid arthritis, unspecified knee	Diagnosis	ICD-10-CM
M08.071	Unspecified juvenile rheumatoid arthritis, right ankle and foot	Diagnosis	ICD-10-CM
M08.072	Unspecified juvenile rheumatoid arthritis, left ankle and foot	Diagnosis	ICD-10-CM
M08.079	Unspecified juvenile rheumatoid arthritis, unspecified ankle and foot	Diagnosis	ICD-10-CM
M08.08	Unspecified juvenile rheumatoid arthritis, vertebrae	Diagnosis	ICD-10-CM
M08.09	Unspecified juvenile rheumatoid arthritis, multiple sites	Diagnosis	ICD-10-CM
M08.1	Juvenile ankylosing spondylitis	Diagnosis	ICD-10-CM
M08.20	Juvenile rheumatoid arthritis with systemic onset, unspecified site	Diagnosis	ICD-10-CM
M08.211	Juvenile rheumatoid arthritis with systemic onset, right shoulder	Diagnosis	ICD-10-CM
M08.212	Juvenile rheumatoid arthritis with systemic onset, left shoulder	Diagnosis	ICD-10-CM
M08.219	Juvenile rheumatoid arthritis with systemic onset, unspecified shoulder	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
M08.221	Juvenile rheumatoid arthritis with systemic onset, right elbow	Diagnosis	ICD-10-CM
M08.222	Juvenile rheumatoid arthritis with systemic onset, left elbow	Diagnosis	ICD-10-CM
M08.229	Juvenile rheumatoid arthritis with systemic onset, unspecified elbow	Diagnosis	ICD-10-CM
M08.231	Juvenile rheumatoid arthritis with systemic onset, right wrist	Diagnosis	ICD-10-CM
M08.232	Juvenile rheumatoid arthritis with systemic onset, left wrist	Diagnosis	ICD-10-CM
M08.239	Juvenile rheumatoid arthritis with systemic onset, unspecified wrist	Diagnosis	ICD-10-CM
M08.241	Juvenile rheumatoid arthritis with systemic onset, right hand	Diagnosis	ICD-10-CM
M08.242	Juvenile rheumatoid arthritis with systemic onset, left hand	Diagnosis	ICD-10-CM
M08.249	Juvenile rheumatoid arthritis with systemic onset, unspecified hand	Diagnosis	ICD-10-CM
M08.251	Juvenile rheumatoid arthritis with systemic onset, right hip	Diagnosis	ICD-10-CM
M08.252	Juvenile rheumatoid arthritis with systemic onset, left hip	Diagnosis	ICD-10-CM
M08.259	Juvenile rheumatoid arthritis with systemic onset, unspecified hip	Diagnosis	ICD-10-CM
M08.261	Juvenile rheumatoid arthritis with systemic onset, right knee	Diagnosis	ICD-10-CM
M08.262	Juvenile rheumatoid arthritis with systemic onset, left knee	Diagnosis	ICD-10-CM
M08.269	Juvenile rheumatoid arthritis with systemic onset, unspecified knee	Diagnosis	ICD-10-CM
M08.271	Juvenile rheumatoid arthritis with systemic onset, right ankle and foot	Diagnosis	ICD-10-CM
M08.272	Juvenile rheumatoid arthritis with systemic onset, left ankle and foot	Diagnosis	ICD-10-CM
M08.279	Juvenile rheumatoid arthritis with systemic onset, unspecified ankle and foot	Diagnosis	ICD-10-CM
M08.28	Juvenile rheumatoid arthritis with systemic onset, vertebrae	Diagnosis	ICD-10-CM
M08.29	Juvenile rheumatoid arthritis with systemic onset, multiple sites	Diagnosis	ICD-10-CM
M08.3	Juvenile rheumatoid polyarthritis (seronegative)	Diagnosis	ICD-10-CM
M08.40	Pauciarticular juvenile rheumatoid arthritis, unspecified site	Diagnosis	ICD-10-CM
M08.411	Pauciarticular juvenile rheumatoid arthritis, right shoulder	Diagnosis	ICD-10-CM
M08.412	Pauciarticular juvenile rheumatoid arthritis, left shoulder	Diagnosis	ICD-10-CM
M08.419	Pauciarticular juvenile rheumatoid arthritis, unspecified shoulder	Diagnosis	ICD-10-CM
M08.421	Pauciarticular juvenile rheumatoid arthritis, right elbow	Diagnosis	ICD-10-CM
M08.422	Pauciarticular juvenile rheumatoid arthritis, left elbow	Diagnosis	ICD-10-CM
M08.429	Pauciarticular juvenile rheumatoid arthritis, unspecified elbow	Diagnosis	ICD-10-CM
M08.431	Pauciarticular juvenile rheumatoid arthritis, right wrist	Diagnosis	ICD-10-CM
M08.432	Pauciarticular juvenile rheumatoid arthritis, left wrist	Diagnosis	ICD-10-CM
M08.439	Pauciarticular juvenile rheumatoid arthritis, unspecified wrist	Diagnosis	ICD-10-CM
M08.441	Pauciarticular juvenile rheumatoid arthritis, right hand	Diagnosis	ICD-10-CM
M08.442	Pauciarticular juvenile rheumatoid arthritis, left hand	Diagnosis	ICD-10-CM
M08.449	Pauciarticular juvenile rheumatoid arthritis, unspecified hand	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
M08.451	Pauciarticular juvenile rheumatoid arthritis, right hip	Diagnosis	ICD-10-CM
M08.452	Pauciarticular juvenile rheumatoid arthritis, left hip	Diagnosis	ICD-10-CM
M08.459	Pauciarticular juvenile rheumatoid arthritis, unspecified hip	Diagnosis	ICD-10-CM
M08.461	Pauciarticular juvenile rheumatoid arthritis, right knee	Diagnosis	ICD-10-CM
M08.462	Pauciarticular juvenile rheumatoid arthritis, left knee	Diagnosis	ICD-10-CM
M08.469	Pauciarticular juvenile rheumatoid arthritis, unspecified knee	Diagnosis	ICD-10-CM
M08.471	Pauciarticular juvenile rheumatoid arthritis, right ankle and foot	Diagnosis	ICD-10-CM
M08.472	Pauciarticular juvenile rheumatoid arthritis, left ankle and foot	Diagnosis	ICD-10-CM
M08.479	Pauciarticular juvenile rheumatoid arthritis, unspecified ankle and foot	Diagnosis	ICD-10-CM
M08.48	Pauciarticular juvenile rheumatoid arthritis, vertebrae	Diagnosis	ICD-10-CM
M08.80	Other juvenile arthritis, unspecified site	Diagnosis	ICD-10-CM
M08.811	Other juvenile arthritis, right shoulder	Diagnosis	ICD-10-CM
M08.812	Other juvenile arthritis, left shoulder	Diagnosis	ICD-10-CM
M08.819	Other juvenile arthritis, unspecified shoulder	Diagnosis	ICD-10-CM
M08.821	Other juvenile arthritis, right elbow	Diagnosis	ICD-10-CM
M08.822	Other juvenile arthritis, left elbow	Diagnosis	ICD-10-CM
M08.829	Other juvenile arthritis, unspecified elbow	Diagnosis	ICD-10-CM
M08.831	Other juvenile arthritis, right wrist	Diagnosis	ICD-10-CM
M08.832	Other juvenile arthritis, left wrist	Diagnosis	ICD-10-CM
M08.839	Other juvenile arthritis, unspecified wrist	Diagnosis	ICD-10-CM
M08.841	Other juvenile arthritis, right hand	Diagnosis	ICD-10-CM
M08.842	Other juvenile arthritis, left hand	Diagnosis	ICD-10-CM
M08.849	Other juvenile arthritis, unspecified hand	Diagnosis	ICD-10-CM
M08.851	Other juvenile arthritis, right hip	Diagnosis	ICD-10-CM
M08.852	Other juvenile arthritis, left hip	Diagnosis	ICD-10-CM
M08.859	Other juvenile arthritis, unspecified hip	Diagnosis	ICD-10-CM
M08.861	Other juvenile arthritis, right knee	Diagnosis	ICD-10-CM
M08.862	Other juvenile arthritis, left knee	Diagnosis	ICD-10-CM
M08.869	Other juvenile arthritis, unspecified knee	Diagnosis	ICD-10-CM
M08.871	Other juvenile arthritis, right ankle and foot	Diagnosis	ICD-10-CM
M08.872	Other juvenile arthritis, left ankle and foot	Diagnosis	ICD-10-CM
M08.879	Other juvenile arthritis, unspecified ankle and foot	Diagnosis	ICD-10-CM
M08.88	Other juvenile arthritis, other specified site	Diagnosis	ICD-10-CM
M08.89	Other juvenile arthritis, multiple sites	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
M08.90	Juvenile arthritis, unspecified, unspecified site	Diagnosis	ICD-10-CM
M08.911	Juvenile arthritis, unspecified, right shoulder	Diagnosis	ICD-10-CM
M08.912	Juvenile arthritis, unspecified, left shoulder	Diagnosis	ICD-10-CM
M08.919	Juvenile arthritis, unspecified, unspecified shoulder	Diagnosis	ICD-10-CM
M08.921	Juvenile arthritis, unspecified, right elbow	Diagnosis	ICD-10-CM
M08.922	Juvenile arthritis, unspecified, left elbow	Diagnosis	ICD-10-CM
M08.929	Juvenile arthritis, unspecified, unspecified elbow	Diagnosis	ICD-10-CM
M08.931	Juvenile arthritis, unspecified, right wrist	Diagnosis	ICD-10-CM
M08.932	Juvenile arthritis, unspecified, left wrist	Diagnosis	ICD-10-CM
M08.939	Juvenile arthritis, unspecified, unspecified wrist	Diagnosis	ICD-10-CM
M08.941	Juvenile arthritis, unspecified, right hand	Diagnosis	ICD-10-CM
M08.942	Juvenile arthritis, unspecified, left hand	Diagnosis	ICD-10-CM
M08.949	Juvenile arthritis, unspecified, unspecified hand	Diagnosis	ICD-10-CM
M08.951	Juvenile arthritis, unspecified, right hip	Diagnosis	ICD-10-CM
M08.952	Juvenile arthritis, unspecified, left hip	Diagnosis	ICD-10-CM
M08.959	Juvenile arthritis, unspecified, unspecified hip	Diagnosis	ICD-10-CM
M08.961	Juvenile arthritis, unspecified, right knee	Diagnosis	ICD-10-CM
M08.962	Juvenile arthritis, unspecified, left knee	Diagnosis	ICD-10-CM
M08.969	Juvenile arthritis, unspecified, unspecified knee	Diagnosis	ICD-10-CM
M08.971	Juvenile arthritis, unspecified, right ankle and foot	Diagnosis	ICD-10-CM
M08.972	Juvenile arthritis, unspecified, left ankle and foot	Diagnosis	ICD-10-CM
M08.979	Juvenile arthritis, unspecified, unspecified ankle and foot	Diagnosis	ICD-10-CM
M08.98	Juvenile arthritis, unspecified, vertebrae	Diagnosis	ICD-10-CM
M08.99	Juvenile arthritis, unspecified, multiple sites	Diagnosis	ICD-10-CM
M45.0	Ankylosing spondylitis of multiple sites in spine	Diagnosis	ICD-10-CM
M45.1	Ankylosing spondylitis of occipito-atlanto-axial region	Diagnosis	ICD-10-CM
M45.2	Ankylosing spondylitis of cervical region	Diagnosis	ICD-10-CM
M45.3	Ankylosing spondylitis of cervicothoracic region	Diagnosis	ICD-10-CM
M45.4	Ankylosing spondylitis of thoracic region	Diagnosis	ICD-10-CM
M45.5	Ankylosing spondylitis of thoracolumbar region	Diagnosis	ICD-10-CM
M45.6	Ankylosing spondylitis lumbar region	Diagnosis	ICD-10-CM
M45.7	Ankylosing spondylitis of lumbosacral region	Diagnosis	ICD-10-CM
M45.8	Ankylosing spondylitis sacral and sacrococcygeal region	Diagnosis	ICD-10-CM
M45.9	Ankylosing spondylitis of unspecified sites in spine	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
Multiple Sclerosis			
G35	Multiple sclerosis	Diagnosis	ICD-10-CM
G36.0	Neuromyelitis optica [Devic]	Diagnosis	ICD-10-CM
G36.1	Acute and subacute hemorrhagic leukoencephalitis [Hurst]	Diagnosis	ICD-10-CM
G36.8	Other specified acute disseminated demyelination	Diagnosis	ICD-10-CM
G36.9	Acute disseminated demyelination, unspecified	Diagnosis	ICD-10-CM
G37.1	Central demyelination of corpus callosum	Diagnosis	ICD-10-CM
G37.2	Central pontine myelinolysis	Diagnosis	ICD-10-CM
G37.3	Acute transverse myelitis in demyelinating disease of central nervous system	Diagnosis	ICD-10-CM
G37.4	Subacute necrotizing myelitis of central nervous system	Diagnosis	ICD-10-CM
G37.8	Other specified demyelinating diseases of central nervous system	Diagnosis	ICD-10-CM
G37.9	Demyelinating disease of central nervous system, unspecified	Diagnosis	ICD-10-CM
HIV			
B20	Human immunodeficiency virus [HIV] disease	Diagnosis	ICD-10-CM
B97.35	Human immunodeficiency virus, type 2 [HIV 2] as the cause of diseases classified	Diagnosis	ICD-10-CM
Z21	Asymptomatic human immunodeficiency virus [HIV] infection status	Diagnosis	ICD-10-CM
Coronary Artery Disease			
0210083	Bypass Coronary Artery, One Artery from Coronary Artery with Zooplastic Tissue, Open Approach	Procedure	ICD-10-PCS
0210088	Bypass Coronary Artery, One Artery from Right Internal Mammary with Zooplastic Tissue, Open Approach	Procedure	ICD-10-PCS
0210089	Bypass Coronary Artery, One Artery from Left Internal Mammary with Zooplastic Tissue, Open Approach	Procedure	ICD-10-PCS
021008C	Bypass Coronary Artery, One Artery from Thoracic Artery with Zooplastic Tissue, Open	Procedure	ICD-10-PCS
021008F	Bypass Coronary Artery, One Artery from Abdominal Artery with Zooplastic Tissue, Open Approach	Procedure	ICD-10-PCS
021008W	Bypass Coronary Artery, One Artery from Aorta with Zooplastic Tissue, Open Approach	Procedure	ICD-10-PCS
0210093	Bypass Coronary Artery, One Artery from Coronary Artery with Autologous Venous Tissue, Open Approach	Procedure	ICD-10-PCS
0210098	Bypass Coronary Artery, One Artery from Right Internal Mammary with Autologous Venous Tissue, Open Approach	Procedure	ICD-10-PCS
0210099	Bypass Coronary Artery, One Artery from Left Internal Mammary with Autologous Venous Tissue, Open Approach	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
021009C	Bypass Coronary Artery, One Artery from Thoracic Artery with Autologous Venous Tissue, Open Approach	Procedure	ICD-10-PCS
021009F	Bypass Coronary Artery, One Artery from Abdominal Artery with Autologous Venous Tissue, Open Approach	Procedure	ICD-10-PCS
021009W	Bypass Coronary Artery, One Artery from Aorta with Autologous Venous Tissue, Open	Procedure	ICD-10-PCS
02100A3	Bypass Coronary Artery, One Artery from Coronary Artery with Autologous Arterial Tissue, Open Approach	Procedure	ICD-10-PCS
02100A8	Bypass Coronary Artery, One Artery from Right Internal Mammary with Autologous Arterial Tissue, Open Approach	Procedure	ICD-10-PCS
02100A9	Bypass Coronary Artery, One Artery from Left Internal Mammary with Autologous Arterial Tissue, Open Approach	Procedure	ICD-10-PCS
02100AC	Bypass Coronary Artery, One Artery from Thoracic Artery with Autologous Arterial Tissue, Open Approach	Procedure	ICD-10-PCS
02100AF	Bypass Coronary Artery, One Artery from Abdominal Artery with Autologous Arterial Tissue, Open Approach	Procedure	ICD-10-PCS
02100AW	Bypass Coronary Artery, One Artery from Aorta with Autologous Arterial Tissue, Open	Procedure	ICD-10-PCS
02100J3	Bypass Coronary Artery, One Artery from Coronary Artery with Synthetic Substitute, Open Approach	Procedure	ICD-10-PCS
02100J8	Bypass Coronary Artery, One Artery from Right Internal Mammary with Synthetic Substitute, Open Approach	Procedure	ICD-10-PCS
02100J9	Bypass Coronary Artery, One Artery from Left Internal Mammary with Synthetic Substitute, Open Approach	Procedure	ICD-10-PCS
02100JC	Bypass Coronary Artery, One Artery from Thoracic Artery with Synthetic Substitute, Open Approach	Procedure	ICD-10-PCS
02100JF	Bypass Coronary Artery, One Artery from Abdominal Artery with Synthetic Substitute, Open Approach	Procedure	ICD-10-PCS
02100JW	Bypass Coronary Artery, One Artery from Aorta with Synthetic Substitute, Open	Procedure	ICD-10-PCS
02100K3	Bypass Coronary Artery, One Artery from Coronary Artery with Nonautologous Tissue Substitute, Open Approach	Procedure	ICD-10-PCS
02100K8	Bypass Coronary Artery, One Artery from Right Internal Mammary with Nonautologous Tissue Substitute, Open Approach	Procedure	ICD-10-PCS
02100K9	Bypass Coronary Artery, One Artery from Left Internal Mammary with Nonautologous Tissue Substitute, Open Approach	Procedure	ICD-10-PCS

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Code	Description	Code Category	Code Type
02100KC	Bypass Coronary Artery, One Artery from Thoracic Artery with Nonautologous Tissue Substitute, Open Approach	Procedure	ICD-10-PCS
02100KF	Bypass Coronary Artery, One Artery from Abdominal Artery with Nonautologous Tissue Substitute, Open Approach	Procedure	ICD-10-PCS
02100KW	Bypass Coronary Artery, One Artery from Aorta with Nonautologous Tissue Substitute, Open Approach	Procedure	ICD-10-PCS
02100Z3	Bypass Coronary Artery, One Artery from Coronary Artery, Open Approach	Procedure	ICD-10-PCS
02100Z8	Bypass Coronary Artery, One Artery from Right Internal Mammary, Open Approach	Procedure	ICD-10-PCS
02100Z9	Bypass Coronary Artery, One Artery from Left Internal Mammary, Open Approach	Procedure	ICD-10-PCS
02100ZC	Bypass Coronary Artery, One Artery from Thoracic Artery, Open Approach	Procedure	ICD-10-PCS
02100ZF	Bypass Coronary Artery, One Artery from Abdominal Artery, Open Approach	Procedure	ICD-10-PCS
0210483	Bypass Coronary Artery, One Artery from Coronary Artery with Zooplastic Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0210488	Bypass Coronary Artery, One Artery from Right Internal Mammary with Zooplastic Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0210489	Bypass Coronary Artery, One Artery from Left Internal Mammary with Zooplastic Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
021048C	Bypass Coronary Artery, One Artery from Thoracic Artery with Zooplastic Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
021048F	Bypass Coronary Artery, One Artery from Abdominal Artery with Zooplastic Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
021048W	Bypass Coronary Artery, One Artery from Aorta with Zooplastic Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0210493	Bypass Coronary Artery, One Artery from Coronary Artery with Autologous Venous Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0210498	Bypass Coronary Artery, One Artery from Right Internal Mammary with Autologous Venous Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0210499	Bypass Coronary Artery, One Artery from Left Internal Mammary with Autologous Venous Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
021049C	Bypass Coronary Artery, One Artery from Thoracic Artery with Autologous Venous Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
021049F	Bypass Coronary Artery, One Artery from Abdominal Artery with Autologous Venous Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
021049W	Bypass Coronary Artery, One Artery from Aorta with Autologous Venous Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02104A3	Bypass Coronary Artery, One Artery from Coronary Artery with Autologous Arterial Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02104A8	Bypass Coronary Artery, One Artery from Right Internal Mammary with Autologous Arterial Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02104A9	Bypass Coronary Artery, One Artery from Left Internal Mammary with Autologous Arterial Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02104AC	Bypass Coronary Artery, One Artery from Thoracic Artery with Autologous Arterial Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02104AF	Bypass Coronary Artery, One Artery from Abdominal Artery with Autologous Arterial Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02104AW	Bypass Coronary Artery, One Artery from Aorta with Autologous Arterial Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02104J3	Bypass Coronary Artery, One Artery from Coronary Artery with Synthetic Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02104J8	Bypass Coronary Artery, One Artery from Right Internal Mammary with Synthetic Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02104J9	Bypass Coronary Artery, One Artery from Left Internal Mammary with Synthetic Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02104JC	Bypass Coronary Artery, One Artery from Thoracic Artery with Synthetic Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02104JF	Bypass Coronary Artery, One Artery from Abdominal Artery with Synthetic Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02104JW	Bypass Coronary Artery, One Artery from Aorta with Synthetic Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02104K3	Bypass Coronary Artery, One Artery from Coronary Artery with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02104K8	Bypass Coronary Artery, One Artery from Right Internal Mammary with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02104K9	Bypass Coronary Artery, One Artery from Left Internal Mammary with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02104KC	Bypass Coronary Artery, One Artery from Thoracic Artery with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
02104KF	Bypass Coronary Artery, One Artery from Abdominal Artery with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02104KW	Bypass Coronary Artery, One Artery from Aorta with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02104Z3	Bypass Coronary Artery, One Artery from Coronary Artery, Percutaneous Endoscopic	Procedure	ICD-10-PCS
02104Z8	Bypass Coronary Artery, One Artery from Right Internal Mammary, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02104Z9	Bypass Coronary Artery, One Artery from Left Internal Mammary, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02104ZC	Bypass Coronary Artery, One Artery from Thoracic Artery, Percutaneous Endoscopic	Procedure	ICD-10-PCS
02104ZF	Bypass Coronary Artery, One Artery from Abdominal Artery, Percutaneous Endoscopic	Procedure	ICD-10-PCS
0211083	Bypass Coronary Artery, Two Arteries from Coronary Artery with Zooplastic Tissue, Open Approach	Procedure	ICD-10-PCS
0211088	Bypass Coronary Artery, Two Arteries from Right Internal Mammary with Zooplastic Tissue, Open Approach	Procedure	ICD-10-PCS
0211089	Bypass Coronary Artery, Two Arteries from Left Internal Mammary with Zooplastic Tissue, Open Approach	Procedure	ICD-10-PCS
021108C	Bypass Coronary Artery, Two Arteries from Thoracic Artery with Zooplastic Tissue, Open Approach	Procedure	ICD-10-PCS
021108F	Bypass Coronary Artery, Two Arteries from Abdominal Artery with Zooplastic Tissue, Open Approach	Procedure	ICD-10-PCS
021108W	Bypass Coronary Artery, Two Arteries from Aorta with Zooplastic Tissue, Open	Procedure	ICD-10-PCS
0211093	Bypass Coronary Artery, Two Arteries from Coronary Artery with Autologous Venous Tissue, Open Approach	Procedure	ICD-10-PCS
0211098	Bypass Coronary Artery, Two Arteries from Right Internal Mammary with Autologous Venous Tissue, Open Approach	Procedure	ICD-10-PCS
0211099	Bypass Coronary Artery, Two Arteries from Left Internal Mammary with Autologous Venous Tissue, Open Approach	Procedure	ICD-10-PCS
021109C	Bypass Coronary Artery, Two Arteries from Thoracic Artery with Autologous Venous Tissue, Open Approach	Procedure	ICD-10-PCS
021109F	Bypass Coronary Artery, Two Arteries from Abdominal Artery with Autologous Venous Tissue, Open Approach	Procedure	ICD-10-PCS
021109W	Bypass Coronary Artery, Two Arteries from Aorta with Autologous Venous Tissue, Open Approach	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
02110A3	Bypass Coronary Artery, Two Arteries from Coronary Artery with Autologous Arterial Tissue, Open Approach	Procedure	ICD-10-PCS
02110A8	Bypass Coronary Artery, Two Arteries from Right Internal Mammary with Autologous Arterial Tissue, Open Approach	Procedure	ICD-10-PCS
02110A9	Bypass Coronary Artery, Two Arteries from Left Internal Mammary with Autologous Arterial Tissue, Open Approach	Procedure	ICD-10-PCS
02110AC	Bypass Coronary Artery, Two Arteries from Thoracic Artery with Autologous Arterial Tissue, Open Approach	Procedure	ICD-10-PCS
02110AF	Bypass Coronary Artery, Two Arteries from Abdominal Artery with Autologous Arterial Tissue, Open Approach	Procedure	ICD-10-PCS
02110AW	Bypass Coronary Artery, Two Arteries from Aorta with Autologous Arterial Tissue, Open Approach	Procedure	ICD-10-PCS
02110J3	Bypass Coronary Artery, Two Arteries from Coronary Artery with Synthetic Substitute, Open Approach	Procedure	ICD-10-PCS
02110J8	Bypass Coronary Artery, Two Arteries from Right Internal Mammary with Synthetic Substitute, Open Approach	Procedure	ICD-10-PCS
02110J9	Bypass Coronary Artery, Two Arteries from Left Internal Mammary with Synthetic Substitute, Open Approach	Procedure	ICD-10-PCS
02110JC	Bypass Coronary Artery, Two Arteries from Thoracic Artery with Synthetic Substitute, Open Approach	Procedure	ICD-10-PCS
02110JF	Bypass Coronary Artery, Two Arteries from Abdominal Artery with Synthetic Substitute, Open Approach	Procedure	ICD-10-PCS
02110JW	Bypass Coronary Artery, Two Arteries from Aorta with Synthetic Substitute, Open	Procedure	ICD-10-PCS
02110K3	Bypass Coronary Artery, Two Arteries from Coronary Artery with Nonautologous Tissue Substitute, Open Approach	Procedure	ICD-10-PCS
02110K8	Bypass Coronary Artery, Two Arteries from Right Internal Mammary with Nonautologous Tissue Substitute, Open Approach	Procedure	ICD-10-PCS
02110K9	Bypass Coronary Artery, Two Arteries from Left Internal Mammary with Nonautologous Tissue Substitute, Open Approach	Procedure	ICD-10-PCS
02110KC	Bypass Coronary Artery, Two Arteries from Thoracic Artery with Nonautologous Tissue Substitute, Open Approach	Procedure	ICD-10-PCS
02110KF	Bypass Coronary Artery, Two Arteries from Abdominal Artery with Nonautologous Tissue Substitute, Open Approach	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
02110KW	Bypass Coronary Artery, Two Arteries from Aorta with Nonautologous Tissue Substitute, Open Approach	Procedure	ICD-10-PCS
02110Z3	Bypass Coronary Artery, Two Arteries from Coronary Artery, Open Approach	Procedure	ICD-10-PCS
02110Z8	Bypass Coronary Artery, Two Arteries from Right Internal Mammary, Open Approach	Procedure	ICD-10-PCS
02110Z9	Bypass Coronary Artery, Two Arteries from Left Internal Mammary, Open Approach	Procedure	ICD-10-PCS
02110ZC	Bypass Coronary Artery, Two Arteries from Thoracic Artery, Open Approach	Procedure	ICD-10-PCS
02110ZF	Bypass Coronary Artery, Two Arteries from Abdominal Artery, Open Approach	Procedure	ICD-10-PCS
0211483	Bypass Coronary Artery, Two Arteries from Coronary Artery with Zooplastic Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0211488	Bypass Coronary Artery, Two Arteries from Right Internal Mammary with Zooplastic Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0211489	Bypass Coronary Artery, Two Arteries from Left Internal Mammary with Zooplastic Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
021148C	Bypass Coronary Artery, Two Arteries from Thoracic Artery with Zooplastic Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
021148F	Bypass Coronary Artery, Two Arteries from Abdominal Artery with Zooplastic Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
021148W	Bypass Coronary Artery, Two Arteries from Aorta with Zooplastic Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0211493	Bypass Coronary Artery, Two Arteries from Coronary Artery with Autologous Venous Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0211498	Bypass Coronary Artery, Two Arteries from Right Internal Mammary with Autologous Venous Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0211499	Bypass Coronary Artery, Two Arteries from Left Internal Mammary with Autologous Venous Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
021149C	Bypass Coronary Artery, Two Arteries from Thoracic Artery with Autologous Venous Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
021149F	Bypass Coronary Artery, Two Arteries from Abdominal Artery with Autologous Venous Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
021149W	Bypass Coronary Artery, Two Arteries from Aorta with Autologous Venous Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02114A3	Bypass Coronary Artery, Two Arteries from Coronary Artery with Autologous Arterial Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
02114A8	Bypass Coronary Artery, Two Arteries from Right Internal Mammary with Autologous Arterial Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02114A9	Bypass Coronary Artery, Two Arteries from Left Internal Mammary with Autologous Arterial Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02114AC	Bypass Coronary Artery, Two Arteries from Thoracic Artery with Autologous Arterial Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02114AF	Bypass Coronary Artery, Two Arteries from Abdominal Artery with Autologous Arterial Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02114AW	Bypass Coronary Artery, Two Arteries from Aorta with Autologous Arterial Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02114J3	Bypass Coronary Artery, Two Arteries from Coronary Artery with Synthetic Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02114J8	Bypass Coronary Artery, Two Arteries from Right Internal Mammary with Synthetic Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02114J9	Bypass Coronary Artery, Two Arteries from Left Internal Mammary with Synthetic Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02114JC	Bypass Coronary Artery, Two Arteries from Thoracic Artery with Synthetic Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02114JF	Bypass Coronary Artery, Two Arteries from Abdominal Artery with Synthetic Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02114JW	Bypass Coronary Artery, Two Arteries from Aorta with Synthetic Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02114K3	Bypass Coronary Artery, Two Arteries from Coronary Artery with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02114K8	Bypass Coronary Artery, Two Arteries from Right Internal Mammary with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02114K9	Bypass Coronary Artery, Two Arteries from Left Internal Mammary with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02114KC	Bypass Coronary Artery, Two Arteries from Thoracic Artery with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02114KF	Bypass Coronary Artery, Two Arteries from Abdominal Artery with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02114KW	Bypass Coronary Artery, Two Arteries from Aorta with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
02114Z3	Bypass Coronary Artery, Two Arteries from Coronary Artery, Percutaneous Endoscopic	Procedure	ICD-10-PCS
02114Z8	Bypass Coronary Artery, Two Arteries from Right Internal Mammary, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02114Z9	Bypass Coronary Artery, Two Arteries from Left Internal Mammary, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02114ZC	Bypass Coronary Artery, Two Arteries from Thoracic Artery, Percutaneous Endoscopic	Procedure	ICD-10-PCS
02114ZF	Bypass Coronary Artery, Two Arteries from Abdominal Artery, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0212083	Bypass Coronary Artery, Three Arteries from Coronary Artery with Zooplastic Tissue, Open Approach	Procedure	ICD-10-PCS
0212088	Bypass Coronary Artery, Three Arteries from Right Internal Mammary with Zooplastic Tissue, Open Approach	Procedure	ICD-10-PCS
0212089	Bypass Coronary Artery, Three Arteries from Left Internal Mammary with Zooplastic Tissue, Open Approach	Procedure	ICD-10-PCS
021208C	Bypass Coronary Artery, Three Arteries from Thoracic Artery with Zooplastic Tissue, Open Approach	Procedure	ICD-10-PCS
021208F	Bypass Coronary Artery, Three Arteries from Abdominal Artery with Zooplastic Tissue, Open Approach	Procedure	ICD-10-PCS
021208W	Bypass Coronary Artery, Three Arteries from Aorta with Zooplastic Tissue, Open	Procedure	ICD-10-PCS
0212093	Bypass Coronary Artery, Three Arteries from Coronary Artery with Autologous Venous Tissue, Open Approach	Procedure	ICD-10-PCS
0212098	Bypass Coronary Artery, Three Arteries from Right Internal Mammary with Autologous Venous Tissue, Open Approach	Procedure	ICD-10-PCS
0212099	Bypass Coronary Artery, Three Arteries from Left Internal Mammary with Autologous Venous Tissue, Open Approach	Procedure	ICD-10-PCS
021209C	Bypass Coronary Artery, Three Arteries from Thoracic Artery with Autologous Venous Tissue, Open Approach	Procedure	ICD-10-PCS
021209F	Bypass Coronary Artery, Three Arteries from Abdominal Artery with Autologous Venous Tissue, Open Approach	Procedure	ICD-10-PCS
021209W	Bypass Coronary Artery, Three Arteries from Aorta with Autologous Venous Tissue, Open Approach	Procedure	ICD-10-PCS
02120A3	Bypass Coronary Artery, Three Arteries from Coronary Artery with Autologous Arterial Tissue, Open Approach	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
02120A8	Bypass Coronary Artery, Three Arteries from Right Internal Mammary with Autologous Arterial Tissue, Open Approach	Procedure	ICD-10-PCS
02120A9	Bypass Coronary Artery, Three Arteries from Left Internal Mammary with Autologous Arterial Tissue, Open Approach	Procedure	ICD-10-PCS
02120AC	Bypass Coronary Artery, Three Arteries from Thoracic Artery with Autologous Arterial Tissue, Open Approach	Procedure	ICD-10-PCS
02120AF	Bypass Coronary Artery, Three Arteries from Abdominal Artery with Autologous Arterial Tissue, Open Approach	Procedure	ICD-10-PCS
02120AW	Bypass Coronary Artery, Three Arteries from Aorta with Autologous Arterial Tissue, Open Approach	Procedure	ICD-10-PCS
02120J3	Bypass Coronary Artery, Three Arteries from Coronary Artery with Synthetic Substitute, Open Approach	Procedure	ICD-10-PCS
02120J8	Bypass Coronary Artery, Three Arteries from Right Internal Mammary with Synthetic Substitute, Open Approach	Procedure	ICD-10-PCS
02120J9	Bypass Coronary Artery, Three Arteries from Left Internal Mammary with Synthetic Substitute, Open Approach	Procedure	ICD-10-PCS
02120JC	Bypass Coronary Artery, Three Arteries from Thoracic Artery with Synthetic Substitute, Open Approach	Procedure	ICD-10-PCS
02120JF	Bypass Coronary Artery, Three Arteries from Abdominal Artery with Synthetic Substitute, Open Approach	Procedure	ICD-10-PCS
02120JW	Bypass Coronary Artery, Three Arteries from Aorta with Synthetic Substitute, Open	Procedure	ICD-10-PCS
02120K3	Bypass Coronary Artery, Three Arteries from Coronary Artery with Nonautologous Tissue Substitute, Open Approach	Procedure	ICD-10-PCS
02120K8	Bypass Coronary Artery, Three Arteries from Right Internal Mammary with Nonautologous Tissue Substitute, Open Approach	Procedure	ICD-10-PCS
02120K9	Bypass Coronary Artery, Three Arteries from Left Internal Mammary with Nonautologous Tissue Substitute, Open Approach	Procedure	ICD-10-PCS
02120KC	Bypass Coronary Artery, Three Arteries from Thoracic Artery with Nonautologous Tissue Substitute, Open Approach	Procedure	ICD-10-PCS
02120KF	Bypass Coronary Artery, Three Arteries from Abdominal Artery with Nonautologous Tissue Substitute, Open Approach	Procedure	ICD-10-PCS
02120KW	Bypass Coronary Artery, Three Arteries from Aorta with Nonautologous Tissue Substitute, Open Approach	Procedure	ICD-10-PCS
02120Z3	Bypass Coronary Artery, Three Arteries from Coronary Artery, Open Approach	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
02120Z8	Bypass Coronary Artery, Three Arteries from Right Internal Mammary, Open Approach	Procedure	ICD-10-PCS
02120Z9	Bypass Coronary Artery, Three Arteries from Left Internal Mammary, Open Approach	Procedure	ICD-10-PCS
02120ZC	Bypass Coronary Artery, Three Arteries from Thoracic Artery, Open Approach	Procedure	ICD-10-PCS
02120ZF	Bypass Coronary Artery, Three Arteries from Abdominal Artery, Open Approach	Procedure	ICD-10-PCS
0212483	Bypass Coronary Artery, Three Arteries from Coronary Artery with Zooplastic Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0212488	Bypass Coronary Artery, Three Arteries from Right Internal Mammary with Zooplastic Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0212489	Bypass Coronary Artery, Three Arteries from Left Internal Mammary with Zooplastic Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
021248C	Bypass Coronary Artery, Three Arteries from Thoracic Artery with Zooplastic Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
021248F	Bypass Coronary Artery, Three Arteries from Abdominal Artery with Zooplastic Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
021248W	Bypass Coronary Artery, Three Arteries from Aorta with Zooplastic Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0212493	Bypass Coronary Artery, Three Arteries from Coronary Artery with Autologous Venous Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0212498	Bypass Coronary Artery, Three Arteries from Right Internal Mammary with Autologous Venous Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0212499	Bypass Coronary Artery, Three Arteries from Left Internal Mammary with Autologous Venous Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
021249C	Bypass Coronary Artery, Three Arteries from Thoracic Artery with Autologous Venous Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
021249F	Bypass Coronary Artery, Three Arteries from Abdominal Artery with Autologous Venous Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
021249W	Bypass Coronary Artery, Three Arteries from Aorta with Autologous Venous Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02124A3	Bypass Coronary Artery, Three Arteries from Coronary Artery with Autologous Arterial Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02124A8	Bypass Coronary Artery, Three Arteries from Right Internal Mammary with Autologous Arterial Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02124A9	Bypass Coronary Artery, Three Arteries from Left Internal Mammary with Autologous Arterial Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
02124AC	Bypass Coronary Artery, Three Arteries from Thoracic Artery with Autologous Arterial Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02124AF	Bypass Coronary Artery, Three Arteries from Abdominal Artery with Autologous Arterial Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02124AW	Bypass Coronary Artery, Three Arteries from Aorta with Autologous Arterial Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02124J3	Bypass Coronary Artery, Three Arteries from Coronary Artery with Synthetic Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02124J8	Bypass Coronary Artery, Three Arteries from Right Internal Mammary with Synthetic Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02124J9	Bypass Coronary Artery, Three Arteries from Left Internal Mammary with Synthetic Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02124JC	Bypass Coronary Artery, Three Arteries from Thoracic Artery with Synthetic Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02124JF	Bypass Coronary Artery, Three Arteries from Abdominal Artery with Synthetic Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02124JW	Bypass Coronary Artery, Three Arteries from Aorta with Synthetic Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02124K3	Bypass Coronary Artery, Three Arteries from Coronary Artery with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02124K8	Bypass Coronary Artery, Three Arteries from Right Internal Mammary with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02124K9	Bypass Coronary Artery, Three Arteries from Left Internal Mammary with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02124KC	Bypass Coronary Artery, Three Arteries from Thoracic Artery with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02124KF	Bypass Coronary Artery, Three Arteries from Abdominal Artery with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02124KW	Bypass Coronary Artery, Three Arteries from Aorta with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02124Z3	Bypass Coronary Artery, Three Arteries from Coronary Artery, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02124Z8	Bypass Coronary Artery, Three Arteries from Right Internal Mammary, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
02124Z9	Bypass Coronary Artery, Three Arteries from Left Internal Mammary, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02124ZC	Bypass Coronary Artery, Three Arteries from Thoracic Artery, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02124ZF	Bypass Coronary Artery, Three Arteries from Abdominal Artery, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0213083	Bypass Coronary Artery, Four or More Arteries from Coronary Artery with Zooplastic Tissue, Open Approach	Procedure	ICD-10-PCS
0213088	Bypass Coronary Artery, Four or More Arteries from Right Internal Mammary with Zooplastic Tissue, Open Approach	Procedure	ICD-10-PCS
0213089	Bypass Coronary Artery, Four or More Arteries from Left Internal Mammary with Zooplastic Tissue, Open Approach	Procedure	ICD-10-PCS
021308C	Bypass Coronary Artery, Four or More Arteries from Thoracic Artery with Zooplastic Tissue, Open Approach	Procedure	ICD-10-PCS
021308F	Bypass Coronary Artery, Four or More Arteries from Abdominal Artery with Zooplastic Tissue, Open Approach	Procedure	ICD-10-PCS
021308W	Bypass Coronary Artery, Four or More Arteries from Aorta with Zooplastic Tissue, Open Approach	Procedure	ICD-10-PCS
0213093	Bypass Coronary Artery, Four or More Arteries from Coronary Artery with Autologous Venous Tissue, Open Approach	Procedure	ICD-10-PCS
0213098	Bypass Coronary Artery, Four or More Arteries from Right Internal Mammary with Autologous Venous Tissue, Open Approach	Procedure	ICD-10-PCS
0213099	Bypass Coronary Artery, Four or More Arteries from Left Internal Mammary with Autologous Venous Tissue, Open Approach	Procedure	ICD-10-PCS
021309C	Bypass Coronary Artery, Four or More Arteries from Thoracic Artery with Autologous Venous Tissue, Open Approach	Procedure	ICD-10-PCS
021309F	Bypass Coronary Artery, Four or More Arteries from Abdominal Artery with Autologous Venous Tissue, Open Approach	Procedure	ICD-10-PCS
021309W	Bypass Coronary Artery, Four or More Arteries from Aorta with Autologous Venous Tissue, Open Approach	Procedure	ICD-10-PCS
02130A3	Bypass Coronary Artery, Four or More Arteries from Coronary Artery with Autologous Arterial Tissue, Open Approach	Procedure	ICD-10-PCS
02130A8	Bypass Coronary Artery, Four or More Arteries from Right Internal Mammary with Autologous Arterial Tissue, Open Approach	Procedure	ICD-10-PCS

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Code	Description	Code Category	Code Type
02130A9	Bypass Coronary Artery, Four or More Arteries from Left Internal Mammary with Autologous Arterial Tissue, Open Approach	Procedure	ICD-10-PCS
02130AC	Bypass Coronary Artery, Four or More Arteries from Thoracic Artery with Autologous Arterial Tissue, Open Approach	Procedure	ICD-10-PCS
02130AF	Bypass Coronary Artery, Four or More Arteries from Abdominal Artery with Autologous Arterial Tissue, Open Approach	Procedure	ICD-10-PCS
02130AW	Bypass Coronary Artery, Four or More Arteries from Aorta with Autologous Arterial Tissue, Open Approach	Procedure	ICD-10-PCS
02130J3	Bypass Coronary Artery, Four or More Arteries from Coronary Artery with Synthetic Substitute, Open Approach	Procedure	ICD-10-PCS
02130J8	Bypass Coronary Artery, Four or More Arteries from Right Internal Mammary with Synthetic Substitute, Open Approach	Procedure	ICD-10-PCS
02130J9	Bypass Coronary Artery, Four or More Arteries from Left Internal Mammary with Synthetic Substitute, Open Approach	Procedure	ICD-10-PCS
02130JC	Bypass Coronary Artery, Four or More Arteries from Thoracic Artery with Synthetic Substitute, Open Approach	Procedure	ICD-10-PCS
02130JF	Bypass Coronary Artery, Four or More Arteries from Abdominal Artery with Synthetic Substitute, Open Approach	Procedure	ICD-10-PCS
02130JW	Bypass Coronary Artery, Four or More Arteries from Aorta with Synthetic Substitute, Open Approach	Procedure	ICD-10-PCS
02130K3	Bypass Coronary Artery, Four or More Arteries from Coronary Artery with Nonautologous Tissue Substitute, Open Approach	Procedure	ICD-10-PCS
02130K8	Bypass Coronary Artery, Four or More Arteries from Right Internal Mammary with Nonautologous Tissue Substitute, Open Approach	Procedure	ICD-10-PCS
02130K9	Bypass Coronary Artery, Four or More Arteries from Left Internal Mammary with Nonautologous Tissue Substitute, Open Approach	Procedure	ICD-10-PCS
02130KC	Bypass Coronary Artery, Four or More Arteries from Thoracic Artery with Nonautologous Tissue Substitute, Open Approach	Procedure	ICD-10-PCS
02130KF	Bypass Coronary Artery, Four or More Arteries from Abdominal Artery with Nonautologous Tissue Substitute, Open Approach	Procedure	ICD-10-PCS
02130KW	Bypass Coronary Artery, Four or More Arteries from Aorta with Nonautologous Tissue Substitute, Open Approach	Procedure	ICD-10-PCS
02130Z3	Bypass Coronary Artery, Four or More Arteries from Coronary Artery, Open Approach	Procedure	ICD-10-PCS
02130Z8	Bypass Coronary Artery, Four or More Arteries from Right Internal Mammary, Open	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
02130Z9	Bypass Coronary Artery, Four or More Arteries from Left Internal Mammary, Open	Procedure	ICD-10-PCS
02130ZC	Bypass Coronary Artery, Four or More Arteries from Thoracic Artery, Open Approach	Procedure	ICD-10-PCS
02130ZF	Bypass Coronary Artery, Four or More Arteries from Abdominal Artery, Open	Procedure	ICD-10-PCS
0213483	Bypass Coronary Artery, Four or More Arteries from Coronary Artery with Zooplastic Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0213488	Bypass Coronary Artery, Four or More Arteries from Right Internal Mammary with Zooplastic Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0213489	Bypass Coronary Artery, Four or More Arteries from Left Internal Mammary with Zooplastic Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
021348C	Bypass Coronary Artery, Four or More Arteries from Thoracic Artery with Zooplastic Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
021348F	Bypass Coronary Artery, Four or More Arteries from Abdominal Artery with Zooplastic Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
021348W	Bypass Coronary Artery, Four or More Arteries from Aorta with Zooplastic Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0213493	Bypass Coronary Artery, Four or More Arteries from Coronary Artery with Autologous Venous Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0213498	Bypass Coronary Artery, Four or More Arteries from Right Internal Mammary with Autologous Venous Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0213499	Bypass Coronary Artery, Four or More Arteries from Left Internal Mammary with Autologous Venous Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
021349C	Bypass Coronary Artery, Four or More Arteries from Thoracic Artery with Autologous Venous Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
021349F	Bypass Coronary Artery, Four or More Arteries from Abdominal Artery with Autologous Venous Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
021349W	Bypass Coronary Artery, Four or More Arteries from Aorta with Autologous Venous Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02134A3	Bypass Coronary Artery, Four or More Arteries from Coronary Artery with Autologous Arterial Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02134A8	Bypass Coronary Artery, Four or More Arteries from Right Internal Mammary with Autologous Arterial Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02134A9	Bypass Coronary Artery, Four or More Arteries from Left Internal Mammary with Autologous Arterial Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
02134AC	Bypass Coronary Artery, Four or More Arteries from Thoracic Artery with Autologous Arterial Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02134AF	Bypass Coronary Artery, Four or More Arteries from Abdominal Artery with Autologous Arterial Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02134AW	Bypass Coronary Artery, Four or More Arteries from Aorta with Autologous Arterial Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02134J3	Bypass Coronary Artery, Four or More Arteries from Coronary Artery with Synthetic Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02134J8	Bypass Coronary Artery, Four or More Arteries from Right Internal Mammary with Synthetic Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02134J9	Bypass Coronary Artery, Four or More Arteries from Left Internal Mammary with Synthetic Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02134JC	Bypass Coronary Artery, Four or More Arteries from Thoracic Artery with Synthetic Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02134JF	Bypass Coronary Artery, Four or More Arteries from Abdominal Artery with Synthetic Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02134JW	Bypass Coronary Artery, Four or More Arteries from Aorta with Synthetic Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02134K3	Bypass Coronary Artery, Four or More Arteries from Coronary Artery with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02134K8	Bypass Coronary Artery, Four or More Arteries from Right Internal Mammary with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02134K9	Bypass Coronary Artery, Four or More Arteries from Left Internal Mammary with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02134KC	Bypass Coronary Artery, Four or More Arteries from Thoracic Artery with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02134KF	Bypass Coronary Artery, Four or More Arteries from Abdominal Artery with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02134KW	Bypass Coronary Artery, Four or More Arteries from Aorta with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02134Z3	Bypass Coronary Artery, Four or More Arteries from Coronary Artery, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02134Z8	Bypass Coronary Artery, Four or More Arteries from Right Internal Mammary, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
02134Z9	Bypass Coronary Artery, Four or More Arteries from Left Internal Mammary, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02134ZC	Bypass Coronary Artery, Four or More Arteries from Thoracic Artery, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02134ZF	Bypass Coronary Artery, Four or More Arteries from Abdominal Artery, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
021K0Z8	Bypass Right Ventricle to Right Internal Mammary, Open Approach	Procedure	ICD-10-PCS
021K0Z9	Bypass Right Ventricle to Left Internal Mammary, Open Approach	Procedure	ICD-10-PCS
021K0ZC	Bypass Right Ventricle to Thoracic Artery, Open Approach	Procedure	ICD-10-PCS
021K0ZF	Bypass Right Ventricle to Abdominal Artery, Open Approach	Procedure	ICD-10-PCS
021K0ZW	Bypass Right Ventricle to Aorta, Open Approach	Procedure	ICD-10-PCS
021K4Z8	Bypass Right Ventricle to Right Internal Mammary, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
021K4Z9	Bypass Right Ventricle to Left Internal Mammary, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
021K4ZC	Bypass Right Ventricle to Thoracic Artery, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
021K4ZF	Bypass Right Ventricle to Abdominal Artery, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
021K4ZW	Bypass Right Ventricle to Aorta, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
021L08P	Bypass Left Ventricle to Pulmonary Trunk with Zooplastic Tissue, Open Approach	Procedure	ICD-10-PCS
021L08Q	Bypass Left Ventricle to Right Pulmonary Artery with Zooplastic Tissue, Open Approach	Procedure	ICD-10-PCS
021L08R	Bypass Left Ventricle to Left Pulmonary Artery with Zooplastic Tissue, Open Approach	Procedure	ICD-10-PCS
021L09P	Bypass Left Ventricle to Pulmonary Trunk with Autologous Venous Tissue, Open	Procedure	ICD-10-PCS
021L09Q	Bypass Left Ventricle to Right Pulmonary Artery with Autologous Venous Tissue, Open	Procedure	ICD-10-PCS
021L09R	Bypass Left Ventricle to Left Pulmonary Artery with Autologous Venous Tissue, Open	Procedure	ICD-10-PCS
021L0AP	Bypass Left Ventricle to Pulmonary Trunk with Autologous Arterial Tissue, Open	Procedure	ICD-10-PCS
021L0AQ	Bypass Left Ventricle to Right Pulmonary Artery with Autologous Arterial Tissue, Open	Procedure	ICD-10-PCS
021L0AR	Bypass Left Ventricle to Left Pulmonary Artery with Autologous Arterial Tissue, Open	Procedure	ICD-10-PCS
021L0JP	Bypass Left Ventricle to Pulmonary Trunk with Synthetic Substitute, Open Approach	Procedure	ICD-10-PCS
021L0JQ	Bypass Left Ventricle to Right Pulmonary Artery with Synthetic Substitute, Open	Procedure	ICD-10-PCS
021L0JR	Bypass Left Ventricle to Left Pulmonary Artery with Synthetic Substitute, Open	Procedure	ICD-10-PCS
021L0KP	Bypass Left Ventricle to Pulmonary Trunk with Nonautologous Tissue Substitute, Open	Procedure	ICD-10-PCS
021L0KQ	Bypass Left Ventricle to Right Pulmonary Artery with Nonautologous Tissue Substitute, Open Approach	Procedure	ICD-10-PCS
021L0KR	Bypass Left Ventricle to Left Pulmonary Artery with Nonautologous Tissue Substitute, Open Approach	Procedure	ICD-10-PCS
021L0Z8	Bypass Left Ventricle to Right Internal Mammary, Open Approach	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
021L0Z9	Bypass Left Ventricle to Left Internal Mammary, Open Approach	Procedure	ICD-10-PCS
021L0ZC	Bypass Left Ventricle to Thoracic Artery, Open Approach	Procedure	ICD-10-PCS
021L0ZF	Bypass Left Ventricle to Abdominal Artery, Open Approach	Procedure	ICD-10-PCS
021L0ZP	Bypass Left Ventricle to Pulmonary Trunk, Open Approach	Procedure	ICD-10-PCS
021L0ZQ	Bypass Left Ventricle to Right Pulmonary Artery, Open Approach	Procedure	ICD-10-PCS
021L0ZR	Bypass Left Ventricle to Left Pulmonary Artery, Open Approach	Procedure	ICD-10-PCS
021L48P	Bypass Left Ventricle to Pulmonary Trunk with Zooplastic Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
021L48Q	Bypass Left Ventricle to Right Pulmonary Artery with Zooplastic Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
021L48R	Bypass Left Ventricle to Left Pulmonary Artery with Zooplastic Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
021L49P	Bypass Left Ventricle to Pulmonary Trunk with Autologous Venous Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
021L49Q	Bypass Left Ventricle to Right Pulmonary Artery with Autologous Venous Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
021L49R	Bypass Left Ventricle to Left Pulmonary Artery with Autologous Venous Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
021L4AP	Bypass Left Ventricle to Pulmonary Trunk with Autologous Arterial Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
021L4AQ	Bypass Left Ventricle to Right Pulmonary Artery with Autologous Arterial Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
021L4AR	Bypass Left Ventricle to Left Pulmonary Artery with Autologous Arterial Tissue, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
021L4JP	Bypass Left Ventricle to Pulmonary Trunk with Synthetic Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
021L4JQ	Bypass Left Ventricle to Right Pulmonary Artery with Synthetic Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
021L4JR	Bypass Left Ventricle to Left Pulmonary Artery with Synthetic Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
021L4KP	Bypass Left Ventricle to Pulmonary Trunk with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
021L4KQ	Bypass Left Ventricle to Right Pulmonary Artery with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
021L4KR	Bypass Left Ventricle to Left Pulmonary Artery with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
021L4Z8	Bypass Left Ventricle to Right Internal Mammary, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
021L4Z9	Bypass Left Ventricle to Left Internal Mammary, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
021L4ZC	Bypass Left Ventricle to Thoracic Artery, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
021L4ZF	Bypass Left Ventricle to Abdominal Artery, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
021L4ZP	Bypass Left Ventricle to Pulmonary Trunk, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
021L4ZQ	Bypass Left Ventricle to Right Pulmonary Artery, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
021L4ZR	Bypass Left Ventricle to Left Pulmonary Artery, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0270046	Dilation of Coronary Artery, One Artery, Bifurcation, with Drug-eluting Intraluminal Device, Open Approach	Procedure	ICD-10-PCS
027004Z	Dilation of Coronary Artery, One Artery with Drug-eluting Intraluminal Device, Open	Procedure	ICD-10-PCS
0270056	Dilation of Coronary Artery, One Artery, Bifurcation, with Two Drug-eluting Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
027005Z	Dilation of Coronary Artery, One Artery with Two Drug-eluting Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
0270066	Dilation of Coronary Artery, One Artery, Bifurcation, with Three Drug-eluting Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
027006Z	Dilation of Coronary Artery, One Artery with Three Drug-eluting Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
0270076	Dilation of Coronary Artery, One Artery, Bifurcation, with Four or More Drug-eluting Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
027007Z	Dilation of Coronary Artery, One Artery with Four or More Drug-eluting Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
02700D6	Dilation of Coronary Artery, One Artery, Bifurcation, with Intraluminal Device, Open	Procedure	ICD-10-PCS
02700DZ	Dilation of Coronary Artery, One Artery with Intraluminal Device, Open Approach	Procedure	ICD-10-PCS
02700E6	Dilation of Coronary Artery, One Artery, Bifurcation, with Two Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
02700EZ	Dilation of Coronary Artery, One Artery with Two Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
02700F6	Dilation of Coronary Artery, One Artery, Bifurcation, with Three Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
02700FZ	Dilation of Coronary Artery, One Artery with Three Intraluminal Devices, Open	Procedure	ICD-10-PCS
02700G6	Dilation of Coronary Artery, One Artery, Bifurcation, with Four or More Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
02700GZ	Dilation of Coronary Artery, One Artery with Four or More Intraluminal Devices, Open	Procedure	ICD-10-PCS
02700T6	Dilation of Coronary Artery, One Artery, Bifurcation, with Radioactive Intraluminal Device, Open Approach	Procedure	ICD-10-PCS
02700TZ	Dilation of Coronary Artery, One Artery with Radioactive Intraluminal Device, Open	Procedure	ICD-10-PCS
02700Z6	Dilation of Coronary Artery, One Artery, Bifurcation, Open Approach	Procedure	ICD-10-PCS
02700ZZ	Dilation of Coronary Artery, One Artery, Open Approach	Procedure	ICD-10-PCS
0270346	Dilation of Coronary Artery, One Artery, Bifurcation, with Drug-eluting Intraluminal Device, Percutaneous Approach	Procedure	ICD-10-PCS
027034Z	Dilation of Coronary Artery, One Artery with Drug-eluting Intraluminal Device, Percutaneous Approach	Procedure	ICD-10-PCS
0270356	Dilation of Coronary Artery, One Artery, Bifurcation, with Two Drug-eluting Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
027035Z	Dilation of Coronary Artery, One Artery with Two Drug-eluting Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
0270366	Dilation of Coronary Artery, One Artery, Bifurcation, with Three Drug-eluting Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
027036Z	Dilation of Coronary Artery, One Artery with Three Drug-eluting Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
0270376	Dilation of Coronary Artery, One Artery, Bifurcation, with Four or More Drug-eluting Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
027037Z	Dilation of Coronary Artery, One Artery with Four or More Drug-eluting Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
02703D6	Dilation of Coronary Artery, One Artery, Bifurcation, with Intraluminal Device, Percutaneous Approach	Procedure	ICD-10-PCS
02703DZ	Dilation of Coronary Artery, One Artery with Intraluminal Device, Percutaneous	Procedure	ICD-10-PCS
02703E6	Dilation of Coronary Artery, One Artery, Bifurcation, with Two Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
02703EZ	Dilation of Coronary Artery, One Artery with Two Intraluminal Devices, Percutaneous	Procedure	ICD-10-PCS
02703F6	Dilation of Coronary Artery, One Artery, Bifurcation, with Three Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
02703FZ	Dilation of Coronary Artery, One Artery with Three Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
02703G6	Dilation of Coronary Artery, One Artery, Bifurcation, with Four or More Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
02703GZ	Dilation of Coronary Artery, One Artery with Four or More Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
02703T6	Dilation of Coronary Artery, One Artery, Bifurcation, with Radioactive Intraluminal Device, Percutaneous Approach	Procedure	ICD-10-PCS
02703TZ	Dilation of Coronary Artery, One Artery with Radioactive Intraluminal Device, Percutaneous Approach	Procedure	ICD-10-PCS
0270446	Dilation of Coronary Artery, One Artery, Bifurcation, with Drug-eluting Intraluminal Device, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
027044Z	Dilation of Coronary Artery, One Artery with Drug-eluting Intraluminal Device, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0270456	Dilation of Coronary Artery, One Artery, Bifurcation, with Two Drug-eluting Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
027045Z	Dilation of Coronary Artery, One Artery with Two Drug-eluting Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0270466	Dilation of Coronary Artery, One Artery, Bifurcation, with Three Drug-eluting Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
027046Z	Dilation of Coronary Artery, One Artery with Three Drug-eluting Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0270476	Dilation of Coronary Artery, One Artery, Bifurcation, with Four or More Drug-eluting Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
027047Z	Dilation of Coronary Artery, One Artery with Four or More Drug-eluting Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02704D6	Dilation of Coronary Artery, One Artery, Bifurcation, with Intraluminal Device, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02704DZ	Dilation of Coronary Artery, One Artery with Intraluminal Device, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02704E6	Dilation of Coronary Artery, One Artery, Bifurcation, with Two Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02704EZ	Dilation of Coronary Artery, One Artery with Two Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02704F6	Dilation of Coronary Artery, One Artery, Bifurcation, with Three Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02704FZ	Dilation of Coronary Artery, One Artery with Three Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
02704G6	Dilation of Coronary Artery, One Artery, Bifurcation, with Four or More Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02704GZ	Dilation of Coronary Artery, One Artery with Four or More Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02704T6	Dilation of Coronary Artery, One Artery, Bifurcation, with Radioactive Intraluminal Device, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02704TZ	Dilation of Coronary Artery, One Artery with Radioactive Intraluminal Device, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0271046	Dilation of Coronary Artery, Two Arteries, Bifurcation, with Drug-eluting Intraluminal Device, Open Approach	Procedure	ICD-10-PCS
027104Z	Dilation of Coronary Artery, Two Arteries with Drug-eluting Intraluminal Device, Open	Procedure	ICD-10-PCS
0271056	Dilation of Coronary Artery, Two Arteries, Bifurcation, with Two Drug-eluting Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
027105Z	Dilation of Coronary Artery, Two Arteries with Two Drug-eluting Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
0271066	Dilation of Coronary Artery, Two Arteries, Bifurcation, with Three Drug-eluting Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
027106Z	Dilation of Coronary Artery, Two Arteries with Three Drug-eluting Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
0271076	Dilation of Coronary Artery, Two Arteries, Bifurcation, with Four or More Drug-eluting Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
027107Z	Dilation of Coronary Artery, Two Arteries with Four or More Drug-eluting Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
02710D6	Dilation of Coronary Artery, Two Arteries, Bifurcation, with Intraluminal Device, Open	Procedure	ICD-10-PCS
02710DZ	Dilation of Coronary Artery, Two Arteries with Intraluminal Device, Open Approach	Procedure	ICD-10-PCS
02710E6	Dilation of Coronary Artery, Two Arteries, Bifurcation, with Two Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
02710EZ	Dilation of Coronary Artery, Two Arteries with Two Intraluminal Devices, Open	Procedure	ICD-10-PCS
02710F6	Dilation of Coronary Artery, Two Arteries, Bifurcation, with Three Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
02710FZ	Dilation of Coronary Artery, Two Arteries with Three Intraluminal Devices, Open	Procedure	ICD-10-PCS
02710G6	Dilation of Coronary Artery, Two Arteries, Bifurcation, with Four or More Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
02710GZ	Dilation of Coronary Artery, Two Arteries with Four or More Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
02710T6	Dilation of Coronary Artery, Two Arteries, Bifurcation, with Radioactive Intraluminal Device, Open Approach	Procedure	ICD-10-PCS
02710TZ	Dilation of Coronary Artery, Two Arteries with Radioactive Intraluminal Device, Open	Procedure	ICD-10-PCS
02710Z6	Dilation of Coronary Artery, Two Arteries, Bifurcation, Open Approach	Procedure	ICD-10-PCS
02710ZZ	Dilation of Coronary Artery, Two Arteries, Open Approach	Procedure	ICD-10-PCS
0271346	Dilation of Coronary Artery, Two Arteries, Bifurcation, with Drug-eluting Intraluminal Device, Percutaneous Approach	Procedure	ICD-10-PCS
027134Z	Dilation of Coronary Artery, Two Arteries with Drug-eluting Intraluminal Device, Percutaneous Approach	Procedure	ICD-10-PCS
0271356	Dilation of Coronary Artery, Two Arteries, Bifurcation, with Two Drug-eluting Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
027135Z	Dilation of Coronary Artery, Two Arteries with Two Drug-eluting Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
0271366	Dilation of Coronary Artery, Two Arteries, Bifurcation, with Three Drug-eluting Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
027136Z	Dilation of Coronary Artery, Two Arteries with Three Drug-eluting Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
0271376	Dilation of Coronary Artery, Two Arteries, Bifurcation, with Four or More Drug-eluting Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
027137Z	Dilation of Coronary Artery, Two Arteries with Four or More Drug-eluting Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
02713D6	Dilation of Coronary Artery, Two Arteries, Bifurcation, with Intraluminal Device, Percutaneous Approach	Procedure	ICD-10-PCS
02713DZ	Dilation of Coronary Artery, Two Arteries with Intraluminal Device, Percutaneous	Procedure	ICD-10-PCS
02713E6	Dilation of Coronary Artery, Two Arteries, Bifurcation, with Two Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
02713EZ	Dilation of Coronary Artery, Two Arteries with Two Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
02713F6	Dilation of Coronary Artery, Two Arteries, Bifurcation, with Three Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
02713FZ	Dilation of Coronary Artery, Two Arteries with Three Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
02713G6	Dilation of Coronary Artery, Two Arteries, Bifurcation, with Four or More Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
02713GZ	Dilation of Coronary Artery, Two Arteries with Four or More Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
02713T6	Dilation of Coronary Artery, Two Arteries, Bifurcation, with Radioactive Intraluminal Device, Percutaneous Approach	Procedure	ICD-10-PCS
02713TZ	Dilation of Coronary Artery, Two Arteries with Radioactive Intraluminal Device, Percutaneous Approach	Procedure	ICD-10-PCS
0271446	Dilation of Coronary Artery, Two Arteries, Bifurcation, with Drug-eluting Intraluminal Device, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
027144Z	Dilation of Coronary Artery, Two Arteries with Drug-eluting Intraluminal Device, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0271456	Dilation of Coronary Artery, Two Arteries, Bifurcation, with Two Drug-eluting Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
027145Z	Dilation of Coronary Artery, Two Arteries with Two Drug-eluting Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0271466	Dilation of Coronary Artery, Two Arteries, Bifurcation, with Three Drug-eluting Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
027146Z	Dilation of Coronary Artery, Two Arteries with Three Drug-eluting Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0271476	Dilation of Coronary Artery, Two Arteries, Bifurcation, with Four or More Drug-eluting Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
027147Z	Dilation of Coronary Artery, Two Arteries with Four or More Drug-eluting Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02714D6	Dilation of Coronary Artery, Two Arteries, Bifurcation, with Intraluminal Device, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02714DZ	Dilation of Coronary Artery, Two Arteries with Intraluminal Device, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02714E6	Dilation of Coronary Artery, Two Arteries, Bifurcation, with Two Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02714EZ	Dilation of Coronary Artery, Two Arteries with Two Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02714F6	Dilation of Coronary Artery, Two Arteries, Bifurcation, with Three Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
02714FZ	Dilation of Coronary Artery, Two Arteries with Three Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02714G6	Dilation of Coronary Artery, Two Arteries, Bifurcation, with Four or More Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02714GZ	Dilation of Coronary Artery, Two Arteries with Four or More Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02714T6	Dilation of Coronary Artery, Two Arteries, Bifurcation, with Radioactive Intraluminal Device, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02714TZ	Dilation of Coronary Artery, Two Arteries with Radioactive Intraluminal Device, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0272046	Dilation of Coronary Artery, Three Arteries, Bifurcation, with Drug-eluting Intraluminal Device, Open Approach	Procedure	ICD-10-PCS
027204Z	Dilation of Coronary Artery, Three Arteries with Drug-eluting Intraluminal Device, Open Approach	Procedure	ICD-10-PCS
0272056	Dilation of Coronary Artery, Three Arteries, Bifurcation, with Two Drug-eluting Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
027205Z	Dilation of Coronary Artery, Three Arteries with Two Drug-eluting Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
0272066	Dilation of Coronary Artery, Three Arteries, Bifurcation, with Three Drug-eluting Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
027206Z	Dilation of Coronary Artery, Three Arteries with Three Drug-eluting Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
0272076	Dilation of Coronary Artery, Three Arteries, Bifurcation, with Four or More Drug-eluting Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
027207Z	Dilation of Coronary Artery, Three Arteries with Four or More Drug-eluting Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
02720D6	Dilation of Coronary Artery, Three Arteries, Bifurcation, with Intraluminal Device, Open Approach	Procedure	ICD-10-PCS
02720DZ	Dilation of Coronary Artery, Three Arteries with Intraluminal Device, Open Approach	Procedure	ICD-10-PCS
02720E6	Dilation of Coronary Artery, Three Arteries, Bifurcation, with Two Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
02720EZ	Dilation of Coronary Artery, Three Arteries with Two Intraluminal Devices, Open	Procedure	ICD-10-PCS
02720F6	Dilation of Coronary Artery, Three Arteries, Bifurcation, with Three Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
02720FZ	Dilation of Coronary Artery, Three Arteries with Three Intraluminal Devices, Open	Procedure	ICD-10-PCS
02720G6	Dilation of Coronary Artery, Three Arteries, Bifurcation, with Four or More Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
02720GZ	Dilation of Coronary Artery, Three Arteries with Four or More Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
02720T6	Dilation of Coronary Artery, Three Arteries, Bifurcation, with Radioactive Intraluminal Device, Open Approach	Procedure	ICD-10-PCS
02720TZ	Dilation of Coronary Artery, Three Arteries with Radioactive Intraluminal Device, Open	Procedure	ICD-10-PCS
02720Z6	Dilation of Coronary Artery, Three Arteries, Bifurcation, Open Approach	Procedure	ICD-10-PCS
02720ZZ	Dilation of Coronary Artery, Three Arteries, Open Approach	Procedure	ICD-10-PCS
0272346	Dilation of Coronary Artery, Three Arteries, Bifurcation, with Drug-eluting Intraluminal Device, Percutaneous Approach	Procedure	ICD-10-PCS
027234Z	Dilation of Coronary Artery, Three Arteries with Drug-eluting Intraluminal Device, Percutaneous Approach	Procedure	ICD-10-PCS
0272356	Dilation of Coronary Artery, Three Arteries, Bifurcation, with Two Drug-eluting Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
027235Z	Dilation of Coronary Artery, Three Arteries with Two Drug-eluting Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
0272366	Dilation of Coronary Artery, Three Arteries, Bifurcation, with Three Drug-eluting Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
027236Z	Dilation of Coronary Artery, Three Arteries with Three Drug-eluting Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
0272376	Dilation of Coronary Artery, Three Arteries, Bifurcation, with Four or More Drug-eluting Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
027237Z	Dilation of Coronary Artery, Three Arteries with Four or More Drug-eluting Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
02723D6	Dilation of Coronary Artery, Three Arteries, Bifurcation, with Intraluminal Device, Percutaneous Approach	Procedure	ICD-10-PCS
02723DZ	Dilation of Coronary Artery, Three Arteries with Intraluminal Device, Percutaneous	Procedure	ICD-10-PCS
02723E6	Dilation of Coronary Artery, Three Arteries, Bifurcation, with Two Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
02723EZ	Dilation of Coronary Artery, Three Arteries with Two Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
02723F6	Dilation of Coronary Artery, Three Arteries, Bifurcation, with Three Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
02723FZ	Dilation of Coronary Artery, Three Arteries with Three Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
02723G6	Dilation of Coronary Artery, Three Arteries, Bifurcation, with Four or More Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
02723GZ	Dilation of Coronary Artery, Three Arteries with Four or More Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
02723T6	Dilation of Coronary Artery, Three Arteries, Bifurcation, with Radioactive Intraluminal Device, Percutaneous Approach	Procedure	ICD-10-PCS
02723TZ	Dilation of Coronary Artery, Three Arteries with Radioactive Intraluminal Device, Percutaneous Approach	Procedure	ICD-10-PCS
0272446	Dilation of Coronary Artery, Three Arteries, Bifurcation, with Drug-eluting Intraluminal Device, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
027244Z	Dilation of Coronary Artery, Three Arteries with Drug-eluting Intraluminal Device, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0272456	Dilation of Coronary Artery, Three Arteries, Bifurcation, with Two Drug-eluting Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
027245Z	Dilation of Coronary Artery, Three Arteries with Two Drug-eluting Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0272466	Dilation of Coronary Artery, Three Arteries, Bifurcation, with Three Drug-eluting Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
027246Z	Dilation of Coronary Artery, Three Arteries with Three Drug-eluting Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0272476	Dilation of Coronary Artery, Three Arteries, Bifurcation, with Four or More Drug-eluting Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
027247Z	Dilation of Coronary Artery, Three Arteries with Four or More Drug-eluting Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02724D6	Dilation of Coronary Artery, Three Arteries, Bifurcation, with Intraluminal Device, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02724DZ	Dilation of Coronary Artery, Three Arteries with Intraluminal Device, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02724E6	Dilation of Coronary Artery, Three Arteries, Bifurcation, with Two Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
02724EZ	Dilation of Coronary Artery, Three Arteries with Two Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02724F6	Dilation of Coronary Artery, Three Arteries, Bifurcation, with Three Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02724FZ	Dilation of Coronary Artery, Three Arteries with Three Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02724G6	Dilation of Coronary Artery, Three Arteries, Bifurcation, with Four or More Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02724GZ	Dilation of Coronary Artery, Three Arteries with Four or More Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02724T6	Dilation of Coronary Artery, Three Arteries, Bifurcation, with Radioactive Intraluminal Device, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02724TZ	Dilation of Coronary Artery, Three Arteries with Radioactive Intraluminal Device, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0273046	Dilation of Coronary Artery, Four or More Arteries, Bifurcation, with Drug-eluting Intraluminal Device, Open Approach	Procedure	ICD-10-PCS
027304Z	Dilation of Coronary Artery, Four or More Arteries with Drug-eluting Intraluminal Device, Open Approach	Procedure	ICD-10-PCS
0273056	Dilation of Coronary Artery, Four or More Arteries, Bifurcation, with Two Drug-eluting Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
027305Z	Dilation of Coronary Artery, Four or More Arteries with Two Drug-eluting Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
0273066	Dilation of Coronary Artery, Four or More Arteries, Bifurcation, with Three Drug-eluting Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
027306Z	Dilation of Coronary Artery, Four or More Arteries with Three Drug-eluting Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
0273076	Dilation of Coronary Artery, Four or More Arteries, Bifurcation, with Four or More Drug-eluting Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
027307Z	Dilation of Coronary Artery, Four or More Arteries with Four or More Drug-eluting Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
02730D6	Dilation of Coronary Artery, Four or More Arteries, Bifurcation, with Intraluminal Device, Open Approach	Procedure	ICD-10-PCS
02730DZ	Dilation of Coronary Artery, Four or More Arteries with Intraluminal Device, Open	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
02730E6	Dilation of Coronary Artery, Four or More Arteries, Bifurcation, with Two Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
02730EZ	Dilation of Coronary Artery, Four or More Arteries with Two Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
02730F6	Dilation of Coronary Artery, Four or More Arteries, Bifurcation, with Three Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
02730FZ	Dilation of Coronary Artery, Four or More Arteries with Three Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
02730G6	Dilation of Coronary Artery, Four or More Arteries, Bifurcation, with Four or More Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
02730GZ	Dilation of Coronary Artery, Four or More Arteries with Four or More Intraluminal Devices, Open Approach	Procedure	ICD-10-PCS
02730T6	Dilation of Coronary Artery, Four or More Arteries, Bifurcation, with Radioactive Intraluminal Device, Open Approach	Procedure	ICD-10-PCS
02730TZ	Dilation of Coronary Artery, Four or More Arteries with Radioactive Intraluminal Device, Open Approach	Procedure	ICD-10-PCS
02730Z6	Dilation of Coronary Artery, Four or More Arteries, Bifurcation, Open Approach	Procedure	ICD-10-PCS
02730ZZ	Dilation of Coronary Artery, Four or More Arteries, Open Approach	Procedure	ICD-10-PCS
0273346	Dilation of Coronary Artery, Four or More Arteries, Bifurcation, with Drug-eluting Intraluminal Device, Percutaneous Approach	Procedure	ICD-10-PCS
027334Z	Dilation of Coronary Artery, Four or More Arteries with Drug-eluting Intraluminal Device, Percutaneous Approach	Procedure	ICD-10-PCS
0273356	Dilation of Coronary Artery, Four or More Arteries, Bifurcation, with Two Drug-eluting Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
027335Z	Dilation of Coronary Artery, Four or More Arteries with Two Drug-eluting Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
0273366	Dilation of Coronary Artery, Four or More Arteries, Bifurcation, with Three Drug-eluting Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
027336Z	Dilation of Coronary Artery, Four or More Arteries with Three Drug-eluting Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
0273376	Dilation of Coronary Artery, Four or More Arteries, Bifurcation, with Four or More Drug-eluting Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
027337Z	Dilation of Coronary Artery, Four or More Arteries with Four or More Drug-eluting Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
02733D6	Dilation of Coronary Artery, Four or More Arteries, Bifurcation, with Intraluminal Device, Percutaneous Approach	Procedure	ICD-10-PCS
02733DZ	Dilation of Coronary Artery, Four or More Arteries with Intraluminal Device, Percutaneous Approach	Procedure	ICD-10-PCS
02733E6	Dilation of Coronary Artery, Four or More Arteries, Bifurcation, with Two Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
02733EZ	Dilation of Coronary Artery, Four or More Arteries with Two Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
02733F6	Dilation of Coronary Artery, Four or More Arteries, Bifurcation, with Three Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
02733FZ	Dilation of Coronary Artery, Four or More Arteries with Three Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
02733G6	Dilation of Coronary Artery, Four or More Arteries, Bifurcation, with Four or More Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
02733GZ	Dilation of Coronary Artery, Four or More Arteries with Four or More Intraluminal Devices, Percutaneous Approach	Procedure	ICD-10-PCS
02733T6	Dilation of Coronary Artery, Four or More Arteries, Bifurcation, with Radioactive Intraluminal Device, Percutaneous Approach	Procedure	ICD-10-PCS
02733TZ	Dilation of Coronary Artery, Four or More Arteries with Radioactive Intraluminal Device, Percutaneous Approach	Procedure	ICD-10-PCS
0273446	Dilation of Coronary Artery, Four or More Arteries, Bifurcation, with Drug-eluting Intraluminal Device, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
027344Z	Dilation of Coronary Artery, Four or More Arteries with Drug-eluting Intraluminal Device, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0273456	Dilation of Coronary Artery, Four or More Arteries, Bifurcation, with Two Drug-eluting Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
027345Z	Dilation of Coronary Artery, Four or More Arteries with Two Drug-eluting Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0273466	Dilation of Coronary Artery, Four or More Arteries, Bifurcation, with Three Drug-eluting Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
027346Z	Dilation of Coronary Artery, Four or More Arteries with Three Drug-eluting Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0273476	Dilation of Coronary Artery, Four or More Arteries, Bifurcation, with Four or More Drug-eluting Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
027347Z	Dilation of Coronary Artery, Four or More Arteries with Four or More Drug-eluting Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02734D6	Dilation of Coronary Artery, Four or More Arteries, Bifurcation, with Intraluminal Device, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02734DZ	Dilation of Coronary Artery, Four or More Arteries with Intraluminal Device, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02734E6	Dilation of Coronary Artery, Four or More Arteries, Bifurcation, with Two Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02734EZ	Dilation of Coronary Artery, Four or More Arteries with Two Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02734F6	Dilation of Coronary Artery, Four or More Arteries, Bifurcation, with Three Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02734FZ	Dilation of Coronary Artery, Four or More Arteries with Three Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02734G6	Dilation of Coronary Artery, Four or More Arteries, Bifurcation, with Four or More Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02734GZ	Dilation of Coronary Artery, Four or More Arteries with Four or More Intraluminal Devices, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02734T6	Dilation of Coronary Artery, Four or More Arteries, Bifurcation, with Radioactive Intraluminal Device, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02734TZ	Dilation of Coronary Artery, Four or More Arteries with Radioactive Intraluminal Device, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02C00Z6	Extirpation of Matter from Coronary Artery, One Artery, Bifurcation, Open Approach	Procedure	ICD-10-PCS
02C00ZZ	Extirpation of Matter from Coronary Artery, One Artery, Open Approach	Procedure	ICD-10-PCS
02C03Z6	Extirpation of Matter from Coronary Artery, One Artery, Bifurcation, Percutaneous	Procedure	ICD-10-PCS
02C03ZZ	Extirpation of Matter from Coronary Artery, One Artery, Percutaneous Approach	Procedure	ICD-10-PCS
02C04Z6	Extirpation of Matter from Coronary Artery, One Artery, Bifurcation, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02C04ZZ	Extirpation of Matter from Coronary Artery, One Artery, Percutaneous Endoscopic	Procedure	ICD-10-PCS
02C10Z6	Extirpation of Matter from Coronary Artery, Two Arteries, Bifurcation, Open Approach	Procedure	ICD-10-PCS
02C10ZZ	Extirpation of Matter from Coronary Artery, Two Arteries, Open Approach	Procedure	ICD-10-PCS
02C13Z6	Extirpation of Matter from Coronary Artery, Two Arteries, Bifurcation, Percutaneous	Procedure	ICD-10-PCS
02C13ZZ	Extirpation of Matter from Coronary Artery, Two Arteries, Percutaneous Approach	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
02C14Z6	Extirpation of Matter from Coronary Artery, Two Arteries, Bifurcation, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02C14ZZ	Extirpation of Matter from Coronary Artery, Two Arteries, Percutaneous Endoscopic	Procedure	ICD-10-PCS
02C20Z6	Extirpation of Matter from Coronary Artery, Three Arteries, Bifurcation, Open	Procedure	ICD-10-PCS
02C20ZZ	Extirpation of Matter from Coronary Artery, Three Arteries, Open Approach	Procedure	ICD-10-PCS
02C23Z6	Extirpation of Matter from Coronary Artery, Three Arteries, Bifurcation, Percutaneous	Procedure	ICD-10-PCS
02C23ZZ	Extirpation of Matter from Coronary Artery, Three Arteries, Percutaneous Approach	Procedure	ICD-10-PCS
02C24Z6	Extirpation of Matter from Coronary Artery, Three Arteries, Bifurcation, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02C24ZZ	Extirpation of Matter from Coronary Artery, Three Arteries, Percutaneous Endoscopic	Procedure	ICD-10-PCS
02C30Z6	Extirpation of Matter from Coronary Artery, Four or More Arteries, Bifurcation, Open	Procedure	ICD-10-PCS
02C30ZZ	Extirpation of Matter from Coronary Artery, Four or More Arteries, Open Approach	Procedure	ICD-10-PCS
02C33Z6	Extirpation of Matter from Coronary Artery, Four or More Arteries, Bifurcation, Percutaneous Approach	Procedure	ICD-10-PCS
02C33ZZ	Extirpation of Matter from Coronary Artery, Four or More Arteries, Percutaneous	Procedure	ICD-10-PCS
02C34Z6	Extirpation of Matter from Coronary Artery, Four or More Arteries, Bifurcation, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
02C34ZZ	Extirpation of Matter from Coronary Artery, Four or More Arteries, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
33510	Coronary artery bypass, vein only; single coronary venous graft	Procedure	CPT-4
33511	Coronary artery bypass, vein only; 2 coronary venous grafts	Procedure	CPT-4
33512	Coronary artery bypass, vein only; 3 coronary venous grafts	Procedure	CPT-4
33513	Coronary artery bypass, vein only; 4 coronary venous grafts	Procedure	CPT-4
33514	Coronary artery bypass, vein only; 5 coronary venous grafts	Procedure	CPT-4
33516	Coronary artery bypass, vein only; 6 or more coronary venous grafts	Procedure	CPT-4
33517	Coronary artery bypass, using venous graft(s) and arterial graft(s); single vein graft (List separately in addition to code for primary procedure)	Procedure	CPT-4
33518	Coronary artery bypass, using venous graft(s) and arterial graft(s); 2 venous grafts (List separately in addition to code for primary procedure)	Procedure	CPT-4
33519	Coronary artery bypass, using venous graft(s) and arterial graft(s); 3 venous grafts (List separately in addition to code for primary procedure)	Procedure	CPT-4
33520	Coronary Artery Bypass, Nonautogenous Graft (eg, Synthetic Or Cadaver); Single Graft	Procedure	CPT-4
33521	Coronary artery bypass, using venous graft(s) and arterial graft(s); 4 venous grafts (List separately in addition to code for primary procedure)	Procedure	CPT-4

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
33522	Coronary artery bypass, using venous graft(s) and arterial graft(s); 5 venous grafts (List separately in addition to code for primary procedure)	Procedure	CPT-4
33523	Coronary artery bypass, using venous graft(s) and arterial graft(s); 6 or more venous grafts (List separately in addition to code for primary procedure)	Procedure	CPT-4
33525	Coronary Artery Bypass, Nonautogenous Graft (eg, Synthetic Or Cadaver); Two	Procedure	CPT-4
33528	Coronary Artery Bypass, Nonautogenous Graft (eg, Synthetic Or Cadaver); Three Or More Coronary Grafts	Procedure	CPT-4
33530	Reoperation, coronary artery bypass procedure or valve procedure, more than 1 month after original operation (List separately in addition to code for primary procedure)	Procedure	CPT-4
33533	Coronary artery bypass, using arterial graft(s); single arterial graft	Procedure	CPT-4
33534	Coronary artery bypass, using arterial graft(s); 2 coronary arterial grafts	Procedure	CPT-4
33535	Coronary artery bypass, using arterial graft(s); 3 coronary arterial grafts	Procedure	CPT-4
33536	Coronary artery bypass, using arterial graft(s); 4 or more coronary arterial grafts	Procedure	CPT-4
33560	Myocardial Operation Combined With Coronary Bypass Procedure	Procedure	CPT-4
33570	CORONARY ANGIOPLASTY W/BYPASS	Procedure	CPT-4
33572	Coronary endarterectomy, open, any method, of left anterior descending, circumflex, or right coronary artery performed in conjunction with coronary artery bypass graft procedure, each vessel (List separately in addition to primary procedure)	Procedure	CPT-4
33575	CORON ANGIOPLSTY W/BYPASS; COMBO W/VASCULARIZAT	Procedure	CPT-4
34701	Endovascular repair of infrarenal aorta by deployment of an aorto-aortic tube endograft including pre-procedure sizing and device selection, all nonselective catheterization(s), all associated radiological supervision and interpretation, all endograft extension(s) placed in the aorta from the level of the renal arteries to the aortic bifurcation, and all angioplasty/stenting performed from the level of the renal arteries to the aortic bifurcation; for other than rupture (eg, for aneurysm, pseudoaneurysm, dissection, penetrating ulcer)	Procedure	CPT-4
34702	Endovascular repair of infrarenal aorta by deployment of an aorto-aortic tube endograft including pre-procedure sizing and device selection, all nonselective catheterization(s), all associated radiological supervision and interpretation, all endograft extension(s) placed in the aorta from the level of the renal arteries to the aortic bifurcation, and all angioplasty/stenting performed from the level of the renal arteries to the aortic bifurcation; for rupture including temporary aortic and/or iliac balloon occlusion, when performed (eg, for aneurysm, pseudoaneurysm, dissection, penetrating ulc	Procedure	CPT-4

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
34703	Endovascular repair of infrarenal aorta and/or iliac artery(ies) by deployment of an aorto-uni-iliac endograft including pre-procedure sizing and device selection, all nonselective catheterization(s), all associated radiological supervision and interpretation, all endograft extension(s) placed in the aorta from the level of the renal arteries to the iliac bifurcation, and all angioplasty/stenting performed from the level of the renal arteries to the iliac bifurcation; for other than rupture (eg, for aneurysm, pseudoaneurysm, dissection, penetrating ulcer)	Procedure	CPT-4
34704	Endovascular repair of infrarenal aorta and/or iliac artery(ies) by deployment of an aorto-uni-iliac endograft including pre-procedure sizing and device selection, all nonselective catheterization(s), all associated radiological supervision and interpretation, all endograft extension(s) placed in the aorta from the level of the renal arteries to the iliac bifurcation, and all angioplasty/stenting performed from the level of the renal arteries to the iliac bifurcation; for rupture including temporary aortic and/or iliac balloon occlusion, when performed (eg, for aneurysm, pseudoaneurysm, dissec	Procedure	CPT-4
34705	Endovascular repair of infrarenal aorta and/or iliac artery(ies) by deployment of an aorto-bi-iliac endograft including pre-procedure sizing and device selection, all nonselective catheterization(s), all associated radiological supervision and interpretation, all endograft extension(s) placed in the aorta from the level of the renal arteries to the iliac bifurcation, and all angioplasty/stenting performed from the level of the renal arteries to the iliac bifurcation; for other than rupture (eg, for aneurysm, pseudoaneurysm, dissection, penetrating ulcer)	Procedure	CPT-4
34706	Endovascular repair of infrarenal aorta and/or iliac artery(ies) by deployment of an aorto-bi-iliac endograft including pre-procedure sizing and device selection, all nonselective catheterization(s), all associated radiological supervision and interpretation, all endograft extension(s) placed in the aorta from the level of the renal arteries to the iliac bifurcation, and all angioplasty/stenting performed from the level of the renal arteries to the iliac bifurcation; for rupture including temporary aortic and/or iliac balloon occlusion, when performed (eg, for aneurysm, pseudoaneurysm, dissect	Procedure	CPT-4
34707	Endovascular repair of iliac artery by deployment of an ilio-iliac tube endograft including pre-procedure sizing and device selection, all nonselective catheterization(s), all associated radiological supervision and interpretation, and all endograft extension(s) proximally to the aortic bifurcation and distally to the iliac bifurcation, and treatment zone angioplasty/stenting, when performed, unilateral; for other than rupture (eg, for aneurysm, pseudoaneurysm, dissection, arteriovenous malformation)	Procedure	CPT-4

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
34708	Endovascular repair of iliac artery by deployment of an ilio-iliac tube endograft including pre-procedure sizing and device selection, all nonselective catheterization(s), all associated radiological supervision and interpretation, and all endograft extension(s) proximally to the aortic bifurcation and distally to the iliac bifurcation, and treatment zone angioplasty/stenting, when performed, unilateral; for rupture including temporary aortic and/or iliac balloon occlusion, when performed (eg, for aneurysm, pseudoaneurysm, dissection, arteriovenous malformation, traumatic disruption)	Procedure	CPT-4
34709	Placement of extension prosthesis(es) distal to the common iliac artery(ies) or proximal to the renal artery(ies) for endovascular repair of infrarenal abdominal aortic or iliac aneurysm, false aneurysm, dissection, penetrating ulcer, including pre-procedure sizing and device selection, all nonselective catheterization(s), all associated radiological supervision and interpretation, and treatment zone angioplasty/stenting, when performed, per vessel treated (List separately in addition to code for primary procedure)	Procedure	CPT-4
34710	Delayed placement of distal or proximal extension prosthesis for endovascular repair of infrarenal abdominal aortic or iliac aneurysm, false aneurysm, dissection, endoleak, or endograft migration, including pre-procedure sizing and device selection, all nonselective catheterization(s), all associated radiological supervision and interpretation, and treatment zone angioplasty/stenting, when performed; initial vessel treated	Procedure	CPT-4
34711	Delayed placement of distal or proximal extension prosthesis for endovascular repair of infrarenal abdominal aortic or iliac aneurysm, false aneurysm, dissection, endoleak, or endograft migration, including pre-procedure sizing and device selection, all nonselective catheterization(s), all associated radiological supervision and interpretation, and treatment zone angioplasty/stenting, when performed; each additional vessel treated (List separately in addition to code for primary procedure)	Procedure	CPT-4
34717	Endovascular repair of iliac artery at the time of aorto-iliac artery endograft placement by deployment of an iliac branched endograft including pre-procedure sizing and device selection, all ipsilateral selective iliac artery catheterization(s), all associated radiological supervision and interpretation, and all endograft extension(s) proximally to the aortic bifurcation and distally in the internal iliac, external iliac, and common femoral artery(ies), and treatment zone angioplasty/stenting, when performed, for rupture or other than rupture (eg, for aneurysm, pseudoaneurysm, dissection, art	Procedure	CPT-4

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
34718	Endovascular repair of iliac artery, not associated with placement of an aorto-iliac artery endograft at the same session, by deployment of an iliac branched endograft, including pre-procedure sizing and device selection, all ipsilateral selective iliac artery catheterization(s), all associated radiological supervision and interpretation, and all endograft extension(s) proximally to the aortic bifurcation and distally in the internal iliac, external iliac, and common femoral artery(ies), and treatment zone angioplasty/stenting, when performed, for other than rupture (eg, for aneurysm, pseudoan	Procedure	CPT-4
34841	Endovascular repair of visceral aorta (eg, aneurysm, pseudoaneurysm, dissection, penetrating ulcer, intramural hematoma, or traumatic disruption) by deployment of a fenestrated visceral aortic endograft and all associated radiological supervision and interpretation, including target zone angioplasty, when performed; including one visceral artery endoprosthesis (superior mesenteric, celiac or renal artery)	Procedure	CPT-4
34842	Endovascular repair of visceral aorta (eg, aneurysm, pseudoaneurysm, dissection, penetrating ulcer, intramural hematoma, or traumatic disruption) by deployment of a fenestrated visceral aortic endograft and all associated radiological supervision and interpretation, including target zone angioplasty, when performed; including two visceral artery endoprostheses (superior mesenteric, celiac and/or renal artery[s])	Procedure	CPT-4
34843	Endovascular repair of visceral aorta (eg, aneurysm, pseudoaneurysm, dissection, penetrating ulcer, intramural hematoma, or traumatic disruption) by deployment of a fenestrated visceral aortic endograft and all associated radiological supervision and interpretation, including target zone angioplasty, when performed; including three visceral artery endoprostheses (superior mesenteric, celiac and/or renal artery[s])	Procedure	CPT-4
34844	Endovascular repair of visceral aorta (eg, aneurysm, pseudoaneurysm, dissection, penetrating ulcer, intramural hematoma, or traumatic disruption) by deployment of a fenestrated visceral aortic endograft and all associated radiological supervision and interpretation, including target zone angioplasty, when performed; including four or more visceral artery endoprostheses (superior mesenteric, celiac and/or renal artery[s])	Procedure	CPT-4
34845	Endovascular repair of visceral aorta and infrarenal abdominal aorta (eg, aneurysm, pseudoaneurysm, dissection, penetrating ulcer, intramural hematoma, or traumatic disruption) with a fenestrated visceral aortic endograft and concomitant unibody or modular infrarenal aortic endograft and all associated radiological supervision and interpretation, including target zone angioplasty, when performed; including one visceral artery endoprosthesis (superior mesenteric, celiac or renal artery)	Procedure	CPT-4

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
34846	Endovascular repair of visceral aorta and infrarenal abdominal aorta (eg, aneurysm, pseudoaneurysm, dissection, penetrating ulcer, intramural hematoma, or traumatic disruption) with a fenestrated visceral aortic endograft and concomitant unibody or modular infrarenal aortic endograft and all associated radiological supervision and interpretation, including target zone angioplasty, when performed; including two visceral artery endoprostheses (superior mesenteric, celiac and/or renal artery[s])	Procedure	CPT-4
34847	Endovascular repair of visceral aorta and infrarenal abdominal aorta (eg, aneurysm, pseudoaneurysm, dissection, penetrating ulcer, intramural hematoma, or traumatic disruption) with a fenestrated visceral aortic endograft and concomitant unibody or modular infrarenal aortic endograft and all associated radiological supervision and interpretation, including target zone angioplasty, when performed; including three visceral artery endoprostheses (superior mesenteric, celiac and/or renal artery[s])	Procedure	CPT-4
34848	Endovascular repair of visceral aorta and infrarenal abdominal aorta (eg, aneurysm, pseudoaneurysm, dissection, penetrating ulcer, intramural hematoma, or traumatic disruption) with a fenestrated visceral aortic endograft and concomitant unibody or modular infrarenal aortic endograft and all associated radiological supervision and interpretation, including target zone angioplasty, when performed; including four or more visceral artery endoprostheses (superior mesenteric, celiac and/or renal artery[s])	Procedure	CPT-4
35450	Transluminal balloon angioplasty, open; renal or other visceral artery	Procedure	CPT-4
35452	Transluminal balloon angioplasty, open; aortic	Procedure	CPT-4
35454	Transluminal balloon angioplasty, open; iliac	Procedure	CPT-4
35456	Transluminal balloon angioplasty, open; femoral-popliteal	Procedure	CPT-4
35458	Transluminal balloon angioplasty, open; brachiocephalic trunk or branches, each	Procedure	CPT-4
35459	Transluminal balloon angioplasty, open; tibioperoneal trunk and branches	Procedure	CPT-4
35460	Transluminal balloon angioplasty, open; venous	Procedure	CPT-4
35470	Transluminal balloon angioplasty, percutaneous; tibioperoneal trunk or branches,	Procedure	CPT-4
35471	Transluminal balloon angioplasty, percutaneous; renal or visceral artery	Procedure	CPT-4
35472	Transluminal balloon angioplasty, percutaneous; aortic	Procedure	CPT-4
35473	Transluminal balloon angioplasty, percutaneous; iliac	Procedure	CPT-4
35474	Transluminal balloon angioplasty, percutaneous; femoral-popliteal	Procedure	CPT-4
35475	Transluminal balloon angioplasty, percutaneous; brachiocephalic trunk or branches,	Procedure	CPT-4
35476	Transluminal balloon angioplasty, percutaneous; venous	Procedure	CPT-4
35600	Harvest of upper extremity artery, 1 segment, for coronary artery bypass procedure (List separately in addition to code for primary procedure)	Procedure	CPT-4

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
35879	Revision, lower extremity arterial bypass, without thrombectomy, open; with vein patch angioplasty	Procedure	CPT-4
36902	Introduction of needle(s) and/or catheter(s), dialysis circuit, with diagnostic angiography of the dialysis circuit, including all direct puncture(s) and catheter placement(s), injection(s) of contrast, all necessary imaging from the arterial anastomosis and adjacent artery through entire venous outflow including the inferior or superior vena cava, fluoroscopic guidance, radiological supervision and interpretation and image documentation and report; with transluminal balloon angioplasty, peripheral dialysis segment, including all imaging and radiological supervision and interpretation necessar	Procedure	CPT-4
36903	Introduction of needle(s) and/or catheter(s), dialysis circuit, with diagnostic angiography of the dialysis circuit, including all direct puncture(s) and catheter placement(s), injection(s) of contrast, all necessary imaging from the arterial anastomosis and adjacent artery through entire venous outflow including the inferior or superior vena cava, fluoroscopic guidance, radiological supervision and interpretation and image documentation and report; with transcatheter placement of intravascular stent(s), peripheral dialysis segment, including all imaging and radiological supervision and interp	Procedure	CPT-4
36905	Percutaneous transluminal mechanical thrombectomy and/or infusion for thrombolysis, dialysis circuit, any method, including all imaging and radiological supervision and interpretation, diagnostic angiography, fluoroscopic guidance, catheter placement(s), and intraprocedural pharmacological thrombolytic injection(s); with transluminal balloon angioplasty, peripheral dialysis segment, including all imaging and radiological supervision and interpretation necessary to perform the angioplasty	Procedure	CPT-4
36906	Percutaneous transluminal mechanical thrombectomy and/or infusion for thrombolysis, dialysis circuit, any method, including all imaging and radiological supervision and interpretation, diagnostic angiography, fluoroscopic guidance, catheter placement(s), and intraprocedural pharmacological thrombolytic injection(s); with transcatheter placement of intravascular stent(s), peripheral dialysis segment, including all imaging and radiological supervision and interpretation necessary to perform the stenting, and all angioplasty within the peripheral dialysis circuit	Procedure	CPT-4
36907	Transluminal balloon angioplasty, central dialysis segment, performed through dialysis circuit, including all imaging and radiological supervision and interpretation required to perform the angioplasty (List separately in addition to code for primary procedure)	Procedure	CPT-4

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
36908	Transcatheter placement of intravascular stent(s), central dialysis segment, performed through dialysis circuit, including all imaging and radiological supervision and interpretation required to perform the stenting, and all angioplasty in the central dialysis segment (List separately in addition to code for primary procedure)	Procedure	CPT-4
37215	Transcatheter placement of intravascular stent(s), cervical carotid artery, open or percutaneous, including angioplasty, when performed, and radiological supervision and interpretation; with distal embolic protection	Procedure	CPT-4
37216	Transcatheter placement of intravascular stent(s), cervical carotid artery, open or percutaneous, including angioplasty, when performed, and radiological supervision and interpretation; without distal embolic protection	Procedure	CPT-4
37217	Transcatheter placement of intravascular stent(s), intrathoracic common carotid artery or innominate artery by retrograde treatment, open ipsilateral cervical carotid artery exposure, including angioplasty, when performed, and radiological supervision and interpretation	Procedure	CPT-4
37218	Transcatheter placement of intravascular stent(s), intrathoracic common carotid artery or innominate artery, open or percutaneous antegrade approach, including angioplasty, when performed, and radiological supervision and interpretation	Procedure	CPT-4
37220	Revascularization, endovascular, open or percutaneous, iliac artery, unilateral, initial vessel; with transluminal angioplasty	Procedure	CPT-4
37221	Revascularization, endovascular, open or percutaneous, iliac artery, unilateral, initial vessel; with transluminal stent placement(s), includes angioplasty within the same vessel, when performed	Procedure	CPT-4
37222	Revascularization, endovascular, open or percutaneous, iliac artery, each additional ipsilateral iliac vessel; with transluminal angioplasty (List separately in addition to code for primary procedure)	Procedure	CPT-4
37223	Revascularization, endovascular, open or percutaneous, iliac artery, each additional ipsilateral iliac vessel; with transluminal stent placement(s), includes angioplasty within the same vessel, when performed (List separately in addition to code for primary procedure)	Procedure	CPT-4
37224	Revascularization, endovascular, open or percutaneous, femoral, popliteal artery(s), unilateral; with transluminal angioplasty	Procedure	CPT-4
37225	Revascularization, endovascular, open or percutaneous, femoral, popliteal artery(s), unilateral; with atherectomy, includes angioplasty within the same vessel, when performed	Procedure	CPT-4
37226	Revascularization, endovascular, open or percutaneous, femoral, popliteal artery(s), unilateral; with transluminal stent placement(s), includes angioplasty within the same vessel, when performed	Procedure	CPT-4

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
37227	Revascularization, endovascular, open or percutaneous, femoral, popliteal artery(s), unilateral; with transluminal stent placement(s) and atherectomy, includes angioplasty within the same vessel, when performed	Procedure	CPT-4
37228	Revascularization, endovascular, open or percutaneous, tibial, peroneal artery, unilateral, initial vessel; with transluminal angioplasty	Procedure	CPT-4
37229	Revascularization, endovascular, open or percutaneous, tibial, peroneal artery, unilateral, initial vessel; with atherectomy, includes angioplasty within the same vessel, when performed	Procedure	CPT-4
37230	Revascularization, endovascular, open or percutaneous, tibial, peroneal artery, unilateral, initial vessel; with transluminal stent placement(s), includes angioplasty within the same vessel, when performed	Procedure	CPT-4
37231	Revascularization, endovascular, open or percutaneous, tibial, peroneal artery, unilateral, initial vessel; with transluminal stent placement(s) and atherectomy, includes angioplasty within the same vessel, when performed	Procedure	CPT-4
37232	Revascularization, endovascular, open or percutaneous, tibial/peroneal artery, unilateral, each additional vessel; with transluminal angioplasty (List separately in addition to code for primary procedure)	Procedure	CPT-4
37233	Revascularization, endovascular, open or percutaneous, tibial/peroneal artery, unilateral, each additional vessel; with atherectomy, includes angioplasty within the same vessel, when performed (List separately in addition to code for primary procedure)	Procedure	CPT-4
37234	Revascularization, endovascular, open or percutaneous, tibial/peroneal artery, unilateral, each additional vessel; with transluminal stent placement(s), includes angioplasty within the same vessel, when performed (List separately in addition to code for primary procedure)	Procedure	CPT-4
37235	Revascularization, endovascular, open or percutaneous, tibial/peroneal artery, unilateral, each additional vessel; with transluminal stent placement(s) and atherectomy, includes angioplasty within the same vessel, when performed (List separately in addition to code for primary procedure)	Procedure	CPT-4
37236	Transcatheter placement of an intravascular stent(s) (except lower extremity artery(s) for occlusive disease, cervical carotid, extracranial vertebral or intrathoracic carotid, intracranial, or coronary), open or percutaneous, including radiological supervision and interpretation and including all angioplasty within the same vessel, when performed; initial artery	Procedure	CPT-4

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
37237	Transcatheter placement of an intravascular stent(s) (except lower extremity artery(s) for occlusive disease, cervical carotid, extracranial vertebral or intrathoracic carotid, intracranial, or coronary), open or percutaneous, including radiological supervision and interpretation and including all angioplasty within the same vessel, when performed; each additional artery (List separately in addition to code for primary procedure)	Procedure	CPT-4
37238	Transcatheter placement of an intravascular stent(s), open or percutaneous, including radiological supervision and interpretation and including angioplasty within the same vessel, when performed; initial vein	Procedure	CPT-4
37239	Transcatheter placement of an intravascular stent(s), open or percutaneous, including radiological supervision and interpretation and including angioplasty within the same vessel, when performed; each additional vein (List separately in addition to code for primary procedure)	Procedure	CPT-4
37246	Transluminal balloon angioplasty (except lower extremity artery(ies) for occlusive disease, intracranial, coronary, pulmonary, or dialysis circuit), open or percutaneous, including all imaging and radiological supervision and interpretation necessary to perform the angioplasty within the same artery; initial artery	Procedure	CPT-4
37247	Transluminal balloon angioplasty (except lower extremity artery(ies) for occlusive disease, intracranial, coronary, pulmonary, or dialysis circuit), open or percutaneous, including all imaging and radiological supervision and interpretation necessary to perform the angioplasty within the same artery; each additional artery (List separately in addition to code for primary procedure)	Procedure	CPT-4
37248	Transluminal balloon angioplasty (except dialysis circuit), open or percutaneous, including all imaging and radiological supervision and interpretation necessary to perform the angioplasty within the same vein; initial vein	Procedure	CPT-4
37249	Transluminal balloon angioplasty (except dialysis circuit), open or percutaneous, including all imaging and radiological supervision and interpretation necessary to perform the angioplasty within the same vein; each additional vein (List separately in addition to code for primary procedure)	Procedure	CPT-4
3E07017	Introduction of Other Thrombolytic into Coronary Artery, Open Approach	Procedure	ICD-10-PCS
3E070PZ	Introduction of Platelet Inhibitor into Coronary Artery, Open Approach	Procedure	ICD-10-PCS
3E07317	Introduction of Other Thrombolytic into Coronary Artery, Percutaneous Approach	Procedure	ICD-10-PCS
3E073PZ	Introduction of Platelet Inhibitor into Coronary Artery, Percutaneous Approach	Procedure	ICD-10-PCS
4A020N7	Measurement of Cardiac Sampling and Pressure, Left Heart, Open Approach	Procedure	ICD-10-PCS
4A020N8	Measurement of Cardiac Sampling and Pressure, Bilateral, Open Approach	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
4A023N7	Measurement of Cardiac Sampling and Pressure, Left Heart, Percutaneous Approach	Procedure	ICD-10-PCS
4A023N8	Measurement of Cardiac Sampling and Pressure, Bilateral, Percutaneous Approach	Procedure	ICD-10-PCS
4A12XSH	Monitoring of Cardiac Vascular Perfusion using Indocyanine Green Dye, External	Procedure	ICD-10-PCS
61630	Balloon angioplasty, intracranial (eg, atherosclerotic stenosis), percutaneous	Procedure	CPT-4
61635	Transcatheter placement of intravascular stent(s), intracranial (eg, atherosclerotic stenosis), including balloon angioplasty, if performed	Procedure	CPT-4
75962	Transluminal balloon angioplasty, peripheral artery other than renal, or other visceral artery, iliac or lower extremity, radiological supervision and interpretation	Procedure	CPT-4
75963	Percutaneous Transluminal Angioplasty, Any Method, Peripheral Artery; Complete	Procedure	CPT-4
75964	Transluminal balloon angioplasty, each additional peripheral artery other than renal or other visceral artery, iliac or lower extremity, radiological supervision and interpretation (List separately in addition to code for primary procedure)	Procedure	CPT-4
75965	Percutaneous Transluminal Angioplasty, Any Method, Each Additional Peripheral Artery; Complete Procedure	Procedure	CPT-4
75966	Transluminal balloon angioplasty, renal or other visceral artery, radiological supervision and interpretation	Procedure	CPT-4
75967	Percutaneous Transluminal Angioplasty, Any Method, Renal Or Other Visceral Artery; Complete Procedure	Procedure	CPT-4
75968	Transluminal balloon angioplasty, each additional visceral artery, radiological supervision and interpretation (List separately in addition to code for primary procedure)	Procedure	CPT-4
75969	Percutaneous Transluminal Angioplasty, Any Method, Each Additional Visceral Artery; Complete Procedure	Procedure	CPT-4
75970	Transcatheter biopsy, radiological supervision and interpretation	Procedure	CPT-4
75972	Percutaneous Transluminal Angioplasty, Unilateral;	Procedure	CPT-4
75973	Percutaneous Transluminal Angioplasty, Unilateral;	Procedure	CPT-4
75974	Percutaneous Transluminal Angioplasty, Bilateral, Single Catheter;	Procedure	CPT-4
75975	Percutaneous Transluminal Angioplasty, Bilateral, Single Catheter;	Procedure	CPT-4
75976	Percutaneous Transluminal Angioplasty, Bilateral, Dual Catheters;	Procedure	CPT-4
75977	Percutaneous Transluminal Angioplasty, Bilateral, Dual Catheters;	Procedure	CPT-4
75978	Transluminal balloon angioplasty, venous (eg, subclavian stenosis), radiological supervision and interpretation	Procedure	CPT-4
75979	Percutaneous Transluminal Angioplasty, Venous (eg, Subclavian Stenosis); Complete	Procedure	CPT-4
92920	Percutaneous transluminal coronary angioplasty; single major coronary artery or	Procedure	CPT-4

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
92921	Percutaneous transluminal coronary angioplasty; each additional branch of a major coronary artery (List separately in addition to code for primary procedure)	Procedure	CPT-4
92924	Percutaneous transluminal coronary atherectomy, with coronary angioplasty when performed; single major coronary artery or branch	Procedure	CPT-4
92925	Percutaneous transluminal coronary atherectomy, with coronary angioplasty when performed; each additional branch of a major coronary artery (List separately in addition to code for primary procedure)	Procedure	CPT-4
92928	Percutaneous transcatheter placement of intracoronary stent(s), with coronary angioplasty when performed; single major coronary artery or branch	Procedure	CPT-4
92929	Percutaneous transcatheter placement of intracoronary stent(s), with coronary angioplasty when performed; each additional branch of a major coronary artery (List separately in addition to code for primary procedure)	Procedure	CPT-4
92933	Percutaneous transluminal coronary atherectomy, with intracoronary stent, with coronary angioplasty when performed; single major coronary artery or branch	Procedure	CPT-4
92934	Percutaneous transluminal coronary atherectomy, with intracoronary stent, with coronary angioplasty when performed; each additional branch of a major coronary artery (List separately in addition to code for primary procedure)	Procedure	CPT-4
92937	Percutaneous transluminal revascularization of or through coronary artery bypass graft (internal mammary, free arterial, venous), any combination of intracoronary stent, atherectomy and angioplasty, including distal protection when performed; single vessel	Procedure	CPT-4
92938	Percutaneous transluminal revascularization of or through coronary artery bypass graft (internal mammary, free arterial, venous), any combination of intracoronary stent, atherectomy and angioplasty, including distal protection when performed; each additional branch subtended by the bypass graft (List separately in addition to code for primary procedure)	Procedure	CPT-4
92941	Percutaneous transluminal revascularization of acute total/subtotal occlusion during acute myocardial infarction, coronary artery or coronary artery bypass graft, any combination of intracoronary stent, atherectomy and angioplasty, including aspiration thrombectomy when performed, single vessel	Procedure	CPT-4
92943	Percutaneous transluminal revascularization of chronic total occlusion, coronary artery, coronary artery branch, or coronary artery bypass graft, any combination of intracoronary stent, atherectomy and angioplasty; single vessel	Procedure	CPT-4

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
92944	Percutaneous transluminal revascularization of chronic total occlusion, coronary artery, coronary artery branch, or coronary artery bypass graft, any combination of intracoronary stent, atherectomy and angioplasty; each additional coronary artery, coronary artery branch, or bypass graft (List separately in addition to code for primary procedure)	Procedure	CPT-4
92973	Percutaneous transluminal coronary thrombectomy mechanical (List separately in addition to code for primary procedure)	Procedure	CPT-4
92974	Transcatheter placement of radiation delivery device for subsequent coronary intravascular brachytherapy (List separately in addition to code for primary procedure)	Procedure	CPT-4
92977	Thrombolysis, coronary; by intravenous infusion	Procedure	CPT-4
92980	Transcatheter placement of an intracoronary stent(s), percutaneous, with or without other therapeutic intervention, any method; single vessel	Procedure	CPT-4
92981	Transcatheter placement of an intracoronary stent(s), percutaneous, with or without other therapeutic intervention, any method; each additional vessel (List separately in addition to code for primary procedure)	Procedure	CPT-4
92982	Percutaneous transluminal coronary balloon angioplasty; single vessel	Procedure	CPT-4
92984	Percutaneous transluminal coronary balloon angioplasty; each additional vessel (List separately in addition to code for primary procedure)	Procedure	CPT-4
92995	Percutaneous transluminal coronary atherectomy, by mechanical or other method, with or without balloon angioplasty; single vessel	Procedure	CPT-4
92996	Percutaneous transluminal coronary atherectomy, by mechanical or other method, with or without balloon angioplasty; each additional vessel (List separately in addition to code for primary procedure)	Procedure	CPT-4
92997	Percutaneous transluminal pulmonary artery balloon angioplasty; single vessel	Procedure	CPT-4
92998	Percutaneous transluminal pulmonary artery balloon angioplasty; each additional vessel (List separately in addition to code for primary procedure)	Procedure	CPT-4
93452	Left heart catheterization including intraprocedural injection(s) for left ventriculography, imaging supervision and interpretation, when performed	Procedure	CPT-4
93453	Combined right and left heart catheterization including intraprocedural injection(s) for left ventriculography, imaging supervision and interpretation, when performed	Procedure	CPT-4
93454	Catheter placement in coronary artery(s) for coronary angiography, including intraprocedural injection(s) for coronary angiography, imaging supervision and interpretation;	Procedure	CPT-4

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
93455	Catheter placement in coronary artery(s) for coronary angiography, including intraprocedural injection(s) for coronary angiography, imaging supervision and interpretation; with catheter placement(s) in bypass graft(s) (internal mammary, free arterial, venous grafts) including intraprocedural injection(s) for bypass graft angiography	Procedure	CPT-4
93456	Catheter placement in coronary artery(s) for coronary angiography, including intraprocedural injection(s) for coronary angiography, imaging supervision and interpretation; with right heart catheterization	Procedure	CPT-4
93457	Catheter placement in coronary artery(s) for coronary angiography, including intraprocedural injection(s) for coronary angiography, imaging supervision and interpretation; with catheter placement(s) in bypass graft(s) (internal mammary, free arterial, venous grafts) including intraprocedural injection(s) for bypass graft angiography and right heart catheterization	Procedure	CPT-4
93458	Catheter placement in coronary artery(s) for coronary angiography, including intraprocedural injection(s) for coronary angiography, imaging supervision and interpretation; with left heart catheterization including intraprocedural injection(s) for left ventriculography, when performed	Procedure	CPT-4
93459	Catheter placement in coronary artery(s) for coronary angiography, including intraprocedural injection(s) for coronary angiography, imaging supervision and interpretation; with left heart catheterization including intraprocedural injection(s) for left ventriculography, when performed, catheter placement(s) in bypass graft(s) (internal mammary, free arterial, venous grafts) with bypass graft angiography	Procedure	CPT-4
93460	Catheter placement in coronary artery(s) for coronary angiography, including intraprocedural injection(s) for coronary angiography, imaging supervision and interpretation; with right and left heart catheterization including intraprocedural injection(s) for left ventriculography, when performed	Procedure	CPT-4
93461	Catheter placement in coronary artery(s) for coronary angiography, including intraprocedural injection(s) for coronary angiography, imaging supervision and interpretation; with right and left heart catheterization including intraprocedural injection(s) for left ventriculography, when performed, catheter placement(s) in bypass graft(s) (internal mammary, free arterial, venous grafts) with bypass graft angiography	Procedure	CPT-4
C1034	Catheter, coronary angioplasty, surpass superfusion catheter, long 30 surpass superfusion catheter	Procedure	HCPCS
C1100	Guide wire, percutaneous transluminal coronary angioplasty, medtronic ave gt1 guide wire, medtronic ave gt2 fusion guide wire, interventional technologies trackwire, interventional technologies trackwire support, interventional technologies trackwire extra support	Procedure	HCPCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
C1101	Catheter, percutaneous transluminal coronary angioplasty guide, medtronic ave 5f, 6f, 7f, 8f, 9f zuma guide catheter, medtronic ave z2 5f, 6f, 7f, 8f, 9f zuma guide catheter, medtronic ave vector guide catheter, medtronic ave vector x guide catheter. note: only the medtronic ave z2 zuma guide catheters are effective october 1, 2000. the medtronic ave zuma guide catheters were effective august 1, 2000.	Procedure	HCPCS
C1366	Guide wire, percutaneous transluminal coronary angioplasty, hi-torque iron man, hi-torque balance middleweight, hi-torque all star, hi-torque balance heavyweight, hi-torque balance trak	Procedure	HCPCS
C1367	Guide wire, percutaneous transluminal coronary angioplasty, hi-torque cross it, hi-torque cross-it 100xt, hi-torque cross-it 200xt, hi-torque cross-it 300xt, hi-torque wiggle	Procedure	HCPCS
C1500	Atherectomy system, peripheral, rotablator rotational angioplasty system with rotalink exchangeable catheter, advancer, and guide wire	Procedure	HCPCS
C1725	Catheter, transluminal angioplasty, nonlaser (may include guidance, infusion/perfusion capability)	Procedure	HCPCS
C1885	Catheter, transluminal angioplasty, laser	Procedure	HCPCS
C1930	Catheter, percutaneous transluminal coronary angioplasty, coyote dilatation catheter 20mm/30mm/40mm	Procedure	HCPCS
C1933	Catheter, opti-plast centurion 5.5f pta catheter (shaft length 50 cm to 120 cm), opti-plast xl 5.5f pta catheter (shaft length 75 cm to 120 cm), opti-plast pta catheter (5.5 fr), tru trac 5fr percutaneous transluminal angioplasty balloon dilatation catheter, optiplast xt 5 fr percutaneous transluminal angioplasty catheter (various sizes)	Procedure	HCPCS
C1948	Catheter, pursuit balloon angioplasty catheter, cook accent balloon angioplasty	Procedure	HCPCS
C1981	Catheter ,coronary angioplasty balloon, adante, bonnie, bonnie 15mm, bonnie monorail 30mm or 40mm, bonnie sliding rail, bypass speedy, chubby, chubby sliding rail, coyote 20mm, coyote 9/15/25mm, maxxum, nc ranger, nc ranger 9mm, ranger 20mm, long ranger 30mm or 40mm, nc ranger 16/18mm, nc ranger 22/25/30mm, nc big ranger, quantum ranger, quantum ranger 1/4 sizes, quantum ranger 9/16/18mm, quantum ranger 22/30mm, quantum ranger 25mm, ranger lp 20/30/40, viva/long viva, ace - 1cm, ace - 2cm, ace graft, long ace, pivot cobra (10, 14, 18, 30, 40mm in lengths) note: only the bonnie monorail 30mm or	Procedure	HCPCS
C2605	Catheter, spectranetics extreme laser catheter, spectranetics extreme 0.9mm coronary angioplasty catheter (model 110-001)	Procedure	HCPCS
C2623	Catheter, transluminal angioplasty, drug-coated, nonlaser	Procedure	HCPCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
C3551	Guide wire, percutaneous transluminal coronary angioplasty, choice, luge, patriot, pt graphix intermediate, trooper, mailman 182/300 cm, glidewire gold guidewire, platinum plus guidewire, platinum plus guidewire with glidex hydrophilic coating, jagwire single-use high performance guide wire, merit medical systems extender guidewire, merit medical systems tomcat ptca guidewire, platinum plus guidewire (0.014 and 0.018 in diameters)	Procedure	HCPCS
C8526	Optiplast xt 5f percutaneous transluminal angioplasty catheter (various sizes)	Procedure	HCPCS
C9600	Percutaneous transcatheter placement of drug eluting intracoronary stent(s), with coronary angioplasty when performed; single major coronary artery or branch	Procedure	HCPCS
C9601	Percutaneous transcatheter placement of drug-eluting intracoronary stent(s), with coronary angioplasty when performed; each additional branch of a major coronary artery (list separately in addition to code for primary procedure)	Procedure	HCPCS
C9602	Percutaneous transluminal coronary atherectomy, with drug eluting intracoronary stent, with coronary angioplasty when performed; single major coronary artery or branch	Procedure	HCPCS
C9603	Percutaneous transluminal coronary atherectomy, with drug-eluting intracoronary stent, with coronary angioplasty when performed; each additional branch of a major coronary artery (list separately in addition to code for primary procedure)	Procedure	HCPCS
C9604	Percutaneous transluminal revascularization of or through coronary artery bypass graft (internal mammary, free arterial, venous), any combination of drug-eluting intracoronary stent, atherectomy and angioplasty, including distal protection when performed; single vessel	Procedure	HCPCS
C9605	Percutaneous transluminal revascularization of or through coronary artery bypass graft (internal mammary, free arterial, venous), any combination of drug-eluting intracoronary stent, atherectomy and angioplasty, including distal protection when performed; each additional branch subtended by the bypass graft (list separately in addition to code for primary procedure)	Procedure	HCPCS
C9606	Percutaneous transluminal revascularization of acute total/subtotal occlusion during acute myocardial infarction, coronary artery or coronary artery bypass graft, any combination of drug-eluting intracoronary stent, atherectomy and angioplasty, including aspiration thrombectomy when performed, single vessel	Procedure	HCPCS
C9607	Percutaneous transluminal revascularization of chronic total occlusion, coronary artery, coronary artery branch, or coronary artery bypass graft, any combination of drug-eluting intracoronary stent, atherectomy and angioplasty; single vessel	Procedure	HCPCS
C9608	Percutaneous transluminal revascularization of chronic total occlusion, coronary artery, coronary artery branch, or coronary artery bypass graft, any combination of drug-eluting intracoronary stent, atherectomy and angioplasty; each additional coronary artery, coronary artery branch, or bypass graft (list separately in addition to code for primary procedure)	Procedure	HCPCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
C9754	Creation of arteriovenous fistula, percutaneous; direct, any site, including all imaging and radiologic supervision and interpretation, when performed and secondary procedures to redirect blood flow (e.g., transluminal balloon angioplasty, coil embolization, when performed)	Procedure	HCPCS
G0290	Transcatheter placement of a drug eluting intracoronary stent(s), percutaneous, with or without other therapeutic intervention, any method; single vessel	Procedure	HCPCS
G0291	Transcatheter placement of a drug eluting intracoronary stent(s), percutaneous, with or without other therapeutic intervention, any method; each additional vessel	Procedure	HCPCS
G0392	Transluminal balloon angioplasty, percutaneous; for maintenance of hemodialysis access, arteriovenous fistula or graft; arterial	Procedure	HCPCS
G0393	Transluminal balloon angioplasty, percutaneous; for maintenance of hemodialysis access, arteriovenous fistula or graft; venous	Procedure	HCPCS
I20	Angina pectoris	Diagnosis	ICD-10-CM
I20.0	Unstable angina	Diagnosis	ICD-10-CM
I20.1	Angina pectoris with documented spasm	Diagnosis	ICD-10-CM
I20.8	Other forms of angina pectoris	Diagnosis	ICD-10-CM
I20.9	Angina pectoris, unspecified	Diagnosis	ICD-10-CM
I23.7	Postinfarction angina	Diagnosis	ICD-10-CM
I24	Other acute ischemic heart diseases	Diagnosis	ICD-10-CM
I24.0	Acute coronary thrombosis not resulting in myocardial infarction	Diagnosis	ICD-10-CM
I24.8	Other forms of acute ischemic heart disease	Diagnosis	ICD-10-CM
I24.9	Acute ischemic heart disease, unspecified	Diagnosis	ICD-10-CM
I25	Chronic ischemic heart disease	Diagnosis	ICD-10-CM
I25.1	Atherosclerotic heart disease of native coronary artery	Diagnosis	ICD-10-CM
I25.10	Atherosclerotic heart disease of native coronary artery without angina pectoris	Diagnosis	ICD-10-CM
I25.11	Atherosclerotic heart disease of native coronary artery with angina pectoris	Diagnosis	ICD-10-CM
I25.110	Atherosclerotic heart disease of native coronary artery with unstable angina pectoris	Diagnosis	ICD-10-CM
I25.111	Atherosclerotic heart disease of native coronary artery with angina pectoris with documented spasm	Diagnosis	ICD-10-CM
I25.118	Atherosclerotic heart disease of native coronary artery with other forms of angina	Diagnosis	ICD-10-CM
I25.119	Atherosclerotic heart disease of native coronary artery with unspecified angina	Diagnosis	ICD-10-CM
I25.2	Old myocardial infarction	Diagnosis	ICD-10-CM
I25.4	Coronary artery aneurysm and dissection	Diagnosis	ICD-10-CM
I25.41	Coronary artery aneurysm	Diagnosis	ICD-10-CM
I25.42	Coronary artery dissection	Diagnosis	ICD-10-CM

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Code	Description	Code Category	Code Type
I25.5	Ischemic cardiomyopathy	Diagnosis	ICD-10-CM
I25.6	Silent myocardial ischemia	Diagnosis	ICD-10-CM
I25.7	Atherosclerosis of coronary artery bypass graft(s) and coronary artery of transplanted heart with angina pectoris	Diagnosis	ICD-10-CM
I25.70	Atherosclerosis of coronary artery bypass graft(s), unspecified, with angina pectoris	Diagnosis	ICD-10-CM
I25.700	Atherosclerosis of coronary artery bypass graft(s), unspecified, with unstable angina	Diagnosis	ICD-10-CM
I25.701	Atherosclerosis of coronary artery bypass graft(s), unspecified, with angina pectoris with documented spasm	Diagnosis	ICD-10-CM
I25.708	Atherosclerosis of coronary artery bypass graft(s), unspecified, with other forms of angina pectoris	Diagnosis	ICD-10-CM
I25.709	Atherosclerosis of coronary artery bypass graft(s), unspecified, with unspecified angina	Diagnosis	ICD-10-CM
I25.71	Atherosclerosis of autologous vein coronary artery bypass graft(s) with angina pectoris	Diagnosis	ICD-10-CM
I25.710	Atherosclerosis of autologous vein coronary artery bypass graft(s) with unstable	Diagnosis	ICD-10-CM
I25.711	Atherosclerosis of autologous vein coronary artery bypass graft(s) with angina pectoris with documented spasm	Diagnosis	ICD-10-CM
I25.718	Atherosclerosis of autologous vein coronary artery bypass graft(s) with other forms of angina pectoris	Diagnosis	ICD-10-CM
I25.719	Atherosclerosis of autologous vein coronary artery bypass graft(s) with unspecified angina pectoris	Diagnosis	ICD-10-CM
I25.72	Atherosclerosis of autologous artery coronary artery bypass graft(s) with angina	Diagnosis	ICD-10-CM
I25.720	Atherosclerosis of autologous artery coronary artery bypass graft(s) with unstable angina pectoris	Diagnosis	ICD-10-CM
I25.721	Atherosclerosis of autologous artery coronary artery bypass graft(s) with angina pectoris with documented spasm	Diagnosis	ICD-10-CM
I25.728	Atherosclerosis of autologous artery coronary artery bypass graft(s) with other forms of angina pectoris	Diagnosis	ICD-10-CM
I25.729	Atherosclerosis of autologous artery coronary artery bypass graft(s) with unspecified angina pectoris	Diagnosis	ICD-10-CM
I25.73	Atherosclerosis of nonautologous biological coronary artery bypass graft(s) with	Diagnosis	ICD-10-CM
I25.730	Atherosclerosis of nonautologous biological coronary artery bypass graft(s) with unstable angina pectoris	Diagnosis	ICD-10-CM
I25.731	Atherosclerosis of nonautologous biological coronary artery bypass graft(s) with angina pectoris with documented spasm	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
I25.738	Atherosclerosis of nonautologous biological coronary artery bypass graft(s) with other forms of angina pectoris	Diagnosis	ICD-10-CM
I25.739	Atherosclerosis of nonautologous biological coronary artery bypass graft(s) with unspecified angina pectoris	Diagnosis	ICD-10-CM
I25.75	Atherosclerosis of native coronary artery of transplanted heart with angina pectoris	Diagnosis	ICD-10-CM
I25.750	Atherosclerosis of native coronary artery of transplanted heart with unstable angina	Diagnosis	ICD-10-CM
I25.751	Atherosclerosis of native coronary artery of transplanted heart with angina pectoris with documented spasm	Diagnosis	ICD-10-CM
I25.758	Atherosclerosis of native coronary artery of transplanted heart with other forms of angina pectoris	Diagnosis	ICD-10-CM
I25.759	Atherosclerosis of native coronary artery of transplanted heart with unspecified	Diagnosis	ICD-10-CM
I25.76	Atherosclerosis of bypass graft of coronary artery of transplanted heart with angina	Diagnosis	ICD-10-CM
I25.760	Atherosclerosis of bypass graft of coronary artery of transplanted heart with unstable	Diagnosis	ICD-10-CM
I25.761	Atherosclerosis of bypass graft of coronary artery of transplanted heart with angina pectoris with documented spasm	Diagnosis	ICD-10-CM
I25.768	Atherosclerosis of bypass graft of coronary artery of transplanted heart with other forms of angina pectoris	Diagnosis	ICD-10-CM
I25.769	Atherosclerosis of bypass graft of coronary artery of transplanted heart with unspecified angina pectoris	Diagnosis	ICD-10-CM
I25.79	Atherosclerosis of other coronary artery bypass graft(s) with angina pectoris	Diagnosis	ICD-10-CM
I25.790	Atherosclerosis of other coronary artery bypass graft(s) with unstable angina pectoris	Diagnosis	ICD-10-CM
I25.791	Atherosclerosis of other coronary artery bypass graft(s) with angina pectoris with documented spasm	Diagnosis	ICD-10-CM
I25.798	Atherosclerosis of other coronary artery bypass graft(s) with other forms of angina	Diagnosis	ICD-10-CM
I25.799	Atherosclerosis of other coronary artery bypass graft(s) with unspecified angina	Diagnosis	ICD-10-CM
I25.8	Other forms of chronic ischemic heart disease	Diagnosis	ICD-10-CM
I25.81	Atherosclerosis of other coronary vessels without angina pectoris	Diagnosis	ICD-10-CM
I25.810	Atherosclerosis of coronary artery bypass graft(s) without angina pectoris	Diagnosis	ICD-10-CM
I25.811	Atherosclerosis of native coronary artery of transplanted heart without angina	Diagnosis	ICD-10-CM
I25.812	Atherosclerosis of bypass graft of coronary artery of transplanted heart without angina	Diagnosis	ICD-10-CM
I25.82	Chronic total occlusion of coronary artery	Diagnosis	ICD-10-CM
I25.83	Coronary atherosclerosis due to lipid rich plaque	Diagnosis	ICD-10-CM
I25.84	Coronary atherosclerosis due to calcified coronary lesion	Diagnosis	ICD-10-CM
I25.89	Other forms of chronic ischemic heart disease	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
I25.9	Chronic ischemic heart disease, unspecified	Diagnosis	ICD-10-CM
I46.2	Cardiac arrest due to underlying cardiac condition	Diagnosis	ICD-10-CM
I46.8	Cardiac arrest due to other underlying condition	Diagnosis	ICD-10-CM
I46.9	Cardiac arrest, cause unspecified	Diagnosis	ICD-10-CM
I47.0	Re-entry ventricular arrhythmia	Diagnosis	ICD-10-CM
I47.2	Ventricular tachycardia	Diagnosis	ICD-10-CM
I70	Atherosclerosis	Diagnosis	ICD-10-CM
I70.0	Atherosclerosis of aorta	Diagnosis	ICD-10-CM
I70.1	Atherosclerosis of renal artery	Diagnosis	ICD-10-CM
I70.8	Atherosclerosis of other arteries	Diagnosis	ICD-10-CM
I70.9	Other and unspecified atherosclerosis	Diagnosis	ICD-10-CM
I70.90	Unspecified atherosclerosis	Diagnosis	ICD-10-CM
I70.91	Generalized atherosclerosis	Diagnosis	ICD-10-CM
S2205	Minimally invasive direct coronary artery bypass surgery involving mini-thoracotomy or mini-sternotomy surgery, performed under direct vision; using arterial graft(s), single coronary arterial graft	Procedure	HCPCS
S2206	Minimally invasive direct coronary artery bypass surgery involving mini-thoracotomy or mini-sternotomy surgery, performed under direct vision; using arterial graft(s), 2 coronary arterial grafts	Procedure	HCPCS
S2207	Minimally invasive direct coronary artery bypass surgery involving mini-thoracotomy or mini-sternotomy surgery, performed under direct vision; using venous graft only, single coronary venous graft	Procedure	HCPCS
S2208	Minimally invasive direct coronary artery bypass surgery involving mini-thoracotomy or mini-sternotomy surgery, performed under direct vision; using single arterial and venous graft(s), single venous graft	Procedure	HCPCS
S2209	Minimally invasive direct coronary artery bypass surgery involving mini-thoracotomy or mini-sternotomy surgery, performed under direct vision; using 2 arterial grafts and single venous graft	Procedure	HCPCS
T82.211A	Breakdown (mechanical) of coronary artery bypass graft, initial encounter	Diagnosis	ICD-10-CM
T82.212A	Displacement of coronary artery bypass graft, initial encounter	Diagnosis	ICD-10-CM
T82.213A	Leakage of coronary artery bypass graft, initial encounter	Diagnosis	ICD-10-CM
T82.218A	Other mechanical complication of coronary artery bypass graft, initial encounter	Diagnosis	ICD-10-CM
X2C0361	Extirpation of Matter from Coronary Artery, One Artery using Orbital Atherectomy Technology, Percutaneous Approach, New Technology Group 1	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
X2C1361	Extirpation of Matter from Coronary Artery, Two Arteries using Orbital Atherectomy Technology, Percutaneous Approach, New Technology Group 1	Procedure	ICD-10-PCS
X2C2361	Extirpation of Matter from Coronary Artery, Three Arteries using Orbital Atherectomy Technology, Percutaneous Approach, New Technology Group 1	Procedure	ICD-10-PCS
X2C3361	Extirpation of Matter from Coronary Artery, Four or More Arteries using Orbital Atherectomy Technology, Percutaneous Approach, New Technology Group 1	Procedure	ICD-10-PCS
Z95.1	Presence of aortocoronary bypass graft	Diagnosis	ICD-10-CM
Z95.5	Presence of coronary angioplasty implant and graft	Diagnosis	ICD-10-CM
Z98.61	Coronary angioplasty status	Diagnosis	ICD-10-CM
Immunodeficiency			
02Y	Heart and Great Vessels, Transplantation	Procedure	ICD-10-PCS
02YA	Transplantation / Heart	Procedure	ICD-10-PCS
02YA0Z0	Transplantation of Heart, Allogeneic, Open Approach	Procedure	ICD-10-PCS
02YA0Z1	Transplantation of Heart, Syngeneic, Open Approach	Procedure	ICD-10-PCS
02YA0Z2	Transplantation of Heart, Zooplastic, Open Approach	Procedure	ICD-10-PCS
07Y	Lymphatic and Hemic Systems, Transplantation	Procedure	ICD-10-PCS
07YP	Transplantation / Spleen	Procedure	ICD-10-PCS
07YP0Z0	Transplantation of Spleen, Allogeneic, Open Approach	Procedure	ICD-10-PCS
07YP0Z1	Transplantation of Spleen, Syngeneic, Open Approach	Procedure	ICD-10-PCS
07YP0Z2	Transplantation of Spleen, Zooplastic, Open Approach	Procedure	ICD-10-PCS
0BY	Respiratory System, Transplantation	Procedure	ICD-10-PCS
0BYC	Transplantation / Upper Lung Lobe, Right	Procedure	ICD-10-PCS
0BYC0Z0	Transplantation of Right Upper Lung Lobe, Allogeneic, Open Approach	Procedure	ICD-10-PCS
0BYC0Z1	Transplantation of Right Upper Lung Lobe, Syngeneic, Open Approach	Procedure	ICD-10-PCS
0BYC0Z2	Transplantation of Right Upper Lung Lobe, Zooplastic, Open Approach	Procedure	ICD-10-PCS
0BYD	Transplantation / Middle Lung Lobe, Right	Procedure	ICD-10-PCS
0BYD0Z0	Transplantation of Right Middle Lung Lobe, Allogeneic, Open Approach	Procedure	ICD-10-PCS
0BYD0Z1	Transplantation of Right Middle Lung Lobe, Syngeneic, Open Approach	Procedure	ICD-10-PCS
0BYD0Z2	Transplantation of Right Middle Lung Lobe, Zooplastic, Open Approach	Procedure	ICD-10-PCS
0BYF	Transplantation / Lower Lung Lobe, Right	Procedure	ICD-10-PCS
0BYF0Z0	Transplantation of Right Lower Lung Lobe, Allogeneic, Open Approach	Procedure	ICD-10-PCS
0BYF0Z1	Transplantation of Right Lower Lung Lobe, Syngeneic, Open Approach	Procedure	ICD-10-PCS
0BYF0Z2	Transplantation of Right Lower Lung Lobe, Zooplastic, Open Approach	Procedure	ICD-10-PCS
0BYG	Transplantation / Upper Lung Lobe, Left	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
0BYG0Z0	Transplantation of Left Upper Lung Lobe, Allogeneic, Open Approach	Procedure	ICD-10-PCS
0BYG0Z1	Transplantation of Left Upper Lung Lobe, Syngeneic, Open Approach	Procedure	ICD-10-PCS
0BYG0Z2	Transplantation of Left Upper Lung Lobe, Zooplastic, Open Approach	Procedure	ICD-10-PCS
0BYH	Transplantation / Lung Lingula	Procedure	ICD-10-PCS
0BYH0Z0	Transplantation of Lung Lingula, Allogeneic, Open Approach	Procedure	ICD-10-PCS
0BYH0Z1	Transplantation of Lung Lingula, Syngeneic, Open Approach	Procedure	ICD-10-PCS
0BYH0Z2	Transplantation of Lung Lingula, Zooplastic, Open Approach	Procedure	ICD-10-PCS
0BYJ	Transplantation / Lower Lung Lobe, Left	Procedure	ICD-10-PCS
0BYJ0Z0	Transplantation of Left Lower Lung Lobe, Allogeneic, Open Approach	Procedure	ICD-10-PCS
0BYJ0Z1	Transplantation of Left Lower Lung Lobe, Syngeneic, Open Approach	Procedure	ICD-10-PCS
0BYJ0Z2	Transplantation of Left Lower Lung Lobe, Zooplastic, Open Approach	Procedure	ICD-10-PCS
0BYK	Transplantation / Lung, Right	Procedure	ICD-10-PCS
0BYK0Z0	Transplantation of Right Lung, Allogeneic, Open Approach	Procedure	ICD-10-PCS
0BYK0Z1	Transplantation of Right Lung, Syngeneic, Open Approach	Procedure	ICD-10-PCS
0BYK0Z2	Transplantation of Right Lung, Zooplastic, Open Approach	Procedure	ICD-10-PCS
0BYL	Transplantation / Lung, Left	Procedure	ICD-10-PCS
0BYL0Z0	Transplantation of Left Lung, Allogeneic, Open Approach	Procedure	ICD-10-PCS
0BYL0Z1	Transplantation of Left Lung, Syngeneic, Open Approach	Procedure	ICD-10-PCS
0BYL0Z2	Transplantation of Left Lung, Zooplastic, Open Approach	Procedure	ICD-10-PCS
0BYM	Transplantation / Lungs, Bilateral	Procedure	ICD-10-PCS
0BYM0Z0	Transplantation of Bilateral Lungs, Allogeneic, Open Approach	Procedure	ICD-10-PCS
0BYM0Z1	Transplantation of Bilateral Lungs, Syngeneic, Open Approach	Procedure	ICD-10-PCS
0BYM0Z2	Transplantation of Bilateral Lungs, Zooplastic, Open Approach	Procedure	ICD-10-PCS
0DY	Gastrointestinal System, Transplantation	Procedure	ICD-10-PCS
0DY5	Transplantation / Esophagus	Procedure	ICD-10-PCS
0DY50Z0	Transplantation of Esophagus, Allogeneic, Open Approach	Procedure	ICD-10-PCS
0DY50Z1	Transplantation of Esophagus, Syngeneic, Open Approach	Procedure	ICD-10-PCS
0DY50Z2	Transplantation of Esophagus, Zooplastic, Open Approach	Procedure	ICD-10-PCS
0DY6	Transplantation / Stomach	Procedure	ICD-10-PCS
0DY60Z0	Transplantation of Stomach, Allogeneic, Open Approach	Procedure	ICD-10-PCS
0DY60Z1	Transplantation of Stomach, Syngeneic, Open Approach	Procedure	ICD-10-PCS
0DY60Z2	Transplantation of Stomach, Zooplastic, Open Approach	Procedure	ICD-10-PCS
0DY8	Transplantation / Small Intestine	Procedure	ICD-10-PCS
0DY80Z0	Transplantation of Small Intestine, Allogeneic, Open Approach	Procedure	ICD-10-PCS

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Code	Description	Code Category	Code Type
0DY80Z1	Transplantation of Small Intestine, Syngeneic, Open Approach	Procedure	ICD-10-PCS
0DY80Z2	Transplantation of Small Intestine, Zooplastic, Open Approach	Procedure	ICD-10-PCS
0DYE	Transplantation / Large Intestine	Procedure	ICD-10-PCS
0DYE0Z0	Transplantation of Large Intestine, Allogeneic, Open Approach	Procedure	ICD-10-PCS
0DYE0Z1	Transplantation of Large Intestine, Syngeneic, Open Approach	Procedure	ICD-10-PCS
0DYE0Z2	Transplantation of Large Intestine, Zooplastic, Open Approach	Procedure	ICD-10-PCS
0FY	Hepatobiliary System and Pancreas, Transplantation	Procedure	ICD-10-PCS
0FY0	Transplantation / Liver	Procedure	ICD-10-PCS
0FY00Z0	Transplantation of Liver, Allogeneic, Open Approach	Procedure	ICD-10-PCS
0FY00Z1	Transplantation of Liver, Syngeneic, Open Approach	Procedure	ICD-10-PCS
0FY00Z2	Transplantation of Liver, Zooplastic, Open Approach	Procedure	ICD-10-PCS
0FYG	Transplantation / Pancreas	Procedure	ICD-10-PCS
0FYG0Z0	Transplantation of Pancreas, Allogeneic, Open Approach	Procedure	ICD-10-PCS
0FYG0Z1	Transplantation of Pancreas, Syngeneic, Open Approach	Procedure	ICD-10-PCS
0FYG0Z2	Transplantation of Pancreas, Zooplastic, Open Approach	Procedure	ICD-10-PCS
0TY	Urinary System, Transplantation	Procedure	ICD-10-PCS
0TY0	Transplantation / Kidney, Right	Procedure	ICD-10-PCS
0TY00Z0	Transplantation of Right Kidney, Allogeneic, Open Approach	Procedure	ICD-10-PCS
0TY00Z1	Transplantation of Right Kidney, Syngeneic, Open Approach	Procedure	ICD-10-PCS
0TY00Z2	Transplantation of Right Kidney, Zooplastic, Open Approach	Procedure	ICD-10-PCS
0TY1	Transplantation / Kidney, Left	Procedure	ICD-10-PCS
0TY10Z0	Transplantation of Left Kidney, Allogeneic, Open Approach	Procedure	ICD-10-PCS
0TY10Z1	Transplantation of Left Kidney, Syngeneic, Open Approach	Procedure	ICD-10-PCS
0TY10Z2	Transplantation of Left Kidney, Zooplastic, Open Approach	Procedure	ICD-10-PCS
30230AZ	Transfusion of Embryonic Stem Cells into Peripheral Vein, Open Approach	Procedure	ICD-10-PCS
30230G1	Transfusion of Nonautologous Bone Marrow into Peripheral Vein, Open Approach	Procedure	ICD-10-PCS
30230G2	Transfusion of allogeneic related bone marrow into peripheral vein, open approach	Procedure	ICD-10-PCS
30230G3	Transfusion of allogeneic unrelated bone marrow into peripheral vein, open approach	Procedure	ICD-10-PCS
30230G4	Transfusion of allogeneic unspecified bone marrow into peripheral vein, open	Procedure	ICD-10-PCS
30230X1	Transfusion of Nonautologous Cord Blood Stem Cells into Peripheral Vein, Open	Procedure	ICD-10-PCS
30230X2	Transfusion of allogeneic related cord blood stem cells into peripheral vein, open	Procedure	ICD-10-PCS
30230X3	Transfusion of allogeneic unrelated cord blood stem cells into peripheral vein, open	Procedure	ICD-10-PCS
30230X4	Transfusion of allogeneic unspecified cord blood stem cells into peripheral vein, open	Procedure	ICD-10-PCS
30230Y1	Transfusion of Nonautologous Hematopoietic Stem Cells into Peripheral Vein, Open	Procedure	ICD-10-PCS

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Code	Description	Code Category	Code Type
30230Y2	Transfusion of allogeneic related hematopoietic stem cells into peripheral vein, open	Procedure	ICD-10-PCS
30230Y3	Transfusion of allogeneic unrelated hematopoietic stem cells into peripheral vein, open approach	Procedure	ICD-10-PCS
30230Y4	Transfusion of allogeneic unspecified hematopoietic stem cells into peripheral vein, open approach	Procedure	ICD-10-PCS
30233AZ	Transfusion of Embryonic Stem Cells into Peripheral Vein, Percutaneous Approach	Procedure	ICD-10-PCS
30233G1	Transfusion of Nonautologous Bone Marrow into Peripheral Vein, Percutaneous	Procedure	ICD-10-PCS
30233G2	Transfusion of allogeneic related bone marrow into peripheral vein, percutaneous	Procedure	ICD-10-PCS
30233G3	Transfusion of allogeneic unrelated bone marrow into peripheral vein, percutaneous	Procedure	ICD-10-PCS
30233G4	Transfusion of allogeneic unspecified bone marrow into peripheral vein, percutaneous	Procedure	ICD-10-PCS
30233X1	Transfusion of Nonautologous Cord Blood Stem Cells into Peripheral Vein, Percutaneous Approach	Procedure	ICD-10-PCS
30233X2	Transfusion of allogeneic related cord blood stem cells into peripheral vein, percutaneous approach	Procedure	ICD-10-PCS
30233X3	Transfusion of allogeneic unrelated cord blood stem cells into peripheral vein, percutaneous approach	Procedure	ICD-10-PCS
30233X4	Transfusion of allogeneic unspecified cord blood stem cells into peripheral vein, percutaneous approach	Procedure	ICD-10-PCS
30233Y1	Transfusion of Nonautologous Hematopoietic Stem Cells into Peripheral Vein, Percutaneous Approach	Procedure	ICD-10-PCS
30233Y2	Transfusion of allogeneic related hematopoietic stem cells into peripheral vein, percutaneous approach	Procedure	ICD-10-PCS
30233Y3	Transfusion of allogeneic unrelated hematopoietic stem cells into peripheral vein, percutaneous approach	Procedure	ICD-10-PCS
30233Y4	Transfusion of allogeneic unspecified hematopoietic stem cells into peripheral vein, percutaneous approach	Procedure	ICD-10-PCS
30240AZ	Transfusion of Embryonic Stem Cells into Central Vein, Open Approach	Procedure	ICD-10-PCS
30240G1	Transfusion of Nonautologous Bone Marrow into Central Vein, Open Approach	Procedure	ICD-10-PCS
30240G2	Transfusion of allogeneic related bone marrow into central vein, open approach	Procedure	ICD-10-PCS
30240G3	Transfusion of allogeneic unrelated bone marrow into central vein, open approach	Procedure	ICD-10-PCS
30240G4	Transfusion of allogeneic unspecified bone marrow into central vein, open approach	Procedure	ICD-10-PCS
30240X1	Transfusion of Nonautologous Cord Blood Stem Cells into Central Vein, Open	Procedure	ICD-10-PCS
30240X2	Transfusion of allogeneic related cord blood stem cells into central vein, open	Procedure	ICD-10-PCS
30240X3	Transfusion of allogeneic unrelated cord blood stem cells into central vein, open	Procedure	ICD-10-PCS

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Code	Description	Code Category	Code Type
30240X4	Transfusion of allogeneic unspecified cord blood stem cells into central vein, open	Procedure	ICD-10-PCS
30240Y0	Transfusion of Autologous Hematopoietic Stem Cells into Central Vein, Open Approach	Procedure	ICD-10-PCS
30240Y1	Transfusion of Nonautologous Hematopoietic Stem Cells into Central Vein, Open	Procedure	ICD-10-PCS
30240Y2	Transfusion of allogeneic related hematopoietic stem cells into central vein, open	Procedure	ICD-10-PCS
30240Y3	Transfusion of allogeneic unrelated hematopoietic stem cells into central vein, open	Procedure	ICD-10-PCS
30240Y4	Transfusion of allogeneic unspecified hematopoietic stem cells into central vein, open	Procedure	ICD-10-PCS
30243AZ	Transfusion of Embryonic Stem Cells into Central Vein, Percutaneous Approach	Procedure	ICD-10-PCS
30243G1	Transfusion of Nonautologous Bone Marrow into Central Vein, Percutaneous	Procedure	ICD-10-PCS
30243G2	Transfusion of allogeneic related bone marrow into central vein, percutaneous	Procedure	ICD-10-PCS
30243G3	Transfusion of allogeneic unrelated bone marrow into central vein, percutaneous	Procedure	ICD-10-PCS
30243G4	Transfusion of allogeneic unspecified bone marrow into central vein, percutaneous	Procedure	ICD-10-PCS
30243X1	Transfusion of Nonautologous Cord Blood Stem Cells into Central Vein, Percutaneous	Procedure	ICD-10-PCS
30243X2	Transfusion of allogeneic related cord blood stem cells into central vein, percutaneous	Procedure	ICD-10-PCS
30243X3	Transfusion of allogeneic unrelated cord blood stem cells into central vein, percutaneous approach	Procedure	ICD-10-PCS
30243X4	Transfusion of allogeneic unspecified cord blood stem cells into central vein, percutaneous approach	Procedure	ICD-10-PCS
30243Y1	Transfusion of Nonautologous Hematopoietic Stem Cells into Central Vein, Percutaneous Approach	Procedure	ICD-10-PCS
30243Y2	Transfusion of allogeneic related hematopoietic stem cells into central vein, percutaneous approach	Procedure	ICD-10-PCS
30243Y3	Transfusion of allogeneic unrelated hematopoietic stem cells into central vein, percutaneous approach	Procedure	ICD-10-PCS
30243Y4	Transfusion of allogeneic unspecified hematopoietic stem cells into central vein, percutaneous approach	Procedure	ICD-10-PCS
30250G1	Transfusion of Nonautologous Bone Marrow into Peripheral Artery, Open Approach	Procedure	ICD-10-PCS
30250X1	Transfusion of Nonautologous Cord Blood Stem Cells into Peripheral Artery, Open	Procedure	ICD-10-PCS
30250Y1	Transfusion of Nonautologous Hematopoietic Stem Cells into Peripheral Artery, Open	Procedure	ICD-10-PCS
30253G1	Transfusion of Nonautologous Bone Marrow into Peripheral Artery, Percutaneous	Procedure	ICD-10-PCS
30253X1	Transfusion of Nonautologous Cord Blood Stem Cells into Peripheral Artery, Percutaneous Approach	Procedure	ICD-10-PCS
30253Y1	Transfusion of Nonautologous Hematopoietic Stem Cells into Peripheral Artery, Percutaneous Approach	Procedure	ICD-10-PCS
30260G1	Transfusion of Nonautologous Bone Marrow into Central Artery, Open Approach	Procedure	ICD-10-PCS

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Code	Description	Code Category	Code Type
30260X1	Transfusion of Nonautologous Cord Blood Stem Cells into Central Artery, Open	Procedure	ICD-10-PCS
30260Y1	Transfusion of Nonautologous Hematopoietic Stem Cells into Central Artery, Open	Procedure	ICD-10-PCS
30263G1	Transfusion of Nonautologous Bone Marrow into Central Artery, Percutaneous	Procedure	ICD-10-PCS
30263X1	Transfusion of Nonautologous Cord Blood Stem Cells into Central Artery, Percutaneous Approach	Procedure	ICD-10-PCS
30263Y1	Transfusion of Nonautologous Hematopoietic Stem Cells into Central Artery, Percutaneous Approach	Procedure	ICD-10-PCS
32851	Lung transplant, single; without cardiopulmonary bypass	Procedure	CPT-4
32852	Lung transplant, single; with cardiopulmonary bypass	Procedure	CPT-4
32853	Lung transplant, double (bilateral sequential or en bloc); without cardiopulmonary	Procedure	CPT-4
32854	Lung transplant, double (bilateral sequential or en bloc); with cardiopulmonary bypass	Procedure	CPT-4
33935	Heart-lung transplant with recipient cardiectomy-pneumonectomy	Procedure	CPT-4
33945	Heart transplant, with or without recipient cardiectomy	Procedure	CPT-4
3490F	History of AIDS-defining condition (HIV)	Procedure	CPT-2
38240	Hematopoietic progenitor cell (HPC); allogeneic transplantation per donor	Procedure	CPT-4
38242	Allogeneic lymphocyte infusions	Procedure	CPT-4
38243	Allogeneic hematopoietic cellular transplant boost	Procedure	CPT-4
3E1M39Z	Irrigation of Peritoneal Cavity using Dialysate, Percutaneous Approach	Procedure	ICD-10-PCS
44135	Intestinal allotransplantation; from cadaver donor	Procedure	CPT-4
44136	Intestinal allotransplantation; from living donor	Procedure	CPT-4
47135	Liver allotransplantation; orthotopic, partial or whole, from cadaver or living donor,	Procedure	CPT-4
47136	Liver allotransplantation; heterotopic, partial or whole, from cadaver or living donor,	Procedure	CPT-4
48554	Transplantation of pancreatic allograft	Procedure	CPT-4
50360	Renal allotransplantation, implantation of graft; without recipient nephrectomy	Procedure	CPT-4
50365	Renal allotransplantation, implantation of graft; with recipient nephrectomy	Procedure	CPT-4
50366	Renal Homotransplantation, Implantation Of Graft	Procedure	CPT-4
50370	Removal of transplanted renal allograft	Procedure	CPT-4
5A1D00Z	Performance of Urinary Filtration, Single	Procedure	ICD-10-PCS
5A1D06Z	Performance of Urinary Filtration, Multiple	Procedure	ICD-10-PCS
5A1D70Z	Performance of Urinary Filtration, Intermittent, Less than 6 Hours Per Day	Procedure	ICD-10-PCS
5A1D80Z	Performance of Urinary Filtration, Prolonged Intermittent, 6-18 hours Per Day	Procedure	ICD-10-PCS
5A1D90Z	Performance of Urinary Filtration, Continuous, Greater than 18 hours Per Day	Procedure	ICD-10-PCS
A4653	Peritoneal dialysis catheter anchoring device, belt, each	Procedure	HCPCS
A4671	Disposable cycler set used with cycler dialysis machine, each	Procedure	HCPCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
A4672	Drainage extension line, sterile, for dialysis, each	Procedure	HCPCS
A4673	Extension line with easy lock connectors, used with dialysis	Procedure	HCPCS
A4674	Chemicals/antiseptics solution used to clean/sterilize dialysis equipment, per 8 oz	Procedure	HCPCS
A4680	Activated carbon filters for dialysis	Procedure	HCPCS
A4690	Dialyzers (artificial kidneys) all brands, all sizes per unit	Procedure	HCPCS
A4700	Standard dialysate solution, each	Procedure	HCPCS
A4705	Bicarbonate dialysate solution, each	Procedure	HCPCS
A4706	Bicarbonate concentrate, solution, for hemodialysis, per gallon	Procedure	HCPCS
A4707	Bicarbonate concentrate, powder, for hemodialysis, per packet	Procedure	HCPCS
A4708	Acetate concentrate solution, for hemodialysis, per gallon	Procedure	HCPCS
A4709	Acid concentrate, solution, for hemodialysis, per gallon	Procedure	HCPCS
A4712	Water, sterile	Procedure	HCPCS
A4714	Treated water (deionized, distilled, reverse osmosis) for use in dialysis system	Procedure	HCPCS
A4719	"y set" tubing for peritoneal dialysis	Procedure	HCPCS
A4720	Dialysate solution, any concentration of dextrose, fluid volume greater than 249cc, but less than or equal to 999cc, for peritoneal dialysis	Procedure	HCPCS
A4721	Dialysate solution, any concentration of dextrose, fluid volume greater than 999cc but less than or equal to 1999cc, for peritoneal dialysis	Procedure	HCPCS
A4722	Dialysate solution, any concentration of dextrose, fluid volume greater than 1999cc but less than or equal to 2999cc, for peritoneal dialysis	Procedure	HCPCS
A4723	Dialysate solution, any concentration of dextrose, fluid volume greater than 2999cc but less than or equal to 3999cc, for peritoneal dialysis	Procedure	HCPCS
A4724	Dialysate solution, any concentration of dextrose, fluid volume greater than 3999cc but less than or equal to 4999cc, for peritoneal dialysis	Procedure	HCPCS
A4725	Dialysate solution, any concentration of dextrose, fluid volume greater than 4999cc but less than or equal to 5999cc, for peritoneal dialysis	Procedure	HCPCS
A4726	Dialysate solution, any concentration of dextrose, fluid volume greater than 5999cc, for peritoneal dialysis	Procedure	HCPCS
A4728	Dialysate solution, non-dextrose containing, 500 ml	Procedure	HCPCS
A4730	Fistula cannulation set for dialysis only	Procedure	HCPCS
A4735	Local/topical anesthetics for dialysis only	Procedure	HCPCS
A4736	Topical anesthetic, for dialysis, per gram	Procedure	HCPCS
A4737	Injectable anesthetic, for dialysis, per 10 ml	Procedure	HCPCS
A4740	Shunt accessories for dialysis only	Procedure	HCPCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
A4750	Blood tubing, arterial or venous, each	Procedure	HCPCS
A4755	Blood tubing, arterial and venous combined	Procedure	HCPCS
A4760	Dialysate standard testing solution, supplies	Procedure	HCPCS
A4765	Dialysate concentrate additives, each	Procedure	HCPCS
A4766	Dialysate concentrate, solution, additive for peritoneal dialysis, per 10 ml	Procedure	HCPCS
A4802	Protamine sulfate, for hemodialysis, per 50 mg	Procedure	HCPCS
A4820	Hemodialysis kit supplies	Procedure	HCPCS
A4850	Hemostats with rubber tips for dialysis	Procedure	HCPCS
A4860	Disposable catheter caps	Procedure	HCPCS
A4870	Plumbing and/or electrical work for home dialysis equipment	Procedure	HCPCS
A4880	Storage tanks utilized in connection with water purification system, replacement tanks for dialysis	Procedure	HCPCS
A4890	Contracts, repair and maintenance, for home dialysis equipment (non-covered)	Procedure	HCPCS
A4900	Continuous ambulatory peritoneal dialysis (capd) supply kit	Procedure	HCPCS
A4901	Continuous cycling peritoneal dialysis (ccpd) supply kit	Procedure	HCPCS
A4905	Intermittent peritoneal dialysis (ipd) supply kit	Procedure	HCPCS
A4910	Non-medical supplies for dialysis, (i.e., scale, scissors, stopwatch, etc.)	Procedure	HCPCS
A4911	Drain bag/bottle, for dialysis, each	Procedure	HCPCS
A4912	Gomco drain bottle	Procedure	HCPCS
A4913	Miscellaneous dialysis supplies, not identified elsewhere, by report	Procedure	HCPCS
A4914	Preparation kits	Procedure	HCPCS
A4918	Venous pressure clamps, each	Procedure	HCPCS
B180	Chronic viral hepatitis B with delta-agent	Diagnosis	ICD-10-CM
B181	Chronic viral hepatitis B without delta-agent	Diagnosis	ICD-10-CM
B182	Chronic viral hepatitis C	Diagnosis	ICD-10-CM
B189	Chronic viral hepatitis, unspecified	Diagnosis	ICD-10-CM
B20	Human immunodeficiency virus (HIV) disease	Diagnosis	ICD-10-CM
B9735	Human immunodeficiency virus, type 2 (HIV 2) as the cause of diseases classified	Diagnosis	ICD-10-CM
BT29	Computerized Tomography (CT Scan) / Kidney Transplant	Procedure	ICD-10-PCS
BT2900Z	Computerized Tomography (CT Scan) of Kidney Transplant using High Osmolar Contrast, Unenhanced and Enhanced	Procedure	ICD-10-PCS
BT290ZZ	Computerized Tomography (CT Scan) of Kidney Transplant using High Osmolar	Procedure	ICD-10-PCS
BT2910Z	Computerized Tomography (CT Scan) of Kidney Transplant using Low Osmolar Contrast, Unenhanced and Enhanced	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
BT291ZZ	Computerized Tomography (CT Scan) of Kidney Transplant using Low Osmolar Contrast	Procedure	ICD-10-PCS
BT29Y0Z	Computerized Tomography (CT Scan) of Kidney Transplant using Other Contrast, Unenhanced and Enhanced	Procedure	ICD-10-PCS
BT29YZZ	Computerized Tomography (CT Scan) of Kidney Transplant using Other Contrast	Procedure	ICD-10-PCS
BT29ZZZ	Computerized Tomography (CT Scan) of Kidney Transplant	Procedure	ICD-10-PCS
BT39	Magnetic Resonance Imaging (MRI) / Kidney Transplant	Procedure	ICD-10-PCS
BT39Y0Z	Magnetic Resonance Imaging (MRI) of Kidney Transplant using Other Contrast, Unenhanced and Enhanced	Procedure	ICD-10-PCS
BT39YZZ	Magnetic Resonance Imaging (MRI) of Kidney Transplant using Other Contrast	Procedure	ICD-10-PCS
BT39ZZZ	Magnetic Resonance Imaging (MRI) of Kidney Transplant	Procedure	ICD-10-PCS
BT49	Ultrasonography / Kidney Transplant	Procedure	ICD-10-PCS
BT49ZZZ	Ultrasonography of Kidney Transplant	Procedure	ICD-10-PCS
D510	Vitamin B12 deficiency anemia due to intrinsic factor deficiency	Diagnosis	ICD-10-CM
D5702	Hb-SS disease with splenic sequestration	Diagnosis	ICD-10-CM
D57212	Sickle-cell/Hb-C disease with splenic sequestration	Diagnosis	ICD-10-CM
D57412	Sickle-cell thalassemia with splenic sequestration	Diagnosis	ICD-10-CM
D57812	Other sickle-cell disorders with splenic sequestration	Diagnosis	ICD-10-CM
D590	Drug-induced autoimmune hemolytic anemia	Diagnosis	ICD-10-CM
D591	Other autoimmune hemolytic anemias	Diagnosis	ICD-10-CM
D600	Chronic acquired pure red cell aplasia	Diagnosis	ICD-10-CM
D601	Transient acquired pure red cell aplasia	Diagnosis	ICD-10-CM
D608	Other acquired pure red cell aplasias	Diagnosis	ICD-10-CM
D609	Acquired pure red cell aplasia, unspecified	Diagnosis	ICD-10-CM
D610	Constitutional aplastic anemia	Diagnosis	ICD-10-CM
D6101	Constitutional (pure) red blood cell aplasia	Diagnosis	ICD-10-CM
D6109	Other constitutional aplastic anemia	Diagnosis	ICD-10-CM
D611	Drug-induced aplastic anemia	Diagnosis	ICD-10-CM
D612	Aplastic anemia due to other external agents	Diagnosis	ICD-10-CM
D613	Idiopathic aplastic anemia	Diagnosis	ICD-10-CM
D61810	Antineoplastic chemotherapy induced pancytopenia	Diagnosis	ICD-10-CM
D61811	Other drug induced pancytopenia	Diagnosis	ICD-10-CM
D61812	Other pancytopenia	Diagnosis	ICD-10-CM
D6189	Other specified aplastic anemias and other bone marrow failure syndromes	Diagnosis	ICD-10-CM
D619	Aplastic anemia, unspecified	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
D6481	Anemia due to antineoplastic chemotherapy	Diagnosis	ICD-10-CM
D690	Allergic purpura	Diagnosis	ICD-10-CM
D692	Other nonthrombocytopenic purpura	Diagnosis	ICD-10-CM
D693	Immune thrombocytopenic purpura	Diagnosis	ICD-10-CM
D6941	Evans syndrome	Diagnosis	ICD-10-CM
D700	Congenital agranulocytosis	Diagnosis	ICD-10-CM
D701	Agranulocytosis secondary to cancer chemotherapy	Diagnosis	ICD-10-CM
D702	Other drug-induced agranulocytosis	Diagnosis	ICD-10-CM
D704	Cyclic neutropenia	Diagnosis	ICD-10-CM
D71	Functional disorders of polymorphonuclear neutrophils	Diagnosis	ICD-10-CM
D720	Genetic anomalies of leukocytes	Diagnosis	ICD-10-CM
D761	Hemophagocytic lymphohistiocytosis	Diagnosis	ICD-10-CM
D762	Hemophagocytic syndrome, infection-associated	Diagnosis	ICD-10-CM
D763	Other histiocytosis syndromes	Diagnosis	ICD-10-CM
D800	Hereditary hypogammaglobulinemia	Diagnosis	ICD-10-CM
D801	Nonfamilial hypogammaglobulinemia	Diagnosis	ICD-10-CM
D802	Selective deficiency of immunoglobulin A [IgA]	Diagnosis	ICD-10-CM
D803	Selective deficiency of immunoglobulin G [IgG] subclasses	Diagnosis	ICD-10-CM
D804	Selective deficiency of immunoglobulin M [IgM]	Diagnosis	ICD-10-CM
D805	Immunodeficiency with increased immunoglobulin M [IgM]	Diagnosis	ICD-10-CM
D806	Antibody deficiency with near-normal immunoglobulins or with	Diagnosis	ICD-10-CM
D808	Other immunodeficiencies with predominantly antibody defects	Diagnosis	ICD-10-CM
D809	Immunodeficiency with predominantly antibody defects, unspecified	Diagnosis	ICD-10-CM
D810	Severe combined immunodeficiency [SCID] with reticular dysgenesis	Diagnosis	ICD-10-CM
D811	Severe combined immunodeficiency [SCID] with low T- and B-cell numbers	Diagnosis	ICD-10-CM
D812	Severe combined immunodeficiency [SCID] with low or normal B-cell numbers	Diagnosis	ICD-10-CM
D813	Adenosine deaminase [ADA] deficiency	Diagnosis	ICD-10-CM
D8130	Adenosine deaminase deficiency, unspecified	Diagnosis	ICD-10-CM
D8131	Adenosine deaminase deficiency with severe combined immunodeficiency	Diagnosis	ICD-10-CM
D8132	Adenosine deaminase 2 deficiency	Diagnosis	ICD-10-CM
D8139	Other adenosine deaminase deficiency	Diagnosis	ICD-10-CM
D814	Nezelof's syndrome	Diagnosis	ICD-10-CM
D815	Purine nucleoside phosphorylase [PNP] deficiency	Diagnosis	ICD-10-CM
D816	Major histocompatibility complex class I deficiency	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
D817	Major histocompatibility complex class II deficiency	Diagnosis	ICD-10-CM
D8189	Other combined immunodeficiencies	Diagnosis	ICD-10-CM
D819	Combined immunodeficiency, unspecified	Diagnosis	ICD-10-CM
D820	Wiskott-Aldrich syndrome	Diagnosis	ICD-10-CM
D821	Di George's syndrome	Diagnosis	ICD-10-CM
D822	Immunodeficiency with short-limbed stature	Diagnosis	ICD-10-CM
D823	Immunodeficiency following hereditary defective response to Epstein-Barr virus	Diagnosis	ICD-10-CM
D824	Hyperimmunoglobulin E [IgE] syndrome	Diagnosis	ICD-10-CM
D828	Immunodeficiency associated with other specified major defects	Diagnosis	ICD-10-CM
D829	Immunodeficiency associated with major defect, unspecified	Diagnosis	ICD-10-CM
D830	Common variable immunodeficiency with predominant abnormalities of B-cell numbers and function	Diagnosis	ICD-10-CM
D831	Common variable immunodeficiency with predominant immunoregulatory T-cell	Diagnosis	ICD-10-CM
D832	Common variable immunodeficiency with autoantibodies to B- or T-cells	Diagnosis	ICD-10-CM
D838	Other common variable immunodeficiencies	Diagnosis	ICD-10-CM
D839	Common variable immunodeficiency, unspecified	Diagnosis	ICD-10-CM
D840	Lymphocyte function antigen-1 [LFA-1] defect	Diagnosis	ICD-10-CM
D841	Defects in the complement system	Diagnosis	ICD-10-CM
D848	Other specified immunodeficiencies	Diagnosis	ICD-10-CM
D849	Immunodeficiency, unspecified	Diagnosis	ICD-10-CM
D893	Immune reconstitution syndrome	Diagnosis	ICD-10-CM
D89810	Acute graft-versus-host disease	Diagnosis	ICD-10-CM
D89811	Chronic graft-versus-host disease	Diagnosis	ICD-10-CM
D89812	Acute on chronic graft-versus-host disease	Diagnosis	ICD-10-CM
D89813	Graft-versus-host disease, unspecified	Diagnosis	ICD-10-CM
D8982	Autoimmune lymphoproliferative syndrome [ALPS]	Diagnosis	ICD-10-CM
D8989	Other specified disorders involving the immune mechanism, not elsewhere classified	Diagnosis	ICD-10-CM
D899	Disorder involving the immune mechanism, unspecified	Diagnosis	ICD-10-CM
E0500	Thyrotoxicosis with diffuse goiter without thyrotoxic crisis or storm	Diagnosis	ICD-10-CM
E0501	Thyrotoxicosis with diffuse goiter with thyrotoxic crisis or storm	Diagnosis	ICD-10-CM
E0510	Thyrotoxicosis with toxic single thyroid nodule without thyrotoxic crisis or storm	Diagnosis	ICD-10-CM
E0511	Thyrotoxicosis with toxic single thyroid nodule with thyrotoxic crisis or storm	Diagnosis	ICD-10-CM
E0520	Thyrotoxicosis with toxic multinodular goiter without thyrotoxis crisis or storm	Diagnosis	ICD-10-CM
E0521	Thyrotoxicosis with toxic multinodular goiter with thyrotoxis crisis or storm	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
E0580	Other thyrotoxicosis without thyrotoxis crisis or storm	Diagnosis	ICD-10-CM
E0581	Other thyrotoxicosis with thyrotoxis crisis or storm	Diagnosis	ICD-10-CM
E0590	Thyrotoxicosis, unspecified without thyrotoxis crisis or storm	Diagnosis	ICD-10-CM
E0591	Thyrotoxicosis, unspecified with thyrotoxis crisis or storm	Diagnosis	ICD-10-CM
E060	Acute thyroiditis	Diagnosis	ICD-10-CM
E061	Subacute thyroiditis	Diagnosis	ICD-10-CM
E062	Chronic thyroiditis with transient thyrotoxicosis	Diagnosis	ICD-10-CM
E063	Autoimmune thyroiditis	Diagnosis	ICD-10-CM
E064	Drug-induced thyroiditis	Diagnosis	ICD-10-CM
E065	Other chronic thyroiditis	Diagnosis	ICD-10-CM
E069	Thyroiditis, unspecified	Diagnosis	ICD-10-CM
E1500	Centrifuge, for dialysis	Procedure	HCPCS
E1510	Kidney, dialysate delivery syst. kidney machine, pump recirculating, air removal syst, flowrate meter, power off, heater and temperature control with alarm, i.v.poles, pressure gauge, concentrate container	Procedure	HCPCS
E1520	Heparin infusion pump for dialysis	Procedure	HCPCS
E1530	Air bubble detector for dialysis	Procedure	HCPCS
E1540	Pressure alarm for dialysis	Procedure	HCPCS
E1550	Bath conductivity meter for dialysis	Procedure	HCPCS
E1560	Blood leak detector for dialysis	Procedure	HCPCS
E1570	Adjustable chair, for esrd patients	Procedure	HCPCS
E1575	Transducer protectors/fluid barriers, any size, each	Procedure	HCPCS
E1580	Unipuncture control system for dialysis	Procedure	HCPCS
E1590	Hemodialysis machine	Procedure	HCPCS
E1592	Automatic intermittent peritioneal dialysis system	Procedure	HCPCS
E1594	Cycler dialysis machine for peritoneal dialysis	Procedure	HCPCS
E1600	Delivery and/or installation charges for renal dialysis equipment	Procedure	HCPCS
E1610	Reverse osmosis water purification system	Procedure	HCPCS
E1615	Deionizer water purification system	Procedure	HCPCS
E1620	Blood pump for dialysis	Procedure	HCPCS
E1625	Water softening system	Procedure	HCPCS
E1630	Reciprocating peritoneal dialysis system	Procedure	HCPCS
E1632	Wearable artifical kidney	Procedure	HCPCS
E1634	Peritoneal dialysis clamps, each	Procedure	HCPCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
E1635	Compact (portable) travel hemodialyzer system	Procedure	HCPCS
E1636	Sorbent cartridges, per case	Procedure	HCPCS
E271	Primary adrenocortical insufficiency	Diagnosis	ICD-10-CM
E272	Addisonian crisis	Diagnosis	ICD-10-CM
E40	Kwashiorkor	Diagnosis	ICD-10-CM
E41	Nutritional marasmus	Diagnosis	ICD-10-CM
E42	Marasmic kwashiorkor	Diagnosis	ICD-10-CM
E43	Unspecified severe protein-calorie malnutrition	Diagnosis	ICD-10-CM
E803	Defects of catalase and peroxidase	Diagnosis	ICD-10-CM
G35	Multiple sclerosis	Diagnosis	ICD-10-CM
G7000	Myasthenia gravis without (acute) exacerbation	Diagnosis	ICD-10-CM
G7001	Myasthenia gravis with (acute) exacerbation	Diagnosis	ICD-10-CM
G7080	Lambert-Eaton syndrome, unspecified	Diagnosis	ICD-10-CM
G7081	Lambert-Eaton syndrome in disease classified elsewhere	Diagnosis	ICD-10-CM
G7241	Inclusion body myositis [IBM]	Diagnosis	ICD-10-CM
G7249	Other inflammatory and immune myopathies, not elsewhere classified	Diagnosis	ICD-10-CM
I120	Hypertensive chronic kidney disease with stage 5 chronic kidney disease or end stage renal disease	Diagnosis	ICD-10-CM
I1311	Hypertensive heart and chronic kidney disease without heart failure, with stage 5 chronic kidney disease, or end stage renal disease	Diagnosis	ICD-10-CM
I132	Hypertensive heart and chronic kidney disease with heart failure and with stage 5 chronic kidney disease, or end stage renal disease	Diagnosis	ICD-10-CM
I25750	Atherosclerosis of native coronary artery of transplanted heart with unstable angina	Diagnosis	ICD-10-CM
I25751	Atherosclerosis of native coronary artery of transplanted heart with angina pectoris with documented spasm	Diagnosis	ICD-10-CM
I25758	Atherosclerosis of native coronary artery of transplanted heart with other forms of angina pectoris	Diagnosis	ICD-10-CM
I25759	Atherosclerosis of native coronary artery of transplanted heart with unspecified	Diagnosis	ICD-10-CM
I25760	Atherosclerosis of bypass graft of coronary artery of transplanted heart with unstable	Diagnosis	ICD-10-CM
I25761	Atherosclerosis of bypass graft of coronary artery of transplanted heart with angina pectoris with documented spasm	Diagnosis	ICD-10-CM
I25768	Atherosclerosis of bypass graft of coronary artery of transplanted heart with other forms of angina pectoris	Diagnosis	ICD-10-CM

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Code	Description	Code Category	Code Type
I25769	Atherosclerosis of bypass graft of coronary artery of transplanted heart with unspecified angina pectoris	Diagnosis	ICD-10-CM
I25811	Atherosclerosis of native coronary artery of transplanted heart without angina	Diagnosis	ICD-10-CM
I25812	Atherosclerosis of bypass graft of coronary artery of transplanted heart without angina	Diagnosis	ICD-10-CM
I731	Thromboangiitis obliterans [Buerger's disease]	Diagnosis	ICD-10-CM
I776	Arteritis, unspecified	Diagnosis	ICD-10-CM
I8500	Esophageal varices without bleeding	Diagnosis	ICD-10-CM
I8501	Esophageal varices with bleeding	Diagnosis	ICD-10-CM
I8510	Secondary esophageal varices without bleeding	Diagnosis	ICD-10-CM
I8511	Secondary esophageal varices with bleeding	Diagnosis	ICD-10-CM
K7210	Chronic hepatic failure without coma	Diagnosis	ICD-10-CM
K7211	Chronic hepatic failure with coma	Diagnosis	ICD-10-CM
K7290	Hepatic failure, unspecified without coma	Diagnosis	ICD-10-CM
K7291	Hepatic failure, unspecified with coma	Diagnosis	ICD-10-CM
K743	Primary billiary cirrhosis	Diagnosis	ICD-10-CM
K763	Infarction of liver	Diagnosis	ICD-10-CM
K766	Portal hypertension	Diagnosis	ICD-10-CM
K7681	Hepatopulmonary syndrome	Diagnosis	ICD-10-CM
K912	Postsurgical malabsorption, not elsewhere classified	Diagnosis	ICD-10-CM
L100	Pemphigus vulgaris	Diagnosis	ICD-10-CM
L101	Pemphigus vegetans	Diagnosis	ICD-10-CM
L102	Pemphigus foliaceous	Diagnosis	ICD-10-CM
L103	Brazilian pemphigus [fogo selvagem]	Diagnosis	ICD-10-CM
L104	Pemphigus erythematosus	Diagnosis	ICD-10-CM
L1081	Paraneoplastic pemphigus	Diagnosis	ICD-10-CM
L1089	Other pemphigus	Diagnosis	ICD-10-CM
L109	Pemphigus, unspecified	Diagnosis	ICD-10-CM
L120	Bullous pemphigoid	Diagnosis	ICD-10-CM
L121	Cicatricial pemphigoid	Diagnosis	ICD-10-CM
L122	Chronic bullous disease of childhood	Diagnosis	ICD-10-CM
L128	Other pemphigoid	Diagnosis	ICD-10-CM
L129	Pemphigoid, unspecified	Diagnosis	ICD-10-CM
L130	Dermatitis herpetiformis	Diagnosis	ICD-10-CM
L138	Other specified bullous disorders	Diagnosis	ICD-10-CM

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Code	Description	Code Category	Code Type
L139	Bullous disorder, unspecified	Diagnosis	ICD-10-CM
L400	Psoriasis vulgaris	Diagnosis	ICD-10-CM
L401	Generalized pustular psoriasis	Diagnosis	ICD-10-CM
L402	Acrodermatitis continua	Diagnosis	ICD-10-CM
L403	Pustulosis palmaris et plantaris	Diagnosis	ICD-10-CM
L404	Guttate psoriasis	Diagnosis	ICD-10-CM
L4050	Arthropathic psoriasis, unspecified	Diagnosis	ICD-10-CM
L4051	Distal interphalangeal psoriatic arthropathy	Diagnosis	ICD-10-CM
L4052	Psoriatic arthritis mutilans	Diagnosis	ICD-10-CM
L4053	Psoriatic spondylitis	Diagnosis	ICD-10-CM
L4054	Psoriatic juvenile arthropathy	Diagnosis	ICD-10-CM
L4059	Other psoriatic arthropathy	Diagnosis	ICD-10-CM
L408	Other psoriasis	Diagnosis	ICD-10-CM
L409	Psoriasis, unspecified	Diagnosis	ICD-10-CM
M308	Other conditions related to polyarteritis nodosa	Diagnosis	ICD-10-CM
M310	Hypersensitivity angiitis	Diagnosis	ICD-10-CM
M311	Thrombotic microangiopathy	Diagnosis	ICD-10-CM
M312	Lethal midline granuloma	Diagnosis	ICD-10-CM
M3130	Wegener's granulomatosis without renal involvement	Diagnosis	ICD-10-CM
M3131	Wegener's granulomatosis with renal involvement	Diagnosis	ICD-10-CM
M314	Aortic arch syndrome [Takayasu]	Diagnosis	ICD-10-CM
M315	Giant cell arteritis with polymyalgia rheumatica	Diagnosis	ICD-10-CM
M316	Other giant cell arteritis	Diagnosis	ICD-10-CM
M317	Microscopic polyangiitis	Diagnosis	ICD-10-CM
M318	Other specified necrotizing vasculopathies	Diagnosis	ICD-10-CM
M319	Necrotizing vasculopathy, unspecified	Diagnosis	ICD-10-CM
M3500	Sicca syndrome, unspecified	Diagnosis	ICD-10-CM
M3501	Sicca syndrome with keratoconjunctivitis	Diagnosis	ICD-10-CM
M3502	Sicca syndrome with lung involvement	Diagnosis	ICD-10-CM
M3503	Sicca syndrome with myopathy	Diagnosis	ICD-10-CM
M3504	Sicca syndrome with tubulo-interstitial nephropathy	Diagnosis	ICD-10-CM
M3509	Sicca syndrome with other organ involvement	Diagnosis	ICD-10-CM
M351	Other overlap syndromes	Diagnosis	ICD-10-CM
M352	Behçet's disease	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
M353	Polymyalgia rheumatica	Diagnosis	ICD-10-CM
M354	Diffuse (eosinophilic) fasciitis	Diagnosis	ICD-10-CM
M355	Multifocal fibrosclerosis	Diagnosis	ICD-10-CM
M356	Relapsing panniculitis [Weber-Christian]	Diagnosis	ICD-10-CM
M358	Other specified systemic involvement of connective tissue	Diagnosis	ICD-10-CM
M359	Systemic involvement of connective tissue, unspecified	Diagnosis	ICD-10-CM
N000	Acute nephritic syndrome with minor glomerular abnormality	Diagnosis	ICD-10-CM
N001	Acute nephritic syndrome with focal and segmental glomerular lesions	Diagnosis	ICD-10-CM
N002	Acute nephritic syndrome with diffuse membranous glomerulonephritis	Diagnosis	ICD-10-CM
N003	Acute nephritic syndrome with diffuse mesangial proliferative glomerulonephritis	Diagnosis	ICD-10-CM
N004	Acute nephritic syndrome with diffuse endocapillary proliferative glomerulonephritis	Diagnosis	ICD-10-CM
N005	Acute nephritic syndrome with diffuse mesangiocapillary glomerulonephritis	Diagnosis	ICD-10-CM
N006	Acute nephritic syndrome with dense deposit disease	Diagnosis	ICD-10-CM
N007	Acute nephritic syndrome with diffuse crescentic glomerulonephritis	Diagnosis	ICD-10-CM
N008	Acute nephritic syndrome with other morphologic changes	Diagnosis	ICD-10-CM
N009	Acute nephritic syndrome with unspecified morphologic changes	Diagnosis	ICD-10-CM
N010	Rapidly progressive nephritic syndrome with minor glomerular abnormality	Diagnosis	ICD-10-CM
N011	Rapidly progressive nephritic syndrome with focal and segmental glomerular lesions	Diagnosis	ICD-10-CM
N012	Rapidly progressive nephritic syndrome with diffuse membranous glomerulonephritis	Diagnosis	ICD-10-CM
N013	Rapidly progressive nephritic syndrome with diffuse mesangial proliferative	Diagnosis	ICD-10-CM
N014	Rapidly progressive nephritic syndrome with diffuse endocapillary proliferative glomerulonephritis	Diagnosis	ICD-10-CM
N015	Rapidly progressive nephritic syndrome with diffuse mesangiocapillary	Diagnosis	ICD-10-CM
N016	Rapidly progressive nephritic syndrome with dense deposit disease	Diagnosis	ICD-10-CM
N017	Rapidly progressive nephritic syndrome with diffuse crescentic glomerulonephritis	Diagnosis	ICD-10-CM
N018	Rapidly progressive nephritic syndrome with other morphologic changes	Diagnosis	ICD-10-CM
N019	Rapidly progressive nephritic syndrome with unspecified morphologic changes	Diagnosis	ICD-10-CM
N020	Recurrent and persistent hematuria with minor glomerular abnormality	Diagnosis	ICD-10-CM
N021	Recurrent and persistent hematuria with focal and segmental glomerular lesions	Diagnosis	ICD-10-CM
N022	Recurrent and persistent hematuria with diffuse membranous glomerulonephritis	Diagnosis	ICD-10-CM
N023	Recurrent and persistent hematuria with diffuse mesangial proliferative	Diagnosis	ICD-10-CM
N024	Recurrent and persistent hematuria with diffuse endocapillary proliferative	Diagnosis	ICD-10-CM
N025	Recurrent and persistent hematuria with diffuse mesangiocapillary glomerulonephritis	Diagnosis	ICD-10-CM
N026	Recurrent and persistent hematuria with dense deposit disease	Diagnosis	ICD-10-CM

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Code	Description	Code Category	Code Type
N027	Recurrent and persistent hematuria with diffuse crescentic glomerulonephritis	Diagnosis	ICD-10-CM
N028	Recurrent and persistent hematuria with other morphologic changes	Diagnosis	ICD-10-CM
N029	Recurrent and persistent hematuria with unspecified morphologic changes	Diagnosis	ICD-10-CM
N030	Chronic nephritic syndrome with minor glomerular abnormality	Diagnosis	ICD-10-CM
N031	Chronic nephritic syndrome with focal and segmental glomerular lesions	Diagnosis	ICD-10-CM
N032	Chronic nephritic syndrome with diffuse membranous glomerulonephritis	Diagnosis	ICD-10-CM
N033	Chronic nephritic syndrome with diffuse mesangial proliferative glomerulonephritis	Diagnosis	ICD-10-CM
N034	Chronic nephritic syndrome with diffuse endocapillary proliferative glomerulonephritis	Diagnosis	ICD-10-CM
N035	Chronic nephritic syndrome with diffuse mesangiocapillary glomerulonephritis	Diagnosis	ICD-10-CM
N036	Chronic nephritic syndrome with dense deposit disease	Diagnosis	ICD-10-CM
N037	Chronic nephritic syndrome with diffuse crescentic glomerulonephritis	Diagnosis	ICD-10-CM
N038	Chronic nephritic syndrome with other morphologic changes	Diagnosis	ICD-10-CM
N039	Chronic nephritic syndrome with unspecified morphologic changes	Diagnosis	ICD-10-CM
N040	Nephrotic syndrome with minor glomerular abnormality	Diagnosis	ICD-10-CM
N041	Nephrotic syndrome with focal and segmental glomerular lesions	Diagnosis	ICD-10-CM
N042	Nephrotic syndrome with diffuse membranous glomerulonephritis	Diagnosis	ICD-10-CM
N043	Nephrotic syndrome with diffuse mesangial proliferative glomerulonephritis	Diagnosis	ICD-10-CM
N044	Nephrotic syndrome with diffuse endocapillary proliferative glomerulonephritis	Diagnosis	ICD-10-CM
N045	Nephrotic syndrome with diffuse mesangiocapillary glomerulonephritis	Diagnosis	ICD-10-CM
N046	Nephrotic syndrome with dense deposit disease	Diagnosis	ICD-10-CM
N047	Nephrotic syndrome with diffuse crescentic glomerulonephritis	Diagnosis	ICD-10-CM
N048	Nephrotic syndrome with other morphologic changes	Diagnosis	ICD-10-CM
N049	Nephrotic syndrome with unspecified morphologic changes	Diagnosis	ICD-10-CM
N050	Unspecified nephritic syndrome with minor glomerular abnormality	Diagnosis	ICD-10-CM
N051	Unspecified nephritic syndrome with focal and segmental glomerular lesions	Diagnosis	ICD-10-CM
N052	Unspecified nephritic syndrome with diffuse membranous glomerulonephritis	Diagnosis	ICD-10-CM
N053	Unspecified nephritic syndrome with diffuse mesangial proliferative	Diagnosis	ICD-10-CM
N054	Unspecified nephritic syndrome with diffuse endocapillary proliferative	Diagnosis	ICD-10-CM
N055	Unspecified nephritic syndrome with diffuse mesangiocapillary glomerulonephritis	Diagnosis	ICD-10-CM
N056	Unspecified nephritic syndrome with dense deposit disease	Diagnosis	ICD-10-CM
N057	Unspecified nephritic syndrome with diffuse crescentic glomerulonephritis	Diagnosis	ICD-10-CM
N058	Unspecified nephritic syndrome with other morphologic changes	Diagnosis	ICD-10-CM
N059	Unspecified nephritic syndrome with unspecified morphologic changes	Diagnosis	ICD-10-CM
N060	Isolated proteinuria with minor glomerular abnormality	Diagnosis	ICD-10-CM

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Code	Description	Code Category	Code Type
N061	Isolated proteinuria with focal and segmental glomerular lesions	Diagnosis	ICD-10-CM
N062	Isolated proteinuria with diffuse membranous glomerulonephritis	Diagnosis	ICD-10-CM
N063	Isolated proteinuria with diffuse mesangial proliferative glomerulonephritis	Diagnosis	ICD-10-CM
N064	Isolated proteinuria with diffuse endocapillary proliferative glomerulonephritis	Diagnosis	ICD-10-CM
N065	Isolated proteinuria with diffuse mesangiocapillary glomerulonephritis	Diagnosis	ICD-10-CM
N066	Isolated proteinuria with dense deposit disease	Diagnosis	ICD-10-CM
N067	Isolated proteinuria with diffuse crescentic glomerulonephritis	Diagnosis	ICD-10-CM
N068	Isolated proteinuria with other morphologic lesion	Diagnosis	ICD-10-CM
N069	Isolated proteinuria with unspecified morphologic lesion	Diagnosis	ICD-10-CM
N070	Hereditary nephropathy, not elsewhere classified with minor glomerular abnormality	Diagnosis	ICD-10-CM
N071	Hereditary nephropathy, not elsewhere classified with focal and segmental glomerular	Diagnosis	ICD-10-CM
N072	Hereditary nephropathy, not elsewhere classified with diffuse membranous	Diagnosis	ICD-10-CM
N073	Hereditary nephropathy, not elsewhere classified with diffuse mesangial proliferative glomerulonephritis	Diagnosis	ICD-10-CM
N074	Hereditary nephropathy, not elsewhere classified with diffuse endocapillary proliferative glomerulonephritis	Diagnosis	ICD-10-CM
N075	Hereditary nephropathy, not elsewhere classified with diffuse mesangiocapillary glomerulonephritis	Diagnosis	ICD-10-CM
N076	Hereditary nephropathy, not elsewhere classified with dense deposit disease	Diagnosis	ICD-10-CM
N077	Hereditary nephropathy, not elsewhere classified with diffuse crescentic	Diagnosis	ICD-10-CM
N078	Hereditary nephropathy, not elsewhere classified with other morphologic lesions	Diagnosis	ICD-10-CM
N079	Hereditary nephropathy, not elsewhere classified with unspecified morphologic lesions	Diagnosis	ICD-10-CM
N08	Glomerular disorders in diseases classified elsewhere	Diagnosis	ICD-10-CM
N140	Analgesic nephropathy	Diagnosis	ICD-10-CM
N141	Nephropathy induced by other drugs, medicaments and biological substances	Diagnosis	ICD-10-CM
N142	Nephropathy induced by unspecified drug, medicament or biological substance	Diagnosis	ICD-10-CM
N143	Nephropathy induced by heavy metals	Diagnosis	ICD-10-CM
N144	Toxic nephropathy, not elsewhere classified	Diagnosis	ICD-10-CM
N150	Balkan nephropathy	Diagnosis	ICD-10-CM
N158	Other specified renal tubulo-interstitial diseases	Diagnosis	ICD-10-CM
N159	Renal tubulo-interstitial disease, unspecified	Diagnosis	ICD-10-CM
N16	Renal tubulo-interstitial disorders in diseases classified elsewhere	Diagnosis	ICD-10-CM
N171	Acute kidney failure with acute cortical necrosis	Diagnosis	ICD-10-CM
N172	Acute kidney failure with medullary necrosis	Diagnosis	ICD-10-CM

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Code	Description	Code Category	Code Type
N185	Chronic kidney disease, stage 5	Diagnosis	ICD-10-CM
N186	End stage renal disease	Diagnosis	ICD-10-CM
Q8901	Asplenia (congenital)	Diagnosis	ICD-10-CM
Q8909	Congenital malformations of spleen	Diagnosis	ICD-10-CM
R9082	White matter disease, unspecified	Diagnosis	ICD-10-CM
S2053	Transplantation of small intestine and liver allografts	Procedure	HCPCS
S2054	Transplantation of multivisceral organs	Procedure	HCPCS
S2060	Lobar lung transplantation	Procedure	HCPCS
S2065	Simultaneous pancreas kidney transplantation	Procedure	HCPCS
S2142	Cord blood-derived stem-cell transplantation, allogeneic	Procedure	HCPCS
S2150	Bone marrow or blood-derived stem cells (peripheral or umbilical), allogeneic or autologous, harvesting, transplantation, and related complications; including: pheresis and cell preparation/storage; marrow ablative therapy; drugs, supplies, hospitalization with outpatient follow-up; medical/surgical, diagnostic, emergency, and rehabilitative services; and the number of days of pre and post transplant care in the global definition	Procedure	HCPCS
S2152	Solid organ(s), complete or segmental, single organ or combination of organs; deceased or living donor (s), procurement, transplantation, and related complications; including: drugs; supplies; hospitalization with outpatient follow-up; medical/surgical, diagnostic, emergency, and rehabilitative services, and the number of days of pre and posttransplant care in the global definition	Procedure	HCPCS
T8600	Unspecified complication of bone marrow transplant	Diagnosis	ICD-10-CM
T8601	Bone marrow transplant rejection	Diagnosis	ICD-10-CM
T8602	Bone marrow transplant failure	Diagnosis	ICD-10-CM
T8603	Bone marrow transplant infection	Diagnosis	ICD-10-CM
T8609	Other complications of bone marrow transplant	Diagnosis	ICD-10-CM
T8610	Unspecified complication of kidney transplant	Diagnosis	ICD-10-CM
T8611	Kidney transplant rejection	Diagnosis	ICD-10-CM
T8612	Kidney transplant failure	Diagnosis	ICD-10-CM
T8613	Kidney transplant infection	Diagnosis	ICD-10-CM
T8619	Other complication of kidney transplant	Diagnosis	ICD-10-CM
T8620	Unspecified complication of heart transplant	Diagnosis	ICD-10-CM
T8621	Heart transplant rejection	Diagnosis	ICD-10-CM
T8622	Heart transplant failure	Diagnosis	ICD-10-CM
T8623	Heart transplant infection	Diagnosis	ICD-10-CM

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Code	Description	Code Category	Code Type
T86290	Cardiac allograft vasculopathy	Diagnosis	ICD-10-CM
T86298	Other complications of heart transplant	Diagnosis	ICD-10-CM
T8630	Unspecified complication of heart-lung transplant	Diagnosis	ICD-10-CM
T8631	Heart-lung transplant rejection	Diagnosis	ICD-10-CM
T8632	Heart-lung transplant failure	Diagnosis	ICD-10-CM
T8633	Heart-lung transplant infection	Diagnosis	ICD-10-CM
T8639	Other complications of heart-lung transplant	Diagnosis	ICD-10-CM
T8640	Unspecified complication of liver transplant	Diagnosis	ICD-10-CM
T8641	Liver transplant rejection	Diagnosis	ICD-10-CM
T8642	Liver transplant failure	Diagnosis	ICD-10-CM
T8643	Liver transplant infection	Diagnosis	ICD-10-CM
T8649	Other complications of liver transplant	Diagnosis	ICD-10-CM
T86810	Lung transplant rejection	Diagnosis	ICD-10-CM
T86811	Lung transplant failure	Diagnosis	ICD-10-CM
T86812	Lung transplant infection	Diagnosis	ICD-10-CM
T86818	Other complications of lung transplant	Diagnosis	ICD-10-CM
T86819	Unspecified complication of lung transplant	Diagnosis	ICD-10-CM
T86850	Intestine transplant rejection	Diagnosis	ICD-10-CM
T86851	Intestine transplant failure	Diagnosis	ICD-10-CM
T86852	Intestine transplant infection	Diagnosis	ICD-10-CM
T86858	Other complications of intestine transplant	Diagnosis	ICD-10-CM
T86859	Unspecified complication of intestine transplant	Diagnosis	ICD-10-CM
T86890	Other transplanted tissue rejection	Diagnosis	ICD-10-CM
T86891	Other transplanted tissue failure	Diagnosis	ICD-10-CM
T86892	Other transplanted tissue infection	Diagnosis	ICD-10-CM
T86898	Other complications of other transplanted tissue	Diagnosis	ICD-10-CM
T86899	Unspecified complication of other transplanted tissue	Diagnosis	ICD-10-CM
T8690	Unspecified complication of unspecified transplanted organ and tissue	Diagnosis	ICD-10-CM
T8691	Unspecified transplanted organ and tissue rejection	Diagnosis	ICD-10-CM
T8692	Unspecified transplanted organ and tissue failure	Diagnosis	ICD-10-CM
T8693	Unspecified transplanted organ and tissue infection	Diagnosis	ICD-10-CM
T8699	Other complications of unspecified transplanted organ and tissue	Diagnosis	ICD-10-CM
Y830	Surgical operation with transplant of whole organ as the cause of abnormal reaction of the patient, or of later complication, without mention of misadventure at the time of the procedure	Diagnosis	ICD-10-CM

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Code	Description	Code Category	Code Type
Z21	Asymptomatic human immunodeficiency virus (HIV) infection status	Diagnosis	ICD-10-CM
Z4821	Encounter for aftercare following heart transplant	Diagnosis	ICD-10-CM
Z4822	Encounter for aftercare following kidney transplant	Diagnosis	ICD-10-CM
Z4823	Encounter for aftercare following liver transplant	Diagnosis	ICD-10-CM
Z4824	Encounter for aftercare following lung transplant	Diagnosis	ICD-10-CM
Z48280	Encounter for aftercare following heart-lung transplant	Diagnosis	ICD-10-CM
Z48288	Encounter for aftercare following multiple organ transplant	Diagnosis	ICD-10-CM
Z48290	Encounter for aftercare following bone marrow transplant	Diagnosis	ICD-10-CM
Z48298	Encounter for aftercare following other organ transplant	Diagnosis	ICD-10-CM
Z49	Encounter for care involving renal dialysis	Diagnosis	ICD-10-CM
Z4901	Encounter for fitting and adjustment of extracorporeal dialysis catheter	Diagnosis	ICD-10-CM
Z4902	Encounter for fitting and adjustment of peritoneal dialysis catheter	Diagnosis	ICD-10-CM
Z4931	Encounter for adequacy testing for hemodialysis	Diagnosis	ICD-10-CM
Z4932	Encounter for adequacy testing for peritoneal dialysis	Diagnosis	ICD-10-CM
Z940	Kidney transplant status	Diagnosis	ICD-10-CM
Z941	Heart transplant status	Diagnosis	ICD-10-CM
Z942	Lung transplant status	Diagnosis	ICD-10-CM
Z943	Heart and lungs transplant status	Diagnosis	ICD-10-CM
Z944	Liver transplant status	Diagnosis	ICD-10-CM
Z9481	Bone marrow transplant status	Diagnosis	ICD-10-CM
Z9482	Intestine transplant status	Diagnosis	ICD-10-CM
Z9483	Pancreas transplant status	Diagnosis	ICD-10-CM
Z9484	Stem cells transplant status	Diagnosis	ICD-10-CM
Z9489	Other transplanted organ and tissue status	Diagnosis	ICD-10-CM
Z949	Transplanted organ and tissue status, unspecified	Diagnosis	ICD-10-CM
Z992	Dependence on renal dialysis	Diagnosis	ICD-10-CM
Smoking or Nicotine Use			
1032F	Current tobacco smoker or currently exposed to secondhand smoke (Asthma)	Procedure	CPT-2
1034F	Current tobacco smoker (CAD, CAP, COPD, PV) (DM)	Procedure	CPT-2
1035F	Current smokeless tobacco user (eg, chew, snuff) (PV)	Procedure	CPT-2
4000F	Tobacco use cessation intervention, counseling (COPD, CAP, CAD, Asthma) (DM) (PV)	Procedure	CPT-2
4001F	Tobacco use cessation intervention, pharmacologic therapy (COPD, CAD, CAP, PV, Asthma) (DM) (PV)	Procedure	CPT-2

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Code	Description	Code Category	Code Type
4004F	Patient screened for tobacco use and received tobacco cessation intervention (counseling, pharmacotherapy, or both), if identified as a tobacco user (PV, CAD)	Procedure	CPT-2
99406	Smoking and tobacco use cessation counseling visit; intermediate, greater than 3 minutes up to 10 minutes	Procedure	CPT-4
99407	Smoking and tobacco use cessation counseling visit; intensive, greater than 10 minutes	Procedure	CPT-4
D1320	tobacco counseling for the control and prevention of oral disease	Procedure	HCPCS
F17	Nicotine dependence	Diagnosis	ICD-10-CM
F17.2	Nicotine dependence	Diagnosis	ICD-10-CM
F17.20	Nicotine dependence, unspecified	Diagnosis	ICD-10-CM
F17.200	Nicotine dependence, unspecified, uncomplicated	Diagnosis	ICD-10-CM
F17.201	Nicotine dependence, unspecified, in remission	Diagnosis	ICD-10-CM
F17.203	Nicotine dependence unspecified, with withdrawal	Diagnosis	ICD-10-CM
F17.208	Nicotine dependence, unspecified, with other nicotine-induced disorders	Diagnosis	ICD-10-CM
F17.209	Nicotine dependence, unspecified, with unspecified nicotine-induced disorders	Diagnosis	ICD-10-CM
F17.21	Nicotine dependence, cigarettes	Diagnosis	ICD-10-CM
F17.210	Nicotine dependence, cigarettes, uncomplicated	Diagnosis	ICD-10-CM
F17.211	Nicotine dependence, cigarettes, in remission	Diagnosis	ICD-10-CM
F17.213	Nicotine dependence, cigarettes, with withdrawal	Diagnosis	ICD-10-CM
F17.218	Nicotine dependence, cigarettes, with other nicotine-induced disorders	Diagnosis	ICD-10-CM
F17.219	Nicotine dependence, cigarettes, with unspecified nicotine-induced disorders	Diagnosis	ICD-10-CM
F17.22	Nicotine dependence, chewing tobacco	Diagnosis	ICD-10-CM
F17.220	Nicotine dependence, chewing tobacco, uncomplicated	Diagnosis	ICD-10-CM
F17.221	Nicotine dependence, chewing tobacco, in remission	Diagnosis	ICD-10-CM
F17.223	Nicotine dependence, chewing tobacco, with withdrawal	Diagnosis	ICD-10-CM
F17.228	Nicotine dependence, chewing tobacco, with other nicotine-induced disorders	Diagnosis	ICD-10-CM
F17.229	Nicotine dependence, chewing tobacco, with unspecified nicotine-induced disorders	Diagnosis	ICD-10-CM
F17.29	Nicotine dependence, other tobacco product	Diagnosis	ICD-10-CM
F17.290	Nicotine dependence, other tobacco product, uncomplicated	Diagnosis	ICD-10-CM
F17.291	Nicotine dependence, other tobacco product, in remission	Diagnosis	ICD-10-CM
F17.293	Nicotine dependence, other tobacco product, with withdrawal	Diagnosis	ICD-10-CM
F17.298	Nicotine dependence, other tobacco product, with other nicotine-induced disorders	Diagnosis	ICD-10-CM
F17.299	Nicotine dependence, other tobacco product, with unspecified nicotine-induced	Diagnosis	ICD-10-CM
G9016	Smoking cessation counseling, individual, in the absence of or in addition to any other evaluation and management service, per session (6-10 minutes) [demo project code only]	Procedure	HCPCS

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Code	Description	Code Category	Code Type
G9276	Documentation that patient is a current tobacco user	Procedure	HCPCS
G9458	Patient documented as tobacco user and received tobacco cessation intervention (must include at least one of the following: advice given to quit smoking or tobacco use, counseling on the benefits of quitting smoking or tobacco use, assistance with or referral to external smoking or tobacco cessation support programs, or current enrollment in smoking or tobacco use cessation program) if identified as a tobacco user	Procedure	HCPCS
G9645	Patients who did not abstain from smoking prior to anesthesia on the day of surgery or procedure	Procedure	HCPCS
G9792	Most recent tobacco status is not tobacco free	Procedure	HCPCS
G9902	Patient screened for tobacco use and identified as a tobacco user	Procedure	HCPCS
G9906	Patient identified as a tobacco user received tobacco cessation intervention on the date of the encounter or within the previous 12 months (counseling and/or pharmacotherapy)	Procedure	HCPCS
G9908	Patient identified as tobacco user did not receive tobacco cessation intervention on the date of the encounter or within the previous 12 months (counseling and/or pharmacotherapy), reason not given	Procedure	HCPCS
G9909	Documentation of medical reason(s) for not providing tobacco cessation intervention on the date of the encounter or within the previous 12 months if identified as a tobacco user (e.g., limited life expectancy, other medical reason)	Procedure	HCPCS
O99.33	Tobacco use disorder complicating pregnancy, childbirth, and the puerperium	Diagnosis	ICD-10-CM
O99.330	Smoking (tobacco) complicating pregnancy, unspecified trimester	Diagnosis	ICD-10-CM
O99.331	Smoking (tobacco) complicating pregnancy, first trimester	Diagnosis	ICD-10-CM
O99.332	Smoking (tobacco) complicating pregnancy, second trimester	Diagnosis	ICD-10-CM
O99.333	Smoking (tobacco) complicating pregnancy, third trimester	Diagnosis	ICD-10-CM
O99.334	Smoking (tobacco) complicating childbirth	Diagnosis	ICD-10-CM
O99.335	Smoking (tobacco) complicating the puerperium	Diagnosis	ICD-10-CM
S4990	Nicotine patches, legend	Procedure	HCPCS
S4991	Nicotine patches, nonlegend	Procedure	HCPCS
S4995	Smoking cessation gum	Procedure	HCPCS
S9075	Smoking cessation treatment	Procedure	HCPCS
S9453	Smoking cessation classes, nonphysician provider, per session	Procedure	HCPCS
T65.2	Toxic effect of tobacco and nicotine	Diagnosis	ICD-10-CM
T65.21	Toxic effect of chewing tobacco	Diagnosis	ICD-10-CM
T65.211	Toxic effect of chewing tobacco, accidental (unintentional)	Diagnosis	ICD-10-CM
T65.211A	Toxic effect of chewing tobacco, accidental (unintentional), initial encounter	Diagnosis	ICD-10-CM

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Code	Description	Code Category	Code Type
T65.211D	Toxic effect of chewing tobacco, accidental (unintentional), subsequent encounter	Diagnosis	ICD-10-CM
T65.211S	Toxic effect of chewing tobacco, accidental (unintentional), sequela	Diagnosis	ICD-10-CM
T65.212	Toxic effect of chewing tobacco, intentional self-harm	Diagnosis	ICD-10-CM
T65.212A	Toxic effect of chewing tobacco, intentional self-harm, initial encounter	Diagnosis	ICD-10-CM
T65.212D	Toxic effect of chewing tobacco, intentional self-harm, subsequent encounter	Diagnosis	ICD-10-CM
T65.212S	Toxic effect of chewing tobacco, intentional self-harm, sequela	Diagnosis	ICD-10-CM
T65.213	Toxic effect of chewing tobacco, assault	Diagnosis	ICD-10-CM
T65.213A	Toxic effect of chewing tobacco, assault, initial encounter	Diagnosis	ICD-10-CM
T65.213D	Toxic effect of chewing tobacco, assault, subsequent encounter	Diagnosis	ICD-10-CM
T65.213S	Toxic effect of chewing tobacco, assault, sequela	Diagnosis	ICD-10-CM
T65.214	Toxic effect of chewing tobacco, undetermined	Diagnosis	ICD-10-CM
T65.214A	Toxic effect of chewing tobacco, undetermined, initial encounter	Diagnosis	ICD-10-CM
T65.214D	Toxic effect of chewing tobacco, undetermined, subsequent encounter	Diagnosis	ICD-10-CM
T65.214S	Toxic effect of chewing tobacco, undetermined, sequela	Diagnosis	ICD-10-CM
T65.22	Toxic effect of tobacco cigarettes	Diagnosis	ICD-10-CM
T65.221	Toxic effect of tobacco cigarettes, accidental (unintentional)	Diagnosis	ICD-10-CM
T65.221A	Toxic effect of tobacco cigarettes, accidental (unintentional), initial encounter	Diagnosis	ICD-10-CM
T65.221D	Toxic effect of tobacco cigarettes, accidental (unintentional), subsequent encounter	Diagnosis	ICD-10-CM
T65.221S	Toxic effect of tobacco cigarettes, accidental (unintentional), sequela	Diagnosis	ICD-10-CM
T65.222	Toxic effect of tobacco cigarettes, intentional self-harm	Diagnosis	ICD-10-CM
T65.222A	Toxic effect of tobacco cigarettes, intentional self-harm, initial encounter	Diagnosis	ICD-10-CM
T65.222D	Toxic effect of tobacco cigarettes, intentional self-harm, subsequent encounter	Diagnosis	ICD-10-CM
T65.222S	Toxic effect of tobacco cigarettes, intentional self-harm, sequela	Diagnosis	ICD-10-CM
T65.223	Toxic effect of tobacco cigarettes, assault	Diagnosis	ICD-10-CM
T65.223A	Toxic effect of tobacco cigarettes, assault, initial encounter	Diagnosis	ICD-10-CM
T65.223D	Toxic effect of tobacco cigarettes, assault, subsequent encounter	Diagnosis	ICD-10-CM
T65.223S	Toxic effect of tobacco cigarettes, assault, sequela	Diagnosis	ICD-10-CM
T65.224	Toxic effect of tobacco cigarettes, undetermined	Diagnosis	ICD-10-CM
T65.224A	Toxic effect of tobacco cigarettes, undetermined, initial encounter	Diagnosis	ICD-10-CM
T65.224D	Toxic effect of tobacco cigarettes, undetermined, subsequent encounter	Diagnosis	ICD-10-CM
T65.224S	Toxic effect of tobacco cigarettes, undetermined, sequela	Diagnosis	ICD-10-CM
T65.29	Toxic effect of other tobacco and nicotine	Diagnosis	ICD-10-CM
T65.291	Toxic effect of other tobacco and nicotine, accidental (unintentional)	Diagnosis	ICD-10-CM
T65.291A	Toxic effect of other tobacco and nicotine, accidental (unintentional), initial encounter	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
T65.291D	Toxic effect of other tobacco and nicotine, accidental (unintentional), subsequent	Diagnosis	ICD-10-CM
T65.291S	Toxic effect of other tobacco and nicotine, accidental (unintentional), sequela	Diagnosis	ICD-10-CM
T65.292	Toxic effect of other tobacco and nicotine, intentional self-harm	Diagnosis	ICD-10-CM
T65.292A	Toxic effect of other tobacco and nicotine, intentional self-harm, initial encounter	Diagnosis	ICD-10-CM
T65.292D	Toxic effect of other tobacco and nicotine, intentional self-harm, subsequent	Diagnosis	ICD-10-CM
T65.292S	Toxic effect of other tobacco and nicotine, intentional self-harm, sequela	Diagnosis	ICD-10-CM
T65.293	Toxic effect of other tobacco and nicotine, assault	Diagnosis	ICD-10-CM
T65.293A	Toxic effect of other tobacco and nicotine, assault, initial encounter	Diagnosis	ICD-10-CM
T65.293D	Toxic effect of other tobacco and nicotine, assault, subsequent encounter	Diagnosis	ICD-10-CM
T65.293S	Toxic effect of other tobacco and nicotine, assault, sequela	Diagnosis	ICD-10-CM
T65.294	Toxic effect of other tobacco and nicotine, undetermined	Diagnosis	ICD-10-CM
T65.294A	Toxic effect of other tobacco and nicotine, undetermined, initial encounter	Diagnosis	ICD-10-CM
T65.294D	Toxic effect of other tobacco and nicotine, undetermined, subsequent encounter	Diagnosis	ICD-10-CM
T65.294S	Toxic effect of other tobacco and nicotine, undetermined, sequela	Diagnosis	ICD-10-CM
Z71.6	Tobacco abuse counseling	Diagnosis	ICD-10-CM
Z72.0	Tobacco use	Diagnosis	ICD-10-CM
Z87.891	Personal history of nicotine dependence	Diagnosis	ICD-10-CM
Hyperlipidemia			
E78.0	Pure hypercholesterolemia	Diagnosis	ICD-10-CM
E78.00	Pure hypercholesterolemia, unspecified	Diagnosis	ICD-10-CM
E78.01	Familial hypercholesterolemia	Diagnosis	ICD-10-CM
E78.1	Pure hyperglyceridemia	Diagnosis	ICD-10-CM
E78.2	Mixed hyperlipidemia	Diagnosis	ICD-10-CM
E78.3	Hyperchylomicronemia	Diagnosis	ICD-10-CM
E78.4	Other hyperlipidemia	Diagnosis	ICD-10-CM
E78.41	Elevated Lipoprotein(a)	Diagnosis	ICD-10-CM
E78.49	Other hyperlipidemia	Diagnosis	ICD-10-CM
E78.5	Hyperlipidemia, unspecified	Diagnosis	ICD-10-CM
COVID-19 Vaccine			
0001A	Immunization administration by intramuscular injection of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, mRNA-LNP, spike protein, preservative free, 30 mcg/0.3mL dosage, diluent reconstituted; first dose	Procedure	CPT-4

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
0002A	Immunization administration by intramuscular injection of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, mRNA-LNP, spike protein, preservative free, 30 mcg/0.3mL dosage, diluent reconstituted; second dose	Procedure	CPT-4
0003A	Immunization administration by intramuscular injection of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, mRNA-LNP, spike protein, preservative free, 30 mcg/0.3 mL dosage, diluent reconstituted; third dose	Procedure	CPT-4
0004A	Immunization administration by intramuscular injection of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, mRNA-LNP, spike protein, preservative free, 30 mcg/0.3 mL dosage, diluent reconstituted; booster dose	Procedure	CPT-4
0011A	Immunization administration by intramuscular injection of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, mRNA-LNP, spike protein, preservative free, 100 mcg/0.5mL dosage; first dose	Procedure	CPT-4
0012A	Immunization administration by intramuscular injection of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, mRNA-LNP, spike protein, preservative free, 100 mcg/0.5mL dosage; second dose	Procedure	CPT-4
0013A	Immunization administration by intramuscular injection of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, mRNA-LNP, spike protein, preservative free, 100 mcg/0.5 mL dosage; third dose	Procedure	CPT-4
0021A	Immunization administration by intramuscular injection of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, DNA, spike protein, chimpanzee adenovirus Oxford 1 (ChAdOx1) vector, preservative free, 5x1010 viral particles/0.5mL dosage; first dose	Procedure	CPT-4
0022A	Immunization administration by intramuscular injection of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, DNA, spike protein, chimpanzee adenovirus Oxford 1 (ChAdOx1) vector, preservative free, 5x1010 viral particles/0.5mL dosage; second dose	Procedure	CPT-4
0031A	Immunization administration by intramuscular injection of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, DNA, spike protein, adenovirus type 26 (Ad26) vector, preservative free, 5x1010 viral particles/0.5mL dosage; single dose	Procedure	CPT-4
0034A	Immunization administration by intramuscular injection of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, DNA, spike protein, adenovirus type 26 (Ad26) vector, preservative free, 5x1010 viral particles/0.5mL dosage; booster dose	Procedure	CPT-4

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Code	Description	Code Category	Code Type
0041A	Immunization administration by intramuscular injection of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, recombinant spike protein nanoparticle, saponin-based adjuvant, preservative free, 5 mcg/0.5mL dosage; first dose	Procedure	CPT-4
0042A	Immunization administration by intramuscular injection of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, recombinant spike protein nanoparticle, saponin-based adjuvant, preservative free, 5 mcg/0.5mL dosage; second dose	Procedure	CPT-4
0044A	Immunization administration by intramuscular injection of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, recombinant spike protein nanoparticle, saponin-based adjuvant, preservative free, 5 mcg/0.5mL dosage; booster dose	Procedure	CPT-4
0051A	Immunization administration by intramuscular injection of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, mRNA-LNP, spike protein, preservative free, 30 mcg/0.3 mL dosage, tris-sucrose formulation; first dose	Procedure	CPT-4
0052A	Immunization administration by intramuscular injection of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, mRNA-LNP, spike protein, preservative free, 30 mcg/0.3 mL dosage, tris-sucrose formulation; second dose	Procedure	CPT-4
0053A	Immunization administration by intramuscular injection of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, mRNA-LNP, spike protein, preservative free, 30 mcg/0.3 mL dosage, tris-sucrose formulation; third dose	Procedure	CPT-4
0054A	Immunization administration by intramuscular injection of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, mRNA-LNP, spike protein, preservative free, 30 mcg/0.3 mL dosage, tris-sucrose formulation; booster dose	Procedure	CPT-4
0064A	Immunization administration by intramuscular injection of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, mRNA-LNP, spike protein, preservative free, 50 mcg/0.25 mL dosage, booster dose	Procedure	CPT-4
0071A	Immunization administration by intramuscular injection of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, mRNA-LNP, spike protein, preservative free, 10 mcg/0.2 mL dosage, diluent reconstituted, tris-sucrose formulation; first dose	Procedure	CPT-4
0072A	Immunization administration by intramuscular injection of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, mRNA-LNP, spike protein, preservative free, 10 mcg/0.2 mL dosage, diluent reconstituted, tris-sucrose formulation; second dose	Procedure	CPT-4

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Code	Description	Code Category	Code Type
0073A	Immunization administration by intramuscular injection of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, mRNA-LNP, spike protein, preservative free, 10 mcg/0.2 mL dosage, diluent reconstituted, tris-sucrose formulation; third dose	Procedure	CPT-4
0074A	Immunization administration by intramuscular injection of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, mRNA-LNP, spike protein, preservative free, 10 mcg/0.2 mL dosage, diluent reconstituted, tris-sucrose formulation; booster dose	Procedure	CPT-4
0081A	Immunization administration by intramuscular injection of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, mRNA-LNP, spike protein, preservative free, 3 mcg/0.2 mL dosage, diluent reconstituted, tris-sucrose formulation; first dose	Procedure	CPT-4
0082A	Immunization administration by intramuscular injection of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, mRNA-LNP, spike protein, preservative free, 3 mcg/0.2 mL dosage, diluent reconstituted, tris-sucrose formulation; second dose	Procedure	CPT-4
0083A	Immunization administration by intramuscular injection of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, mRNA-LNP, spike protein, preservative free, 3 mcg/0.2 mL dosage, diluent reconstituted, tris-sucrose formulation; third dose	Procedure	CPT-4
0091A	Immunization administration by intramuscular injection of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, mRNA-LNP, spike protein, preservative free, 50 mcg/0.5 mL dosage; first dose, when administered to individuals 6 through 11 years	Procedure	CPT-4
0092A	Immunization administration by intramuscular injection of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, mRNA-LNP, spike protein, preservative free, 50 mcg/0.5 mL dosage; second dose, when administered to individuals 6 through 11 years	Procedure	CPT-4
0093A	Immunization administration by intramuscular injection of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, mRNA-LNP, spike protein, preservative free, 50 mcg/0.5 mL dosage; third dose, when administered to individuals 6 through 11 years	Procedure	CPT-4

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Code	Description	Code Category	Code Type
0094A	Immunization administration by intramuscular injection of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, mRNA-LNP, spike protein, preservative free, 50 mcg/0.5 mL dosage; booster dose, when administered to individuals 18 years and over	Procedure	CPT-4
0104A	Immunization administration by intramuscular injection of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, monovalent, preservative free, 5 mcg/0.5 mL dosage, adjuvant AS03 emulsion, booster dose	Procedure	CPT-4
0111A	Immunization administration by intramuscular injection of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, mRNA-LNP, spike protein, preservative free, 25 mcg/0.25 mL dosage; first dose	Procedure	CPT-4
0112A	Immunization administration by intramuscular injection of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, mRNA-LNP, spike protein, preservative free, 25 mcg/0.25 mL dosage; second dose	Procedure	CPT-4
0113A	Immunization administration by intramuscular injection of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, mRNA-LNP, spike protein, preservative free, 25 mcg/0.25 mL dosage; third dose	Procedure	CPT-4
0121A	Immunization administration by intramuscular injection of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, mRNA-LNP, bivalent spike protein, preservative free, 30 mcg/0.3 mL dosage, tris-sucrose formulation; single dose	Procedure	CPT-4
0124A	Immunization administration by intramuscular injection of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, mRNA-LNP, bivalent spike protein, preservative free, 30 mcg/0.3 mL dosage, tris-sucrose formulation; additional dose	Procedure	CPT-4
0134A	Immunization administration by intramuscular injection of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, mRNA-LNP, spike protein, bivalent, preservative free, 50 mcg/0.5 mL dosage, additional dose	Procedure	CPT-4
0141A	Immunization administration by intramuscular injection of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, mRNA-LNP, spike protein, bivalent, preservative free, 25 mcg/0.25 mL dosage; first dose	Procedure	CPT-4
0142A	Immunization administration by intramuscular injection of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, mRNA-LNP, spike protein, bivalent, preservative free, 25 mcg/0.25 mL dosage; second dose	Procedure	CPT-4
0144A	Immunization administration by intramuscular injection of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, mRNA-LNP, spike protein, bivalent, preservative free, 25 mcg/0.25 mL dosage; additional dose	Procedure	CPT-4

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Code	Description	Code Category	Code Type
0151A	Immunization administration by intramuscular injection of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, mRNA-LNP, bivalent spike protein, preservative free, 10 mcg/0.2 mL dosage, diluent reconstituted, tris-sucrose formulation; single dose	Procedure	CPT-4
0154A	Immunization administration by intramuscular injection of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, mRNA-LNP, bivalent spike protein, preservative free, 10 mcg/0.2 mL dosage, diluent reconstituted, tris-sucrose formulation; additional dose	Procedure	CPT-4
0164A	Immunization administration by intramuscular injection of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, mRNA-LNP, spike protein, bivalent, preservative free, 10 mcg/0.2 mL dosage, additional dose	Procedure	CPT-4
0171A	Immunization administration by intramuscular injection of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, mRNA-LNP, bivalent spike protein, preservative free, 3 mcg/0.2 mL dosage, diluent reconstituted, tris-sucrose formulation; first dose	Procedure	CPT-4
0172A	Immunization administration by intramuscular injection of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, mRNA-LNP, bivalent spike protein, preservative free, 3 mcg/0.2 mL dosage, diluent reconstituted, tris-sucrose formulation; second dose	Procedure	CPT-4
0173A	Immunization administration by intramuscular injection of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, mRNA-LNP, bivalent spike protein, preservative free, 3 mcg/0.2 mL dosage, diluent reconstituted, tris-sucrose formulation; third dose	Procedure	CPT-4
0174A	Immunization administration by intramuscular injection of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, mRNA-LNP, bivalent spike protein, preservative free, 3 mcg/0.2 mL dosage, diluent reconstituted, tris-sucrose formulation; additional dose	Procedure	CPT-4
207	SARS-COV-2 (COVID-19) vaccine, mRNA, spike protein, LNP, preservative free, 100 mcg/0.5mL dose or 50 mcg/0.25mL dose	Procedure	CVX
208	SARS-COV-2 (COVID-19) vaccine, mRNA, spike protein, LNP, preservative free, 30 mcg/0.3mL dose	Procedure	CVX
210	SARS-COV-2 (COVID-19) vaccine, vector non-replicating, recombinant spike protein-ChAdOx1, preservative free, 0.5 mL	Procedure	CVX

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Code	Description	Code Category	Code Type
211	SARS-COV-2 (COVID-19) vaccine, subunit, recombinant spike protein-nanoparticle+Matrix-M1 Adjuvant, preservative free, 0.5mL dose	Procedure	CVX
212	SARS-COV-2 (COVID-19) vaccine, vector non-replicating, recombinant spike protein-Ad26, preservative free, 0.5 mL	Procedure	CVX
213	SARS-COV-2 (COVID-19) vaccine, UNSPECIFIED	Procedure	CVX
217	SARS-COV-2 (COVID-19) vaccine, mRNA, spike protein, LNP, preservative free, 30 mcg/0.3mL dose, tris-sucrose formulation	Procedure	CVX
218	SARS-COV-2 (COVID-19) vaccine, mRNA, spike protein, LNP, preservative free, 10 mcg/0.2mL dose, tris-sucrose formulation	Procedure	CVX
219	SARS-COV-2 (COVID-19) vaccine, mRNA, spike protein, LNP, preservative free, 3 mcg/0.2mL dose, tris-sucrose formulation	Procedure	CVX
221	SARS-COV-2 (COVID-19) vaccine, mRNA, spike protein, LNP, preservative free, 50 mcg/0.5 mL dose	Procedure	CVX
225	SARS-COV-2 (COVID-19) vaccine, D614, prefusion spike recombinant protein subunit (CoV2 preS dTM), AS03 adjuvant added, preservative free, 5mcg/0.5mL dose	Procedure	CVX
226	SARS-COV-2 (COVID-19) vaccine, D614, prefusion spike recombinant protein subunit (CoV2 preS dTM), AS03 adjuvant added, preservative free, 10mcg/0.5mL dose	Procedure	CVX
227	SARS-COV-2 (COVID-19) vaccine, mRNA, spike protein, LNP, preservative free, pediatric 50 mcg/0.5 mL dose	Procedure	CVX
228	SARS-COV-2 (COVID-19) vaccine, mRNA, spike protein, LNP, preservative free, pediatric 25 mcg/0.25 mL dose	Procedure	CVX
229	SARS-COV-2 (COVID-19) vaccine, mRNA, spike protein, LNP, bivalent, preservative free, 50 mcg/0.5 mL or 25 mcg/0.25 mL dose	Procedure	CVX
230	SARS-COV-2 (COVID-19) vaccine, mRNA, spike protein, LNP, bivalent, preservative free, 10 mcg/0.2 mL dose	Procedure	CVX
300	SARS-COV-2 (COVID-19) vaccine, mRNA, spike protein, LNP, bivalent, preservative free, 30 mcg/0.3 mL dose, tris-sucrose formulation	Procedure	CVX
301	SARS-COV-2 (COVID-19) vaccine, mRNA, spike protein, LNP, bivalent, preservative free, 10 mcg/0.2 mL dose, tris-sucrose formulation	Procedure	CVX
302	SARS-COV-2 (COVID-19) vaccine, mRNA, spike protein, LNP, bivalent, preservative free, 3 mcg/0.2 mL dose, tris-sucrose formulation	Procedure	CVX
308	SARS-COV-2 (COVID-19) vaccine, mRNA, spike protein, LNP, preservative free, tris-sucrose, 3 mcg/0.3 mL dose	Procedure	CVX

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Code	Description	Code Category	Code Type
309	SARS-COV-2 (COVID-19) vaccine, mRNA, spike protein, LNP, preservative free, tris-sucrose, 30 mcg/0.3 mL dose	Procedure	CVX
310	SARS-COV-2 (COVID-19) vaccine, mRNA, spike protein, LNP, preservative free, tris-sucrose, 10 mcg/0.3 mL dose	Procedure	CVX
311	SARS-COV-2 (COVID-19) vaccine, mRNA, spike protein, LNP, preservative free, 25 mcg/0.25 mL dose	Procedure	CVX
312	SARS-COV-2 (COVID-19) vaccine, mRNA, spike protein, LNP, preservative free, 50 mcg/0.5 mL dose	Procedure	CVX
313	SARS-COV-2 (COVID-19) vaccine, subunit, recombinant spike protein-nanoparticle+Matrix-M1 Adjuvant, preservative free, 5 mcg/0.5 mL dose	Procedure	CVX
500	SARS-COV-2 COVID-19 Non-US Vaccine, Specific Product Unknown	Procedure	CVX
501	SARS-COV-2 COVID-19 Inactivated Virus Non-US Vaccine Product (QAZCOVID-IN)	Procedure	CVX
502	SARS-COV-2 COVID-19 Inactivated Virus Non-US Vaccine Product (COVAXIN)	Procedure	CVX
503	SARS-COV-2 COVID-19 Live Attenuated Virus Non-US Vaccine Product (COVIVAC)	Procedure	CVX
504	SARS-COV-2 COVID-19 Viral Vector Non-replicating Non-US Vaccine Product (Sputnik	Procedure	CVX
505	SARS-COV-2 COVID-19 Viral Vector Non-replicating Non-US Vaccine Product (Sputnik	Procedure	CVX
506	SARS-COV-2 COVID-19 Viral Vector Non-replicating Non-US Vaccine Product (CONVIDECIA), CanSino Biological Inc./Beijing Institute of Biotechnology	Procedure	CVX
507	SARS-COV-2 COVID-19 Protein Subunit Non-US Vaccine Product (Anhui Zhifei Longcom Biopharmaceutical + Institute of Microbiology, Chinese Academy of Sciences)	Procedure	CVX
508	SARS-COV-2 COVID-19 Protein Subunit Non-US Vaccine Product (Jiangsu Province Centers for Disease Control and Prevention)	Procedure	CVX
509	SARS-COV-2 COVID-19 Protein Subunit Non-US Vaccine Product (EpiVacCorona)	Procedure	CVX
510	SARS-COV-2 COVID-19 Inactivated Virus Non-US Vaccine Product (BIBP, Sinopharm)	Procedure	CVX
511	SARS-COV-2 COVID-19 Inactivated Virus Non-US Vaccine Product (CoronaVac, Sinovac)	Procedure	CVX
512	SARS-COV-2 COVID-19 Virus Like Particle (VLP) Non-US Vaccine Product (Medicago,	Procedure	CVX
513	SARS-COV-2 COVID-19 Protein Subunit Non-US Vaccine Product (Anhui Zhifei Longcom,	Procedure	CVX
514	SARS-COV-2 COVID-19 DNA Non-US Vaccine Product (Zydus Cadila, ZyCoV-D)	Procedure	CVX
515	SARS-COV-2 COVID-19 Protein Subunit Non-US Vaccine Product (Medigen, MVC-	Procedure	CVX
516	SARS-COV-2 COVID-19 Inactivated Non-US Vaccine Product (Minhai Biotechnology Co, KCONVAC)	Procedure	CVX
517	SARS-COV-2 COVID-19 Protein Subunit Non-US Vaccine Product (Biological E Limited,	Procedure	CVX
518	SARS-COV-2 COVID-19 Inactivated, Non-US Vaccine (VLA2001, Valneva)	Procedure	CVX

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
519	SARS-COV-2 COVID-19 mRNA, bivalent, original/Omicron BA.1, Non-US Vaccine (Spikevax Bivalent), Moderna	Procedure	CVX
520	SARS-COV-2 COVID-19 mRNA, bivalent, original/Omicron BA.1, Non-US Vaccine Product (Comirnaty Bivalent), Pfizer-BioNTech	Procedure	CVX
521	SARS-COV-2 (COVID-19) vaccine SP, protein-based, adjuvanted, B.1.351 strain (VidPrevtyn Beta), Sanofi-GSK	Procedure	CVX
90480	Immunization administration by intramuscular injection of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, single dose	Procedure	CPT-4
91300	Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, mRNA-LNP, spike protein, preservative free, 30 mcg/0.3mL dosage, diluent reconstituted, for intramuscular use	Procedure	CPT-4
91301	Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, mRNA-LNP, spike protein, preservative free, 100 mcg/0.5mL dosage, for intramuscular use	Procedure	CPT-4
91302	Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, DNA, spike protein, chimpanzee adenovirus Oxford 1 (ChAdOx1) vector, preservative free, 5x1010 viral particles/0.5mL dosage, for intramuscular use	Procedure	CPT-4
91303	Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, DNA, spike protein, adenovirus type 26 (Ad26) vector, preservative free, 5x1010 viral particles/0.5mL dosage, for intramuscular use	Procedure	CPT-4
91304	Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, recombinant spike protein nanoparticle, saponin-based adjuvant, 5 mcg/0.5 mL dosage, for intramuscular use	Procedure	CPT-4
91305	Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, mRNA-LNP, spike protein, preservative free, 30 mcg/0.3 mL dosage, tris-sucrose formulation, for intramuscular use	Procedure	CPT-4
91306	Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, mRNA-LNP, spike protein, preservative free, 50 mcg/0.25 mL dosage, for intramuscular use	Procedure	CPT-4
91307	Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, mRNA-LNP, spike protein, preservative free, 10 mcg/0.2 mL dosage, diluent reconstituted, tris-sucrose formulation, for intramuscular use	Procedure	CPT-4

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Code	Description	Code Category	Code Type
91308	Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, mRNA-LNP, spike protein, preservative free, 3 mcg/0.2 mL dosage, diluent reconstituted, tris-sucrose formulation, for intramuscular use	Procedure	CPT-4
91309	Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, mRNA-LNP, spike protein, preservative free, 50 mcg/0.5 mL dosage, for intramuscular use	Procedure	CPT-4
91310	Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, monovalent, preservative free, 5 mcg/0.5 mL dosage, adjuvant AS03 emulsion, for intramuscular use	Procedure	CPT-4
91311	Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, mRNA-LNP, spike protein, preservative free, 25 mcg/0.25 mL dosage, for intramuscular use	Procedure	CPT-4
91312	Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, mRNA-LNP, bivalent spike protein, preservative free, 30 mcg/0.3 mL dosage, tris-sucrose formulation, for intramuscular use	Procedure	CPT-4
91313	Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, mRNA-LNP, spike protein, bivalent, preservative free, 50 mcg/0.5 mL dosage, for intramuscular use	Procedure	CPT-4
91314	Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, mRNA-LNP, spike protein, bivalent, preservative free, 25 mcg/0.25 mL dosage, for intramuscular use	Procedure	CPT-4
91315	Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, mRNA-LNP, spike protein, preservative free, 10 mcg/0.2 mL dosage, diluent reconstituted, tris-sucrose formulation, for intramuscular use	Procedure	CPT-4
91316	Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, mRNA-LNP, spike protein, bivalent, preservative free, 10 mcg/0.2 mL dosage, for intramuscular use	Procedure	CPT-4
91317	Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, mRNA-LNP, bivalent spike protein, preservative free, 3 mcg/0.2 mL dosage, diluent reconstituted, tris-sucrose formulation, for intramuscular use	Procedure	CPT-4
91318	Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, mRNA-LNP, spike protein, 3 mcg/0.3 mL dosage, tris-sucrose formulation, for intramuscular use	Procedure	CPT-4

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Code	Description	Code Category	Code Type
91319	Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, mRNA-LNP, spike protein, 10 mcg/0.3 mL dosage, tris-sucrose formulation, for intramuscular use	Procedure	CPT-4
91320	Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, mRNA-LNP, spike protein, 30 mcg/0.3 mL dosage, tris-sucrose formulation, for intramuscular use	Procedure	CPT-4
91321	Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, mRNA-LNP, 25 mcg/0.25 mL dosage, for intramuscular use	Procedure	CPT-4
91322	Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccine, mRNA-LNP, 50 mcg/0.5 mL dosage, for intramuscular use	Procedure	CPT-4
D1701	Pfizer-BioNTech Covid-19 vaccine administration - first dose	Procedure	HCPCS
D1702	Pfizer-BioNTech Covid-19 vaccine administration - second dose	Procedure	HCPCS
D1703	Moderna Covid-19 vaccine administration - first dose	Procedure	HCPCS
D1704	Moderna Covid-19 vaccine administration - second dose	Procedure	HCPCS
D1705	AstraZeneca Covid-19 vaccine administration - first dose	Procedure	HCPCS
D1706	AstraZeneca Covid-19 vaccine administration - second dose	Procedure	HCPCS
D1707	Janssen Covid-19 vaccine administration	Procedure	HCPCS
D1708	Pfizer-BioNTech Covid-19 vaccine administration-third dose	Procedure	HCPCS
D1709	Pfizer-BioNTech Covid-19 vaccine administration-booster dose	Procedure	HCPCS
D1710	Moderna Covid-19 vaccine administration-third dose	Procedure	HCPCS
D1711	Moderna Covid-19 vaccine administration-booster dose	Procedure	HCPCS
D1712	Janssen Covid-19 vaccine administration-booster dose	Procedure	HCPCS
D1713	Pfizer-BioNTech Covid-19 vaccine administration tris-sucrose pediatric-first dose	Procedure	HCPCS
D1714	Pfizer-BioNTech Covid-19 vaccine administration tris-sucrose pediatric-second dose	Procedure	HCPCS
U0004	2019-nCoV coronavirus, SARS-CoV-2/2019-nCoV (COVID-19), any technique, multiple types or subtypes (includes all targets), non-CDC, making use of high throughput technologies as described by CMS-2020-01-R	Procedure	HCPCS
XW013S6	Introduction of COVID-19 Vaccine Dose 1 into Subcutaneous Tissue, Percutaneous Approach, New Technology Group 6	Procedure	ICD-10-PCS
XW013T6	Introduction of COVID-19 Vaccine Dose 2 into Subcutaneous Tissue, Percutaneous Approach, New Technology Group 6	Procedure	ICD-10-PCS
XW013U6	Introduction of COVID-19 Vaccine into Subcutaneous Tissue, Percutaneous Approach, New Technology Group 6	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
XW013V7	Introduction of COVID-19 Vaccine Dose 3 into Subcutaneous Tissue, Percutaneous Approach, New Technology Group 7	Procedure	ICD-10-PCS
XW013W7	Introduction of COVID-19 Vaccine Booster into Subcutaneous Tissue, Percutaneous Approach, New Technology Group 7	Procedure	ICD-10-PCS
XW023S6	Introduction of COVID-19 Vaccine Dose 1 into Muscle, Percutaneous Approach, New Technology Group 6	Procedure	ICD-10-PCS
XW023T6	Introduction of COVID-19 Vaccine Dose 2 into Muscle, Percutaneous Approach, New Technology Group 6	Procedure	ICD-10-PCS
XW023U6	Introduction of COVID-19 Vaccine into Muscle, Percutaneous Approach, New Technology Group 6	Procedure	ICD-10-PCS
XW023V7	Introduction of COVID-19 Vaccine Dose 3 into Muscle, Percutaneous Approach, New Technology Group 7	Procedure	ICD-10-PCS
XW023W7	Introduction of COVID-19 Vaccine Booster into Muscle, Percutaneous Approach, New Technology Group 7	Procedure	ICD-10-PCS
Z28.31	Underimmunization for COVID-19 status	Diagnosis	ICD-10-CM
Z28.311	Partially vaccinated for COVID-19	Diagnosis	ICD-10-CM
ACEI/ARB			
4009F	Angiotensin converting enzyme (ACE) inhibitor or angiotensin receptor blocker (ARB) therapy prescribed (CKD), (DM)	Procedure	CPT-2
4010F	Angiotensin Converting Enzyme (ACE) Inhibitor or Angiotensin Receptor Blocker (ARB) therapy prescribed or currently being taken (CAD, CKD, HF) (DM)	Procedure	CPT-2
4188F	Appropriate angiotensin converting enzyme (ACE)/angiotensin receptor blockers (ARB) therapeutic monitoring test ordered or performed (AM)	Procedure	CPT-2
4210F	Angiotensin converting enzyme (ACE) or angiotensin receptor blockers (ARB) medication therapy for 6 months or more (MM)	Procedure	CPT-2
G2092	Angiotensin converting enzyme (ACE) inhibitor or angiotensin receptor blocker (ARB) or angiotensin receptor-neprilysin inhibitor (ARNI) therapy prescribed or currently being taken	Procedure	HCPCS
G8027	Heart failure patient with left ventricular systolic dysfunction (LVSD) documented to be on either angiotensin-converting enzyme-inhibitor or angiotensin-receptor blocker (ACE-1 or ARB) therapy	Procedure	HCPCS
G8028	Heart failure patient with left ventricular systolic dysfunction (LVSD) not documented to be on either angiotensin-converting enzyme-inhibitor or angiotensin-receptor blocker (ACE-1 or ARB) therapy	Procedure	HCPCS

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Code	Description	Code Category	Code Type
G8468	Angiotensin converting enzyme (ACE) inhibitor or angiotensin receptor blocker (ARB) therapy prescribed for patients with a left ventricular ejection fraction (LVEF) < 40% or documentation of moderately or severely depressed left ventricular systolic function	Procedure	HCPCS
G8473	Angiotensin converting enzyme (ACE) inhibitor or angiotensin receptor blocker (ARB) therapy prescribed	Procedure	HCPCS
G8479	Clinician prescribed angiotensin converting enzyme (ACE) inhibitor or angiotensin receptor blocker (ARB) therapy	Procedure	HCPCS
G8506	Patient receiving angiotensin converting enzyme (ACE) inhibitor or angiotensin receptor blocker (ARB) therapy	Procedure	HCPCS
G8935	Clinician prescribed angiotensin converting enzyme (ACE) inhibitor or angiotensin receptor blocker (ARB) therapy	Procedure	HCPCS
Antidepressants			
4064F	Antidepressant pharmacotherapy prescribed (MDD, MDD ADOL)	Procedure	CPT-2
80332	Antidepressants, serotonergic class; 1 or 2	Procedure	CPT-4
80333	Antidepressants, serotonergic class; 3-5	Procedure	CPT-4
80334	Antidepressants, serotonergic class; 6 or more	Procedure	CPT-4
80335	Antidepressants, tricyclic and other cyclicals; 1 or 2	Procedure	CPT-4
80336	Antidepressants, tricyclic and other cyclicals; 3-5	Procedure	CPT-4
80337	Antidepressants, tricyclic and other cyclicals; 6 or more	Procedure	CPT-4
80338	Antidepressants, not otherwise specified	Procedure	CPT-4
Statins			
0006F	Statin therapy, prescribed	Procedure	CPT-2
4002F	Statin therapy, prescribed (CAD)	Procedure	CPT-2
4013F	Statin therapy prescribed or currently being taken (CAD)	Procedure	CPT-2
G9664	Patients who are currently statin therapy users or received an order (prescription) for statin therapy	Procedure	HCPCS
G9796	Patient is currently on a statin therapy	Procedure	HCPCS
Insulin			
3E013VG	Introduction of Insulin into Subcutaneous Tissue, Percutaneous Approach	Procedure	ICD-10-PCS
3E030VG	Introduction of Insulin into Peripheral Vein, Open Approach	Procedure	ICD-10-PCS
3E033VG	Introduction of Insulin into Peripheral Vein, Percutaneous Approach	Procedure	ICD-10-PCS
3E040VG	Introduction of Insulin into Central Vein, Open Approach	Procedure	ICD-10-PCS
3E043VG	Introduction of Insulin into Central Vein, Percutaneous Approach	Procedure	ICD-10-PCS
3E050VG	Introduction of Insulin into Peripheral Artery, Open Approach	Procedure	ICD-10-PCS

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Code	Description	Code Category	Code Type
3E053VG	Introduction of Insulin into Peripheral Artery, Percutaneous Approach	Procedure	ICD-10-PCS
3E060VG	Introduction of Insulin into Central Artery, Open Approach	Procedure	ICD-10-PCS
3E063VG	Introduction of Insulin into Central Artery, Percutaneous Approach	Procedure	ICD-10-PCS
A4224	Supplies for maintenance of insulin infusion catheter, per week	Procedure	HCPCS
A4225	Supplies for external insulin infusion pump, syringe type cartridge, sterile, each	Procedure	HCPCS
A4226	Supplies for maintenance of insulin infusion pump with dosage rate adjustment using therapeutic continuous glucose sensing, per week	Procedure	HCPCS
A4230	Infusion set for external insulin pump, nonneedle cannula type	Procedure	HCPCS
A4231	Infusion set for external insulin pump, needle type	Procedure	HCPCS
A4232	Syringe with needle for external insulin pump, sterile, 3 cc	Procedure	HCPCS
A9274	External ambulatory insulin delivery system, disposable, each, includes all supplies and accessories	Procedure	HCPCS
E0784	External ambulatory infusion pump, insulin	Procedure	HCPCS
E0787	External ambulatory infusion pump, insulin, dosage rate adjustment using therapeutic continuous glucose sensing	Procedure	HCPCS
G9147	Outpatient Intravenous Insulin Treatment (OIVIT) either pulsatile or continuous, by any means, guided by the results of measurements for: respiratory quotient; and/or, urine urea nitrogen (UUN); and/or, arterial, venous or capillary glucose; and/or potassium concentration	Procedure	HCPCS
J1815	Injection, insulin, per 5 units	Procedure	HCPCS
J1817	Insulin for administration through DME (i.e., insulin pump) per 50 units	Procedure	HCPCS
J1820	Injection, insulin, up to 100 units	Procedure	HCPCS
K0548	Injection, insulin lispro, up to 50 units	Procedure	HCPCS
S1034	Artificial pancreas device system (e.g., low glucose suspend [LGS] feature) including continuous glucose monitor, blood glucose device, insulin pump and computer algorithm that communicates with all of the devices	Procedure	HCPCS
S5550	Insulin, rapid onset, 5 units	Procedure	HCPCS
S5551	Insulin, most rapid onset (Lispro or Aspart); 5 units	Procedure	HCPCS
S5552	Insulin, intermediate acting (NPH or LENTE); 5 units	Procedure	HCPCS
S5553	Insulin, long acting; 5 units	Procedure	HCPCS
S5560	Insulin delivery device, reusable pen; 1.5 ml size	Procedure	HCPCS
S5561	Insulin delivery device, reusable pen; 3 ml size	Procedure	HCPCS
S5565	Insulin cartridge for use in insulin delivery device other than pump; 150 units	Procedure	HCPCS
S5566	Insulin cartridge for use in insulin delivery device other than pump; 300 units	Procedure	HCPCS
S5570	Insulin delivery device, disposable pen (including insulin); 1.5 ml size	Procedure	HCPCS

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Code	Description	Code Category	Code Type
S5571	Insulin delivery device, disposable pen (including insulin); 3 ml size	Procedure	HCPCS
S9145	Insulin pump initiation, instruction in initial use of pump (pump not included)	Procedure	HCPCS
Antihypertensive Drugs			
4145F	Two or more anti-hypertensive agents prescribed or currently being taken (CAD, HTN)	Procedure	CPT-2
Anticoagulants			
4075F	Anticoagulant therapy prescribed at discharge (STR)	Procedure	CPT-2
93793	Anticoagulant management for a patient taking warfarin, must include review and interpretation of a new home, office, or lab international normalized ratio (INR) test result, patient instructions, dosage adjustment (as needed), and scheduling of additional test(s), when performed	Procedure	CPT-4
99363	Anticoagulant management for an outpatient taking warfarin, physician review and interpretation of International Normalized Ratio (INR) testing, patient instructions, dosage adjustment (as needed), and ordering of additional tests; initial 90 days of therapy (must include a minimum of 8 INR measurements)	Procedure	CPT-4
99364	Anticoagulant management for an outpatient taking warfarin, physician review and interpretation of International Normalized Ratio (INR) testing, patient instructions, dosage adjustment (as needed), and ordering of additional tests; each subsequent 90 days of therapy (must include a minimum of 3 INR measurements)	Procedure	CPT-4
99557	Home infusion of continuous anticoagulant therapy (eg, heparin), per visit	Procedure	CPT-4
G8967	Warfarin or another FDA-approved oral anticoagulant is prescribed	Procedure	HCPCS
G9724	Patients who had documentation of use of anticoagulant medications overlapping the measurement year	Procedure	HCPCS
S9336	Home infusion therapy, continuous anticoagulant infusion therapy (e.g., Heparin), administrative services, professional pharmacy services, care coordination and all necessary supplies and equipment (drugs and nursing visits coded separately), per diem	Procedure	HCPCS
S9372	Home therapy; intermittent anticoagulant injection therapy (e.g., Heparin); administrative services, professional pharmacy services, care coordination, and all necessary supplies and equipment (drugs and nursing visits coded separately), per diem (do not use this code for flushing of infusion devices with Heparin to maintain patency)	Procedure	HCPCS
Corticosteroids (Systemic Glucocorticoids)			
4193F	Patient receiving <10 mg daily prednisone (or equivalent), or RA activity is worsening, or glucocorticoid use is for less than 6 months (RA)	Procedure	CPT-2
G2112	Patient receiving <=5 mg daily prednisone (or equivalent), or RA activity is worsening, or glucocorticoid use is for less than 6 months	Procedure	HCPCS

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Code	Description	Code Category	Code Type
Acetaminophen			
80143	Acetaminophen	Procedure	CPT-4
82003	Acetaminophen	Procedure	CPT-4
C9283	Injection, acetaminophen, 10 mg	Procedure	HCPCS
J0131	Injection, acetaminophen, 10 mg	Procedure	HCPCS
TNF Inhibitors			
80230	Infliximab	Procedure	CPT-4
C9249	Injection, certolizumab pegol, 1 mg	Procedure	HCPCS
G8868	Patients receiving a first course of anti-TNF therapy	Procedure	HCPCS
G8869	Patient has documented immunity to hepatitis B and initiating anti-TNF therapy	Procedure	HCPCS
G9914	Patient receiving an anti-TNF agent	Procedure	HCPCS
J0135	Injection, adalimumab, 20 mg	Procedure	HCPCS
J0717	Injection, certolizumab pegol, 1 mg (code may be used for Medicare when drug administered under the direct supervision of a physician, not for use when drug is self-administered)	Procedure	HCPCS
J0718	Injection, certolizumab pegol, 1 mg	Procedure	HCPCS
J1438	Injection, etanercept, 25 mg (code may be used for Medicare when drug administered under the direct supervision of a physician, not for use when drug is self-administered)	Procedure	HCPCS
J1602	Injection, golimumab, 1 mg, for intravenous use	Procedure	HCPCS
J1745	Injection, infliximab, excludes biosimilar, 10 mg	Procedure	HCPCS
Q5102	Injection, infliximab, biosimilar, 10 mg	Procedure	HCPCS
Q5103	Injection, infliximab-dyyb, biosimilar, (Inflectra), 10 mg	Procedure	HCPCS
Q5104	Injection, infliximab-abda, biosimilar, (Renflexis), 10 mg	Procedure	HCPCS
Q5109	Injection, infliximab-qbtx, biosimilar, (Ixifi), 10 mg	Procedure	HCPCS
Q5121	Injection, infliximab-axxq, biosimilar, (AVSOLA), 10 mg	Procedure	HCPCS
Immunosuppressants			
0182T	High dose rate electronic brachytherapy	Procedure	CPT-3
0190T	Insertion of radiation source applicator into eye	Procedure	CPT-3
0394T	High dose rate electronic brachytherapy	Procedure	CPT-3
0395T	High dose rate electronic brachytherapy	Procedure	CPT-3
0BH001Z	Insertion of Radioactive Element into Tracheobronchial Tree, Open Approach	Procedure	ICD-10-PCS
0BH031Z	Insertion of Radioactive Element into Tracheobronchial Tree, Percutaneous Approach	Procedure	ICD-10-PCS
0BH041Z	Insertion of Radioactive Element into Tracheobronchial Tree, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0BH071Z	Insertion of Radioactive Element into Tracheobronchial Tree, Via Natural or Artificial	Procedure	ICD-10-PCS

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Code	Description	Code Category	Code Type
0BH081Z	Insertion of Radioactive Element into Tracheobronchial Tree, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
0BHK01Z	Insertion of Radioactive Element into Right Lung, Open Approach	Procedure	ICD-10-PCS
0BHK31Z	Insertion of Radioactive Element into Right Lung, Percutaneous Approach	Procedure	ICD-10-PCS
0BHK41Z	Insertion of Radioactive Element into Right Lung, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0BHK71Z	Insertion of Radioactive Element into Right Lung, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
0BHK81Z	Insertion of Radioactive Element into Right Lung, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
0BHL01Z	Insertion of Radioactive Element into Left Lung, Open Approach	Procedure	ICD-10-PCS
0BHL31Z	Insertion of Radioactive Element into Left Lung, Percutaneous Approach	Procedure	ICD-10-PCS
0BHL41Z	Insertion of Radioactive Element into Left Lung, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0BHL71Z	Insertion of Radioactive Element into Left Lung, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
0BHL81Z	Insertion of Radioactive Element into Left Lung, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
0CH701Z	Insertion of Radioactive Element into Tongue, Open Approach	Procedure	ICD-10-PCS
0CH731Z	Insertion of Radioactive Element into Tongue, Percutaneous Approach	Procedure	ICD-10-PCS
0CH7X1Z	Insertion of Radioactive Element into Tongue, External Approach	Procedure	ICD-10-PCS
0DH501Z	Insertion of Radioactive Element into Esophagus, Open Approach	Procedure	ICD-10-PCS
0DH531Z	Insertion of Radioactive Element into Esophagus, Percutaneous Approach	Procedure	ICD-10-PCS
0DH541Z	Insertion of Radioactive Element into Esophagus, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0DH571Z	Insertion of Radioactive Element into Esophagus, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
0DH581Z	Insertion of Radioactive Element into Esophagus, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
0DHP01Z	Insertion of Radioactive Element into Rectum, Open Approach	Procedure	ICD-10-PCS
0DHP31Z	Insertion of Radioactive Element into Rectum, Percutaneous Approach	Procedure	ICD-10-PCS
0DHP41Z	Insertion of Radioactive Element into Rectum, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0DHP71Z	Insertion of Radioactive Element into Rectum, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
0DHP81Z	Insertion of Radioactive Element into Rectum, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
0FHB01Z	Insertion of Radioactive Element into Hepatobiliary Duct, Open Approach	Procedure	ICD-10-PCS
0FHB31Z	Insertion of Radioactive Element into Hepatobiliary Duct, Percutaneous Approach	Procedure	ICD-10-PCS
0FHB41Z	Insertion of Radioactive Element into Hepatobiliary Duct, Percutaneous Endoscopic	Procedure	ICD-10-PCS
0FHB71Z	Insertion of Radioactive Element into Hepatobiliary Duct, Via Natural or Artificial	Procedure	ICD-10-PCS
0FHB81Z	Insertion of Radioactive Element into Hepatobiliary Duct, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
0FHD01Z	Insertion of Radioactive Element into Pancreatic Duct, Open Approach	Procedure	ICD-10-PCS
0FHD31Z	Insertion of Radioactive Element into Pancreatic Duct, Percutaneous Approach	Procedure	ICD-10-PCS
0FHD41Z	Insertion of Radioactive Element into Pancreatic Duct, Percutaneous Endoscopic	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
0FHD71Z	Insertion of Radioactive Element into Pancreatic Duct, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
0FHD81Z	Insertion of Radioactive Element into Pancreatic Duct, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
0HHT01Z	Insertion of Radioactive Element into Right Breast, Open Approach	Procedure	ICD-10-PCS
0HHT31Z	Insertion of Radioactive Element into Right Breast, Percutaneous Approach	Procedure	ICD-10-PCS
0HHT71Z	Insertion of Radioactive Element into Right Breast, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
0HHT81Z	Insertion of Radioactive Element into Right Breast, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
0HHTX1Z	Insertion of Radioactive Element into Right Breast, External Approach	Procedure	ICD-10-PCS
0HHU01Z	Insertion of Radioactive Element into Left Breast, Open Approach	Procedure	ICD-10-PCS
0HHU31Z	Insertion of Radioactive Element into Left Breast, Percutaneous Approach	Procedure	ICD-10-PCS
0HHU71Z	Insertion of Radioactive Element into Left Breast, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
0HHU81Z	Insertion of Radioactive Element into Left Breast, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
0HHUX1Z	Insertion of Radioactive Element into Left Breast, External Approach	Procedure	ICD-10-PCS
0HHV01Z	Insertion of Radioactive Element into Bilateral Breast, Open Approach	Procedure	ICD-10-PCS
0HHV31Z	Insertion of Radioactive Element into Bilateral Breast, Percutaneous Approach	Procedure	ICD-10-PCS
0HHV71Z	Insertion of Radioactive Element into Bilateral Breast, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
0HHV81Z	Insertion of Radioactive Element into Bilateral Breast, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
0HHVX1Z	Insertion of Radioactive Element into Bilateral Breast, External Approach	Procedure	ICD-10-PCS
0HHW01Z	Insertion of Radioactive Element into Right Nipple, Open Approach	Procedure	ICD-10-PCS
0HHW31Z	Insertion of Radioactive Element into Right Nipple, Percutaneous Approach	Procedure	ICD-10-PCS
0HHW71Z	Insertion of Radioactive Element into Right Nipple, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
0HHW81Z	Insertion of Radioactive Element into Right Nipple, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
0HHWX1Z	Insertion of Radioactive Element into Right Nipple, External Approach	Procedure	ICD-10-PCS
0HHX01Z	Insertion of Radioactive Element into Left Nipple, Open Approach	Procedure	ICD-10-PCS
0HHX31Z	Insertion of Radioactive Element into Left Nipple, Percutaneous Approach	Procedure	ICD-10-PCS
0HHX71Z	Insertion of Radioactive Element into Left Nipple, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
0HHX81Z	Insertion of Radioactive Element into Left Nipple, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
0HHXX1Z	Insertion of Radioactive Element into Left Nipple, External Approach	Procedure	ICD-10-PCS
0JHS01Z	Insertion of Radioactive Element into Head and Neck Subcutaneous Tissue and Fascia, Open Approach	Procedure	ICD-10-PCS
0JHS31Z	Insertion of Radioactive Element into Head and Neck Subcutaneous Tissue and Fascia, Percutaneous Approach	Procedure	ICD-10-PCS
0JHT01Z	Insertion of Radioactive Element into Trunk Subcutaneous Tissue and Fascia, Open	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
0JHT31Z	Insertion of Radioactive Element into Trunk Subcutaneous Tissue and Fascia, Percutaneous Approach	Procedure	ICD-10-PCS
0JHV01Z	Insertion of Radioactive Element into Upper Extremity Subcutaneous Tissue and Fascia, Open Approach	Procedure	ICD-10-PCS
0JHV31Z	Insertion of Radioactive Element into Upper Extremity Subcutaneous Tissue and Fascia, Percutaneous Approach	Procedure	ICD-10-PCS
0JHW01Z	Insertion of Radioactive Element into Lower Extremity Subcutaneous Tissue and Fascia, Open Approach	Procedure	ICD-10-PCS
0JHW31Z	Insertion of Radioactive Element into Lower Extremity Subcutaneous Tissue and Fascia, Percutaneous Approach	Procedure	ICD-10-PCS
0UHC01Z	Insertion of Radioactive Element into Cervix, Open Approach	Procedure	ICD-10-PCS
0UHC31Z	Insertion of Radioactive Element into Cervix, Percutaneous Approach	Procedure	ICD-10-PCS
0UHC41Z	Insertion of Radioactive Element into Cervix, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0UHC71Z	Insertion of Radioactive Element into Cervix, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
0UHC81Z	Insertion of Radioactive Element into Cervix, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
0UHG01Z	Insertion of Radioactive Element into Vagina, Open Approach	Procedure	ICD-10-PCS
0UHG31Z	Insertion of Radioactive Element into Vagina, Percutaneous Approach	Procedure	ICD-10-PCS
0UHG41Z	Insertion of Radioactive Element into Vagina, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0UHG71Z	Insertion of Radioactive Element into Vagina, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
0UHG81Z	Insertion of Radioactive Element into Vagina, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
0UHGX1Z	Insertion of Radioactive Element into Vagina, External Approach	Procedure	ICD-10-PCS
0VH001Z	Insertion of Radioactive Element into Prostate, Open Approach	Procedure	ICD-10-PCS
0VH031Z	Insertion of Radioactive Element into Prostate, Percutaneous Approach	Procedure	ICD-10-PCS
0VH041Z	Insertion of Radioactive Element into Prostate, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0VH071Z	Insertion of Radioactive Element into Prostate, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
0VH081Z	Insertion of Radioactive Element into Prostate, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
0WH001Z	Insertion of Radioactive Element into Head, Open Approach	Procedure	ICD-10-PCS
0WH031Z	Insertion of Radioactive Element into Head, Percutaneous Approach	Procedure	ICD-10-PCS
0WH041Z	Insertion of Radioactive Element into Head, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0WH101Z	Insertion of Radioactive Element into Cranial Cavity, Open Approach	Procedure	ICD-10-PCS
0WH131Z	Insertion of Radioactive Element into Cranial Cavity, Percutaneous Approach	Procedure	ICD-10-PCS
0WH141Z	Insertion of Radioactive Element into Cranial Cavity, Percutaneous Endoscopic	Procedure	ICD-10-PCS
0WH201Z	Insertion of Radioactive Element into Face, Open Approach	Procedure	ICD-10-PCS
0WH231Z	Insertion of Radioactive Element into Face, Percutaneous Approach	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
0WH241Z	Insertion of Radioactive Element into Face, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0WH301Z	Insertion of Radioactive Element into Oral Cavity and Throat, Open Approach	Procedure	ICD-10-PCS
0WH331Z	Insertion of Radioactive Element into Oral Cavity and Throat, Percutaneous Approach	Procedure	ICD-10-PCS
0WH341Z	Insertion of Radioactive Element into Oral Cavity and Throat, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0WH401Z	Insertion of Radioactive Element into Upper Jaw, Open Approach	Procedure	ICD-10-PCS
0WH431Z	Insertion of Radioactive Element into Upper Jaw, Percutaneous Approach	Procedure	ICD-10-PCS
0WH441Z	Insertion of Radioactive Element into Upper Jaw, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0WH501Z	Insertion of Radioactive Element into Lower Jaw, Open Approach	Procedure	ICD-10-PCS
0WH531Z	Insertion of Radioactive Element into Lower Jaw, Percutaneous Approach	Procedure	ICD-10-PCS
0WH541Z	Insertion of Radioactive Element into Lower Jaw, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0WH601Z	Insertion of Radioactive Element into Neck, Open Approach	Procedure	ICD-10-PCS
0WH631Z	Insertion of Radioactive Element into Neck, Percutaneous Approach	Procedure	ICD-10-PCS
0WH641Z	Insertion of Radioactive Element into Neck, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0WH801Z	Insertion of Radioactive Element into Chest Wall, Open Approach	Procedure	ICD-10-PCS
0WH831Z	Insertion of Radioactive Element into Chest Wall, Percutaneous Approach	Procedure	ICD-10-PCS
0WH841Z	Insertion of Radioactive Element into Chest Wall, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0WH901Z	Insertion of Radioactive Element into Right Pleural Cavity, Open Approach	Procedure	ICD-10-PCS
0WH931Z	Insertion of Radioactive Element into Right Pleural Cavity, Percutaneous Approach	Procedure	ICD-10-PCS
0WH941Z	Insertion of Radioactive Element into Right Pleural Cavity, Percutaneous Endoscopic	Procedure	ICD-10-PCS
0WHB01Z	Insertion of Radioactive Element into Left Pleural Cavity, Open Approach	Procedure	ICD-10-PCS
0WHB31Z	Insertion of Radioactive Element into Left Pleural Cavity, Percutaneous Approach	Procedure	ICD-10-PCS
0WHB41Z	Insertion of Radioactive Element into Left Pleural Cavity, Percutaneous Endoscopic	Procedure	ICD-10-PCS
0WHC01Z	Insertion of Radioactive Element into Mediastinum, Open Approach	Procedure	ICD-10-PCS
0WHC31Z	Insertion of Radioactive Element into Mediastinum, Percutaneous Approach	Procedure	ICD-10-PCS
0WHC41Z	Insertion of Radioactive Element into Mediastinum, Percutaneous Endoscopic	Procedure	ICD-10-PCS
0WHD01Z	Insertion of Radioactive Element into Pericardial Cavity, Open Approach	Procedure	ICD-10-PCS
0WHD31Z	Insertion of Radioactive Element into Pericardial Cavity, Percutaneous Approach	Procedure	ICD-10-PCS
0WHD41Z	Insertion of Radioactive Element into Pericardial Cavity, Percutaneous Endoscopic	Procedure	ICD-10-PCS
0WHF01Z	Insertion of Radioactive Element into Abdominal Wall, Open Approach	Procedure	ICD-10-PCS
0WHF31Z	Insertion of Radioactive Element into Abdominal Wall, Percutaneous Approach	Procedure	ICD-10-PCS
0WHF41Z	Insertion of Radioactive Element into Abdominal Wall, Percutaneous Endoscopic	Procedure	ICD-10-PCS
0WHG01Z	Insertion of Radioactive Element into Peritoneal Cavity, Open Approach	Procedure	ICD-10-PCS
0WHG31Z	Insertion of Radioactive Element into Peritoneal Cavity, Percutaneous Approach	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
0WHG41Z	Insertion of Radioactive Element into Peritoneal Cavity, Percutaneous Endoscopic	Procedure	ICD-10-PCS
0WHH01Z	Insertion of Radioactive Element into Retroperitoneum, Open Approach	Procedure	ICD-10-PCS
0WHH31Z	Insertion of Radioactive Element into Retroperitoneum, Percutaneous Approach	Procedure	ICD-10-PCS
0WHH41Z	Insertion of Radioactive Element into Retroperitoneum, Percutaneous Endoscopic	Procedure	ICD-10-PCS
0WHJ01Z	Insertion of Radioactive Element into Pelvic Cavity, Open Approach	Procedure	ICD-10-PCS
0WHJ31Z	Insertion of Radioactive Element into Pelvic Cavity, Percutaneous Approach	Procedure	ICD-10-PCS
0WHJ41Z	Insertion of Radioactive Element into Pelvic Cavity, Percutaneous Endoscopic	Procedure	ICD-10-PCS
0WHK01Z	Insertion of Radioactive Element into Upper Back, Open Approach	Procedure	ICD-10-PCS
0WHK31Z	Insertion of Radioactive Element into Upper Back, Percutaneous Approach	Procedure	ICD-10-PCS
0WHK41Z	Insertion of Radioactive Element into Upper Back, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0WHL01Z	Insertion of Radioactive Element into Lower Back, Open Approach	Procedure	ICD-10-PCS
0WHL31Z	Insertion of Radioactive Element into Lower Back, Percutaneous Approach	Procedure	ICD-10-PCS
0WHL41Z	Insertion of Radioactive Element into Lower Back, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0WHM01Z	Insertion of Radioactive Element into Male Perineum, Open Approach	Procedure	ICD-10-PCS
0WHM31Z	Insertion of Radioactive Element into Male Perineum, Percutaneous Approach	Procedure	ICD-10-PCS
0WHM41Z	Insertion of Radioactive Element into Male Perineum, Percutaneous Endoscopic	Procedure	ICD-10-PCS
0WHN01Z	Insertion of Radioactive Element into Female Perineum, Open Approach	Procedure	ICD-10-PCS
0WHN31Z	Insertion of Radioactive Element into Female Perineum, Percutaneous Approach	Procedure	ICD-10-PCS
0WHN41Z	Insertion of Radioactive Element into Female Perineum, Percutaneous Endoscopic	Procedure	ICD-10-PCS
0WHP01Z	Insertion of Radioactive Element into Gastrointestinal Tract, Open Approach	Procedure	ICD-10-PCS
0WHP31Z	Insertion of Radioactive Element into Gastrointestinal Tract, Percutaneous Approach	Procedure	ICD-10-PCS
0WHP41Z	Insertion of Radioactive Element into Gastrointestinal Tract, Percutaneous Endoscopic	Procedure	ICD-10-PCS
0WHP71Z	Insertion of Radioactive Element into Gastrointestinal Tract, Via Natural or Artificial	Procedure	ICD-10-PCS
0WHP81Z	Insertion of Radioactive Element into Gastrointestinal Tract, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
0WHQ01Z	Insertion of Radioactive Element into Respiratory Tract, Open Approach	Procedure	ICD-10-PCS
0WHQ31Z	Insertion of Radioactive Element into Respiratory Tract, Percutaneous Approach	Procedure	ICD-10-PCS
0WHQ41Z	Insertion of Radioactive Element into Respiratory Tract, Percutaneous Endoscopic	Procedure	ICD-10-PCS
0WHQ71Z	Insertion of Radioactive Element into Respiratory Tract, Via Natural or Artificial	Procedure	ICD-10-PCS
0WHQ81Z	Insertion of Radioactive Element into Respiratory Tract, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
0WHR01Z	Insertion of Radioactive Element into Genitourinary Tract, Open Approach	Procedure	ICD-10-PCS
0WHR31Z	Insertion of Radioactive Element into Genitourinary Tract, Percutaneous Approach	Procedure	ICD-10-PCS
0WHR41Z	Insertion of Radioactive Element into Genitourinary Tract, Percutaneous Endoscopic	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
0WHR71Z	Insertion of Radioactive Element into Genitourinary Tract, Via Natural or Artificial	Procedure	ICD-10-PCS
0WHR81Z	Insertion of Radioactive Element into Genitourinary Tract, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
0XH201Z	Insertion of Radioactive Element into Right Shoulder Region, Open Approach	Procedure	ICD-10-PCS
0XH231Z	Insertion of Radioactive Element into Right Shoulder Region, Percutaneous Approach	Procedure	ICD-10-PCS
0XH241Z	Insertion of Radioactive Element into Right Shoulder Region, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0XH301Z	Insertion of Radioactive Element into Left Shoulder Region, Open Approach	Procedure	ICD-10-PCS
0XH331Z	Insertion of Radioactive Element into Left Shoulder Region, Percutaneous Approach	Procedure	ICD-10-PCS
0XH341Z	Insertion of Radioactive Element into Left Shoulder Region, Percutaneous Endoscopic	Procedure	ICD-10-PCS
0XH401Z	Insertion of Radioactive Element into Right Axilla, Open Approach	Procedure	ICD-10-PCS
0XH431Z	Insertion of Radioactive Element into Right Axilla, Percutaneous Approach	Procedure	ICD-10-PCS
0XH441Z	Insertion of Radioactive Element into Right Axilla, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0XH501Z	Insertion of Radioactive Element into Left Axilla, Open Approach	Procedure	ICD-10-PCS
0XH531Z	Insertion of Radioactive Element into Left Axilla, Percutaneous Approach	Procedure	ICD-10-PCS
0XH541Z	Insertion of Radioactive Element into Left Axilla, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0XH601Z	Insertion of Radioactive Element into Right Upper Extremity, Open Approach	Procedure	ICD-10-PCS
0XH631Z	Insertion of Radioactive Element into Right Upper Extremity, Percutaneous Approach	Procedure	ICD-10-PCS
0XH641Z	Insertion of Radioactive Element into Right Upper Extremity, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0XH701Z	Insertion of Radioactive Element into Left Upper Extremity, Open Approach	Procedure	ICD-10-PCS
0XH731Z	Insertion of Radioactive Element into Left Upper Extremity, Percutaneous Approach	Procedure	ICD-10-PCS
0XH741Z	Insertion of Radioactive Element into Left Upper Extremity, Percutaneous Endoscopic	Procedure	ICD-10-PCS
0XH801Z	Insertion of Radioactive Element into Right Upper Arm, Open Approach	Procedure	ICD-10-PCS
0XH831Z	Insertion of Radioactive Element into Right Upper Arm, Percutaneous Approach	Procedure	ICD-10-PCS
0XH841Z	Insertion of Radioactive Element into Right Upper Arm, Percutaneous Endoscopic	Procedure	ICD-10-PCS
0XH901Z	Insertion of Radioactive Element into Left Upper Arm, Open Approach	Procedure	ICD-10-PCS
0XH931Z	Insertion of Radioactive Element into Left Upper Arm, Percutaneous Approach	Procedure	ICD-10-PCS
0XH941Z	Insertion of Radioactive Element into Left Upper Arm, Percutaneous Endoscopic	Procedure	ICD-10-PCS
0XHB01Z	Insertion of Radioactive Element into Right Elbow Region, Open Approach	Procedure	ICD-10-PCS
0XHB31Z	Insertion of Radioactive Element into Right Elbow Region, Percutaneous Approach	Procedure	ICD-10-PCS
0XHB41Z	Insertion of Radioactive Element into Right Elbow Region, Percutaneous Endoscopic	Procedure	ICD-10-PCS
0XHC01Z	Insertion of Radioactive Element into Left Elbow Region, Open Approach	Procedure	ICD-10-PCS
0XHC31Z	Insertion of Radioactive Element into Left Elbow Region, Percutaneous Approach	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
0XHC41Z	Insertion of Radioactive Element into Left Elbow Region, Percutaneous Endoscopic	Procedure	ICD-10-PCS
0XHD01Z	Insertion of Radioactive Element into Right Lower Arm, Open Approach	Procedure	ICD-10-PCS
0XHD31Z	Insertion of Radioactive Element into Right Lower Arm, Percutaneous Approach	Procedure	ICD-10-PCS
0XHD41Z	Insertion of Radioactive Element into Right Lower Arm, Percutaneous Endoscopic	Procedure	ICD-10-PCS
0XHF01Z	Insertion of Radioactive Element into Left Lower Arm, Open Approach	Procedure	ICD-10-PCS
0XHF31Z	Insertion of Radioactive Element into Left Lower Arm, Percutaneous Approach	Procedure	ICD-10-PCS
0XHF41Z	Insertion of Radioactive Element into Left Lower Arm, Percutaneous Endoscopic	Procedure	ICD-10-PCS
0XHG01Z	Insertion of Radioactive Element into Right Wrist Region, Open Approach	Procedure	ICD-10-PCS
0XHG31Z	Insertion of Radioactive Element into Right Wrist Region, Percutaneous Approach	Procedure	ICD-10-PCS
0XHG41Z	Insertion of Radioactive Element into Right Wrist Region, Percutaneous Endoscopic	Procedure	ICD-10-PCS
0XHH01Z	Insertion of Radioactive Element into Left Wrist Region, Open Approach	Procedure	ICD-10-PCS
0XHH31Z	Insertion of Radioactive Element into Left Wrist Region, Percutaneous Approach	Procedure	ICD-10-PCS
0XHH41Z	Insertion of Radioactive Element into Left Wrist Region, Percutaneous Endoscopic	Procedure	ICD-10-PCS
0XHJ01Z	Insertion of Radioactive Element into Right Hand, Open Approach	Procedure	ICD-10-PCS
0XHJ31Z	Insertion of Radioactive Element into Right Hand, Percutaneous Approach	Procedure	ICD-10-PCS
0XHJ41Z	Insertion of Radioactive Element into Right Hand, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0XHK01Z	Insertion of Radioactive Element into Left Hand, Open Approach	Procedure	ICD-10-PCS
0XHK31Z	Insertion of Radioactive Element into Left Hand, Percutaneous Approach	Procedure	ICD-10-PCS
0XHK41Z	Insertion of Radioactive Element into Left Hand, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0YH001Z	Insertion of Radioactive Element into Right Buttock, Open Approach	Procedure	ICD-10-PCS
0YH031Z	Insertion of Radioactive Element into Right Buttock, Percutaneous Approach	Procedure	ICD-10-PCS
0YH041Z	Insertion of Radioactive Element into Right Buttock, Percutaneous Endoscopic	Procedure	ICD-10-PCS
0YH101Z	Insertion of Radioactive Element into Left Buttock, Open Approach	Procedure	ICD-10-PCS
0YH131Z	Insertion of Radioactive Element into Left Buttock, Percutaneous Approach	Procedure	ICD-10-PCS
0YH141Z	Insertion of Radioactive Element into Left Buttock, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0YH501Z	Insertion of Radioactive Element into Right Inguinal Region, Open Approach	Procedure	ICD-10-PCS
0YH531Z	Insertion of Radioactive Element into Right Inguinal Region, Percutaneous Approach	Procedure	ICD-10-PCS
0YH541Z	Insertion of Radioactive Element into Right Inguinal Region, Percutaneous Endoscopic	Procedure	ICD-10-PCS
0YH601Z	Insertion of Radioactive Element into Left Inguinal Region, Open Approach	Procedure	ICD-10-PCS
0YH631Z	Insertion of Radioactive Element into Left Inguinal Region, Percutaneous Approach	Procedure	ICD-10-PCS
0YH641Z	Insertion of Radioactive Element into Left Inguinal Region, Percutaneous Endoscopic	Procedure	ICD-10-PCS
0YH701Z	Insertion of Radioactive Element into Right Femoral Region, Open Approach	Procedure	ICD-10-PCS
0YH731Z	Insertion of Radioactive Element into Right Femoral Region, Percutaneous Approach	Procedure	ICD-10-PCS
0YH741Z	Insertion of Radioactive Element into Right Femoral Region, Percutaneous Endoscopic	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
0YH801Z	Insertion of Radioactive Element into Left Femoral Region, Open Approach	Procedure	ICD-10-PCS
0YH831Z	Insertion of Radioactive Element into Left Femoral Region, Percutaneous Approach	Procedure	ICD-10-PCS
0YH841Z	Insertion of Radioactive Element into Left Femoral Region, Percutaneous Endoscopic	Procedure	ICD-10-PCS
0YH901Z	Insertion of Radioactive Element into Right Lower Extremity, Open Approach	Procedure	ICD-10-PCS
0YH931Z	Insertion of Radioactive Element into Right Lower Extremity, Percutaneous Approach	Procedure	ICD-10-PCS
0YH941Z	Insertion of Radioactive Element into Right Lower Extremity, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0YHB01Z	Insertion of Radioactive Element into Left Lower Extremity, Open Approach	Procedure	ICD-10-PCS
0YHB31Z	Insertion of Radioactive Element into Left Lower Extremity, Percutaneous Approach	Procedure	ICD-10-PCS
0YHB41Z	Insertion of Radioactive Element into Left Lower Extremity, Percutaneous Endoscopic	Procedure	ICD-10-PCS
0YHC01Z	Insertion of Radioactive Element into Right Upper Leg, Open Approach	Procedure	ICD-10-PCS
0YHC31Z	Insertion of Radioactive Element into Right Upper Leg, Percutaneous Approach	Procedure	ICD-10-PCS
0YHC41Z	Insertion of Radioactive Element into Right Upper Leg, Percutaneous Endoscopic	Procedure	ICD-10-PCS
0YHD01Z	Insertion of Radioactive Element into Left Upper Leg, Open Approach	Procedure	ICD-10-PCS
0YHD31Z	Insertion of Radioactive Element into Left Upper Leg, Percutaneous Approach	Procedure	ICD-10-PCS
0YHD41Z	Insertion of Radioactive Element into Left Upper Leg, Percutaneous Endoscopic	Procedure	ICD-10-PCS
0YHF01Z	Insertion of Radioactive Element into Right Knee Region, Open Approach	Procedure	ICD-10-PCS
0YHF31Z	Insertion of Radioactive Element into Right Knee Region, Percutaneous Approach	Procedure	ICD-10-PCS
0YHF41Z	Insertion of Radioactive Element into Right Knee Region, Percutaneous Endoscopic	Procedure	ICD-10-PCS
0YHG01Z	Insertion of Radioactive Element into Left Knee Region, Open Approach	Procedure	ICD-10-PCS
0YHG31Z	Insertion of Radioactive Element into Left Knee Region, Percutaneous Approach	Procedure	ICD-10-PCS
0YHG41Z	Insertion of Radioactive Element into Left Knee Region, Percutaneous Endoscopic	Procedure	ICD-10-PCS
0YHH01Z	Insertion of Radioactive Element into Right Lower Leg, Open Approach	Procedure	ICD-10-PCS
0YHH31Z	Insertion of Radioactive Element into Right Lower Leg, Percutaneous Approach	Procedure	ICD-10-PCS
0YHH41Z	Insertion of Radioactive Element into Right Lower Leg, Percutaneous Endoscopic	Procedure	ICD-10-PCS
0YHJ01Z	Insertion of Radioactive Element into Left Lower Leg, Open Approach	Procedure	ICD-10-PCS
0YHJ31Z	Insertion of Radioactive Element into Left Lower Leg, Percutaneous Approach	Procedure	ICD-10-PCS
0YHJ41Z	Insertion of Radioactive Element into Left Lower Leg, Percutaneous Endoscopic	Procedure	ICD-10-PCS
0YHK01Z	Insertion of Radioactive Element into Right Ankle Region, Open Approach	Procedure	ICD-10-PCS
0YHK31Z	Insertion of Radioactive Element into Right Ankle Region, Percutaneous Approach	Procedure	ICD-10-PCS
0YHK41Z	Insertion of Radioactive Element into Right Ankle Region, Percutaneous Endoscopic	Procedure	ICD-10-PCS
0YHL01Z	Insertion of Radioactive Element into Left Ankle Region, Open Approach	Procedure	ICD-10-PCS
0YHL31Z	Insertion of Radioactive Element into Left Ankle Region, Percutaneous Approach	Procedure	ICD-10-PCS
0YHL41Z	Insertion of Radioactive Element into Left Ankle Region, Percutaneous Endoscopic	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
0YHM01Z	Insertion of Radioactive Element into Right Foot, Open Approach	Procedure	ICD-10-PCS
0YHM31Z	Insertion of Radioactive Element into Right Foot, Percutaneous Approach	Procedure	ICD-10-PCS
0YHM41Z	Insertion of Radioactive Element into Right Foot, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0YHN01Z	Insertion of Radioactive Element into Left Foot, Open Approach	Procedure	ICD-10-PCS
0YHN31Z	Insertion of Radioactive Element into Left Foot, Percutaneous Approach	Procedure	ICD-10-PCS
0YHN41Z	Insertion of Radioactive Element into Left Foot, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
19294	Preparation of tumor cavity and placement of radiation therapy applicator into breast for radiation therapy concurrent with partial breast removal	Procedure	CPT-4
19296	Insertion of catheter into breast for radiation therapy using imaging guidance	Procedure	CPT-4
19297	Insertion of catheter into breast for radiation therapy concurrent with partial breast removal using imaging guidance	Procedure	CPT-4
19298	Insertion of catheters into breast for radiation therapy with or after breast removal using imaging guidance	Procedure	CPT-4
20555	Insertion of needles or catheters into muscle and/or tissue for radiation therapy	Procedure	CPT-4
31643	Insertion of catheters for radiation delivery in lung airway using an endoscope	Procedure	CPT-4
32701	Thoracic targets delineation for stereotactic body radiation therapy	Procedure	CPT-4
3E00X05	Introduction of other antineoplastic into skin and mucous membranes, external	Procedure	ICD-10-PCS
3E00X0M	Introduction of monoclonal antibody into skin and mucous membranes, external	Procedure	ICD-10-PCS
3E01305	Introduction of other antineoplastic into subcutaneous tissue, percutaneous approach	Procedure	ICD-10-PCS
3E0130M	Introduction of monoclonal antibody into subcutaneous tissue, percutaneous	Procedure	ICD-10-PCS
3E02305	Introduction of other antineoplastic into muscle, percutaneous approach	Procedure	ICD-10-PCS
3E0230M	Introduction of monoclonal antibody into muscle, percutaneous approach	Procedure	ICD-10-PCS
3E03002	Introduction of high-dose interleukin-2 into peripheral vein, open approach	Procedure	ICD-10-PCS
3E03003	Introduction of low-dose interleukin-2 into peripheral vein, open approach	Procedure	ICD-10-PCS
3E03005	Introduction of Other Antineoplastic into Peripheral Vein, Open Approach	Procedure	ICD-10-PCS
3E0300M	Introduction of monoclonal antibody into peripheral vein, open approach	Procedure	ICD-10-PCS
3E0300P	Introduction of clofarabine into peripheral vein, open approach	Procedure	ICD-10-PCS
3E030WL	Introduction of Immunosuppressive into Peripheral Vein, Open	Procedure	ICD-10-PCS
3E03302	Introduction of high-dose interleukin-2 into peripheral vein, percutaneous approach	Procedure	ICD-10-PCS
3E03303	Introduction of low-dose interleukin-2 into peripheral vein, percutaneous approach	Procedure	ICD-10-PCS
3E03305	Introduction of Other Antineoplastic into Peripheral Vein, Percutaneous Approach	Procedure	ICD-10-PCS
3E0330M	Introduction of monoclonal antibody into peripheral vein, percutaneous approach	Procedure	ICD-10-PCS
3E0330P	Introduction of clofarabine into peripheral vein, percutaneous approach	Procedure	ICD-10-PCS
3E033WL	Introduction of immunosuppressive into peripheral vein, percutaneous	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
3E04002	Introduction of high-dose interleukin-2 into central vein, open approach	Procedure	ICD-10-PCS
3E04003	Introduction of low-dose interleukin-2 into central vein, open approach	Procedure	ICD-10-PCS
3E04005	Introduction of Other Antineoplastic into Central Vein, Open Approach	Procedure	ICD-10-PCS
3E0400M	Introduction of monoclonal antibody into central vein, open approach	Procedure	ICD-10-PCS
3E0400P	Introduction of clofarabine into central vein, open approach	Procedure	ICD-10-PCS
3E040WL	Introduction of immunosuppressive into central vein, open	Procedure	ICD-10-PCS
3E04302	Introduction of high-dose interleukin-2 into central vein, percutaneous approach	Procedure	ICD-10-PCS
3E04303	Introduction of low-dose interleukin-2 into central vein, percutaneous approach	Procedure	ICD-10-PCS
3E04305	Introduction of Other Antineoplastic into Central Vein, Percutaneous Approach	Procedure	ICD-10-PCS
3E0430M	Introduction of monoclonal antibody into central vein, percutaneous approach	Procedure	ICD-10-PCS
3E0430P	Introduction of clofarabine into central vein, percutaneous approach	Procedure	ICD-10-PCS
3E043WL	Introduction of immunosuppressive into central vein, percutaneous	Procedure	ICD-10-PCS
3E05002	Introduction of high-dose interleukin-2 into peripheral artery, open approach	Procedure	ICD-10-PCS
3E05003	Introduction of low-dose interleukin-2 into peripheral artery, open approach	Procedure	ICD-10-PCS
3E05005	Introduction of Other Antineoplastic into Peripheral Artery, Open Approach	Procedure	ICD-10-PCS
3E0500M	Introduction of monoclonal antibody into peripheral artery, open approach	Procedure	ICD-10-PCS
3E0500P	Introduction of clofarabine into peripheral artery, open approach	Procedure	ICD-10-PCS
3E050WL	Introduction of immunosuppressive into peripheral artery, open	Procedure	ICD-10-PCS
3E05302	Introduction of high-dose interleukin-2 into peripheral artery, percutaneous approach	Procedure	ICD-10-PCS
3E05303	Introduction of low-dose interleukin-2 into peripheral artery, percutaneous approach	Procedure	ICD-10-PCS
3E05305	Introduction of Other Antineoplastic into Peripheral Artery, Percutaneous Approach	Procedure	ICD-10-PCS
3E0530M	Introduction of monoclonal antibody into peripheral artery, percutaneous approach	Procedure	ICD-10-PCS
3E0530P	Introduction of clofarabine into peripheral artery, percutaneous approach	Procedure	ICD-10-PCS
3E053WL	Introduction of immunosuppressive into peripheral artery, percutaneous	Procedure	ICD-10-PCS
3E06002	Introduction of high-dose interleukin-2 into central artery, open approach	Procedure	ICD-10-PCS
3E06003	Introduction of low-dose interleukin-2 into central artery, open approach	Procedure	ICD-10-PCS
3E06005	Introduction of Other Antineoplastic into Central Artery, Open Approach	Procedure	ICD-10-PCS
3E0600M	Introduction of monoclonal antibody into central artery, open approach	Procedure	ICD-10-PCS
3E0600P	Introduction of clofarabine into central artery, open approach	Procedure	ICD-10-PCS
3E060WL	Introduction of immunosuppressive into central artery, open	Procedure	ICD-10-PCS
3E06302	Introduction of high-dose interleukin-2 into central artery, percutaneous approach	Procedure	ICD-10-PCS
3E06303	Introduction of low-dose interleukin-2 into central artery, percutaneous approach	Procedure	ICD-10-PCS
3E06305	Introduction of Other Antineoplastic into Central Artery, Percutaneous Approach	Procedure	ICD-10-PCS
3E0630M	Introduction of monoclonal antibody into central artery, percutaneous approach	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
3E0630P	Introduction of clofarabine into central artery, percutaneous approach	Procedure	ICD-10-PCS
3E063WL	Introduction of immunosuppressive into central artery, percutaneous	Procedure	ICD-10-PCS
3E09305	Introduction of other antineoplastic into nose, percutaneous approach	Procedure	ICD-10-PCS
3E0930M	Introduction of monoclonal antibody into nose, percutaneous approach	Procedure	ICD-10-PCS
3E09705	Introduction of other antineoplastic into nose, via natural or artificial opening	Procedure	ICD-10-PCS
3E0970M	Introduction of monoclonal antibody into nose, via natural or artificial opening	Procedure	ICD-10-PCS
3E09X05	Introduction of other antineoplastic into nose, external approach	Procedure	ICD-10-PCS
3E09X0M	Introduction of monoclonal antibody into nose, external approach	Procedure	ICD-10-PCS
3E0A305	Introduction of other antineoplastic into bone marrow, percutaneous approach	Procedure	ICD-10-PCS
3E0A30M	Introduction of monoclonal antibody into bone marrow, percutaneous approach	Procedure	ICD-10-PCS
3E0B304	Introduction of Liquid Brachytherapy Radioisotope into Ear, Percutaneous Approach	Procedure	ICD-10-PCS
3E0B305	Introduction of other antineoplastic into ear, percutaneous approach	Procedure	ICD-10-PCS
3E0B30M	Introduction of monoclonal antibody into ear, percutaneous approach	Procedure	ICD-10-PCS
3E0B704	Introduction of Liquid Brachytherapy Radioisotope into Ear, Via Natural or Artificial	Procedure	ICD-10-PCS
3E0B705	Introduction of other antineoplastic into ear, via natural or artificial opening	Procedure	ICD-10-PCS
3E0B70M	Introduction of monoclonal antibody into ear, via natural or artificial opening	Procedure	ICD-10-PCS
3E0BX04	Introduction of Liquid Brachytherapy Radioisotope into Ear, External Approach	Procedure	ICD-10-PCS
3E0BX05	Introduction of other antineoplastic into ear, external approach	Procedure	ICD-10-PCS
3E0BX0M	Introduction of monoclonal antibody into ear, external approach	Procedure	ICD-10-PCS
3E0C304	Introduction of Liquid Brachytherapy Radioisotope into Eye, Percutaneous Approach	Procedure	ICD-10-PCS
3E0C305	Introduction of other antineoplastic into eye, percutaneous approach	Procedure	ICD-10-PCS
3E0C30M	Introduction of monoclonal antibody into eye, percutaneous approach	Procedure	ICD-10-PCS
3E0C704	Introduction of Liquid Brachytherapy Radioisotope into Eye, Via Natural or Artificial	Procedure	ICD-10-PCS
3E0C705	Introduction of other antineoplastic into eye, via natural or artificial opening	Procedure	ICD-10-PCS
3E0C70M	Introduction of monoclonal antibody into eye, via natural or artificial opening	Procedure	ICD-10-PCS
3E0CX04	Introduction of Liquid Brachytherapy Radioisotope into Eye, External Approach	Procedure	ICD-10-PCS
3E0CX05	Introduction of other antineoplastic into eye, external approach	Procedure	ICD-10-PCS
3E0CX0M	Introduction of monoclonal antibody into eye, external approach	Procedure	ICD-10-PCS
3E0D304	Introduction of Liquid Brachytherapy Radioisotope into Mouth and Pharynx, Percutaneous Approach	Procedure	ICD-10-PCS
3E0D305	Introduction of other antineoplastic into mouth and pharynx, percutaneous approach	Procedure	ICD-10-PCS
3E0D30M	Introduction of monoclonal antibody into mouth and pharynx, percutaneous approach	Procedure	ICD-10-PCS
3E0D704	Introduction of Liquid Brachytherapy Radioisotope into Mouth and Pharynx, Via Natural or Artificial Opening	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
3E0D705	Introduction of other antineoplastic into mouth and pharynx, via natural or artificial	Procedure	ICD-10-PCS
3E0D70M	Introduction of monoclonal antibody into mouth and pharynx, via natural or artificial	Procedure	ICD-10-PCS
3E0DX04	Introduction of Liquid Brachytherapy Radioisotope into Mouth and Pharynx, External	Procedure	ICD-10-PCS
3E0DX05	Introduction of other antineoplastic into mouth and pharynx, external approach	Procedure	ICD-10-PCS
3E0DX0M	Introduction of monoclonal antibody into mouth and pharynx, external approach	Procedure	ICD-10-PCS
3E0E304	Introduction of Liquid Brachytherapy Radioisotope into Products of Conception, Percutaneous Approach	Procedure	ICD-10-PCS
3E0E305	Introduction of other antineoplastic into products of conception, percutaneous	Procedure	ICD-10-PCS
3E0E30M	Introduction of monoclonal antibody into products of conception, percutaneous	Procedure	ICD-10-PCS
3E0E704	Introduction of Liquid Brachytherapy Radioisotope into Products of Conception, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
3E0E705	Introduction of other antineoplastic into products of conception, via natural or	Procedure	ICD-10-PCS
3E0E70M	Introduction of monoclonal antibody into products of conception, via natural or artificial opening	Procedure	ICD-10-PCS
3E0E804	Introduction of Liquid Brachytherapy Radioisotope into Products of Conception, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
3E0E805	Introduction of other antineoplastic into products of conception, via natural or artificial opening endoscopic	Procedure	ICD-10-PCS
3E0E80M	Introduction of monoclonal antibody into products of conception, via natural or artificial opening endoscopic	Procedure	ICD-10-PCS
3E0F304	Introduction of Liquid Brachytherapy Radioisotope into Respiratory Tract, Percutaneous Approach	Procedure	ICD-10-PCS
3E0F305	Introduction of other antineoplastic into respiratory tract, percutaneous approach	Procedure	ICD-10-PCS
3E0F30M	Introduction of monoclonal antibody into respiratory tract, percutaneous approach	Procedure	ICD-10-PCS
3E0F704	Introduction of Liquid Brachytherapy Radioisotope into Respiratory Tract, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
3E0F705	Introduction of other antineoplastic into respiratory tract, via natural or artificial	Procedure	ICD-10-PCS
3E0F70M	Introduction of monoclonal antibody into respiratory tract, via natural or artificial	Procedure	ICD-10-PCS
3E0F804	Introduction of Liquid Brachytherapy Radioisotope into Respiratory Tract, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
3E0F805	Introduction of other antineoplastic into respiratory tract, via natural or artificial opening endoscopic	Procedure	ICD-10-PCS
3E0F80M	Introduction of monoclonal antibody into respiratory tract, via natural or artificial opening endoscopic	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
3E0G304	Introduction of Liquid Brachytherapy Radioisotope into Upper GI, Percutaneous	Procedure	ICD-10-PCS
3E0G305	Introduction of other antineoplastic into upper gi, percutaneous approach	Procedure	ICD-10-PCS
3E0G30M	Introduction of monoclonal antibody into upper gi, percutaneous approach	Procedure	ICD-10-PCS
3E0G704	Introduction of Liquid Brachytherapy Radioisotope into Upper GI, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
3E0G705	Introduction of other antineoplastic into upper gi, via natural or artificial opening	Procedure	ICD-10-PCS
3E0G70M	Introduction of monoclonal antibody into upper gi, via natural or artificial opening	Procedure	ICD-10-PCS
3E0G804	Introduction of Liquid Brachytherapy Radioisotope into Upper GI, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
3E0G805	Introduction of other antineoplastic into upper gi, via natural or artificial opening	Procedure	ICD-10-PCS
3E0G80M	Introduction of monoclonal antibody into upper gi, via natural or artificial opening	Procedure	ICD-10-PCS
3E0H304	Introduction of Liquid Brachytherapy Radioisotope into Lower GI, Percutaneous	Procedure	ICD-10-PCS
3E0H305	Introduction of other antineoplastic into lower gi, percutaneous approach	Procedure	ICD-10-PCS
3E0H30M	Introduction of monoclonal antibody into lower gi, percutaneous approach	Procedure	ICD-10-PCS
3E0H704	Introduction of Liquid Brachytherapy Radioisotope into Lower GI, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
3E0H705	Introduction of other antineoplastic into lower gi, via natural or artificial opening	Procedure	ICD-10-PCS
3E0H70M	Introduction of monoclonal antibody into lower gi, via natural or artificial opening	Procedure	ICD-10-PCS
3E0H804	Introduction of Liquid Brachytherapy Radioisotope into Lower GI, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
3E0H805	Introduction of other antineoplastic into lower gi, via natural or artificial opening	Procedure	ICD-10-PCS
3E0H80M	Introduction of monoclonal antibody into lower gi, via natural or artificial opening	Procedure	ICD-10-PCS
3E0J304	Introduction of Liquid Brachytherapy Radioisotope into Biliary and Pancreatic Tract, Percutaneous Approach	Procedure	ICD-10-PCS
3E0J305	Introduction of other antineoplastic into biliary and pancreatic tract, percutaneous	Procedure	ICD-10-PCS
3E0J30M	Introduction of monoclonal antibody into biliary and pancreatic tract, percutaneous	Procedure	ICD-10-PCS
3E0J704	Introduction of Liquid Brachytherapy Radioisotope into Biliary and Pancreatic Tract, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
3E0J705	Introduction of other antineoplastic into biliary and pancreatic tract, via natural or artificial opening	Procedure	ICD-10-PCS
3E0J70M	Introduction of monoclonal antibody into biliary and pancreatic tract, via natural or artificial opening	Procedure	ICD-10-PCS
3E0J804	Introduction of Liquid Brachytherapy Radioisotope into Biliary and Pancreatic Tract, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS

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Code	Description	Code Category	Code Type
3E0J805	Introduction of other antineoplastic into biliary and pancreatic tract, via natural or artificial opening endoscopic	Procedure	ICD-10-PCS
3E0J80M	Introduction of monoclonal antibody into biliary and pancreatic tract, via natural or artificial opening endoscopic	Procedure	ICD-10-PCS
3E0K304	Introduction of Liquid Brachytherapy Radioisotope into Genitourinary Tract, Percutaneous Approach	Procedure	ICD-10-PCS
3E0K305	Introduction of other antineoplastic into genitourinary tract, percutaneous approach	Procedure	ICD-10-PCS
3E0K30M	Introduction of monoclonal antibody into genitourinary tract, percutaneous approach	Procedure	ICD-10-PCS
3E0K704	Introduction of Liquid Brachytherapy Radioisotope into Genitourinary Tract, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
3E0K705	Introduction of other antineoplastic into genitourinary tract, via natural or artificial	Procedure	ICD-10-PCS
3E0K70M	Introduction of monoclonal antibody into genitourinary tract, via natural or artificial	Procedure	ICD-10-PCS
3E0K804	Introduction of Liquid Brachytherapy Radioisotope into Genitourinary Tract, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
3E0K805	Introduction of other antineoplastic into genitourinary tract, via natural or artificial opening endoscopic	Procedure	ICD-10-PCS
3E0K80M	Introduction of monoclonal antibody into genitourinary tract, via natural or artificial opening endoscopic	Procedure	ICD-10-PCS
3E0L304	Introduction of Liquid Brachytherapy Radioisotope into Pleural Cavity, Percutaneous	Procedure	ICD-10-PCS
3E0L305	Introduction of other antineoplastic into pleural cavity, percutaneous approach	Procedure	ICD-10-PCS
3E0L30M	Introduction of monoclonal antibody into pleural cavity, percutaneous approach	Procedure	ICD-10-PCS
3E0L704	Introduction of Liquid Brachytherapy Radioisotope into Pleural Cavity, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
3E0L705	Introduction of other antineoplastic into pleural cavity, via natural or artificial opening	Procedure	ICD-10-PCS
3E0L70M	Introduction of monoclonal antibody into pleural cavity, via natural or artificial	Procedure	ICD-10-PCS
3E0M304	Introduction of Liquid Brachytherapy Radioisotope into Peritoneal Cavity, Percutaneous Approach	Procedure	ICD-10-PCS
3E0M305	Introduction of other antineoplastic into peritoneal cavity, percutaneous approach	Procedure	ICD-10-PCS
3E0M30M	Introduction of monoclonal antibody into peritoneal cavity, percutaneous approach	Procedure	ICD-10-PCS
3E0M704	Introduction of Liquid Brachytherapy Radioisotope into Peritoneal Cavity, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
3E0M705	Introduction of other antineoplastic into peritoneal cavity, via natural or artificial	Procedure	ICD-10-PCS
3E0M70M	Introduction of monoclonal antibody into peritoneal cavity, via natural or artificial	Procedure	ICD-10-PCS

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Code	Description	Code Category	Code Type
3E0N304	Introduction of Liquid Brachytherapy Radioisotope into Male Reproductive, Percutaneous Approach	Procedure	ICD-10-PCS
3E0N305	Introduction of other antineoplastic into male reproductive, percutaneous approach	Procedure	ICD-10-PCS
3E0N30M	Introduction of monoclonal antibody into male reproductive, percutaneous approach	Procedure	ICD-10-PCS
3E0N704	Introduction of Liquid Brachytherapy Radioisotope into Male Reproductive, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
3E0N705	Introduction of other antineoplastic into male reproductive, via natural or artificial	Procedure	ICD-10-PCS
3E0N70M	Introduction of monoclonal antibody into male reproductive, via natural or artificial	Procedure	ICD-10-PCS
3E0N804	Introduction of Liquid Brachytherapy Radioisotope into Male Reproductive, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
3E0N805	Introduction of other antineoplastic into male reproductive, via natural or artificial opening endoscopic	Procedure	ICD-10-PCS
3E0N80M	Introduction of monoclonal antibody into male reproductive, via natural or artificial opening endoscopic	Procedure	ICD-10-PCS
3E0P304	Introduction of Liquid Brachytherapy Radioisotope into Female Reproductive, Percutaneous Approach	Procedure	ICD-10-PCS
3E0P305	Introduction of other antineoplastic into female reproductive, percutaneous approach	Procedure	ICD-10-PCS
3E0P30M	Introduction of monoclonal antibody into female reproductive, percutaneous	Procedure	ICD-10-PCS
3E0P704	Introduction of Liquid Brachytherapy Radioisotope into Female Reproductive, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
3E0P705	Introduction of other antineoplastic into female reproductive, via natural or artificial	Procedure	ICD-10-PCS
3E0P70M	Introduction of monoclonal antibody into female reproductive, via natural or artificial	Procedure	ICD-10-PCS
3E0P804	Introduction of Liquid Brachytherapy Radioisotope into Female Reproductive, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
3E0P805	Introduction of other antineoplastic into female reproductive, via natural or artificial opening endoscopic	Procedure	ICD-10-PCS
3E0P80M	Introduction of monoclonal antibody into female reproductive, via natural or artificial opening endoscopic	Procedure	ICD-10-PCS
3E0Q004	Introduction of Liquid Brachytherapy Radioisotope into Cranial Cavity and Brain, Open	Procedure	ICD-10-PCS
3E0Q005	Introduction of other antineoplastic into cranial cavity and brain, open approach	Procedure	ICD-10-PCS
3E0Q00M	Introduction of monoclonal antibody into cranial cavity and brain, open approach	Procedure	ICD-10-PCS
3E0Q304	Introduction of Liquid Brachytherapy Radioisotope into Cranial Cavity and Brain, Percutaneous Approach	Procedure	ICD-10-PCS
3E0Q305	Introduction of other antineoplastic into cranial cavity and brain, percutaneous	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
3E0Q30M	Introduction of monoclonal antibody into cranial cavity and brain, percutaneous	Procedure	ICD-10-PCS
3E0Q704	Introduction of Liquid Brachytherapy Radioisotope into Cranial Cavity and Brain, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
3E0Q705	Introduction of other antineoplastic into cranial cavity and brain, via natural or	Procedure	ICD-10-PCS
3E0Q70M	Introduction of monoclonal antibody into cranial cavity and brain, via natural or artificial opening	Procedure	ICD-10-PCS
3E0R302	Introduction of high-dose interleukin-2 into spinal canal, percutaneous approach	Procedure	ICD-10-PCS
3E0R303	Introduction of low-dose interleukin-2 into spinal canal, percutaneous approach	Procedure	ICD-10-PCS
3E0R304	Introduction of Liquid Brachytherapy Radioisotope into Spinal Canal, Percutaneous	Procedure	ICD-10-PCS
3E0R305	Introduction of Other Antineoplastic into Spinal Canal, Percutaneous Approach	Procedure	ICD-10-PCS
3E0R30M	Introduction of monoclonal antibody into spinal canal, percutaneous approach	Procedure	ICD-10-PCS
3E0S302	Introduction of high-dose interleukin-2 into epidural space, percutaneous approach	Procedure	ICD-10-PCS
3E0S303	Introduction of low-dose interleukin-2 into epidural space, percutaneous approach	Procedure	ICD-10-PCS
3E0S304	Introduction of Liquid Brachytherapy Radioisotope into Epidural Space, Percutaneous	Procedure	ICD-10-PCS
3E0S305	Introduction of Other Antineoplastic into Epidural Space, Percutaneous Approach	Procedure	ICD-10-PCS
3E0S30M	Introduction of monoclonal antibody into epidural space, percutaneous approach	Procedure	ICD-10-PCS
3E0U304	Introduction of Liquid Brachytherapy Radioisotope into Joints, Percutaneous Approach	Procedure	ICD-10-PCS
3E0U305	Introduction of other antineoplastic into joints, percutaneous approach	Procedure	ICD-10-PCS
3E0U30M	Introduction of monoclonal antibody into joints, percutaneous approach	Procedure	ICD-10-PCS
3E0V305	Introduction of other antineoplastic into bones, percutaneous approach	Procedure	ICD-10-PCS
3E0V30M	Introduction of monoclonal antibody into bones, percutaneous approach	Procedure	ICD-10-PCS
3E0W305	Introduction of other antineoplastic into lymphatics, percutaneous approach	Procedure	ICD-10-PCS
3E0W30M	Introduction of monoclonal antibody into lymphatics, percutaneous approach	Procedure	ICD-10-PCS
3E0Y304	Introduction of Liquid Brachytherapy Radioisotope into Pericardial Cavity, Percutaneous Approach	Procedure	ICD-10-PCS
3E0Y305	Introduction of other antineoplastic into pericardial cavity, percutaneous approach	Procedure	ICD-10-PCS
3E0Y30M	Introduction of monoclonal antibody into pericardial cavity, percutaneous approach	Procedure	ICD-10-PCS
3E0Y704	Introduction of Liquid Brachytherapy Radioisotope into Pericardial Cavity, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
3E0Y705	Introduction of other antineoplastic into pericardial cavity, via natural or artificial	Procedure	ICD-10-PCS
3E0Y70M	Introduction of monoclonal antibody into pericardial cavity, via natural or artificial	Procedure	ICD-10-PCS
41019	Insertion of needles, catheters, or devices into head and/or neck for radiation delivery	Procedure	CPT-4
4153F	Combination peginterferon and ribavirin therapy prescribed (HEP-C)	Procedure	CPT-2

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
49411	Insertion of devices in abdominal cavity for radiation therapy guidance, accessed through the skin	Procedure	CPT-4
49412	Insertion of devices for radiation therapy guidance in abdominal cavity, open	Procedure	CPT-4
55859	Transperineal placement of needles or catheters into prostate for interstitial radioelement application, with or without cystoscopy	Procedure	CPT-4
55860	Exposure of prostate, any approach, for insertion of radioactive substance;	Procedure	CPT-4
55862	Exposure of prostate, any approach, for insertion of radioactive substance; with lymph node biopsy(s) (limited pelvic lymphadenectomy)	Procedure	CPT-4
55865	Exposure of prostate, any approach, for insertion of radioactive substance; with bilateral pelvic lymphadenectomy, including external iliac, hypogastric and obturator nodes	Procedure	CPT-4
55875	Transperineal placement of needles or catheters into prostate for interstitial radioelement application, with or without cystoscopy	Procedure	CPT-4
55920	Placement of needles or catheters into pelvic organs and/or genitalia (except prostate) for subsequent interstitial radioelement application	Procedure	CPT-4
57155	Insertion of radiation therapy devices in uterus for radiation therapy	Procedure	CPT-4
57156	Insertion of radiation therapy devices in vagina for radiation therapy	Procedure	CPT-4
58346	Insertion of capsules into uterus for placement of radiation therapy	Procedure	CPT-4
77371	Radiation therapy delivery, stereotactic radiosurgery (SRS) for cranial growths, per	Procedure	CPT-4
77372	Radiation therapy delivery, stereotactic radiosurgery (SRS) for cranial growths, per	Procedure	CPT-4
77373	Stereotactic body radiation therapy 1 or more lesions using imaging guidance	Procedure	CPT-4
77385	Radiation therapy delivery	Procedure	CPT-4
77386	Radiation therapy delivery	Procedure	CPT-4
77401	Radiation treatment delivery, superficial and/or ortho voltage, per day	Procedure	CPT-4
77402	Radiation treatment delivery,=>1 MeV; simple	Procedure	CPT-4
77403	Radiation treatment delivery, single treatment area, single port or parallel opposed ports, simple blocks or no blocks; 6-10 MeV	Procedure	CPT-4
77404	Radiation treatment delivery, single treatment area, single port or parallel opposed ports, simple blocks or no blocks; 11-19 MeV	Procedure	CPT-4
77406	Radiation treatment delivery, single treatment area, single port or parallel opposed ports, simple blocks or no blocks; 20 MeV or greater	Procedure	CPT-4
77407	Radiation treatment delivery, =>1 MeV; intermediate	Procedure	CPT-4
77408	Radiation treatment delivery, 2 separate treatment areas, 3 or more ports on a single treatment area, use of multiple blocks; 6-10 MeV	Procedure	CPT-4

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
77409	Radiation treatment delivery, 2 separate treatment areas, 3 or more ports on a single treatment area, use of multiple blocks; 11-19 MeV	Procedure	CPT-4
77411	Radiation treatment delivery, 2 separate treatment areas, 3 or more ports on a single treatment area, use of multiple blocks; 20 MeV or greater	Procedure	CPT-4
77412	Radiation treatment delivery, =>1 MeV; complex	Procedure	CPT-4
77413	Radiation treatment delivery, 3 or more separate treatment areas, custom blocking, tangential ports, wedges, rotational beam, compensators, electron beam; 6-10 MeV	Procedure	CPT-4
77414	Radiation treatment delivery, 3 or more separate treatment areas, custom blocking, tangential ports, wedges, rotational beam, compensators, electron beam; 11-19 MeV	Procedure	CPT-4
77416	Radiation treatment delivery, 3 or more separate treatment areas, custom blocking, tangential ports, wedges, rotational beam, compensators, electron beam; 20 MeV or	Procedure	CPT-4
77422	Radiation treatment delivery, high energy, single treatment area	Procedure	CPT-4
77423	Radiation treatment delivery, high energy	Procedure	CPT-4
77424	Intraoperative single X-ray radiation treatment session	Procedure	CPT-4
77425	Intraoperative electrons radiation treatment single session	Procedure	CPT-4
77427	Radiation treatment management, 5 treatments	Procedure	CPT-4
77431	Radiation treatment management, 1 or 2 treatments	Procedure	CPT-4
77432	Stereotactic radiation treatment management of cranial lesion(s) (complete course of treatment consisting of 1 session)	Procedure	CPT-4
77435	Stereotactic radiation treatment management of 1 or more lesions using imaging guidance, per treatment course	Procedure	CPT-4
77469	Intraoperative radiation treatment management	Procedure	CPT-4
77470	Special treatment procedure (eg, total body irradiation, hemibody radiation, per oral or endocavitary irradiation)	Procedure	CPT-4
77499	Unlisted procedure, therapeutic radiology treatment management	Procedure	CPT-4
77520	Proton treatment delivery, simple	Procedure	CPT-4
77522	Proton treatment delivery, simple with compensation	Procedure	CPT-4
77523	Proton treatment delivery, intermediate	Procedure	CPT-4
77525	Proton treatment delivery, complex	Procedure	CPT-4
77750	Infusion or instillation of radioelement solution (includes 3-month follow-up care)	Procedure	CPT-4
77761	Intracavitary radiation source application; simple	Procedure	CPT-4
77762	Intracavitary radiation source application; intermediate	Procedure	CPT-4
77763	Intracavitary radiation source application; complex	Procedure	CPT-4
77767	High dose brachytherapy through skin surface, 1 channel or up to 2.0 cm	Procedure	CPT-4

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
77768	High dose brachytherapy through skin surface, 2 channels or more than 2.0 cm	Procedure	CPT-4
77770	High dose brachytherapy , 1 channel	Procedure	CPT-4
77771	High dose brachytherapy , 2- 12 channels	Procedure	CPT-4
77772	High dose brachytherapy , more than 12 channels	Procedure	CPT-4
77776	Interstitial radiation source application; simple	Procedure	CPT-4
77777	Interstitial radiation source application; intermediate	Procedure	CPT-4
77778	Interstitial radiation source application; complex	Procedure	CPT-4
77781	Remote afterloading high intensity brachytherapy; 1-4 source positions or catheters	Procedure	CPT-4
77782	Remote afterloading high intensity brachytherapy; 5-8 source positions or catheters	Procedure	CPT-4
77783	Remote afterloading high intensity brachytherapy; 9-12 source positions or catheters	Procedure	CPT-4
77784	Remote afterloading high intensity brachytherapy; over 12 source positions or	Procedure	CPT-4
77785	Remote afterloading high dose rate radionuclide brachytherapy; 1 channel	Procedure	CPT-4
77786	Remote afterloading high dose rate radionuclide brachytherapy; 2-12 channels	Procedure	CPT-4
77787	Remote afterloading high dose rate radionuclide brachytherapy; over 12 channels	Procedure	CPT-4
77789	Surface application of low dose rate radionuclide source	Procedure	CPT-4
77799	Unlisted procedure, clinical brachytherapy	Procedure	CPT-4
90378	Palivizumab	Procedure	CPT-4
96401	Chemotherapy administration, subcutaneous or intramuscular; non-hormonal anti-	Procedure	CPT-4
96402	Chemotherapy administration, subcutaneous or intramuscular; hormonal anti-	Procedure	CPT-4
96409	Chemotherapy administration; intravenous, push technique, single or initial	Procedure	CPT-4
96411	Chemotherapy administration; intravenous, push technique, each additional	Procedure	CPT-4
96413	Chemotherapy administration, intravenous infusion technique; up to 1 hour, single or initial substance/drug	Procedure	CPT-4
96415	Chemotherapy administration, intravenous infusion technique; each additional hour (List separately in addition to code for primary procedure)	Procedure	CPT-4
96416	Chemotherapy administration, intravenous infusion technique; initiation of prolonged chemotherapy infusion (more than 8 hours), requiring use of a portable or implantable	Procedure	CPT-4
96417	Chemotherapy administration, intravenous infusion technique; each additional sequential infusion (different substance/drug), up to 1 hour (List separately in addition to code for primary procedure)	Procedure	CPT-4
96420	Chemotherapy administration, intra-arterial; push technique	Procedure	CPT-4
96422	Chemotherapy administration, intra-arterial; infusion technique, up to 1 hour	Procedure	CPT-4
96423	Chemotherapy administration, intra-arterial; infusion technique, each additional hour (List separately in addition to code for primary procedure)	Procedure	CPT-4

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
96425	Chemotherapy administration, intra-arterial; infusion technique, initiation of prolonged infusion (more than 8 hours), requiring the use of a portable or implantable	Procedure	CPT-4
96440	Chemotherapy administration into pleural cavity, requiring and including	Procedure	CPT-4
96446	Chemotherapy administration into the peritoneal cavity via indwelling port or catheter	Procedure	CPT-4
96450	Chemotherapy administration, into CNS (eg, intrathecal), requiring and including spinal puncture	Procedure	CPT-4
96542	Chemotherapy injection, subarachnoid or intraventricular via subcutaneous reservoir, single or multiple agents	Procedure	CPT-4
96549	Unlisted chemotherapy procedure	Procedure	CPT-4
A9545	Iodine I-131 tositumomab, therapeutic, per treatment dose	Procedure	HCPCS
C1084	Denileukin diftitox, 300 mcg, ontak iv	Procedure	HCPCS
C1086	Temozolomide, 5 mg, temodar	Procedure	HCPCS
C1166	Injection, cytarabine liposome, per 10 mg	Procedure	HCPCS
C1167	Injection, epirubicin HCl, 2 mg	Procedure	HCPCS
C1178	Injection, busulfan, per 6 mg	Procedure	HCPCS
C1716	Brachytherapy source, non-stranded, gold-198, per source	Procedure	HCPCS
C1717	Brachytherapy source, non-stranded, high dose rate iridium-192, per source	Procedure	HCPCS
C1719	Brachytherapy source, non-stranded, non-high dose rate iridium-192, per source	Procedure	HCPCS
C2616	Brachytherapy source, non-stranded, yttrium-90, per source	Procedure	HCPCS
C2634	Brachytherapy source, non-stranded, high activity, iodine-125, greater than 1.01 mci (nist), per source	Procedure	HCPCS
C2635	Brachytherapy source, non-stranded, high activity, palladium-103, greater than 2.2 mci (nist), per source	Procedure	HCPCS
C2636	Brachytherapy linear source, non-stranded, palladium-103, per 1 mm	Procedure	HCPCS
C2637	Brachytherapy source, non-stranded, ytterbium-169, per source	Procedure	HCPCS
C2638	Brachytherapy source, stranded, iodine-125, per source	Procedure	HCPCS
C2639	Brachytherapy source, non-stranded, iodine-125, per source	Procedure	HCPCS
C2640	Brachytherapy source, stranded, palladium-103, per source	Procedure	HCPCS
C2641	Brachytherapy source, non-stranded, palladium-103, per source	Procedure	HCPCS
C2642	Brachytherapy source, stranded, cesium-131, per source	Procedure	HCPCS
C2643	Brachytherapy source, non-stranded, cesium-131, per source	Procedure	HCPCS
C2644	Brachytherapy source, cesium-131 chloride solution, per millicurie	Procedure	HCPCS
C2698	Brachytherapy source, stranded, not otherwise specified, per source	Procedure	HCPCS
C2699	Brachytherapy source, non-stranded, not otherwise specified, per source	Procedure	HCPCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
C9004	Injection, gemtuzumab ozogamicin, per 5 mg	Procedure	HCPCS
C9006	Injection, tacrolimus, per 5 mg (1 amp)	Procedure	HCPCS
C9012	Injection, arsenic trioxide, per 1 mg/kg	Procedure	HCPCS
C9017	Lomustine, 10 mg	Procedure	HCPCS
C9020	Sirolimus tablet, 1 mg	Procedure	HCPCS
C9021	Injection, obinutuzumab, 10 mg	Procedure	HCPCS
C9024	Injection, liposomal, 1 mg daunorubicin and 2.27 mg cytarabine	Procedure	HCPCS
C9029	guselkumab	Procedure	HCPCS
C9042	ravulizumab	Procedure	HCPCS
C9044	Injection, bendamustine hcl (belrapzo), 1 mg	Procedure	HCPCS
C9045	Mogamulizumab	Procedure	HCPCS
C9049	Injection, tagraxofusp-erzs, 10 mcg	Procedure	HCPCS
C9050	Injection, emapalumab-lzsg, 1 mg	Procedure	HCPCS
C9106	Sirolimus, per 1 mg/ml	Procedure	HCPCS
C9110	Injection, alemtuzumab, per 10 mg/ ml	Procedure	HCPCS
C9126	Injection natalizumab per 5 mg	Procedure	HCPCS
C9127	Injection, paclitaxel protein-bound particles, per 1 mg	Procedure	HCPCS
C9129	Injection, clofarabine, per 1 mg	Procedure	HCPCS
C9205	Injection, oxaliplatin, per 5 mg	Procedure	HCPCS
C9207	Injection, bortezomib, per 3.5 mg	Procedure	HCPCS
C9211	Injection, alefacept, for intravenous use, per 7.5 mg	Procedure	HCPCS
C9212	Injection, alefacept, for intramuscular use, per 7.5 mg	Procedure	HCPCS
C9213	Injection, pemetrexed, per 10 mg	Procedure	HCPCS
C9214	Injection, bevacizumab, per 10 mg	Procedure	HCPCS
C9215	Injection, cetuximab, per 10 mg	Procedure	HCPCS
C9218	Injection, azacitidine, per 1 mg	Procedure	HCPCS
C9230	Injection, abatacept, per 10 mg	Procedure	HCPCS
C9231	Injection, decitabine, per 1 mg	Procedure	HCPCS
C9235	Injection, panitumumab, 10 mg	Procedure	HCPCS
C9236	Injection, eculizumab, 10 mg	Procedure	HCPCS
C9239	Injection, temsirolimus, 1 mg	Procedure	HCPCS
C9240	Injection, ixabepilone, 1 mg	Procedure	HCPCS
C9243	Injection, bendamustine hcl, 1 mg	Procedure	HCPCS
C9249	Injection, certolizumab pegol, 1 mg	Procedure	HCPCS

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Code	Description	Code Category	Code Type
C9253	Injection, temozolomide, 1mg	Procedure	HCPCS
C9259	Injection, pralatrexate, 1 mg	Procedure	HCPCS
C9260	Injection, ofatumumab, 10 mg	Procedure	HCPCS
C9261	Injection, ustekinumab, 1 mg	Procedure	HCPCS
C9262	Fludarabine phosphate, oral, 1 mg	Procedure	HCPCS
C9264	Injection, tocilizumab, 1 mg	Procedure	HCPCS
C9265	Injection, romidepsin, 1 mg	Procedure	HCPCS
C9273	Sipuleucel-T, minimum of 50 million autologous CD54+ cells activated with PAP-GM-CSF, including leukapheresis and all other preparatory procedures, per infusion	Procedure	HCPCS
C9276	Injection, cabazitaxel, 1 mg	Procedure	HCPCS
C9280	Injection, eribulin mesylate, 1 mg	Procedure	HCPCS
C9284	Injection, ipilimumab, 1 mg	Procedure	HCPCS
C9286	Injection, belatacept, 1 mg	Procedure	HCPCS
C9287	Injection, brentuximab vedotin, 1 mg	Procedure	HCPCS
C9289	Injection, asparaginase Erwinia chrysanthemi, 1,000 IU	Procedure	HCPCS
C9292	Injection, pertuzumab, 10 mg	Procedure	HCPCS
C9295	Injection, carfilzomib, 1 mg	Procedure	HCPCS
C9297	Injection, omacetaxine mepesuccinate, 0.01 mg	Procedure	HCPCS
C9414	Etoposide; oral, 50 mg, brand name	Procedure	HCPCS
C9415	Doxorubicin HCl, 10 mg, brand name	Procedure	HCPCS
C9417	Bleomycin sulfate, 15 units, brand name	Procedure	HCPCS
C9418	Cisplatin, powder or solution, per 10 mg, brand name	Procedure	HCPCS
C9419	Injection, cladribine, per 1 mg, brand name	Procedure	HCPCS
C9420	Cyclophosphamide, 100 mg, brand name	Procedure	HCPCS
C9421	Cyclophosphamide, lyophilized, 100 mg, brand name	Procedure	HCPCS
C9422	Cytarabine, 100 mg, brand name	Procedure	HCPCS
C9423	Dacarbazine, 100 mg, brand name	Procedure	HCPCS
C9424	Daunorubicin, 10 mg	Procedure	HCPCS
C9425	Etoposide, 10 mg, brand name	Procedure	HCPCS
C9426	Floxuridine, 500 mg, brand name	Procedure	HCPCS
C9427	Ifosfamide, 1 gm, brand name	Procedure	HCPCS
C9429	Idarubicin HCl, 5 mg, brand name	Procedure	HCPCS
C9431	Paclitaxel, 30 mg, brand name	Procedure	HCPCS
C9432	Mitomycin, 5 mg, brand name	Procedure	HCPCS

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Code	Description	Code Category	Code Type
C9433	Thiotepa, 15 mg, brand name	Procedure	HCPCS
C9436	Azathioprine, parenteral, brand name, per 100 mg	Procedure	HCPCS
C9437	Carmustine, brand name, 100 mg	Procedure	HCPCS
C9438	Cyclosporine, oral, 100 mg, brand name	Procedure	HCPCS
C9440	Vinorelbine tartrate, brand name, per 10 mg	Procedure	HCPCS
C9474	Injection, irinotecan liposome, 1 mg	Procedure	HCPCS
C9487	Ustekinumab, for intravenous injection, 1 mg	Procedure	HCPCS
D0000ZZ	Beam Radiation of Brain using Photons <1 MeV	Procedure	ICD-10-PCS
D0001ZZ	Beam Radiation of Brain using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
D0002ZZ	Beam Radiation of Brain using Photons >10 MeV	Procedure	ICD-10-PCS
D0003ZZ	Beam Radiation of Brain using Electrons	Procedure	ICD-10-PCS
D0004ZZ	Beam Radiation of Brain using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
D0005ZZ	Beam Radiation of Brain using Neutrons	Procedure	ICD-10-PCS
D0006ZZ	Beam Radiation of Brain using Neutron Capture	Procedure	ICD-10-PCS
D0010ZZ	Beam Radiation of Brain Stem using Photons <1 MeV	Procedure	ICD-10-PCS
D0011ZZ	Beam Radiation of Brain Stem using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
D0012ZZ	Beam Radiation of Brain Stem using Photons >10 MeV	Procedure	ICD-10-PCS
D0013ZZ	Beam Radiation of Brain Stem using Electrons	Procedure	ICD-10-PCS
D0014ZZ	Beam Radiation of Brain Stem using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
D0015ZZ	Beam Radiation of Brain Stem using Neutrons	Procedure	ICD-10-PCS
D0016ZZ	Beam Radiation of Brain Stem using Neutron Capture	Procedure	ICD-10-PCS
D0060ZZ	Beam Radiation of Spinal Cord using Photons <1 MeV	Procedure	ICD-10-PCS
D0061ZZ	Beam Radiation of Spinal Cord using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
D0062ZZ	Beam Radiation of Spinal Cord using Photons >10 MeV	Procedure	ICD-10-PCS
D0063ZZ	Beam Radiation of Spinal Cord using Electrons	Procedure	ICD-10-PCS
D0064ZZ	Beam Radiation of Spinal Cord using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
D0065ZZ	Beam Radiation of Spinal Cord using Neutrons	Procedure	ICD-10-PCS
D0066ZZ	Beam Radiation of Spinal Cord using Neutron Capture	Procedure	ICD-10-PCS
D0070ZZ	Beam Radiation of Peripheral Nerve using Photons <1 MeV	Procedure	ICD-10-PCS
D0073ZZ	Beam Radiation of Peripheral Nerve using Electrons	Procedure	ICD-10-PCS
D0074ZZ	Beam Radiation of Peripheral Nerve using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
D0075ZZ	Beam Radiation of Peripheral Nerve using Neutrons	Procedure	ICD-10-PCS
D0076ZZ	Beam Radiation of Peripheral Nerve using Neutron Capture	Procedure	ICD-10-PCS
D01097Z	High Dose Rate (HDR) Brachytherapy of Brain using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
D01098Z	High Dose Rate (HDR) Brachytherapy of Brain using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
D01099Z	High Dose Rate (HDR) Brachytherapy of Brain using Iodine 125 (I-125)	Procedure	ICD-10-PCS
D0109BZ	High Dose Rate (HDR) Brachytherapy of Brain using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
D0109CZ	High Dose Rate (HDR) Brachytherapy of Brain using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
D0109YZ	High Dose Rate (HDR) Brachytherapy of Brain using Other Isotope	Procedure	ICD-10-PCS
D010B7Z	Low Dose Rate (LDR) Brachytherapy of Brain using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
D010B8Z	Low Dose Rate (LDR) Brachytherapy of Brain using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
D010B9Z	Low Dose Rate (LDR) Brachytherapy of Brain using Iodine 125 (I-125)	Procedure	ICD-10-PCS
D010BBZ	Low Dose Rate (LDR) Brachytherapy of Brain using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
D010BCZ	Low Dose Rate (LDR) Brachytherapy of Brain using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
D010BYZ	Low Dose Rate (LDR) Brachytherapy of Brain using Other Isotope	Procedure	ICD-10-PCS
D01197Z	High Dose Rate (HDR) Brachytherapy of Brain Stem using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
D01198Z	High Dose Rate (HDR) Brachytherapy of Brain Stem using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
D01199Z	High Dose Rate (HDR) Brachytherapy of Brain Stem using Iodine 125 (I-125)	Procedure	ICD-10-PCS
D0119BZ	High Dose Rate (HDR) Brachytherapy of Brain Stem using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
D0119CZ	High Dose Rate (HDR) Brachytherapy of Brain Stem using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
D0119YZ	High Dose Rate (HDR) Brachytherapy of Brain Stem using Other Isotope	Procedure	ICD-10-PCS
D011B7Z	Low Dose Rate (LDR) Brachytherapy of Brain Stem using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
D011B8Z	Low Dose Rate (LDR) Brachytherapy of Brain Stem using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
D011B9Z	Low Dose Rate (LDR) Brachytherapy of Brain Stem using Iodine 125 (I-125)	Procedure	ICD-10-PCS
D011BBZ	Low Dose Rate (LDR) Brachytherapy of Brain Stem using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
D011BCZ	Low Dose Rate (LDR) Brachytherapy of Brain Stem using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
D011BYZ	Low Dose Rate (LDR) Brachytherapy of Brain Stem using Other Isotope	Procedure	ICD-10-PCS
D01697Z	High Dose Rate (HDR) Brachytherapy of Spinal Cord using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
D01698Z	High Dose Rate (HDR) Brachytherapy of Spinal Cord using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
D01699Z	High Dose Rate (HDR) Brachytherapy of Spinal Cord using Iodine 125 (I-125)	Procedure	ICD-10-PCS
D0169BZ	High Dose Rate (HDR) Brachytherapy of Spinal Cord using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
D0169CZ	High Dose Rate (HDR) Brachytherapy of Spinal Cord using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
D0169YZ	High Dose Rate (HDR) Brachytherapy of Spinal Cord using Other Isotope	Procedure	ICD-10-PCS
D016B7Z	Low Dose Rate (LDR) Brachytherapy of Spinal Cord using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
D016B8Z	Low Dose Rate (LDR) Brachytherapy of Spinal Cord using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
D016B9Z	Low Dose Rate (LDR) Brachytherapy of Spinal Cord using Iodine 125 (I-125)	Procedure	ICD-10-PCS
D016BBZ	Low Dose Rate (LDR) Brachytherapy of Spinal Cord using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
D016BCZ	Low Dose Rate (LDR) Brachytherapy of Spinal Cord using Californium 252 (Cf-252)	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
D016BYZ	Low Dose Rate (LDR) Brachytherapy of Spinal Cord using Other Isotope	Procedure	ICD-10-PCS
D01797Z	High Dose Rate (HDR) Brachytherapy of Peripheral Nerve using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
D01798Z	High Dose Rate (HDR) Brachytherapy of Peripheral Nerve using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
D01799Z	High Dose Rate (HDR) Brachytherapy of Peripheral Nerve using Iodine 125 (I-125)	Procedure	ICD-10-PCS
D0179BZ	High Dose Rate (HDR) Brachytherapy of Peripheral Nerve using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
D0179CZ	High Dose Rate (HDR) Brachytherapy of Peripheral Nerve using Californium 252 (Cf-	Procedure	ICD-10-PCS
D0179YZ	High Dose Rate (HDR) Brachytherapy of Peripheral Nerve using Other Isotope	Procedure	ICD-10-PCS
D017B7Z	Low Dose Rate (LDR) Brachytherapy of Peripheral Nerve using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
D017B8Z	Low Dose Rate (LDR) Brachytherapy of Peripheral Nerve using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
D017B9Z	Low Dose Rate (LDR) Brachytherapy of Peripheral Nerve using Iodine 125 (I-125)	Procedure	ICD-10-PCS
D017BBZ	Low Dose Rate (LDR) Brachytherapy of Peripheral Nerve using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
D017BCZ	Low Dose Rate (LDR) Brachytherapy of Peripheral Nerve using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
D017BYZ	Low Dose Rate (LDR) Brachytherapy of Peripheral Nerve using Other Isotope	Procedure	ICD-10-PCS
D0Y07ZZ	Contact Radiation of Brain	Procedure	ICD-10-PCS
D0Y0FZZ	Plaque Radiation of Brain	Procedure	ICD-10-PCS
D0Y17ZZ	Contact Radiation of Brain Stem	Procedure	ICD-10-PCS
D0Y1FZZ	Plaque Radiation of Brain Stem	Procedure	ICD-10-PCS
D0Y67ZZ	Contact Radiation of Spinal Cord	Procedure	ICD-10-PCS
D0Y6FZZ	Plaque Radiation of Spinal Cord	Procedure	ICD-10-PCS
D0Y77ZZ	Contact Radiation of Peripheral Nerve	Procedure	ICD-10-PCS
D0Y7FZZ	Plaque Radiation of Peripheral Nerve	Procedure	ICD-10-PCS
D7000ZZ	Beam Radiation of Bone Marrow using Photons <1 MeV	Procedure	ICD-10-PCS
D7001ZZ	Beam Radiation of Bone Marrow using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
D7002ZZ	Beam Radiation of Bone Marrow using Photons >10 MeV	Procedure	ICD-10-PCS
D7003ZZ	Beam Radiation of Bone Marrow using Electrons	Procedure	ICD-10-PCS
D7004ZZ	Beam Radiation of Bone Marrow using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
D7005ZZ	Beam Radiation of Bone Marrow using Neutrons	Procedure	ICD-10-PCS
D7006ZZ	Beam Radiation of Bone Marrow using Neutron Capture	Procedure	ICD-10-PCS
D7010ZZ	Beam Radiation of Thymus using Photons <1 MeV	Procedure	ICD-10-PCS
D7011ZZ	Beam Radiation of Thymus using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
D7012ZZ	Beam Radiation of Thymus using Photons >10 MeV	Procedure	ICD-10-PCS
D7013ZZ	Beam Radiation of Thymus using Electrons	Procedure	ICD-10-PCS
D7014ZZ	Beam Radiation of Thymus using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
D7015ZZ	Beam Radiation of Thymus using Neutrons	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
D7016ZZ	Beam Radiation of Thymus using Neutron Capture	Procedure	ICD-10-PCS
D7020ZZ	Beam Radiation of Spleen using Photons <1 MeV	Procedure	ICD-10-PCS
D7021ZZ	Beam Radiation of Spleen using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
D7022ZZ	Beam Radiation of Spleen using Photons >10 MeV	Procedure	ICD-10-PCS
D7023ZZ	Beam Radiation of Spleen using Electrons	Procedure	ICD-10-PCS
D7024ZZ	Beam Radiation of Spleen using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
D7025ZZ	Beam Radiation of Spleen using Neutrons	Procedure	ICD-10-PCS
D7026ZZ	Beam Radiation of Spleen using Neutron Capture	Procedure	ICD-10-PCS
D7030ZZ	Beam Radiation of Neck Lymphatics using Photons <1 MeV	Procedure	ICD-10-PCS
D7031ZZ	Beam Radiation of Neck Lymphatics using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
D7032ZZ	Beam Radiation of Neck Lymphatics using Photons >10 MeV	Procedure	ICD-10-PCS
D7033ZZ	Beam Radiation of Neck Lymphatics using Electrons	Procedure	ICD-10-PCS
D7034ZZ	Beam Radiation of Neck Lymphatics using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
D7035ZZ	Beam Radiation of Neck Lymphatics using Neutrons	Procedure	ICD-10-PCS
D7036ZZ	Beam Radiation of Neck Lymphatics using Neutron Capture	Procedure	ICD-10-PCS
D7040ZZ	Beam Radiation of Axillary Lymphatics using Photons <1 MeV	Procedure	ICD-10-PCS
D7041ZZ	Beam Radiation of Axillary Lymphatics using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
D7042ZZ	Beam Radiation of Axillary Lymphatics using Photons >10 MeV	Procedure	ICD-10-PCS
D7043ZZ	Beam Radiation of Axillary Lymphatics using Electrons	Procedure	ICD-10-PCS
D7044ZZ	Beam Radiation of Axillary Lymphatics using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
D7045ZZ	Beam Radiation of Axillary Lymphatics using Neutrons	Procedure	ICD-10-PCS
D7046ZZ	Beam Radiation of Axillary Lymphatics using Neutron Capture	Procedure	ICD-10-PCS
D7050ZZ	Beam Radiation of Thorax Lymphatics using Photons <1 MeV	Procedure	ICD-10-PCS
D7051ZZ	Beam Radiation of Thorax Lymphatics using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
D7052ZZ	Beam Radiation of Thorax Lymphatics using Photons >10 MeV	Procedure	ICD-10-PCS
D7053ZZ	Beam Radiation of Thorax Lymphatics using Electrons	Procedure	ICD-10-PCS
D7054ZZ	Beam Radiation of Thorax Lymphatics using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
D7055ZZ	Beam Radiation of Thorax Lymphatics using Neutrons	Procedure	ICD-10-PCS
D7056ZZ	Beam Radiation of Thorax Lymphatics using Neutron Capture	Procedure	ICD-10-PCS
D7060ZZ	Beam Radiation of Abdomen Lymphatics using Photons <1 MeV	Procedure	ICD-10-PCS
D7061ZZ	Beam Radiation of Abdomen Lymphatics using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
D7062ZZ	Beam Radiation of Abdomen Lymphatics using Photons >10 MeV	Procedure	ICD-10-PCS
D7063ZZ	Beam Radiation of Abdomen Lymphatics using Electrons	Procedure	ICD-10-PCS
D7064ZZ	Beam Radiation of Abdomen Lymphatics using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
D7065ZZ	Beam Radiation of Abdomen Lymphatics using Neutrons	Procedure	ICD-10-PCS
D7066ZZ	Beam Radiation of Abdomen Lymphatics using Neutron Capture	Procedure	ICD-10-PCS
D7070ZZ	Beam Radiation of Pelvis Lymphatics using Photons <1 MeV	Procedure	ICD-10-PCS
D7071ZZ	Beam Radiation of Pelvis Lymphatics using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
D7072ZZ	Beam Radiation of Pelvis Lymphatics using Photons >10 MeV	Procedure	ICD-10-PCS
D7073ZZ	Beam Radiation of Pelvis Lymphatics using Electrons	Procedure	ICD-10-PCS
D7074ZZ	Beam Radiation of Pelvis Lymphatics using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
D7075ZZ	Beam Radiation of Pelvis Lymphatics using Neutrons	Procedure	ICD-10-PCS
D7076ZZ	Beam Radiation of Pelvis Lymphatics using Neutron Capture	Procedure	ICD-10-PCS
D7080ZZ	Beam Radiation of Inguinal Lymphatics using Photons <1 MeV	Procedure	ICD-10-PCS
D7081ZZ	Beam Radiation of Inguinal Lymphatics using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
D7082ZZ	Beam Radiation of Inguinal Lymphatics using Photons >10 MeV	Procedure	ICD-10-PCS
D7083ZZ	Beam Radiation of Inguinal Lymphatics using Electrons	Procedure	ICD-10-PCS
D7084ZZ	Beam Radiation of Inguinal Lymphatics using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
D7085ZZ	Beam Radiation of Inguinal Lymphatics using Neutrons	Procedure	ICD-10-PCS
D7086ZZ	Beam Radiation of Inguinal Lymphatics using Neutron Capture	Procedure	ICD-10-PCS
D71097Z	High Dose Rate (HDR) Brachytherapy of Bone Marrow using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
D71098Z	High Dose Rate (HDR) Brachytherapy of Bone Marrow using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
D71099Z	High Dose Rate (HDR) Brachytherapy of Bone Marrow using Iodine 125 (I-125)	Procedure	ICD-10-PCS
D7109BZ	High Dose Rate (HDR) Brachytherapy of Bone Marrow using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
D7109CZ	High Dose Rate (HDR) Brachytherapy of Bone Marrow using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
D7109YZ	High Dose Rate (HDR) Brachytherapy of Bone Marrow using Other Isotope	Procedure	ICD-10-PCS
D710B7Z	Low Dose Rate (LDR) Brachytherapy of Bone Marrow using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
D710B8Z	Low Dose Rate (LDR) Brachytherapy of Bone Marrow using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
D710B9Z	Low Dose Rate (LDR) Brachytherapy of Bone Marrow using Iodine 125 (I-125)	Procedure	ICD-10-PCS
D710BBZ	Low Dose Rate (LDR) Brachytherapy of Bone Marrow using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
D710BCZ	Low Dose Rate (LDR) Brachytherapy of Bone Marrow using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
D710BYZ	Low Dose Rate (LDR) Brachytherapy of Bone Marrow using Other Isotope	Procedure	ICD-10-PCS
D71197Z	High Dose Rate (HDR) Brachytherapy of Thymus using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
D71198Z	High Dose Rate (HDR) Brachytherapy of Thymus using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
D71199Z	High Dose Rate (HDR) Brachytherapy of Thymus using Iodine 125 (I-125)	Procedure	ICD-10-PCS
D7119BZ	High Dose Rate (HDR) Brachytherapy of Thymus using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
D7119CZ	High Dose Rate (HDR) Brachytherapy of Thymus using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
D7119YZ	High Dose Rate (HDR) Brachytherapy of Thymus using Other Isotope	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
D711B7Z	Low Dose Rate (LDR) Brachytherapy of Thymus using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
D711B8Z	Low Dose Rate (LDR) Brachytherapy of Thymus using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
D711B9Z	Low Dose Rate (LDR) Brachytherapy of Thymus using Iodine 125 (I-125)	Procedure	ICD-10-PCS
D711BBZ	Low Dose Rate (LDR) Brachytherapy of Thymus using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
D711BCZ	Low Dose Rate (LDR) Brachytherapy of Thymus using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
D711BYZ	Low Dose Rate (LDR) Brachytherapy of Thymus using Other Isotope	Procedure	ICD-10-PCS
D71297Z	High Dose Rate (HDR) Brachytherapy of Spleen using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
D71298Z	High Dose Rate (HDR) Brachytherapy of Spleen using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
D71299Z	High Dose Rate (HDR) Brachytherapy of Spleen using Iodine 125 (I-125)	Procedure	ICD-10-PCS
D7129BZ	High Dose Rate (HDR) Brachytherapy of Spleen using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
D7129CZ	High Dose Rate (HDR) Brachytherapy of Spleen using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
D7129YZ	High Dose Rate (HDR) Brachytherapy of Spleen using Other Isotope	Procedure	ICD-10-PCS
D712B7Z	Low Dose Rate (LDR) Brachytherapy of Spleen using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
D712B8Z	Low Dose Rate (LDR) Brachytherapy of Spleen using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
D712B9Z	Low Dose Rate (LDR) Brachytherapy of Spleen using Iodine 125 (I-125)	Procedure	ICD-10-PCS
D712BBZ	Low Dose Rate (LDR) Brachytherapy of Spleen using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
D712BCZ	Low Dose Rate (LDR) Brachytherapy of Spleen using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
D712BYZ	Low Dose Rate (LDR) Brachytherapy of Spleen using Other Isotope	Procedure	ICD-10-PCS
D71397Z	High Dose Rate (HDR) Brachytherapy of Neck Lymphatics using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
D71398Z	High Dose Rate (HDR) Brachytherapy of Neck Lymphatics using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
D71399Z	High Dose Rate (HDR) Brachytherapy of Neck Lymphatics using Iodine 125 (I-125)	Procedure	ICD-10-PCS
D7139BZ	High Dose Rate (HDR) Brachytherapy of Neck Lymphatics using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
D7139CZ	High Dose Rate (HDR) Brachytherapy of Neck Lymphatics using Californium 252 (Cf-	Procedure	ICD-10-PCS
D7139YZ	High Dose Rate (HDR) Brachytherapy of Neck Lymphatics using Other Isotope	Procedure	ICD-10-PCS
D713B7Z	Low Dose Rate (LDR) Brachytherapy of Neck Lymphatics using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
D713B8Z	Low Dose Rate (LDR) Brachytherapy of Neck Lymphatics using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
D713B9Z	Low Dose Rate (LDR) Brachytherapy of Neck Lymphatics using Iodine 125 (I-125)	Procedure	ICD-10-PCS
D713BBZ	Low Dose Rate (LDR) Brachytherapy of Neck Lymphatics using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
D713BCZ	Low Dose Rate (LDR) Brachytherapy of Neck Lymphatics using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
D713BYZ	Low Dose Rate (LDR) Brachytherapy of Neck Lymphatics using Other Isotope	Procedure	ICD-10-PCS
D71497Z	High Dose Rate (HDR) Brachytherapy of Axillary Lymphatics using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
D71498Z	High Dose Rate (HDR) Brachytherapy of Axillary Lymphatics using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
D71499Z	High Dose Rate (HDR) Brachytherapy of Axillary Lymphatics using Iodine 125 (I-125)	Procedure	ICD-10-PCS
D7149BZ	High Dose Rate (HDR) Brachytherapy of Axillary Lymphatics using Palladium 103 (Pd-	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
D7149CZ	High Dose Rate (HDR) Brachytherapy of Axillary Lymphatics using Californium 252 (Cf-	Procedure	ICD-10-PCS
D7149YZ	High Dose Rate (HDR) Brachytherapy of Axillary Lymphatics using Other Isotope	Procedure	ICD-10-PCS
D714B7Z	Low Dose Rate (LDR) Brachytherapy of Axillary Lymphatics using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
D714B8Z	Low Dose Rate (LDR) Brachytherapy of Axillary Lymphatics using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
D714B9Z	Low Dose Rate (LDR) Brachytherapy of Axillary Lymphatics using Iodine 125 (I-125)	Procedure	ICD-10-PCS
D714BBZ	Low Dose Rate (LDR) Brachytherapy of Axillary Lymphatics using Palladium 103 (Pd-	Procedure	ICD-10-PCS
D714BCZ	Low Dose Rate (LDR) Brachytherapy of Axillary Lymphatics using Californium 252 (Cf-	Procedure	ICD-10-PCS
D714BYZ	Low Dose Rate (LDR) Brachytherapy of Axillary Lymphatics using Other Isotope	Procedure	ICD-10-PCS
D71597Z	High Dose Rate (HDR) Brachytherapy of Thorax Lymphatics using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
D71598Z	High Dose Rate (HDR) Brachytherapy of Thorax Lymphatics using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
D71599Z	High Dose Rate (HDR) Brachytherapy of Thorax Lymphatics using Iodine 125 (I-125)	Procedure	ICD-10-PCS
D7159BZ	High Dose Rate (HDR) Brachytherapy of Thorax Lymphatics using Palladium 103 (Pd-	Procedure	ICD-10-PCS
D7159CZ	High Dose Rate (HDR) Brachytherapy of Thorax Lymphatics using Californium 252 (Cf-	Procedure	ICD-10-PCS
D7159YZ	High Dose Rate (HDR) Brachytherapy of Thorax Lymphatics using Other Isotope	Procedure	ICD-10-PCS
D715B7Z	Low Dose Rate (LDR) Brachytherapy of Thorax Lymphatics using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
D715B8Z	Low Dose Rate (LDR) Brachytherapy of Thorax Lymphatics using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
D715B9Z	Low Dose Rate (LDR) Brachytherapy of Thorax Lymphatics using Iodine 125 (I-125)	Procedure	ICD-10-PCS
D715BBZ	Low Dose Rate (LDR) Brachytherapy of Thorax Lymphatics using Palladium 103 (Pd-	Procedure	ICD-10-PCS
D715BCZ	Low Dose Rate (LDR) Brachytherapy of Thorax Lymphatics using Californium 252 (Cf-	Procedure	ICD-10-PCS
D715BYZ	Low Dose Rate (LDR) Brachytherapy of Thorax Lymphatics using Other Isotope	Procedure	ICD-10-PCS
D71697Z	High Dose Rate (HDR) Brachytherapy of Abdomen Lymphatics using Cesium 137 (Cs-	Procedure	ICD-10-PCS
D71698Z	High Dose Rate (HDR) Brachytherapy of Abdomen Lymphatics using Iridium 192 (Ir-	Procedure	ICD-10-PCS
D71699Z	High Dose Rate (HDR) Brachytherapy of Abdomen Lymphatics using Iodine 125 (I-125)	Procedure	ICD-10-PCS
D7169BZ	High Dose Rate (HDR) Brachytherapy of Abdomen Lymphatics using Palladium 103 (Pd-	Procedure	ICD-10-PCS
D7169CZ	High Dose Rate (HDR) Brachytherapy of Abdomen Lymphatics using Californium 252	Procedure	ICD-10-PCS
D7169YZ	High Dose Rate (HDR) Brachytherapy of Abdomen Lymphatics using Other Isotope	Procedure	ICD-10-PCS
D716B7Z	Low Dose Rate (LDR) Brachytherapy of Abdomen Lymphatics using Cesium 137 (Cs-	Procedure	ICD-10-PCS
D716B8Z	Low Dose Rate (LDR) Brachytherapy of Abdomen Lymphatics using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
D716B9Z	Low Dose Rate (LDR) Brachytherapy of Abdomen Lymphatics using Iodine 125 (I-125)	Procedure	ICD-10-PCS
D716BBZ	Low Dose Rate (LDR) Brachytherapy of Abdomen Lymphatics using Palladium 103 (Pd-	Procedure	ICD-10-PCS
D716BCZ	Low Dose Rate (LDR) Brachytherapy of Abdomen Lymphatics using Californium 252 (Cf-	Procedure	ICD-10-PCS
D716BYZ	Low Dose Rate (LDR) Brachytherapy of Abdomen Lymphatics using Other Isotope	Procedure	ICD-10-PCS
D71797Z	High Dose Rate (HDR) Brachytherapy of Pelvis Lymphatics using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
D71798Z	High Dose Rate (HDR) Brachytherapy of Pelvis Lymphatics using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
D71799Z	High Dose Rate (HDR) Brachytherapy of Pelvis Lymphatics using Iodine 125 (I-125)	Procedure	ICD-10-PCS
D7179BZ	High Dose Rate (HDR) Brachytherapy of Pelvis Lymphatics using Palladium 103 (Pd-	Procedure	ICD-10-PCS
D7179CZ	High Dose Rate (HDR) Brachytherapy of Pelvis Lymphatics using Californium 252 (Cf-	Procedure	ICD-10-PCS
D7179YZ	High Dose Rate (HDR) Brachytherapy of Pelvis Lymphatics using Other Isotope	Procedure	ICD-10-PCS
D717B7Z	Low Dose Rate (LDR) Brachytherapy of Pelvis Lymphatics using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
D717B8Z	Low Dose Rate (LDR) Brachytherapy of Pelvis Lymphatics using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
D717B9Z	Low Dose Rate (LDR) Brachytherapy of Pelvis Lymphatics using Iodine 125 (I-125)	Procedure	ICD-10-PCS
D717BBZ	Low Dose Rate (LDR) Brachytherapy of Pelvis Lymphatics using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
D717BCZ	Low Dose Rate (LDR) Brachytherapy of Pelvis Lymphatics using Californium 252 (Cf-	Procedure	ICD-10-PCS
D717BYZ	Low Dose Rate (LDR) Brachytherapy of Pelvis Lymphatics using Other Isotope	Procedure	ICD-10-PCS
D71897Z	High Dose Rate (HDR) Brachytherapy of Inguinal Lymphatics using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
D71898Z	High Dose Rate (HDR) Brachytherapy of Inguinal Lymphatics using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
D71899Z	High Dose Rate (HDR) Brachytherapy of Inguinal Lymphatics using Iodine 125 (I-125)	Procedure	ICD-10-PCS
D7189BZ	High Dose Rate (HDR) Brachytherapy of Inguinal Lymphatics using Palladium 103 (Pd-	Procedure	ICD-10-PCS
D7189CZ	High Dose Rate (HDR) Brachytherapy of Inguinal Lymphatics using Californium 252 (Cf-	Procedure	ICD-10-PCS
D7189YZ	High Dose Rate (HDR) Brachytherapy of Inguinal Lymphatics using Other Isotope	Procedure	ICD-10-PCS
D718B7Z	Low Dose Rate (LDR) Brachytherapy of Inguinal Lymphatics using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
D718B8Z	Low Dose Rate (LDR) Brachytherapy of Inguinal Lymphatics using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
D718B9Z	Low Dose Rate (LDR) Brachytherapy of Inguinal Lymphatics using Iodine 125 (I-125)	Procedure	ICD-10-PCS
D718BBZ	Low Dose Rate (LDR) Brachytherapy of Inguinal Lymphatics using Palladium 103 (Pd-	Procedure	ICD-10-PCS
D718BCZ	Low Dose Rate (LDR) Brachytherapy of Inguinal Lymphatics using Californium 252 (Cf-	Procedure	ICD-10-PCS
D718BYZ	Low Dose Rate (LDR) Brachytherapy of Inguinal Lymphatics using Other Isotope	Procedure	ICD-10-PCS
D7Y0FZZ	Plaque Radiation of Bone Marrow	Procedure	ICD-10-PCS
D7Y1FZZ	Plaque Radiation of Thymus	Procedure	ICD-10-PCS
D7Y2FZZ	Plaque Radiation of Spleen	Procedure	ICD-10-PCS
D7Y3FZZ	Plaque Radiation of Neck Lymphatics	Procedure	ICD-10-PCS
D7Y4FZZ	Plaque Radiation of Axillary Lymphatics	Procedure	ICD-10-PCS
D7Y5FZZ	Plaque Radiation of Thorax Lymphatics	Procedure	ICD-10-PCS
D7Y6FZZ	Plaque Radiation of Abdomen Lymphatics	Procedure	ICD-10-PCS
D7Y7FZZ	Plaque Radiation of Pelvis Lymphatics	Procedure	ICD-10-PCS
D7Y8FZZ	Plaque Radiation of Inguinal Lymphatics	Procedure	ICD-10-PCS
D8000ZZ	Beam Radiation of Eye using Photons <1 MeV	Procedure	ICD-10-PCS
D8003ZZ	Beam Radiation of Eye using Electrons	Procedure	ICD-10-PCS
D8004ZZ	Beam Radiation of Eye using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
D8005ZZ	Beam Radiation of Eye using Neutrons	Procedure	ICD-10-PCS
D81097Z	High Dose Rate (HDR) Brachytherapy of Eye using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
D81098Z	High Dose Rate (HDR) Brachytherapy of Eye using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
D81099Z	High Dose Rate (HDR) Brachytherapy of Eye using Iodine 125 (I-125)	Procedure	ICD-10-PCS
D8109BZ	High Dose Rate (HDR) Brachytherapy of Eye using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
D8109CZ	High Dose Rate (HDR) Brachytherapy of Eye using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
D8109YZ	High Dose Rate (HDR) Brachytherapy of Eye using Other Isotope	Procedure	ICD-10-PCS
D810B7Z	Low Dose Rate (LDR) Brachytherapy of Eye using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
D810B8Z	Low Dose Rate (LDR) Brachytherapy of Eye using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
D810B9Z	Low Dose Rate (LDR) Brachytherapy of Eye using Iodine 125 (I-125)	Procedure	ICD-10-PCS
D810BBZ	Low Dose Rate (LDR) Brachytherapy of Eye using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
D810BCZ	Low Dose Rate (LDR) Brachytherapy of Eye using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
D810BYZ	Low Dose Rate (LDR) Brachytherapy of Eye using Other Isotope	Procedure	ICD-10-PCS
D8Y07ZZ	Contact Radiation of Eye	Procedure	ICD-10-PCS
D8Y0FZZ	Plaque Radiation of Eye	Procedure	ICD-10-PCS
D9000ZZ	Beam Radiation of Ear using Photons <1 MeV	Procedure	ICD-10-PCS
D9003ZZ	Beam Radiation of Ear using Electrons	Procedure	ICD-10-PCS
D9004ZZ	Beam Radiation of Ear using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
D9005ZZ	Beam Radiation of Ear using Neutrons	Procedure	ICD-10-PCS
D9010ZZ	Beam Radiation of Nose using Photons <1 MeV	Procedure	ICD-10-PCS
D9011ZZ	Beam Radiation of Nose using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
D9012ZZ	Beam Radiation of Nose using Photons >10 MeV	Procedure	ICD-10-PCS
D9013ZZ	Beam Radiation of Nose using Electrons	Procedure	ICD-10-PCS
D9014ZZ	Beam Radiation of Nose using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
D9015ZZ	Beam Radiation of Nose using Neutrons	Procedure	ICD-10-PCS
D9016ZZ	Beam Radiation of Nose using Neutron Capture	Procedure	ICD-10-PCS
D9030ZZ	Beam Radiation of Hypopharynx using Photons <1 MeV	Procedure	ICD-10-PCS
D9031ZZ	Beam Radiation of Hypopharynx using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
D9032ZZ	Beam Radiation of Hypopharynx using Photons >10 MeV	Procedure	ICD-10-PCS
D9033ZZ	Beam Radiation of Hypopharynx using Electrons	Procedure	ICD-10-PCS
D9034ZZ	Beam Radiation of Hypopharynx using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
D9035ZZ	Beam Radiation of Hypopharynx using Neutrons	Procedure	ICD-10-PCS
D9036ZZ	Beam Radiation of Hypopharynx using Neutron Capture	Procedure	ICD-10-PCS
D9040ZZ	Beam Radiation of Mouth using Photons <1 MeV	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
D9041ZZ	Beam Radiation of Mouth using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
D9042ZZ	Beam Radiation of Mouth using Photons >10 MeV	Procedure	ICD-10-PCS
D9043ZZ	Beam Radiation of Mouth using Electrons	Procedure	ICD-10-PCS
D9044ZZ	Beam Radiation of Mouth using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
D9045ZZ	Beam Radiation of Mouth using Neutrons	Procedure	ICD-10-PCS
D9046ZZ	Beam Radiation of Mouth using Neutron Capture	Procedure	ICD-10-PCS
D9050ZZ	Beam Radiation of Tongue using Photons <1 MeV	Procedure	ICD-10-PCS
D9051ZZ	Beam Radiation of Tongue using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
D9052ZZ	Beam Radiation of Tongue using Photons >10 MeV	Procedure	ICD-10-PCS
D9053ZZ	Beam Radiation of Tongue using Electrons	Procedure	ICD-10-PCS
D9054ZZ	Beam Radiation of Tongue using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
D9055ZZ	Beam Radiation of Tongue using Neutrons	Procedure	ICD-10-PCS
D9056ZZ	Beam Radiation of Tongue using Neutron Capture	Procedure	ICD-10-PCS
D9060ZZ	Beam Radiation of Salivary Glands using Photons <1 MeV	Procedure	ICD-10-PCS
D9061ZZ	Beam Radiation of Salivary Glands using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
D9062ZZ	Beam Radiation of Salivary Glands using Photons >10 MeV	Procedure	ICD-10-PCS
D9063ZZ	Beam Radiation of Salivary Glands using Electrons	Procedure	ICD-10-PCS
D9064ZZ	Beam Radiation of Salivary Glands using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
D9065ZZ	Beam Radiation of Salivary Glands using Neutrons	Procedure	ICD-10-PCS
D9066ZZ	Beam Radiation of Salivary Glands using Neutron Capture	Procedure	ICD-10-PCS
D9070ZZ	Beam Radiation of Sinuses using Photons <1 MeV	Procedure	ICD-10-PCS
D9071ZZ	Beam Radiation of Sinuses using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
D9072ZZ	Beam Radiation of Sinuses using Photons >10 MeV	Procedure	ICD-10-PCS
D9073ZZ	Beam Radiation of Sinuses using Electrons	Procedure	ICD-10-PCS
D9074ZZ	Beam Radiation of Sinuses using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
D9075ZZ	Beam Radiation of Sinuses using Neutrons	Procedure	ICD-10-PCS
D9076ZZ	Beam Radiation of Sinuses using Neutron Capture	Procedure	ICD-10-PCS
D9080ZZ	Beam Radiation of Hard Palate using Photons <1 MeV	Procedure	ICD-10-PCS
D9081ZZ	Beam Radiation of Hard Palate using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
D9082ZZ	Beam Radiation of Hard Palate using Photons >10 MeV	Procedure	ICD-10-PCS
D9083ZZ	Beam Radiation of Hard Palate using Electrons	Procedure	ICD-10-PCS
D9084ZZ	Beam Radiation of Hard Palate using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
D9085ZZ	Beam Radiation of Hard Palate using Neutrons	Procedure	ICD-10-PCS
D9086ZZ	Beam Radiation of Hard Palate using Neutron Capture	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
D9090ZZ	Beam Radiation of Soft Palate using Photons <1 MeV	Procedure	ICD-10-PCS
D9091ZZ	Beam Radiation of Soft Palate using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
D9092ZZ	Beam Radiation of Soft Palate using Photons >10 MeV	Procedure	ICD-10-PCS
D9093ZZ	Beam Radiation of Soft Palate using Electrons	Procedure	ICD-10-PCS
D9094ZZ	Beam Radiation of Soft Palate using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
D9095ZZ	Beam Radiation of Soft Palate using Neutrons	Procedure	ICD-10-PCS
D9096ZZ	Beam Radiation of Soft Palate using Neutron Capture	Procedure	ICD-10-PCS
D90B0ZZ	Beam Radiation of Larynx using Photons <1 MeV	Procedure	ICD-10-PCS
D90B1ZZ	Beam Radiation of Larynx using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
D90B2ZZ	Beam Radiation of Larynx using Photons >10 MeV	Procedure	ICD-10-PCS
D90B3ZZ	Beam Radiation of Larynx using Electrons	Procedure	ICD-10-PCS
D90B4ZZ	Beam Radiation of Larynx using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
D90B5ZZ	Beam Radiation of Larynx using Neutrons	Procedure	ICD-10-PCS
D90B6ZZ	Beam Radiation of Larynx using Neutron Capture	Procedure	ICD-10-PCS
D90D0ZZ	Beam Radiation of Nasopharynx using Photons <1 MeV	Procedure	ICD-10-PCS
D90D1ZZ	Beam Radiation of Nasopharynx using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
D90D2ZZ	Beam Radiation of Nasopharynx using Photons >10 MeV	Procedure	ICD-10-PCS
D90D3ZZ	Beam Radiation of Nasopharynx using Electrons	Procedure	ICD-10-PCS
D90D4ZZ	Beam Radiation of Nasopharynx using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
D90D5ZZ	Beam Radiation of Nasopharynx using Neutrons	Procedure	ICD-10-PCS
D90D6ZZ	Beam Radiation of Nasopharynx using Neutron Capture	Procedure	ICD-10-PCS
D90F0ZZ	Beam Radiation of Oropharynx using Photons <1 MeV	Procedure	ICD-10-PCS
D90F1ZZ	Beam Radiation of Oropharynx using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
D90F2ZZ	Beam Radiation of Oropharynx using Photons >10 MeV	Procedure	ICD-10-PCS
D90F3ZZ	Beam Radiation of Oropharynx using Electrons	Procedure	ICD-10-PCS
D90F4ZZ	Beam Radiation of Oropharynx using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
D90F5ZZ	Beam Radiation of Oropharynx using Neutrons	Procedure	ICD-10-PCS
D90F6ZZ	Beam Radiation of Oropharynx using Neutron Capture	Procedure	ICD-10-PCS
D91097Z	High Dose Rate (HDR) Brachytherapy of Ear using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
D91098Z	High Dose Rate (HDR) Brachytherapy of Ear using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
D91099Z	High Dose Rate (HDR) Brachytherapy of Ear using Iodine 125 (I-125)	Procedure	ICD-10-PCS
D9109BZ	High Dose Rate (HDR) Brachytherapy of Ear using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
D9109CZ	High Dose Rate (HDR) Brachytherapy of Ear using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
D9109YZ	High Dose Rate (HDR) Brachytherapy of Ear using Other Isotope	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
D910B7Z	Low Dose Rate (LDR) Brachytherapy of Ear using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
D910B8Z	Low Dose Rate (LDR) Brachytherapy of Ear using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
D910B9Z	Low Dose Rate (LDR) Brachytherapy of Ear using Iodine 125 (I-125)	Procedure	ICD-10-PCS
D910BBZ	Low Dose Rate (LDR) Brachytherapy of Ear using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
D910BCZ	Low Dose Rate (LDR) Brachytherapy of Ear using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
D910BYZ	Low Dose Rate (LDR) Brachytherapy of Ear using Other Isotope	Procedure	ICD-10-PCS
D91197Z	High Dose Rate (HDR) Brachytherapy of Nose using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
D91198Z	High Dose Rate (HDR) Brachytherapy of Nose using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
D91199Z	High Dose Rate (HDR) Brachytherapy of Nose using Iodine 125 (I-125)	Procedure	ICD-10-PCS
D9119BZ	High Dose Rate (HDR) Brachytherapy of Nose using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
D9119CZ	High Dose Rate (HDR) Brachytherapy of Nose using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
D9119YZ	High Dose Rate (HDR) Brachytherapy of Nose using Other Isotope	Procedure	ICD-10-PCS
D911B7Z	Low Dose Rate (LDR) Brachytherapy of Nose using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
D911B8Z	Low Dose Rate (LDR) Brachytherapy of Nose using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
D911B9Z	Low Dose Rate (LDR) Brachytherapy of Nose using Iodine 125 (I-125)	Procedure	ICD-10-PCS
D911BBZ	Low Dose Rate (LDR) Brachytherapy of Nose using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
D911BCZ	Low Dose Rate (LDR) Brachytherapy of Nose using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
D911BYZ	Low Dose Rate (LDR) Brachytherapy of Nose using Other Isotope	Procedure	ICD-10-PCS
D91397Z	High Dose Rate (HDR) Brachytherapy of Hypopharynx using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
D91398Z	High Dose Rate (HDR) Brachytherapy of Hypopharynx using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
D91399Z	High Dose Rate (HDR) Brachytherapy of Hypopharynx using Iodine 125 (I-125)	Procedure	ICD-10-PCS
D9139BZ	High Dose Rate (HDR) Brachytherapy of Hypopharynx using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
D9139CZ	High Dose Rate (HDR) Brachytherapy of Hypopharynx using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
D9139YZ	High Dose Rate (HDR) Brachytherapy of Hypopharynx using Other Isotope	Procedure	ICD-10-PCS
D913B7Z	Low Dose Rate (LDR) Brachytherapy of Hypopharynx using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
D913B8Z	Low Dose Rate (LDR) Brachytherapy of Hypopharynx using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
D913B9Z	Low Dose Rate (LDR) Brachytherapy of Hypopharynx using Iodine 125 (I-125)	Procedure	ICD-10-PCS
D913BBZ	Low Dose Rate (LDR) Brachytherapy of Hypopharynx using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
D913BCZ	Low Dose Rate (LDR) Brachytherapy of Hypopharynx using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
D913BYZ	Low Dose Rate (LDR) Brachytherapy of Hypopharynx using Other Isotope	Procedure	ICD-10-PCS
D91497Z	High Dose Rate (HDR) Brachytherapy of Mouth using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
D91498Z	High Dose Rate (HDR) Brachytherapy of Mouth using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
D91499Z	High Dose Rate (HDR) Brachytherapy of Mouth using Iodine 125 (I-125)	Procedure	ICD-10-PCS
D9149BZ	High Dose Rate (HDR) Brachytherapy of Mouth using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
D9149CZ	High Dose Rate (HDR) Brachytherapy of Mouth using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
D9149YZ	High Dose Rate (HDR) Brachytherapy of Mouth using Other Isotope	Procedure	ICD-10-PCS
D914B7Z	Low Dose Rate (LDR) Brachytherapy of Mouth using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
D914B8Z	Low Dose Rate (LDR) Brachytherapy of Mouth using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
D914B9Z	Low Dose Rate (LDR) Brachytherapy of Mouth using Iodine 125 (I-125)	Procedure	ICD-10-PCS
D914BBZ	Low Dose Rate (LDR) Brachytherapy of Mouth using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
D914BCZ	Low Dose Rate (LDR) Brachytherapy of Mouth using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
D914BYZ	Low Dose Rate (LDR) Brachytherapy of Mouth using Other Isotope	Procedure	ICD-10-PCS
D91597Z	High Dose Rate (HDR) Brachytherapy of Tongue using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
D91598Z	High Dose Rate (HDR) Brachytherapy of Tongue using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
D91599Z	High Dose Rate (HDR) Brachytherapy of Tongue using Iodine 125 (I-125)	Procedure	ICD-10-PCS
D9159BZ	High Dose Rate (HDR) Brachytherapy of Tongue using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
D9159CZ	High Dose Rate (HDR) Brachytherapy of Tongue using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
D9159YZ	High Dose Rate (HDR) Brachytherapy of Tongue using Other Isotope	Procedure	ICD-10-PCS
D915B7Z	Low Dose Rate (LDR) Brachytherapy of Tongue using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
D915B8Z	Low Dose Rate (LDR) Brachytherapy of Tongue using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
D915B9Z	Low Dose Rate (LDR) Brachytherapy of Tongue using Iodine 125 (I-125)	Procedure	ICD-10-PCS
D915BBZ	Low Dose Rate (LDR) Brachytherapy of Tongue using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
D915BCZ	Low Dose Rate (LDR) Brachytherapy of Tongue using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
D915BYZ	Low Dose Rate (LDR) Brachytherapy of Tongue using Other Isotope	Procedure	ICD-10-PCS
D91697Z	High Dose Rate (HDR) Brachytherapy of Salivary Glands using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
D91698Z	High Dose Rate (HDR) Brachytherapy of Salivary Glands using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
D91699Z	High Dose Rate (HDR) Brachytherapy of Salivary Glands using Iodine 125 (I-125)	Procedure	ICD-10-PCS
D9169BZ	High Dose Rate (HDR) Brachytherapy of Salivary Glands using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
D9169CZ	High Dose Rate (HDR) Brachytherapy of Salivary Glands using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
D9169YZ	High Dose Rate (HDR) Brachytherapy of Salivary Glands using Other Isotope	Procedure	ICD-10-PCS
D916B7Z	Low Dose Rate (LDR) Brachytherapy of Salivary Glands using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
D916B8Z	Low Dose Rate (LDR) Brachytherapy of Salivary Glands using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
D916B9Z	Low Dose Rate (LDR) Brachytherapy of Salivary Glands using Iodine 125 (I-125)	Procedure	ICD-10-PCS
D916BBZ	Low Dose Rate (LDR) Brachytherapy of Salivary Glands using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
D916BCZ	Low Dose Rate (LDR) Brachytherapy of Salivary Glands using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
D916BYZ	Low Dose Rate (LDR) Brachytherapy of Salivary Glands using Other Isotope	Procedure	ICD-10-PCS
D91797Z	High Dose Rate (HDR) Brachytherapy of Sinuses using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
D91798Z	High Dose Rate (HDR) Brachytherapy of Sinuses using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
D91799Z	High Dose Rate (HDR) Brachytherapy of Sinuses using Iodine 125 (I-125)	Procedure	ICD-10-PCS
D9179BZ	High Dose Rate (HDR) Brachytherapy of Sinuses using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
D9179CZ	High Dose Rate (HDR) Brachytherapy of Sinuses using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
D9179YZ	High Dose Rate (HDR) Brachytherapy of Sinuses using Other Isotope	Procedure	ICD-10-PCS
D917B7Z	Low Dose Rate (LDR) Brachytherapy of Sinuses using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
D917B8Z	Low Dose Rate (LDR) Brachytherapy of Sinuses using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
D917B9Z	Low Dose Rate (LDR) Brachytherapy of Sinuses using Iodine 125 (I-125)	Procedure	ICD-10-PCS
D917BBZ	Low Dose Rate (LDR) Brachytherapy of Sinuses using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
D917BCZ	Low Dose Rate (LDR) Brachytherapy of Sinuses using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
D917BYZ	Low Dose Rate (LDR) Brachytherapy of Sinuses using Other Isotope	Procedure	ICD-10-PCS
D91897Z	High Dose Rate (HDR) Brachytherapy of Hard Palate using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
D91898Z	High Dose Rate (HDR) Brachytherapy of Hard Palate using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
D91899Z	High Dose Rate (HDR) Brachytherapy of Hard Palate using Iodine 125 (I-125)	Procedure	ICD-10-PCS
D9189BZ	High Dose Rate (HDR) Brachytherapy of Hard Palate using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
D9189CZ	High Dose Rate (HDR) Brachytherapy of Hard Palate using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
D9189YZ	High Dose Rate (HDR) Brachytherapy of Hard Palate using Other Isotope	Procedure	ICD-10-PCS
D918B7Z	Low Dose Rate (LDR) Brachytherapy of Hard Palate using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
D918B8Z	Low Dose Rate (LDR) Brachytherapy of Hard Palate using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
D918B9Z	Low Dose Rate (LDR) Brachytherapy of Hard Palate using Iodine 125 (I-125)	Procedure	ICD-10-PCS
D918BBZ	Low Dose Rate (LDR) Brachytherapy of Hard Palate using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
D918BCZ	Low Dose Rate (LDR) Brachytherapy of Hard Palate using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
D918BYZ	Low Dose Rate (LDR) Brachytherapy of Hard Palate using Other Isotope	Procedure	ICD-10-PCS
D91997Z	High Dose Rate (HDR) Brachytherapy of Soft Palate using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
D91998Z	High Dose Rate (HDR) Brachytherapy of Soft Palate using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
D91999Z	High Dose Rate (HDR) Brachytherapy of Soft Palate using Iodine 125 (I-125)	Procedure	ICD-10-PCS
D9199BZ	High Dose Rate (HDR) Brachytherapy of Soft Palate using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
D9199CZ	High Dose Rate (HDR) Brachytherapy of Soft Palate using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
D9199YZ	High Dose Rate (HDR) Brachytherapy of Soft Palate using Other Isotope	Procedure	ICD-10-PCS
D919B7Z	Low Dose Rate (LDR) Brachytherapy of Soft Palate using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
D919B8Z	Low Dose Rate (LDR) Brachytherapy of Soft Palate using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
D919B9Z	Low Dose Rate (LDR) Brachytherapy of Soft Palate using Iodine 125 (I-125)	Procedure	ICD-10-PCS
D919BBZ	Low Dose Rate (LDR) Brachytherapy of Soft Palate using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
D919BCZ	Low Dose Rate (LDR) Brachytherapy of Soft Palate using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
D919BYZ	Low Dose Rate (LDR) Brachytherapy of Soft Palate using Other Isotope	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
D91B97Z	High Dose Rate (HDR) Brachytherapy of Larynx using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
D91B98Z	High Dose Rate (HDR) Brachytherapy of Larynx using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
D91B99Z	High Dose Rate (HDR) Brachytherapy of Larynx using Iodine 125 (I-125)	Procedure	ICD-10-PCS
D91B9BZ	High Dose Rate (HDR) Brachytherapy of Larynx using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
D91B9CZ	High Dose Rate (HDR) Brachytherapy of Larynx using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
D91B9YZ	High Dose Rate (HDR) Brachytherapy of Larynx using Other Isotope	Procedure	ICD-10-PCS
D91BB7Z	Low Dose Rate (LDR) Brachytherapy of Larynx using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
D91BB8Z	Low Dose Rate (LDR) Brachytherapy of Larynx using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
D91BB9Z	Low Dose Rate (LDR) Brachytherapy of Larynx using Iodine 125 (I-125)	Procedure	ICD-10-PCS
D91BBBZ	Low Dose Rate (LDR) Brachytherapy of Larynx using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
D91BBCZ	Low Dose Rate (LDR) Brachytherapy of Larynx using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
D91BBYZ	Low Dose Rate (LDR) Brachytherapy of Larynx using Other Isotope	Procedure	ICD-10-PCS
D91D97Z	High Dose Rate (HDR) Brachytherapy of Nasopharynx using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
D91D98Z	High Dose Rate (HDR) Brachytherapy of Nasopharynx using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
D91D99Z	High Dose Rate (HDR) Brachytherapy of Nasopharynx using Iodine 125 (I-125)	Procedure	ICD-10-PCS
D91D9BZ	High Dose Rate (HDR) Brachytherapy of Nasopharynx using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
D91D9CZ	High Dose Rate (HDR) Brachytherapy of Nasopharynx using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
D91D9YZ	High Dose Rate (HDR) Brachytherapy of Nasopharynx using Other Isotope	Procedure	ICD-10-PCS
D91DB7Z	Low Dose Rate (LDR) Brachytherapy of Nasopharynx using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
D91DB8Z	Low Dose Rate (LDR) Brachytherapy of Nasopharynx using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
D91DB9Z	Low Dose Rate (LDR) Brachytherapy of Nasopharynx using Iodine 125 (I-125)	Procedure	ICD-10-PCS
D91DBBZ	Low Dose Rate (LDR) Brachytherapy of Nasopharynx using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
D91DBCZ	Low Dose Rate (LDR) Brachytherapy of Nasopharynx using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
D91DBYZ	Low Dose Rate (LDR) Brachytherapy of Nasopharynx using Other Isotope	Procedure	ICD-10-PCS
D91F97Z	High Dose Rate (HDR) Brachytherapy of Oropharynx using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
D91F98Z	High Dose Rate (HDR) Brachytherapy of Oropharynx using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
D91F99Z	High Dose Rate (HDR) Brachytherapy of Oropharynx using Iodine 125 (I-125)	Procedure	ICD-10-PCS
D91F9BZ	High Dose Rate (HDR) Brachytherapy of Oropharynx using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
D91F9CZ	High Dose Rate (HDR) Brachytherapy of Oropharynx using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
D91F9YZ	High Dose Rate (HDR) Brachytherapy of Oropharynx using Other Isotope	Procedure	ICD-10-PCS
D91FB7Z	Low Dose Rate (LDR) Brachytherapy of Oropharynx using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
D91FB8Z	Low Dose Rate (LDR) Brachytherapy of Oropharynx using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
D91FB9Z	Low Dose Rate (LDR) Brachytherapy of Oropharynx using Iodine 125 (I-125)	Procedure	ICD-10-PCS
D91FBBZ	Low Dose Rate (LDR) Brachytherapy of Oropharynx using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
D91FBCZ	Low Dose Rate (LDR) Brachytherapy of Oropharynx using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
D91FBYZ	Low Dose Rate (LDR) Brachytherapy of Oropharynx using Other Isotope	Procedure	ICD-10-PCS
D9Y07ZZ	Contact Radiation of Ear	Procedure	ICD-10-PCS
D9Y0FZZ	Plaque Radiation of Ear	Procedure	ICD-10-PCS
D9Y17ZZ	Contact Radiation of Nose	Procedure	ICD-10-PCS
D9Y1FZZ	Plaque Radiation of Nose	Procedure	ICD-10-PCS
D9Y37ZZ	Contact Radiation of Hypopharynx	Procedure	ICD-10-PCS
D9Y47ZZ	Contact Radiation of Mouth	Procedure	ICD-10-PCS
D9Y4CZZ	Intraoperative Radiation Therapy (IORT) of Mouth	Procedure	ICD-10-PCS
D9Y4FZZ	Plaque Radiation of Mouth	Procedure	ICD-10-PCS
D9Y57ZZ	Contact Radiation of Tongue	Procedure	ICD-10-PCS
D9Y5FZZ	Plaque Radiation of Tongue	Procedure	ICD-10-PCS
D9Y67ZZ	Contact Radiation of Salivary Glands	Procedure	ICD-10-PCS
D9Y6FZZ	Plaque Radiation of Salivary Glands	Procedure	ICD-10-PCS
D9Y77ZZ	Contact Radiation of Sinuses	Procedure	ICD-10-PCS
D9Y7FZZ	Plaque Radiation of Sinuses	Procedure	ICD-10-PCS
D9Y87ZZ	Contact Radiation of Hard Palate	Procedure	ICD-10-PCS
D9Y8FZZ	Plaque Radiation of Hard Palate	Procedure	ICD-10-PCS
D9Y97ZZ	Contact Radiation of Soft Palate	Procedure	ICD-10-PCS
D9Y9FZZ	Plaque Radiation of Soft Palate	Procedure	ICD-10-PCS
D9YB7ZZ	Contact Radiation of Larynx	Procedure	ICD-10-PCS
D9YBCZZ	Intraoperative Radiation Therapy (IORT) of Larynx	Procedure	ICD-10-PCS
D9YBFZZ	Plaque Radiation of Larynx	Procedure	ICD-10-PCS
D9YCCZZ	Intraoperative Radiation Therapy (IORT) of Pharynx	Procedure	ICD-10-PCS
D9YCFZZ	Plaque Radiation of Pharynx	Procedure	ICD-10-PCS
D9YD7ZZ	Contact Radiation of Nasopharynx	Procedure	ICD-10-PCS
D9YDCZZ	Intraoperative Radiation Therapy (IORT) of Nasopharynx	Procedure	ICD-10-PCS
D9YDFZZ	Plaque Radiation of Nasopharynx	Procedure	ICD-10-PCS
D9YF7ZZ	Contact Radiation of Oropharynx	Procedure	ICD-10-PCS
DB000ZZ	Beam Radiation of Trachea using Photons <1 MeV	Procedure	ICD-10-PCS
DB001ZZ	Beam Radiation of Trachea using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
DB002ZZ	Beam Radiation of Trachea using Photons >10 MeV	Procedure	ICD-10-PCS
DB003ZZ	Beam Radiation of Trachea using Electrons	Procedure	ICD-10-PCS
DB004ZZ	Beam Radiation of Trachea using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
DB005ZZ	Beam Radiation of Trachea using Neutrons	Procedure	ICD-10-PCS
DB006ZZ	Beam Radiation of Trachea using Neutron Capture	Procedure	ICD-10-PCS
DB010ZZ	Beam Radiation of Bronchus using Photons <1 MeV	Procedure	ICD-10-PCS
DB011ZZ	Beam Radiation of Bronchus using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
DB012ZZ	Beam Radiation of Bronchus using Photons >10 MeV	Procedure	ICD-10-PCS
DB013ZZ	Beam Radiation of Bronchus using Electrons	Procedure	ICD-10-PCS
DB014ZZ	Beam Radiation of Bronchus using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
DB015ZZ	Beam Radiation of Bronchus using Neutrons	Procedure	ICD-10-PCS
DB016ZZ	Beam Radiation of Bronchus using Neutron Capture	Procedure	ICD-10-PCS
DB020ZZ	Beam Radiation of Lung using Photons <1 MeV	Procedure	ICD-10-PCS
DB021ZZ	Beam Radiation of Lung using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
DB022ZZ	Beam Radiation of Lung using Photons >10 MeV	Procedure	ICD-10-PCS
DB023ZZ	Beam Radiation of Lung using Electrons	Procedure	ICD-10-PCS
DB024ZZ	Beam Radiation of Lung using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
DB025ZZ	Beam Radiation of Lung using Neutrons	Procedure	ICD-10-PCS
DB026ZZ	Beam Radiation of Lung using Neutron Capture	Procedure	ICD-10-PCS
DB050ZZ	Beam Radiation of Pleura using Photons <1 MeV	Procedure	ICD-10-PCS
DB051ZZ	Beam Radiation of Pleura using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
DB052ZZ	Beam Radiation of Pleura using Photons >10 MeV	Procedure	ICD-10-PCS
DB053ZZ	Beam Radiation of Pleura using Electrons	Procedure	ICD-10-PCS
DB054ZZ	Beam Radiation of Pleura using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
DB055ZZ	Beam Radiation of Pleura using Neutrons	Procedure	ICD-10-PCS
DB056ZZ	Beam Radiation of Pleura using Neutron Capture	Procedure	ICD-10-PCS
DB060ZZ	Beam Radiation of Mediastinum using Photons <1 MeV	Procedure	ICD-10-PCS
DB061ZZ	Beam Radiation of Mediastinum using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
DB062ZZ	Beam Radiation of Mediastinum using Photons >10 MeV	Procedure	ICD-10-PCS
DB063ZZ	Beam Radiation of Mediastinum using Electrons	Procedure	ICD-10-PCS
DB064ZZ	Beam Radiation of Mediastinum using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
DB065ZZ	Beam Radiation of Mediastinum using Neutrons	Procedure	ICD-10-PCS
DB066ZZ	Beam Radiation of Mediastinum using Neutron Capture	Procedure	ICD-10-PCS
DB070ZZ	Beam Radiation of Chest Wall using Photons <1 MeV	Procedure	ICD-10-PCS
DB071ZZ	Beam Radiation of Chest Wall using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
DB072ZZ	Beam Radiation of Chest Wall using Photons >10 MeV	Procedure	ICD-10-PCS
DB073ZZ	Beam Radiation of Chest Wall using Electrons	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
DB074ZZ	Beam Radiation of Chest Wall using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
DB075ZZ	Beam Radiation of Chest Wall using Neutrons	Procedure	ICD-10-PCS
DB076ZZ	Beam Radiation of Chest Wall using Neutron Capture	Procedure	ICD-10-PCS
DB080ZZ	Beam Radiation of Diaphragm using Photons <1 MeV	Procedure	ICD-10-PCS
DB081ZZ	Beam Radiation of Diaphragm using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
DB082ZZ	Beam Radiation of Diaphragm using Photons >10 MeV	Procedure	ICD-10-PCS
DB083ZZ	Beam Radiation of Diaphragm using Electrons	Procedure	ICD-10-PCS
DB084ZZ	Beam Radiation of Diaphragm using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
DB085ZZ	Beam Radiation of Diaphragm using Neutrons	Procedure	ICD-10-PCS
DB086ZZ	Beam Radiation of Diaphragm using Neutron Capture	Procedure	ICD-10-PCS
DB1097Z	High Dose Rate (HDR) Brachytherapy of Trachea using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DB1098Z	High Dose Rate (HDR) Brachytherapy of Trachea using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DB1099Z	High Dose Rate (HDR) Brachytherapy of Trachea using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DB109BZ	High Dose Rate (HDR) Brachytherapy of Trachea using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DB109CZ	High Dose Rate (HDR) Brachytherapy of Trachea using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DB109YZ	High Dose Rate (HDR) Brachytherapy of Trachea using Other Isotope	Procedure	ICD-10-PCS
DB10B7Z	Low Dose Rate (LDR) Brachytherapy of Trachea using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DB10B8Z	Low Dose Rate (LDR) Brachytherapy of Trachea using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DB10B9Z	Low Dose Rate (LDR) Brachytherapy of Trachea using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DB10BBZ	Low Dose Rate (LDR) Brachytherapy of Trachea using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DB10BCZ	Low Dose Rate (LDR) Brachytherapy of Trachea using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DB10BYZ	Low Dose Rate (LDR) Brachytherapy of Trachea using Other Isotope	Procedure	ICD-10-PCS
DB1197Z	High Dose Rate (HDR) Brachytherapy of Bronchus using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DB1198Z	High Dose Rate (HDR) Brachytherapy of Bronchus using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DB1199Z	High Dose Rate (HDR) Brachytherapy of Bronchus using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DB119BZ	High Dose Rate (HDR) Brachytherapy of Bronchus using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DB119CZ	High Dose Rate (HDR) Brachytherapy of Bronchus using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DB119YZ	High Dose Rate (HDR) Brachytherapy of Bronchus using Other Isotope	Procedure	ICD-10-PCS
DB11B7Z	Low Dose Rate (LDR) Brachytherapy of Bronchus using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DB11B8Z	Low Dose Rate (LDR) Brachytherapy of Bronchus using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DB11B9Z	Low Dose Rate (LDR) Brachytherapy of Bronchus using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DB11BBZ	Low Dose Rate (LDR) Brachytherapy of Bronchus using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DB11BCZ	Low Dose Rate (LDR) Brachytherapy of Bronchus using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DB11BYZ	Low Dose Rate (LDR) Brachytherapy of Bronchus using Other Isotope	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
DB1297Z	High Dose Rate (HDR) Brachytherapy of Lung using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DB1298Z	High Dose Rate (HDR) Brachytherapy of Lung using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DB1299Z	High Dose Rate (HDR) Brachytherapy of Lung using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DB129BZ	High Dose Rate (HDR) Brachytherapy of Lung using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DB129CZ	High Dose Rate (HDR) Brachytherapy of Lung using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DB129YZ	High Dose Rate (HDR) Brachytherapy of Lung using Other Isotope	Procedure	ICD-10-PCS
DB12B7Z	Low Dose Rate (LDR) Brachytherapy of Lung using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DB12B8Z	Low Dose Rate (LDR) Brachytherapy of Lung using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DB12B9Z	Low Dose Rate (LDR) Brachytherapy of Lung using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DB12BBZ	Low Dose Rate (LDR) Brachytherapy of Lung using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DB12BCZ	Low Dose Rate (LDR) Brachytherapy of Lung using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DB12BYZ	Low Dose Rate (LDR) Brachytherapy of Lung using Other Isotope	Procedure	ICD-10-PCS
DB1597Z	High Dose Rate (HDR) Brachytherapy of Pleura using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DB1598Z	High Dose Rate (HDR) Brachytherapy of Pleura using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DB1599Z	High Dose Rate (HDR) Brachytherapy of Pleura using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DB159BZ	High Dose Rate (HDR) Brachytherapy of Pleura using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DB159CZ	High Dose Rate (HDR) Brachytherapy of Pleura using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DB159YZ	High Dose Rate (HDR) Brachytherapy of Pleura using Other Isotope	Procedure	ICD-10-PCS
DB15B7Z	Low Dose Rate (LDR) Brachytherapy of Pleura using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DB15B8Z	Low Dose Rate (LDR) Brachytherapy of Pleura using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DB15B9Z	Low Dose Rate (LDR) Brachytherapy of Pleura using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DB15BBZ	Low Dose Rate (LDR) Brachytherapy of Pleura using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DB15BCZ	Low Dose Rate (LDR) Brachytherapy of Pleura using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DB15BYZ	Low Dose Rate (LDR) Brachytherapy of Pleura using Other Isotope	Procedure	ICD-10-PCS
DB1697Z	High Dose Rate (HDR) Brachytherapy of Mediastinum using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DB1698Z	High Dose Rate (HDR) Brachytherapy of Mediastinum using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DB1699Z	High Dose Rate (HDR) Brachytherapy of Mediastinum using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DB169BZ	High Dose Rate (HDR) Brachytherapy of Mediastinum using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DB169CZ	High Dose Rate (HDR) Brachytherapy of Mediastinum using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DB169YZ	High Dose Rate (HDR) Brachytherapy of Mediastinum using Other Isotope	Procedure	ICD-10-PCS
DB16B7Z	Low Dose Rate (LDR) Brachytherapy of Mediastinum using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DB16B8Z	Low Dose Rate (LDR) Brachytherapy of Mediastinum using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DB16B9Z	Low Dose Rate (LDR) Brachytherapy of Mediastinum using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DB16BBZ	Low Dose Rate (LDR) Brachytherapy of Mediastinum using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
DB16BCZ	Low Dose Rate (LDR) Brachytherapy of Mediastinum using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DB16BYZ	Low Dose Rate (LDR) Brachytherapy of Mediastinum using Other Isotope	Procedure	ICD-10-PCS
DB1797Z	High Dose Rate (HDR) Brachytherapy of Chest Wall using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DB1798Z	High Dose Rate (HDR) Brachytherapy of Chest Wall using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DB1799Z	High Dose Rate (HDR) Brachytherapy of Chest Wall using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DB179BZ	High Dose Rate (HDR) Brachytherapy of Chest Wall using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DB179CZ	High Dose Rate (HDR) Brachytherapy of Chest Wall using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DB179YZ	High Dose Rate (HDR) Brachytherapy of Chest Wall using Other Isotope	Procedure	ICD-10-PCS
DB17B7Z	Low Dose Rate (LDR) Brachytherapy of Chest Wall using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DB17B8Z	Low Dose Rate (LDR) Brachytherapy of Chest Wall using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DB17B9Z	Low Dose Rate (LDR) Brachytherapy of Chest Wall using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DB17BBZ	Low Dose Rate (LDR) Brachytherapy of Chest Wall using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DB17BCZ	Low Dose Rate (LDR) Brachytherapy of Chest Wall using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DB17BYZ	Low Dose Rate (LDR) Brachytherapy of Chest Wall using Other Isotope	Procedure	ICD-10-PCS
DB1897Z	High Dose Rate (HDR) Brachytherapy of Diaphragm using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DB1898Z	High Dose Rate (HDR) Brachytherapy of Diaphragm using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DB1899Z	High Dose Rate (HDR) Brachytherapy of Diaphragm using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DB189BZ	High Dose Rate (HDR) Brachytherapy of Diaphragm using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DB189CZ	High Dose Rate (HDR) Brachytherapy of Diaphragm using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DB189YZ	High Dose Rate (HDR) Brachytherapy of Diaphragm using Other Isotope	Procedure	ICD-10-PCS
DB18B7Z	Low Dose Rate (LDR) Brachytherapy of Diaphragm using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DB18B8Z	Low Dose Rate (LDR) Brachytherapy of Diaphragm using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DB18B9Z	Low Dose Rate (LDR) Brachytherapy of Diaphragm using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DB18BBZ	Low Dose Rate (LDR) Brachytherapy of Diaphragm using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DB18BCZ	Low Dose Rate (LDR) Brachytherapy of Diaphragm using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DB18BYZ	Low Dose Rate (LDR) Brachytherapy of Diaphragm using Other Isotope	Procedure	ICD-10-PCS
DBY07ZZ	Contact Radiation of Trachea	Procedure	ICD-10-PCS
DBY0FZZ	Plaque Radiation of Trachea	Procedure	ICD-10-PCS
DBY17ZZ	Contact Radiation of Bronchus	Procedure	ICD-10-PCS
DBY1FZZ	Plaque Radiation of Bronchus	Procedure	ICD-10-PCS
DBY27ZZ	Contact Radiation of Lung	Procedure	ICD-10-PCS
DBY2FZZ	Plaque Radiation of Lung	Procedure	ICD-10-PCS
DBY57ZZ	Contact Radiation of Pleura	Procedure	ICD-10-PCS
DBY5FZZ	Plaque Radiation of Pleura	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
DBY67ZZ	Contact Radiation of Mediastinum	Procedure	ICD-10-PCS
DBY6FZZ	Plaque Radiation of Mediastinum	Procedure	ICD-10-PCS
DBY77ZZ	Contact Radiation of Chest Wall	Procedure	ICD-10-PCS
DBY7FZZ	Plaque Radiation of Chest Wall	Procedure	ICD-10-PCS
DBY87ZZ	Contact Radiation of Diaphragm	Procedure	ICD-10-PCS
DBY8FZZ	Plaque Radiation of Diaphragm	Procedure	ICD-10-PCS
DD000ZZ	Beam Radiation of Esophagus using Photons <1 MeV	Procedure	ICD-10-PCS
DD001ZZ	Beam Radiation of Esophagus using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
DD002ZZ	Beam Radiation of Esophagus using Photons >10 MeV	Procedure	ICD-10-PCS
DD003ZZ	Beam Radiation of Esophagus using Electrons	Procedure	ICD-10-PCS
DD004ZZ	Beam Radiation of Esophagus using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
DD005ZZ	Beam Radiation of Esophagus using Neutrons	Procedure	ICD-10-PCS
DD006ZZ	Beam Radiation of Esophagus using Neutron Capture	Procedure	ICD-10-PCS
DD010ZZ	Beam Radiation of Stomach using Photons <1 MeV	Procedure	ICD-10-PCS
DD011ZZ	Beam Radiation of Stomach using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
DD012ZZ	Beam Radiation of Stomach using Photons >10 MeV	Procedure	ICD-10-PCS
DD013ZZ	Beam Radiation of Stomach using Electrons	Procedure	ICD-10-PCS
DD014ZZ	Beam Radiation of Stomach using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
DD015ZZ	Beam Radiation of Stomach using Neutrons	Procedure	ICD-10-PCS
DD016ZZ	Beam Radiation of Stomach using Neutron Capture	Procedure	ICD-10-PCS
DD020ZZ	Beam Radiation of Duodenum using Photons <1 MeV	Procedure	ICD-10-PCS
DD021ZZ	Beam Radiation of Duodenum using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
DD022ZZ	Beam Radiation of Duodenum using Photons >10 MeV	Procedure	ICD-10-PCS
DD023ZZ	Beam Radiation of Duodenum using Electrons	Procedure	ICD-10-PCS
DD024ZZ	Beam Radiation of Duodenum using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
DD025ZZ	Beam Radiation of Duodenum using Neutrons	Procedure	ICD-10-PCS
DD026ZZ	Beam Radiation of Duodenum using Neutron Capture	Procedure	ICD-10-PCS
DD030ZZ	Beam Radiation of Jejunum using Photons <1 MeV	Procedure	ICD-10-PCS
DD031ZZ	Beam Radiation of Jejunum using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
DD032ZZ	Beam Radiation of Jejunum using Photons >10 MeV	Procedure	ICD-10-PCS
DD033ZZ	Beam Radiation of Jejunum using Electrons	Procedure	ICD-10-PCS
DD034ZZ	Beam Radiation of Jejunum using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
DD035ZZ	Beam Radiation of Jejunum using Neutrons	Procedure	ICD-10-PCS
DD036ZZ	Beam Radiation of Jejunum using Neutron Capture	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
DD040ZZ	Beam Radiation of Ileum using Photons <1 MeV	Procedure	ICD-10-PCS
DD041ZZ	Beam Radiation of Ileum using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
DD042ZZ	Beam Radiation of Ileum using Photons >10 MeV	Procedure	ICD-10-PCS
DD043ZZ	Beam Radiation of Ileum using Electrons	Procedure	ICD-10-PCS
DD044ZZ	Beam Radiation of Ileum using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
DD045ZZ	Beam Radiation of Ileum using Neutrons	Procedure	ICD-10-PCS
DD046ZZ	Beam Radiation of Ileum using Neutron Capture	Procedure	ICD-10-PCS
DD050ZZ	Beam Radiation of Colon using Photons <1 MeV	Procedure	ICD-10-PCS
DD051ZZ	Beam Radiation of Colon using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
DD052ZZ	Beam Radiation of Colon using Photons >10 MeV	Procedure	ICD-10-PCS
DD053ZZ	Beam Radiation of Colon using Electrons	Procedure	ICD-10-PCS
DD054ZZ	Beam Radiation of Colon using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
DD055ZZ	Beam Radiation of Colon using Neutrons	Procedure	ICD-10-PCS
DD056ZZ	Beam Radiation of Colon using Neutron Capture	Procedure	ICD-10-PCS
DD070ZZ	Beam Radiation of Rectum using Photons <1 MeV	Procedure	ICD-10-PCS
DD071ZZ	Beam Radiation of Rectum using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
DD072ZZ	Beam Radiation of Rectum using Photons >10 MeV	Procedure	ICD-10-PCS
DD073ZZ	Beam Radiation of Rectum using Electrons	Procedure	ICD-10-PCS
DD074ZZ	Beam Radiation of Rectum using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
DD075ZZ	Beam Radiation of Rectum using Neutrons	Procedure	ICD-10-PCS
DD076ZZ	Beam Radiation of Rectum using Neutron Capture	Procedure	ICD-10-PCS
DD1097Z	High Dose Rate (HDR) Brachytherapy of Esophagus using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DD1098Z	High Dose Rate (HDR) Brachytherapy of Esophagus using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DD1099Z	High Dose Rate (HDR) Brachytherapy of Esophagus using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DD109BZ	High Dose Rate (HDR) Brachytherapy of Esophagus using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DD109CZ	High Dose Rate (HDR) Brachytherapy of Esophagus using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DD109YZ	High Dose Rate (HDR) Brachytherapy of Esophagus using Other Isotope	Procedure	ICD-10-PCS
DD10B7Z	Low Dose Rate (LDR) Brachytherapy of Esophagus using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DD10B8Z	Low Dose Rate (LDR) Brachytherapy of Esophagus using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DD10B9Z	Low Dose Rate (LDR) Brachytherapy of Esophagus using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DD10BBZ	Low Dose Rate (LDR) Brachytherapy of Esophagus using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DD10BCZ	Low Dose Rate (LDR) Brachytherapy of Esophagus using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DD10BYZ	Low Dose Rate (LDR) Brachytherapy of Esophagus using Other Isotope	Procedure	ICD-10-PCS
DD1197Z	High Dose Rate (HDR) Brachytherapy of Stomach using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
DD1198Z	High Dose Rate (HDR) Brachytherapy of Stomach using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DD1199Z	High Dose Rate (HDR) Brachytherapy of Stomach using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DD119BZ	High Dose Rate (HDR) Brachytherapy of Stomach using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DD119CZ	High Dose Rate (HDR) Brachytherapy of Stomach using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DD119YZ	High Dose Rate (HDR) Brachytherapy of Stomach using Other Isotope	Procedure	ICD-10-PCS
DD11B7Z	Low Dose Rate (LDR) Brachytherapy of Stomach using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DD11B8Z	Low Dose Rate (LDR) Brachytherapy of Stomach using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DD11B9Z	Low Dose Rate (LDR) Brachytherapy of Stomach using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DD11BBZ	Low Dose Rate (LDR) Brachytherapy of Stomach using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DD11BCZ	Low Dose Rate (LDR) Brachytherapy of Stomach using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DD11BYZ	Low Dose Rate (LDR) Brachytherapy of Stomach using Other Isotope	Procedure	ICD-10-PCS
DD1297Z	High Dose Rate (HDR) Brachytherapy of Duodenum using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DD1298Z	High Dose Rate (HDR) Brachytherapy of Duodenum using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DD1299Z	High Dose Rate (HDR) Brachytherapy of Duodenum using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DD129BZ	High Dose Rate (HDR) Brachytherapy of Duodenum using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DD129CZ	High Dose Rate (HDR) Brachytherapy of Duodenum using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DD129YZ	High Dose Rate (HDR) Brachytherapy of Duodenum using Other Isotope	Procedure	ICD-10-PCS
DD12B7Z	Low Dose Rate (LDR) Brachytherapy of Duodenum using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DD12B8Z	Low Dose Rate (LDR) Brachytherapy of Duodenum using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DD12B9Z	Low Dose Rate (LDR) Brachytherapy of Duodenum using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DD12BBZ	Low Dose Rate (LDR) Brachytherapy of Duodenum using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DD12BCZ	Low Dose Rate (LDR) Brachytherapy of Duodenum using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DD12BYZ	Low Dose Rate (LDR) Brachytherapy of Duodenum using Other Isotope	Procedure	ICD-10-PCS
DD1397Z	High Dose Rate (HDR) Brachytherapy of Jejunum using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DD1398Z	High Dose Rate (HDR) Brachytherapy of Jejunum using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DD1399Z	High Dose Rate (HDR) Brachytherapy of Jejunum using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DD139BZ	High Dose Rate (HDR) Brachytherapy of Jejunum using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DD139CZ	High Dose Rate (HDR) Brachytherapy of Jejunum using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DD139YZ	High Dose Rate (HDR) Brachytherapy of Jejunum using Other Isotope	Procedure	ICD-10-PCS
DD13B7Z	Low Dose Rate (LDR) Brachytherapy of Jejunum using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DD13B8Z	Low Dose Rate (LDR) Brachytherapy of Jejunum using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DD13B9Z	Low Dose Rate (LDR) Brachytherapy of Jejunum using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DD13BBZ	Low Dose Rate (LDR) Brachytherapy of Jejunum using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DD13BCZ	Low Dose Rate (LDR) Brachytherapy of Jejunum using Californium 252 (Cf-252)	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
DD13BYZ	Low Dose Rate (LDR) Brachytherapy of Jejunum using Other Isotope	Procedure	ICD-10-PCS
DD1497Z	High Dose Rate (HDR) Brachytherapy of Ileum using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DD1498Z	High Dose Rate (HDR) Brachytherapy of Ileum using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DD1499Z	High Dose Rate (HDR) Brachytherapy of Ileum using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DD149BZ	High Dose Rate (HDR) Brachytherapy of Ileum using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DD149CZ	High Dose Rate (HDR) Brachytherapy of Ileum using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DD149YZ	High Dose Rate (HDR) Brachytherapy of Ileum using Other Isotope	Procedure	ICD-10-PCS
DD14B7Z	Low Dose Rate (LDR) Brachytherapy of Ileum using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DD14B8Z	Low Dose Rate (LDR) Brachytherapy of Ileum using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DD14B9Z	Low Dose Rate (LDR) Brachytherapy of Ileum using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DD14BBZ	Low Dose Rate (LDR) Brachytherapy of Ileum using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DD14BCZ	Low Dose Rate (LDR) Brachytherapy of Ileum using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DD14BYZ	Low Dose Rate (LDR) Brachytherapy of Ileum using Other Isotope	Procedure	ICD-10-PCS
DD1597Z	High Dose Rate (HDR) Brachytherapy of Colon using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DD1598Z	High Dose Rate (HDR) Brachytherapy of Colon using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DD1599Z	High Dose Rate (HDR) Brachytherapy of Colon using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DD159BZ	High Dose Rate (HDR) Brachytherapy of Colon using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DD159CZ	High Dose Rate (HDR) Brachytherapy of Colon using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DD159YZ	High Dose Rate (HDR) Brachytherapy of Colon using Other Isotope	Procedure	ICD-10-PCS
DD15B7Z	Low Dose Rate (LDR) Brachytherapy of Colon using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DD15B8Z	Low Dose Rate (LDR) Brachytherapy of Colon using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DD15B9Z	Low Dose Rate (LDR) Brachytherapy of Colon using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DD15BBZ	Low Dose Rate (LDR) Brachytherapy of Colon using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DD15BCZ	Low Dose Rate (LDR) Brachytherapy of Colon using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DD15BYZ	Low Dose Rate (LDR) Brachytherapy of Colon using Other Isotope	Procedure	ICD-10-PCS
DD1797Z	High Dose Rate (HDR) Brachytherapy of Rectum using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DD1798Z	High Dose Rate (HDR) Brachytherapy of Rectum using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DD1799Z	High Dose Rate (HDR) Brachytherapy of Rectum using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DD179BZ	High Dose Rate (HDR) Brachytherapy of Rectum using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DD179CZ	High Dose Rate (HDR) Brachytherapy of Rectum using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DD179YZ	High Dose Rate (HDR) Brachytherapy of Rectum using Other Isotope	Procedure	ICD-10-PCS
DD17B7Z	Low Dose Rate (LDR) Brachytherapy of Rectum using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DD17B8Z	Low Dose Rate (LDR) Brachytherapy of Rectum using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DD17B9Z	Low Dose Rate (LDR) Brachytherapy of Rectum using Iodine 125 (I-125)	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
DD17BBZ	Low Dose Rate (LDR) Brachytherapy of Rectum using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DD17BCZ	Low Dose Rate (LDR) Brachytherapy of Rectum using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DD17BYZ	Low Dose Rate (LDR) Brachytherapy of Rectum using Other Isotope	Procedure	ICD-10-PCS
DDY07ZZ	Contact Radiation of Esophagus	Procedure	ICD-10-PCS
DDY0FZZ	Plaque Radiation of Esophagus	Procedure	ICD-10-PCS
DDY17ZZ	Contact Radiation of Stomach	Procedure	ICD-10-PCS
DDY1CZZ	Intraoperative Radiation Therapy (IORT) of Stomach	Procedure	ICD-10-PCS
DDY1FZZ	Plaque Radiation of Stomach	Procedure	ICD-10-PCS
DDY27ZZ	Contact Radiation of Duodenum	Procedure	ICD-10-PCS
DDY2CZZ	Intraoperative Radiation Therapy (IORT) of Duodenum	Procedure	ICD-10-PCS
DDY2FZZ	Plaque Radiation of Duodenum	Procedure	ICD-10-PCS
DDY37ZZ	Contact Radiation of Jejunum	Procedure	ICD-10-PCS
DDY3CZZ	Intraoperative Radiation Therapy (IORT) of Jejunum	Procedure	ICD-10-PCS
DDY3FZZ	Plaque Radiation of Jejunum	Procedure	ICD-10-PCS
DDY47ZZ	Contact Radiation of Ileum	Procedure	ICD-10-PCS
DDY4CZZ	Intraoperative Radiation Therapy (IORT) of Ileum	Procedure	ICD-10-PCS
DDY4FZZ	Plaque Radiation of Ileum	Procedure	ICD-10-PCS
DDY57ZZ	Contact Radiation of Colon	Procedure	ICD-10-PCS
DDY5CZZ	Intraoperative Radiation Therapy (IORT) of Colon	Procedure	ICD-10-PCS
DDY5FZZ	Plaque Radiation of Colon	Procedure	ICD-10-PCS
DDY77ZZ	Contact Radiation of Rectum	Procedure	ICD-10-PCS
DDY7CZZ	Intraoperative Radiation Therapy (IORT) of Rectum	Procedure	ICD-10-PCS
DDY7FZZ	Plaque Radiation of Rectum	Procedure	ICD-10-PCS
DDY8CZZ	Intraoperative Radiation Therapy (IORT) of Anus	Procedure	ICD-10-PCS
DDY8FZZ	Plaque Radiation of Anus	Procedure	ICD-10-PCS
DF000ZZ	Beam Radiation of Liver using Photons <1 MeV	Procedure	ICD-10-PCS
DF001ZZ	Beam Radiation of Liver using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
DF002ZZ	Beam Radiation of Liver using Photons >10 MeV	Procedure	ICD-10-PCS
DF003ZZ	Beam Radiation of Liver using Electrons	Procedure	ICD-10-PCS
DF004ZZ	Beam Radiation of Liver using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
DF005ZZ	Beam Radiation of Liver using Neutrons	Procedure	ICD-10-PCS
DF006ZZ	Beam Radiation of Liver using Neutron Capture	Procedure	ICD-10-PCS
DF010ZZ	Beam Radiation of Gallbladder using Photons <1 MeV	Procedure	ICD-10-PCS
DF011ZZ	Beam Radiation of Gallbladder using Photons 1 - 10 MeV	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
DF012ZZ	Beam Radiation of Gallbladder using Photons >10 MeV	Procedure	ICD-10-PCS
DF013ZZ	Beam Radiation of Gallbladder using Electrons	Procedure	ICD-10-PCS
DF014ZZ	Beam Radiation of Gallbladder using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
DF015ZZ	Beam Radiation of Gallbladder using Neutrons	Procedure	ICD-10-PCS
DF016ZZ	Beam Radiation of Gallbladder using Neutron Capture	Procedure	ICD-10-PCS
DF020ZZ	Beam Radiation of Bile Ducts using Photons <1 MeV	Procedure	ICD-10-PCS
DF021ZZ	Beam Radiation of Bile Ducts using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
DF022ZZ	Beam Radiation of Bile Ducts using Photons >10 MeV	Procedure	ICD-10-PCS
DF023ZZ	Beam Radiation of Bile Ducts using Electrons	Procedure	ICD-10-PCS
DF024ZZ	Beam Radiation of Bile Ducts using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
DF025ZZ	Beam Radiation of Bile Ducts using Neutrons	Procedure	ICD-10-PCS
DF026ZZ	Beam Radiation of Bile Ducts using Neutron Capture	Procedure	ICD-10-PCS
DF030ZZ	Beam Radiation of Pancreas using Photons <1 MeV	Procedure	ICD-10-PCS
DF031ZZ	Beam Radiation of Pancreas using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
DF032ZZ	Beam Radiation of Pancreas using Photons >10 MeV	Procedure	ICD-10-PCS
DF033ZZ	Beam Radiation of Pancreas using Electrons	Procedure	ICD-10-PCS
DF034ZZ	Beam Radiation of Pancreas using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
DF035ZZ	Beam Radiation of Pancreas using Neutrons	Procedure	ICD-10-PCS
DF036ZZ	Beam Radiation of Pancreas using Neutron Capture	Procedure	ICD-10-PCS
DF1097Z	High Dose Rate (HDR) Brachytherapy of Liver using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DF1098Z	High Dose Rate (HDR) Brachytherapy of Liver using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DF1099Z	High Dose Rate (HDR) Brachytherapy of Liver using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DF109BZ	High Dose Rate (HDR) Brachytherapy of Liver using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DF109CZ	High Dose Rate (HDR) Brachytherapy of Liver using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DF109YZ	High Dose Rate (HDR) Brachytherapy of Liver using Other Isotope	Procedure	ICD-10-PCS
DF10B7Z	Low Dose Rate (LDR) Brachytherapy of Liver using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DF10B8Z	Low Dose Rate (LDR) Brachytherapy of Liver using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DF10B9Z	Low Dose Rate (LDR) Brachytherapy of Liver using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DF10BBZ	Low Dose Rate (LDR) Brachytherapy of Liver using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DF10BCZ	Low Dose Rate (LDR) Brachytherapy of Liver using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DF10BYZ	Low Dose Rate (LDR) Brachytherapy of Liver using Other Isotope	Procedure	ICD-10-PCS
DF1197Z	High Dose Rate (HDR) Brachytherapy of Gallbladder using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DF1198Z	High Dose Rate (HDR) Brachytherapy of Gallbladder using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DF1199Z	High Dose Rate (HDR) Brachytherapy of Gallbladder using Iodine 125 (I-125)	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
DF119BZ	High Dose Rate (HDR) Brachytherapy of Gallbladder using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DF119CZ	High Dose Rate (HDR) Brachytherapy of Gallbladder using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DF119YZ	High Dose Rate (HDR) Brachytherapy of Gallbladder using Other Isotope	Procedure	ICD-10-PCS
DF11B7Z	Low Dose Rate (LDR) Brachytherapy of Gallbladder using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DF11B8Z	Low Dose Rate (LDR) Brachytherapy of Gallbladder using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DF11B9Z	Low Dose Rate (LDR) Brachytherapy of Gallbladder using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DF11BBZ	Low Dose Rate (LDR) Brachytherapy of Gallbladder using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DF11BCZ	Low Dose Rate (LDR) Brachytherapy of Gallbladder using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DF11BYZ	Low Dose Rate (LDR) Brachytherapy of Gallbladder using Other Isotope	Procedure	ICD-10-PCS
DF1297Z	High Dose Rate (HDR) Brachytherapy of Bile Ducts using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DF1298Z	High Dose Rate (HDR) Brachytherapy of Bile Ducts using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DF1299Z	High Dose Rate (HDR) Brachytherapy of Bile Ducts using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DF129BZ	High Dose Rate (HDR) Brachytherapy of Bile Ducts using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DF129CZ	High Dose Rate (HDR) Brachytherapy of Bile Ducts using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DF129YZ	High Dose Rate (HDR) Brachytherapy of Bile Ducts using Other Isotope	Procedure	ICD-10-PCS
DF12B7Z	Low Dose Rate (LDR) Brachytherapy of Bile Ducts using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DF12B8Z	Low Dose Rate (LDR) Brachytherapy of Bile Ducts using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DF12B9Z	Low Dose Rate (LDR) Brachytherapy of Bile Ducts using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DF12BBZ	Low Dose Rate (LDR) Brachytherapy of Bile Ducts using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DF12BCZ	Low Dose Rate (LDR) Brachytherapy of Bile Ducts using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DF12BYZ	Low Dose Rate (LDR) Brachytherapy of Bile Ducts using Other Isotope	Procedure	ICD-10-PCS
DF1397Z	High Dose Rate (HDR) Brachytherapy of Pancreas using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DF1398Z	High Dose Rate (HDR) Brachytherapy of Pancreas using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DF1399Z	High Dose Rate (HDR) Brachytherapy of Pancreas using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DF139BZ	High Dose Rate (HDR) Brachytherapy of Pancreas using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DF139CZ	High Dose Rate (HDR) Brachytherapy of Pancreas using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DF139YZ	High Dose Rate (HDR) Brachytherapy of Pancreas using Other Isotope	Procedure	ICD-10-PCS
DF13B7Z	Low Dose Rate (LDR) Brachytherapy of Pancreas using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DF13B8Z	Low Dose Rate (LDR) Brachytherapy of Pancreas using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DF13B9Z	Low Dose Rate (LDR) Brachytherapy of Pancreas using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DF13BBZ	Low Dose Rate (LDR) Brachytherapy of Pancreas using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DF13BCZ	Low Dose Rate (LDR) Brachytherapy of Pancreas using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DF13BYZ	Low Dose Rate (LDR) Brachytherapy of Pancreas using Other Isotope	Procedure	ICD-10-PCS
DFY07ZZ	Contact Radiation of Liver	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
DFY0CZZ	Intraoperative Radiation Therapy (IORT) of Liver	Procedure	ICD-10-PCS
DFY0FZZ	Plaque Radiation of Liver	Procedure	ICD-10-PCS
DFY17ZZ	Contact Radiation of Gallbladder	Procedure	ICD-10-PCS
DFY1CZZ	Intraoperative Radiation Therapy (IORT) of Gallbladder	Procedure	ICD-10-PCS
DFY1FZZ	Plaque Radiation of Gallbladder	Procedure	ICD-10-PCS
DFY27ZZ	Contact Radiation of Bile Ducts	Procedure	ICD-10-PCS
DFY2CZZ	Intraoperative Radiation Therapy (IORT) of Bile Ducts	Procedure	ICD-10-PCS
DFY2FZZ	Plaque Radiation of Bile Ducts	Procedure	ICD-10-PCS
DFY37ZZ	Contact Radiation of Pancreas	Procedure	ICD-10-PCS
DFY3CZZ	Intraoperative Radiation Therapy (IORT) of Pancreas	Procedure	ICD-10-PCS
DFY3FZZ	Plaque Radiation of Pancreas	Procedure	ICD-10-PCS
DG000ZZ	Beam Radiation of Pituitary Gland using Photons <1 MeV	Procedure	ICD-10-PCS
DG001ZZ	Beam Radiation of Pituitary Gland using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
DG002ZZ	Beam Radiation of Pituitary Gland using Photons >10 MeV	Procedure	ICD-10-PCS
DG003ZZ	Beam Radiation of Pituitary Gland using Electrons	Procedure	ICD-10-PCS
DG005ZZ	Beam Radiation of Pituitary Gland using Neutrons	Procedure	ICD-10-PCS
DG006ZZ	Beam Radiation of Pituitary Gland using Neutron Capture	Procedure	ICD-10-PCS
DG010ZZ	Beam Radiation of Pineal Body using Photons <1 MeV	Procedure	ICD-10-PCS
DG011ZZ	Beam Radiation of Pineal Body using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
DG012ZZ	Beam Radiation of Pineal Body using Photons >10 MeV	Procedure	ICD-10-PCS
DG013ZZ	Beam Radiation of Pineal Body using Electrons	Procedure	ICD-10-PCS
DG015ZZ	Beam Radiation of Pineal Body using Neutrons	Procedure	ICD-10-PCS
DG016ZZ	Beam Radiation of Pineal Body using Neutron Capture	Procedure	ICD-10-PCS
DG020ZZ	Beam Radiation of Adrenal Glands using Photons <1 MeV	Procedure	ICD-10-PCS
DG021ZZ	Beam Radiation of Adrenal Glands using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
DG022ZZ	Beam Radiation of Adrenal Glands using Photons >10 MeV	Procedure	ICD-10-PCS
DG023ZZ	Beam Radiation of Adrenal Glands using Electrons	Procedure	ICD-10-PCS
DG025ZZ	Beam Radiation of Adrenal Glands using Neutrons	Procedure	ICD-10-PCS
DG026ZZ	Beam Radiation of Adrenal Glands using Neutron Capture	Procedure	ICD-10-PCS
DG040ZZ	Beam Radiation of Parathyroid Glands using Photons <1 MeV	Procedure	ICD-10-PCS
DG041ZZ	Beam Radiation of Parathyroid Glands using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
DG042ZZ	Beam Radiation of Parathyroid Glands using Photons >10 MeV	Procedure	ICD-10-PCS
DG043ZZ	Beam Radiation of Parathyroid Glands using Electrons	Procedure	ICD-10-PCS
DG045ZZ	Beam Radiation of Parathyroid Glands using Neutrons	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
DG046ZZ	Beam Radiation of Parathyroid Glands using Neutron Capture	Procedure	ICD-10-PCS
DG050ZZ	Beam Radiation of Thyroid using Photons <1 MeV	Procedure	ICD-10-PCS
DG051ZZ	Beam Radiation of Thyroid using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
DG052ZZ	Beam Radiation of Thyroid using Photons >10 MeV	Procedure	ICD-10-PCS
DG053ZZ	Beam Radiation of Thyroid using Electrons	Procedure	ICD-10-PCS
DG055ZZ	Beam Radiation of Thyroid using Neutrons	Procedure	ICD-10-PCS
DG056ZZ	Beam Radiation of Thyroid using Neutron Capture	Procedure	ICD-10-PCS
DG1097Z	High Dose Rate (HDR) Brachytherapy of Pituitary Gland using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DG1098Z	High Dose Rate (HDR) Brachytherapy of Pituitary Gland using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DG1099Z	High Dose Rate (HDR) Brachytherapy of Pituitary Gland using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DG109BZ	High Dose Rate (HDR) Brachytherapy of Pituitary Gland using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DG109CZ	High Dose Rate (HDR) Brachytherapy of Pituitary Gland using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DG109YZ	High Dose Rate (HDR) Brachytherapy of Pituitary Gland using Other Isotope	Procedure	ICD-10-PCS
DG10B7Z	Low Dose Rate (LDR) Brachytherapy of Pituitary Gland using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DG10B8Z	Low Dose Rate (LDR) Brachytherapy of Pituitary Gland using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DG10B9Z	Low Dose Rate (LDR) Brachytherapy of Pituitary Gland using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DG10BBZ	Low Dose Rate (LDR) Brachytherapy of Pituitary Gland using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DG10BCZ	Low Dose Rate (LDR) Brachytherapy of Pituitary Gland using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DG10BYZ	Low Dose Rate (LDR) Brachytherapy of Pituitary Gland using Other Isotope	Procedure	ICD-10-PCS
DG1197Z	High Dose Rate (HDR) Brachytherapy of Pineal Body using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DG1198Z	High Dose Rate (HDR) Brachytherapy of Pineal Body using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DG1199Z	High Dose Rate (HDR) Brachytherapy of Pineal Body using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DG119BZ	High Dose Rate (HDR) Brachytherapy of Pineal Body using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DG119CZ	High Dose Rate (HDR) Brachytherapy of Pineal Body using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DG119YZ	High Dose Rate (HDR) Brachytherapy of Pineal Body using Other Isotope	Procedure	ICD-10-PCS
DG11B7Z	Low Dose Rate (LDR) Brachytherapy of Pineal Body using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DG11B8Z	Low Dose Rate (LDR) Brachytherapy of Pineal Body using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DG11B9Z	Low Dose Rate (LDR) Brachytherapy of Pineal Body using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DG11BBZ	Low Dose Rate (LDR) Brachytherapy of Pineal Body using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DG11BCZ	Low Dose Rate (LDR) Brachytherapy of Pineal Body using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DG11BYZ	Low Dose Rate (LDR) Brachytherapy of Pineal Body using Other Isotope	Procedure	ICD-10-PCS
DG1297Z	High Dose Rate (HDR) Brachytherapy of Adrenal Glands using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DG1298Z	High Dose Rate (HDR) Brachytherapy of Adrenal Glands using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DG1299Z	High Dose Rate (HDR) Brachytherapy of Adrenal Glands using Iodine 125 (I-125)	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
DG129BZ	High Dose Rate (HDR) Brachytherapy of Adrenal Glands using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DG129CZ	High Dose Rate (HDR) Brachytherapy of Adrenal Glands using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DG129YZ	High Dose Rate (HDR) Brachytherapy of Adrenal Glands using Other Isotope	Procedure	ICD-10-PCS
DG12B7Z	Low Dose Rate (LDR) Brachytherapy of Adrenal Glands using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DG12B8Z	Low Dose Rate (LDR) Brachytherapy of Adrenal Glands using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DG12B9Z	Low Dose Rate (LDR) Brachytherapy of Adrenal Glands using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DG12BBZ	Low Dose Rate (LDR) Brachytherapy of Adrenal Glands using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DG12BCZ	Low Dose Rate (LDR) Brachytherapy of Adrenal Glands using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DG12BYZ	Low Dose Rate (LDR) Brachytherapy of Adrenal Glands using Other Isotope	Procedure	ICD-10-PCS
DG1497Z	High Dose Rate (HDR) Brachytherapy of Parathyroid Glands using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DG1498Z	High Dose Rate (HDR) Brachytherapy of Parathyroid Glands using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DG1499Z	High Dose Rate (HDR) Brachytherapy of Parathyroid Glands using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DG149BZ	High Dose Rate (HDR) Brachytherapy of Parathyroid Glands using Palladium 103 (Pd-	Procedure	ICD-10-PCS
DG149CZ	High Dose Rate (HDR) Brachytherapy of Parathyroid Glands using Californium 252 (Cf-	Procedure	ICD-10-PCS
DG149YZ	High Dose Rate (HDR) Brachytherapy of Parathyroid Glands using Other Isotope	Procedure	ICD-10-PCS
DG14B7Z	Low Dose Rate (LDR) Brachytherapy of Parathyroid Glands using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DG14B8Z	Low Dose Rate (LDR) Brachytherapy of Parathyroid Glands using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DG14B9Z	Low Dose Rate (LDR) Brachytherapy of Parathyroid Glands using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DG14BBZ	Low Dose Rate (LDR) Brachytherapy of Parathyroid Glands using Palladium 103 (Pd-	Procedure	ICD-10-PCS
DG14BCZ	Low Dose Rate (LDR) Brachytherapy of Parathyroid Glands using Californium 252 (Cf-	Procedure	ICD-10-PCS
DG14BYZ	Low Dose Rate (LDR) Brachytherapy of Parathyroid Glands using Other Isotope	Procedure	ICD-10-PCS
DG1597Z	High Dose Rate (HDR) Brachytherapy of Thyroid using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DG1598Z	High Dose Rate (HDR) Brachytherapy of Thyroid using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DG1599Z	High Dose Rate (HDR) Brachytherapy of Thyroid using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DG159BZ	High Dose Rate (HDR) Brachytherapy of Thyroid using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DG159CZ	High Dose Rate (HDR) Brachytherapy of Thyroid using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DG159YZ	High Dose Rate (HDR) Brachytherapy of Thyroid using Other Isotope	Procedure	ICD-10-PCS
DG15B7Z	Low Dose Rate (LDR) Brachytherapy of Thyroid using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DG15B8Z	Low Dose Rate (LDR) Brachytherapy of Thyroid using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DG15B9Z	Low Dose Rate (LDR) Brachytherapy of Thyroid using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DG15BBZ	Low Dose Rate (LDR) Brachytherapy of Thyroid using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DG15BCZ	Low Dose Rate (LDR) Brachytherapy of Thyroid using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DG15BYZ	Low Dose Rate (LDR) Brachytherapy of Thyroid using Other Isotope	Procedure	ICD-10-PCS
DGY07ZZ	Contact Radiation of Pituitary Gland	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
DGY0FZZ	Plaque Radiation of Pituitary Gland	Procedure	ICD-10-PCS
DGY17ZZ	Contact Radiation of Pineal Body	Procedure	ICD-10-PCS
DGY1FZZ	Plaque Radiation of Pineal Body	Procedure	ICD-10-PCS
DGY27ZZ	Contact Radiation of Adrenal Glands	Procedure	ICD-10-PCS
DGY2FZZ	Plaque Radiation of Adrenal Glands	Procedure	ICD-10-PCS
DGY47ZZ	Contact Radiation of Parathyroid Glands	Procedure	ICD-10-PCS
DGY4FZZ	Plaque Radiation of Parathyroid Glands	Procedure	ICD-10-PCS
DGY57ZZ	Contact Radiation of Thyroid	Procedure	ICD-10-PCS
DGY5FZZ	Plaque Radiation of Thyroid	Procedure	ICD-10-PCS
DM000ZZ	Beam Radiation of Left Breast using Photons <1 MeV	Procedure	ICD-10-PCS
DM001ZZ	Beam Radiation of Left Breast using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
DM002ZZ	Beam Radiation of Left Breast using Photons >10 MeV	Procedure	ICD-10-PCS
DM003ZZ	Beam Radiation of Left Breast using Electrons	Procedure	ICD-10-PCS
DM004ZZ	Beam Radiation of Left Breast using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
DM005ZZ	Beam Radiation of Left Breast using Neutrons	Procedure	ICD-10-PCS
DM006ZZ	Beam Radiation of Left Breast using Neutron Capture	Procedure	ICD-10-PCS
DM010ZZ	Beam Radiation of Right Breast using Photons <1 MeV	Procedure	ICD-10-PCS
DM011ZZ	Beam Radiation of Right Breast using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
DM012ZZ	Beam Radiation of Right Breast using Photons >10 MeV	Procedure	ICD-10-PCS
DM013ZZ	Beam Radiation of Right Breast using Electrons	Procedure	ICD-10-PCS
DM014ZZ	Beam Radiation of Right Breast using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
DM015ZZ	Beam Radiation of Right Breast using Neutrons	Procedure	ICD-10-PCS
DM016ZZ	Beam Radiation of Right Breast using Neutron Capture	Procedure	ICD-10-PCS
DM1097Z	High Dose Rate (HDR) Brachytherapy of Left Breast using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DM1098Z	High Dose Rate (HDR) Brachytherapy of Left Breast using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DM1099Z	High Dose Rate (HDR) Brachytherapy of Left Breast using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DM109BZ	High Dose Rate (HDR) Brachytherapy of Left Breast using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DM109CZ	High Dose Rate (HDR) Brachytherapy of Left Breast using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DM109YZ	High Dose Rate (HDR) Brachytherapy of Left Breast using Other Isotope	Procedure	ICD-10-PCS
DM10B7Z	Low Dose Rate (LDR) Brachytherapy of Left Breast using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DM10B8Z	Low Dose Rate (LDR) Brachytherapy of Left Breast using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DM10B9Z	Low Dose Rate (LDR) Brachytherapy of Left Breast using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DM10BBZ	Low Dose Rate (LDR) Brachytherapy of Left Breast using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DM10BCZ	Low Dose Rate (LDR) Brachytherapy of Left Breast using Californium 252 (Cf-252)	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
DM10BYZ	Low Dose Rate (LDR) Brachytherapy of Left Breast using Other Isotope	Procedure	ICD-10-PCS
DM1197Z	High Dose Rate (HDR) Brachytherapy of Right Breast using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DM1198Z	High Dose Rate (HDR) Brachytherapy of Right Breast using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DM1199Z	High Dose Rate (HDR) Brachytherapy of Right Breast using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DM119BZ	High Dose Rate (HDR) Brachytherapy of Right Breast using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DM119CZ	High Dose Rate (HDR) Brachytherapy of Right Breast using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DM119YZ	High Dose Rate (HDR) Brachytherapy of Right Breast using Other Isotope	Procedure	ICD-10-PCS
DM11B7Z	Low Dose Rate (LDR) Brachytherapy of Right Breast using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DM11B8Z	Low Dose Rate (LDR) Brachytherapy of Right Breast using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DM11B9Z	Low Dose Rate (LDR) Brachytherapy of Right Breast using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DM11BBZ	Low Dose Rate (LDR) Brachytherapy of Right Breast using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DM11BCZ	Low Dose Rate (LDR) Brachytherapy of Right Breast using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DM11BYZ	Low Dose Rate (LDR) Brachytherapy of Right Breast using Other Isotope	Procedure	ICD-10-PCS
DMY07ZZ	Contact Radiation of Left Breast	Procedure	ICD-10-PCS
DMY0FZZ	Plaque Radiation of Left Breast	Procedure	ICD-10-PCS
DMY17ZZ	Contact Radiation of Right Breast	Procedure	ICD-10-PCS
DMY1FZZ	Plaque Radiation of Right Breast	Procedure	ICD-10-PCS
DP000ZZ	Beam Radiation of Skull using Photons <1 MeV	Procedure	ICD-10-PCS
DP001ZZ	Beam Radiation of Skull using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
DP002ZZ	Beam Radiation of Skull using Photons >10 MeV	Procedure	ICD-10-PCS
DP003ZZ	Beam Radiation of Skull using Electrons	Procedure	ICD-10-PCS
DP004ZZ	Beam Radiation of Skull using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
DP005ZZ	Beam Radiation of Skull using Neutrons	Procedure	ICD-10-PCS
DP006ZZ	Beam Radiation of Skull using Neutron Capture	Procedure	ICD-10-PCS
DP020ZZ	Beam Radiation of Maxilla using Photons <1 MeV	Procedure	ICD-10-PCS
DP021ZZ	Beam Radiation of Maxilla using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
DP022ZZ	Beam Radiation of Maxilla using Photons >10 MeV	Procedure	ICD-10-PCS
DP023ZZ	Beam Radiation of Maxilla using Electrons	Procedure	ICD-10-PCS
DP024ZZ	Beam Radiation of Maxilla using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
DP025ZZ	Beam Radiation of Maxilla using Neutrons	Procedure	ICD-10-PCS
DP026ZZ	Beam Radiation of Maxilla using Neutron Capture	Procedure	ICD-10-PCS
DP030ZZ	Beam Radiation of Mandible using Photons <1 MeV	Procedure	ICD-10-PCS
DP031ZZ	Beam Radiation of Mandible using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
DP032ZZ	Beam Radiation of Mandible using Photons >10 MeV	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
DP033ZZ	Beam Radiation of Mandible using Electrons	Procedure	ICD-10-PCS
DP034ZZ	Beam Radiation of Mandible using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
DP035ZZ	Beam Radiation of Mandible using Neutrons	Procedure	ICD-10-PCS
DP036ZZ	Beam Radiation of Mandible using Neutron Capture	Procedure	ICD-10-PCS
DP040ZZ	Beam Radiation of Sternum using Photons <1 MeV	Procedure	ICD-10-PCS
DP041ZZ	Beam Radiation of Sternum using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
DP042ZZ	Beam Radiation of Sternum using Photons >10 MeV	Procedure	ICD-10-PCS
DP043ZZ	Beam Radiation of Sternum using Electrons	Procedure	ICD-10-PCS
DP044ZZ	Beam Radiation of Sternum using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
DP045ZZ	Beam Radiation of Sternum using Neutrons	Procedure	ICD-10-PCS
DP046ZZ	Beam Radiation of Sternum using Neutron Capture	Procedure	ICD-10-PCS
DP050ZZ	Beam Radiation of Rib(s) using Photons <1 MeV	Procedure	ICD-10-PCS
DP051ZZ	Beam Radiation of Rib(s) using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
DP052ZZ	Beam Radiation of Rib(s) using Photons >10 MeV	Procedure	ICD-10-PCS
DP053ZZ	Beam Radiation of Rib(s) using Electrons	Procedure	ICD-10-PCS
DP054ZZ	Beam Radiation of Rib(s) using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
DP055ZZ	Beam Radiation of Rib(s) using Neutrons	Procedure	ICD-10-PCS
DP056ZZ	Beam Radiation of Rib(s) using Neutron Capture	Procedure	ICD-10-PCS
DP060ZZ	Beam Radiation of Humerus using Photons <1 MeV	Procedure	ICD-10-PCS
DP061ZZ	Beam Radiation of Humerus using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
DP062ZZ	Beam Radiation of Humerus using Photons >10 MeV	Procedure	ICD-10-PCS
DP063ZZ	Beam Radiation of Humerus using Electrons	Procedure	ICD-10-PCS
DP064ZZ	Beam Radiation of Humerus using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
DP065ZZ	Beam Radiation of Humerus using Neutrons	Procedure	ICD-10-PCS
DP066ZZ	Beam Radiation of Humerus using Neutron Capture	Procedure	ICD-10-PCS
DP070ZZ	Beam Radiation of Radius/Ulna using Photons <1 MeV	Procedure	ICD-10-PCS
DP071ZZ	Beam Radiation of Radius/Ulna using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
DP072ZZ	Beam Radiation of Radius/Ulna using Photons >10 MeV	Procedure	ICD-10-PCS
DP073ZZ	Beam Radiation of Radius/Ulna using Electrons	Procedure	ICD-10-PCS
DP074ZZ	Beam Radiation of Radius/Ulna using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
DP075ZZ	Beam Radiation of Radius/Ulna using Neutrons	Procedure	ICD-10-PCS
DP076ZZ	Beam Radiation of Radius/Ulna using Neutron Capture	Procedure	ICD-10-PCS
DP080ZZ	Beam Radiation of Pelvic Bones using Photons <1 MeV	Procedure	ICD-10-PCS
DP081ZZ	Beam Radiation of Pelvic Bones using Photons 1 - 10 MeV	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
DP082ZZ	Beam Radiation of Pelvic Bones using Photons >10 MeV	Procedure	ICD-10-PCS
DP083ZZ	Beam Radiation of Pelvic Bones using Electrons	Procedure	ICD-10-PCS
DP084ZZ	Beam Radiation of Pelvic Bones using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
DP085ZZ	Beam Radiation of Pelvic Bones using Neutrons	Procedure	ICD-10-PCS
DP086ZZ	Beam Radiation of Pelvic Bones using Neutron Capture	Procedure	ICD-10-PCS
DP090ZZ	Beam Radiation of Femur using Photons <1 MeV	Procedure	ICD-10-PCS
DP091ZZ	Beam Radiation of Femur using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
DP092ZZ	Beam Radiation of Femur using Photons >10 MeV	Procedure	ICD-10-PCS
DP093ZZ	Beam Radiation of Femur using Electrons	Procedure	ICD-10-PCS
DP094ZZ	Beam Radiation of Femur using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
DP095ZZ	Beam Radiation of Femur using Neutrons	Procedure	ICD-10-PCS
DP096ZZ	Beam Radiation of Femur using Neutron Capture	Procedure	ICD-10-PCS
DP0B0ZZ	Beam Radiation of Tibia/Fibula using Photons <1 MeV	Procedure	ICD-10-PCS
DP0B1ZZ	Beam Radiation of Tibia/Fibula using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
DP0B2ZZ	Beam Radiation of Tibia/Fibula using Photons >10 MeV	Procedure	ICD-10-PCS
DP0B3ZZ	Beam Radiation of Tibia/Fibula using Electrons	Procedure	ICD-10-PCS
DP0B4ZZ	Beam Radiation of Tibia/Fibula using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
DP0B5ZZ	Beam Radiation of Tibia/Fibula using Neutrons	Procedure	ICD-10-PCS
DP0B6ZZ	Beam Radiation of Tibia/Fibula using Neutron Capture	Procedure	ICD-10-PCS
DP0C0ZZ	Beam Radiation of Other Bone using Photons <1 MeV	Procedure	ICD-10-PCS
DP0C1ZZ	Beam Radiation of Other Bone using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
DP0C2ZZ	Beam Radiation of Other Bone using Photons >10 MeV	Procedure	ICD-10-PCS
DP0C3ZZ	Beam Radiation of Other Bone using Electrons	Procedure	ICD-10-PCS
DP0C4ZZ	Beam Radiation of Other Bone using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
DP0C5ZZ	Beam Radiation of Other Bone using Neutrons	Procedure	ICD-10-PCS
DP0C6ZZ	Beam Radiation of Other Bone using Neutron Capture	Procedure	ICD-10-PCS
DPY07ZZ	Contact Radiation of Skull	Procedure	ICD-10-PCS
DPY0FZZ	Plaque Radiation of Skull	Procedure	ICD-10-PCS
DPY27ZZ	Contact Radiation of Maxilla	Procedure	ICD-10-PCS
DPY2FZZ	Plaque Radiation of Maxilla	Procedure	ICD-10-PCS
DPY37ZZ	Contact Radiation of Mandible	Procedure	ICD-10-PCS
DPY3FZZ	Plaque Radiation of Mandible	Procedure	ICD-10-PCS
DPY47ZZ	Contact Radiation of Sternum	Procedure	ICD-10-PCS
DPY4FZZ	Plaque Radiation of Sternum	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
DPY57ZZ	Contact Radiation of Rib(s)	Procedure	ICD-10-PCS
DPY5FZZ	Plaque Radiation of Rib(s)	Procedure	ICD-10-PCS
DPY67ZZ	Contact Radiation of Humerus	Procedure	ICD-10-PCS
DPY6FZZ	Plaque Radiation of Humerus	Procedure	ICD-10-PCS
DPY77ZZ	Contact Radiation of Radius/Ulna	Procedure	ICD-10-PCS
DPY7FZZ	Plaque Radiation of Radius/Ulna	Procedure	ICD-10-PCS
DPY87ZZ	Contact Radiation of Pelvic Bones	Procedure	ICD-10-PCS
DPY8FZZ	Plaque Radiation of Pelvic Bones	Procedure	ICD-10-PCS
DPY97ZZ	Contact Radiation of Femur	Procedure	ICD-10-PCS
DPY9FZZ	Plaque Radiation of Femur	Procedure	ICD-10-PCS
DPYB7ZZ	Contact Radiation of Tibia/Fibula	Procedure	ICD-10-PCS
DPYBFZZ	Plaque Radiation of Tibia/Fibula	Procedure	ICD-10-PCS
DPYC7ZZ	Contact Radiation of Other Bone	Procedure	ICD-10-PCS
DPYCFZZ	Plaque Radiation of Other Bone	Procedure	ICD-10-PCS
DT000ZZ	Beam Radiation of Kidney using Photons <1 MeV	Procedure	ICD-10-PCS
DT001ZZ	Beam Radiation of Kidney using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
DT002ZZ	Beam Radiation of Kidney using Photons >10 MeV	Procedure	ICD-10-PCS
DT003ZZ	Beam Radiation of Kidney using Electrons	Procedure	ICD-10-PCS
DT004ZZ	Beam Radiation of Kidney using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
DT005ZZ	Beam Radiation of Kidney using Neutrons	Procedure	ICD-10-PCS
DT006ZZ	Beam Radiation of Kidney using Neutron Capture	Procedure	ICD-10-PCS
DT010ZZ	Beam Radiation of Ureter using Photons <1 MeV	Procedure	ICD-10-PCS
DT011ZZ	Beam Radiation of Ureter using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
DT012ZZ	Beam Radiation of Ureter using Photons >10 MeV	Procedure	ICD-10-PCS
DT013ZZ	Beam Radiation of Ureter using Electrons	Procedure	ICD-10-PCS
DT014ZZ	Beam Radiation of Ureter using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
DT015ZZ	Beam Radiation of Ureter using Neutrons	Procedure	ICD-10-PCS
DT016ZZ	Beam Radiation of Ureter using Neutron Capture	Procedure	ICD-10-PCS
DT020ZZ	Beam Radiation of Bladder using Photons <1 MeV	Procedure	ICD-10-PCS
DT021ZZ	Beam Radiation of Bladder using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
DT022ZZ	Beam Radiation of Bladder using Photons >10 MeV	Procedure	ICD-10-PCS
DT023ZZ	Beam Radiation of Bladder using Electrons	Procedure	ICD-10-PCS
DT024ZZ	Beam Radiation of Bladder using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
DT025ZZ	Beam Radiation of Bladder using Neutrons	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
DT026ZZ	Beam Radiation of Bladder using Neutron Capture	Procedure	ICD-10-PCS
DT030ZZ	Beam Radiation of Urethra using Photons <1 MeV	Procedure	ICD-10-PCS
DT031ZZ	Beam Radiation of Urethra using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
DT032ZZ	Beam Radiation of Urethra using Photons >10 MeV	Procedure	ICD-10-PCS
DT033ZZ	Beam Radiation of Urethra using Electrons	Procedure	ICD-10-PCS
DT034ZZ	Beam Radiation of Urethra using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
DT035ZZ	Beam Radiation of Urethra using Neutrons	Procedure	ICD-10-PCS
DT036ZZ	Beam Radiation of Urethra using Neutron Capture	Procedure	ICD-10-PCS
DT1097Z	High Dose Rate (HDR) Brachytherapy of Kidney using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DT1098Z	High Dose Rate (HDR) Brachytherapy of Kidney using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DT1099Z	High Dose Rate (HDR) Brachytherapy of Kidney using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DT109BZ	High Dose Rate (HDR) Brachytherapy of Kidney using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DT109CZ	High Dose Rate (HDR) Brachytherapy of Kidney using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DT109YZ	High Dose Rate (HDR) Brachytherapy of Kidney using Other Isotope	Procedure	ICD-10-PCS
DT10B7Z	Low Dose Rate (LDR) Brachytherapy of Kidney using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DT10B8Z	Low Dose Rate (LDR) Brachytherapy of Kidney using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DT10B9Z	Low Dose Rate (LDR) Brachytherapy of Kidney using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DT10BBZ	Low Dose Rate (LDR) Brachytherapy of Kidney using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DT10BCZ	Low Dose Rate (LDR) Brachytherapy of Kidney using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DT10BYZ	Low Dose Rate (LDR) Brachytherapy of Kidney using Other Isotope	Procedure	ICD-10-PCS
DT1197Z	High Dose Rate (HDR) Brachytherapy of Ureter using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DT1198Z	High Dose Rate (HDR) Brachytherapy of Ureter using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DT1199Z	High Dose Rate (HDR) Brachytherapy of Ureter using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DT119BZ	High Dose Rate (HDR) Brachytherapy of Ureter using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DT119CZ	High Dose Rate (HDR) Brachytherapy of Ureter using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DT119YZ	High Dose Rate (HDR) Brachytherapy of Ureter using Other Isotope	Procedure	ICD-10-PCS
DT11B7Z	Low Dose Rate (LDR) Brachytherapy of Ureter using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DT11B8Z	Low Dose Rate (LDR) Brachytherapy of Ureter using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DT11B9Z	Low Dose Rate (LDR) Brachytherapy of Ureter using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DT11BBZ	Low Dose Rate (LDR) Brachytherapy of Ureter using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DT11BCZ	Low Dose Rate (LDR) Brachytherapy of Ureter using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DT11BYZ	Low Dose Rate (LDR) Brachytherapy of Ureter using Other Isotope	Procedure	ICD-10-PCS
DT1297Z	High Dose Rate (HDR) Brachytherapy of Bladder using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DT1298Z	High Dose Rate (HDR) Brachytherapy of Bladder using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
DT1299Z	High Dose Rate (HDR) Brachytherapy of Bladder using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DT129BZ	High Dose Rate (HDR) Brachytherapy of Bladder using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DT129CZ	High Dose Rate (HDR) Brachytherapy of Bladder using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DT129YZ	High Dose Rate (HDR) Brachytherapy of Bladder using Other Isotope	Procedure	ICD-10-PCS
DT12B7Z	Low Dose Rate (LDR) Brachytherapy of Bladder using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DT12B8Z	Low Dose Rate (LDR) Brachytherapy of Bladder using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DT12B9Z	Low Dose Rate (LDR) Brachytherapy of Bladder using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DT12BBZ	Low Dose Rate (LDR) Brachytherapy of Bladder using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DT12BCZ	Low Dose Rate (LDR) Brachytherapy of Bladder using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DT12BYZ	Low Dose Rate (LDR) Brachytherapy of Bladder using Other Isotope	Procedure	ICD-10-PCS
DT1397Z	High Dose Rate (HDR) Brachytherapy of Urethra using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DT1398Z	High Dose Rate (HDR) Brachytherapy of Urethra using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DT1399Z	High Dose Rate (HDR) Brachytherapy of Urethra using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DT139BZ	High Dose Rate (HDR) Brachytherapy of Urethra using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DT139CZ	High Dose Rate (HDR) Brachytherapy of Urethra using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DT139YZ	High Dose Rate (HDR) Brachytherapy of Urethra using Other Isotope	Procedure	ICD-10-PCS
DT13B7Z	Low Dose Rate (LDR) Brachytherapy of Urethra using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DT13B8Z	Low Dose Rate (LDR) Brachytherapy of Urethra using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DT13B9Z	Low Dose Rate (LDR) Brachytherapy of Urethra using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DT13BBZ	Low Dose Rate (LDR) Brachytherapy of Urethra using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DT13BCZ	Low Dose Rate (LDR) Brachytherapy of Urethra using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DT13BYZ	Low Dose Rate (LDR) Brachytherapy of Urethra using Other Isotope	Procedure	ICD-10-PCS
DTY07ZZ	Contact Radiation of Kidney	Procedure	ICD-10-PCS
DTY0CZZ	Intraoperative Radiation Therapy (IORT) of Kidney	Procedure	ICD-10-PCS
DTY0FZZ	Plaque Radiation of Kidney	Procedure	ICD-10-PCS
DTY17ZZ	Contact Radiation of Ureter	Procedure	ICD-10-PCS
DTY1CZZ	Intraoperative Radiation Therapy (IORT) of Ureter	Procedure	ICD-10-PCS
DTY1FZZ	Plaque Radiation of Ureter	Procedure	ICD-10-PCS
DTY27ZZ	Contact Radiation of Bladder	Procedure	ICD-10-PCS
DTY2CZZ	Intraoperative Radiation Therapy (IORT) of Bladder	Procedure	ICD-10-PCS
DTY2FZZ	Plaque Radiation of Bladder	Procedure	ICD-10-PCS
DTY37ZZ	Contact Radiation of Urethra	Procedure	ICD-10-PCS
DTY3CZZ	Intraoperative Radiation Therapy (IORT) of Urethra	Procedure	ICD-10-PCS
DTY3FZZ	Plaque Radiation of Urethra	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
DU000ZZ	Beam Radiation of Ovary using Photons <1 MeV	Procedure	ICD-10-PCS
DU001ZZ	Beam Radiation of Ovary using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
DU002ZZ	Beam Radiation of Ovary using Photons >10 MeV	Procedure	ICD-10-PCS
DU003ZZ	Beam Radiation of Ovary using Electrons	Procedure	ICD-10-PCS
DU004ZZ	Beam Radiation of Ovary using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
DU005ZZ	Beam Radiation of Ovary using Neutrons	Procedure	ICD-10-PCS
DU006ZZ	Beam Radiation of Ovary using Neutron Capture	Procedure	ICD-10-PCS
DU010ZZ	Beam Radiation of Cervix using Photons <1 MeV	Procedure	ICD-10-PCS
DU011ZZ	Beam Radiation of Cervix using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
DU012ZZ	Beam Radiation of Cervix using Photons >10 MeV	Procedure	ICD-10-PCS
DU013ZZ	Beam Radiation of Cervix using Electrons	Procedure	ICD-10-PCS
DU014ZZ	Beam Radiation of Cervix using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
DU015ZZ	Beam Radiation of Cervix using Neutrons	Procedure	ICD-10-PCS
DU016ZZ	Beam Radiation of Cervix using Neutron Capture	Procedure	ICD-10-PCS
DU020ZZ	Beam Radiation of Uterus using Photons <1 MeV	Procedure	ICD-10-PCS
DU021ZZ	Beam Radiation of Uterus using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
DU022ZZ	Beam Radiation of Uterus using Photons >10 MeV	Procedure	ICD-10-PCS
DU023ZZ	Beam Radiation of Uterus using Electrons	Procedure	ICD-10-PCS
DU024ZZ	Beam Radiation of Uterus using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
DU025ZZ	Beam Radiation of Uterus using Neutrons	Procedure	ICD-10-PCS
DU026ZZ	Beam Radiation of Uterus using Neutron Capture	Procedure	ICD-10-PCS
DU1097Z	High Dose Rate (HDR) Brachytherapy of Ovary using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DU1098Z	High Dose Rate (HDR) Brachytherapy of Ovary using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DU1099Z	High Dose Rate (HDR) Brachytherapy of Ovary using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DU109BZ	High Dose Rate (HDR) Brachytherapy of Ovary using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DU109CZ	High Dose Rate (HDR) Brachytherapy of Ovary using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DU109YZ	High Dose Rate (HDR) Brachytherapy of Ovary using Other Isotope	Procedure	ICD-10-PCS
DU10B7Z	Low Dose Rate (LDR) Brachytherapy of Ovary using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DU10B8Z	Low Dose Rate (LDR) Brachytherapy of Ovary using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DU10B9Z	Low Dose Rate (LDR) Brachytherapy of Ovary using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DU10BBZ	Low Dose Rate (LDR) Brachytherapy of Ovary using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DU10BCZ	Low Dose Rate (LDR) Brachytherapy of Ovary using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DU10BYZ	Low Dose Rate (LDR) Brachytherapy of Ovary using Other Isotope	Procedure	ICD-10-PCS
DU1197Z	High Dose Rate (HDR) Brachytherapy of Cervix using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
DU1198Z	High Dose Rate (HDR) Brachytherapy of Cervix using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DU1199Z	High Dose Rate (HDR) Brachytherapy of Cervix using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DU119BZ	High Dose Rate (HDR) Brachytherapy of Cervix using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DU119CZ	High Dose Rate (HDR) Brachytherapy of Cervix using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DU119YZ	High Dose Rate (HDR) Brachytherapy of Cervix using Other Isotope	Procedure	ICD-10-PCS
DU11B7Z	Low Dose Rate (LDR) Brachytherapy of Cervix using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DU11B8Z	Low Dose Rate (LDR) Brachytherapy of Cervix using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DU11B9Z	Low Dose Rate (LDR) Brachytherapy of Cervix using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DU11BBZ	Low Dose Rate (LDR) Brachytherapy of Cervix using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DU11BCZ	Low Dose Rate (LDR) Brachytherapy of Cervix using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DU11BYZ	Low Dose Rate (LDR) Brachytherapy of Cervix using Other Isotope	Procedure	ICD-10-PCS
DU1297Z	High Dose Rate (HDR) Brachytherapy of Uterus using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DU1298Z	High Dose Rate (HDR) Brachytherapy of Uterus using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DU1299Z	High Dose Rate (HDR) Brachytherapy of Uterus using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DU129BZ	High Dose Rate (HDR) Brachytherapy of Uterus using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DU129CZ	High Dose Rate (HDR) Brachytherapy of Uterus using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DU129YZ	High Dose Rate (HDR) Brachytherapy of Uterus using Other Isotope	Procedure	ICD-10-PCS
DU12B7Z	Low Dose Rate (LDR) Brachytherapy of Uterus using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DU12B8Z	Low Dose Rate (LDR) Brachytherapy of Uterus using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DU12B9Z	Low Dose Rate (LDR) Brachytherapy of Uterus using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DU12BBZ	Low Dose Rate (LDR) Brachytherapy of Uterus using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DU12BCZ	Low Dose Rate (LDR) Brachytherapy of Uterus using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DU12BYZ	Low Dose Rate (LDR) Brachytherapy of Uterus using Other Isotope	Procedure	ICD-10-PCS
DUY07ZZ	Contact Radiation of Ovary	Procedure	ICD-10-PCS
DUY0CZZ	Intraoperative Radiation Therapy (IORT) of Ovary	Procedure	ICD-10-PCS
DUY0FZZ	Plaque Radiation of Ovary	Procedure	ICD-10-PCS
DUY17ZZ	Contact Radiation of Cervix	Procedure	ICD-10-PCS
DUY1CZZ	Intraoperative Radiation Therapy (IORT) of Cervix	Procedure	ICD-10-PCS
DUY1FZZ	Plaque Radiation of Cervix	Procedure	ICD-10-PCS
DUY27ZZ	Contact Radiation of Uterus	Procedure	ICD-10-PCS
DUY2CZZ	Intraoperative Radiation Therapy (IORT) of Uterus	Procedure	ICD-10-PCS
DUY2FZZ	Plaque Radiation of Uterus	Procedure	ICD-10-PCS
DV000ZZ	Beam Radiation of Prostate using Photons <1 MeV	Procedure	ICD-10-PCS
DV001ZZ	Beam Radiation of Prostate using Photons 1 - 10 MeV	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
DV002ZZ	Beam Radiation of Prostate using Photons >10 MeV	Procedure	ICD-10-PCS
DV003ZZ	Beam Radiation of Prostate using Electrons	Procedure	ICD-10-PCS
DV004ZZ	Beam Radiation of Prostate using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
DV005ZZ	Beam Radiation of Prostate using Neutrons	Procedure	ICD-10-PCS
DV006ZZ	Beam Radiation of Prostate using Neutron Capture	Procedure	ICD-10-PCS
DV010ZZ	Beam Radiation of Testis using Photons <1 MeV	Procedure	ICD-10-PCS
DV011ZZ	Beam Radiation of Testis using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
DV012ZZ	Beam Radiation of Testis using Photons >10 MeV	Procedure	ICD-10-PCS
DV013ZZ	Beam Radiation of Testis using Electrons	Procedure	ICD-10-PCS
DV014ZZ	Beam Radiation of Testis using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
DV015ZZ	Beam Radiation of Testis using Neutrons	Procedure	ICD-10-PCS
DV016ZZ	Beam Radiation of Testis using Neutron Capture	Procedure	ICD-10-PCS
DV1097Z	High Dose Rate (HDR) Brachytherapy of Prostate using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DV1098Z	High Dose Rate (HDR) Brachytherapy of Prostate using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DV1099Z	High Dose Rate (HDR) Brachytherapy of Prostate using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DV109BZ	High Dose Rate (HDR) Brachytherapy of Prostate using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DV109CZ	High Dose Rate (HDR) Brachytherapy of Prostate using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DV109YZ	High Dose Rate (HDR) Brachytherapy of Prostate using Other Isotope	Procedure	ICD-10-PCS
DV10B7Z	Low Dose Rate (LDR) Brachytherapy of Prostate using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DV10B8Z	Low Dose Rate (LDR) Brachytherapy of Prostate using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DV10B9Z	Low Dose Rate (LDR) Brachytherapy of Prostate using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DV10BBZ	Low Dose Rate (LDR) Brachytherapy of Prostate using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DV10BCZ	Low Dose Rate (LDR) Brachytherapy of Prostate using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DV10BYZ	Low Dose Rate (LDR) Brachytherapy of Prostate using Other Isotope	Procedure	ICD-10-PCS
DV1197Z	High Dose Rate (HDR) Brachytherapy of Testis using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DV1198Z	High Dose Rate (HDR) Brachytherapy of Testis using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DV1199Z	High Dose Rate (HDR) Brachytherapy of Testis using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DV119BZ	High Dose Rate (HDR) Brachytherapy of Testis using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DV119CZ	High Dose Rate (HDR) Brachytherapy of Testis using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DV119YZ	High Dose Rate (HDR) Brachytherapy of Testis using Other Isotope	Procedure	ICD-10-PCS
DV11B7Z	Low Dose Rate (LDR) Brachytherapy of Testis using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DV11B8Z	Low Dose Rate (LDR) Brachytherapy of Testis using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DV11B9Z	Low Dose Rate (LDR) Brachytherapy of Testis using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DV11BBZ	Low Dose Rate (LDR) Brachytherapy of Testis using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
DV11BCZ	Low Dose Rate (LDR) Brachytherapy of Testis using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DV11BYZ	Low Dose Rate (LDR) Brachytherapy of Testis using Other Isotope	Procedure	ICD-10-PCS
DVY07ZZ	Contact Radiation of Prostate	Procedure	ICD-10-PCS
DVY0CZZ	Intraoperative Radiation Therapy (IORT) of Prostate	Procedure	ICD-10-PCS
DVY0FZZ	Plaque Radiation of Prostate	Procedure	ICD-10-PCS
DVY17ZZ	Contact Radiation of Testis	Procedure	ICD-10-PCS
DVY1FZZ	Plaque Radiation of Testis	Procedure	ICD-10-PCS
DW010ZZ	Beam Radiation of Head and Neck using Photons <1 MeV	Procedure	ICD-10-PCS
DW011ZZ	Beam Radiation of Head and Neck using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
DW012ZZ	Beam Radiation of Head and Neck using Photons >10 MeV	Procedure	ICD-10-PCS
DW013ZZ	Beam Radiation of Head and Neck using Electrons	Procedure	ICD-10-PCS
DW014ZZ	Beam Radiation of Head and Neck using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
DW015ZZ	Beam Radiation of Head and Neck using Neutrons	Procedure	ICD-10-PCS
DW016ZZ	Beam Radiation of Head and Neck using Neutron Capture	Procedure	ICD-10-PCS
DW020ZZ	Beam Radiation of Chest using Photons <1 MeV	Procedure	ICD-10-PCS
DW021ZZ	Beam Radiation of Chest using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
DW022ZZ	Beam Radiation of Chest using Photons >10 MeV	Procedure	ICD-10-PCS
DW023ZZ	Beam Radiation of Chest using Electrons	Procedure	ICD-10-PCS
DW024ZZ	Beam Radiation of Chest using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
DW025ZZ	Beam Radiation of Chest using Neutrons	Procedure	ICD-10-PCS
DW026ZZ	Beam Radiation of Chest using Neutron Capture	Procedure	ICD-10-PCS
DW030ZZ	Beam Radiation of Abdomen using Photons <1 MeV	Procedure	ICD-10-PCS
DW031ZZ	Beam Radiation of Abdomen using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
DW032ZZ	Beam Radiation of Abdomen using Photons >10 MeV	Procedure	ICD-10-PCS
DW033ZZ	Beam Radiation of Abdomen using Electrons	Procedure	ICD-10-PCS
DW034ZZ	Beam Radiation of Abdomen using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
DW035ZZ	Beam Radiation of Abdomen using Neutrons	Procedure	ICD-10-PCS
DW036ZZ	Beam Radiation of Abdomen using Neutron Capture	Procedure	ICD-10-PCS
DW040ZZ	Beam Radiation of Hemibody using Photons <1 MeV	Procedure	ICD-10-PCS
DW041ZZ	Beam Radiation of Hemibody using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
DW042ZZ	Beam Radiation of Hemibody using Photons >10 MeV	Procedure	ICD-10-PCS
DW043ZZ	Beam Radiation of Hemibody using Electrons	Procedure	ICD-10-PCS
DW044ZZ	Beam Radiation of Hemibody using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
DW045ZZ	Beam Radiation of Hemibody using Neutrons	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
DW046ZZ	Beam Radiation of Hemibody using Neutron Capture	Procedure	ICD-10-PCS
DW050ZZ	Beam Radiation of Whole Body using Photons <1 MeV	Procedure	ICD-10-PCS
DW051ZZ	Beam Radiation of Whole Body using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
DW052ZZ	Beam Radiation of Whole Body using Photons >10 MeV	Procedure	ICD-10-PCS
DW053ZZ	Beam Radiation of Whole Body using Electrons	Procedure	ICD-10-PCS
DW054ZZ	Beam Radiation of Whole Body using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
DW055ZZ	Beam Radiation of Whole Body using Neutrons	Procedure	ICD-10-PCS
DW056ZZ	Beam Radiation of Whole Body using Neutron Capture	Procedure	ICD-10-PCS
DW060ZZ	Beam Radiation of Pelvic Region using Photons <1 MeV	Procedure	ICD-10-PCS
DW061ZZ	Beam Radiation of Pelvic Region using Photons 1 - 10 MeV	Procedure	ICD-10-PCS
DW062ZZ	Beam Radiation of Pelvic Region using Photons >10 MeV	Procedure	ICD-10-PCS
DW063ZZ	Beam Radiation of Pelvic Region using Electrons	Procedure	ICD-10-PCS
DW064ZZ	Beam Radiation of Pelvic Region using Heavy Particles (Protons,Ions)	Procedure	ICD-10-PCS
DW065ZZ	Beam Radiation of Pelvic Region using Neutrons	Procedure	ICD-10-PCS
DW066ZZ	Beam Radiation of Pelvic Region using Neutron Capture	Procedure	ICD-10-PCS
DW1197Z	High Dose Rate (HDR) Brachytherapy of Head and Neck using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DW1198Z	High Dose Rate (HDR) Brachytherapy of Head and Neck using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DW1199Z	High Dose Rate (HDR) Brachytherapy of Head and Neck using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DW119BZ	High Dose Rate (HDR) Brachytherapy of Head and Neck using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DW119CZ	High Dose Rate (HDR) Brachytherapy of Head and Neck using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DW119YZ	High Dose Rate (HDR) Brachytherapy of Head and Neck using Other Isotope	Procedure	ICD-10-PCS
DW11B7Z	Low Dose Rate (LDR) Brachytherapy of Head and Neck using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DW11B8Z	Low Dose Rate (LDR) Brachytherapy of Head and Neck using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DW11B9Z	Low Dose Rate (LDR) Brachytherapy of Head and Neck using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DW11BBZ	Low Dose Rate (LDR) Brachytherapy of Head and Neck using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DW11BCZ	Low Dose Rate (LDR) Brachytherapy of Head and Neck using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DW11BYZ	Low Dose Rate (LDR) Brachytherapy of Head and Neck using Other Isotope	Procedure	ICD-10-PCS
DW1297Z	High Dose Rate (HDR) Brachytherapy of Chest using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DW1298Z	High Dose Rate (HDR) Brachytherapy of Chest using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DW1299Z	High Dose Rate (HDR) Brachytherapy of Chest using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DW129BZ	High Dose Rate (HDR) Brachytherapy of Chest using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DW129CZ	High Dose Rate (HDR) Brachytherapy of Chest using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DW129YZ	High Dose Rate (HDR) Brachytherapy of Chest using Other Isotope	Procedure	ICD-10-PCS
DW12B7Z	Low Dose Rate (LDR) Brachytherapy of Chest using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
DW12B8Z	Low Dose Rate (LDR) Brachytherapy of Chest using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DW12B9Z	Low Dose Rate (LDR) Brachytherapy of Chest using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DW12BBZ	Low Dose Rate (LDR) Brachytherapy of Chest using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DW12BCZ	Low Dose Rate (LDR) Brachytherapy of Chest using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DW12BYZ	Low Dose Rate (LDR) Brachytherapy of Chest using Other Isotope	Procedure	ICD-10-PCS
DW1397Z	High Dose Rate (HDR) Brachytherapy of Abdomen using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DW1398Z	High Dose Rate (HDR) Brachytherapy of Abdomen using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DW1399Z	High Dose Rate (HDR) Brachytherapy of Abdomen using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DW139BZ	High Dose Rate (HDR) Brachytherapy of Abdomen using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DW139CZ	High Dose Rate (HDR) Brachytherapy of Abdomen using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DW139YZ	High Dose Rate (HDR) Brachytherapy of Abdomen using Other Isotope	Procedure	ICD-10-PCS
DW13B7Z	Low Dose Rate (LDR) Brachytherapy of Abdomen using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DW13B8Z	Low Dose Rate (LDR) Brachytherapy of Abdomen using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DW13B9Z	Low Dose Rate (LDR) Brachytherapy of Abdomen using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DW13BBZ	Low Dose Rate (LDR) Brachytherapy of Abdomen using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DW13BCZ	Low Dose Rate (LDR) Brachytherapy of Abdomen using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DW13BYZ	Low Dose Rate (LDR) Brachytherapy of Abdomen using Other Isotope	Procedure	ICD-10-PCS
DW1697Z	High Dose Rate (HDR) Brachytherapy of Pelvic Region using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DW1698Z	High Dose Rate (HDR) Brachytherapy of Pelvic Region using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DW1699Z	High Dose Rate (HDR) Brachytherapy of Pelvic Region using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DW169BZ	High Dose Rate (HDR) Brachytherapy of Pelvic Region using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DW169CZ	High Dose Rate (HDR) Brachytherapy of Pelvic Region using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DW169YZ	High Dose Rate (HDR) Brachytherapy of Pelvic Region using Other Isotope	Procedure	ICD-10-PCS
DW16B7Z	Low Dose Rate (LDR) Brachytherapy of Pelvic Region using Cesium 137 (Cs-137)	Procedure	ICD-10-PCS
DW16B8Z	Low Dose Rate (LDR) Brachytherapy of Pelvic Region using Iridium 192 (Ir-192)	Procedure	ICD-10-PCS
DW16B9Z	Low Dose Rate (LDR) Brachytherapy of Pelvic Region using Iodine 125 (I-125)	Procedure	ICD-10-PCS
DW16BBZ	Low Dose Rate (LDR) Brachytherapy of Pelvic Region using Palladium 103 (Pd-103)	Procedure	ICD-10-PCS
DW16BCZ	Low Dose Rate (LDR) Brachytherapy of Pelvic Region using Californium 252 (Cf-252)	Procedure	ICD-10-PCS
DW16BYZ	Low Dose Rate (LDR) Brachytherapy of Pelvic Region using Other Isotope	Procedure	ICD-10-PCS
DWY17ZZ	Contact Radiation of Head and Neck	Procedure	ICD-10-PCS
DWY1FZZ	Plaque Radiation of Head and Neck	Procedure	ICD-10-PCS
DWY27ZZ	Contact Radiation of Chest	Procedure	ICD-10-PCS
DWY2FZZ	Plaque Radiation of Chest	Procedure	ICD-10-PCS
DWY37ZZ	Contact Radiation of Abdomen	Procedure	ICD-10-PCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
DWY3FZZ	Plaque Radiation of Abdomen	Procedure	ICD-10-PCS
DWY47ZZ	Contact Radiation of Hemibody	Procedure	ICD-10-PCS
DWY4FZZ	Plaque Radiation of Hemibody	Procedure	ICD-10-PCS
DWY57ZZ	Contact Radiation of Whole Body	Procedure	ICD-10-PCS
DWY5FZZ	Plaque Radiation of Whole Body	Procedure	ICD-10-PCS
DWY67ZZ	Contact Radiation of Pelvic Region	Procedure	ICD-10-PCS
DWY6FZZ	Plaque Radiation of Pelvic Region	Procedure	ICD-10-PCS
G0458	Low dose rate (ldr) prostate brachytherapy services, composite rate	Procedure	HCPCS
G0498	Chemotherapy administration, intravenous infusion technique; initiation of infusion in the office/clinic setting using office/clinic pump/supplies, with continuation of the infusion in the community setting (e.g., home, domiciliary, rest home or assisted living) using a portable pump provided by the office/clinic, includes follow up office/clinic visit at the conclusion of the infusion	Procedure	HCPCS
G3001	Administration and supply of tositumomab, 450 mg	Procedure	HCPCS
G6002	Stereoscopic x-ray guidance for localization of target volume for the delivery of radiation therapy	Procedure	HCPCS
G6003	Radiation treatment delivery, single treatment area,single port or parallel opposed ports, simple blocks or no blocks: up to 5 mev	Procedure	HCPCS
G6004	Radiation treatment delivery, single treatment area,single port or parallel opposed ports, simple blocks or no blocks: 6-10 mev	Procedure	HCPCS
G6005	Radiation treatment delivery, single treatment area,single port or parallel opposed ports, simple blocks or no blocks: 11-19 mev	Procedure	HCPCS
G6006	Radiation treatment delivery, single treatment area,single port or parallel opposed ports, simple blocks or no blocks: 20 mev or greater	Procedure	HCPCS
G6007	Radiation treatment delivery, 2 separate treatment areas, 3 or more ports on a single treatment area, use of multiple blocks: up to 5 mev	Procedure	HCPCS
G6008	Radiation treatment delivery, 2 separate treatment areas, 3 or more ports on a single treatment area, use of multiple blocks: 6-10 mev	Procedure	HCPCS
G6009	Radiation treatment delivery, 2 separate treatment areas, 3 or more ports on a single treatment area, use of multiple blocks: 11-19 mev	Procedure	HCPCS
G6010	Radiation treatment delivery, 2 separate treatment areas, 3 or more ports on a single treatment area, use of multiple blocks: 20 mev or greater	Procedure	HCPCS
G6011	Radiation treatment delivery,3 or more separate treatment areas, custom blocking, tangential ports, wedges, rotational beam, compensators, electron beam; up to 5 mev	Procedure	HCPCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
G6012	Radiation treatment delivery,3 or more separate treatment areas, custom blocking, tangential ports, wedges, rotational beam, compensators, electron beam; 6-10 mev	Procedure	HCPCS
G6013	Radiation treatment delivery,3 or more separate treatment areas, custom blocking, tangential ports, wedges, rotational beam, compensators, electron beam; 11-19 mev	Procedure	HCPCS
G6014	Radiation treatment delivery,3 or more separate treatment areas, custom blocking, tangential ports, wedges, rotational beam, compensators, electron beam; 20 mev or greater	Procedure	HCPCS
G6015	Intensity modulated treatment delivery, single or multiple fields/arcs,via narrow spatially and temporally modulated beams, binary, dynamic mlc, per treatment session	Procedure	HCPCS
G6017	Intra-fraction localization and tracking of target or patient motion during delivery of radiation therapy (eg,3d positional tracking, gating, 3d surface tracking), each fraction of treatment	Procedure	HCPCS
G9835	Trastuzumab administered within 12 months of diagnosis	Procedure	HCPCS
G9837	Trastuzumab not administered within 12 months of diagnosis	Procedure	HCPCS
J0129	Injection, abatacept, 10 mg (code may be used for Medicare when drug administered under the direct supervision of a physician, not for use when drug is self-administered)	Procedure	HCPCS
J0135	Injection, adalimumab, 20 mg	Procedure	HCPCS
J0202	Injection, alemtuzumab, 1 mg	Procedure	HCPCS
J0207	Injection, amifostine, 500 mg	Procedure	HCPCS
J0215	Injection, alefacept, 0.5 mg	Procedure	HCPCS
J0480	Injection, basiliximab, 20 mg	Procedure	HCPCS
J0485	Injection, belatacept, 1 mg	Procedure	HCPCS
J0490	belimumab	Procedure	HCPCS
J0593	Inj., lanadelumab-flyo, 1 mg	Procedure	HCPCS
J0594	Injection, busulfan, 1 mg	Procedure	HCPCS
J0638	canakinumab	Procedure	HCPCS
J0717	Injection, certolizumab pegol, 1 mg (code may be used for Medicare when drug administered under the direct supervision of a physician, not for use when drug is self administered)	Procedure	HCPCS
J0718	Injection, certolizumab pegol, 1 mg	Procedure	HCPCS
J0894	Injection, decitabine, 1 mg	Procedure	HCPCS
J0897	Denosumab	Procedure	HCPCS
J1300	Injection, eculizumab, 10 mg	Procedure	HCPCS
J1303	ravulizumab	Procedure	HCPCS
J1438	Injection, etanercept, 25 mg (code may be used for Medicare when drug administered under the direct supervision of a physician, not for use when drug is self-administered)	Procedure	HCPCS
J1595	Injection, glatiramer acetate, 20 mg	Procedure	HCPCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
J1600	Injection, gold sodium thiomalate, up to 50 mg	Procedure	HCPCS
J1602	Injection, golimumab, 1 mg, for intravenous use	Procedure	HCPCS
J1628	guselkumab	Procedure	HCPCS
J1745	Injection, infliximab, excludes biosimilar, 10 mg	Procedure	HCPCS
J1825	Injection, interferon beta-1a, 33 mcg	Procedure	HCPCS
J1826	Injection, interferon beta-1a, 30 mcg	Procedure	HCPCS
J1830	Injection interferon beta-1b, 0.25 mg (code may be used for Medicare when drug administered under the direct supervision of a physician, not for use when drug is self-administered)	Procedure	HCPCS
J2323	Natalizumab	Procedure	HCPCS
J2350	ocrelizumab	Procedure	HCPCS
J2504	Injection, pegademase bovine, 25 IU	Procedure	HCPCS
J2793	rilonacept	Procedure	HCPCS
J2860	siltuximab	Procedure	HCPCS
J2910	Aurothioglucose	Procedure	HCPCS
J3031	fremanezumab	Procedure	HCPCS
J3111	Romosozumab	Procedure	HCPCS
J3245	tildrakizumab	Procedure	HCPCS
J3262	Injection, tocilizumab, 1 mg	Procedure	HCPCS
J3357	Ustekinumab, for subcutaneous injection, 1 mg	Procedure	HCPCS
J3358	Ustekinumab, for intravenous injection, 1 mg	Procedure	HCPCS
J3380	vedolizumab	Procedure	HCPCS
J7500	Azathioprine, oral, 50 mg	Procedure	HCPCS
J7501	Azathioprine, parenteral, 100 mg	Procedure	HCPCS
J7502	Cyclosporine, oral, 100 mg	Procedure	HCPCS
J7503	Tacrolimus, extended release, oral, 0.25 mg	Procedure	HCPCS
J7505	Muromonab-CD3, parenteral, 5 mg	Procedure	HCPCS
J7507	Tacrolimus, immediate release, oral, 1 mg	Procedure	HCPCS
J7508	Tacrolimus, extended release, (Astagraf XL), oral, 0.1 mg	Procedure	HCPCS
J7513	Daclizumab, parenteral, 25 mg	Procedure	HCPCS
J7515	Cyclosporine, oral, 25 mg	Procedure	HCPCS
J7516	Cyclosporine, parenteral, 250 mg	Procedure	HCPCS
J7517	Mycophenolate mofetil, oral, 250 mg	Procedure	HCPCS
J7520	Sirolimus, oral, 1 mg	Procedure	HCPCS
J7525	Tacrolimus, parenteral, 5 mg	Procedure	HCPCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
J7527	Everolimus, oral, 0.25 mg	Procedure	HCPCS
J7599	Immunosuppressive drug, not otherwise classified	Procedure	HCPCS
J8510	Busulfan, oral, 2 mg	Procedure	HCPCS
J8520	Capecitabine, oral, 150 mg	Procedure	HCPCS
J8521	Capecitabine, oral, 500 mg	Procedure	HCPCS
J8530	Cyclophosphamide, oral, 25 mg	Procedure	HCPCS
J8560	Etoposide, oral, 50 mg	Procedure	HCPCS
J8561	Everolimus, oral, 0.25 mg	Procedure	HCPCS
J8562	Fludarabine phosphate, oral, 10 mg	Procedure	HCPCS
J8565	Gefitinib, oral, 250 mg	Procedure	HCPCS
J8600	Melphalan, oral, 2 mg	Procedure	HCPCS
J8610	Methotrexate, oral, 2.5 mg	Procedure	HCPCS
J8700	Temozolomide, oral, 5 mg	Procedure	HCPCS
J8705	Topotecan, oral, 0.25 mg	Procedure	HCPCS
J8999	Prescription drug, oral, chemotherapeutic, NOS	Procedure	HCPCS
J9000	Injection, doxorubicin HCl, 10 mg	Procedure	HCPCS
J9001	Injection, doxorubicin HCl, all lipid formulations, 10 mg	Procedure	HCPCS
J9002	Injection, doxorubicin hydrochloride, liposomal, Doxil, 10 mg	Procedure	HCPCS
J9010	Injection, alemtuzumab, 10 mg	Procedure	HCPCS
J9015	Injection, aldesleukin, per single use vial	Procedure	HCPCS
J9017	Injection, arsenic trioxide, 1 mg	Procedure	HCPCS
J9019	Injection, asparaginase (Erwinaze), 1,000 IU	Procedure	HCPCS
J9020	Injection, asparaginase, not otherwise specified, 10,000 units	Procedure	HCPCS
J9025	Injection, azacitidine, 1 mg	Procedure	HCPCS
J9027	Injection, clofarabine, 1 mg	Procedure	HCPCS
J9033	Injection, bendamustine HCl (Treanda), 1 mg	Procedure	HCPCS
J9034	Injection, bendamustine HCl (Bendeka), 1 mg	Procedure	HCPCS
J9035	Injection, bevacizumab, 10 mg	Procedure	HCPCS
J9036	Injection, bendamustine hydrochloride, (Belrapzo), 1 mg	Procedure	HCPCS
J9040	Injection, bleomycin sulfate, 15 units	Procedure	HCPCS
J9041	Injection, bortezomib, 0.1 mg	Procedure	HCPCS
J9042	Injection, brentuximab vedotin, 1 mg	Procedure	HCPCS
J9043	Injection, cabazitaxel, 1 mg	Procedure	HCPCS
J9045	Injection, carboplatin, 50 mg	Procedure	HCPCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
J9047	Injection, carfilzomib, 1 mg	Procedure	HCPCS
J9050	Injection, carmustine, 100 mg	Procedure	HCPCS
J9055	Injection, cetuximab, 10 mg	Procedure	HCPCS
J9057	Injection, copanlisib, 1 mg	Procedure	HCPCS
J9060	Injection, cisplatin, powder or solution, 10 mg	Procedure	HCPCS
J9062	Cisplatin, 50 mg	Procedure	HCPCS
J9065	Injection, cladribine, per 1 mg	Procedure	HCPCS
J9070	Cyclophosphamide, 100 mg	Procedure	HCPCS
J9080	Cyclophosphamide, 200 mg	Procedure	HCPCS
J9090	Cyclophosphamide, 500 mg	Procedure	HCPCS
J9091	Cyclophosphamide, 1 g	Procedure	HCPCS
J9092	Cyclophosphamide, 2 g	Procedure	HCPCS
J9093	Cyclophosphamide, lyophilized, 100 mg	Procedure	HCPCS
J9094	Cyclophosphamide, lyophilized, 200 mg	Procedure	HCPCS
J9095	Cyclophosphamide, lyophilized, 500 mg	Procedure	HCPCS
J9096	Cyclophosphamide, lyophilized, 1 g	Procedure	HCPCS
J9097	Cyclophosphamide, lyophilized, 2 g	Procedure	HCPCS
J9098	Injection, cytarabine liposome, 10 mg	Procedure	HCPCS
J9100	Injection, cytarabine, 100 mg	Procedure	HCPCS
J9110	Injection, cytarabine, 500 mg	Procedure	HCPCS
J9118	Inj. Calaspargase pegol-mknl	Procedure	HCPCS
J9119	cemiplimab	Procedure	HCPCS
J9120	Injection, dactinomycin, 0.5 mg	Procedure	HCPCS
J9130	Dacarbazine, 100 mg	Procedure	HCPCS
J9140	Dacarbazine, 200 mg	Procedure	HCPCS
J9150	Injection, daunorubicin, 10 mg	Procedure	HCPCS
J9151	Injection, daunorubicin citrate, liposomal formulation, 10 mg	Procedure	HCPCS
J9153	Injection, liposomal, 1 mg daunorubicin and 2.27 mg cytarabine	Procedure	HCPCS
J9160	Injection, denileukin diftitox, 300 mcg	Procedure	HCPCS
J9170	Injection, docetaxel, 20 mg	Procedure	HCPCS
J9171	Injection, docetaxel, 1 mg	Procedure	HCPCS
J9173	Injection, durvalumab, 10 mg	Procedure	HCPCS
J9178	Injection, epirubicin HCl, 2 mg	Procedure	HCPCS
J9179	Injection, eribulin mesylate, 0.1 mg	Procedure	HCPCS

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Code	Description	Code Category	Code Type
J9180	Epirubicin HCl, 50 mg	Procedure	HCPCS
J9181	Injection, etoposide, 10 mg	Procedure	HCPCS
J9182	Etoposide, 100 mg	Procedure	HCPCS
J9185	Injection, fludarabine phosphate, 50 mg	Procedure	HCPCS
J9190	Injection, fluorouracil, 500 mg	Procedure	HCPCS
J9200	Injection, floxuridine, 500 mg	Procedure	HCPCS
J9201	Injection, gemcitabine HCl, 200 mg	Procedure	HCPCS
J9203	Injection, gemtuzumab ozogamicin, 0.1 mg	Procedure	HCPCS
J9204	Mogamulizumab	Procedure	HCPCS
J9205	Injection, irinotecan liposome, 1 mg	Procedure	HCPCS
J9206	Injection, irinotecan, 20 mg	Procedure	HCPCS
J9207	Injection, ixabepilone, 1 mg	Procedure	HCPCS
J9208	Injection, ifosfamide, 1 g	Procedure	HCPCS
J9210	emapalumab	Procedure	HCPCS
J9211	Injection, idarubicin HCl, 5 mg	Procedure	HCPCS
J9212	Injection, interferon alfacon-1, recombinant, 1 mcg	Procedure	HCPCS
J9213	Injection, interferon, alfa-2a, recombinant, 3 million units	Procedure	HCPCS
J9214	Injection, interferon, alfa-2b, recombinant, 1 million units	Procedure	HCPCS
J9215	Injection, interferon, alfa-N3, (human leukocyte derived), 250,000 IU	Procedure	HCPCS
J9216	Injection, interferon, gamma 1-b, 3 million units	Procedure	HCPCS
J9228	Injection, ipilimumab, 1 mg	Procedure	HCPCS
J9229	Injection, inotuzumab ozogamicin, 0.1 mg	Procedure	HCPCS
J9230	Injection, mechlorethamine HCl, (nitrogen mustard), 10 mg	Procedure	HCPCS
J9245	Injection, melphalan HCl, 50 mg	Procedure	HCPCS
J9250	Methotrexate sodium, 5 mg	Procedure	HCPCS
J9260	Methotrexate sodium, 50 mg	Procedure	HCPCS
J9261	Injection, nelarabine, 50 mg	Procedure	HCPCS
J9262	Injection, omacetaxine mepesuccinate, 0.01 mg	Procedure	HCPCS
J9263	Injection, oxaliplatin, 0.5 mg	Procedure	HCPCS
J9264	Injection, paclitaxel protein-bound particles, 1 mg	Procedure	HCPCS
J9265	Injection, paclitaxel, 30 mg	Procedure	HCPCS
J9266	Injection, pegaspargase, per single dose vial	Procedure	HCPCS
J9267	Injection, paclitaxel, 1 mg	Procedure	HCPCS
J9268	Injection, pentostatin, 10 mg	Procedure	HCPCS

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Code	Description	Code Category	Code Type
J9269	Injection, tagraxofusp-erzs, 10 micrograms	Procedure	HCPCS
J9270	Injection, plicamycin, 2.5 mg	Procedure	HCPCS
J9271	pembrolizumab	Procedure	HCPCS
J9280	Injection, mitomycin, 5 mg	Procedure	HCPCS
J9290	Mitomycin, 20 mg	Procedure	HCPCS
J9291	Mitomycin, 40 mg	Procedure	HCPCS
J9293	Injection, mitoxantrone HCl, per 5 mg	Procedure	HCPCS
J9300	Injection, gemtuzumab ozogamicin, 5 mg	Procedure	HCPCS
J9301	Injection, obinutuzumab, 10 mg	Procedure	HCPCS
J9302	Injection, ofatumumab, 10 mg	Procedure	HCPCS
J9303	Injection, panitumumab, 10 mg	Procedure	HCPCS
J9305	Injection, pemetrexed, 10 mg	Procedure	HCPCS
J9306	Injection, pertuzumab, 1 mg	Procedure	HCPCS
J9307	Injection, pralatrexate, 1 mg	Procedure	HCPCS
J9310	Injection, rituximab, 100 mg	Procedure	HCPCS
J9311	Injection, rituximab 10 mg and hyaluronidase	Procedure	HCPCS
J9312	Injection, rituximab, 10 mg	Procedure	HCPCS
J9315	Injection, romidepsin, 1 mg	Procedure	HCPCS
J9320	Injection, streptozocin, 1 g	Procedure	HCPCS
J9328	Injection, temozolomide, 1 mg	Procedure	HCPCS
J9330	Injection, temsirolimus, 1 mg	Procedure	HCPCS
J9340	Injection, thiotepa, 15 mg	Procedure	HCPCS
J9350	Injection, topotecan, 4 mg	Procedure	HCPCS
J9351	Injection, topotecan, 0.1 mg	Procedure	HCPCS
J9355	Injection, trastuzumab, 10 mg	Procedure	HCPCS
J9356	Injection, trastuzumab, 10 mg and Hyaluronidase-oysk	Procedure	HCPCS
J9360	Injection, vinblastine sulfate, 1 mg	Procedure	HCPCS
J9370	Vincristine sulfate, 1 mg	Procedure	HCPCS
J9371	Injection, vincristine sulfate liposome, 1 mg	Procedure	HCPCS
J9375	Vincristine sulfate, 2 mg	Procedure	HCPCS
J9380	Vincristine sulfate, 5 mg	Procedure	HCPCS
J9390	Injection, vinorelbine tartrate, 10 mg	Procedure	HCPCS
J9999	Not otherwise classified, antineoplastic drugs	Procedure	HCPCS
K0119	Azathioprine, oral, tab, 50 mg	Procedure	HCPCS

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Code	Description	Code Category	Code Type
K0120	Azathioprine, parenteral, 100 mg	Procedure	HCPCS
K0122	Cyclosporine, parenteral, 250 mg	Procedure	HCPCS
K0412	Mycophenolate mofetil, oral, 250 mg (CellCept)	Procedure	HCPCS
Q2010	Injection, glatiramer acetate, per dose	Procedure	HCPCS
Q2012	Injection, pegademase bovine, 25 IU	Procedure	HCPCS
Q2019	Injection, basiliximab, 20 mg	Procedure	HCPCS
Q2025	Fludarabine phosphate, oral, 1 mg	Procedure	HCPCS
Q2043	Sipuleucel-T, minimum of 50 million autologous cd54+ cells activated with PAP-GM-CSF, including leukapheresis and all other preparatory procedures, per infusion	Procedure	HCPCS
Q2044	Injection, belimumab, 10 mg	Procedure	HCPCS
Q2048	Injection, doxorubicin hydrochloride, liposomal, DOXIL, 10 mg	Procedure	HCPCS
Q2049	Injection, doxorubicin hydrochloride, liposomal, imported Lipodox, 10 mg	Procedure	HCPCS
Q2050	Injection, doxorubicin hydrochloride, liposomal, not otherwise specified, 10 mg	Procedure	HCPCS
Q3001	Radioelements for brachytherapy, any type, each	Procedure	HCPCS
Q3025	Injection, interferon beta-1a, 11 mcg for intramuscular use	Procedure	HCPCS
Q3026	Injection, interferon beta-1a, 11 mcg for subcutaneous use	Procedure	HCPCS
Q3027	Injection, interferon beta-1a, 1 mcg for intramuscular use	Procedure	HCPCS
Q3028	Injection, interferon beta-1a, 1 mcg for subcutaneous use	Procedure	HCPCS
Q4079	Injection, natalizumab, 1 mg	Procedure	HCPCS
Q5102	Injection, infliximab, biosimilar, 10 mg	Procedure	HCPCS
Q5103	Injection, infliximab-dyyb, biosimilar, (inflectra), 10 mg	Procedure	HCPCS
Q5104	Injection, infliximab-abda, biosimilar, (renflexis), 10 mg	Procedure	HCPCS
Q5107	Injection, bevacizumab-awwb, biosimilar, (mvasi), 10 mg	Procedure	HCPCS
Q5109	Injection, infliximab-qbtx, biosimilar, (ixifi), 10 mg	Procedure	HCPCS
Q5112	Injection, trastuzumab-dttb, biosimilar, (ontruzant), 10 mg	Procedure	HCPCS
Q5113	Injection, trastuzumab-pkrb, biosimilar, (herzuma), 10 mg	Procedure	HCPCS
Q5114	Injection, trastuzumab-dkst, biosimilar, (ogivri), 10 mg	Procedure	HCPCS
Q5115	Injection, rituximab-abbs, biosimilar, (truxima), 10 mg	Procedure	HCPCS
Q5116	Injection, trastuzumab-qyyp, biosimilar, (trazimera), 10 mg	Procedure	HCPCS
Q5117	Injection, trastuzumab-anns, biosimilar, (kanjinti), 10 mg	Procedure	HCPCS
Q5118	Injection, bevacizumab-bvzr, biosimilar, (zirabev), 10 mg	Procedure	HCPCS
Q5119	Injection, rituximab-pvvr, biosimilar, (ruxience), 10 mg	Procedure	HCPCS
Q5121	Injection, infliximab-axxq, biosimilar, (AVSOLA), 10 mg	Procedure	HCPCS
Q9979	Injection, Alemtuzumab, 1 mg	Procedure	HCPCS

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
Q9989	Ustekinumab, for intravenous injection, 1 mg	Procedure	HCPCS
S0087	Injection, alemtuzumab, 30 mg	Procedure	HCPCS
S0088	Imatinib, 100 mg	Procedure	HCPCS
S0108	Mercaptopurine, oral, 50 mg	Procedure	HCPCS
S0115	Bortezomib, 3.5 mg	Procedure	HCPCS
S0116	Bevacizumab, 100 mg	Procedure	HCPCS
S0145	Injection, pegylated interferon alfa-2a, 180 mcg per ml	Procedure	HCPCS
S0146	Injection, pegylated interferon alfa-2b, 10 mcg per 0.5 ml	Procedure	HCPCS
S0148	Injection, pegylated interferon alfa-2B, 10 mcg	Procedure	HCPCS
S0162	Injection, efalizumab, 125 mg	Procedure	HCPCS
S0168	Injection, azacitidine, 100 mg	Procedure	HCPCS
S0172	Chlorambucil, oral, 2 mg	Procedure	HCPCS
S0176	Hydroxyurea, oral, 500 mg	Procedure	HCPCS
S0178	Lomustine, oral, 10 mg	Procedure	HCPCS
S0182	Procarbazine HCl, oral, 50 mg	Procedure	HCPCS
S0193	Injection alefacept, 7.5 mg (includes dose packaging)	Procedure	HCPCS
T451X1A	Poisoning by antineoplastic and immunosuppressive drugs, accidental (unintentional), initial encounter	Diagnosis	ICD-10-CM
T451X1D	Poisoning by antineoplastic and immunosuppressive drugs, accidental (unintentional), subsequent encounter	Diagnosis	ICD-10-CM
T451X1S	Poisoning by antineoplastic and immunosuppressive drugs, accidental (unintentional),	Diagnosis	ICD-10-CM
T451X2A	Poisoning by antineoplastic and immunosuppressive drugs, intentional self-harm, initial encounter	Diagnosis	ICD-10-CM
T451X2D	Poisoning by antineoplastic and immunosuppressive drugs, intentional self-harm, subsequent encounter	Diagnosis	ICD-10-CM
T451X2S	Poisoning by antineoplastic and immunosuppressive drugs, intentional self-harm,	Diagnosis	ICD-10-CM
T451X3A	Poisoning by antineoplastic and immunosuppressive drugs, assault, initial encounter	Diagnosis	ICD-10-CM
T451X3D	Poisoning by antineoplastic and immunosuppressive drugs, assault, subsequent	Diagnosis	ICD-10-CM
T451X3S	Poisoning by antineoplastic and immunosuppressive drugs, assault, sequela	Diagnosis	ICD-10-CM
T451X4A	Poisoning by antineoplastic and immunosuppressive drugs, undetermined, initial	Diagnosis	ICD-10-CM
T451X4D	Poisoning by antineoplastic and immunosuppressive drugs, undetermined, subsequent encounter	Diagnosis	ICD-10-CM
T451X4S	Poisoning by antineoplastic and immunosuppressive drugs, undetermined, sequela	Diagnosis	ICD-10-CM
T451X5A	Adverse effect of antineoplastic and immunosuppressive drugs, initial encounter	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
T451X5D	Adverse effect of antineoplastic and immunosuppressive drugs, subsequent encounter	Diagnosis	ICD-10-CM
T451X5S	Adverse effect of antineoplastic and immunosuppressive drugs, sequela	Diagnosis	ICD-10-CM
T80810	Extravasation of vesicant antineoplastic chemotherapy	Diagnosis	ICD-10-CM
T80810A	Extravasation of vesicant antineoplastic chemotherapy, initial encounter	Diagnosis	ICD-10-CM
T80810D	Extravasation of vesicant antineoplastic chemotherapy, subsequent encounter	Diagnosis	ICD-10-CM
XW03351	Introduction of Blinatumomab Antineoplastic Immunotherapy into Peripheral Vein, Percutaneous Approach, New Technology Group 1	Procedure	ICD-10-PCS
XW033B3	Introduction of Cytarabine and Daunorubicin Liposome Antineoplastic into Peripheral Vein, Percutaneous Approach, New Technology Group 3	Procedure	ICD-10-PCS
XW033C3	Introduction of Engineered Autologous Chimeric Antigen Receptor T-cell Immunotherapy into Peripheral Vein, Percutaneous Approach, New Technology Group 3	Procedure	ICD-10-PCS
XW033Q5	Introduction of Tagraxofusp-erzs Antineoplastic into Peripheral Vein, Percutaneous Approach, New Technology Group 5	Procedure	ICD-10-PCS
XW033S5	Introduction of Iobenguane I-131 Antineoplastic into Peripheral Vein, Percutaneous Approach, New Technology Group 5	Procedure	ICD-10-PCS
XW04351	Introduction of Blinatumomab Antineoplastic Immunotherapy into Central Vein, Percutaneous Approach, New Technology Group 1	Procedure	ICD-10-PCS
XW043B3	Introduction of Cytarabine and Daunorubicin Liposome Antineoplastic into Central Vein, Percutaneous Approach, New Technology Group 3	Procedure	ICD-10-PCS
XW043C3	Introduction of Engineered Autologous Chimeric Antigen Receptor T-cell Immunotherapy into Central Vein, Percutaneous Approach, New Technology Group 3	Procedure	ICD-10-PCS
XW043Q5	Introduction of Tagraxofusp-erzs Antineoplastic into Central Vein, Percutaneous Approach, New Technology Group 5	Procedure	ICD-10-PCS
XW043S5	Introduction of Iobenguane I-131 Antineoplastic into Central Vein, Percutaneous Approach, New Technology Group 5	Procedure	ICD-10-PCS
XW0DXL5	Introduction of Erdafitinib Antineoplastic into Mouth and Pharynx, External Approach, New Technology Group 5	Procedure	ICD-10-PCS
XW0DXR5	Introduction of Venetoclax Antineoplastic into Mouth and Pharynx, External Approach, New Technology Group 5	Procedure	ICD-10-PCS
XW0DXT5	Introduction of Ruxolitinib into Mouth and Pharynx, External Approach, New Technology Group 5	Procedure	ICD-10-PCS
XW0DXV5	Introduction of Gilteritinib Antineoplastic into Mouth and Pharynx, External Approach, New Technology Group 5	Procedure	ICD-10-PCS
Z510	Encounter for antineoplastic radiation therapy	Diagnosis	ICD-10-CM

Appendix BA. List of Current Procedural Terminology, Fourth Edition (CPT-4), Current Procedural Terminology, Second Edition (CPT-2), Current Procedural Terminology, Third Edition (CPT-3), Healthcare Common Procedure Coding System, Level II (HCPCS), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedural Coding System (ICD-10-PCS), and Vaccine Administered (CVX) Codes Used to Define Covariates in this Request

Code	Description	Code Category	Code Type
Z511	Encounter for antineoplastic chemotherapy and immunotherapy	Diagnosis	ICD-10-CM
Z5111	Encounter for antineoplastic chemotherapy	Diagnosis	ICD-10-CM
Z5112	Encounter for antineoplastic immunotherapy	Diagnosis	ICD-10-CM
Inhaled Corticosteroids			
J7401	Mometasone furoate sinus implant, 10 micrograms	Procedure	HCPCS
J7622	Beclomethasone, inhalation solution, compounded product, administered through dme, unit dose form, per milligram	Procedure	HCPCS
J7624	BETAMETHASONE, INHALATION SOLUTION ADMINISTERED THROUGH DME, UNIT DOSE FORM, PER MILLIGRAM	Procedure	HCPCS
J7626	Budesonide, inhalation solution, fda-approved final product, non-compounded, administered through dme, unit dose form, up to 0.5 mg	Procedure	HCPCS
J7627	Budesonide, inhalation solution, compounded product, administered through dme, unit dose form, up to 0.5 mg	Procedure	HCPCS
J7633	Budesonide, inhalation solution, fda-approved final product, non-compounded, administered through dme, concentrated form, per 0.25 milligram	Procedure	HCPCS
J7634	Budesonide, inhalation solution, compounded product, administered through dme, concentrated form, per 0.25 milligram	Procedure	HCPCS
J7637	Dexamethasone, inhalation solution, compounded product, administered through dme, concentrated form, per milligram	Procedure	HCPCS
J7638	Dexamethasone, inhalation solution, compounded product, administered through dme, unit dose form, per milligram	Procedure	HCPCS
J7641	Flunisolide, inhalation solution, compounded product, administered through dme, unit dose, per milligram	Procedure	HCPCS
J7683	Triamcinolone, inhalation solution, compounded product, administered through dme, concentrated form, per milligram	Procedure	HCPCS
J7684	Triamcinolone, inhalation solution, compounded product, administered through dme, unit dose form, per milligram	Procedure	HCPCS

Appendix BB. List of Generic and Brand Names of Medical Products Used to Define Covariates in this Request

Generic Name	Brand Name
Smoking or Nicotine Use	
bupropion HCl	Zyban
nicotine	Nicoderm CQ
nicotine	Nicotrol
nicotine	Nicotrol NS
nicotine	nicotine
nicotine polacrilex	Nicorelief
nicotine polacrilex	Nicorette
nicotine polacrilex	Quit 2
nicotine polacrilex	Quit 4
nicotine polacrilex	Stop Smoking Aid
nicotine polacrilex	nicotine (polacrilex)
varenicline tartrate	Chantix
varenicline tartrate	Chantix Continuing Month Box
varenicline tartrate	Chantix Starting Month Box
varenicline tartrate	varenicline
COVID-19 Vaccine	
COVID vac 2023-2024 (5-11 years) XBB.1.5 (raxtozinameran)/PF	Pfizer COVID 2023-24(5y-11y)PF
COVID vac 2023-24 (12 yr and up) XBB.1.5 (raxtozinameran)/PF	Comirnaty 2023-24 (12y up)(PF)
COVID vac 2023-24 (6 mos-4 yrs) XBB.1.5 (raxtozinameran)/PF	Pfizer COVID 2023-24(6mo-4y)PF
COVID vacc 2023-24 (12 yrs and up) XBB.1.5 (andusomeran)/PF	Spikevax 2023-2024(12y up)(PF)
COVID vacc 2023-24 XBB.1.5, recomb/adjuvant-Matrix/PF	Novavax COVID 2023-24(PF)(EUA)
COVID vaccine 2023-24 (6 mo-11 yrs) XBB.1.5 (andusomeran)/PF	Moderna COVID 23-24(6m-11y)PF
COVID-19 vac mRNA,tris(Pfizer)/PF	Comirnaty tris Vaccine(PF)
COVID-19 vac mRNA,tris(Pfizer)/PF	Pfizer COVID-19 tris Vaccn(PF)
COVID-19 vac, Ad26.COV2.S (Janssen)/PF	Janssen COVID-19 Vaccine (EUA)
COVID-19 vaccine mRNA,Original,Omicron BA.4/5(Moderna)/PF	Moderna COVID Bival(6m up)(PF)
COVID-19 vaccine mRNA,Original,Omicron BA.4/5(Moderna)/PF	Moderna COVID Bival(6m-5y)-PF
COVID-19 vaccine mRNA,Original,Omicron BA.4/5(Pfizer)/PF	Pfizer COVID Bival(12y up)(PF)
COVID-19 vaccine mRNA,Original,Omicron BA.4/5(Pfizer)/PF	Pfizer COVID Bival(5-11yr)(PF)
COVID-19 vaccine mRNA,Original,Omicron BA.4/5(Pfizer)/PF	Pfizer COVID Bival(6mo-4y)(PF)
COVID-19 vaccine, AZD-1222 (AstraZeneca)/PF	AstraZeneca COVID19 Vac(Unapp)
COVID-19 vaccine, bivalent, mRNA/preservative free	Moderna COVID Biv Boostr(Unap)
COVID-19 vaccine, mRNA, BNT162b2, LNP-S (Pfizer)/PF	Comirnaty (PF)
COVID-19 vaccine, mRNA, BNT162b2, LNP-S (Pfizer)/PF	Pfizer COVID-19 Vaccine (EUA)
COVID-19 vaccine, mRNA, LNP-S, pediatric (Moderna)/PF	Moderna COVID(6-11y) Vac(DNU)
COVID-19 vaccine, mRNA, LNP-S, pediatric (Moderna)/PF	Moderna COVID(6m-5y) Vacc(EUA)
COVID-19 vaccine, mRNA, cx-024414, LNP-S (Moderna)/PF	Moderna COVID-19 (6-11yr)(EUA)
COVID-19 vaccine, mRNA, cx-024414, LNP-S (Moderna)/PF	Moderna COVID-19 Vaccine (EUA)
COVID-19 vaccine, mRNA, cx-024414, LNP-S (Moderna)/PF	Spikevax (PF)
COVID-19 vaccine, recombinant (Novavax)/adjuvant-Matrix/PF	Novavax COVID-19 Vacc,Adj(EUA)
COVID-19 vaccine, recombinant antigen (Sanofi)/PF	Sanofi COVID Booster-Ag Compnt
ACEI/ARB	
aliskiren hemifumarate	Tekturna
aliskiren hemifumarate	aliskiren
aliskiren hemifumarate/hydrochlorothiazide	Tekturna HCT
amlodipine besylate/benazepril HCl	Lotrel
amlodipine besylate/benazepril HCl	amlodipine-benazepril

Appendix BB. List of Generic and Brand Names of Medical Products Used to Define Covariates in this Request

Generic Name	Brand Name
amlodipine besylate/olmesartan medoxomil	Azor
amlodipine besylate/olmesartan medoxomil	amlodipine-olmesartan
amlodipine besylate/valsartan	Exforge
amlodipine besylate/valsartan	amlodipine-valsartan
amlodipine besylate/valsartan/hydrochlorothiazide	Exforge HCT
amlodipine besylate/valsartan/hydrochlorothiazide	amlodipine-valsartan-hcthiazid
azilsartan medoxomil	Edarbi
azilsartan medoxomil/chlorthalidone	Edarbyclor
benazepril HCl	Lotensin
benazepril HCl	benazepril
benazepril HCl/hydrochlorothiazide	Lotensin HCT
benazepril HCl/hydrochlorothiazide	benazepril-hydrochlorothiazide
candesartan cilexetil	Atacand
candesartan cilexetil	candesartan
candesartan cilexetil/hydrochlorothiazide	Atacand HCT
candesartan cilexetil/hydrochlorothiazide	candesartan-hydrochlorothiazid
captopril	captopril
captopril/hydrochlorothiazide	captopril-hydrochlorothiazide
enalapril maleate	Epaned
enalapril maleate	Vasotec
enalapril maleate	enalapril maleate
enalapril maleate/hydrochlorothiazide	Vaseretic
enalapril maleate/hydrochlorothiazide	enalapril-hydrochlorothiazide
enalaprilat dihydrate	enalaprilat
eprosartan mesylate	eprosartan
fosinopril sodium	fosinopril
fosinopril sodium/hydrochlorothiazide	fosinopril-hydrochlorothiazide
irbesartan	Avapro
irbesartan	irbesartan
irbesartan/hydrochlorothiazide	Avalide
irbesartan/hydrochlorothiazide	irbesartan-hydrochlorothiazide
lisinopril	Prinivil
lisinopril	Qbrelis
lisinopril	Zestril
lisinopril	lisinopril
lisinopril/hydrochlorothiazide	Zestoretic
lisinopril/hydrochlorothiazide	lisinopril-hydrochlorothiazide
losartan potassium	Cozaar
losartan potassium	losartan
losartan potassium/hydrochlorothiazide	Hyzaar
losartan potassium/hydrochlorothiazide	losartan-hydrochlorothiazide
moexipril HCl	moexipril
nebivolol HCl/valsartan	Byvalson
olmesartan medoxomil	Benicar
olmesartan medoxomil	olmesartan
olmesartan medoxomil/amlodipine besylate/hydrochlorothiazide	Tribenzor

Appendix BB. List of Generic and Brand Names of Medical Products Used to Define Covariates in this Request

Generic Name	Brand Name
olmesartan medoxomil/amlodipine besylate/hydrochlorothiazide	olmesartan-amlodipin-hcthiazid
olmesartan medoxomil/hydrochlorothiazide	Benicar HCT
olmesartan medoxomil/hydrochlorothiazide	olmesartan-hydrochlorothiazide
perindopril arginine/amlodipine besylate	Prestalia
perindopril erbumine	perindopril erbumine
quinapril HCl	Accupril
quinapril HCl	quinapril
quinapril HCl/hydrochlorothiazide	Accuretic
quinapril HCl/hydrochlorothiazide	quinapril-hydrochlorothiazide
ramipril	Altace
ramipril	ramipril
sacubitril/valsartan	Entresto
telmisartan	Micardis
telmisartan	telmisartan
telmisartan/amlodipine besylate	Twynsta
telmisartan/amlodipine besylate	telmisartan-amlodipine
telmisartan/hydrochlorothiazide	Micardis HCT
telmisartan/hydrochlorothiazide	telmisartan-hydrochlorothiazid
trandolapril	trandolapril
trandolapril/verapamil HCl	Tarka
trandolapril/verapamil HCl	trandolapril-verapamil
valsartan	Diovan
valsartan	valsartan
valsartan/hydrochlorothiazide	Diovan HCT
valsartan/hydrochlorothiazide	valsartan-hydrochlorothiazide
NSAID	
amlodipine besylate/celecoxib	Consensi
bupivacaine/ketorolac/ketamine	bupivacaine-ketorolac-ketamine
bupivacaine/meloxicam	Zynrelef
celecoxib	Celebrex
celecoxib	Elyxyb
celecoxib	celecoxib
chlorpheniramine maleate/phenylephrine HCl/ibuprofen	Advil Allergy-Congestion Rlf
chlorpheniramine maleate/phenylephrine HCl/ibuprofen	Advil Multi-Symptom Cold-Flu
chlorpheniramine maleate/pseudoephedrine HCl/ibuprofen	Advil Allergy Sinus
diclofenac epolamine	Flector
diclofenac epolamine	Licart
diclofenac epolamine	diclofenac epolamine
diclofenac potassium	Cambia
diclofenac potassium	Cataflam
diclofenac potassium	Lofena
diclofenac potassium	Zipsor
diclofenac potassium	diclofenac potassium
diclofenac sodium	Voltaren-XR
diclofenac sodium	diclofenac sodium
diclofenac sodium/misoprostol	Arthrotec 50
diclofenac sodium/misoprostol	Arthrotec 75

Appendix BB. List of Generic and Brand Names of Medical Products Used to Define Covariates in this Request

Generic Name	Brand Name
diclofenac sodium/misoprostol	diclofenac-misoprostol
diclofenac submicronized	Zorvolex
diclofenac submicronized	diclofenac submicronized
etodolac	Lodine
etodolac	etodolac
fenoprofen calcium	Fenortho
fenoprofen calcium	Nalfon
fenoprofen calcium	fenoprofen
flurbiprofen	flurbiprofen
hydrocodone/ibuprofen	Ibudone
hydrocodone/ibuprofen	hydrocodone-ibuprofen
ibuprofen	Addaprin
ibuprofen	Advil
ibuprofen	Advil Junior Strength
ibuprofen	Advil Liqui-Gel
ibuprofen	Advil Liqui-Gels Minis
ibuprofen	Advil Migraine
ibuprofen	Caldolor
ibuprofen	Children's Advil
ibuprofen	Children's Ibuprofen
ibuprofen	Children's Motrin
ibuprofen	Children's Motrin Jr Strength
ibuprofen	Children's Profen IB
ibuprofen	I-Prin
ibuprofen	IBU
ibuprofen	IBU-200
ibuprofen	Ibuprofen IB
ibuprofen	Ibuprofen Jr Strength
ibuprofen	Infant's Advil
ibuprofen	Infant's Ibuprofen
ibuprofen	Infant's Motrin
ibuprofen	Infants ProfenIB
ibuprofen	Motrin IB
ibuprofen	Provil
ibuprofen	Wal-Profen
ibuprofen	ibuprofen
ibuprofen lysine/PF	NeoProfen (ibuprofen lysn)(PF)
ibuprofen lysine/PF	ibuprofen lysine (PF)
ibuprofen sodium/acetaminophen	Combogesic IV
ibuprofen/acetaminophen	Advil Dual Action
ibuprofen/acetaminophen	Dual Action Pain Reliever
ibuprofen/acetaminophen	ibuprofen-acetaminophen
ibuprofen/diphenhydramine HCl	Advil PM Liqui-Gels
ibuprofen/diphenhydramine HCl	Ibuprofen PM
ibuprofen/diphenhydramine citrate	Advil PM
ibuprofen/diphenhydramine citrate	Ibuprofen PM
ibuprofen/diphenhydramine citrate	Motrin PM
ibuprofen/famotidine	Duexis

Appendix BB. List of Generic and Brand Names of Medical Products Used to Define Covariates in this Request

Generic Name	Brand Name
ibuprofen/famotidine	ibuprofen-famotidine
ibuprofen/glycerin	Ibupak
ibuprofen/oxycodone HCl	ibuprofen-oxycodone
ibuprofen/phenylephrine HCl	Advil Sinus Congestion-Pain
ibuprofen/phenylephrine HCl	Congestion Relief (ibuprof-PE)
ibuprofen/phenylephrine HCl	Sudafed PE Head Congestn-Pain
ibuprofen/pseudoephedrine HCl	Advil Cold and Sinus
ibuprofen/pseudoephedrine HCl	Cold and Sinus Pain Relief
ibuprofen/pseudoephedrine HCl	Cold-Sinus Relief
ibuprofen/pseudoephedrine HCl	Cold-Sinus Relief (ibuprofen)
ibuprofen/pseudoephedrine HCl	Ibuprofen Cold-Sinus(with PSE)
ibuprofen/pseudoephedrine HCl	Wal-Profen Cold-Sinus
ibuprofen/pseudoephedrine HCl	Wal-Profen D Cold and Sinus
indomethacin	Indocin
indomethacin	indomethacin
indomethacin sodium	indomethacin sodium
indomethacin, submicronized	Tivorbex
indomethacin, submicronized	indomethacin submicronized
ketoprofen	ketoprofen
ketorolac tromethamine	ReadySharp ketorolac
ketorolac tromethamine	ketorolac
meclofenamate sodium	meclofenamate
mefenamic acid	mefenamic acid
meloxicam	Anjeso
meloxicam	Mobic
meloxicam	Qmiiz ODT
meloxicam	meloxicam
meloxicam, submicronized	Vivlodex
meloxicam, submicronized	meloxicam submicronized
nabumetone	Relafen
nabumetone	Relafen DS
nabumetone	nabumetone
naproxen	EC-Naprosyn
naproxen	EC-Naproxen
naproxen	Naprosyn
naproxen	naproxen
naproxen sodium	Aleve
naproxen sodium	All Day Pain Relief
naproxen sodium	All Day Relief
naproxen sodium	Anaprox DS
naproxen sodium	Flanax (naproxen)
naproxen sodium	Mediproxen
naproxen sodium	Midol (naproxen)
naproxen sodium	Naprelan CR
naproxen sodium	Wal-Proxen
naproxen sodium	naproxen sodium
naproxen sodium/diphenhydramine HCl	Aleve PM
naproxen sodium/diphenhydramine HCl	Naproxen PM

Appendix BB. List of Generic and Brand Names of Medical Products Used to Define Covariates in this Request

Generic Name	Brand Name
naproxen sodium/pseudoephedrine HCl	Aleve Cold and Sinus
naproxen sodium/pseudoephedrine HCl	Aleve Sinus and Headache
naproxen sodium/pseudoephedrine HCl	Aleve-D Sinus and Cold
naproxen sodium/pseudoephedrine HCl	Aleve-D Sinus and Headache
naproxen sodium/pseudoephedrine HCl	All Day Cold and Sinus
naproxen sodium/pseudoephedrine HCl	All Day Pain Relief Sinus,Cold
naproxen sodium/pseudoephedrine HCl	Sinus and Cold-D
naproxen sodium/pseudoephedrine HCl	Sudafed Sinus 12Hr Pressr-Pain
naproxen/esomeprazole magnesium	Vimovo
naproxen/esomeprazole magnesium	naproxen-esomeprazole
oxaprozin	Coxanto
oxaprozin	Daypro
oxaprozin	oxaprozin
piroxicam	Feldene
piroxicam	piroxicam
ropivacaine HCl/clonidine HCl/ketorolac tromethamine	ropivacaine-clonidin-ketorolac
ropivacaine HCl/epinephrine/clonidine HCl/ketorolac trometh	ropivacaine-epi-clonid-ketorol
ropivacaine/ketorolac/ketamine	ropivacaine-ketorolac-ketamine
sulindac	sulindac
sumatriptan succinate/naproxen sodium	Treximet
sumatriptan succinate/naproxen sodium	sumatriptan-naproxen
tolmetin sodium	tolmetin
tramadol HCl/celecoxib	Seglentis
Aspirin	
aspirin	Adult Aspirin Regimen
aspirin	Adult Low Dose Aspirin
aspirin	Aspir-81
aspirin	Aspir-Low
aspirin	Aspir-Trin
aspirin	Aspirin Childrens
aspirin	Bayer Advanced
aspirin	Bayer Aspirin
aspirin	Bayer Chewable Aspirin
aspirin	Bayer Low Dose Aspirin
aspirin	Children's Aspirin
aspirin	Durlaza
aspirin	E.C. Prin
aspirin	Ecotrin
aspirin	Ecotrin Low Strength
aspirin	Enteric Coated Aspirin
aspirin	Extra Strength Bayer
aspirin	Lo-Dose Aspirin
aspirin	St Joseph Aspirin
aspirin	St. Joseph Aspirin
aspirin	Vazalore
aspirin	aspirin
aspirin/acetaminophen	Goody's Back and Body Pain
aspirin/acetaminophen/caffeine	Added Strength Headache Relief

Appendix BB. List of Generic and Brand Names of Medical Products Used to Define Covariates in this Request

Generic Name	Brand Name
aspirin/acetaminophen/caffeine	BC Max Strength
aspirin/acetaminophen/caffeine	Excedrin Extra Strength
aspirin/acetaminophen/caffeine	Excedrin Migraine
aspirin/acetaminophen/caffeine	Extra Pain Relief
aspirin/acetaminophen/caffeine	Extraprin
aspirin/acetaminophen/caffeine	Goody's Extra Strength
aspirin/acetaminophen/caffeine	Headache Relief (ASA-acet-caf)
aspirin/acetaminophen/caffeine	Migraine Formula
aspirin/acetaminophen/caffeine	Migraine Relief
aspirin/acetaminophen/caffeine	Pain Reliever (acetam-aspirin)
aspirin/acetaminophen/caffeine	Pain Reliever Plus
aspirin/acetaminophen/caffeine	Pain-Off
aspirin/acetaminophen/caffeine	Vanquish
aspirin/acetaminophen/diphenhydramine citrate	Pain Relief PM (w-aspirin)
aspirin/caffeine	Anacin
aspirin/caffeine	BC Arthritis
aspirin/caffeine	BC Pain Relief
aspirin/caffeine	Back and Body Pain Reliever
aspirin/caffeine	Bayer Aspirin (with caffeine)
aspirin/caffeine	Bayer Back and Body
aspirin/caffeine	Goody's Hangover
aspirin/caffeine	Pain Relief (aspirin-caffeine)
aspirin/caffeine	Stanback
aspirin/calcium carbonate	Women's Aspirin with Calcium
aspirin/calcium carbonate/magnesium	Buffered Aspirin
aspirin/calcium carbonate/magnesium	Bufferin
aspirin/calcium carbonate/magnesium	Tri-Buffered Aspirin
aspirin/calcium carbonate/magnesium	aspirin,buffd-calcium carb-mag
aspirin/calcium carbonate/magnesium/aluminum hydroxide	Bayer Plus Extra Strength
aspirin/diphenhydramine citrate	Bayer PM
aspirin/dipyridamole	Aggrenox
aspirin/dipyridamole	aspirin-dipyridamole
aspirin/omeprazole	Yosprala
aspirin/omeprazole	aspirin-omeprazole
aspirin/salicylamide/acetaminophen/caffeine	Pain Relief(with salicylamide)
aspirin/sodium bicarbonate/citric acid	Alka-Seltzer Extra Strength
aspirin/sodium bicarbonate/citric acid	Alka-Seltzer Original
aspirin/sodium bicarbonate/citric acid	Antacid and Pain Relief
aspirin/sodium bicarbonate/citric acid	Efferves Pain Relief Antacid
aspirin/sodium bicarbonate/citric acid	Effervescent Pain Relief
aspirin/sodium bicarbonate/citric acid	Medi-Seltzer
butalbital/aspirin/caffeine	Fiorinal
butalbital/aspirin/caffeine	butalbital-aspirin-caffeine
carisoprodol/aspirin	carisoprodol-aspirin
carisoprodol/aspirin/codeine phosphate	carisoprodol-aspirin-codeine
chlorpheniramine mal/phenylephrine/d-methorphan Hb/aspirin	Alka-Seltzer Plus C/C(PE,DM)
chlorpheniramine maleate/phenylephrine bitartrate/aspirin	Alka-Seltzer Plus Cold (PE)
chlorpheniramine maleate/phenylephrine bitartrate/aspirin	Alka-Seltzer Severe Cold

Appendix BB. List of Generic and Brand Names of Medical Products Used to Define Covariates in this Request

Generic Name	Brand Name
chlorpheniramine maleate/phenylephrine bitartrate/aspirin	Cold Relief
chlorpheniramine maleate/phenylephrine bitartrate/aspirin	Cold Relief Plus
codeine phosphate/butalbital/aspirin/caffeine	Ascomp with Codeine
codeine phosphate/butalbital/aspirin/caffeine	Butalbital Compound W/Codeine
codeine phosphate/butalbital/aspirin/caffeine	Fiorinal-Codeine #3
codeine phosphate/butalbital/aspirin/caffeine	codeine-butalbital-ASA-caff
orphenadrine citrate/aspirin/caffeine	Norgesic
orphenadrine citrate/aspirin/caffeine	Norgesic Forte
orphenadrine citrate/aspirin/caffeine	Orphengesic Forte
orphenadrine citrate/aspirin/caffeine	orphenadrine-ASA-caffeine
oxycodone HCl/aspirin	oxycodone-aspirin
Antidepressants	
St. John's wort	St. John's wort
amitriptyline HCl	amitriptyline
amitriptyline HCl/chlordiazepoxide	amitriptyline-chlordiazepoxide
amoxapine	amoxapine
brexanolone	Zulresso
bupropion HBr	Aplenzin
bupropion HCl	Forfivo XL
bupropion HCl	Wellbutrin SR
bupropion HCl	Wellbutrin XL
bupropion HCl	bupropion HCl
citalopram hydrobromide	Celexa
citalopram hydrobromide	citalopram
clomipramine HCl	Anafranil
clomipramine HCl	clomipramine
desipramine HCl	Norpramin
desipramine HCl	desipramine
desvenlafaxine	Khedezla
desvenlafaxine	desvenlafaxine
desvenlafaxine succinate	Pristiq
desvenlafaxine succinate	desvenlafaxine succinate
dextromethorphan HBr/bupropion HCl	Auvelity
doxepin HCl	Silenor
doxepin HCl	doxepin
duloxetine HCl	Cymbalta
duloxetine HCl	Drizalma Sprinkle
duloxetine HCl	duloxetine
escitalopram oxalate	Lexapro
escitalopram oxalate	escitalopram oxalate
esketamine HCl	Spravato
fluoxetine HCl	Prozac
fluoxetine HCl	Sarafem
fluoxetine HCl	fluoxetine
fluvoxamine maleate	fluvoxamine
imipramine HCl	Tofranil
imipramine HCl	imipramine HCl
imipramine pamoate	imipramine pamoate

Appendix BB. List of Generic and Brand Names of Medical Products Used to Define Covariates in this Request

Generic Name	Brand Name
isocarboxazid	Marplan
levomilnacipran HCl	Fetzima
maprotiline HCl	maprotiline
milnacipran HCl	Savella
mirtazapine	Remeron
mirtazapine	Remeron SolTab
mirtazapine	mirtazapine
nefazodone HCl	nefazodone
nortriptyline HCl	Pamelor
nortriptyline HCl	nortriptyline
olanzapine/fluoxetine HCl	Symbyax
olanzapine/fluoxetine HCl	olanzapine-fluoxetine
paroxetine HCl	Paxil
paroxetine HCl	Paxil CR
paroxetine HCl	paroxetine HCl
paroxetine mesylate	Brisdelle
paroxetine mesylate	Pexeva
paroxetine mesylate	paroxetine mesylate(menop.sym)
perphenazine/amitriptyline HCl	perphenazine-amitriptyline
phenelzine sulfate	Nardil
phenelzine sulfate	phenelzine
protriptyline HCl	protriptyline
selegiline	Emsam
sertraline HCl	Zoloft
sertraline HCl	sertraline
tranylcypromine sulfate	Parnate
tranylcypromine sulfate	tranylcypromine
trazodone HCl	trazodone
trimipramine maleate	Surmontil
trimipramine maleate	trimipramine
tryptophan	tryptophan
venlafaxine HCl	Effexor XR
venlafaxine HCl	venlafaxine
venlafaxine besylate	venlafaxine besylate
vilazodone HCl	Viibryd
vilazodone HCl	vilazodone
vortioxetine hydrobromide	Trintellix
zuranolone	Zurzuvae
Statins	
amlodipine besylate/atorvastatin calcium	Caduet
amlodipine besylate/atorvastatin calcium	amlodipine-atorvastatin
atorvastatin calcium	AtorvaliQ
atorvastatin calcium	Lipitor
atorvastatin calcium	atorvastatin
ezetimibe/atorvastatin calcium	ezetimibe-atorvastatin
ezetimibe/rosuvastatin calcium	Roszet
ezetimibe/rosuvastatin calcium	ezetimibe-rosuvastatin
ezetimibe/simvastatin	Vytorin 10-10

Appendix BB. List of Generic and Brand Names of Medical Products Used to Define Covariates in this Request

Generic Name	Brand Name
ezetimibe/simvastatin	Vytorin 10-20
ezetimibe/simvastatin	Vytorin 10-40
ezetimibe/simvastatin	Vytorin 10-80
ezetimibe/simvastatin	ezetimibe-simvastatin
fluvastatin sodium	Lescol
fluvastatin sodium	Lescol XL
fluvastatin sodium	fluvastatin
lovastatin	Altoprev
lovastatin	lovastatin
pitavastatin calcium	Livalo
pitavastatin calcium	pitavastatin calcium
pitavastatin magnesium	Zypitamag
pravastatin sodium	Pravachol
pravastatin sodium	pravastatin
rosuvastatin calcium	Crestor
rosuvastatin calcium	Ezallor Sprinkle
rosuvastatin calcium	rosuvastatin
simvastatin	FloLipid
simvastatin	Zocor
simvastatin	simvastatin
Insulin	
blood glucose meter/insulin data transf accessory, bluetooth	Tempo Welcome Kit
data transfer accessory (insulin pen), bluetooth	Tempo Smart Button
data transfer pen cap for insulin aspart (B3), reusable, BT	Bigfoot Unity Pen Cap-Fiasp
data transfer pen cap for insulin aspart, reusable,bluetooth	Bigfoot Unity Pen Cap-Aspart
data transfer pen cap for insulin aspart, reusable,bluetooth	Bigfoot Unity Pen Cap-Novolog
data transfer pen cap for insulin degludec, reusable, BT	Bigfoot Unity Pen Cap-Tresiba
data transfer pen cap for insulin glulisine, reusable, BT	Bigfoot Unity Pen Cap-Apidra
data transfer pen cap for insulin lispro, reusable,bluetooth	Bigfoot Unity Pen Cap-Admelog
data transfer pen cap for insulin lispro, reusable,bluetooth	Bigfoot Unity Pen Cap-Humalog
data transfer pen cap for insulin lispro, reusable,bluetooth	Bigfoot Unity Pen Cap-Lispro
data transfer pen cap for insulin lispro-aabc, reusable, BT	Bigfoot Unity Pen Cap-Lyumjev
data transfr pen cap for insulin glargine,reusable,bluetooth	Bigfoot Unity Pen Cap-Basaglar
data transfr pen cap for insulin glargine,reusable,bluetooth	Bigfoot Unity Pen Cap-Lantus
data transfr pen cap for insulin glargine,reusable,bluetooth	Bigfoot Unity Pen Cap-Toujeo
data transfr pen cap for insulin glargine,reusable,bluetooth	Bigfoot Unity Pen Cap-ToujeoMx
diluent for insulin lispro and regular insulin	Sterile Diluent For Humalog
diluent,insulin aspart combination no.1	Diluting Medium for Novolog
infusion set for insulin pump	AutoSoft 30
infusion set for insulin pump	AutoSoft XC Infusion Set 23"
infusion set for insulin pump	AutoSoft XC Infusion Set 32"
infusion set for insulin pump	AutoSoft XC Infusion Set 43"
infusion set for insulin pump	Autosoft 90
infusion set for insulin pump	Cleo 90 Infusion Set 24"
infusion set for insulin pump	Cleo 90 Infusion Set 31"
infusion set for insulin pump	Comfort Infusion Set 23"
infusion set for insulin pump	Comfort Infusion Set 31"
infusion set for insulin pump	Comfort Infusion Set 32"

Appendix BB. List of Generic and Brand Names of Medical Products Used to Define Covariates in this Request

Generic Name	Brand Name
infusion set for insulin pump	Comfort Infusion Set 43"
infusion set for insulin pump	Comfort Short Infusion Set 23"
infusion set for insulin pump	Comfort Short Infusion Set 31"
infusion set for insulin pump	Comfort Short Infusion Set 43"
infusion set for insulin pump	Comfort Short Insulin Pump 23"
infusion set for insulin pump	Comfort Short Insulin Pump 32"
infusion set for insulin pump	Comfort Short Insulin Pump 43"
infusion set for insulin pump	Contact Detach Infus Set 23"
infusion set for insulin pump	Contact Detach Infus Set 32"
infusion set for insulin pump	Contact Detach Infus Set 43"
infusion set for insulin pump	Infusion Set
infusion set for insulin pump	Infusion Set 23"
infusion set for insulin pump	Infusion Set 23" 6MM
infusion set for insulin pump	Infusion Set 23" Comfort
infusion set for insulin pump	Infusion Set 43"
infusion set for insulin pump	Infusion Set 43" 6MM
infusion set for insulin pump	Infusion Set 43" 9MM
infusion set for insulin pump	Inset 30 Infusion Set 23"
infusion set for insulin pump	Inset Infusion Set 23"
infusion set for insulin pump	Medtronic Ext Infusion Set 23"
infusion set for insulin pump	Medtronic Ext Infusion Set 32"
infusion set for insulin pump	MiniMed Mio 32"
infusion set for insulin pump	MiniMed Mio Advance Inf Set23"
infusion set for insulin pump	MiniMed Mio Advance Inf Set43"
infusion set for insulin pump	MiniMed Quick Set 18"
infusion set for insulin pump	MiniMed Quick Set 23"
infusion set for insulin pump	MiniMed Quick Set 32"
infusion set for insulin pump	MiniMed Quick Set 43"
infusion set for insulin pump	MiniMed Silhouette 18"
infusion set for insulin pump	MiniMed Silhouette 23"
infusion set for insulin pump	MiniMed Silhouette 32"
infusion set for insulin pump	MiniMed Silhouette 43"
infusion set for insulin pump	MiniMed Sure T 18"
infusion set for insulin pump	MiniMed Sure T 23"
infusion set for insulin pump	MiniMed Sure T 32"
infusion set for insulin pump	Minimed Infusion Set
infusion set for insulin pump	Minimed Infusion Set-MMT 390
infusion set for insulin pump	Minimed Infusion Set-MMT 391
infusion set for insulin pump	Minimed Infusion Set-MMT 392
infusion set for insulin pump	Minimed Infusion Set-MMT 393
infusion set for insulin pump	Minimed Mio 18"
infusion set for insulin pump	Minimed Mio 23"
infusion set for insulin pump	Mio Infusion Set
infusion set for insulin pump	Quick-Set Paradigm
infusion set for insulin pump	Quick-Set Paradigm 43"
infusion set for insulin pump	Silhouette
infusion set for insulin pump	Silhouette 23"-Full Set
infusion set for insulin pump	Silhouette 43"-Full Set

Appendix BB. List of Generic and Brand Names of Medical Products Used to Define Covariates in this Request

Generic Name	Brand Name
infusion set for insulin pump	Sof-Set
infusion set for insulin pump	Sof-Set Cannula 24" Tubing
infusion set for insulin pump	Sof-Set Micro 24" Polyfin Tub
infusion set for insulin pump	Sof-Set Micro 42" Polyfin Tub
infusion set for insulin pump	Sof-Set QR 42" Tubing
infusion set for insulin pump	Sure-T Paradigm
infusion set for insulin pump	TruSteel Infusion Set 23"
infusion set for insulin pump	TruSteel Infusion Set 32"
infusion set for insulin pump	VariSoft Infusion Set 23"
infusion set for insulin pump	VariSoft Infusion Set 32"
infusion set for insulin pump	VariSoft Infusion Set 43"
infusion set for insulin pump	t:30 Infusion Set
infusion set for insulin pump	t:90 Infusion Set 23"
infusion set for insulin pump	t:90 Infusion Set 43"
infusion set for insulin pump/insulin pump cartridge	iLET Infusion Kit-Inset 23"
infusion set for insulin pump/insulin pump cartridge	iLET Infusion-Contact Dtch 23"
insulin NPH human isophane	Humulin N NPH Insulin KwikPen
insulin NPH human isophane	Humulin N NPH U-100 Insulin
insulin NPH human isophane	Novolin N FlexPen
insulin NPH human isophane	Novolin N NPH U-100 Insulin
insulin NPH human isophane/insulin regular, human	Humulin 70/30 U-100 Insulin
insulin NPH human isophane/insulin regular, human	Humulin 70/30 U-100 KwikPen
insulin NPH human isophane/insulin regular, human	Novolin 70-30 FlexPen U-100
insulin NPH human isophane/insulin regular, human	Novolin 70/30 U-100 Insulin
insulin admin. supplies	Autoject 2 Injection Device
insulin admin. supplies	Autopen 1 to 21 units
insulin admin. supplies	Autopen 2 to 42 units
insulin admin. supplies	Novopen Echo
insulin aspart	Novolog FlexPen U-100 Insulin
insulin aspart	Novolog PenFill U-100 Insulin
insulin aspart	Novolog U-100 Insulin aspart
insulin aspart	insulin aspart U-100
insulin aspart (niacinamide)	Fiasp FlexTouch U-100 Insulin
insulin aspart (niacinamide)	Fiasp Penfill U-100 Insulin
insulin aspart (niacinamide)	Fiasp U-100 Insulin
insulin aspart (niacinamide)/pump cartridge	Fiasp Pumpcart
insulin aspart protamine human/insulin aspart	Novolog Mix 70-30 U-100 Insuln
insulin aspart protamine human/insulin aspart	Novolog Mix 70-30FlexPen U-100
insulin aspart protamine human/insulin aspart	insulin asp prt-insulin aspart
insulin degludec	Tresiba FlexTouch U-100
insulin degludec	Tresiba FlexTouch U-200
insulin degludec	Tresiba U-100 Insulin
insulin degludec	insulin degludec
insulin degludec/liraglutide	Xultophy 100/3.6
insulin detemir	Levemir FlexPen
insulin detemir	Levemir FlexTouch U100 Insulin
insulin detemir	Levemir U-100 Insulin
insulin glargine,human recombinant analog	Basaglar KwikPen U-100 Insulin

Appendix BB. List of Generic and Brand Names of Medical Products Used to Define Covariates in this Request

Generic Name	Brand Name
insulin glargine,human recombinant analog	Basaglar Tempo Pen(U-100)Insln
insulin glargine,human recombinant analog	Lantus Solostar U-100 Insulin
insulin glargine,human recombinant analog	Lantus U-100 Insulin
insulin glargine,human recombinant analog	Semglee Pen U-100 Insulin
insulin glargine,human recombinant analog	Semglee U-100 Insulin
insulin glargine,human recombinant analog	Toujeo Max U-300 SoloStar
insulin glargine,human recombinant analog	Toujeo SoloStar U-300 Insulin
insulin glargine,human recombinant analog	insulin glargine
insulin glargine,human recombinant analog	insulin glargine U-300 conc
insulin glargine,human recombinant analog/lixisenatide	Soliqua 100/33
insulin glargine-aglr	Rezvoglar KwikPen
insulin glargine-yfgn	Semglee(insulin glarg-yfgn)Pen
insulin glargine-yfgn	Semglee(insulin glargine-yfgn)
insulin glargine-yfgn	insulin glargine-yfgn
insulin glulisine	Apidra SoloStar U-100 Insulin
insulin glulisine	Apidra U-100 Insulin
insulin lispro	Admelog SoloStar U-100 Insulin
insulin lispro	Admelog U-100 Insulin lispro
insulin lispro	Humalog Junior KwikPen U-100
insulin lispro	Humalog KwikPen Insulin
insulin lispro	Humalog Tempo Pen(U-100)Insuln
insulin lispro	Humalog U-100 Insulin
insulin lispro	insulin lispro
insulin lispro protamine and insulin lispro	Humalog Mix 50-50 Insuln U-100
insulin lispro protamine and insulin lispro	Humalog Mix 50-50 KwikPen
insulin lispro protamine and insulin lispro	Humalog Mix 75-25 KwikPen
insulin lispro protamine and insulin lispro	Humalog Mix 75-25(U-100)Insuln
insulin lispro protamine and insulin lispro	insulin lispro protamin-lispro
insulin lispro-aabc	Lyumjev KwikPen U-100 Insulin
insulin lispro-aabc	Lyumjev KwikPen U-200 Insulin
insulin lispro-aabc	Lyumjev Tempo Pen(U-100)Insuln
insulin lispro-aabc	Lyumjev U-100 Insulin
insulin pen, reusable, bluetooth for use with insulin aspart	InPen (Novolog or Fiasp) Blue
insulin pen, reusable, bluetooth for use with insulin aspart	InPen (Novolog or Fiasp) Grey
insulin pen, reusable, bluetooth for use with insulin aspart	InPen (Novolog or Fiasp) Pink
insulin pen, reusable, bluetooth for use with insulin lispro	InPen (for Humalog) Blue
insulin pen, reusable, bluetooth for use with insulin lispro	InPen (for Humalog) Grey
insulin pen, reusable, bluetooth for use with insulin lispro	InPen (for Humalog) Pink
insulin pump cartridge	Cartridge Stamped IR 1200
insulin pump cartridge	t:flex
insulin pump cartridge	t:slim
insulin pump cartridge	t:slim G4
insulin pump cartridge	t:slim X2
insulin pump cartridge, basal rate 10 units/day, disposable	Omnipod Go Pods 10 units/day
insulin pump cartridge, basal rate 15 units/day, disposable	Omnipod Go Pods 15 units/day
insulin pump cartridge, basal rate 20 units/day, disposable	Omnipod Go Pods 20 units/day
insulin pump cartridge, basal rate 25 units/day, disposable	Omnipod Go Pods 25 units/day
insulin pump cartridge, basal rate 30 units/day, disposable	Omnipod Go Pods 30 units/day

Appendix BB. List of Generic and Brand Names of Medical Products Used to Define Covariates in this Request

Generic Name	Brand Name
insulin pump cartridge, basal rate 35 units/day, disposable	Omnipod Go Pods
insulin pump cartridge, basal rate 40 units/day, disposable	Omnipod Go Pods 40 units/day
insulin pump cartridge, subcut automated dosing, bluetooth	Omnipod 5 G6 Pods (Gen 5)
insulin pump cartridge,automated dosing,BT with controller	Omnipod 5 G6 Intro Kit (Gen 5)
insulin pump cartridge,continuous infusion,BT and controller	Omnipod Dash Intro Kit (Gen 4)
insulin pump cartridge,continuous subcut infusion,bluetooth	Omnipod Dash Pods (Gen 4)
insulin pump cartridge,continuous subcut infusion,radio freq	Omnipod Classic Pods (Gen 3)
insulin pump controller	Omnipod DASH PDM Kit (Gen 4)
insulin pump controller, radio frequency	Omnipod Classic PDM Kit(Gen 3)
insulin pump syringe, 1.8 mL	MiniMed Syringe Reservoir
insulin pump syringe, 1.8 mL	Paradigm Reservoir
insulin pump syringe, 3 mL	Extended Reservoir
insulin pump syringe, 3 mL	MiniMed Syringe Reservoir
insulin pump syringe, 3 mL	Paradigm Reservoir
insulin pump/infusion set/blood-glucose meter	Accu-Chek Combo System
insulin regular, human	Afrezza
insulin regular, human	Humulin R Regular U-100 Insuln
insulin regular, human	Humulin R U-500 (Conc) Insulin
insulin regular, human	Humulin R U-500 (Conc) Kwikpen
insulin regular, human	Novolin R FlexPen
insulin regular, human	Novolin R Regular U100 Insulin
insulin regular, human in 0.9 % sodium chloride	Myxredlin
insulin syringe-needle,safety,disposal unit,0.5 mL	SafeSnap Insulin Syringe
pen needle, diabetic	1st Tier Unifine Pentips
pen needle, diabetic	1st Tier Unifine Pentips Plus
pen needle, diabetic	AboutTime Pen Needle
pen needle, diabetic	Advocate Pen Needle
pen needle, diabetic	Aqinject Pen Needle
pen needle, diabetic	BD Nano 2nd Gen Pen Needle
pen needle, diabetic	BD Ultra-Fine Micro Pen Needle
pen needle, diabetic	BD Ultra-Fine Mini Pen Needle
pen needle, diabetic	BD Ultra-Fine Nano Pen Needle
pen needle, diabetic	BD Ultra-Fine Orig Pen Needle
pen needle, diabetic	BD Ultra-Fine Short Pen Needle
pen needle, diabetic	CareFine Pen Needle
pen needle, diabetic	CareTouch Pen Needle
pen needle, diabetic	Clickfine Pen Needle
pen needle, diabetic	Comfort EZ Pen Needles
pen needle, diabetic	Comfort Touch Pen Needle
pen needle, diabetic	Droplet Micron Pen Needle
pen needle, diabetic	Droplet Pen Needle
pen needle, diabetic	Easy Comfort Pen Needles
pen needle, diabetic	Easy Glide Pen Needle
pen needle, diabetic	Easy Touch
pen needle, diabetic	Easy Touch Pen Needle
pen needle, diabetic	Embrace Pen Needle
pen needle, diabetic	HealthWise Pen Needle
pen needle, diabetic	Healthy Accents Unifine Pentip

Appendix BB. List of Generic and Brand Names of Medical Products Used to Define Covariates in this Request

Generic Name	Brand Name
pen needle, diabetic	Insupen Pen Needle
pen needle, diabetic	Lite Touch Insulin Pen Needles
pen needle, diabetic	Maxicomfort II Pen Needle
pen needle, diabetic	Microdot Insulin Pen Needle
pen needle, diabetic	Mini Ultra-Thin II
pen needle, diabetic	NovoFine Plus
pen needle, diabetic	NovoTwist
pen needle, diabetic	Novofine 32
pen needle, diabetic	Pen Needle
pen needle, diabetic	Pentips
pen needle, diabetic	Pip Pen Needle
pen needle, diabetic	Pro Comfort Pen Needle
pen needle, diabetic	Pure Comfort Pen Needle
pen needle, diabetic	ReliOn Needles
pen needle, diabetic	ReliOn Pen Needles
pen needle, diabetic	Sure Comfort Pen Needle
pen needle, diabetic	Sure-Fine Pen Needles
pen needle, diabetic	TRUEplus Pen Needle
pen needle, diabetic	TechLITE Pen Needle
pen needle, diabetic	Topcare Clickfine
pen needle, diabetic	True Comfort Pen Needle
pen needle, diabetic	UltiCare Pen Needle
pen needle, diabetic	Ultilet Pen Needle
pen needle, diabetic	Ultra Flo Pen Needle
pen needle, diabetic	Ultra Thin Pen Needle
pen needle, diabetic	Ultra-Thin II (Short) Pen NDL
pen needle, diabetic	Ultra-Thin II Ins Pen Needles
pen needle, diabetic	Ultracare Pen Needle
pen needle, diabetic	Unifine Pen Needle
pen needle, diabetic	Unifine Pentips
pen needle, diabetic	Unifine Pentips Maxflow
pen needle, diabetic	Unifine Pentips Plus
pen needle, diabetic	Unifine Pentips Plus Maxflow
pen needle, diabetic	Unifine Ultra Pen Needle
pen needle, diabetic	Verifine Pen Needle
pen needle, diabetic	Verifine Plus Pen Needle
pen needle, diabetic	inControl Pen Needle
pen needle, diabetic	pen needle, diabetic
pen needle, diabetic disposable, safety	Assure ID DUO-Shield
pen needle, diabetic disposable, safety	BD AutoShield Duo Pen Needle
pen needle, diabetic disposable, safety	Unifine PROtect
pen needle, diabetic disposable, safety	Unifine SafeControl
pen needle, diabetic, remover and disposal unit	UltiGuard SafePack-Pen Needle
pen needle, diabetic, safety	Assure ID Duo Pro Sfty Pen Ndl
pen needle, diabetic, safety	Assure ID Pen Needle
pen needle, diabetic, safety	Assure ID Pro Pen Needle
pen needle, diabetic, safety	Comfort EZ PRO Safety Pen Ndl
pen needle, diabetic, safety	DropSafe Pen Needle

Appendix BB. List of Generic and Brand Names of Medical Products Used to Define Covariates in this Request

Generic Name	Brand Name
pen needle, diabetic, safety	Easy Touch Safety Pen Needle
pen needle, diabetic, safety	Healthy Accents Unifine Pentip
pen needle, diabetic, safety	Maxicomfort Safety Pen Needle
pen needle, diabetic, safety	Novofine Autocover
pen needle, diabetic, safety	Prevent DropSafe Pen Needle
pen needle, diabetic, safety	Pure Comfort Safety Pen Needle
pen needle, diabetic, safety	Safety Pen Needle
pen needle, diabetic, safety	SecureSafe Pen Needle
pen needle, diabetic, safety	Sky Safety Pen Needle
pen needle, diabetic, safety	Sure Comfort Safety Pen Needle
pen needle, diabetic, safety	True Comfort Safety Pen Needle
pen needle, diabetic, safety	Ulticare Safety Pen Needle
pen needle, diabetic, safety	pen needle, diabetic, safety
sub-q insulin delivery device, 20 unit,disposable	V-GO 20
sub-q insulin delivery device, 30 unit, disposable	V-GO 30
sub-q insulin delivery device, 40 unit, disposable	V-GO 40
sub-q insulin pump, continuous glucose monitoring system	Animas Vibe
subcutaneous bolus insulin patch pump, 200 unit, disposable	CeQur Simplicity
subcutaneous insulin pump	MiniMed 530G Insulin Pump
subcutaneous insulin pump	MiniMed 630G Insulin Pump
subcutaneous insulin pump	MiniMed 670G Insulin Pump
subcutaneous insulin pump	MiniMed 770G Insulin Pump
subcutaneous insulin pump	MiniMed 780G Insulin Pump
subcutaneous insulin pump	OneTouch Ping Insulin Pump
subcutaneous insulin pump	Revel Pediatric Program Pump
subcutaneous insulin pump	Revel Programmable Pump
subcutaneous insulin pump	T:Slim X2 Control-IQ
subcutaneous insulin pump	iLet Insulin Pump
subcutaneous insulin pump	t:flex Insulin Delivery Pump
subcutaneous insulin pump	t:slim G4 Insulin Pump
subcutaneous insulin pump	t:slim Insulin Delivery System
subcutaneous insulin pump	t:slim X2 Basal-IQ Insulin Pmp
subcutaneous insulin pump	t:slim X2 Insulin Pump
syringe w-needle 0.3 mL,insulin,safety w-self-cont.dis.unit	SafeSnap Insulin Syringe
syringe with needle 1 mL,insulin,safety w-self-con.disp.unit	SafeSnap Insulin Syringe
syringe with needle, insulin, safety, 0.3 mL	BD SafetyGlide Insulin Syringe
syringe with needle, insulin, safety, 0.3 mL	Dropsafe Insulin Syringe
syringe with needle, insulin, safety, 0.3 mL	Magellan Insulin Safety Syrng
syringe with needle, insulin, safety, 0.3 mL	Magellan Syringe
syringe with needle, insulin, safety, 0.5 mL	Assure ID Insulin Safety
syringe with needle, insulin, safety, 0.5 mL	BD SafetyGlide Insulin Syringe
syringe with needle, insulin, safety, 0.5 mL	Dropsafe Insulin Syringe
syringe with needle, insulin, safety, 0.5 mL	Easy Touch Insulin Safety Syr
syringe with needle, insulin, safety, 0.5 mL	Magellan Insulin Safety Syrng
syringe with needle, insulin, safety, 0.5 mL	Magellan Syringe
syringe with needle, insulin, safety, 0.5 mL	SecureSafe Insulin Syringe
syringe with needle, insulin, safety, 1 mL	Assure ID Insulin Safety
syringe with needle, insulin, safety, 1 mL	BD SafetyGlide Insulin Syringe

Appendix BB. List of Generic and Brand Names of Medical Products Used to Define Covariates in this Request

Generic Name	Brand Name
syringe with needle, insulin, safety, 1 mL	Dropsafe Insulin Syringe
syringe with needle, insulin, safety, 1 mL	Easy Touch FlipLock Insulin
syringe with needle, insulin, safety, 1 mL	Easy Touch Insulin Safety Syr
syringe with needle, insulin, safety, 1 mL	Easy Touch SheathLock Insulin
syringe with needle, insulin, safety, 1 mL	Magellan Insulin Safety Syrng
syringe with needle, insulin, safety, 1 mL	SecureSafe Insulin Syringe
syringe with needle, insulin, safety, 1 mL	VanishPoint Insulin Syringe
syringe with needle, insulin,1 mL and sharps container	UltiGuard SafePack-Insulin Syr
syringe with needle,disposable,insulin 1 mL	Advocate Syringes
syringe with needle,disposable,insulin 1 mL	BD Eclipse Luer-Lok
syringe with needle,disposable,insulin 1 mL	BD Insulin Syringe
syringe with needle,disposable,insulin 1 mL	BD Insulin Syringe Micro-Fine
syringe with needle,disposable,insulin 1 mL	BD Insulin Syringe Safety-Lok
syringe with needle,disposable,insulin 1 mL	BD Insulin Syringe Ultra-Fine
syringe with needle,disposable,insulin 1 mL	BD SafetyGlide Insulin Syringe
syringe with needle,disposable,insulin 1 mL	BD SafetyGlide Syringe
syringe with needle,disposable,insulin 1 mL	BD Veo Insulin Syringe UF
syringe with needle,disposable,insulin 1 mL	CareTouch Insulin Syringe
syringe with needle,disposable,insulin 1 mL	Comfort EZ Insulin Syringe
syringe with needle,disposable,insulin 1 mL	Droplet Insulin Syringe
syringe with needle,disposable,insulin 1 mL	Easy Comfort Insulin Syringe
syringe with needle,disposable,insulin 1 mL	Easy Glide Insulin Syringe
syringe with needle,disposable,insulin 1 mL	Easy Touch Insulin Syringe
syringe with needle,disposable,insulin 1 mL	Exel Insulin
syringe with needle,disposable,insulin 1 mL	FreeStyle Precision
syringe with needle,disposable,insulin 1 mL	HealthWise Insulin Syringe
syringe with needle,disposable,insulin 1 mL	Insulin Syringe
syringe with needle,disposable,insulin 1 mL	Insulin Syringe MicroFine
syringe with needle,disposable,insulin 1 mL	Lite Touch Insulin Syringe
syringe with needle,disposable,insulin 1 mL	Maxi-Comfort Insulin Syringe
syringe with needle,disposable,insulin 1 mL	Maxicomfort Insulin Syringe
syringe with needle,disposable,insulin 1 mL	Monoject Insulin Syringe
syringe with needle,disposable,insulin 1 mL	Pro Comfort Insulin Syringe
syringe with needle,disposable,insulin 1 mL	Prodigy Insulin Syringe
syringe with needle,disposable,insulin 1 mL	Sure Comfort Insulin Syringe
syringe with needle,disposable,insulin 1 mL	Sure-Ject Insulin Syringe
syringe with needle,disposable,insulin 1 mL	TRUEplus Insulin
syringe with needle,disposable,insulin 1 mL	TechLITE Insulin Syringe
syringe with needle,disposable,insulin 1 mL	Terumo Insulin Syringe
syringe with needle,disposable,insulin 1 mL	Thinpro Insulin Syringe
syringe with needle,disposable,insulin 1 mL	Topcare Ultra Comfort
syringe with needle,disposable,insulin 1 mL	True Comfort Insulin Syringe
syringe with needle,disposable,insulin 1 mL	True Comfort Pro Ins Syringe
syringe with needle,disposable,insulin 1 mL	UltiCare
syringe with needle,disposable,insulin 1 mL	UltiCare Insulin Syringe
syringe with needle,disposable,insulin 1 mL	Ultilet Insulin Syringe
syringe with needle,disposable,insulin 1 mL	Ultra Comfort Insulin Syringe
syringe with needle,disposable,insulin 1 mL	Ultra-Thin II (Short) Ins Syr

Appendix BB. List of Generic and Brand Names of Medical Products Used to Define Covariates in this Request

Generic Name	Brand Name
syringe with needle,disposable,insulin 1 mL	Ultra-Thin II Insulin Syringe
syringe with needle,disposable,insulin 1 mL	Ultracare Insulin Syringe
syringe with needle,disposable,insulin 1 mL	VanishPoint Syringe
syringe with needle,disposable,insulin 1 mL	Verifine Insulin Syringe
syringe with needle,disposable,insulin 1 mL	insulin syringe-needle U-100
syringe with needle,insulin 0.3 mL (half unit mark)	BD Insulin Syringe (half unit)
syringe with needle,insulin 0.3 mL (half unit mark)	BD Veo Insulin Syr (half unit)
syringe with needle,insulin 0.3 mL (half unit mark)	TechLITE Insuln Syr(half unit)
syringe with needle,insulin 0.3 mL (half unit mark)	UltiCare Insuln Syr(half unit)
syringe with needle,insulin 0.3 mL (half unit mark)	Ultra Cmft Ins Syr (half unit)
syringe with needle,insulin 0.3 mL (half unit mark)	Ultra Flo Insul Syr(half unit)
syringe with needle,insulin 0.3 mL (half unit mark)	insulin syr/ndl U100 half mark
syringe with needle,insulin 0.5 mL (half unit mark)	Droplet Insulin Syr(half unit)
syringe with needle,insulin 0.5 mL (half unit mark)	TechLITE Insuln Syr(half unit)
syringe with needle,insulin disposable	Monoject Insulin Safety Syring
syringe with needle,insulin disposable,0.3 mL/empty containr	UltiGuard SafePack-Insulin Syr
syringe with needle,insulin,0.3 mL	Advocate Syringes
syringe with needle,insulin,0.3 mL	BD Insulin Syringe
syringe with needle,insulin,0.3 mL	BD Insulin Syringe Ultra-Fine
syringe with needle,insulin,0.3 mL	BD Veo Insulin Syringe UF
syringe with needle,insulin,0.3 mL	CareTouch Insulin Syringe
syringe with needle,insulin,0.3 mL	Comfort EZ Insulin Syringe
syringe with needle,insulin,0.3 mL	Droplet Insulin Syringe
syringe with needle,insulin,0.3 mL	Easy Comfort Insulin Syringe
syringe with needle,insulin,0.3 mL	Easy Glide Insulin Syringe
syringe with needle,insulin,0.3 mL	Easy Touch Insulin Syringe
syringe with needle,insulin,0.3 mL	Exel Insulin
syringe with needle,insulin,0.3 mL	HealthWise Insulin Syringe
syringe with needle,insulin,0.3 mL	Lite Touch Insulin Syringe
syringe with needle,insulin,0.3 mL	Monoject Insulin Safety Syring
syringe with needle,insulin,0.3 mL	Monoject Insulin Syringe
syringe with needle,insulin,0.3 mL	Prodigy Insulin Syringe
syringe with needle,insulin,0.3 mL	Sure Comfort Insulin Syringe
syringe with needle,insulin,0.3 mL	Sure-Ject Insulin Syringe
syringe with needle,insulin,0.3 mL	TRUEplus Insulin
syringe with needle,insulin,0.3 mL	Terumo Insulin Syringe
syringe with needle,insulin,0.3 mL	Thinpro Insulin Syringe
syringe with needle,insulin,0.3 mL	Topcare Ultra Comfort
syringe with needle,insulin,0.3 mL	UltiCare
syringe with needle,insulin,0.3 mL	UltiCare Insulin Syringe
syringe with needle,insulin,0.3 mL	Ultilet Insulin Syringe
syringe with needle,insulin,0.3 mL	Ultra Comfort Insulin Syringe
syringe with needle,insulin,0.3 mL	Ultra Flo Insulin Syringe
syringe with needle,insulin,0.3 mL	Ultra-Thin II (Short) Ins Syr
syringe with needle,insulin,0.3 mL	Ultracare Insulin Syringe
syringe with needle,insulin,0.3 mL	Verifine Insulin Syringe
syringe with needle,insulin,0.3 mL	insulin syringe-needle U-100
syringe with needle,insulin,0.5 mL	Advocate Syringes

Appendix BB. List of Generic and Brand Names of Medical Products Used to Define Covariates in this Request

Generic Name	Brand Name
syringe with needle,insulin,0.5 mL	BD Insulin Syringe
syringe with needle,insulin,0.5 mL	BD Insulin Syringe Ultra-Fine
syringe with needle,insulin,0.5 mL	BD Lo-Dose Micro-Fine IV
syringe with needle,insulin,0.5 mL	BD Lo-Dose Ultra-Fine
syringe with needle,insulin,0.5 mL	BD Veo Insulin Syringe UF
syringe with needle,insulin,0.5 mL	CareTouch Insulin Syringe
syringe with needle,insulin,0.5 mL	Comfort EZ Insulin Syringe
syringe with needle,insulin,0.5 mL	Easy Comfort Insulin Syringe
syringe with needle,insulin,0.5 mL	Easy Glide Insulin Syringe
syringe with needle,insulin,0.5 mL	Easy Touch Insulin Syringe
syringe with needle,insulin,0.5 mL	Exel Insulin
syringe with needle,insulin,0.5 mL	FreeStyle Precision
syringe with needle,insulin,0.5 mL	HealthWise Insulin Syringe
syringe with needle,insulin,0.5 mL	Insulin Syringe
syringe with needle,insulin,0.5 mL	Insulin Syringe MicroFine
syringe with needle,insulin,0.5 mL	Lite Touch Insulin Syringe
syringe with needle,insulin,0.5 mL	Maxi-Comfort Insulin Syringe
syringe with needle,insulin,0.5 mL	Maxicomfort Insulin Syringe
syringe with needle,insulin,0.5 mL	Monoject Insulin Safety Syring
syringe with needle,insulin,0.5 mL	Monoject Insulin Syringe
syringe with needle,insulin,0.5 mL	Monoject Syringe
syringe with needle,insulin,0.5 mL	Monoject Ultra Comfort Insulin
syringe with needle,insulin,0.5 mL	Pro Comfort Insulin Syringe
syringe with needle,insulin,0.5 mL	Prodigy Insulin Syringe
syringe with needle,insulin,0.5 mL	Sure Comfort Ins. Syr. U-100
syringe with needle,insulin,0.5 mL	Sure Comfort Insulin Syringe
syringe with needle,insulin,0.5 mL	Sure-Ject Insulin Syringe
syringe with needle,insulin,0.5 mL	TRUEplus Insulin
syringe with needle,insulin,0.5 mL	Terumo Insulin Syringe
syringe with needle,insulin,0.5 mL	Thinpro Insulin Syringe
syringe with needle,insulin,0.5 mL	Topcare Ultra Comfort
syringe with needle,insulin,0.5 mL	True Comfort Insulin Syringe
syringe with needle,insulin,0.5 mL	True Comfort Pro Ins Syringe
syringe with needle,insulin,0.5 mL	UltiCare
syringe with needle,insulin,0.5 mL	UltiCare Insulin Syringe
syringe with needle,insulin,0.5 mL	Ultilet Insulin Syringe
syringe with needle,insulin,0.5 mL	Ultra Comfort Insulin Syringe
syringe with needle,insulin,0.5 mL	Ultra Flo Insulin Syringe
syringe with needle,insulin,0.5 mL	Ultra-Thin II (Short) Ins Syr
syringe with needle,insulin,0.5 mL	Ultra-Thin II Insulin Syringe
syringe with needle,insulin,0.5 mL	Ultracare Insulin Syringe
syringe with needle,insulin,0.5 mL	VanishPoint Syringe
syringe with needle,insulin,0.5 mL	Verifine Insulin Syringe
syringe with needle,insulin,0.5 mL	insulin syringe-needle U-100
syringe without needle,insulin disposible, 1 mL	BD Insulin Syringe Slip Tip
syringe without needle,insulin disposible, 1 mL	Easy Touch Luer Lock Insulin
syringe without needle,insulin disposible, 1 mL	Easy Touch Uni-Slip
syringe without needle,insulin disposible, 1 mL	insulin syringe needleless

Appendix BB. List of Generic and Brand Names of Medical Products Used to Define Covariates in this Request

Generic Name	Brand Name
syringe, insulin U-500 with needle, disposable, 0.5 mL	BD Insulin Syringe U-500
syringe-needle,insulin,0.5 mL/container,empty	UltiGuard SafePack-Insulin Syr
Oral Antidiabetic Drugs	
alogliptin benzoate	Nesina
alogliptin benzoate	alogliptin
alogliptin benzoate/metformin HCl	Kazano
alogliptin benzoate/metformin HCl	alogliptin-metformin
alogliptin benzoate/pioglitazone HCl	Oseni
alogliptin benzoate/pioglitazone HCl	alogliptin-pioglitazone
bexagliflozin	Brenzavvy
bexagliflozin	bexagliflozin
canagliflozin	Invokana
canagliflozin/metformin HCl	Invokamet
canagliflozin/metformin HCl	Invokamet XR
chlorpropamide	chlorpropamide
dapagliflozin propanediol	Farxiga
dapagliflozin propanediol	dapagliflozin propanediol
dapagliflozin propanediol/metformin HCl	Xigduo XR
dapagliflozin propanediol/metformin HCl	dapaglifloz propaned-metformin
dapagliflozin propanediol/saxagliptin HCl	Qtern
empagliflozin	Jardiance
empagliflozin/linagliptin	Glyxambi
empagliflozin/linagliptin/metformin HCl	Trijardy XR
empagliflozin/metformin HCl	Synjardy
empagliflozin/metformin HCl	Synjardy XR
ertugliflozin pidolate	Steglatro
ertugliflozin pidolate/metformin HCl	Segluromet
ertugliflozin pidolate/sitagliptin phosphate	Steglujan
glimepiride	Amaryl
glimepiride	glimepiride
glipizide	Glucotrol
glipizide	Glucotrol XL
glipizide	glipizide
glipizide/metformin HCl	glipizide-metformin
glyburide	glyburide
glyburide,micronized	Glynase
glyburide,micronized	glyburide micronized
glyburide/metformin HCl	glyburide-metformin
linagliptin	Tradjenta
linagliptin/metformin HCl	Jentadueto
linagliptin/metformin HCl	Jentadueto XR
metformin HCl	Fortamet
metformin HCl	Glucophage
metformin HCl	Glumetza
metformin HCl	Riomet
metformin HCl	Riomet ER
metformin HCl	metformin
miglitol	Glyset

Appendix BB. List of Generic and Brand Names of Medical Products Used to Define Covariates in this Request

Generic Name	Brand Name
miglitol	miglitol
nateglinide	Starlix
nateglinide	nateglinide
pioglitazone HCl	Actos
pioglitazone HCl	pioglitazone
pioglitazone HCl/glimepiride	DUETACT
pioglitazone HCl/glimepiride	pioglitazone-glimepiride
pioglitazone HCl/metformin HCl	Actoplus MET
pioglitazone HCl/metformin HCl	Actoplus Met XR
pioglitazone HCl/metformin HCl	pioglitazone-metformin
repaglinide	Prandin
repaglinide	repaglinide
repaglinide/metformin HCl	repaglinide-metformin
rosiglitazone maleate	Avandia
saxagliptin HCl	Onglyza
saxagliptin HCl	saxagliptin
saxagliptin HCl/metformin HCl	Kombiglyze XR
saxagliptin HCl/metformin HCl	saxagliptin-metformin
semaglutide	Rybelsus
sitagliptin	Zituvio
sitagliptin phosphate	Januvia
sitagliptin phosphate/metformin HCl	Janumet
sitagliptin phosphate/metformin HCl	Janumet XR
sotagliflozin	Inpefa
tolazamide	tolazamide
tolbutamide	tolbutamide
Antihypertensive Drugs	
aliskiren hemifumarate	Tekturna
aliskiren hemifumarate	aliskiren
aliskiren hemifumarate/hydrochlorothiazide	Tekturna HCT
amlodipine besylate/benazepril HCl	Lotrel
amlodipine besylate/benazepril HCl	amlodipine-benazepril
amlodipine besylate/olmesartan medoxomil	Azor
amlodipine besylate/olmesartan medoxomil	amlodipine-olmesartan
amlodipine besylate/valsartan	Exforge
amlodipine besylate/valsartan	amlodipine-valsartan
amlodipine besylate/valsartan/hydrochlorothiazide	Exforge HCT
amlodipine besylate/valsartan/hydrochlorothiazide	amlodipine-valsartan-hcthiazid
atenolol/chlorthalidone	Tenoretic 100
atenolol/chlorthalidone	Tenoretic 50
atenolol/chlorthalidone	atenolol-chlorthalidone
azilsartan medoxomil	Edarbi
azilsartan medoxomil/chlorthalidone	Edarbyclor
benazepril HCl	Lotensin
benazepril HCl	benazepril
benazepril HCl/hydrochlorothiazide	Lotensin HCT
benazepril HCl/hydrochlorothiazide	benazepril-hydrochlorothiazide
bisoprolol fumarate/hydrochlorothiazide	Ziac

Appendix BB. List of Generic and Brand Names of Medical Products Used to Define Covariates in this Request

Generic Name	Brand Name
bisoprolol fumarate/hydrochlorothiazide	bisoprolol-hydrochlorothiazide
candesartan cilexetil	Atacand
candesartan cilexetil	candesartan
candesartan cilexetil/hydrochlorothiazide	Atacand HCT
candesartan cilexetil/hydrochlorothiazide	candesartan-hydrochlorothiazid
captopril	captopril
captopril/hydrochlorothiazide	captopril-hydrochlorothiazide
clonidine	Catapres-TTS-1
clonidine	Catapres-TTS-2
clonidine	Catapres-TTS-3
clonidine	clonidine
clonidine HCl	Catapres
clonidine HCl	Nexiclon XR
clonidine HCl	clonidine HCl
doxazosin mesylate	Cardura
doxazosin mesylate	Cardura XL
doxazosin mesylate	doxazosin
enalapril maleate	Epaned
enalapril maleate	Vasotec
enalapril maleate	enalapril maleate
enalapril maleate/hydrochlorothiazide	Vaseretic
enalapril maleate/hydrochlorothiazide	enalapril-hydrochlorothiazide
enalaprilat dihydrate	enalaprilat
eplerenone	Inspra
eplerenone	eplerenone
eprosartan mesylate	eprosartan
finerenone	Kerendia
fosinopril sodium	fosinopril
fosinopril sodium/hydrochlorothiazide	fosinopril-hydrochlorothiazide
hydralazine HCl	hydralazine
irbesartan	Avapro
irbesartan	irbesartan
irbesartan/hydrochlorothiazide	Avalide
irbesartan/hydrochlorothiazide	irbesartan-hydrochlorothiazide
isosorbide dinitrate/hydralazine HCl	BiDil
isosorbide dinitrate/hydralazine HCl	isosorbide-hydralazine
lisinopril	Prinivil
lisinopril	Qbrelis
lisinopril	Zestril
lisinopril	lisinopril
lisinopril/hydrochlorothiazide	Zestoretic
lisinopril/hydrochlorothiazide	lisinopril-hydrochlorothiazide
losartan potassium	Cozaar
losartan potassium	losartan
losartan potassium/hydrochlorothiazide	Hyzaar
losartan potassium/hydrochlorothiazide	losartan-hydrochlorothiazide
methyldopa	methyldopa
methyldopa/hydrochlorothiazide	methyldopa-hydrochlorothiazide

Appendix BB. List of Generic and Brand Names of Medical Products Used to Define Covariates in this Request

Generic Name	Brand Name
methyldopate HCl	methyldopate
metoprolol succinate/hydrochlorothiazide	Dutoprol
metoprolol succinate/hydrochlorothiazide	metoprolol su-hydrochlorothiaz
metoprolol tartrate/hydrochlorothiazide	metoprolol ta-hydrochlorothiaz
minoxidil	minoxidil
moexipril HCl	moexipril
nadolol/bendroflumethiazide	nadolol-bendroflumethiazide
nebivolol HCl/valsartan	Byvalson
nitroprusside sodium	Nitropress
nitroprusside sodium	sodium nitroprusside
nitroprusside sodium in 0.9 % sodium chloride	Nipride RTU
olmesartan medoxomil	Benicar
olmesartan medoxomil	olmesartan
olmesartan medoxomil/amlodipine besylate/hydrochlorothiazide	Tribenzor
olmesartan medoxomil/amlodipine besylate/hydrochlorothiazide	olmesartan-amlodipin-hcthiazid
olmesartan medoxomil/hydrochlorothiazide	Benicar HCT
olmesartan medoxomil/hydrochlorothiazide	olmesartan-hydrochlorothiazide
papaverine HCl	papaverine
perindopril arginine/amlodipine besylate	Prestalia
perindopril erbumine	perindopril erbumine
phenoxybenzamine HCl	Dibenzyline
phenoxybenzamine HCl	phenoxybenzamine
phentolamine mesylate	phentolamine
prazosin HCl	Minipress
prazosin HCl	prazosin
propranolol HCl/hydrochlorothiazide	propranolol-hydrochlorothiazid
quinapril HCl	Accupril
quinapril HCl	quinapril
quinapril HCl/hydrochlorothiazide	Accuretic
quinapril HCl/hydrochlorothiazide	quinapril-hydrochlorothiazide
ramipril	Altace
ramipril	ramipril
sacubitril/valsartan	Entresto
spironolactone	Aldactone
spironolactone	CaroSpir
spironolactone	spironolactone
telmisartan	Micardis
telmisartan	telmisartan
telmisartan/amlodipine besylate	Twynsta
telmisartan/amlodipine besylate	telmisartan-amlodipine
telmisartan/hydrochlorothiazide	Micardis HCT
telmisartan/hydrochlorothiazide	telmisartan-hydrochlorothiazid
terazosin HCl	terazosin
trandolapril	trandolapril
trandolapril/verapamil HCl	Tarka
trandolapril/verapamil HCl	trandolapril-verapamil

Appendix BB. List of Generic and Brand Names of Medical Products Used to Define Covariates in this Request

Generic Name	Brand Name
valsartan	Diovan
valsartan	valsartan
valsartan/hydrochlorothiazide	Diovan HCT
valsartan/hydrochlorothiazide	valsartan-hydrochlorothiazide
Anticoagulants	
apixaban	Eliquis
apixaban	Eliquis DVT-PE Treat 30D Start
betrixaban maleate	Bevyxxa
dabigatran etexilate mesylate	Pradaxa
dabigatran etexilate mesylate	dabigatran etexilate
edoxaban tosylate	Savaysa
heparin sodium,porcine	heparin (porcine)
heparin sodium,porcine/PF	heparin, porcine (PF)
rivaroxaban	Xarelto
rivaroxaban	Xarelto DVT-PE Treat 30d Start
sodium citrate dihydrate	TriCitrasol
warfarin sodium	Coumadin
warfarin sodium	Jantoven
warfarin sodium	warfarin
Corticosteroids (Systemic Glucocorticoids)	
betamethasone acetate and sodium phos in sterile water/PF	betameth ac,sod phos(PF)-water
betamethasone acetate/betamethasone sodium phosphate	BSP-0820
betamethasone acetate/betamethasone sodium phosphate	Beta-1
betamethasone acetate/betamethasone sodium phosphate	Celestone Soluspan
betamethasone acetate/betamethasone sodium phosphate	Pod-Care 100C
betamethasone acetate/betamethasone sodium phosphate	ReadySharp Betamethasone
betamethasone acetate/betamethasone sodium phosphate	betamethasone acet,sod phos
betamethasone acetate/betamethasone sodium phosphate/water	betamethasone ace,sod phos-wtr
betamethasone sodium phosph in sterile water for injection	betamethasone sod phosph-water
budesonide	Tarpeyo
bupivacaine HCl/dexamethasone sodium phos in sterile water	bupivacaine-dexameth in water
cortisone acetate	cortisone
deflazacort	Emflaza
dexamethasone	Decadron
dexamethasone	DexPak 10 day
dexamethasone	DexPak 13 Day
dexamethasone	DexPak 6 Day
dexamethasone	Dexabliss
dexamethasone	Dexamethasone Intensol
dexamethasone	Dxevo
dexamethasone	Hemady
dexamethasone	HiDex
dexamethasone	TaperDex
dexamethasone	ZCort
dexamethasone	dexamethasone
dexamethasone acetate and sodium phosphate in sterile water	dexamethasone ac, sod ph-water
dexamethasone acetate in sodium chloride, iso-osmotic	dexamethasone ace-NaCl,iso-osm

Appendix BB. List of Generic and Brand Names of Medical Products Used to Define Covariates in this Request

Generic Name	Brand Name
dexamethasone sodium phosphate	ReadySharp dexamethasone
dexamethasone sodium phosphate	dexamethasone sodium phosphate
dexamethasone sodium phosphate in 0.9 % sodium chloride	dexamethasone-0.9 % sod. chlor
dexamethasone sodium phosphate/PF	Active Injection Kit D (PF)
dexamethasone sodium phosphate/PF	DoubleDex (PF)
dexamethasone sodium phosphate/PF	MAS Care-Pak (PF)
dexamethasone sodium phosphate/PF	dexamethasone sodium phos (PF)
dexamethasone sodium phosphate/lidocaine HCl	Lidocidex-I
hydrocortisone	Alkindi Sprinkle
hydrocortisone	Cortef
hydrocortisone	hydrocortisone
hydrocortisone sodium succinate	A-Hydrocort
hydrocortisone sodium succinate	Solu-Cortef
hydrocortisone sodium succinate/PF	Solu-Cortef Act-O-Vial (PF)
methylprednisolone	Medrol
methylprednisolone	Medrol (Pak)
methylprednisolone	Methylpred DP
methylprednisolone	methylprednisolone
methylprednisolone acetate	Depo-Medrol
methylprednisolone acetate	P-Care D40
methylprednisolone acetate	P-Care D80
methylprednisolone acetate	methylprednisolone acetate
methylprednisolone acetate in sodium chloride,iso-osmotic/PF	methylpred ac(PF)-NaCl,iso-osm
methylprednisolone acetate in sterile water for injection	methylprednisolone acet-water
methylprednisolone acetate/bupivacaine HCl in sterile water	methylprednisol ac-bupivac-wat
methylprednisolone sodium succinate	Solu-Medrol
methylprednisolone sodium succinate	methylprednisolone sodium succ
methylprednisolone sodium succinate/PF	Solu-Medrol (PF)
prednisolone	Millipred
prednisolone	Millipred DP
prednisolone	prednisolone
prednisolone sodium phosphate	Orapred ODT
prednisolone sodium phosphate	Pediapred
prednisolone sodium phosphate	Veripred 20
prednisolone sodium phosphate	prednisolone sodium phosphate
prednisone	Prednisone Intensol
prednisone	Rayos
prednisone	prednisone
triamcinolone acetonide	Kenalog
triamcinolone acetonide	Kenalog-80
triamcinolone acetonide	P-Care K40
triamcinolone acetonide	P-Care K80
triamcinolone acetonide	Pod-Care 100K
triamcinolone acetonide	Pro-C-Dure 5
triamcinolone acetonide	Pro-C-Dure 6
triamcinolone acetonide	Zilretta
triamcinolone acetonide	triamcinolone acetonide
triamcinolone acetonide in 0.9 % sodium chloride	triamcinolone aceton-0.9% NaCl

Appendix BB. List of Generic and Brand Names of Medical Products Used to Define Covariates in this Request

Generic Name	Brand Name
triamcinolone acetonide/0.9% sodium chloride/PF	triamcinol ac (PF) in 0.9%NaCl
triamcinolone acetonide/bupivacaine/in 0.9% sodium chloride	triamcinol ace-bupiv-0.9% NaCl
triamcinolone diacetate in 0.9 % sodium chloride	triamcinolone diacet-0.9% NaCl
triamcinolone diacetate in 0.9 % sodium chloride/PF	triamcinolone dia(PF)-0.9%NaCl
triamcinolone hexacetonide	Aristospan Intra-Articular
triamcinolone hexacetonide	Aristospan Intralesional
triamcinolone hexacetonide	Hexatrione
vamorolone	Agamree
Acetaminophen	
acetaminophen	7T Gummy ES
acetaminophen	8 Hour Pain Reliever
acetaminophen	8HR Muscle Aches-Pain
acetaminophen	Acetaminophen Extra Strength
acetaminophen	Acetaminophen Pain Relief
acetaminophen	Aphen
acetaminophen	Arthritis Pain Relief (acetam)
acetaminophen	Arthritis Pain Reliever
acetaminophen	Athenol
acetaminophen	BetaTemp
acetaminophen	Child Fever Reducer-Pain Relvr
acetaminophen	Child Pain Rel-Fever Reducer
acetaminophen	Children's Acetaminophen
acetaminophen	Children's Aurophen Pain-Fever
acetaminophen	Children's Easy-Melts
acetaminophen	Children's Fever Reducing
acetaminophen	Children's Mapap
acetaminophen	Children's Non-Aspirin
acetaminophen	Children's Pain Relief
acetaminophen	Children's Pain Reliever
acetaminophen	Children's Pain-Fever Relief
acetaminophen	Children's Tactinal
acetaminophen	Children's Tylenol
acetaminophen	Ed-APAP
acetaminophen	Fever Reducer
acetaminophen	Feverall
acetaminophen	Infant Fever Reducer-Pain Relf
acetaminophen	Infant Pain Reliever
acetaminophen	Infant's Acetaminophen
acetaminophen	Infant's Pain Relief
acetaminophen	Infant's Pain Reliever
acetaminophen	Infant's Tylenol
acetaminophen	Infants' Pain Relief
acetaminophen	Infants' Pain and Fever
acetaminophen	Jr. Acetaminophen
acetaminophen	Jr. Str Non-Aspirin Pain
acetaminophen	Jr. Strength Pain Reliever
acetaminophen	KinderMed Infants Pain-Fever
acetaminophen	KinderMed Kids Pain-Fever

Appendix BB. List of Generic and Brand Names of Medical Products Used to Define Covariates in this Request

Generic Name	Brand Name
acetaminophen	Little Remedies Fever and Pain
acetaminophen	M-PAP
acetaminophen	MAXrelief junior
acetaminophen	Mapap (acetaminophen)
acetaminophen	Mapap Arthritis Pain
acetaminophen	Mapap Extra Strength
acetaminophen	Masophen
acetaminophen	Non-Aspirin
acetaminophen	Non-Aspirin Extra Strength
acetaminophen	Non-Aspirin Pain Relief
acetaminophen	Nortemp
acetaminophen	Ofirmev
acetaminophen	Pain Relief (acetaminophen)
acetaminophen	Pain Relief Adult
acetaminophen	Pain Relief ES (acetaminophen)
acetaminophen	Pain Reliever (acetaminophen)
acetaminophen	Pain Reliever ES(acetaminophn)
acetaminophen	Pain and Fever
acetaminophen	PediaCare Fever Reducer
acetaminophen	Pharbetol
acetaminophen	Redutemp
acetaminophen	Shake That Ache
acetaminophen	Silapap
acetaminophen	Tactinal
acetaminophen	Tactinal Extra Strength
acetaminophen	Tylenol
acetaminophen	Tylenol 8 Hour
acetaminophen	Tylenol Arthritis Pain
acetaminophen	Tylenol Extra Strength
acetaminophen	Tylophen
acetaminophen	acetaminophen
acetaminophen with codeine phosphate	Tylenol-Codeine #3
acetaminophen with codeine phosphate	Tylenol-Codeine #4
acetaminophen with codeine phosphate	acetaminophen-codeine
acetaminophen/caffeine	Excedrin Tension Headache
acetaminophen/caffeine	Tension Headache
acetaminophen/caffeine	Tension Headache Pain Reliever
acetaminophen/caffeine	Tension Headache Relief
acetaminophen/caffeine/dihydrocodeine bitartrate	Dvorah
acetaminophen/caffeine/dihydrocodeine bitartrate	Trezix
acetaminophen/caffeine/dihydrocodeine bitartrate	acetaminophen-caff-dihydrocod
acetaminophen/chlorpheniramine maleate	Cold and Flu HBP
acetaminophen/chlorpheniramine maleate	Coricidin HBP Cold and Flu
acetaminophen/dexbrompheniramine maleate	Actidogesic
acetaminophen/dexbrompheniramine maleate	Actidogesic-DF
acetaminophen/dexbrompheniramine maleate	Dologen
acetaminophen/dexbrompheniramine maleate	Dologen 325
acetaminophen/dexbrompheniramine maleate	Dologesic (w-dexbromphenirmn)

Appendix BB. List of Generic and Brand Names of Medical Products Used to Define Covariates in this Request

Generic Name	Brand Name
acetaminophen/dexbrompheniramine maleate	Dologesic-DF
acetaminophen/dexbrompheniramine maleate	G-Dologen
acetaminophen/dextromethorphan HBr	Child Cough and Sore Throat
acetaminophen/dextromethorphan HBr	Child Delsym Cough-Sore Throat
acetaminophen/dextromethorphan HBr	Coricidin HBP Max Cld(acet-DM)
acetaminophen/dextromethorphan HBr	Daytime Cold and Cough
acetaminophen/dextromethorphan HBr	Delsym Cough-Sore Throat
acetaminophen/dextromethorphan HBr	Pain Relief Cold and Cough
acetaminophen/dextromethorphan HBr	Robitussin Cough-Sore Throat
acetaminophen/diphenhydramine HCl	Acetadryl
acetaminophen/diphenhydramine HCl	Acetaminophen PM
acetaminophen/diphenhydramine HCl	Acetaminophen PM Extra Str
acetaminophen/diphenhydramine HCl	EaZZZe The Pain
acetaminophen/diphenhydramine HCl	Headache PM
acetaminophen/diphenhydramine HCl	Mapap PM
acetaminophen/diphenhydramine HCl	Night Time Pain Medicine
acetaminophen/diphenhydramine HCl	Non-Aspirin PM
acetaminophen/diphenhydramine HCl	Pain Relief PM
acetaminophen/diphenhydramine HCl	Pain Relief PM Rapid Release
acetaminophen/diphenhydramine HCl	Pain Reliever PM
acetaminophen/diphenhydramine HCl	Pain Reliever PM Ex-Strength
acetaminophen/diphenhydramine HCl	Pain and Sleep
acetaminophen/diphenhydramine HCl	Percogesic
acetaminophen/diphenhydramine HCl	Percogesic Extra Strength
acetaminophen/diphenhydramine HCl	Severe Allergy
acetaminophen/diphenhydramine HCl	Tylenol PM Extra Strength
acetaminophen/diphenhydramine HCl	Unisom PM Pain
acetaminophen/diphenhydramine HCl	Wal-Nadol PM
acetaminophen/diphenhydramine HCl	diphenhydramine-acetaminophen
acetaminophen/diphenhydramine citrate	Goody's PM
acetaminophen/diphenhydramine citrate	Headache Relief PM
acetaminophen/diphenhydramine citrate	Midol PM
acetaminophen/guaifenesin	Mucinex Cold-Flu HBP
acetaminophen/pamabrom	Cramp Tabs
acetaminophen/pamabrom	Midol
acetaminophen/phenyltoloxamine citrate	Relagesic
acetaminophen/pyrilamine maleate	HistaFlex
acetaminophen/pyrilamine maleate/caffeine	Menstrual Complete
acetaminophen/pyrilamine maleate/caffeine	Menstrual Relief
acetaminophen/pyrilamine maleate/caffeine	Midol Complete
acetaminophen/pyrilamine maleate/caffeine	Midol Max St Menstrual
acetaminophen/pyrilamine maleate/pamabrom	Menstrual Relief(pamabr-pyril)
acetaminophen/pyrilamine maleate/pamabrom	Pre-Menstrual Relief
acetaminophen/simethicone/sod chlor/zinc/ginger/fennel	Little Remedies New Baby
aspirin/acetaminophen	Goody's Back and Body Pain
aspirin/acetaminophen/caffeine	BC Max Strength
aspirin/acetaminophen/caffeine	Excedrin Extra Strength
aspirin/acetaminophen/caffeine	Excedrin Migraine

Appendix BB. List of Generic and Brand Names of Medical Products Used to Define Covariates in this Request

Generic Name	Brand Name
aspirin/acetaminophen/caffeine	Extra Pain Relief
aspirin/acetaminophen/caffeine	Extraprin
aspirin/acetaminophen/caffeine	Goody's Extra Strength
aspirin/acetaminophen/caffeine	Headache Relief (ASA-acet-caf)
aspirin/acetaminophen/caffeine	Migraine Formula
aspirin/acetaminophen/caffeine	Migraine Relief
aspirin/acetaminophen/caffeine	Pain Reliever (acetam-aspirin)
aspirin/acetaminophen/caffeine	Pain Reliever Plus
aspirin/acetaminophen/caffeine	Pain-Off
aspirin/acetaminophen/caffeine	Vanquish
aspirin/acetaminophen/diphenhydramine citrate	Pain Relief PM (w-aspirin)
aspirin/salicylamide/acetaminophen/caffeine	Pain Relief(with salicylamide)
benzhydrocodone HCl/acetaminophen	Apadaz
benzhydrocodone HCl/acetaminophen	benzhydrocodone-acetaminophen
butalbital/acetaminophen	Allzital
butalbital/acetaminophen	Bupap
butalbital/acetaminophen	Tencon
butalbital/acetaminophen	butalbital-acetaminophen
butalbital/acetaminophen/caffeine	Esgic
butalbital/acetaminophen/caffeine	Fioricet
butalbital/acetaminophen/caffeine	Phrenilin Forte(with caffeine)
butalbital/acetaminophen/caffeine	Vanatol LQ
butalbital/acetaminophen/caffeine	Vanatol S
butalbital/acetaminophen/caffeine	Vtol LQ
butalbital/acetaminophen/caffeine	Zebutal
butalbital/acetaminophen/caffeine	butalbital-acetaminophen-caff
butalbital/acetaminophen/caffeine/codeine phosphate	Fioricet with Codeine
butalbital/acetaminophen/caffeine/codeine phosphate	butalbital-acetaminop-caf-cod
chlorpheniram/phenyleph/dextromethorphn/acetaminophen/guaifn	Cold-Flu M-Symptom Day-Night
chlorpheniram/phenyleph/dextromethorphn/acetaminophen/guaifn	Tylenol Cold-Flu Severe Day-Nt
chlorpheniramine/dextromethorphan/acetaminophen/guaifenesin	Coricidin HBP Day-Night
dextromethorphan HBr/acetaminophen/chlorpheniramine maleate	Child Plus Cough and RunnyNose
dextromethorphan HBr/acetaminophen/chlorpheniramine maleate	Child's Tylenol plusCough,RNos
dextromethorphan HBr/acetaminophen/chlorpheniramine maleate	Children's Cough and RunnyNose
dextromethorphan HBr/acetaminophen/chlorpheniramine maleate	Coricidin HBP Flu
dextromethorphan HBr/acetaminophen/chlorpheniramine maleate	Flu HBP
dextromethorphan HBr/acetaminophen/chlorpheniramine maleate	Vicks NyQuil Cold/Flu (cpm)
dextromethorphan HBr/acetaminophen/diphenhydramine HCl	Diabetic Tussin Night Time
dextromethorphan HBr/acetaminophen/doxylamine	All-Nite Cold-Flu

Appendix BB. List of Generic and Brand Names of Medical Products Used to Define Covariates in this Request

Generic Name	Brand Name
dextromethorphan HBr/acetaminophen/doxylamine	Cold-Flu Relief
dextromethorphan HBr/acetaminophen/doxylamine	Contac Cold-Flu Night
dextromethorphan HBr/acetaminophen/doxylamine	Coricidin HBP Cold-Multi Sympt
dextromethorphan HBr/acetaminophen/doxylamine	Coricidin HBP Max Cold-Flu Nt
dextromethorphan HBr/acetaminophen/doxylamine	Cough-Sore Throat Night
dextromethorphan HBr/acetaminophen/doxylamine	Night Time
dextromethorphan HBr/acetaminophen/doxylamine	Night Time Cold and Flu Relief
dextromethorphan HBr/acetaminophen/doxylamine	Nighttime Cold-Flu
dextromethorphan HBr/acetaminophen/doxylamine	Nighttime Cold-Flu Relief
dextromethorphan HBr/acetaminophen/doxylamine	Nite Time Cold-Flu
dextromethorphan HBr/acetaminophen/doxylamine	Nite Time Cold-Flu Relief
dextromethorphan HBr/acetaminophen/doxylamine	Nite-Time Cold-Flu
dextromethorphan HBr/acetaminophen/doxylamine	Nitetime Multi-Symptom
dextromethorphan HBr/acetaminophen/doxylamine	Vicks NyQuil Cold/Flu Liquicap
dextromethorphan HBr/acetaminophen/doxylamine	Vicks Nyquil Nighttime Relief
dextromethorphan HBr/phenylephrine HCl/acetaminophen	Alka-Seltzer Plus Day
dextromethorphan HBr/phenylephrine HCl/acetaminophen	Alka-Seltzer Plus Sinus-Cough
dextromethorphan HBr/phenylephrine HCl/acetaminophen	Cold Head Congestion Daytime
dextromethorphan HBr/phenylephrine HCl/acetaminophen	Cold Max Daytime
dextromethorphan HBr/phenylephrine HCl/acetaminophen	Cold Multi-Symptom
dextromethorphan HBr/phenylephrine HCl/acetaminophen	Cold-Flu Relief
dextromethorphan HBr/phenylephrine HCl/acetaminophen	Day Multi-Symp Flu-Severe Cold
dextromethorphan HBr/phenylephrine HCl/acetaminophen	DayTime
dextromethorphan HBr/phenylephrine HCl/acetaminophen	Daytime Cold
dextromethorphan HBr/phenylephrine HCl/acetaminophen	Daytime Cold-Flu
dextromethorphan HBr/phenylephrine HCl/acetaminophen	Daytime Cold-Flu Relief (PE)
dextromethorphan HBr/phenylephrine HCl/acetaminophen	Flu-Severe Cold-Cough Daytime
dextromethorphan HBr/phenylephrine HCl/acetaminophen	HerbioMed Body Aches-Sinus M-S
dextromethorphan HBr/phenylephrine HCl/acetaminophen	Mapap Cold Formula
dextromethorphan HBr/phenylephrine HCl/acetaminophen	Mucinex Fast-Max Cong-HA (DM)
dextromethorphan HBr/phenylephrine HCl/acetaminophen	Mucinex Sinus-Max Cng-Pain(DM)
dextromethorphan HBr/phenylephrine HCl/acetaminophen	Severe Cold and Flu-Day (DM)
dextromethorphan HBr/phenylephrine HCl/acetaminophen	Theraflu ExpressMax Cold Day
dextromethorphan HBr/phenylephrine HCl/acetaminophen	Theraflu Multi-Symptom Cold
dextromethorphan HBr/phenylephrine HCl/acetaminophen	Theraflu Severe Cold Rlf
dextromethorphan HBr/phenylephrine HCl/acetaminophen	Tylenol Cold Max Day
dextromethorphan HBr/phenylephrine HCl/acetaminophen	Tylenol Cold Multi-Symptom Day
dextromethorphan HBr/phenylephrine HCl/acetaminophen	Vicks DayQuil Cold-Flu Relief
dextromethorphan HBr/phenylephrine HCl/acetaminophen	Wal-Flu Severe Cold-Cough
dextromethorphan HBr/phenylephrine/acetaminophen/doxylamine	Alka-Seltzer Plus D-N (acetam)
dextromethorphan HBr/phenylephrine/acetaminophen/doxylamine	Alka-Seltzer Plus Night
dextromethorphan HBr/phenylephrine/acetaminophen/doxylamine	Alka-Seltzer Plus Sin-Allg-Cgh
dextromethorphan HBr/phenylephrine/acetaminophen/doxylamine	Cold Multi-Symptom NightTime

Appendix BB. List of Generic and Brand Names of Medical Products Used to Define Covariates in this Request

Generic Name	Brand Name
dextromethorphan HBr/phenylephrine/acetaminophen/doxylamine	Cold and Flu Relief Plus (D/N)
dextromethorphan HBr/phenylephrine/acetaminophen/doxylamine	Daytime-Nighttime
dextromethorphan HBr/phenylephrine/acetaminophen/doxylamine	Daytime-Nighttime Cold-Flu
dextromethorphan HBr/phenylephrine/acetaminophen/doxylamine	Severe Cold and Flu Nighttime
dextromethorphan HBr/phenylephrine/acetaminophen/doxylamine	Tylenol Cold Max Night
dextromethorphan HBr/phenylephrine/acetaminophen/doxylamine	Vicks DayQuil-NyQuil
dextromethorphan HBr/phenylephrine/acetaminophen/doxylamine	Vicks DayQuil-NyQuil Cold-Flu
dextromethorphan HBr/phenylephrine/acetaminophen/doxylamine	Vicks NyQuil Severe Cold-Flu
dextromethorphan HBr/pseudoephedrine HCl/acetaminophen	DAY-TIME
dextromethorphan HBr/pseudoephedrine HCl/acetaminophen	Daytime Cold and Flu Relief
dextromethorphan HBr/pseudoephedrine HCl/acetaminophen	Non-Aspirin Flu
dextromethorphan HBr/pseudoephedrine HCl/acetaminophen	Tylenol Cold-Flu Multi-Act Day
dextromethorphan/phenylephrine/acetaminophen/chlorpheniramin	Alka-Seltzer Plus Cold/CoughFm
dextromethorphan/phenylephrine/acetaminophen/chlorpheniramin	Alka-Seltzer Plus Flu
dextromethorphan/phenylephrine/acetaminophen/chlorpheniramin	Child Giltuss MultSym Cold-Flu
dextromethorphan/phenylephrine/acetaminophen/chlorpheniramin	Child Triaminic MS Fever-Cold
dextromethorphan/phenylephrine/acetaminophen/chlorpheniramin	Children's Cold And Flu
dextromethorphan/phenylephrine/acetaminophen/chlorpheniramin	Children's Flu Relief
dextromethorphan/phenylephrine/acetaminophen/chlorpheniramin	Children's Plus Flu
dextromethorphan/phenylephrine/acetaminophen/chlorpheniramin	Children's Tylenol Cold-Flu
dextromethorphan/phenylephrine/acetaminophen/chlorpheniramin	Childrens Plus Multi-Symp Cold
dextromethorphan/phenylephrine/acetaminophen/chlorpheniramin	Cold Head Congestion Day/Nite
dextromethorphan/phenylephrine/acetaminophen/chlorpheniramin	Cold Head Congestion Nighttime
dextromethorphan/phenylephrine/acetaminophen/chlorpheniramin	Cold Max Day-Night
dextromethorphan/phenylephrine/acetaminophen/chlorpheniramin	Cold Multi-Symptom (chlorphen)
dextromethorphan/phenylephrine/acetaminophen/chlorpheniramin	Cold Multi-Symptom Day/Night

Appendix BB. List of Generic and Brand Names of Medical Products Used to Define Covariates in this Request

Generic Name	Brand Name
dextromethorphan/phenylephrine/acetaminophen/chlorpheniramin	Cold Relief M/S Day/Night
dextromethorphan/phenylephrine/acetaminophen/chlorpheniramin	Daytime and Nighttime Cold
dextromethorphan/phenylephrine/acetaminophen/chlorpheniramin	Giltuss Multi-Symptom Cold-Flu
dextromethorphan/phenylephrine/acetaminophen/chlorpheniramin	Head Congestion Day-Night
dextromethorphan/phenylephrine/acetaminophen/chlorpheniramin	Multi-Symptom Cold (pe-cpm)
dextromethorphan/phenylephrine/acetaminophen/diphenhydramine	Day-Night Severe Cold-Flu
dextromethorphan/phenylephrine/acetaminophen/diphenhydramine	HerbioMed Deep Cold-Flu Night
dextromethorphan/phenylephrine/acetaminophen/diphenhydramine	Multi-Symptom Severe Cold-Nt
dextromethorphan/phenylephrine/acetaminophen/diphenhydramine	Wal-Flu Day-Night Cold-Cough
dextromethorphan/pseudoephedrine/acetaminophen/chlorpheniram	Alka-Seltzer Plus-D Sinus-Cold
dextromethorphan/pseudoephedrine/acetaminophen/chlorpheniram	Tylenol Cold-Flu Multi-Act D-N
dextromethorphan/pseudoephrine HCl/acetaminophen/doxylamine	Alka-Seltzer Plus Cold-Flu
dextromethorphan/pseudoephrine HCl/acetaminophen/doxylamine	Nite Time-D Cold-Flu Relief
diphenhydramine HCl/phenylephrine HCl/acetaminophen	Allergy Sinus Headache (PE)
diphenhydramine HCl/phenylephrine HCl/acetaminophen	Child Delsym Cough-Cold
diphenhydramine HCl/phenylephrine HCl/acetaminophen	Child Mucinex M-S Cold Night
diphenhydramine HCl/phenylephrine HCl/acetaminophen	Children Dimetapp M-S Cold-Flu
diphenhydramine HCl/phenylephrine HCl/acetaminophen	Children's Mucinex Night Time
diphenhydramine HCl/phenylephrine HCl/acetaminophen	Cold and Flu Relief(diphen-pe)
diphenhydramine HCl/phenylephrine HCl/acetaminophen	Cough and Severe Cold
diphenhydramine HCl/phenylephrine HCl/acetaminophen	Delsym Cough-Cold NightTime
diphenhydramine HCl/phenylephrine HCl/acetaminophen	Flu Relief Therapy Nighttime
diphenhydramine HCl/phenylephrine HCl/acetaminophen	Flu Severe Cold-Night(diph-pe)
diphenhydramine HCl/phenylephrine HCl/acetaminophen	Flu-Severe Cold-Cough Night
diphenhydramine HCl/phenylephrine HCl/acetaminophen	Herbiomed Allergy Cold-Sinus
diphenhydramine HCl/phenylephrine HCl/acetaminophen	Mucinex Fast-Max Nite Cold-Flu
diphenhydramine HCl/phenylephrine HCl/acetaminophen	Mucinex Sinus-Max Nite Congest
diphenhydramine HCl/phenylephrine HCl/acetaminophen	Robitussin Cold-Flu Night (PE)
diphenhydramine HCl/phenylephrine HCl/acetaminophen	Severe Allergy-Sinus Headache
diphenhydramine HCl/phenylephrine HCl/acetaminophen	Severe Cold Cough-Flu
diphenhydramine HCl/phenylephrine HCl/acetaminophen	Severe Cold PE
diphenhydramine HCl/phenylephrine HCl/acetaminophen	Theraflu ExpressMax Cold Night
diphenhydramine HCl/phenylephrine HCl/acetaminophen	Theraflu Night Severe Cold-Cgh
diphenhydramine HCl/phenylephrine HCl/acetaminophen	Theraflu Nighttime PowerPod
diphenhydramine HCl/phenylephrine HCl/acetaminophen	Wal-Dryl Severe Allergy-Sinus

Appendix BB. List of Generic and Brand Names of Medical Products Used to Define Covariates in this Request

Generic Name	Brand Name
diphenhydramine HCl/phenylephrine HCl/acetaminophen	Wal-Flu Night Severe Cold
diphenhydramine HCl/phenylephrine HCl/acetaminophen	Wal-Flu Severe Cold and Cough
diphenhydramine HCl/phenylephrine HCl/acetaminophen	Wal-Phed PE Nighttime Cold
diphenhydramine HCl/phenylephrine HCl/acetaminophen	Wal-phed PE Severe Cold
diphenhydramine HCl/phenylephrine/acetaminophen/guaifenesin	Mucinex Sinus-Max D-N (diphen)
diphenhydramine HCl/phenylephrine/acetaminophen/guaifenesin	Sinus Relief Max Str Day-Night
diphenhydramine/phenylephrin/dextromethorph/acetaminophen/GG	Child Delsym Cough Plus Dy-Nt
diphenhydramine/phenylephrin/dextromethorph/acetaminophen/GG	Child Mucinex M-S Cold Day-Nte
diphenhydramine/phenylephrin/dextromethorph/acetaminophen/GG	Children's M-S Cold Day-Night
diphenhydramine/phenylephrin/dextromethorph/acetaminophen/GG	Daytime-Cold Nighttime-Cld-Flu
diphenhydramine/phenylephrin/dextromethorph/acetaminophen/GG	Delsym Cough Plus Day-Night
diphenhydramine/phenylephrin/dextromethorph/acetaminophen/GG	Mucinex Fast-Max Day-Nite Cold
diphenhydramine/phenylephrin/dextromethorph/acetaminophen/GG	Mucinex Fast-Max Day-Nite Cong
diphenhydramine/phenylephrin/dextromethorph/acetaminophen/GG	Mucinex Fst-Mx Dy-Nt Cold(dph)
diphenhydramine/phenylephrin/dextromethorph/acetaminophen/GG	Wal-Phed PE Day-Night
doxylamine succinate/dextromethorphan/acetaminophen/guaifen	Coricidin HBP Max Cold-Flu D-N
doxylamine/phenylephrine/dextromethorphan/acetaminophen/GG	Alka-Seltzer Plus Cold Day-Nt
doxylamine/phenylephrine/dextromethorphan/acetaminophen/GG	Day-Cold Night-Cold-Flu(doxyl)
doxylamine/phenylephrine/dextromethorphan/acetaminophen/GG	Day-Nite Severe Cold-Flu
doxylamine/phenylephrine/dextromethorphan/acetaminophen/GG	Mucinex Fast-Max Day-Nt(doxyl)
doxylamine/phenylephrine/dextromethorphan/acetaminophen/GG	Mucinex Sinus-Max Dy-Nt (dxyl)
doxylamine/phenylephrine/dextromethorphan/acetaminophen/GG	Severe Cold and Flu(Day/Night)
doxylamine/phenylephrine/dextromethorphan/acetaminophen/GG	Tylenol Cold-Flu-Cough Dy-Nt
doxylamine/phenylephrine/dextromethorphan/acetaminophen/GG	Vicks DayQuil-NyQuil Severe
guaifenesin/dextromethorphan hydrobromide/acetaminophen	Coricidin HBP Max Cold-Cgh-Flu
guaifenesin/phenylephrine HCl/acetaminophen	CCP Caffeine Free
guaifenesin/phenylephrine HCl/acetaminophen	Cold Head Congest(gg-pe-acetm)
guaifenesin/phenylephrine HCl/acetaminophen	Coldonyl

Appendix BB. List of Generic and Brand Names of Medical Products Used to Define Covariates in this Request

Generic Name	Brand Name
guaifenesin/phenylephrine HCl/acetaminophen	Flu Relief Therapy Cold-Chest
guaifenesin/phenylephrine HCl/acetaminophen	Head Congestion-Mucus
guaifenesin/phenylephrine HCl/acetaminophen	Mucinex Fast-Max Cold-Sinus
guaifenesin/phenylephrine HCl/acetaminophen	Mucinex Fast-Max Cong-HA (GG)
guaifenesin/phenylephrine HCl/acetaminophen	Mucinex Freefrom Cold-Flu-Cong
guaifenesin/phenylephrine HCl/acetaminophen	Mucinex Sinus-Max Cng-Pain(gg)
guaifenesin/phenylephrine HCl/acetaminophen	Mucinex Sinus-Max Sev Congestn
guaifenesin/phenylephrine HCl/acetaminophen	Mucus Relief Cold and Sinus
guaifenesin/phenylephrine HCl/acetaminophen	Mucus Relief SinusPressur-Pain
guaifenesin/phenylephrine HCl/acetaminophen	Mucus Rlf Severe Sinus Congest
guaifenesin/phenylephrine HCl/acetaminophen	Pressure-Pain PE Plus Mucus
guaifenesin/phenylephrine HCl/acetaminophen	Severe Congestion Relief
guaifenesin/phenylephrine HCl/acetaminophen	Severe Sinus
guaifenesin/phenylephrine HCl/acetaminophen	Sinus Congestion-Pain(guaif)
guaifenesin/phenylephrine HCl/acetaminophen	Sinus Relief Pressure and Pain
guaifenesin/phenylephrine HCl/acetaminophen	Sinus Relief Severe Congestion
guaifenesin/phenylephrine HCl/acetaminophen	Sudafed PE Head Congestn-Mucus
guaifenesin/phenylephrine HCl/acetaminophen	Sudafed PE Pressure-Pain-Mucus
guaifenesin/phenylephrine HCl/acetaminophen	Tylenol Cold Head Congest Sevr
guaifenesin/phenylephrine HCl/acetaminophen	Tylenol Sinus Severe
guaifenesin/phenylephrine HCl/acetaminophen	Wal-Phed PE Triple Relief
hydrocodone bitartrate/acetaminophen	Lorcet (hydrocodone)
hydrocodone bitartrate/acetaminophen	Lorcet HD
hydrocodone bitartrate/acetaminophen	Lorcet Plus
hydrocodone bitartrate/acetaminophen	Lortab Elixir
hydrocodone bitartrate/acetaminophen	Norco
hydrocodone bitartrate/acetaminophen	Vicodin
hydrocodone bitartrate/acetaminophen	Vicodin HP
hydrocodone bitartrate/acetaminophen	hydrocodone-acetaminophen
ibuprofen sodium/acetaminophen	Combogesic IV
ibuprofen/acetaminophen	Advil Dual Action
ibuprofen/acetaminophen	Dual Action Pain Reliever
ibuprofen/acetaminophen	ibuprofen-acetaminophen
magnesium salicylate/acetaminophen/caffeine	Back Pain-Off
oxycodone HCl/acetaminophen	Endocet
oxycodone HCl/acetaminophen	Nalocet
oxycodone HCl/acetaminophen	Percocet
oxycodone HCl/acetaminophen	Primlev
oxycodone HCl/acetaminophen	Prolate
oxycodone HCl/acetaminophen	oxycodone-acetaminophen
pheniramine maleate/phenylephrine HCl/acetaminophen	Theraflu Flu-Sore Throat
pheniramine maleate/phenylephrine HCl/acetaminophen	Wal-Flu Cold and Sore Throat
pheniramine maleate/phenylephrine HCl/acetaminophen	Wal-Flu Night Time
phenylephrine HCl/acetaminophen	Acetaminophen Congestion-Pain
phenylephrine HCl/acetaminophen	Contac Cold-Flu Day
phenylephrine HCl/acetaminophen	Mapap Sinus Max Strength (PE)
phenylephrine HCl/acetaminophen	Sinus Congestion and Pain
phenylephrine HCl/acetaminophen	Sinus Headache PE

Appendix BB. List of Generic and Brand Names of Medical Products Used to Define Covariates in this Request

Generic Name	Brand Name
phenylephrine HCl/acetaminophen	Sinus Pain Relief
phenylephrine HCl/acetaminophen	Sinus Pain-Pressure (PE)
phenylephrine HCl/acetaminophen	Sinus Relief (Non-Drowsy)
phenylephrine HCl/acetaminophen	Sudafed PE Pressure-Pain
phenylephrine HCl/acetaminophen	Suphedrine PE Sinus Headache
phenylephrine HCl/acetaminophen	Tylenol Sinus Headache
phenylephrine HCl/acetaminophen	Vicks Sinex Daytime
phenylephrine HCl/acetaminophen	Wal-Phed PE Sinus Headache
phenylephrine HCl/acetaminophen/chlorpheniramine	Allergy Multi-Symptom
phenylephrine HCl/acetaminophen/chlorpheniramine	Allergy Relief Multi-Symptom
phenylephrine HCl/acetaminophen/chlorpheniramine	Allergy Relief(chlorphen-acet)
phenylephrine HCl/acetaminophen/chlorpheniramine	Allergy Sinus PE
phenylephrine HCl/acetaminophen/chlorpheniramine	BC Sinus Pain and Congestion
phenylephrine HCl/acetaminophen/chlorpheniramine	Childrens Plus Cold
phenylephrine HCl/acetaminophen/chlorpheniramine	Contac Cold-Flu Day and Night
phenylephrine HCl/acetaminophen/chlorpheniramine	Contac Cold-Flu Max Strength
phenylephrine HCl/acetaminophen/chlorpheniramine	Dristan Cold
phenylephrine HCl/acetaminophen/chlorpheniramine	Medicidin-D
phenylephrine HCl/acetaminophen/chlorpheniramine	Norel AD
phenylephrine HCl/acetaminophen/chlorpheniramine	Sinus Congest-Pain Day-Night
phenylephrine HCl/acetaminophen/chlorpheniramine	Sinus Congestion-Pain(chlorph)
phenylephrine HCl/acetaminophen/chlorpheniramine	Sinus-Headache Day-Night
phenylephrine HCl/acetaminophen/chlorpheniramine	Sinutrol PE
phenylephrine HCl/acetaminophen/chlorpheniramine	Valihist
phenylephrine HCl/acetaminophen/doxylamine succinate	Sinus Daytime-Nightime
phenylephrine HCl/acetaminophen/doxylamine succinate	Vicks DayQuil-NyQuil Sinex
phenylephrine HCl/dextromethorphan HBr/acetaminophen/guaifen	Child Mucinex Cough-Cold-Fever
phenylephrine HCl/dextromethorphan HBr/acetaminophen/guaifen	Child Mucinex Freefrom Dy Cold
phenylephrine HCl/dextromethorphan HBr/acetaminophen/guaifen	Child Mucinex MS Cold-Throat
phenylephrine HCl/dextromethorphan HBr/acetaminophen/guaifen	Child Multi-Symptom Cold-Fever
phenylephrine HCl/dextromethorphan HBr/acetaminophen/guaifen	Children's Cold-Cough-Sore
phenylephrine HCl/dextromethorphan HBr/acetaminophen/guaifen	Children's Mucinex Cold-Fever
phenylephrine HCl/dextromethorphan HBr/acetaminophen/guaifen	Children's Mucinex Cold-Flu
phenylephrine HCl/dextromethorphan HBr/acetaminophen/guaifen	Cold Head Congestion Sever Day
phenylephrine HCl/dextromethorphan HBr/acetaminophen/guaifen	Cold Max Severe Daytime
phenylephrine HCl/dextromethorphan HBr/acetaminophen/guaifen	Cold Severe Congestion
phenylephrine HCl/dextromethorphan HBr/acetaminophen/guaifen	Cold and Flu Severe

Appendix BB. List of Generic and Brand Names of Medical Products Used to Define Covariates in this Request

Generic Name	Brand Name
phenylephrine HCl/dextromethorphan HBr/acetaminophen/guaifen	Cold-Cough Sinus Relief PE
phenylephrine HCl/dextromethorphan HBr/acetaminophen/guaifen	Cold-Flu-Sore Throat
phenylephrine HCl/dextromethorphan HBr/acetaminophen/guaifen	Decorel Forte Plus
phenylephrine HCl/dextromethorphan HBr/acetaminophen/guaifen	Dometuss G
phenylephrine HCl/dextromethorphan HBr/acetaminophen/guaifen	Fast Mucus Relief Severe Cold
phenylephrine HCl/dextromethorphan HBr/acetaminophen/guaifen	Herbiomed Severe Cold-Flu M-S
phenylephrine HCl/dextromethorphan HBr/acetaminophen/guaifen	Maximum Strength Cold-Flu
phenylephrine HCl/dextromethorphan HBr/acetaminophen/guaifen	Mucinex Cold,Flu,Sore Throat
phenylephrine HCl/dextromethorphan HBr/acetaminophen/guaifen	Mucinex Fast-Max Cold-Flu
phenylephrine HCl/dextromethorphan HBr/acetaminophen/guaifen	Mucinex Fast-Max Cold-Flu-Thrt
phenylephrine HCl/dextromethorphan HBr/acetaminophen/guaifen	Mucinex Fast-Max Severe Cold
phenylephrine HCl/dextromethorphan HBr/acetaminophen/guaifen	Mucinex Freefrom Day Cold-Flu
phenylephrine HCl/dextromethorphan HBr/acetaminophen/guaifen	Mucinex Junior Cold-Flu
phenylephrine HCl/dextromethorphan HBr/acetaminophen/guaifen	Mucinex Sinus-Max Pressure-Cgh
phenylephrine HCl/dextromethorphan HBr/acetaminophen/guaifen	Mucus Relief Cold-Flu-Sore Thr
phenylephrine HCl/dextromethorphan HBr/acetaminophen/guaifen	Mucus Relief Sev Congest-Cold
phenylephrine HCl/dextromethorphan HBr/acetaminophen/guaifen	Mucus Relief Severe Cold
phenylephrine HCl/dextromethorphan HBr/acetaminophen/guaifen	Multi-Symptom Cold (PE)
phenylephrine HCl/dextromethorphan HBr/acetaminophen/guaifen	Non-Pseudo Cold Relief
phenylephrine HCl/dextromethorphan HBr/acetaminophen/guaifen	Pressure-Pain PE Plus Cold
phenylephrine HCl/dextromethorphan HBr/acetaminophen/guaifen	Robitussin Sevr Cough-Cold-Flu
phenylephrine HCl/dextromethorphan HBr/acetaminophen/guaifen	Rompe Pecho Max Multi Symptoms
phenylephrine HCl/dextromethorphan HBr/acetaminophen/guaifen	Severe Cold
phenylephrine HCl/dextromethorphan HBr/acetaminophen/guaifen	Severe Cold Multi-Symptom

Appendix BB. List of Generic and Brand Names of Medical Products Used to Define Covariates in this Request

Generic Name	Brand Name
phenylephrine HCl/dextromethorphan HBr/acetaminophen/guaifen	Severe Cold and Flu (PE)
phenylephrine HCl/dextromethorphan HBr/acetaminophen/guaifen	Sinus PE Pressure-Pain-Cold
phenylephrine HCl/dextromethorphan HBr/acetaminophen/guaifen	Sudafed PE Head Congestion-Flu
phenylephrine HCl/dextromethorphan HBr/acetaminophen/guaifen	Sudafed PE Pressure-Pain-Cold
phenylephrine HCl/dextromethorphan HBr/acetaminophen/guaifen	Theraflu ExpressMax Sv Cld-Flu
phenylephrine HCl/dextromethorphan HBr/acetaminophen/guaifen	Tussin CF Max Severe M-S Cold
phenylephrine HCl/dextromethorphan HBr/acetaminophen/guaifen	Tylenol Cold and Flu Severe
phenylephrine HCl/dextromethorphan HBr/acetaminophen/guaifen	Vicks DayQuil Severe Cold-Flu
phenylephrine HCl/dextromethorphan HBr/acetaminophen/guaifen	Wal-Phed PE Cold-Cough
phenylephrine HCl/dextromethorphan HBr/acetaminophen/guaifen	Wal-Phed PE Pressure+Pain+Cold
pseudoephedrine HCl/acetaminophen	Nexafed Sinus Pressure-Pain
pseudoephedrine HCl/acetaminophen/chlorpheniramine	Allergy Sinus-D
pseudoephedrine/dextromethorphan/guaifenesin/acetaminophen	Duraflu
pyrilamine maleate/chlophedianol HCl/acetaminophen	Ninjacof-A
tramadol HCl/acetaminophen	Ultracet
tramadol HCl/acetaminophen	tramadol-acetaminophen
triprolidine HCl/dextromethorphan HBr/acetaminophen	Delsym Nighttime Cough
triprolidine HCl/dextromethorphan HBr/acetaminophen	Mucinex Nightshift Cold-Flu
triprolidine HCl/dextromethorphan/acetaminophen/guaifenesin	Mucinex Fast-Max DM Nightshift
triprolidine HCl/phenylephrine/dextromethorphn/acetaminophen	Child Mucinex Freefrom Nt Cold
triprolidine HCl/phenylephrine/dextromethorphn/acetaminophen	Mucinex Freefrom Nt Cold-Flu
triprolidine HCl/phenylephrine/dextromethorphn/acetaminophen	Mucinex Nightshft Cold-Flu Clr
triprolidine HCl/phenylephrine/dextromethorphn/acetaminophen	Mucinex Nightshft Sevr Cld-Flu
triprolidine HCl/phenylephrine/dextromethorphn/acetaminophen	Mucinex Nightshift Sinus
TNF Inhibitors	
adalimumab	Humira
adalimumab	Humira Pediatric Crohns Start
adalimumab	Humira Pen
adalimumab	Humira Pen Crohns-UC-HS Start
adalimumab	Humira Pen Psor-Uveits-Adol HS
adalimumab	Humira(CF)
adalimumab	Humira(CF) Pedi Crohns Starter

Appendix BB. List of Generic and Brand Names of Medical Products Used to Define Covariates in this Request

Generic Name	Brand Name
adalimumab	Humira(CF) Pen
adalimumab	Humira(CF) Pen Crohns-UC-HS
adalimumab	Humira(CF) Pen Pediatric UC
adalimumab	Humira(CF) Pen Psor-Uv-Adol HS
adalimumab-aacf	Idacio(CF)
adalimumab-aacf	Idacio(CF) Pen
adalimumab-aacf	Idacio(CF) Pen Crohn-UC Startr
adalimumab-aacf	Idacio(CF) Pen Psoriasis Start
adalimumab-aacf	adalimumab-aacf
adalimumab-aaty	Yuflyma(CF)
adalimumab-aaty	Yuflyma(CF) AI Crohn's-UC-HS
adalimumab-aaty	Yuflyma(CF) Autoinjector
adalimumab-adaz	Hyrimoz
adalimumab-adaz	Hyrimoz Pen
adalimumab-adaz	Hyrimoz Pen Crohn's-UC Starter
adalimumab-adaz	Hyrimoz Pen Psoriasis Starter
adalimumab-adaz	Hyrimoz(CF)
adalimumab-adaz	Hyrimoz(CF) Pedi Crohn Starter
adalimumab-adaz	Hyrimoz(CF) Pen
adalimumab-adaz	adalimumab-adaz
adalimumab-adbm	Cyltezo(CF)
adalimumab-adbm	Cyltezo(CF) Pen
adalimumab-adbm	Cyltezo(CF) Pen Crohn's-UC-HS
adalimumab-adbm	Cyltezo(CF) Pen Psoriasis-UV
adalimumab-adbm	adalimumab-adbm
adalimumab-adbm	adalimumab-adbm(CF) pen Crohns
adalimumab-adbm	adalimumab-adbm(CF) pen PS-UV
adalimumab-afzb	Abrilada(CF)
adalimumab-afzb	Abrilada(CF) Pen
adalimumab-aqvh	Yusimry(CF) Pen
adalimumab-atto	Amjevita(CF)
adalimumab-atto	Amjevita(CF) Autoinjector
adalimumab-bwwd	Hadlima
adalimumab-bwwd	Hadlima PushTouch
adalimumab-bwwd	Hadlima(CF)
adalimumab-bwwd	Hadlima(CF) PushTouch
adalimumab-fkjp	Hulio(CF)
adalimumab-fkjp	Hulio(CF) Pen
adalimumab-fkjp	adalimumab-fkjp
certolizumab pegol	Cimzia
certolizumab pegol	Cimzia Powder for Reconst
certolizumab pegol	Cimzia Starter Kit
etanercept	Enbrel
etanercept	Enbrel Mini
etanercept	Enbrel SureClick
golimumab	Simponi
golimumab	Simponi ARIA
infliximab	Remicade

Appendix BB. List of Generic and Brand Names of Medical Products Used to Define Covariates in this Request

Generic Name	Brand Name
infliximab	infliximab
infliximab-abda	Renflexis
infliximab-axxq	Avsola
infliximab-dyyb	Inflectra
Immunosuppressants	
abatacept	Orencia
abatacept	Orencia ClickJect
abatacept/maltose	Orencia (with maltose)
abemaciclib	Verzenio
acalabrutinib	Calquence
adalimumab	Humira(CF) Pen Crohns-UC-HS
adalimumab	Humira(CF) Pen Pediatric UC
adalimumab	Humira(CF) Pen
adalimumab	Humira(CF)
adalimumab	Humira(CF) Pedi Crohns Starter
adalimumab	Humira
adalimumab	Humira Pediatric Crohns Start
adalimumab	Humira Pen
adalimumab	Humira Pen Crohns-UC-HS Start
adalimumab	Humira Pen Psor-Uveits-Adol HS
ado-trastuzumab emtansine	Kadcyla
afatinib dimaleate	Gilotrif
aldesleukin	Proleukin
alectinib HCl	Alecensa
alemtuzumab	Lemtrada
alemtuzumab	Campath
alpelisib	Piqray
amivantamab-vmjw	Rybrevant
anakinra	Kineret
anifrolumab-fnia	Saphnelo
anti-thymocyte globulin,rabbit	Thymoglobulin
apremilast	Otezla Starter
apremilast	Otezla
arsenic trioxide	arsenic trioxide
arsenic trioxide	Trisenox
asparaginase (Erwinia chrysanthemi)	Erwinaze
asparaginase (Erwinia chrysanthemi)	Erwinase
asparaginase Erwinia chrysanthemi (recombinant)-rywn	Rylaze
atezolizumab	Tecentriq
auranofin	Ridaura
avapritinib	Ayvakit
avelumab	Bavencio
axicabtagene ciloleucel	Yescarta
axitinib	Inlyta
azacitidine	azacitidine
azacitidine	Vidaza
azacitidine	Onureg
azathioprine	azathioprine

Appendix BB. List of Generic and Brand Names of Medical Products Used to Define Covariates in this Request

Generic Name	Brand Name
azathioprine	Imuran
azathioprine	Azasan
azathioprine sodium	azathioprine sodium
baricitinib	Olumiant
basiliximab	Simulect
belatacept	Nulojix
belimumab	Benlysta
belinostat	Beleodaq
belumosudil mesylate	Rezurock
belzutifan	Welireg
bendamustine HCl	bendamustine
bendamustine HCl	Belrapzo
bendamustine HCl	Bendeka
bendamustine HCl	Treanda
bevacizumab	Avastin
bevacizumab-awwb	Mvasi
bevacizumab-bvzr	Zirabev
bexarotene	Targretin
bexarotene	bexarotene
binimetinib	Mektovi
bleomycin sulfate	bleomycin
blinatumomab	Blincyto
bortezomib	bortezomib
bortezomib	Velcade
bosutinib	Bosulif
brentuximab vedotin	Adcetris
brigatinib	Alunbrig
busulfan	busulfan
busulfan	Busulfex
busulfan	Myleran
cabazitaxel	Jevtana
cabozantinib s-malate	Cometriq
cabozantinib s-malate	Cabometyx
calaspargase pegol-mknl	Asparlas
canakinumab/PF	Ilaris (PF)
capecitabine	Xeloda
capecitabine	capecitabine
carboplatin	carboplatin
carfilzomib	Kyprolis
carmustine	BiCNU
carmustine	carmustine
carmustine in polifeprosan 20	Gliadel Wafer
cemiplimab-rwlc	Libtayo
ceritinib	Zykadia
cetuximab	Erbitux
chlorambucil	Leukeran
cisplatin	cisplatin
cladribine	cladribine

Appendix BB. List of Generic and Brand Names of Medical Products Used to Define Covariates in this Request

Generic Name	Brand Name
clofarabine	Clolar
clofarabine	clofarabine
cobimetinib fumarate	Cotellic
copanlisib di-HCl	Aliqopa
crizotinib	Xalkori
cyclophosphamide	cyclophosphamide
cyclosporine	Sandimmune
cyclosporine	cyclosporine
cyclosporine, modified	Gengraf
cyclosporine, modified	Neoral
cyclosporine, modified	cyclosporine modified
cytarabine	cytarabine
cytarabine/PF	cytarabine (PF)
dabrafenib mesylate	Tafinlar
dacarbazine	dacarbazine
dacomitinib	Vizimpro
dactinomycin	dactinomycin
dactinomycin	Cosmegen
daratumumab	Darzalex
dasatinib	Sprycel
daunorubicin HCl	daunorubicin
daunorubicin/cytarabine liposomal	Vyxeos
decitabine	decitabine
decitabine	Dacogen
dinutuximab	Unituxin
docetaxel	Taxotere
docetaxel	docetaxel
docetaxel	Docefrez
dostarlimab-gxly	Jemperli
doxorubicin HCl	doxorubicin
doxorubicin HCl	Adriamycin
doxorubicin HCl pegylated liposomal	Doxil
doxorubicin HCl pegylated liposomal	doxorubicin, peg-liposomal
doxorubicin HCl pegylated liposomal	Lipodox
doxorubicin HCl pegylated liposomal	Lipodox 50
durvalumab	Imfinzi
duvelisib	Copiktra
elotuzumab	Empliciti
emapalumab-lzsg	Gamifant
enasidenib mesylate	Idhifa
encorafenib	Braftovi
enfortumab vedotin-ejfv	Padcev
entrectinib	Rozlytrek
epirubicin HCl	Ellence
epirubicin HCl	epirubicin
erdafitinib	Balversa
eribulin mesylate	Halaven
erlotinib HCl	erlotinib

Appendix BB. List of Generic and Brand Names of Medical Products Used to Define Covariates in this Request

Generic Name	Brand Name
erlotinib HCl	Tarceva
etanercept	Enbrel
etanercept	Enbrel SureClick
etanercept	Enbrel Mini
etoposide	etoposide
etoposide	Toposar
etoposide phosphate	Etopophos
everolimus	everolimus (antineoplastic)
everolimus	Zortress
everolimus	Afinitor
everolimus	Afinitor Disperz
everolimus	everolimus (immunosuppressive)
fam-trastuzumab deruxtecan-nxki	Enhertu
fedratinib dihydrochloride	Inrebic
fingolimod HCl	Gilenya
floxuridine	floxuridine
fludarabine phosphate	fludarabine
fluorouracil	Adrucil
fluorouracil	fluorouracil
fostamatinib disodium	Tavalisse
gefitinib	Iressa
gemcitabine HCl	gemcitabine
gemcitabine HCl in 0.9 % sodium chloride	Infugem
gemtuzumab ozogamicin	Mylotarg
gilteritinib fumarate	Xospata
glasdegib maleate	Daurismo
glucarpidase	Voraxaze
golimumab	Simponi
golimumab	Simponi ARIA
hydroxyurea	Hydrea
hydroxyurea	hydroxyurea
ibrutinib	Imbruvica
idarubicin HCl	Idamycin PFS
idarubicin HCl	idarubicin
idecabtagene vicleucel	Abecma
idelalisib	Zydelig
ifosfamide	ifosfamide
ifosfamide	Ifex
ifosfamide/mesna	ifosfamide-mesna
imatinib mesylate	imatinib
imatinib mesylate	Gleevec
infigratinib phosphate	Truseltiq
inotuzumab ozogamicin	Besponsa
interferon alfa-2b,recomb.	Intron A
interferon alfa-n3	Alferon N
interferon gamma-1b,recomb.	Actimmune
ipilimumab	Yervoy
irinotecan HCl	Camptosar

Appendix BB. List of Generic and Brand Names of Medical Products Used to Define Covariates in this Request

Generic Name	Brand Name
irinotecan HCl	irinotecan
irinotecan liposomal	Onivyde
ivosidenib	Tibsovo
ixabepilone	Ixempra
ixazomib citrate	Ninlaro
kit for prep yttrium-90/ibritumomab tiuxetan/albumin human	Zevalin (Y-90)
lapatinib ditosylate	Tykerb
larotrectinib sulfate	Vitrakvi
leflunomide	Arava
leflunomide	leflunomide
lenalidomide	Revlimid
lenvatinib mesylate	Lenvima
lomustine	Gleostine
loncastuximab tesirine-lpyl	Zynlonta
lorlatinib	Lorbrena
lymphocyte immune globulin,antithymocyte (equine)	Atgam
margetuximab-cmkb	Margenza
melphalan	melphalan
melphalan	Alkeran
melphalan flufenamide hydrochloride	Pepaxto
melphalan HCl	melphalan HCl
melphalan HCl	Alkeran (as HCl)
melphalan HCl/betadex sulfobutyl ether sodium	Evomela
mercaptopurine	mercaptopurine
mercaptopurine	Purixan
methotrexate	Xatmep
methotrexate sodium	methotrexate sodium
methotrexate sodium	Trexall
methotrexate sodium/PF	methotrexate sodium (PF)
methotrexate/PF	Otrexup (PF)
methotrexate/PF	Rasuvo (PF)
midostaurin	Rydapt
mitomycin	mitomycin
mitomycin	Mutamycin
mitoxantrone HCl	mitoxantrone
mogamulizumab-kpkc	Poteligeo
moxetumomab pasudotox-tdfk	Lumoxiti
mycophenolate mofetil	CellCept
mycophenolate mofetil	mycophenolate mofetil
mycophenolate mofetil HCl	CellCept Intravenous
mycophenolate mofetil HCl	mycophenolate mofetil (HCl)
mycophenolate sodium	Myfortic
mycophenolate sodium	mycophenolate sodium
necitumumab	Portrazza
nelarabine	Arranon
neratinib maleate	Nerlynx
nilotinib HCl	Tasigna
niraparib tosylate	Zejula

Appendix BB. List of Generic and Brand Names of Medical Products Used to Define Covariates in this Request

Generic Name	Brand Name
nivolumab	Opdivo
obinutuzumab	Gazyva
ofatumumab	Arzerra
olaparib	Lynparza
olaratumab	Lartruvo
omacetaxine mepesuccinate	Synribo
osimertinib mesylate	Tagrisso
oxaliplatin	oxaliplatin
paclitaxel	paclitaxel
paclitaxel protein-bound	Abraxane
palbociclib	Ibrance
panitumumab	Vectibix
panobinostat lactate	Farydak
pazopanib HCl	Votrient
pegaspargase	Oncaspar
peginterferon alfa-2b	Sylatron
pembrolizumab	Keytruda
pemetrexed disodium	Alimta
pentostatin	Nipent
pertuzumab	Perjeta
pexidartinib hydrochloride	Turalio
polatuzumab vedotin-piiq	Polivy
pomalidomide	Pomalyst
ponatinib HCl	Iclusig
pralatrexate	Folotyn
pralsetinib	Gavreto
procarbazine HCl	Matulane
ramucirumab	Cyramza
regorafenib	Stivarga
ribociclib succinate	Kisqali
ribociclib succinate/letrozole	Kisqali Femara Co-Pack
rilonacept	Arcalyst
rituximab	Rituxan
rituximab/hyaluronidase, human recombinant	Rituxan Hycela
rituximab-abbs	Truxima
rituximab-pvvr	Ruxience
romidepsin	romidepsin
romidepsin	Istodax
rucaparib camsylate	Rubraca
ruxolitinib phosphate	Jakafi
sarilumab	Kevzara
selinexor	Xpovio
selumetinib sulfate/vitamin E TPGS	Koselugo
sipuleucel-T/lactated ringers solution	Provenge
sirolimus	Rapamune
sirolimus	sirolimus
sonidegib phosphate	Odomzo
sorafenib tosylate	Nexavar

Appendix BB. List of Generic and Brand Names of Medical Products Used to Define Covariates in this Request

Generic Name	Brand Name
sotorasib	Lumakras
streptozocin	Zanosar
sunitinib malate	Sutent
sunitinib malate	sunitinib malate
tacrolimus	tacrolimus
tacrolimus	Prograf
tacrolimus	Astagraf XL
tacrolimus	Envarsus XR
tagraxofusp-erzs	Elzonris
talazoparib tosylate	Talzenna
talimogene laherparepvec	Imlygic
tazemetostat hydrobromide	Tazverik
temozolomide	Temodar
temozolomide	temozolomide
temsirolimus	Torisel
temsirolimus	temsirolimus
teniposide	teniposide
thalidomide	Thalomid
thioguanine	Tabloid
thiotepa	thiotepa
thiotepa	Tepadina
tisagenlecleucel	Kymriah
tivozanib HCl	Fotivda
tocilizumab	Actemra
tocilizumab	Actemra ACTPen
tofacitinib citrate	Xeljanz XR
tofacitinib citrate	Xeljanz
topotecan HCl	Hycamtin
topotecan HCl	topotecan
trabectedin	Yondelis
trametinib dimethyl sulfoxide	Mekinist
trastuzumab	Herceptin
trastuzumab-anns	Kanjinti
trastuzumab-dkst	Ogivri
trastuzumab-dttb	Ontruzant
trastuzumab-hyaluronidase-oysk	Herceptin Hylecta
trastuzumab-qyyp	Trazimera
trifluridine/tipiracil HCl	Lonsurf
upadacitinib	Rinvoq
valrubicin	valrubicin
valrubicin	Valstar
vandetanib	Caprelsa
vemurafenib	Zelboraf
venetoclax	Venclexta
venetoclax	Venclexta Starting Pack
vinblastine sulfate	vinblastine
vincristine sulfate	Vincasar PFS
vincristine sulfate	vincristine

Appendix BB. List of Generic and Brand Names of Medical Products Used to Define Covariates in this Request

Generic Name	Brand Name
vincristine sulfate liposomal	Marqibo
vinorelbine tartrate	vinorelbine
vinorelbine tartrate	Navelbine
vismodegib	Erivedge
vorinostat	Zolinza
zanubrutinib	Brukinsa
ziv-aflibercept	Zaltrap
Inhaled Corticosteroids	
albuterol sulfate/budesonide	Airsupra
beclomethasone dipropionate	Qvar
beclomethasone dipropionate	Qvar RediHaler
budesonide	Pulmicort
budesonide	Pulmicort Flexhaler
budesonide	budesonide
budesonide/formoterol fumarate	Breyna
budesonide/formoterol fumarate	Symbicort
budesonide/formoterol fumarate	budesonide-formoterol
budesonide/glycopyrrolate/formoterol fumarate	Breztri Aerosphere
ciclesonide	Alvesco
fluticasone furoate	Arnuity Ellipta
fluticasone furoate/umeclidinium bromide/vilanterol trifenat	Trelegy Ellipta
fluticasone furoate/vilanterol trifenatate	Breo Ellipta
fluticasone propionate	ArmonAir Digihaler
fluticasone propionate	Flovent Diskus
fluticasone propionate	Flovent HFA
fluticasone propionate/salmeterol xinafoate	Advair Diskus
fluticasone propionate/salmeterol xinafoate	Advair HFA
fluticasone propionate/salmeterol xinafoate	AirDuo Digihaler
fluticasone propionate/salmeterol xinafoate	AirDuo RespiClick
fluticasone propionate/salmeterol xinafoate	Wixela Inhub
fluticasone propionate/salmeterol xinafoate	fluticasone propion-salmeterol
mometasone furoate	Asmanex HFA
mometasone furoate	Asmanex Twisthaler
mometasone furoate/formoterol fumarate	Dulera

Appendix BC. Specifications Defining Parameters Used in this Request

The Center for Drug Evaluation and Research (CDER) has requested execution of the Cohort Identification and Descriptive Analysis (CIDA) tool, version 13.1.2, to examine the association between PPI/Famotidine use and COVID-19 related outcomes (hospitalization, severe clinical course of COVID-19 defined as requiring intubation or mechanical ventilation or ICU care, and inpatient death) in the Sentinel Distributed Database.

Index Start Date:	4/1/2020
Index End Date:	3/31/2023
Coverage Requirement:	Medical and Drug Coverage
Pre-index enrollment requirement:	183 days
Post-index enrollment requirement:	0 days
Allowed enrollment gap:	45 days
Demographic Restrictions:	Sex: Male, Female
Age groups:	18-49, 50-64, 65-74, 75+
Envelope macro:	*Reclassify encounters during inpatient stay as inpatient except on Adate
Never-exposed cohort:	No
Additional Output (Dist of Index, MFU):	N/A
Freeze data:	Yes
Lab Date Hierarchy:	Lab date (L) > Result date (R) > Order date (O)
List of Analyses:	**Analysis 1: Updated user-specified PS model, IPTW, ATT weight**
	Analysis 2: HDPS model, IPTW, ATT weight
	Analysis 3: HDPS model, PS fine stratification, ATT weight
	Analysis 4: HDPS model, Overlap Weighting, ATO weight
	Analysis 5: HDPS model, IPTW, ATE weight

	Comparison 1	
Logic	**COVID-19 Hospitalization**	
Group	ppi_hosp	famo_hosp
Analysis Group	ppi_famo_hosp	
Index Exposure/Comparator	Proton Pump Inhibitor	Famotidine only
Cohort Definition	First valid incident treatment episode during the query period	
Incidence Exposure washout period	-183 days	
Incident w/ Respect to:	PPI (done as t2washper), H2RA (done as an exclusion criteria)	PPI (done as an exclusion criteria, H2RA (done as an exclusion criteria and t2washper)
Exclude evidence of days supply if exposure washout include dispensings	Washout lookback period should search for evidence of days supply	
Stockpiling	Generic Name	
Point Exposure	No	
Treatment Episode Gap	15 days	
Exposure Episode Extension	15 days	

Appendix BC. Specifications Defining Parameters Used in this Request		
Maximum exposure episode duration	184 days	
Incidence Criteria Care Setting/PDX	Any	
Create Baseline Table?	Yes	
Inclusion/Exclusion Criteria		
Criteria	GERD diagnosis	
Type	Inclusion	
Evaluation Window	-90, 0	
Care Setting/PDX	Any	
Number of instances the criteria should be found in the evaluation period	1	
Criteria	ICD-10 U07.1 or B97.29, (+) COVID-19 PCR	
Type	Exclusion	
Evaluation Window	-183, -1	
Care Setting/PDX	Any	
Number of instances the criteria should be found in the evaluation period	1	
Criteria	H2RA dispensing	PPI dispensing, H2RA dispensing (other than Famotidine)
Type	Exclusion	
Evaluation Window	-183, 0	
Care Setting/PDX	N/A	
Number of instances the criteria should be found in the evaluation period	1	
At Risk Time		
Minimum exposure episode duration	1	
Maximum exposure episode duration	----	
Censoring Criteria	*Death, DP end date, Query end date; *Disenrollment; *Event; *H2RA dispensing (including Famotidine)	*Death, DP end date, Query end date; *Disenrollment; *Event; *PPI dispensing, *H2RA dispensing (other than Famotidine)
Delayed Risk Window (T2ATRISKSTART)	--	--
Blackout Period	1	1
Event/Outcome		
Event/Outcome *Further details on Outcomes tab*	Hospitalization due to COVID-19: defined as the U07.1 DX code in ANY diagnosis position (IP*)	
Incident event washout period	0	

Appendix BC. Specifications Defining Parameters Used in this Request	
Care Setting	Inpatient
Event de-duplication	De-duplicates occurrences of the same event group on the same day
Propensity Score Estimation and Cohort Balancing	
Propensity Score Model Specifications	
Model 1: Updated user-specified PS model	
Propensity Score Model Name	ps_hosp
PS Model User-Specified vs HDPS	User-Specified
Covariates for User-Specified Model	See PSModel_Cov tab
Apply Firth Correction	No
Model 2: HDPS Model	
Propensity Score Model Name (PSESTIMATEGRP)	hdps_hosp
PS Model User-Specified vs HDPS	HDPS
Apply Firth Correction	No
HDPS Evaluation Period Start	-183
HDPS Evaluation Period End	-1
Number of Covariates Considered for HDPS Model	300
Number of Covariates Selected for HDPS Model	100
Method for Selecting Covariates in HDPS Model (Ranking)	Bias
Zero Cell Correlation	No
Truncation Parameter for ICD-10 DX Codes	3
Cohort Balancing (Weighting) and Confounding Adjustment Specifications	
Cohort Balancing 1: IPTW **Confounding Adjustment 1: ATT**	
Comparison Identifier (ANALYSISGRP)	ps_iptw_att_hosp_0, ps_iptw_att_hosp_1, hdps_iptw_att_hosp_0, hdps_iptw_att_hosp_1
Propensity Score Models Used	ps_hosp, hdps_hosp
Cohort Balancing/Weight Scheme Used	IPTW
IP Weight	ATT
Truncate IP Weight	p = 0, 1
Cohort Balancing 1: IPTW **Confounding Adjustment 2: ATE**	
Comparison Identifier (ANALYSISGRP)	hdps_iptw_ate_hosp_0, hdps_iptw_ate_hosp_1
Propensity Score Models Used	hdps_hosp
Cohort Balancing/Weight Scheme Used	IPTW
IP Weight	ATE
Truncate IP Weight	p = 0, 1

Appendix BC. Specifications Defining Parameters Used in this Request	
Cohort Balancing 2: Overlap weighting **Confounding Adjustment 1: ATO**	
Comparison Identifier (ANALYSISGRP)	hdps_ow_ato_hosp
Propensity Score Models Used	hdps_hosp
Cohort Balancing/Weight Scheme Used	Overlap weighting **(Plus Programming)**
IP Weight	ATO
Truncate IP Weight	p = 0
Cohort Balancing 3: Propensity Score Fine Stratification **Confounding Adjustment 1: ATT**	
Comparison Identifier (ANALYSISGRP)	hdps_strat_att_hosp
Propensity Score Models Used	hdps_hosp
Cohort Balancing/Weight Scheme Used	Propensity Score Fine Stratification
Percentile Stratification	50
PS Stratum Weighting Method	ATT
PS Trimming Indicator	Trim non-overlap (0)
Percentile Distribution Indicator	E (use the distribution of PS in only the exposed cohort to create percentiles)
Subgroup Analysis	
Comparison Identifier (ANALYSISGRP)	ps_iptw_att_hosp_0, ps_iptw_att_hosp_1, hdps_iptw_att_hosp_0, hdps_iptw_att_hosp_1, hdps_strat_att_hosp, hdps_ow_ato_hosp, hdps_iptw_ate_hosp_0, hdps_iptw_ate_hosp_1
Subgroup Analysis	**Age Group (18-49, 50-64, 65-74, 75+)**
Re-estimate PS within subgroups	Yes
Restrict re-matching within matched population?	Yes
Apply Firth Correction	No
Figures to Include in Report	
PS distribution histogram (unweighted, weighted before trimming, and weighted after trimming)	Yes
Forest Plots	Yes
Kaplan Meier Plot	Yes - unadjusted and adjusted
ICD-9-CM, HCPCS, and CPT codes are provided by Optum360. NDC codes are checked against First Data Bank's "National Drug Data File (NDDF®) Plus."	

Appendix BC. Specifications Defining Parameters Used in this Request

The Center for Drug Evaluation and Research (CDER) has requested execution of the Cohort Identification and Descriptive Analysis (CIDA) t
PPI/Famotidine use and COVID-19 related outcomes (hospitalization, severe clinical course of COVID-19 defined as requiring intubation or
in the Sentinel Distributed Database.

Index Start Date:	4/1/2020
Index End Date:	3/31/2023
Coverage Requirement:	Medical and Drug Coverage
Pre-index enrollment requirement:	183 days
Post-index enrollment requirement:	0 days
Allowed enrollment gap:	45 days
Demographic Restrictions:	Sex: Male, Female
Age groups:	18-49, 50-64, 65-74, 75+
Envelope macro:	*Reclassify encounters during inpatient stay as inpatient except on A
Never-exposed cohort:	No
Additional Output (Dist of Index, MFU):	N/A
Freeze data:	Yes
Lab Date Hierarchy:	Lab date (L) > Result date (R) > Order date (O)
List of Analyses:	**Analysis 1: Updated user-specified PS model, IPTW, ATT weight**
	Analysis 2: HDPS model, IPTW, ATT weight
	Analysis 3: HDPS model, PS fine stratification, ATT weight
	Analysis 4: HDPS model, Overlap Weighting, ATO weight
	Analysis 5: HDPS model, IPTW, ATE weight

	Comparison
Logic	**COVID-19 Severe Hospitalization**
Group	ppi_sev
Analysis Group	ppi_famo_se
Index Exposure/Comparator	Proton Pump Inhibitor
Cohort Definition	First valid incident treatment episode
Incidence Exposure washout period	-183 days
Incident w/ Respect to:	PPI (done as t2washper), H2RA (done as an exclusion criteria)
Exclude evidence of days supply if exposure washout include dispensings	Washout lookback period should search
Stockpiling	Generic Nam
Point Exposure	No
Treatment Episode Gap	15 days
Exposure Episode Extension	15 days
Maximum exposure episode duration	184 days

Appendix BC. Specifications Defining Parameters Used in this Request		
Incidence Criteria Care Setting/PDX		Any
Create Baseline Table?		Yes
	Inclusion/Exclusion Criteria	
Criteria		GERD diagnos
Type		Inclusion
Evaluation Window		-90, 0
Care Setting/PDX		Any
Number of instances the criteria should be found in the evaluation period		1
Criteria		ICD-10 U07.1 or B97.29, (+)
Type		Exclusion
Evaluation Window		-183, -1
Care Setting/PDX		Any
Number of instances the criteria should be found in the evaluation period		1
Criteria	H2RA dispensing	
Type		Exclusion
Evaluation Window		-183, 0
Care Setting/PDX		N/A
Number of instances the criteria should be found in the evaluation period		1
	At Risk Time	
Minimum exposure episode duration		1
Maximum exposure episode duration		----
Censoring Criteria	*Death, DP end date, Query end date; *Disenrollment; *Event; *H2RA dispensing (including Famotidine)	
Delayed Risk Window (T2ATRISKSTART)	--	
Blackout Period	1	
	Event/Outcome	
Event/Outcome *Further details on Outcomes tab*		Severe outcome due to COVID-19 (Mechnical Ventilation or ICU hospitalization (Combo: SEVOU
Incident event washout period		0
Care Setting		Inpatient

Appendix BC. Specifications Defining Parameters Used in this Request	
Event de-duplication	De-duplicates occurrences of the same e
Propensity Score Estimation and Cohort Balancing	
Propensity Score Model Specifications	
Model 1: Updated user-specified PS model	
Propensity Score Model Name	ps_sev
PS Model User-Specified vs HDPS	User-Specifie
Covariates for User-Specified Model	See PSModel_Co
Apply Firth Correction	No
Model 2: HDPS Model	
Propensity Score Model Name (PSESTIMATEGRP)	hdps_sev
PS Model User-Specified vs HDPS	HDPS
Apply Firth Correction	No
HDPS Evaluation Period Start	-183
HDPS Evaluation Period End	-1
Number of Covariates Considered for HDPS Model	300
Number of Covariates Selected for HDPS Model	100
Method for Selecting Covariates in HDPS Model (Ranking)	Bias
Zero Cell Correlation	No
Truncation Parameter for ICD-10 DX Codes	3
Cohort Balancing (Weighting) and Confounding Adjustment Specifications	
Cohort Balancing 1: IPTW **Confounding Adjustment 1: ATT**	
Comparison Identifier (ANALYSISGRP)	ps_iptw_att_sev_0, ps_iptw_att_sev_1, hdps_ip
Propensity Score Models Used	ps_sev, hdps_s
Cohort Balancing/Weight Scheme Used	IPTW
IP Weight	ATT
Truncate IP Weight	p = 0, 1
Cohort Balancing 1: IPTW **Confounding Adjustment 2: ATE**	
Comparison Identifier (ANALYSISGRP)	
Propensity Score Models Used	
Cohort Balancing/Weight Scheme Used	
IP Weight	
Truncate IP Weight	

Appendix BC. Specifications Defining Parameters Used in this Request	
Cohort Balancing 2: Overlap weighting Confounding Adjustment 1: ATO	
Comparison Identifier (ANALYSISGRP)	
Propensity Score Models Used	
Cohort Balancing/Weight Scheme Used	
IP Weight	
Truncate IP Weight	
Cohort Balancing 3: Propensity Score Fine Stratification Confounding Adjustment 1: ATT	
Comparison Identifier (ANALYSISGRP)	
Propensity Score Models Used	
Cohort Balancing/Weight Scheme Used	
Percentile Stratification	
PS Stratum Weighting Method	
PS Trimming Indicator	
PS Distribution Indicator	
Subgroup Analysis	
Comparison Identifier (ANALYSISGRP)	ps_iptw_att_sev_0, ps_iptw_att_sev_1, hdps_ip
Subgroup Analysis	**Age Group (18-49, 50-64**
Re-estimate PS within subgroups	Yes
Restrict re-matching within matched population?	Yes
Apply Firth Correction	No
Figures to Include in Report	
PS distribution histogram (unweighted, weighted before trimming, and weighted after trimming)	Yes
Forest Plots	Yes
Kaplan Meier Plot	Yes - unadjusted and
ICD-9-CM, HCPCS, and CPT codes are provided by Optum360. NDC codes are checked against First Data Bank's "National Drug Data File (N	

tool, version 13.1.2, to examine the association between
mechanical ventilation or ICU care, and inpatient death)

.date

2

or In-Hospital Death

famo_sev

v

Famotidine only

e during the query period

PPI (done as an exclusion criteria,
H2RA (done as an exclusion criteria and t2washper)

for evidence of days supply

e

sis
) COVID-19 PCR
PPI dispensing, H2RA dispensing (other than Famotidine)
*Death, DP end date, Query end date; *Disenrollment; *Event; *PPI dispensing, *H2RA dispensing (other than Famotidine) -- 1
U Admission) or In-Hospital Death during COVID-19 JTCOME1 or Death)

event group on the same day
d v tab
tw_att_sev_0, hdps_iptw_att_sev_1 sev

tw_att_sev_0, hdps_iptw_att_sev_1

, 65-74, 75+)

adjusted

IDDF®) Plus."

Appendix BD. Specifications Defining Baseline Characteristic Parameters in this Request

	Baseline Characteristics							
Covar Num	Covariate	Care setting	Principal diagnosis position	Evaluation period start	Evaluation period end	Exclude evidence of days supply if covariate includes dispensings	Number of instances the covariate should be found in evaluation period	Forced supply to attach to dispensings
1	Diabetes	*Any care setting	*Any	-183	0	N/A	>=1	N/A
2	Obesity	*Any care setting	*Any	-183	0	N/A	>=1	N/A
3	Hypertension	*Any care setting	*Any	-183	0	N/A	>=1	N/A
4	Hospitalized Stroke/Transient Ishchemic Attack	***Inpatient Care Setting**	*Any	-183	0	N/A	>=1	N/A
5	Coronary Revascularization	*Any care setting	*Any	-183	0	N/A	>=1	N/A
6	Atrial Fibrillation	*Any care setting	*Any	-183	0	N/A	>=1	N/A
7	Congestive Heart Failure	*Any care setting	*Any	-183	0	N/A	>=1	N/A
8	Hospitalized Acute Myocardial Infarction	***Inpatient Care Setting**	*Any	-183	0	N/A	>=1	N/A
9	Other Cerebrovascular Disease	*Any care setting	*Any	-183	0	N/A	>=1	N/A
10	Chronic Obstructive Pulmonary Disease	*Any care setting	*Any	-183	0	N/A	>=1	N/A
11	Asthma without COPD	*Any care setting	*Any	-183	0	N/A	>=1	N/A
12	Chronic Liver Disease	*Any care setting	*Any	-183	0	N/A	>=1	N/A
13	Chronic Kidney Disease	*Any care setting	*Any	-183	0	N/A	>=1	N/A
14	Any malignant neoplasm	*Any care setting	*Any	-183	0	N/A	>=1	N/A
15	Hemiplegia	*Any care setting	*Any	-183	0	N/A	>=1	N/A
16	Neurological/Neurodegenerative Conditions	*Any care setting	*Any	-183	0	N/A	>=1	N/A
17	Dementia	*Any care setting	*Any	-183	0	N/A	>=1	N/A

Appendix BD. Specifications Defining Baseline Characteristic Parameters in this Request

	Baseline Characteristics							
Covar Num	Covariate	Care setting	Principal diagnosis position	Evaluation period start	Evaluation period end	Exclude evidence of days supply if covariate includes dispensings	Number of instances the covariate should be found in evaluation period	Forced supply to attach to dispensings
18	Depression	*Any care setting	*Any	-183	0	N/A	>=1	N/A
19	Schizophrenia	*Any care setting	*Any	-183	0	N/A	>=1	N/A
20	Rheumatic Disorders	*Any care setting	*Any	-183	0	N/A	>=1	N/A
21	Multiple Sclerosis	*Any care setting	*Any	-183	0	N/A	>=1	N/A
22	HIV	*Any care setting	*Any	-183	0	N/A	>=1	N/A
23	ACEI/ARB	N/A	*Any	-183	0	*Evaluation period should search for evidence of days supply;	>=1	N/A
24	NSAID	N/A	*Any	-183	0	*Evaluation period should search for evidence of days supply;	>=1	N/A
25	aspirin (all products and all strengths)	N/A	*Any	-183	0	*Evaluation period should search for evidence of days supply;	>=1	N/A
26	Anti-depressants	N/A	*Any	-183	0	*Evaluation period should search for evidence of days supply;	>=1	N/A
27	Statins	N/A	*Any	-183	0	*Evaluation period should search for evidence of days supply;	>=1	N/A

Appendix BD. Specifications Defining Baseline Characteristic Parameters in this Request

	Baseline Characteristics							
Covar Num	Covariate	Care setting	Principal diagnosis position	Evaluation period start	Evaluation period end	Exclude evidence of days supply if covariate includes dispensings	Number of instances the covariate should be found in evaluation period	Forced supply to attach to dispensings
28	insulin	N/A	*Any	-183	0	*Evaluation period should search for evidence of days supply;	>=1	N/A
29	Anti-Diabetic Oral Drugs	N/A	*Any	-183	0	*Evaluation period should search for evidence of days supply;	>=1	N/A
30	Antihypertensive Drugs	N/A	*Any	-183	0	*Evaluation period should search for evidence of days supply;	>=1	N/A
31	Anticoagulants (oral and injectable)	N/A	*Any	-183	0	*Evaluation period should search for evidence of days supply;	>=1	N/A
32	Corticosteroids (only systemic, only glucocorticoids)	N/A	*Any	-183	0	*Evaluation period should search for evidence of days supply;	>=1	N/A
33	Acetaminophen (all products and all strengths)	N/A	*Any	-183	0	*Evaluation period should search for evidence of days supply;	>=1	N/A
34	TNF Inhibitors	N/A	*Any	-183	0	*Evaluation period should search for evidence of days supply;	>=1	N/A
35	Coronary Artery Disease	*Any care setting	*Any	-183	0	N/A	>=1	N/A

Appendix BD. Specifications Defining Baseline Characteristic Parameters in this Request

		Baseline Characteristics						
Covar Num	Covariate	Care setting	Principal diagnosis position	Evaluation period start	Evaluation period end	Exclude evidence of days supply if covariate includes dispensings	Number of instances the covariate should be found in evaluation period	Forced supply to attach to dispensings
36	Immunosuppressants	N/A	*Any	-183	0	*Evaluation period should search for evidence of days supply;	>=1	N/A
37	Immunodeficiency	*Any care setting	*Any	-183	0	N/A	>=1	N/A
38	Smoking or Nicotine Use	*Any care setting	*Any	-183	0	N/A	>=1	N/A
39	Hyperlipidemia	*Any care setting	*Any	-183	0	N/A	>=1	N/A
40	Inhaled Corticosteroids	N/A	*Any	-183	0	*Evaluation period should search for evidence of days supply;	>=1	N/A
41	Evidence of any COVID-19 vaccine	*Any care setting	*Any	-183	0	N/A	>=1	N/A

N/A: Not Applicable

Appendix BE. Specifications Defining Covariates Used in this Request

Covar Num	Variable	Variable Type	Include in Descriptive "Table 1"?	Include in PS Model?	Pre-specify in HDPS Model?
	Demographic Characteristics				
	Age (years)	Continuous	Yes	Yes	Yes
	Age Group (18-49, 50-64, 65-74, 75+)	Categorical	Yes	Yes	Yes
	Sex	Categorical	Yes	Yes	Yes
	Race	Categorical	Yes	No	No
	Hispanic origin	Categorical	Yes	No	No
	Year-Quarter of Exposure	Categorical	Yes	Yes	Yes
	Social Deprivation Index (SDI)	Categorical	Yes	Yes	Yes
	Calendar Month	Categorical	Yes	No	No
	Health Characteristics [-183, 0]				
	Charlson/Elixhauser combined comorbidity score	Continuous	Yes	Yes	Yes
14	Any Malignant Neoplasm	Categorical	Yes	Yes	Yes
11	Asthma (without COPD)	Categorical	Yes	Yes	Yes
6	Atrial Fibrillation	Categorical	Yes	Yes	Yes
13	Chronic Kidney Disease	Categorical	Yes	Yes	Yes
12	Chronic Liver Disease	Categorical	Yes	Yes	Yes
10	Chronic Obstructive Pulmonary Disease	Categorical	Yes	Yes	Yes
7	Congestive Heart Failure	Categorical	Yes	Yes	Yes
5	Coronary Revascularization	Categorical	Yes	No	No
17	Dementia	Categorical	Yes	Yes	Yes
18	Depression	Categorical	Yes	Yes	Yes
1	Diabetes	Categorical	Yes	Yes	Yes
15	Hemiplegia	Categorical	Yes	No	No
8	Hospitalized Acute Myocardial Infarction	Categorical	Yes	No	No
4	Hospitalized Stroke/Transient Ishchemic Attack	Categorical	Yes	No	No
22	Human Immunodeficiency Virus (HIV)	Categorical	Yes	No	No
3	Hypertension	Categorical	Yes	Yes	Yes
21	Multiple Sclerosis	Categorical	Yes	No	No
16	Neurological/Neurodegenerative Conditions	Categorical	Yes	No	No
2	Obesity	Categorical	Yes	Yes	Yes
9	Other Cerebrovascular Disease	Categorical	Yes	Yes	Yes

Appendix BE. Specifications Defining Covariates Used in this Request

Covar Num	Variable	Variable Type	Include in Descriptive "Table 1"?	Include in PS Model?	Pre-specify in HDPS Model?
20	Rheumatic Disorders	Categorical	Yes	Yes	Yes
19	Schizophrenia	Categorical	Yes	No	No
35	Coronary Artery Disease	Categorical	Yes	Yes	Yes
37	Immunocompromise (Condition)	Categorical	Yes	Yes	Yes
39	Hyperlipidemia	Categorical	Yes	Yes	Yes
	Frailty Index (Kim et al.)	Continuous	Yes	Yes	Yes
	Frailty Index (Kim et al.)	Categorical	Yes	No	No
	Medical Product Use [-183, 0]				
33	Acetaminophen	Categorical	Yes	No	No
23	ACEi/ARB	Categorical	Yes	Yes	Yes
31	Anticoagulants	Categorical	Yes	Yes	Yes
26	Antidepressants	Categorical	Yes	Yes	Yes
29	Antidiabetic Oral Drugs	Categorical	Yes	Yes	Yes
30	Antihypertensive Drugs	Categorical	Yes	Yes	Yes
25	Aspirin	Categorical	Yes	No	No
32	Systemic corticosteroids	Categorical	Yes	Yes	Yes
28	Insulin	Categorical	Yes	Yes	Yes
24	NSAID	Categorical	Yes	Yes	Yes
27	Statins	Categorical	Yes	Yes	Yes
34	Tumor Necrosis Factor (TNF) Inhibitors	Categorical	Yes	No	No
36	Immunocompromising Medications	Categorical	Yes	Yes	Yes
38	Evidence of smoking or nicotine use	Categorical	Yes	No	No
40	Inhaled corticosteroids	Categorical	Yes	Yes	Yes
41	Evidence of any COVID-19 vaccine	Categorical (Y/N)	Yes	Yes	Yes
	Health Service Utilization Intensity Metrics [-183, 0]				
	Mean number of ambulatory encounters	Continuous	Yes	Yes	Yes
	Mean number of emergency room encounters	Continuous	Yes	Yes	Yes
	Mean number of inpatient hospital encounters	Continuous	Yes	No	No
	Mean number of non-acute institutional encounters	Continuous	Yes	Yes	Yes

Appendix BE. Specifications Defining Covariates Used in this Request

Covar Num	Variable	Variable Type	Include in Descriptive "Table 1"?	Include in PS Model?	Pre-specify in HDPS Model?
	Mean number of other ambulatory encounters	Continuous	Yes	Yes	Yes
	Mean number of filled prescriptions	Continuous	Yes	Yes	Yes
	Mean number of generics dispensed	Continuous	Yes	Yes	Yes
	Mean number of unique drug classes dispensed	Continuous	Yes	Yes	Yes

Appendix BF. Specifications Defining Combo Parameters Used in this Request

Combo					
Combination description	**Combo Code**	**Combination date**	**Combination Code Behavior**	**Encounter type for each combination component**	**Principal diagnosis for each combination component**
Severe Outcome (Mechnical Ventilation or ICU Admission) due to COVID-19	SEVOUTCOME1	Date of hospital admission	RX	Positive COVID diagnosis: *N/A because of RX code behavior Mechnical ventilation or ICU admission: *N/A because of RX code behavior	Positive COVID diagnosis: *N/A because of RX code behavior Mechanical ventilation or ICU admission: *N/A because of RX code behavior
Inpatient Hospital Death during a COVID-19 Hospitalization	IP_DTH	Date of hospital discharge	PX	Inpatient hospital stay with discharge disposition = expired: Inpatient hospital setting Positive COVID diagnosis: Inpatient hospital setting	Inpatient hospital stay with discharge disposition = expired: Any diagnosis position Positive COVID diagnosis: Any diagnosis position

Severe COVID Outcome created by the Combo Tool



N/A: Not Applicable

Appendix BG. Specifications Defining Risk Score and Utilization Metric Parameters Used in this Request

Comorbidity Score

Evaluation period start	Evaluation period end
-183	0

Utilization

Medical utilization evaluation period start	Medical utilization evaluation period end	Medical visit care settings	Drug utilization evaluation period start	Drug utilization evaluation period end
-183	0	*Inpatient hospital stay; *Non-acute institutional stay; *Emergency department encounter; *Ambulatory visit; *Other ambulatory visit; *Any care setting	-183	0

Appendix BH. Design Diagram of Cohort Entry Requirements and Outcome Evaluation

