



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).

If you are using a web page screen reader and are unable to access this document, please contact the Sentinel Operations Center for assistance at info@sentinelssystem.org.

Overview for Request cder_mpl1r_wp129 (Report 1 of 2)

Request ID: cder_mpl1r_wp129

Request Description: The goal of this query was to evaluate utilization patterns of obesity drugs in the Sentinel Distributed Database (SDD). This is report one of two. This report presents data from the main analysis and the second report provides data from the sensitivity analysis in which the episode gap was increased.

Sentinel Modular Program Tool Used: Cohort Identification and Descriptive Analysis tool, version 7.0.1

Data Source: Data from January 1, 2008 to December 31, 2017 from 17 Data Partners contributing to the SDD were included in this request. This request was distributed on December 21, 2018. See Appendix A for a list of the dates of available data for each Data Partner.

Study Design: This request examined utilization of nine obesity drugs within the SDD. Sodium-glucose cotransporter-2 (SGLT-2) inhibitors were also included as a comparator. Descriptive analyses examined obesity drug user baseline characteristics, cumulative duration of use across all their episodes, as well as duration of first treatment episode. Analyses also described episode length of all episodes, days supplied per dispensing, and length of gaps between treatment episodes. Results were stratified by several key factors (e.g., exposure episode length categories, etc.). Kaplan-Meier survival analyses were used to evaluate treatment persistence. The episode gap was set to 14 days for this main analysis.

Exposures of Interest: The exposures of interest were nine obesity drugs: lorcaserin, bupropion and naltrexone, liraglutide, phentermine and topiramate, orlistat, phentermine, benzphetamine, diethylpropion, and phendimetrazine. Each of the nine obesity drugs were assessed separately and together in three groupings: 1) all obesity drugs, 2) all long term obesity drugs (lorcaserin, bupropion and naltrexone, liraglutide, phentermine and topiramate, orlistat), 3) all short term obesity drugs (phentermine, benzphetamine, diethylpropion, phendimetrazine). SGLT-2 inhibitors were examined as a comparator drug. All exposures were defined using National Drug Codes (NDCs). Please see Appendix B for generic and brand names.

Cohort Eligibility Criteria: Cohort members were required to be continuously enrolled in plans with medical and drug coverage for at least 183 days prior to their first qualifying dispensing (i.e. index) date, during which gaps in coverage of up to 45 days were allowed. Descriptive analyses focused on new use of obesity drugs (i.e., first exposure episode) according to the following new user definitions:

- 1) In analyses focused on the nine individual obesity drugs defined new use as no previous use of the specific drug of interest in the 183 days preceding the index date (i.e., use of other obesity drugs was permitted).
- 2) In analyses focused on 'all obesity drugs', 'all long-term obesity drugs', or 'all short-term obesity drugs', new use was defined as no previous use of all obesity drugs of interest to the specific analysis in the 183 days preceding the index date (i.e., analyses focused on all long-term obesity drugs required no use of long term obesity drugs in the previous 183 days).
- 3) In analyses focused on SGLT-2 inhibitor use, new use was defined as no use of any SGLT-2 inhibitor in the 183 days preceding the index date.

All qualifying dispensings that occurred between January 1, 2008 and December 31, 2017 were included. If a second dispensing occurred within 14 days from the last day of the first dispensing, then the episode was bridged and the two dispensings were considered part of the same episode.

Baseline Characteristics: The following characteristics were assessed from the index date through the 183 days prior to index: comorbidity score, health service utilization, overweight/obesity, acquired hypothyroidism, acute myocardial infarction, Alzheimer's disease and related disorders, anemia, asthma, atrial fibrillation, benign prostatic hyperplasia, chronic kidney disease, chronic obstructive pulmonary disease and bronchiectasis, depression, diabetes, glaucoma, heart failure, hyperlipidemia, hypertension, ischemic heart disease, osteoporosis, rheumatoid arthritis/osteoarthritis, stroke/transient ischemic attack, breast cancer, colorectal cancer, prostate cancer, lung cancer, endometrial cancer, and body mass index (BMI) category (less than 19, 19-24, 25-29, 30-39, 40-69, and 70+ kg/m²). The following covariates were assessed on the day of the index exposure: lorcaserin, bupropion and naltrexone, liraglutide, phentermine and topiramate, orlistat, orlistat brand name Alli, phentermine, benzphetamine, diethylpropion, phendimetrazine. Please refer to Appendices C and D for specific codes used to define covariates.

Please see the Appendix E for the specifications of parameters to be used in the analyses for 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 Query Fulfillment Team (qf@sentinelssystem.org) for questions and to provide comments/suggestions for future enhancements to this document.

Table of Contents

<u>Glossary</u>	List of Terms Found in this Report and their Definitions
<u>Table 1a</u>	Aggregated Baseline Table for Sodium-Glucose Cotransporter-2 (SGLT-2) Inhibitors and Any Obesity Drug Use in the Sentinel Distributed Database (SDD) from January 1, 2008 to December 31, 2017, Main Analysis
<u>Table 1b</u>	Aggregated Baseline Table for Long-Term Obesity Drug Use in the Sentinel Distributed Database (SDD) from January 1, 2008 to December 31, 2017, Main Analysis
<u>Table 1c</u>	Aggregated Baseline Table for Short-Term Obesity Drug Use in the Sentinel Distributed Database (SDD) from January 1, 2008 to December 31, 2017, Main Analysis
<u>Table 2</u>	Distribution of Patients' Cumulative Exposure Duration by Length Categories across all Episodes, in Days in the Sentinel Distributed Database (SDD) between January 1, 2008 and December 31, 2017, Main Analysis
<u>Table 3</u>	Descriptive Statistics of Patients' Cumulative Exposure Duration across all Episodes, in Days in the Sentinel Distributed Database (SDD) between January 1, 2008 and December 31, 2017, Main Analysis
<u>Table 4</u>	Distribution of First Exposure Episode Duration, by Length Categories in Days in the Sentinel Distributed Database (SDD) between January 1, 2008 and December 31, 2017, Main Analysis
<u>Table 5</u>	Descriptive Statistics of First Exposure Episode Duration in Days in the Sentinel Distributed Database (SDD) between January 1, 2008 and December 31, 2017, Main Analysis
<u>Table 6</u>	Distribution of all Episode Durations, by Length Categories in Days in the Sentinel Distributed Database (SDD) between January 1, 2008 and December 31, 2017, Main Analysis
<u>Table 7</u>	Descriptive Statistics of all Episode Durations in Days in the Sentinel Distributed Database (SDD) between January 1, 2008 and December 31, 2017, Main Analysis
<u>Table 8</u>	Distribution of Days Supplied per Dispensing, by Length Categories in the Sentinel Distributed Database (SDD) between January 1, 2008 and December 31, 2017, Main Analysis
<u>Table 9</u>	Descriptive Statistics of Days Supplied per Dispensing in the Sentinel Distributed Database (SDD) between January 1, 2008 and December 31, 2017, Main Analysis
<u>Table 10</u>	Descriptive Statistics of the Length of the First Gap between Treatment Episodes in Days in the Sentinel Distributed Database (SDD) between January 1, 2008 and December 31, 2017, Main Analysis
<u>Figure 1</u>	Drug Persistence Survival Curve for Length of First Treatment Episode by Long-Term Obesity Therapies between January 1, 2008 and December 31, 2017, Main Analysis
<u>Figure 2</u>	Drug Persistence Survival Curve for Length of First Treatment Episode by Short-Term Obesity Therapies between January 1, 2008 and December 31, 2017, Main Analysis
<u>Appendix A</u>	Dates of Available Data for Each Data Partner (DP) as of Request Distribution Date (December 21, 2018)
<u>Appendix B</u>	List of Generic and Brand Names used to Define Exposures in this Request
<u>Appendix C</u>	List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) and International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) Codes used to Define Covariates in this Request
<u>Appendix D</u>	List of Generic and Brand Names used to Define Covariates in this Request
<u>Appendix E</u>	Specifications Defining Parameters in this Analysis

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

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).

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.

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.

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.

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

Table 1a. Aggregated Baseline Table for Sodium-Glucose Cotransporter-2 (SGLT-2) Inhibitors and Any Obesity Drug Use in the Sentinel Distributed Database (SDD) from January 1, 2008 to December 31, 2017, Main Analysis

Characteristic	SGLT-2 Inhibitors		Any Obesity Drug	
	Number of Patients	%	Number of Patients	%
Number of unique patients	542,814	100%	267,836	100%
Demographics	Mean	Standard Deviation	Mean	Standard Deviation
Mean Age (Years)	60.3	10.3	45.7	12.3
	Number of Patients ²	%	Number of Patients ²	%
Age: 18-44 Years	59,444	11.0%	132,317	49.4%
Age: 45-64 Years	269,375	49.6%	113,325	42.3%
Age: 65+ Years	213,995	39.4%	22,194	8.3%
Gender (Female)	253,823	46.8%	220,273	82.2%
Gender (Male)	288,972	53.2%	****	17.8%
Race (Unknown)	263,005	48.5%	178,290	66.6%
Race (American Indian or Alaska Native)	1,609	0.3%	799	0.3%
Race (Asian)	10,750	2.0%	2,638	1.0%
Race (Black or African American)	34,924	6.4%	14,963	5.6%
Race (Native Hawaiian or Other Pacific Islander)	776	0.1%	1,520	0.6%
Race (White)	231,750	42.7%	69,626	26.0%
Hispanic Origin	15,475	2.9%	10,557	3.9%
Year (2008)	0	0.0%	23,665	8.8%
Year (2009)	0	0.0%	23,778	8.9%
Year (2010)	0	0.0%	18,145	6.8%
Year (2011)	0	0.0%	15,976	6.0%
Year (2012)	0	0.0%	16,503	6.2%
Year (2013)	26,336	4.9%	22,200	8.3%
Year (2014)	111,351	20.5%	29,375	11.0%
Year (2015)	169,955	31.3%	40,200	15.0%
Year (2016)	159,284	29.3%	37,445	14.0%
Year (2017)	75,888	14.0%	40,549	15.1%
Recorded history of:	Mean	Standard Deviation	Mean	Standard Deviation
Prior combined comorbidity score ¹	0.8	1.8	0.2	1.0
	Number of Patients	%	Number of Patients	%
Overweight/obesity	169,165	31.2%	133,237	49.7%
Acquired hypothyroidism	95,479	17.6%	39,296	14.7%
Acute myocardial infarction	3,927	0.7%	161	0.1%
Alzheimer's disease and related disorders	7,519	1.4%	316	0.1%
Anemia	66,736	12.3%	18,010	6.7%
Asthma	37,734	7.0%	19,561	7.3%
Atrial fibrillation	27,500	5.1%	1,744	0.7%
Benign prostatic hyperplasia	35,497	6.5%	3,041	1.1%
Chronic kidney disease	175,852	32.4%	10,060	3.8%
COPD and bronchiectasis	51,662	9.5%	11,570	4.3%
Depression	71,554	13.2%	40,890	15.3%
Diabetes	527,510	97.2%	35,305	13.2%
Glaucoma	44,566	8.2%	5,138	1.9%
Heart failure	31,344	5.8%	2,446	0.9%
Hyperlipidemia	412,886	76.1%	75,260	28.1%
Hypertension	425,447	78.4%	81,488	30.4%
Ischemic heart disease	96,982	17.9%	6,870	2.6%
Osteoporosis	15,963	2.9%	3,543	1.3%

Table 1a. Aggregated Baseline Table for Sodium-Glucose Cotransporter-2 (SGLT-2) Inhibitors and Any Obesity Drug Use in the Sentinel Distributed Database (SDD) from January 1, 2008 to December 31, 2017, Main Analysis

	SGLT-2 Inhibitors		Any Obesity Drug	
Rheumatoid arthritis/osteoarthritis	111,933	20.6%	34,994	13.1%
Stroke/transient ischemic attack	14,905	2.7%	1,289	0.5%
Breast cancer	9,813	1.8%	2,836	1.1%
Colorectal cancer	4,008	0.7%	543	0.2%
Prostate cancer	9,024	1.7%	633	0.2%
Lung cancer	1,533	0.3%	159	0.1%
Endometrial cancer	1,207	0.2%	229	0.1%
Body mass index less than 19 kg/m ²	394	0.1%	63	0.0%
Body mass index between 19-24 kg/m ²	3,773	0.7%	629	0.2%
Body mass index between 25-29 kg/m ²	14,947	2.8%	4,997	1.9%
Body mass index between 30-39 kg/m ²	46,063	8.5%	20,973	7.8%
Body mass index 40-69 kg/m ²	28,840	5.3%	15,588	5.8%
Body mass index 70 kg/m ² and over	457	0.1%	202	0.1%
	Number of		Number of	
History of use:	Patients	%	Patients	%
Lorcaserin	80	0.0%	13,912	5.2%
Phendimetrazine	*****	0.0%	8,100	3.0%
Bupropion and naltrexone	82	0.0%	24,473	9.1%
Liraglutide (Saxenda)	81	0.0%	7,365	2.7%
Phentermine and topiramate	86	0.0%	8,836	3.3%
Orlistat	18	0.0%	7,647	2.9%
Phentermine	358	0.1%	191,094	71.3%
Benzphetamine	0	0.0%	701	0.3%
Diethylpropion	*****	0.0%	6,226	2.3%
	Mean	Standard	Mean	Standard
Health Service Utilization Intensity:		Deviation		Deviation
Mean number of ambulatory encounters	9.3	8.1	6.5	6.7
Mean number of emergency room encounters	0.3	0.8	0.2	0.6
Mean number of inpatient hospital encounters	0.1	0.4	0.0	0.3
Mean number of non-acute institutional encounters	0.0	0.3	0.0	0.3
Mean number of other ambulatory encounters	2.1	3.9	1.9	3.1
Mean number of unique drug classes	8.5	4.5	6.2	4.0
Mean number of generics	10.5	5.1	6.6	4.5
Mean number of filled prescriptions	27.4	20.0	13.1	12.5

¹ The Combined Comorbidity Raw Score is calculated based on comorbidities observed during a requester-defined window around the exposure episode start date (index date).

² Some demographic strata may not sum to the total number of patients for a given cohort due to missing demographic information.

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

Table 1b. Aggregated Baseline Table for Long-Term Obesity Drug Use in the Sentinel Distributed Database (SDD) from January 1, 2008 to December 31, 2017, Main Analysis

Characteristic	Any Long-Term Therapy Obesity Drug		Lorcaserin		Bupropion and Naltrexone		Liraglutide (Saxenda)		Phentermine and Topiramate (Qsymia)		Orlistat	
	Number of Patients	%	Number of Patients	%	Number of Patients	%	Number of Patients	%	Number of Patients	%	Number of Patients	%
Number of unique patients	69,377	100%	17,153	100%	29,106	100%	9,522	100%	11,553	100%	8,252	100%
Demographics	Standard Mean Deviation		Standard Mean Deviation		Standard Mean Deviation		Standard Mean Deviation		Standard Mean Deviation		Standard Mean Deviation	
Mean Age (Years)	48.0	11.4	49.3	11.2	47.4	11.2	46.5	10.7	47.7	11.1	49.2	12.5
	Number of Patients ²	%	Number of Patients ²	%	Number of Patients ²	%	Number of Patients ²	%	Number of Patients ²	%	Number of Patients ²	%
Age: 18-44 Years	27,826	40.1%	6,163	35.9%	12,006	41.2%	4,125	43.3%	4,765	41.2%	3,230	39.1%
Age: 45-64 Years	36,411	52.5%	9,452	55.1%	15,526	53.3%	5,172	54.3%	5,949	51.5%	3,810	46.2%
Age: 65+ Years	5,140	7.4%	1,538	9.0%	1,574	5.4%	225	2.4%	839	7.3%	1,212	14.7%
Gender (Female)	55,498	80.0%	13,641	79.5%	23,851	81.9%	7,532	79.1%	9,188	79.5%	6,381	77.3%
Gender (Male)	*****	*****	*****	*****	*****	*****	1,990	20.9%	2,365	20.5%	1,871	22.7%
Race (Unknown)	55,659	80.2%	14,010	81.7%	25,687	88.3%	8,851	93.0%	9,431	81.6%	3,152	38.2%
Race (American Indian or Alaska Native)	112	0.2%	18	0.1%	19	0.1%	*****	*****	16	0.1%	53	0.6%
Race (Asian)	433	0.6%	60	0.3%	37	0.1%	*****	*****	39	0.3%	310	3.8%
Race (Black or African American)	2,218	3.2%	449	2.6%	414	1.4%	94	1.0%	265	2.3%	1,096	13.3%
Race (Native Hawaiian or Other Pacific Islander)	166	0.2%	17	0.1%	16	0.1%	*****	*****	11	0.1%	122	1.5%
Race (White)	10,789	15.6%	2,599	15.2%	2,933	10.1%	559	5.9%	1,791	15.5%	3,519	42.6%
Hispanic Origin	1,200	1.7%	152	0.9%	179	0.6%	45	0.5%	132	1.1%	744	9.0%
Year (2008)	1,917	2.8%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1,917	23.2%
Year (2009)	1,347	1.9%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1,347	16.3%
Year (2010)	872	1.3%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	872	10.6%
Year (2011)	932	1.3%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	932	11.3%
Year (2012)	796	1.1%	0	0.0%	0	0.0%	0	0.0%	151	1.3%	647	7.8%
Year (2013)	3,741	5.4%	1,223	7.1%	0	0.0%	0	0.0%	1,980	17.1%	614	7.4%
Year (2014)	9,768	14.1%	4,778	27.9%	1,729	5.9%	0	0.0%	2,905	25.1%	693	8.4%
Year (2015)	18,923	27.3%	4,700	27.4%	10,871	37.3%	1,580	16.6%	2,711	23.5%	530	6.4%
Year (2016)	14,136	20.4%	3,170	18.5%	6,933	23.8%	3,620	38.0%	2,033	17.6%	405	4.9%
Year (2017)	16,945	24.4%	3,282	19.1%	9,573	32.9%	4,322	45.4%	1,773	15.3%	295	3.6%

Table 1b. Aggregated Baseline Table for Long-Term Obesity Drug Use in the Sentinel Distributed Database (SDD) from January 1, 2008 to December 31, 2017, Main Analysis

Recorded history of:	Any Long-Term Therapy Obesity Drug				Bupropion and Naltrexone		Liraglutide (Saxenda)		Phentermine and Topiramate (Qsymia)		Orlistat	
	Standard		Standard		Standard		Standard		Standard		Standard	
	Mean	Deviation	Mean	Deviation	Mean	Deviation	Mean	Deviation	Mean	Deviation	Mean	Deviation
Prior combined comorbidity score ¹	0.2	1.1	0.2	1.1	0.2	1.0	0.4	1.1	0.2	1.0	0.5	1.3
	Number of Patients	%	Number of Patients	%	Number of Patients	%	Number of Patients	%	Number of Patients	%	Number of Patients	%
Overweight/obesity	43,801	63.1%	10,800	63.0%	18,682	64.2%	6,993	73.4%	7,388	63.9%	4,583	55.5%
Acquired hypothyroidism	13,186	19.0%	3,346	19.5%	5,464	18.8%	2,117	22.2%	2,541	22.0%	1,160	14.1%
Acute myocardial infarction	83	0.1%	18	0.1%	29	0.1%	18	0.2%	*****	*****	14	0.2%
Alzheimer's disease and related disorders	107	0.2%	23	0.1%	20	0.1%	11	0.1%	*****	*****	51	0.6%
Anemia	5,683	8.2%	1,444	8.4%	2,148	7.4%	879	9.2%	910	7.9%	820	9.9%
Asthma	5,628	8.1%	1,415	8.2%	2,059	7.1%	850	8.9%	827	7.2%	963	11.7%
Atrial fibrillation	868	1.3%	236	1.4%	265	0.9%	132	1.4%	85	0.7%	193	2.3%
Benign prostatic hyperplasia	975	1.4%	266	1.6%	315	1.1%	125	1.3%	175	1.5%	170	2.1%
Chronic kidney disease	3,804	5.5%	917	5.3%	1,436	4.9%	804	8.4%	512	4.4%	512	6.2%
COPD and bronchiectasis	3,125	4.5%	775	4.5%	1,165	4.0%	399	4.2%	401	3.5%	635	7.7%
Depression	12,204	17.6%	2,736	16.0%	5,097	17.5%	1,981	20.8%	1,811	15.7%	1,738	21.1%
Diabetes	12,498	18.0%	3,277	19.1%	4,313	14.8%	1,987	20.9%	2,054	17.8%	1,925	23.3%
Glaucoma	1,852	2.7%	515	3.0%	682	2.3%	246	2.6%	255	2.2%	318	3.9%
Heart failure	941	1.4%	212	1.2%	253	0.9%	125	1.3%	99	0.9%	303	3.7%
Hyperlipidemia	25,146	36.2%	6,754	39.4%	9,809	33.7%	3,492	36.7%	4,260	36.9%	3,131	37.9%
Hypertension	28,821	41.5%	7,893	46.0%	11,444	39.3%	4,044	42.5%	4,464	38.6%	3,643	44.1%
Ischemic heart disease	2,655	3.8%	720	4.2%	855	2.9%	314	3.3%	351	3.0%	617	7.5%
Osteoporosis	989	1.4%	282	1.6%	326	1.1%	96	1.0%	166	1.4%	194	2.4%
Rheumatoid arthritis/osteoarthritis	10,724	15.5%	2,895	16.9%	4,005	13.8%	1,532	16.1%	1,678	14.5%	1,549	18.8%
Stroke/transient ischemic attack	449	0.6%	111	0.6%	149	0.5%	54	0.6%	55	0.5%	110	1.3%
Breast cancer	855	1.2%	206	1.2%	338	1.2%	101	1.1%	176	1.5%	108	1.3%
Colorectal cancer	157	0.2%	37	0.2%	65	0.2%	14	0.1%	26	0.2%	27	0.3%
Prostate cancer	206	0.3%	63	0.4%	67	0.2%	17	0.2%	30	0.3%	40	0.5%
Lung cancer	49	0.1%	18	0.1%	16	0.1%	*****	*****	*****	*****	*****	*****
Endometrial cancer	83	0.1%	21	0.1%	35	0.1%	13	0.1%	13	0.1%	*****	*****
Body mass index less than 19 kg/m ²	22	0.0%	*****	*****	13	0.0%	*****	*****	*****	*****	*****	*****
Body mass index between 19-24 kg/m ²	125	0.2%	29	0.2%	65	0.2%	*****	*****	21	0.2%	*****	*****
Body mass index between 25-29 kg/m ²	1,582	2.3%	397	2.3%	866	3.0%	215	2.3%	250	2.2%	62	0.8%
Body mass index between 30-39 kg/m ²	8,391	12.1%	1,946	11.3%	4,270	14.7%	1,650	17.3%	1,308	11.3%	343	4.2%

Table 1b. Aggregated Baseline Table for Long-Term Obesity Drug Use in the Sentinel Distributed Database (SDD) from January 1, 2008 to December 31, 2017, Main Analysis

	Any Long-Term Therapy Obesity Drug		Lorcaserin		Bupropion and Naltrexone		Liraglutide (Saxenda)		Phentermine and Topiramate (Qsymia)		Orlistat	
	Number of Patients	%	Number of Patients	%	Number of Patients	%	Number of Patients	%	Number of Patients	%	Number of Patients	%
Body mass index 40-69 kg/m ²	6,497	9.4%	1,423	8.3%	3,047	10.5%	1,428	15.0%	884	7.7%	414	5.0%
Body mass index 70 kg/m ² and over	78	0.1%	*****	*****	22	0.1%	24	0.3%	*****	*****	*****	*****
History of use:												
Lorcaserin	15,781	22.7%	17,153	100.0%	135	0.5%	77	0.8%	78	0.7%	*****	*****
Phendimetrazine	62	0.1%	11	0.1%	22	0.1%	*****	*****	*****	*****	16	0.2%
Bupropion and naltrexone	26,956	38.9%	103	0.6%	29,106	100.0%	147	1.5%	86	0.7%	*****	*****
Liraglutide (Saxenda)	7,945	11.5%	56	0.3%	101	0.3%	9,522	100.0%	21	0.2%	*****	*****
Phentermine and topiramate	10,531	15.2%	74	0.4%	100	0.3%	60	0.6%	11,553	100.0%	*****	*****
Orlistat	8,182	11.8%	17	0.1%	*****	*****	*****	*****	*****	*****	8,252	100.0%
Phentermine	1,389	2.0%	405	2.4%	485	1.7%	190	2.0%	274	2.4%	213	2.6%
Benzphetamine	*****	*****	0	0.0%	*****	*****	*****	*****	*****	*****	*****	*****
Diethylpropion	60	0.1%	12	0.1%	22	0.1%	*****	*****	*****	*****	21	0.3%
Health Service Utilization Intensity:	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Mean number of ambulatory encounters	8.0	7.8	8.2	7.9	7.4	7.3	9.2	8.9	8.1	7.7	8.6	8.3
Mean number of emergency room encounters	0.2	0.6	0.2	0.5	0.1	0.5	0.2	0.5	0.1	0.5	0.3	1.0
Mean number of inpatient hospital encounters	0.0	0.2	0.0	0.3	0.0	0.2	0.0	0.2	0.0	0.2	0.1	0.4
Mean number of non-acute institutional encounters	0.0	0.2	0.0	0.2	0.0	0.3	0.0	0.1	0.0	0.2	0.0	0.2
Mean number of other ambulatory encounters	1.6	2.8	1.5	2.8	1.4	2.2	1.6	2.5	1.5	2.4	2.7	4.6
Mean number of unique drug classes	7.1	4.3	7.3	4.3	6.8	4.1	7.7	4.4	6.8	4.1	8.5	4.9
Mean number of generics	7.6	4.8	7.7	4.8	7.1	4.5	8.1	4.9	7.2	4.6	9.2	5.7
Mean number of filled prescriptions	16.3	14.3	16.7	14.0	15.1	12.6	17.7	14.7	15.2	13.0	21.1	19.4

¹ The Combined Comorbidity Raw Score is calculated based on comorbidities observed during a requester-defined window around the exposure episode start date (index date).

² Some demographic strata may not sum to the total number of patients for a given cohort due to missing demographic information.

***** Data are not presented in these cells due

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

Table 1c. Aggregated Baseline Table for Short-Term Obesity Drug Use in the Sentinel Distributed Database (SDD) from January 1, 2008 to December 31, 2017, Main Analysis

Characteristic	Any Short-Term Therapy Obesity									
	Drug		Phentermine		Benzphetamine		Diethylpropion		Phendimetrazine	
	Number of Patients	%								
Number of unique patients	209,852	100%	198,203	100%	1,116	100%	8,571	100%	11,700	100%
Demographics	Mean	Standard Deviation								
	45.0	12.4	44.8	12.3	49.3	12.6	49.4	12.9	47.0	12.5
	Number of Patients ²	%								
Age: 18-44 Years	109,609	52.2%	104,938	52.9%	436	39.1%	3,440	40.1%	5,392	46.1%
Age: 45-64 Years	82,551	39.3%	77,418	39.1%	506	45.3%	3,734	43.6%	5,047	43.1%
Age: 65+ Years	17,692	8.4%	15,847	8.0%	174	15.6%	1,397	16.3%	1,261	10.8%
Gender (Female)	174,499	83.2%	164,961	83.2%	912	81.7%	7,112	83.0%	9,833	84.0%
Gender (Male)	*****	*****	*****	*****	204	18.3%	1,459	17.0%	1,867	16.0%
Race (Unknown)	131,471	62.6%	123,420	62.3%	752	67.4%	5,773	67.4%	8,889	76.0%
Race (American Indian or Alaska Native)	707	0.3%	686	0.3%	*****	*****	20	0.2%	14	0.1%
Race (Asian)	2,293	1.1%	2,213	1.1%	0	0.0%	88	1.0%	39	0.3%
Race (Black or African American)	13,186	6.3%	12,840	6.5%	*****	*****	254	3.0%	317	2.7%
Race (Native Hawaiian or Other Pacific Islander)	1,389	0.7%	1,308	0.7%	*****	*****	121	1.4%	20	0.2%
Race (White)	60,806	29.0%	57,736	29.1%	329	29.5%	2,315	27.0%	2,421	20.7%
Hispanic Origin	9,641	4.6%	9,456	4.8%	*****	*****	141	1.6%	192	1.6%
Year (2008)	22,027	10.5%	20,381	10.3%	118	10.6%	971	11.3%	1,488	12.7%
Year (2009)	22,640	10.8%	20,993	10.6%	181	16.2%	1,136	13.3%	1,547	13.2%
Year (2010)	17,411	8.3%	16,058	8.1%	120	10.8%	1,030	12.0%	1,313	11.2%
Year (2011)	15,150	7.2%	14,034	7.1%	99	8.9%	728	8.5%	1,182	10.1%
Year (2012)	15,846	7.6%	14,938	7.5%	63	5.6%	699	8.2%	974	8.3%
Year (2013)	19,130	9.1%	18,002	9.1%	135	12.1%	832	9.7%	1,019	8.7%
Year (2014)	21,056	10.0%	20,101	10.1%	131	11.7%	729	8.5%	966	8.3%
Year (2015)	23,996	11.4%	23,041	11.6%	102	9.1%	757	8.8%	1,056	9.0%
Year (2016)	25,991	12.4%	24,950	12.6%	94	8.4%	874	10.2%	1,146	9.8%
Year (2017)	26,605	12.7%	25,705	13.0%	73	6.5%	815	9.5%	1,009	8.6%

Table 1c. Aggregated Baseline Table for Short-Term Obesity Drug Use in the Sentinel Distributed Database (SDD) from January 1, 2008 to December 31, 2017, Main Analysis

Recorded history of:	Any Short-Term Therapy Obesity									
	Drug		Phentermine		Benzphetamine		Diethylpropion		Phendimetrazine	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Prior combined comorbidity score ¹	0.2	0.9	0.2	0.9	0.1	0.9	0.2	1.0	0.2	1.0
	Number of Patients	%	Number of Patients	%	Number of Patients	%	Number of Patients	%	Number of Patients	%
Overweight/obesity	96,690	46.1%	93,578	47.2%	277	24.8%	2,672	31.2%	3,431	29.3%
Acquired hypothyroidism	28,316	13.5%	26,536	13.4%	166	14.9%	1,366	15.9%	1,760	15.0%
Acute myocardial infarction	88	0.0%	85	0.0%	0	0.0%	*****	*****	*****	*****
Alzheimer's disease and related disorders	219	0.1%	200	0.1%	0	0.0%	12	0.1%	11	0.1%
Anemia	13,275	6.3%	12,432	6.3%	75	6.7%	600	7.0%	876	7.5%
Asthma	14,737	7.0%	14,042	7.1%	53	4.7%	536	6.3%	657	5.6%
Atrial fibrillation	928	0.4%	829	0.4%	*****	*****	69	0.8%	61	0.5%
Benign prostatic hyperplasia	2,166	1.0%	1,981	1.0%	18	1.6%	124	1.4%	159	1.4%
Chronic kidney disease	6,759	3.2%	6,320	3.2%	36	3.2%	315	3.7%	384	3.3%
COPD and bronchiectasis	8,882	4.2%	8,314	4.2%	55	4.9%	407	4.7%	499	4.3%
Depression	30,675	14.6%	29,200	14.7%	151	13.5%	1,156	13.5%	1,516	13.0%
Diabetes	24,324	11.6%	22,807	11.5%	121	10.8%	1,118	13.0%	1,303	11.1%
Glaucoma	3,499	1.7%	3,229	1.6%	26	2.3%	208	2.4%	225	1.9%
Heart failure	1,573	0.7%	1,429	0.7%	12	1.1%	91	1.1%	105	0.9%
Hyperlipidemia	53,645	25.6%	50,020	25.2%	283	25.4%	2,690	31.4%	3,360	28.7%
Hypertension	56,558	27.0%	52,905	26.7%	381	34.1%	2,717	31.7%	3,347	28.6%
Ischemic heart disease	4,480	2.1%	4,031	2.0%	35	3.1%	285	3.3%	362	3.1%
Osteoporosis	2,702	1.3%	2,413	1.2%	28	2.5%	224	2.6%	235	2.0%
Rheumatoid arthritis/osteoarthritis	25,942	12.4%	24,290	12.3%	193	17.3%	1,246	14.5%	1,486	12.7%
Stroke/transient ischemic attack	879	0.4%	799	0.4%	*****	*****	45	0.5%	53	0.5%
Breast cancer	2,121	1.0%	1,964	1.0%	*****	*****	114	1.3%	135	1.2%
Colorectal cancer	406	0.2%	382	0.2%	*****	*****	25	0.3%	17	0.1%
Prostate cancer	443	0.2%	408	0.2%	*****	*****	31	0.4%	27	0.2%
Lung cancer	118	0.1%	107	0.1%	0	0.0%	*****	*****	*****	*****
Endometrial cancer	158	0.1%	151	0.1%	*****	*****	*****	*****	*****	*****
Body mass index less than 19 kg/m ²	44	0.0%	37	0.0%	*****	*****	*****	*****	*****	*****
Body mass index between 19-24 kg/m ²	536	0.3%	491	0.2%	*****	*****	31	0.4%	47	0.4%
Body mass index between 25-29 kg/m ²	3,842	1.8%	3,630	1.8%	27	2.4%	177	2.1%	277	2.4%
Body mass index between 30-39 kg/m ²	14,209	6.8%	13,702	6.9%	44	3.9%	456	5.3%	643	5.5%

Table 1c. Aggregated Baseline Table for Short-Term Obesity Drug Use in the Sentinel Distributed Database (SDD) from January 1, 2008 to December 31, 2017, Main Analysis

	Any Short-Term Therapy Obesity Drug		Phentermine		Benzphetamine		Diethylpropion		Phendimetrazine	
	Number of Patients	%	Number of Patients	%	Number of Patients	%	Number of Patients	%	Number of Patients	%
Body mass index 40-69 kg/m ²	10,030	4.8%	9,703	4.9%	24	2.2%	247	2.9%	318	2.7%
Body mass index 70 kg/m ² and over	145	0.1%	139	0.1%	*****	*****	*****	*****	*****	*****
History of use:										
Lorcaserin	245	0.1%	241	0.1%	*****	*****	11	0.1%	*****	*****
Phendimetrazine	8,202	3.9%	540	0.3%	*****	*****	76	0.9%	11,700	100.0%
Bupropion and naltrexone	259	0.1%	251	0.1%	*****	*****	*****	*****	*****	*****
Liraglutide (Saxenda)	113	0.1%	107	0.1%	*****	*****	*****	*****	*****	*****
Phentermine and topiramate	217	0.1%	215	0.1%	*****	*****	*****	*****	*****	*****
Orlistat	190	0.1%	170	0.1%	*****	*****	23	0.3%	12	0.1%
Phentermine	194,925	92.9%	198,203	100.0%	98	8.8%	751	8.8%	1,204	10.3%
Benzphetamine	714	0.3%	28	0.0%	1,116	100.0%	*****	*****	*****	*****
Diethylpropion	6,371	3.0%	492	0.2%	*****	*****	8,571	100.0%	143	1.2%
Health Service Utilization Intensity:										
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Mean number of ambulatory encounters	6.1	6.3	6.1	6.3	6.6	6.9	6.8	6.9	6.3	6.5
Mean number of emergency room encounters	0.2	0.6	0.2	0.6	0.2	0.6	0.1	0.4	0.1	0.5
Mean number of inpatient hospital encounters	0.0	0.3	0.0	0.3	0.1	0.3	0.0	0.2	0.0	0.2
Mean number of non-acute institutional encount	0.0	0.3	0.0	0.3	0.0	0.4	0.0	0.3	0.0	0.2
Mean number of other ambulatory encounters	2.0	3.2	2.0	3.2	1.2	3.0	1.6	2.5	1.4	2.2
Mean number of unique drug classes	6.0	3.9	6.0	3.9	7.2	4.5	6.5	4.1	6.1	4.0
Mean number of generics	6.4	4.4	6.4	4.4	8.0	5.1	7.1	4.6	6.7	4.5
Mean number of filled prescriptions	12.3	11.8	12.3	11.8	17.4	14.9	14.7	12.9	13.7	12.7

¹ The Combined Comorbidity Raw Score is calculated based on comorbidities observed during a requester-defined window around the exposure episode start date (index date).

² Some demographic strata may not sum to the total number of patients for a given cohort due to missing demographic information.

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

Table 2. Distribution of Patients' Cumulative Exposure Duration by Length Categories¹ across all Episodes, in Days in the Sentinel Distributed Database (SDD) between January 1, 2008 and December 31, 2017, Main Analysis

Exposures	Total Patients		1-30 Days		31-60 Days		61-90 Days		91-120 Days		121-150 Days		151-183 Days		184-365 Days		366-547 Days		548-730 Days		730+ Days	
	Number of Patients	%	Number of Patients	%	Number of Patients	%	Number of Patients	%	Number of Patients	%	Number of Patients	%	Number of Patients	%	Number of Patients	%	Number of Patients	%	Number of Patients	%	Number of Patients	%
SGLT-2 Inhibitors	542,814	100	79,559	14.7	38,736	7.1	51,187	9.4	32,910	6.1	27,767	5.1	32,475	6	113,171	20.8	67,206	12.4	44,579	8.2	55,224	10.2
All Obesity Drugs	267,836	100	83,994	31.4	37,772	14.1	32,706	12.2	25,631	9.6	16,873	6.3	14,414	5.4	35,758	13.4	11,566	4.3	4,585	1.7	4,537	1.7
Long-Term Therapies																						
All Long-Term Obesity Drugs	69,377	100	27,064	39	9,639	13.9	7,881	11.4	5,669	8.2	3,804	5.5	3,157	4.6	7,821	11.3	2,543	3.7	1,018	1.5	781	1.1
Lorcaserin	17,153	100	7,442	43.4	2,279	13.3	2,335	13.6	1,506	8.8	800	4.7	719	4.2	1,429	8.3	408	2.4	136	0.8	99	0.6
Bupropion and Naltrexone	29,106	100	14,099	48.4	4,107	14.1	3,129	10.8	2,157	7.4	1,402	4.8	987	3.4	2,249	7.7	611	2.1	251	0.9	114	0.4
Liraglutide (Saxenda)	9,522	100	2,347	24.6	1,302	13.7	1,212	12.7	899	9.4	745	7.8	598	6.3	1,644	17.3	542	5.7	185	1.9	48	0.5
Phentermine and Topiramate (Qsymia)	11,553	100	3,398	29.4	1,733	15	1,307	11.3	1,043	9	727	6.3	669	5.8	1,654	14.3	578	5	227	2	217	1.9
Orlistat	8,252	100	3,730	45.2	1,120	13.6	845	10.2	503	6.1	302	3.7	331	4	754	9.1	313	3.8	136	1.6	218	2.6
Short-Term Therapies																						
All Short-Term Obesity Drugs	209,852	100	63,430	30.2	30,008	14.3	26,396	12.6	21,025	10	13,493	6.4	11,536	5.5	28,100	13.4	8,842	4.2	3,458	1.6	3,564	1.7
Phentermine	198,203	100	59,858	30.2	28,242	14.2	25,152	12.7	20,133	10.2	12,800	6.5	10,951	5.5	26,422	13.3	8,249	4.2	3,214	1.6	3,182	1.6
Benzphetamine	1,116	100	590	52.9	168	15.1	118	10.6	70	6.3	42	3.8	22	2	61	5.5	22	2	*****	*****	*****	*****
Diethylpropion	8,571	100	3,755	43.8	1,337	15.6	982	11.5	655	7.6	392	4.6	325	3.8	743	8.7	182	2.1	83	1	117	1.4
Phendimetrazine	11,700	100	5,395	46.1	1,823	15.6	1,254	10.7	787	6.7	525	4.5	419	3.6	947	8.1	296	2.5	112	1	142	1.2

¹Distribution of patients' cumulative exposure duration represents each patient's total episode length across all episodes

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

Table 3. Descriptive Statistics of Patients' Cumulative Exposure Duration¹ across all Episodes, in Days in the Sentinel Distributed Database (SDD) between January 1, 2008 and December 31, 2017, Main Analysis

Exposures	Total Patients	Standard		Min	Q1	Median	Q3	Max
		Mean	Deviation					
SGLT-2 Inhibitors	542,814	299.5	291.78	1	76	193	441	1,715
All Obesity Drugs	267,836	135.1	177.4	1	30	72	158	3,594
Long-Term Therapies								
All Long-Term Obesity Drugs	69,377	115.8	152.96	1	30	60	132	3,363
Lorcaserin	17,153	93.74	118.35	1	30	60	102	1,501
Bupropion and Naltrexone	29,106	86.91	109.67	1	30	40	96	1,109
Liraglutide (Saxenda)	9,522	141.2	141.87	1	32	90	186	970
Phentermine and Topiramate (Qsymia)	11,553	139.9	173.16	1	30	74	172	1,589
Orlistat	8,252	126.9	214.45	1	30	59	120	3,363
Short-Term Therapies								
All Short-Term Obesity Drugs	209,852	135.4	177.86	1	30	76	158	3,594
Phentermine	198,203	134.2	173.98	1	30	76	157	3,594
Benzphetamine	1,116	86.6	151.1	2	30	30	90	2,123
Diethylpropion	8,571	103.3	170.67	1	30	60	103	3,006
Phendimetrazine	11,700	97.92	158.25	1	30	44	100	2,976

¹Descriptive statistics of patients' cumulative exposure duration represents each patient's total episode length across all episodes

Table 4. Distribution of First Exposure Episode Duration, by Length Categories in Days in the Sentinel Distributed Database (SDD) between January 1, 2008 and December 31, 2017, Main Analysis

Exposures	Total Patients		1-30 Days		31-60 Days		61-90 Days		91-120 Days		121-150 Days		151-183 Days		184-365 Days		366-547 Days		548-730 Days		730+ Days	
	Number of Patients	%	Number of Patients	%	Number of Patients	%	Number of Patients	%	Number of Patients	%	Number of Patients	%	Number of Patients	%	Number of Patients	%	Number of Patients	%	Number of Patients	%	Number of Patients	%
SGLT-2 Inhibitors	542,814	100	158,490	29	37,331	6.9	77,486	14.3	35,570	6.6	27,423	5.1	31,203	5.7	86,685	16	40,555	7.5	23,122	4	24,949	4.6
All Obesity Drugs	267,836	100	144,563	54	26,939	10.1	38,551	14.4	22,596	8.4	11,123	4.2	7,610	2.8	12,943	4.8	2,360	0.9	663	0	488	0.2
Long-Term Therapies																						
All Long-Term Obesity Drugs	69,377	100	39,602	57	6,613	9.5	8,543	12.3	4,902	7.1	2,737	3.9	1,993	2.9	3,686	5.3	858	1.2	263	0	180	0.3
Lorcaserin	17,153	100	10,057	59	1,326	7.7	2,525	14.7	1,382	8.1	564	3.3	440	2.6	684	4	124	0.7	33	0	18	0.1
Bupropion and Naltrexone	29,106	100	18,383	63	2,679	9.2	3,149	10.8	1,767	6.1	1,014	3.5	655	2.3	1,151	4	207	0.7	71	0	30	0.1
Liraglutide (Saxenda)	9,522	100	4,596	48	811	8.5	1,280	13.4	743	7.8	609	6.4	378	4	798	8.4	224	2.4	64	1	19	0.2
Phentermine and Topiramate (Qsymia)	11,553	100	4,930	43	1,580	13.7	1,457	12.6	1,065	9.2	620	5.4	489	4.2	1,030	8.9	240	2.1	85	1	57	0.5
Orlistat	8,252	100	5,263	64	837	10.1	964	11.7	377	4.6	168	2	179	2.2	291	3.5	96	1.2	23	0	54	0.7
Short-Term Therapies																						
All Short-Term Obesity Drugs	209,852	100	111,975	53	21,450	10.2	31,516	15	18,521	8.8	8,716	4.2	5,834	2.8	9,571	4.6	1,546	0.7	415	0	308	0.1
Phentermine	198,203	100	105,194	53	20,097	10.1	30,098	15.2	17,840	9	8,272	4.2	5,576	2.8	9,019	4.6	1,447	0.7	381	0	279	0.1
Benzphetamine	1,116	100	808	72	92	8.2	118	10.6	42	3.8	16	1.4	*****	****:	23	2.1	*****	*****	0	0	*****	*****
Diethylpropion	8,571	100	5,464	64	874	10.2	1,023	11.9	487	5.7	241	2.8	158	1.8	250	2.9	37	0.4	19	0	18	0.2
Phendimetrazine	11,700	100	7,845	67	1,220	10.4	1,180	10.1	603	5.2	325	2.8	179	1.5	275	2.4	49	0.4	*****	****:	*****	*****

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

Table 5. Descriptive Statistics of First Exposure Episode Duration in Days in the Sentinel Distributed Database (SDD) between January 1, 2008 and December 31, 2017, Main Analysis

Exposures	Total Patients	Standard						
		Mean	Deviation	Min	Q1	Median	Q3	Max
SGLT-2 Inhibitors	542,814	192.6	233.24	1	30	90	250	1,715
All Obesity Drugs	267,836	69.1	82.92	1	30	30	90	3,594
Long-Term Therapies								
All Long-Term Obesity Drugs	69,377	70.62	91.24	1	30	30	81	2,356
Lorcaserin	17,153	62.85	72.09	1	30	30	72	1,237
Bupropion and Naltrexone	29,106	60.59	72.25	1	30	30	65	1,099
Liraglutide (Saxenda)	9,522	89.12	104.34	1	30	42	106	970
Phentermine and Topiramate (Qsymia)	11,553	91.35	113.89	1	30	46	106	1,484
Orlistat	8,252	65.29	107.4	1	30	30	63	2,356
Short-Term Therapies								
All Short-Term Obesity Drugs	209,852	67.87	78.81	1	30	30	90	3,594
Phentermine	198,203	68.08	77.98	1	30	30	90	3,594
Benzphetamine	1,116	47.25	56.45	2	30	30	43	1,017
Diethylpropion	8,571	56.92	76.53	1	30	30	62	1,928
Phendimetrazine	11,700	49.95	64.36	1	30	30	60	1,440

Table 6. Distribution of all Episode Durations, by Length Categories¹ in Days in the Sentinel Distributed Database (SDD) between January 1, 2008 and December 31, 2017, Main Analysis

Exposures	Total Episodes		1-30 Days		31-60 Days		61-90 Days		91-120 Days		121-150 Days		151-183 Days		184-365 Days		366-547 Days		548-730 Days		730+ Days	
	Number of Patients		Number of Patients		Number of Patients		Number of Patients		Number of Patients		Number of Patients		Number of Patients		Number of Patients		Number of Patients		Number of Patients		Number of Patients	
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
SGLT-2 Inhibitors	1,005,827	100	331,678	33	72,493	7.2	159,484	15.9	67,771	6.7	50,017	5	55,779	5.5	146,365	14.6	60,448	6	31,338	3.1	30,454	3
All Obesity Drugs	578,679	100	342,819	59.2	54,579	9.4	78,929	13.6	41,314	7.1	19,681	3.4	13,175	2.3	22,263	3.8	3,954	0.7	1,152	0.2	813	0.1
Long-Term Therapies																						
All Long-Term Obesity Drugs	120,013	100	70,924	59.1	10,837	9	15,361	12.8	7,860	6.5	4,277	3.6	3,116	2.6	5,731	4.8	1,289	1.1	377	0.3	241	0.2
Lorcaserin	26,591	100	16,316	61.4	1,853	7	3,857	14.5	1,896	7.1	811	3	636	2.4	983	3.7	172	0.6	44	0.2	23	0.1
Bupropion and Naltrexone	43,053	100	27,807	64.6	3,673	8.5	4,873	11.3	2,437	5.7	1,369	3.2	878	2	1,600	3.7	291	0.7	87	0.2	38	0.1
Liraglutide (Saxenda)	16,885	100	8,781	52	1,452	8.6	2,388	14.1	1,196	7.1	894	5.3	602	3.6	1,157	6.9	306	1.8	85	0.5	24	0.1
Phentermine and Topiramate (Qsymia)	19,725	100	9,663	49	2,248	11.4	2,542	12.9	1,663	8.4	943	4.8	712	3.6	1,430	7.2	347	1.8	107	0.5	70	0.4
Orlistat	16,682	100	10,450	62.6	1,849	11.1	2,082	12.5	788	4.7	338	2	333	2	558	3.3	163	1	45	0.3	76	0.5
Short-Term Therapies																						
All Short-Term Obesity Drugs	466,573	100	277,812	59.5	44,298	9.5	64,572	13.8	33,881	7.3	15,500	3.3	10,072	2.2	16,489	3.5	2,627	0.6	764	0.2	558	0.1
Phentermine	435,051	100	257,972	59.3	40,940	9.4	60,994	14	32,172	7.4	14,543	3.3	9,454	2.2	15,383	3.5	2,413	0.6	687	0.2	493	0.1
Benzphetamine	1,927	100	1,373	71.3	166	8.6	194	10.1	74	3.8	30	1.6	21	1.1	54	2.8	*****	*****	*****	*****	*****	*****
Diethylpropion	15,617	100	10,140	64.9	1,497	9.6	1,846	11.8	847	5.4	411	2.6	297	1.9	431	2.8	82	0.5	34	0.2	32	0.2
Phendimetrazine	23,772	100	16,445	69.2	2,355	9.9	2,294	9.7	1,091	4.6	590	2.5	333	1.4	518	2.2	93	0.4	23	0.1	30	0.1

¹Distribution of all episode durations represents each episode's total episode length across all patients

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

Table 7. Descriptive Statistics of all Episode Durations¹ in Days in the Sentinel Distributed Database (SDD) between January 1, 2008 and December 31, 2017, Main Analysis

Exposures	Total Episodes	Standard		Min	Q1	Median	Q3	Max
		Mean	Deviation					
SGLT-2 Inhibitors	1,005,827	161.62	203.32	1	30	90	194	1,715
All Obesity Drugs	578,679	62.51	75.19	1	30	30	69	3,594
Long-Term Therapies								
All Long-Term Obesity Drugs	120,013	66.93	85.66	1	30	30	72	2,479
Lorcaserin	26,591	60.47	68.88	1	30	30	69	1,237
Bupropion and Naltrexone	43,053	58.75	69.33	1	30	30	64	1,099
Liraglutide (Saxenda)	16,885	79.61	94.47	1	30	30	92	970
Phentermine and Topiramate (Qsvmia)	19,725	81.96	103.25	1	30	42	95	1,538
Orlistat	16,682	62.77	99.77	1	30	30	64	2,479
Short-Term Therapies								
All Short-Term Obesity Drugs	466,573	60.92	71.28	1	30	30	68	3,594
Phentermine	435,051	61.13	70.36	1	30	30	68	3,594
Benzphetamine	1,927	50.16	63.69	2	30	30	53	1,017
Diethylpropion	15,617	56.68	79.68	1	30	30	61	2,772
Phendimetrazine	23,772	48.19	64.45	1	30	30	56	1,558

¹Descriptive statistics of all episode durations represents each episode's total episode length across all patients

Table 8. Distribution of Days Supplied per Dispensing, by Length Categories in the Sentinel Distributed Database (SDD) between January 1, 2008 and December 31, 2017, Main Analysis

Exposures	Total Dispensing		1-15 Days Supplied		16-30 Days Supplied		31-45 Days Supplied		46-60 Days Supplied		61-75 Days Supplied		75-90 Days Supplied		91+ Days Supplied	
	Number of Patients	%	Number of Patients	%	Number of Patients	%	Number of Patients	%	Number of Patients	%	Number of Patients	%	Number of Patients	%	Number of Patients	%
	SGLT-2 Inhibitors	4,281,618	100	178,632	4.2	3,486,411	81	25,578	0.6	34,215	0.8	15,647	0.4	538,488	12.6	2,647
All Obesity Drugs	1,117,764	100	72,394	6.5	965,354	86	18,139	1.6	27,909	2.5	1,300	0.1	27,690	2.5	4,978	0.4
Long-Term Therapies																
All Long-Term Obesity Drugs	246,007	100	15,341	6.2	213,863	87	4,529	1.8	2,051	0.8	445	0.2	9,033	3.7	745	0.3
Lorcaserin	50,024	100	4,228	8.5	43,668	87	152	0.3	181	0.4	26	0.1	1,736	3.5	33	0.1
Bupropion and Naltrexone	78,614	100	3,241	4.1	71,036	90	1,204	1.5	704	0.9	171	0.2	2,173	2.8	85	0.1
Liraglutide (Saxenda)	39,015	100	1,657	4.2	33,915	87	521	1.3	392	1	118	0.3	2,356	6	56	0.1
Phentermine and Topiramate (Qsvmia)	53,005	100	4,766	9	46,714	88	1,097	2.1	158	0.3	15	0	229	0.4	26	0
Orlistat	27,637	100	1,604	5.8	20,515	74	1,588	5.7	632	2.3	118	0.4	2,635	9.5	545	2
Short-Term Therapies																
All Short-Term Obesity Drugs	877,532	100	57,412	6.5	756,507	86	13,726	1.6	25,944	3	861	0.1	18,824	2.1	4,258	0.5
Phentermine	805,940	100	38,682	4.8	706,939	88	12,732	1.6	24,551	3	811	0.1	18,075	2.2	4,150	0.5
Benzphetamine	3,271	100	418	13	2,743	84	53	1.6	*****	*****	*****	*****	36	1.1	*****	*****
Diethylpropion	28,091	100	2,396	8.5	23,903	85	366	1.3	891	3.2	19	0.1	443	1.6	73	0.3
Phendimetrazine	46,567	100	16,695	36	28,215	61	659	1.4	579	1.2	29	0.1	351	0.8	39	0.1

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

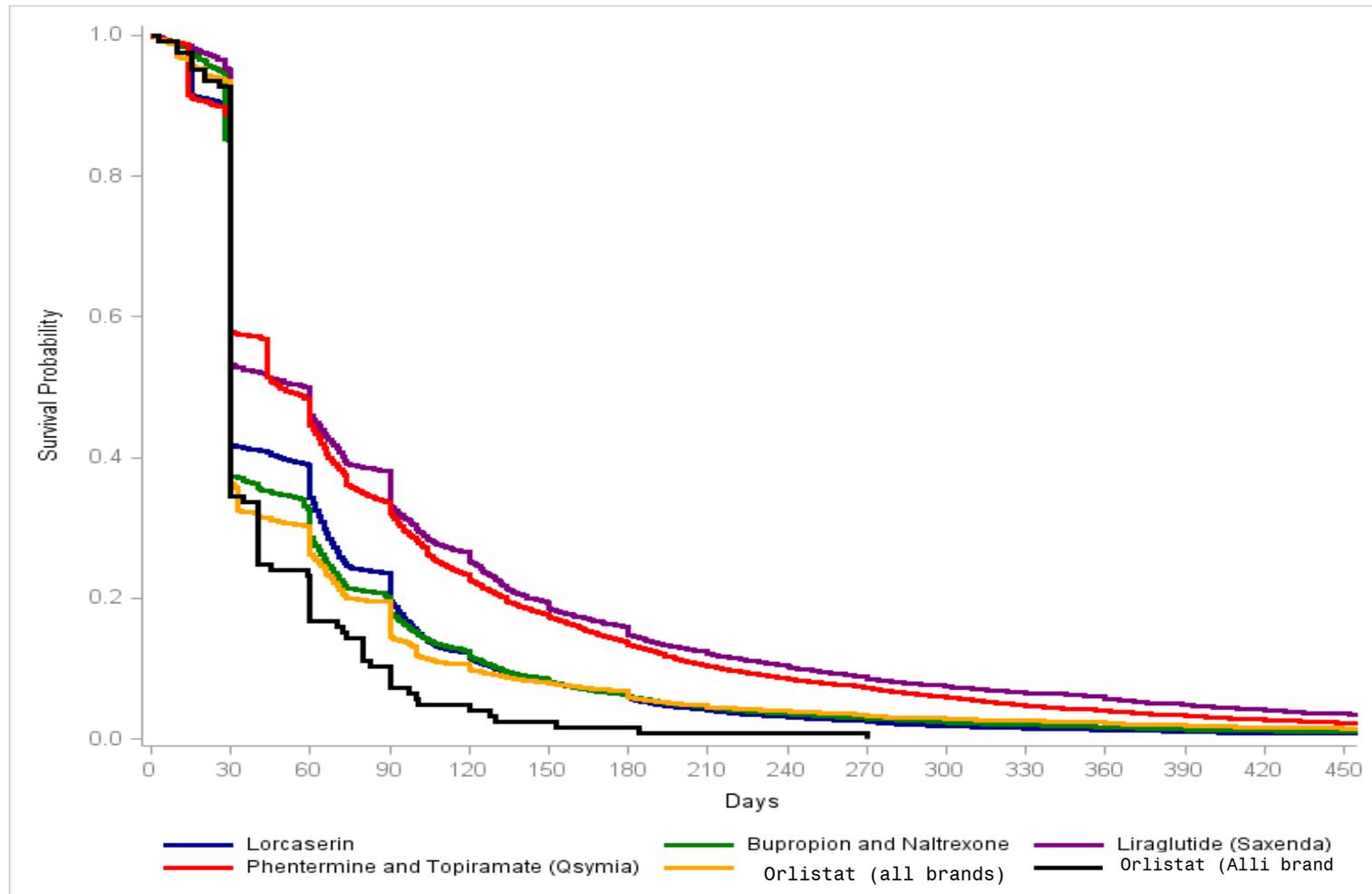
Table 9. Descriptive Statistics of Days Supplied per Dispensing in the Sentinel Distributed Database (SDD) between January 1, 2008 and December 31, 2017, Main Analysis

Exposures	Total Dispensing	Standard		Min	Q1	Median	Q3	Max
		Mean	Deviation					
SGLT-2 Inhibitors	4,281,618	36.91	20.94	1	30	30	30	365
All Obesity Drugs	1,117,764	31.19	13.05	1	30	30	30	1,440
Long-Term Therapies								
All Long-Term Obesity Drugs	246,007	31.40	14.1	1	30	30	30	1,440
Lorcaserin	50,024	30.67	12.68	1	30	30	30	180
Bupropion and Naltrexone	78,614	30.86	11.87	1	30	30	30	270
Liraglutide (Saxenda)	39,015	32.91	16	1	30	30	30	212
Phentermine and Topiramate (Qsvmia)	53,005	28.92	7.49	1	30	30	30	268
Orlistat	27,637	36.85	24	1	30	30	30	1,440
Short-Term Therapies								
All Short-Term Obesity Drugs	877,532	31.13	12.74	1	30	30	30	999
Phentermine	805,940	31.61	12.62	1	30	30	30	999
Benzphetamine	3,271	28.33	9.71	1	30	30	30	100
Diethylpropion	28,091	30.22	11.74	1	30	30	30	360
Phendimetrazine	46,567	23.14	12.81	1	9	30	30	360

Table 10. Descriptive Statistics of the Length of the First Gap between Treatment Episodes in Days in the Sentinel Distributed Database (SDD) between January 1, 2008 and December 31, 2017, Main Analysis

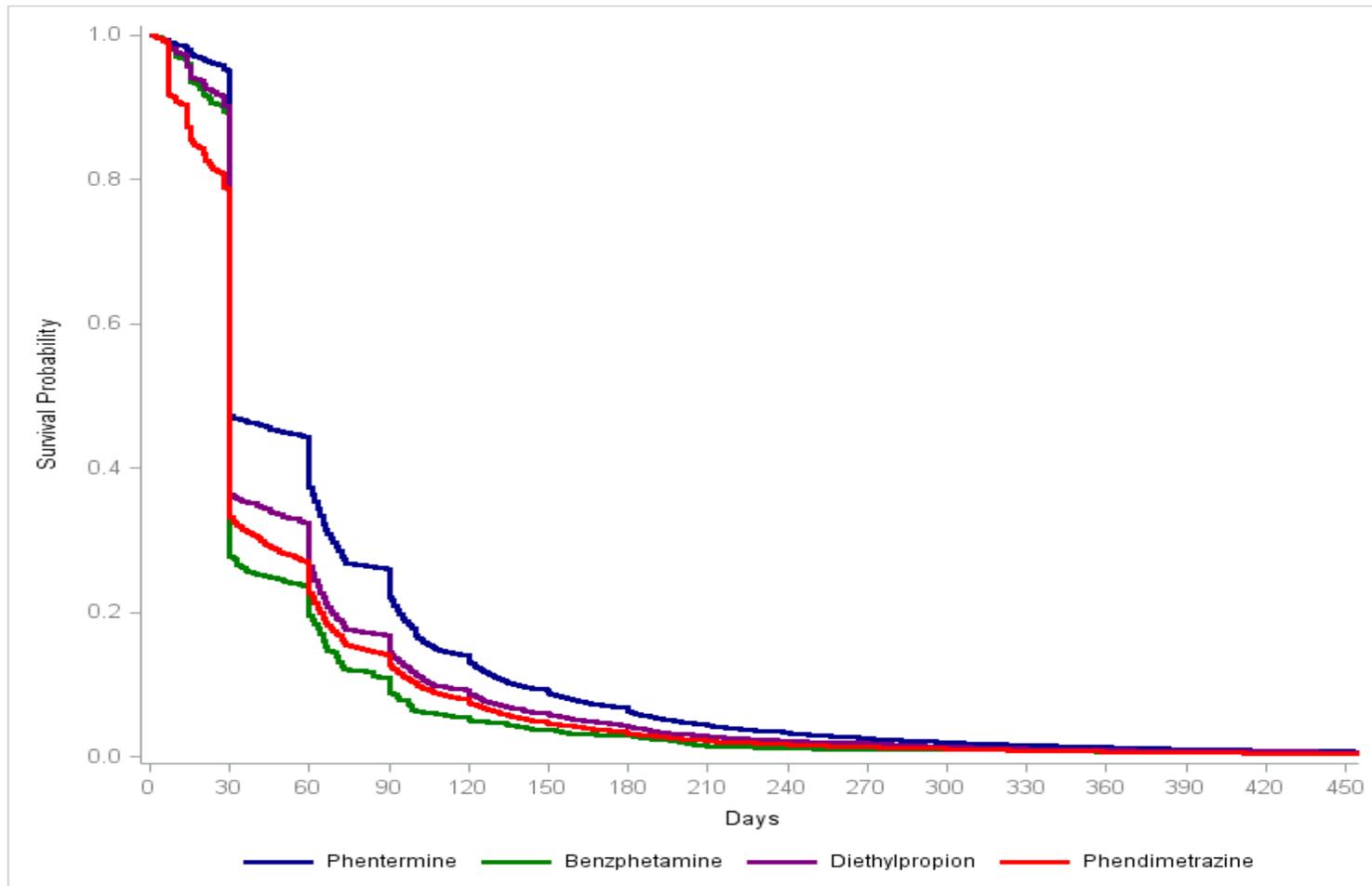
Exposures	Total Gaps	Standard		Min	Q1	Median	Q3	Max
		Mean	Deviation					
SGLT-2 Inhibitors	221,504	75.83	122.53	15	21	32	69	1,617
All Obesity Drugs	121,900	147.51	284.00	15	25	48	133	3,564
Long-Term Therapies								
All Long-Term Obesity Drugs	24,264	92.10	167.50	15	22	35	82	3,200
Lorcaserin	5,059	66.90	105.07	15	21	33	63	1,166
Bupropion and Naltrexone	7,595	64.13	95.46	15	20	32	61	1,108
Liraglutide (Saxenda)	4,017	52.56	68.11	15	20	29	54	743
Phentermine and Topiramate (Qsymia)	4,029	72.88	116.38	15	20	32	66	1,425
Orlistat	2,949	118.38	213.37	15	26	46	115	2,512
Short-Term Therapies								
All Short-Term Obesity Drugs	98,589	152.13	286.03	15	26	50	141	3,446
Phentermine	92,389	151.66	284.61	15	26	50	141	3,446
Benzphetamine	341	152.94	298.13	15	28	54	143	2,586
Diethylpropion	3,062	130.56	235.19	15	25	48	120	2,707
Phendimetrazine	4,492	127.31	237.35	15	25	46	113	2,504

Figure 1. Drug Persistence Survival Curve for Length of First Treatment Episode by Long-Term Obesity Therapies¹ between January 1, 2008 and December 31, 2017, Main Analysis



¹New use of each obesity drug represented in the figures was defined as no previous use of the specific drug of interest in the 183 days preceding the index date (e.g., use of other obesity drugs was permitted). If a second dispensing occurred within 14 days from the last day of the first dispensing, then the episode was bridged and the two dispensings were considered part of the same treatment episode.

Figure 2. Drug Persistence Survival Curve for Length of First Treatment Episode by Short-Term Obesity Therapies¹ between January 1, 2008 and December 31, 2017, Main Analysis



¹New use of each obesity drug represented in the figures was defined as no previous use of the specific drug of interest in the 183 days preceding the index date (e.g., use of other obesity drugs was permitted). If a second dispensing occurred within 14 days from the last day of the first dispensing, then the episode was bridged and the two dispensings were considered part of the same treatment episode.

Appendix A. Dates of Available Data for Each Data Partner (DP) as of Request Distribution Date (December 21, 2018)

DPID	Start Date ¹	End Date ¹
DP01	06/01/2007	12/31/2017
DP02	01/01/2000	10/31/2017
DP03	01/01/2000	12/31/2017
DP04	01/01/2008	12/31/2017
DP05	01/01/2006	12/31/2017
DP06	01/01/2000	12/31/2016
DP07	01/01/2008	09/30/2017
DP08	01/01/2010	12/31/2016
DP09	01/01/2005	12/17/2017
DP10	01/01/2000	03/31/2016
DP11	01/01/2000	05/31/2015
DP12	01/01/2000	12/31/2017
DP13	01/01/2000	12/31/2017
DP14	01/01/2000	12/31/2017
DP15	01/01/2004	12/31/2017
DP16	01/01/2000	12/31/2017
DP17	01/01/2012	06/30/2017

¹The start and end dates are based on the minimum and maximum dates within each DP. The month with the maximum date must have at least 80% of the number of records in the previous month.

Appendix B. List of Generic and Brand Names used to Define Exposures in this Request

Generic Name	Brand Name
Lorcaserin	
lorcaserin HCl	Belviq
lorcaserin HCl	Belviq XR
Bupropion and naltrexone	
naltrexone HCl/bupropion HCl	Contrave
Liraglutide	
liraglutide	Saxenda
Phentermine and topiramate	
phentermine HCl/topiramate	Qsymia
Orlistat	
orlistat	Alli
orlistat	Xenical
Orlistat brand name Alli	
orlistat	Alli
Phentermine	
phentermine HCl	Adipex-P
phentermine HCl	Lomaira
phentermine HCl	phentermine
phentermine HCl	phentermine
phentermine HCl	Suprenza
phentermine HCl	Suprenza
phentermine HCl	Suprenza
Benzphetamine	
benzphetamine HCl	Regimex
benzphetamine HCl	benzphetamine
benzphetamine HCl	Didrex
Diethylpropion	
diethylpropion HCl	diethylpropion
Phendimetrazine	
phendimetrazine tartrate	Bontril PDM
phendimetrazine tartrate	Bontril Slow-Release
phendimetrazine tartrate	Bontril SR
phendimetrazine tartrate	phendimetrazine tartrate
Sodium-glucose Cotransporter-2 (SGLT2) Inhibitors	
canagliflozin	Invokana
canagliflozin/metformin HCl	Invokamet
canagliflozin/metformin HCl	Invokamet XR
dapagliflozin propanediol	Farxiga
dapagliflozin propanediol/metformin HCl	Xigduo XR
dapagliflozin propanediol/saxagliptin HCl	Qtern
empagliflozin	Jardiance
empagliflozin/linagliptin	Glyxambi
empagliflozin/metformin HCl	Synjardy
empagliflozin/metformin HCl	Synjardy XR
ertugliflozin pidolate	Steglatro
ertugliflozin pidolate/metformin HCl	Segluromet
ertugliflozin pidolate/sitagliptin phosphate	Steglujan

Appendix C. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) and International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) Codes used to Define Covariates in this Request

Code	Description	Code Type
Obesity		
278.0	Overweight and obesity	ICD-9-CM
278.00	Obesity, unspecified	ICD-9-CM
278.01	Morbid obesity	ICD-9-CM
278.02	Overweight	ICD-9-CM
278.1	Localized adiposity	ICD-9-CM
V45.86	Bariatric surgery status	ICD-9-CM
E65	Localized adiposity	ICD-9-CM
E66.01	Morbid (severe) obesity due to excess calories	ICD-9-CM
E66.0	Other obesity due to excess calories	ICD-9-CM
E66.1	Drug-induced obesity	ICD-9-CM
E66.3	Overweight	ICD-9-CM
E66.8	Other obesity	ICD-9-CM
E66.9	Obesity, unspecified	ICD-9-CM
Z98.84	Bariatric surgery status	ICD-9-CM
44.31	High gastric bypass	ICD-9-CM
44.68	Laparoscopic gastroplasty	ICD-9-CM
44.95	Laparoscopic gastric restrictive procedure	ICD-9-CM
0D1607A	Bypass Stomach to Jejunum with Autologous Tissue Substitute, Open Approach	ICD-10-PCS
0D160JA	Bypass Stomach to Jejunum with Synthetic Substitute, Open Approach	ICD-10-PCS
0D160KA	Bypass Stomach to Jejunum with Nonautologous Tissue Substitute, Open Approach	ICD-10-PCS
0D160ZA	Bypass Stomach to Jejunum, Open Approach	ICD-10-PCS
0D1687A	Bypass Stomach to Jejunum with Autologous Tissue Substitute, Via Natural or Artificial Opening Endoscopic	ICD-10-PCS
0D168JA	Bypass Stomach to Jejunum with Synthetic Substitute, Via Natural or Artificial Opening Endoscopic	ICD-10-PCS
0D168KA	Bypass Stomach to Jejunum with Nonautologous Tissue Substitute, Via Natural or Artificial Opening Endoscopic	ICD-10-PCS
0D168ZA	Bypass Stomach to Jejunum, Via Natural or Artificial Opening Endoscopic	ICD-10-PCS
0DQ64ZZ	Repair Stomach, Percutaneous Endoscopic Approach	ICD-10-PCS
0DV64CZ	Restriction of Stomach with Extraluminal Device, Percutaneous Endoscopic Approach	ICD-10-PCS
V85.3	Body Mass Index between 30-39, adult	ICD-9-CM
V85.30	Body Mass Index 30.0-30.9, adult	ICD-9-CM
V85.31	Body Mass Index 31.0-31.9, adult	ICD-9-CM
V85.32	Body Mass Index 32.0-32.9, adult	ICD-9-CM
V85.33	Body Mass Index 33.0-33.9, adult	ICD-9-CM
V85.34	Body Mass Index 34.0-34.9, adult	ICD-9-CM
V85.35	Body Mass Index 35.0-35.9, adult	ICD-9-CM
V85.36	Body Mass Index 36.0-36.9, adult	ICD-9-CM
V85.37	Body Mass Index 37.0-37.9, adult	ICD-9-CM
V85.38	Body Mass Index 38.0-38.9, adult	ICD-9-CM
V85.39	Body Mass Index 39.0-39.9, adult	ICD-9-CM
Z68.30	Body mass index (BMI) 30.0-30.9, adult	ICD-10-CM
Z68.31	Body mass index (BMI) 31.0-31.9, adult	ICD-10-CM
Z68.32	Body mass index (BMI) 32.0-32.9, adult	ICD-10-CM
Z68.33	Body mass index (BMI) 33.0-33.9, adult	ICD-10-CM
Z68.34	Body mass index (BMI) 34.0-34.9, adult	ICD-10-CM
Z68.35	Body mass index (BMI) 35.0-35.9, adult	ICD-10-CM
Z68.36	Body mass index (BMI) 36.0-36.9, adult	ICD-10-CM
Z68.37	Body mass index (BMI) 37.0-37.9, adult	ICD-10-CM
Z68.38	Body mass index (BMI) 38.0-38.9, adult	ICD-10-CM
Z68.39	Body mass index (BMI) 39.0-39.9, adult	ICD-10-CM

Appendix C. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) and International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) Codes used to Define Covariates in this Request

Code	Description	Code Type
V85.4	Body Mass Index 40 and over, adult	ICD-9-CM
V85.41	Body Mass Index 40.0-44.9, adult	ICD-9-CM
V85.42	Body Mass Index 45.0-49.9, adult	ICD-9-CM
V85.43	Body Mass Index 50.0-59.9, adult	ICD-9-CM
V85.44	Body Mass Index 60.0-69.9, adult	ICD-9-CM
Z68.41	Body mass index (BMI) 40.0-44.9, adult	ICD-10-CM
Z68.42	Body mass index (BMI) 45.0-49.9, adult	ICD-10-CM
Z68.43	Body mass index (BMI) 50-59.9, adult	ICD-10-CM
Z68.44	Body mass index (BMI) 60.0-69.9, adult	ICD-10-CM
V85.45	Body Mass Index 70 and over, adult	ICD-9-CM
Z68.45	Body mass index (BMI) 70 or greater, adult	ICD-10-CM
Body mass index less than 19, adult		
V85.0	Body Mass Index less than 19, adult	ICD-9-CM
Z68.1	Body mass index (BMI) 19.9 or less, adult	ICD-10-CM
Body mass index between 19-24, adult		
V85.1	Body Mass Index between 19-24, adult	ICD-9-CM
Z68.20	Body mass index (BMI) 20.0-20.9, adult	ICD-10-CM
Z68.21	Body mass index (BMI) 21.0-21.9, adult	ICD-10-CM
Z68.22	Body mass index (BMI) 22.0-22.9, adult	ICD-10-CM
Z68.23	Body mass index (BMI) 23.0-23.9, adult	ICD-10-CM
Z68.24	Body mass index (BMI) 24.0-24.9, adult	ICD-10-CM
Body mass index between 25-29, adult		
V85.2	Body Mass Index between 25-29, adult	ICD-9-CM
V85.21	Body Mass Index 25.0-25.9, adult	ICD-9-CM
V85.22	Body Mass Index 26.0-26.9, adult	ICD-9-CM
V85.23	Body Mass Index 27.0-27.9, adult	ICD-9-CM
V85.24	Body Mass Index 28.0-28.9, adult	ICD-9-CM
V85.25	Body Mass Index 29.0-29.9, adult	ICD-9-CM
Z68.25	Body mass index (BMI) 25.0-25.9, adult	ICD-10-CM
Z68.26	Body mass index (BMI) 26.0-26.9, adult	ICD-10-CM
Z68.27	Body mass index (BMI) 27.0-27.9, adult	ICD-10-CM
Z68.28	Body mass index (BMI) 28.0-28.9, adult	ICD-10-CM
Z68.29	Body mass index (BMI) 29.0-29.9, adult	ICD-10-CM
Body mass index between 30-39, adult		
V85.3	Body Mass Index between 30-39, adult	ICD-9-CM
V85.30	Body Mass Index 30.0-30.9, adult	ICD-9-CM
V85.31	Body Mass Index 31.0-31.9, adult	ICD-9-CM
V85.32	Body Mass Index 32.0-32.9, adult	ICD-9-CM
V85.33	Body Mass Index 33.0-33.9, adult	ICD-9-CM
V85.34	Body Mass Index 34.0-34.9, adult	ICD-9-CM
V85.35	Body Mass Index 35.0-35.9, adult	ICD-9-CM
V85.36	Body Mass Index 36.0-36.9, adult	ICD-9-CM
V85.37	Body Mass Index 37.0-37.9, adult	ICD-9-CM
V85.38	Body Mass Index 38.0-38.9, adult	ICD-9-CM
V85.39	Body Mass Index 39.0-39.9, adult	ICD-9-CM
Z68.30	Body mass index (BMI) 30.0-30.9, adult	ICD-10-CM
Z68.31	Body mass index (BMI) 31.0-31.9, adult	ICD-10-CM
Z68.32	Body mass index (BMI) 32.0-32.9, adult	ICD-10-CM
Z68.33	Body mass index (BMI) 33.0-33.9, adult	ICD-10-CM
Z68.34	Body mass index (BMI) 34.0-34.9, adult	ICD-10-CM
Z68.35	Body mass index (BMI) 35.0-35.9, adult	ICD-10-CM
Z68.36	Body mass index (BMI) 36.0-36.9, adult	ICD-10-CM

Appendix C. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) and International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) Codes used to Define Covariates in this Request

Code	Description	Code Type
Z68.37	Body mass index (BMI) 37.0-37.9, adult	ICD-10-CM
Z68.38	Body mass index (BMI) 38.0-38.9, adult	ICD-10-CM
Z68.39	Body mass index (BMI) 39.0-39.9, adult	ICD-10-CM
Body mass index 40-69, adult		
V85.4	Body Mass Index 40 and over, adult	ICD-9-CM
V85.41	Body Mass Index 40.0-44.9, adult	ICD-9-CM
V85.42	Body Mass Index 45.0-49.9, adult	ICD-9-CM
V85.43	Body Mass Index 50.0-59.9, adult	ICD-9-CM
V85.44	Body Mass Index 60.0-69.9, adult	ICD-9-CM
Z68.41	Body mass index (BMI) 40.0-44.9, adult	ICD-10-CM
Z68.42	Body mass index (BMI) 45.0-49.9, adult	ICD-10-CM
Z68.43	Body mass index (BMI) 50-59.9, adult	ICD-10-CM
Z68.44	Body mass index (BMI) 60.0-69.9, adult	ICD-10-CM
Body mass index 70 and over, adult		
V85.45	Body Mass Index 70 and over, adult	ICD-9-CM
Z68.45	Body mass index (BMI) 70 or greater, adult	ICD-10-CM
Acquired hypothyroidism		
244.0	Postsurgical hypothyroidism	ICD-9-CM
244.1	Other postablative hypothyroidism	ICD-9-CM
244.2	Iodine hypothyroidism	ICD-9-CM
244.3	Other iatrogenic hypothyroidism	ICD-9-CM
244.8	Other specified acquired hypothyroidism	ICD-9-CM
244.9	Unspecified hypothyroidism	ICD-9-CM
E01.8	Other iodine-deficiency related thyroid disorders and allied conditions	ICD-10-CM
E02	Subclinical iodine-deficiency hypothyroidism	ICD-10-CM
E03.2	Hypothyroidism due to medicaments and other exogenous substances	ICD-10-CM
E03.3	Postinfectious hypothyroidism	ICD-10-CM
E03.8	Other specified hypothyroidism	ICD-10-CM
E03.9	Hypothyroidism, unspecified	ICD-10-CM
E89.0	Postprocedural hypothyroidism	ICD-10-CM
Acute myocardial infarction		
410.01	Acute myocardial infarction of anterolateral wall, initial episode of care	ICD-9-CM
410.11	Acute myocardial infarction of other anterior wall, initial episode of care	ICD-9-CM
410.21	Acute myocardial infarction of inferolateral wall, initial episode of care	ICD-9-CM
410.31	Acute myocardial infarction of inferoposterior wall, initial episode of care	ICD-9-CM
410.41	Acute myocardial infarction of other inferior wall, initial episode of care	ICD-9-CM
410.51	Acute myocardial infarction of other lateral wall, initial episode of care	ICD-9-CM
410.61	Acute myocardial infarction, true posterior wall infarction, initial episode of care	ICD-9-CM
410.71	Acute myocardial infarction, subendocardial infarction, initial episode of care	ICD-9-CM
410.81	Acute myocardial infarction of other specified sites, initial episode of care	ICD-9-CM
410.91	Acute myocardial infarction, unspecified site, initial episode of care	ICD-9-CM
I21.01	ST elevation (STEMI) myocardial infarction involving left main coronary artery	ICD-10-CM
I21.02	ST elevation (STEMI) myocardial infarction involving left anterior descending coronary artery	ICD-10-CM
I21.0	ST elevation (STEMI) myocardial infarction involving other coronary artery of anterior wall	ICD-10-CM
I21.11	ST elevation (STEMI) myocardial infarction involving right coronary artery	ICD-10-CM
I21.19	ST elevation (STEMI) myocardial infarction involving other coronary artery of inferior wall	ICD-10-CM
I21.21	ST elevation (STEMI) myocardial infarction involving left circumflex coronary artery	ICD-10-CM
I21.29	ST elevation (STEMI) myocardial infarction involving other sites	ICD-10-CM
I21.3	ST elevation (STEMI) myocardial infarction of unspecified site	ICD-10-CM
I21.4	Non-ST elevation (NSTEMI) myocardial infarction	ICD-10-CM
I21.9	Acute myocardial infarction, unspecified	ICD-10-CM

Appendix C. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) and International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) Codes used to Define Covariates in this Request

Code	Description	Code Type
I21.A1	Myocardial infarction type 2	ICD-10-CM
I21.A9	Other myocardial infarction type	ICD-10-CM
I22.0	Subsequent ST elevation (STEMI) myocardial infarction of anterior wall	ICD-10-CM
I22.1	Subsequent ST elevation (STEMI) myocardial infarction of inferior wall	ICD-10-CM
I22.2	Subsequent non-ST elevation (NSTEMI) myocardial infarction	ICD-10-CM
I22.8	Subsequent ST elevation (STEMI) myocardial infarction of other sites	ICD-10-CM
I22.9	Subsequent ST elevation (STEMI) myocardial infarction of unspecified site	ICD-10-CM
Alzheimer's disease and related disorders		
290.0	Senile dementia, uncomplicated	ICD-9-CM
290.10	Presenile dementia, uncomplicated	ICD-9-CM
290.11	Presenile dementia with delirium	ICD-9-CM
290.12	Presenile dementia with delusional features	ICD-9-CM
290.13	Presenile dementia with depressive features	ICD-9-CM
290.20	Senile dementia with delusional features	ICD-9-CM
290.21	Senile dementia with depressive features	ICD-9-CM
290.3	Senile dementia with delirium	ICD-9-CM
290.40	Vascular dementia, uncomplicated	ICD-9-CM
290.41	Vascular dementia, with delirium	ICD-9-CM
290.42	Vascular dementia, with delusions	ICD-9-CM
290.43	Vascular dementia, with depressed mood	ICD-9-CM
294.0	Amnesic disorder in conditions classified elsewhere	ICD-9-CM
294.10	Dementia in conditions classified elsewhere without behavioral disturbance	ICD-9-CM
294.11	Dementia in conditions classified elsewhere with behavioral disturbance	ICD-9-CM
294.20	Dementia, unspecified, without behavioral disturbance	ICD-9-CM
294.21	Dementia, unspecified, with behavioral disturbance	ICD-9-CM
294.8	Other persistent mental disorders due to conditions classified elsewhere	ICD-9-CM
331.0	Alzheimer's disease	ICD-9-CM
331.11	Pick's disease	ICD-9-CM
331.19	Other frontotemporal dementia	ICD-9-CM
331.2	Senile degeneration of brain	ICD-9-CM
331.7	Cerebral degeneration in diseases classified elsewhere	ICD-9-CM
797	Senility without mention of psychosis	ICD-9-CM
F01.50	Vascular dementia without behavioral disturbance	ICD-10-CM
F01.51	Vascular dementia with behavioral disturbance	ICD-10-CM
F02.80	Dementia in other diseases classified elsewhere without behavioral disturbance	ICD-10-CM
F02.81	Dementia in other diseases classified elsewhere with behavioral disturbance	ICD-10-CM
F03.90	Unspecified dementia without behavioral disturbance	ICD-10-CM
F03.91	Unspecified dementia with behavioral disturbance	ICD-10-CM
F04	Amnesic disorder due to known physiological condition	ICD-10-CM
F05	Delirium due to known physiological condition	ICD-10-CM
F06.1	Catatonic disorder due to known physiological condition	ICD-10-CM
F06.8	Other specified mental disorders due to known physiological condition	ICD-10-CM
G13.8	Systemic atrophy primarily affecting central nervous system in other diseases classified elsewhere	ICD-10-CM
G30.0	Alzheimer's disease with early onset	ICD-10-CM
G30.1	Alzheimer's disease with late onset	ICD-10-CM
G30.8	Other Alzheimer's disease	ICD-10-CM
G30.9	Alzheimer's disease, unspecified	ICD-10-CM
G31.01	Pick's disease	ICD-10-CM
G31.0	Other frontotemporal dementia	ICD-10-CM
G31.1	Senile degeneration of brain, not elsewhere classified	ICD-10-CM
G31.2	Degeneration of nervous system due to alcohol	ICD-10-CM

Appendix C. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) and International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) Codes used to Define Covariates in this Request

Code	Description	Code Type
G94	Other disorders of brain in diseases classified elsewhere	ICD-10-CM
R41.81	Age-related cognitive decline	ICD-10-CM
R54	Age-related physical debility	ICD-10-CM
Anemia		
280.0	Iron deficiency anemia secondary to blood loss (chronic)	ICD-9-CM
280.1	Iron deficiency anemia secondary to inadequate dietary iron intake	ICD-9-CM
280.8	Other specified iron deficiency anemias	ICD-9-CM
280.9	Unspecified iron deficiency anemia	ICD-9-CM
281.0	Pernicious anemia	ICD-9-CM
281.1	Other vitamin B12 deficiency anemia	ICD-9-CM
281.2	Folate-deficiency anemia	ICD-9-CM
281.3	Other specified megaloblastic anemias not elsewhere classified	ICD-9-CM
281.4	Protein-deficiency anemia	ICD-9-CM
281.8	Anemia associated with other specified nutritional deficiency	ICD-9-CM
281.9	Unspecified deficiency anemia	ICD-9-CM
282.0	Hereditary spherocytosis	ICD-9-CM
282.1	Hereditary elliptocytosis	ICD-9-CM
282.2	Anemias due to disorders of glutathione metabolism	ICD-9-CM
282.3	Other hemolytic anemias due to enzyme deficiency	ICD-9-CM
282.40	Thalassemia, unspecified	ICD-9-CM
282.41	Sickle-cell thalassemia without crisis	ICD-9-CM
282.42	Sickle-cell thalassemia with crisis	ICD-9-CM
282.43	Alpha thalassemia	ICD-9-CM
282.44	Beta thalassemia	ICD-9-CM
282.45	Delta-beta thalassemia	ICD-9-CM
282.46	Thalassemia minor	ICD-9-CM
282.47	Hemoglobin E-beta thalassemia	ICD-9-CM
282.49	Other thalassemia	ICD-9-CM
282.5	Sickle-cell trait	ICD-9-CM
282.60	Sickle-cell disease, unspecified	ICD-9-CM
282.61	Hb-SS disease without crisis	ICD-9-CM
282.62	Hb-SS disease with crisis	ICD-9-CM
282.63	Sickle-cell/Hb-C disease without crisis	ICD-9-CM
282.64	Sickle-cell/Hb-C disease with crisis	ICD-9-CM
282.68	Other sickle-cell disease without crisis	ICD-9-CM
282.69	Other sickle-cell disease with crisis	ICD-9-CM
282.7	Other hemoglobinopathies	ICD-9-CM
282.8	Other specified hereditary hemolytic anemias	ICD-9-CM
282.9	Unspecified hereditary hemolytic anemia	ICD-9-CM
283.0	Autoimmune hemolytic anemias	ICD-9-CM
283.10	Unspecified non-autoimmune hemolytic anemia	ICD-9-CM
283.11	Hemolytic-uremic syndrome	ICD-9-CM
283.19	Other non-autoimmune hemolytic anemias	ICD-9-CM
283.2	Hemoglobinuria due to hemolysis from external causes	ICD-9-CM
283.9	Acquired hemolytic anemia, unspecified	ICD-9-CM
284.01	Constitutional red blood cell aplasia	ICD-9-CM
284	Other constitutional aplastic anemia	ICD-9-CM
284.11	Antineoplastic chemotherapy induced pancytopenia	ICD-9-CM
284.12	Other drug induced pancytopenia	ICD-9-CM
284.19	Other pancytopenia	ICD-9-CM
284.2	Myelophthisis	ICD-9-CM
284.81	Red cell aplasia (acquired) (adult) (with thymoma)	ICD-9-CM

Appendix C. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) and International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) Codes used to Define Covariates in this Request

Code	Description	Code Type
284.89	Other specified aplastic anemias	ICD-9-CM
284.9	Unspecified aplastic anemia	ICD-9-CM
285.0	Sideroblastic anemia	ICD-9-CM
285.1	Acute posthemorrhagic anemia	ICD-9-CM
285.21	Anemia in chronic kidney disease	ICD-9-CM
285.22	Anemia in neoplastic disease	ICD-9-CM
285.29	Anemia of other chronic disease	ICD-9-CM
285.3	Antineoplastic chemotherapy induced anemia	ICD-9-CM
285.8	Other specified anemias	ICD-9-CM
285.9	Unspecified anemia	ICD-9-CM
D50.0	Iron deficiency anemia secondary to blood loss (chronic)	ICD-10-CM
D50.1	Sideropenic dysphagia	ICD-10-CM
D50.8	Other iron deficiency anemias	ICD-10-CM
D50.9	Iron deficiency anemia, unspecified	ICD-10-CM
D51.0	Vitamin B12 deficiency anemia due to intrinsic factor deficiency	ICD-10-CM
D51.1	Vitamin B12 deficiency anemia due to selective vitamin B12 malabsorption with proteinuria	ICD-10-CM
D51.2	Transcobalamin II deficiency	ICD-10-CM
D51.3	Other dietary vitamin B12 deficiency anemia	ICD-10-CM
D51.8	Other vitamin B12 deficiency anemias	ICD-10-CM
D51.9	Vitamin B12 deficiency anemia, unspecified	ICD-10-CM
D52.0	Dietary folate deficiency anemia	ICD-10-CM
D52.1	Drug-induced folate deficiency anemia	ICD-10-CM
D52.8	Other folate deficiency anemias	ICD-10-CM
D52.9	Folate deficiency anemia, unspecified	ICD-10-CM
D53.0	Protein deficiency anemia	ICD-10-CM
D53.1	Other megaloblastic anemias, not elsewhere classified	ICD-10-CM
D53.2	Scorbutic anemia	ICD-10-CM
D53.8	Other specified nutritional anemias	ICD-10-CM
D53.9	Nutritional anemia, unspecified	ICD-10-CM
D55.0	Anemia due to glucose-6-phosphate dehydrogenase [G6PD] deficiency	ICD-10-CM
D55.1	Anemia due to other disorders of glutathione metabolism	ICD-10-CM
D55.2	Anemia due to disorders of glycolytic enzymes	ICD-10-CM
D55.3	Anemia due to disorders of nucleotide metabolism	ICD-10-CM
D55.8	Other anemias due to enzyme disorders	ICD-10-CM
D55.9	Anemia due to enzyme disorder, unspecified	ICD-10-CM
D56.0	Alpha thalassemia	ICD-10-CM
D56.1	Beta thalassemia	ICD-10-CM
D56.2	Delta-beta thalassemia	ICD-10-CM
D56.3	Thalassemia minor	ICD-10-CM
D56.4	Hereditary persistence of fetal hemoglobin [HPFH]	ICD-10-CM
D56.5	Hemoglobin E-beta thalassemia	ICD-10-CM
D56.8	Other thalassemias	ICD-10-CM
D56.9	Thalassemia, unspecified	ICD-10-CM
D57.00	Hb-SS disease with crisis, unspecified	ICD-10-CM
D57.01	Hb-SS disease with acute chest syndrome	ICD-10-CM
D57.02	Hb-SS disease with splenic sequestration	ICD-10-CM
D57.1	Sickle-cell disease without crisis	ICD-10-CM
D57.20	Sickle-cell/Hb-C disease without crisis	ICD-10-CM
D57.211	Sickle-cell/Hb-C disease with acute chest syndrome	ICD-10-CM
D57.212	Sickle-cell/Hb-C disease with splenic sequestration	ICD-10-CM
D57.219	Sickle-cell/Hb-C disease with crisis, unspecified	ICD-10-CM
D57.3	Sickle-cell trait	ICD-10-CM

Appendix C. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) and International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) Codes used to Define Covariates in this Request

Code	Description	Code Type
D57.40	Sickle-cell thalassemia without crisis	ICD-10-CM
D57.411	Sickle-cell thalassemia with acute chest syndrome	ICD-10-CM
D57.412	Sickle-cell thalassemia with splenic sequestration	ICD-10-CM
D57.419	Sickle-cell thalassemia with crisis, unspecified	ICD-10-CM
D57.80	Other sickle-cell disorders without crisis	ICD-10-CM
D57.811	Other sickle-cell disorders with acute chest syndrome	ICD-10-CM
D57.812	Other sickle-cell disorders with splenic sequestration	ICD-10-CM
D57.819	Other sickle-cell disorders with crisis, unspecified	ICD-10-CM
D58.0	Hereditary spherocytosis	ICD-10-CM
D58.1	Hereditary elliptocytosis	ICD-10-CM
D58.2	Other hemoglobinopathies	ICD-10-CM
D58.8	Other specified hereditary hemolytic anemias	ICD-10-CM
D58.9	Hereditary hemolytic anemia, unspecified	ICD-10-CM
D59.0	Drug-induced autoimmune hemolytic anemia	ICD-10-CM
D59.1	Other autoimmune hemolytic anemias	ICD-10-CM
D59.2	Drug-induced nonautoimmune hemolytic anemia	ICD-10-CM
D59.3	Hemolytic-uremic syndrome	ICD-10-CM
D59.4	Other nonautoimmune hemolytic anemias	ICD-10-CM
D59.5	Paroxysmal nocturnal hemoglobinuria [Marchiafava-Micheli]	ICD-10-CM
D59.6	Hemoglobinuria due to hemolysis from other external causes	ICD-10-CM
D59.8	Other acquired hemolytic anemias	ICD-10-CM
D59.9	Acquired hemolytic anemia, unspecified	ICD-10-CM
D60.0	Chronic acquired pure red cell aplasia	ICD-10-CM
D60.1	Transient acquired pure red cell aplasia	ICD-10-CM
D60.8	Other acquired pure red cell aplasias	ICD-10-CM
D60.9	Acquired pure red cell aplasia, unspecified	ICD-10-CM
D61.01	Constitutional (pure) red blood cell aplasia	ICD-10-CM
D61.0	Other constitutional aplastic anemia	ICD-10-CM
D61.1	Drug-induced aplastic anemia	ICD-10-CM
D61.2	Aplastic anemia due to other external agents	ICD-10-CM
D61.3	Idiopathic aplastic anemia	ICD-10-CM
D61.810	Antineoplastic chemotherapy induced pancytopenia	ICD-10-CM
D61.811	Other drug-induced pancytopenia	ICD-10-CM
D61.818	Other pancytopenia	ICD-10-CM
D61.82	Myelophthisis	ICD-10-CM
D61.89	Other specified aplastic anemias and other bone marrow failure syndromes	ICD-10-CM
D61.9	Aplastic anemia, unspecified	ICD-10-CM
D62	Acute posthemorrhagic anemia	ICD-10-CM
D63.0	Anemia in neoplastic disease	ICD-10-CM
D63.1	Anemia in chronic kidney disease	ICD-10-CM
D63.8	Anemia in other chronic diseases classified elsewhere	ICD-10-CM
D64.0	Hereditary sideroblastic anemia	ICD-10-CM
D64.1	Secondary sideroblastic anemia due to disease	ICD-10-CM
D64.2	Secondary sideroblastic anemia due to drugs and toxins	ICD-10-CM
D64.3	Other sideroblastic anemias	ICD-10-CM
D64.4	Congenital dyserythropoietic anemia	ICD-10-CM
D64.81	Anemia due to antineoplastic chemotherapy	ICD-10-CM
D64.89	Other specified anemias	ICD-10-CM
D64.9	Anemia, unspecified	ICD-10-CM
Asthma		
493.00	Extrinsic asthma, unspecified	ICD-9-CM
493.01	Extrinsic asthma with status asthmaticus	ICD-9-CM

Appendix C. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) and International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) Codes used to Define Covariates in this Request

Code	Description	Code Type
493.02	Extrinsic asthma, with (acute) exacerbation	ICD-9-CM
493.10	Intrinsic asthma, unspecified	ICD-9-CM
493.11	Intrinsic asthma with status asthmaticus	ICD-9-CM
493.12	Intrinsic asthma, with (acute) exacerbation	ICD-9-CM
493.20	Chronic obstructive asthma, unspecified	ICD-9-CM
493.21	Chronic obstructive asthma with status asthmaticus	ICD-9-CM
493.22	Chronic obstructive asthma, with (acute) exacerbation	ICD-9-CM
493.81	Exercise induced bronchospasm	ICD-9-CM
493.82	Cough variant asthma	ICD-9-CM
493.90	Asthma, unspecified, unspecified status	ICD-9-CM
493.91	Asthma, unspecified with status asthmaticus	ICD-9-CM
493.92	Asthma, unspecified, with (acute) exacerbation	ICD-9-CM
J45.20	Mild intermittent asthma, uncomplicated	ICD-10-CM
J45.21	Mild intermittent asthma with (acute) exacerbation	ICD-10-CM
J45.22	Mild intermittent asthma with status asthmaticus	ICD-10-CM
J45.30	Mild persistent asthma, uncomplicated	ICD-10-CM
J45.31	Mild persistent asthma with (acute) exacerbation	ICD-10-CM
J45.32	Mild persistent asthma with status asthmaticus	ICD-10-CM
J45.40	Moderate persistent asthma, uncomplicated	ICD-10-CM
J45.41	Moderate persistent asthma with (acute) exacerbation	ICD-10-CM
J45.42	Moderate persistent asthma with status asthmaticus	ICD-10-CM
J45.50	Severe persistent asthma, uncomplicated	ICD-10-CM
J45.51	Severe persistent asthma with (acute) exacerbation	ICD-10-CM
J45.52	Severe persistent asthma with status asthmaticus	ICD-10-CM
J45.901	Unspecified asthma with (acute) exacerbation	ICD-10-CM
J45.902	Unspecified asthma with status asthmaticus	ICD-10-CM
J45.91CD-9-CM	Unspecified asthma, uncomplicated	ICD-10-CM
J45.990	Exercise induced bronchospasm	ICD-10-CM
J45.991	Cough variant asthma	ICD-10-CM
J45.998	Other asthma	ICD-10-CM
Atrial fibrillation		
427.31	Atrial fibrillation	ICD-9-CM
I48.2	Chronic atrial fibrillation	ICD-10-CM
I48.0	Paroxysmal atrial fibrillation	ICD-10-CM
I48.1	Persistent atrial fibrillation	ICD-10-CM
I48.91	Unspecified atrial fibrillation	ICD-10-CM
Benign prostatic hyperplasia		
600.00	Hypertrophy (benign) of prostate without urinary obstruction and other lower urinary tract symptoms [LUTS]	ICD-9-CM
600.01	Hypertrophy (benign) of prostate with urinary obstruction and other lower urinary tract symptoms [LUTS]	ICD-9-CM
600.10	Nodular prostate without urinary obstruction	ICD-9-CM
600.11	Nodular prostate with urinary obstruction	ICD-9-CM
600.20	Benign localized hyperplasia of prostate without urinary obstruction and other lower urinary tract symptoms [LUTS]	ICD-9-CM
600.21	Benign localized hyperplasia of prostate with urinary obstruction and other lower urinary tract symptoms [LUTS]	ICD-9-CM
600.3	Cyst of prostate	ICD-9-CM
600.90	Hyperplasia of prostate, unspecified, without urinary obstruction and other lower urinary tract symptoms [LUTS]	ICD-9-CM
600.91	Hyperplasia of prostate, unspecified, with urinary obstruction and other lower urinary tract symptoms [LUTS]	ICD-9-CM

Appendix C. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) and International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) Codes used to Define Covariates in this Request

Code	Description	Code Type
N40.0	Benign prostatic hyperplasia without lower urinary tract symptoms	ICD-10-CM
N40.1	Benign prostatic hyperplasia with lower urinary tract symptoms	ICD-10-CM
N40.2	Nodular prostate without lower urinary tract symptoms	ICD-10-CM
N40.3	Nodular prostate with lower urinary tract symptoms	ICD-10-CM
N42.83	Cyst of prostate	ICD-10-CM
Chronic kidney disease		
016.00	Tuberculosis of kidney, confirmation unspecified	ICD-9-CM
016.01	Tuberculosis of kidney, bacteriological or histological examination not done	ICD-9-CM
016.02	Tuberculosis of kidney, bacteriological or histological examination unknown (at present)	ICD-9-CM
016.03	Tuberculosis of kidney, tubercle bacilli found (in sputum) by microscopy	ICD-9-CM
016.04	Tuberculosis of kidney, tubercle bacilli not found (in sputum) by microscopy, but found by bacterial culture	ICD-9-CM
016.05	Tuberculosis of kidney, tubercle bacilli not found by bacteriological examination, but tuberculosis confirmed histologically	ICD-9-CM
016.06	Tuberculosis of kidney, tubercle bacilli not found by bacteriological or histological examination, but tuberculosis confirmed by other methods [inoculation of animals]	ICD-9-CM
ICD-9-CM5.4	Syphilis of kidney	ICD-9-CM
189.0	Malignant neoplasm of kidney, except pelvis	ICD-9-CM
189.9	Malignant neoplasm of urinary organ, site unspecified	ICD-9-CM
223.0	Benign neoplasm of kidney, except pelvis	ICD-9-CM
236.91	Neoplasm of uncertain behavior of kidney and ureter	ICD-9-CM
249.40	Secondary diabetes mellitus with renal manifestations, not stated as uncontrolled, or unspecified	ICD-9-CM
249.41	Secondary diabetes mellitus with renal manifestations, uncontrolled	ICD-9-CM
250.40	Diabetes with renal manifestations, type II or unspecified type, not stated as uncontrolled	ICD-9-CM
250.41	Diabetes with renal manifestations, type I [juvenile type], not stated as uncontrolled	ICD-9-CM
250.42	Diabetes with renal manifestations, type II or unspecified type, uncontrolled	ICD-9-CM
250.43	Diabetes with renal manifestations, type I [juvenile type], uncontrolled	ICD-9-CM
271.4	Renal glycosuria	ICD-9-CM
274.10	Gouty nephropathy, unspecified	ICD-9-CM
283.11	Hemolytic-uremic syndrome	ICD-9-CM
403.01	Hypertensive chronic kidney disease, malignant, with chronic kidney disease stage V or end stage renal disease	ICD-9-CM
403.11	Hypertensive chronic kidney disease, benign, with chronic kidney disease stage V or end stage renal disease	ICD-9-CM
403.91	Hypertensive chronic kidney disease, unspecified, with chronic kidney disease stage V or end stage renal disease	ICD-9-CM
404.02	Hypertensive heart and chronic kidney disease, malignant, without heart failure and with chronic kidney disease stage V or end stage renal disease	ICD-9-CM
404.03	Hypertensive heart and chronic kidney disease, malignant, with heart failure and with chronic kidney disease stage V or end stage renal disease	ICD-9-CM
404.12	Hypertensive heart and chronic kidney disease, benign, without heart failure and with chronic kidney disease stage V or end stage renal disease	ICD-9-CM
404.13	Hypertensive heart and chronic kidney disease, benign, with heart failure and chronic kidney disease stage V or end stage renal disease	ICD-9-CM
404.92	Hypertensive heart and chronic kidney disease, unspecified, without heart failure and with chronic kidney disease stage V or end stage renal disease	ICD-9-CM
404.93	Hypertensive heart and chronic kidney disease, unspecified, with heart failure and chronic kidney disease stage V or end stage renal disease	ICD-9-CM
440.1	Atherosclerosis of renal artery	ICD-9-CM
442.1	Aneurysm of renal artery	ICD-9-CM
572.4	Hepatorenal syndrome	ICD-9-CM

Appendix C. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) and International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) Codes used to Define Covariates in this Request

Code	Description	Code Type
580.0	Acute glomerulonephritis with lesion of proliferative glomerulonephritis	ICD-9-CM
580.4	Acute glomerulonephritis with lesion of rapidly progressive glomerulonephritis	ICD-9-CM
580.81	Acute glomerulonephritis with other specified pathological lesion in kidney in disease classified elsewhere	ICD-9-CM
580.89	Other acute glomerulonephritis with other specified pathological lesion in kidney	ICD-9-CM
580.9	Acute glomerulonephritis with unspecified pathological lesion in kidney	ICD-9-CM
581.0	Nephrotic syndrome with lesion of proliferative glomerulonephritis	ICD-9-CM
581.1	Nephrotic syndrome with lesion of membranous glomerulonephritis	ICD-9-CM
581.2	Nephrotic syndrome with lesion of membranoproliferative glomerulonephritis	ICD-9-CM
581.3	Nephrotic syndrome with lesion of minimal change glomerulonephritis	ICD-9-CM
581.81	Nephrotic syndrome with other specified pathological lesion in kidney in diseases classified elsewhere	ICD-9-CM
581.89	Other nephrotic syndrome with specified pathological lesion in kidney	ICD-9-CM
581.9	Nephrotic syndrome with unspecified pathological lesion in kidney	ICD-9-CM
582.0	Chronic glomerulonephritis with lesion of proliferative glomerulonephritis	ICD-9-CM
582.1	Chronic glomerulonephritis with lesion of membranous glomerulonephritis	ICD-9-CM
582.2	Chronic glomerulonephritis with lesion of membranoproliferative glomerulonephritis	ICD-9-CM
582.4	Chronic glomerulonephritis with lesion of rapidly progressive glomerulonephritis	ICD-9-CM
582.81	Chronic glomerulonephritis with other specified pathological lesion in kidney in diseases classified elsewhere	ICD-9-CM
582.89	Other chronic glomerulonephritis with specified pathological lesion in kidney	ICD-9-CM
582.9	Chronic glomerulonephritis with unspecified pathological lesion in kidney	ICD-9-CM
583.0	Nephritis and nephropathy, not specified as acute or chronic, with lesion of proliferative glomerulonephritis	ICD-9-CM
583.1	Nephritis and nephropathy, not specified as acute or chronic, with lesion of membranous glomerulonephritis	ICD-9-CM
583.2	Nephritis and nephropathy, not specified as acute or chronic, with lesion of membranoproliferative glomerulonephritis	ICD-9-CM
583.4	Nephritis and nephropathy, not specified as acute or chronic, with lesion of rapidly progressive glomerulonephritis	ICD-9-CM
583.6	Nephritis and nephropathy, not specified as acute or chronic, with lesion of renal cortical necrosis	ICD-9-CM
583.7	Nephritis and nephropathy, not specified as acute or chronic, with lesion of renal medullary necrosis	ICD-9-CM
583.81	Nephritis and nephropathy, not specified as acute or chronic, with other specified pathological lesion in kidney, in diseases classified elsewhere	ICD-9-CM
583.89	Other nephritis and nephropathy, not specified as acute or chronic, with specified pathological lesion in kidney	ICD-9-CM
583.9	Nephritis and nephropathy, not specified as acute or chronic, with unspecified pathological lesion in kidney	ICD-9-CM
584.5	Acute kidney failure with lesion of tubular necrosis	ICD-9-CM
584.6	Acute kidney failure with lesion of renal cortical necrosis	ICD-9-CM
584.7	Acute kidney failure with lesion of medullary [papillary] necrosis	ICD-9-CM
584.8	Acute kidney failure with other specified pathological lesion in kidney	ICD-9-CM
584.9	Acute kidney failure, unspecified	ICD-9-CM
585.1	Chronic kidney disease, Stage I	ICD-9-CM
585.2	Chronic kidney disease, Stage II (mild)	ICD-9-CM
585.3	Chronic kidney disease, Stage III (moderate)	ICD-9-CM
585.4	Chronic kidney disease, Stage IV (severe)	ICD-9-CM
585.5	Chronic kidney disease, Stage V	ICD-9-CM
585.6	End stage renal disease	ICD-9-CM
585.9	Chronic kidney disease, unspecified	ICD-9-CM

Appendix C. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) and International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) Codes used to Define Covariates in this Request

Code	Description	Code Type
586	Unspecified renal failure	ICD-9-CM
587	Unspecified renal sclerosis	ICD-9-CM
588.0	Renal osteodystrophy	ICD-9-CM
588.1	Nephrogenic diabetes insipidus	ICD-9-CM
588.81	Secondary hyperparathyroidism (of renal origin)	ICD-9-CM
588.89	Other specified disorders resulting from impaired renal function	ICD-9-CM
588.9	Unspecified disorder resulting from impaired renal function	ICD-9-CM
591	Hydronephrosis	ICD-9-CM
753.12	Congenital polycystic kidney, unspecified type	ICD-9-CM
753.13	Congenital polycystic kidney, autosomal dominant	ICD-9-CM
753.14	Congenital polycystic kidney, autosomal recessive	ICD-9-CM
753.15	Congenital renal dysplasia	ICD-9-CM
753.16	Congenital medullary cystic kidney	ICD-9-CM
753.17	Congenital medullary sponge kidney	ICD-9-CM
753.19	Other specified congenital cystic kidney disease	ICD-9-CM
753.20	Unspecified obstructive defect of renal pelvis and ureter	ICD-9-CM
753.21	Congenital obstruction of ureteropelvic junction	ICD-9-CM
753.22	Congenital obstruction of ureterovesical junction	ICD-9-CM
753.23	Congenital ureterocele	ICD-9-CM
753.29	Other obstructive defect of renal pelvis and ureter	ICD-9-CM
794.4	Nonspecific abnormal results of kidney function study	ICD-9-CM
A18.11	Tuberculosis of kidney and ureter	ICD-10-CM
A52.75	Syphilis of kidney and ureter	ICD-10-CM
B52.0	Plasmodium malariae malaria with nephropathy	ICD-10-CM
C64.1	Malignant neoplasm of right kidney, except renal pelvis	ICD-10-CM
C64.2	Malignant neoplasm of left kidney, except renal pelvis	ICD-10-CM
C64.9	Malignant neoplasm of unspecified kidney, except renal pelvis	ICD-10-CM
C68.9	Malignant neoplasm of urinary organ, unspecified	ICD-10-CM
D30.00	Benign neoplasm of unspecified kidney	ICD-10-CM
D30.01	Benign neoplasm of right kidney	ICD-10-CM
D30.02	Benign neoplasm of left kidney	ICD-10-CM
D41.00	Neoplasm of uncertain behavior of unspecified kidney	ICD-10-CM
D41.01	Neoplasm of uncertain behavior of right kidney	ICD-10-CM
D41.02	Neoplasm of uncertain behavior of left kidney	ICD-10-CM
D41.10	Neoplasm of uncertain behavior of unspecified renal pelvis	ICD-10-CM
D41.11	Neoplasm of uncertain behavior of right renal pelvis	ICD-10-CM
D41.12	Neoplasm of uncertain behavior of left renal pelvis	ICD-10-CM
D41.20	Neoplasm of uncertain behavior of unspecified ureter	ICD-10-CM
D41.21	Neoplasm of uncertain behavior of right ureter	ICD-10-CM
D41.22	Neoplasm of uncertain behavior of left ureter	ICD-10-CM
D59.3	Hemolytic-uremic syndrome	ICD-10-CM
E08.21	Diabetes mellitus due to underlying condition with diabetic nephropathy	ICD-10-CM
E08.22	Diabetes mellitus due to underlying condition with diabetic chronic kidney disease	ICD-10-CM
E08.29	Diabetes mellitus due to underlying condition with other diabetic kidney complication	ICD-10-CM
E08.65	Diabetes mellitus due to underlying condition with hyperglycemia	ICD-10-CM
E1CD-9-CM.21	Drug or chemical induced diabetes mellitus with diabetic nephropathy	ICD-10-CM
E1CD-9-CM.22	Drug or chemical induced diabetes mellitus with diabetic chronic kidney disease	ICD-10-CM
E1CD-9-CM.29	Drug or chemical induced diabetes mellitus with other diabetic kidney complication	ICD-10-CM
E10.21	Type 1 diabetes mellitus with diabetic nephropathy	ICD-10-CM
E10.22	Type 1 diabetes mellitus with diabetic chronic kidney disease	ICD-10-CM
E10.29	Type 1 diabetes mellitus with other diabetic kidney complication	ICD-10-CM
E10.65	Type 1 diabetes mellitus with hyperglycemia	ICD-10-CM

Appendix C. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) and International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) Codes used to Define Covariates in this Request

Code	Description	Code Type
E11.21	Type 2 diabetes mellitus with diabetic nephropathy	ICD-10-CM
E11.22	Type 2 diabetes mellitus with diabetic chronic kidney disease	ICD-10-CM
E11.29	Type 2 diabetes mellitus with other diabetic kidney complication	ICD-10-CM
E11.65	Type 2 diabetes mellitus with hyperglycemia	ICD-10-CM
E13.21	Other specified diabetes mellitus with diabetic nephropathy	ICD-10-CM
E13.22	Other specified diabetes mellitus with diabetic chronic kidney disease	ICD-10-CM
E13.29	Other specified diabetes mellitus with other diabetic kidney complication	ICD-10-CM
E74.8	Other specified disorders of carbohydrate metabolism	ICD-10-CM
I12.0	Hypertensive chronic kidney disease with stage 5 chronic kidney disease or end stage renal disease	ICD-10-CM
I12.9	Hypertensive chronic kidney disease with stage 1 through stage 4 chronic kidney disease, or unspecified chronic kidney disease	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	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	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	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	ICD-10-CM
I70.1	Atherosclerosis of renal artery	ICD-10-CM
I72.2	Aneurysm of renal artery	ICD-10-CM
K76.7	Hepatorenal syndrome	ICD-10-CM
M10.30	Gout due to renal impairment, unspecified site	ICD-10-CM
M10.311	Gout due to renal impairment, right shoulder	ICD-10-CM
M10.312	Gout due to renal impairment, left shoulder	ICD-10-CM
M10.319	Gout due to renal impairment, unspecified shoulder	ICD-10-CM
M10.321	Gout due to renal impairment, right elbow	ICD-10-CM
M10.322	Gout due to renal impairment, left elbow	ICD-10-CM
M10.329	Gout due to renal impairment, unspecified elbow	ICD-10-CM
M10.331	Gout due to renal impairment, right wrist	ICD-10-CM
M10.332	Gout due to renal impairment, left wrist	ICD-10-CM
M10.339	Gout due to renal impairment, unspecified wrist	ICD-10-CM
M10.341	Gout due to renal impairment, right hand	ICD-10-CM
M10.342	Gout due to renal impairment, left hand	ICD-10-CM
M10.349	Gout due to renal impairment, unspecified hand	ICD-10-CM
M10.351	Gout due to renal impairment, right hip	ICD-10-CM
M10.352	Gout due to renal impairment, left hip	ICD-10-CM
M10.359	Gout due to renal impairment, unspecified hip	ICD-10-CM
M10.361	Gout due to renal impairment, right knee	ICD-10-CM
M10.362	Gout due to renal impairment, left knee	ICD-10-CM
M10.369	Gout due to renal impairment, unspecified knee	ICD-10-CM
M10.371	Gout due to renal impairment, right ankle and foot	ICD-10-CM
M10.372	Gout due to renal impairment, left ankle and foot	ICD-10-CM
M10.379	Gout due to renal impairment, unspecified ankle and foot	ICD-10-CM
M10.38	Gout due to renal impairment, vertebrae	ICD-10-CM
M10.39	Gout due to renal impairment, multiple sites	ICD-10-CM
M32.14	Glomerular disease in systemic lupus erythematosus	ICD-10-CM
M32.15	Tubulo-interstitial nephropathy in systemic lupus erythematosus	ICD-10-CM
M35.04	Sicca syndrome with tubulo-interstitial nephropathy	ICD-10-CM
N00.0	Acute nephritic syndrome with minor glomerular abnormality	ICD-10-CM
N00.1	Acute nephritic syndrome with focal and segmental glomerular lesions	ICD-10-CM

Appendix C. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) and International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) Codes used to Define Covariates in this Request

Code	Description	Code Type
N00.2	Acute nephritic syndrome with diffuse membranous glomerulonephritis	ICD-10-CM
N00.3	Acute nephritic syndrome with diffuse mesangial proliferative glomerulonephritis	ICD-10-CM
N00.4	Acute nephritic syndrome with diffuse endocapillary proliferative glomerulonephritis	ICD-10-CM
N00.5	Acute nephritic syndrome with diffuse mesangiocapillary glomerulonephritis	ICD-10-CM
N00.6	Acute nephritic syndrome with dense deposit disease	ICD-10-CM
N00.7	Acute nephritic syndrome with diffuse crescentic glomerulonephritis	ICD-10-CM
N00.8	Acute nephritic syndrome with other morphologic changes	ICD-10-CM
N00.9	Acute nephritic syndrome with unspecified morphologic changes	ICD-10-CM
N01.0	Rapidly progressive nephritic syndrome with minor glomerular abnormality	ICD-10-CM
N01.1	Rapidly progressive nephritic syndrome with focal and segmental glomerular lesions	ICD-10-CM
N01.2	Rapidly progressive nephritic syndrome with diffuse membranous glomerulonephritis	ICD-10-CM
N01.3	Rapidly progressive nephritic syndrome with diffuse mesangial proliferative glomerulonephritis	ICD-10-CM
N01.4	Rapidly progressive nephritic syndrome with diffuse endocapillary proliferative glomerulonephritis	ICD-10-CM
N01.5	Rapidly progressive nephritic syndrome with diffuse mesangiocapillary glomerulonephritis	ICD-10-CM
N01.6	Rapidly progressive nephritic syndrome with dense deposit disease	ICD-10-CM
N01.7	Rapidly progressive nephritic syndrome with diffuse crescentic glomerulonephritis	ICD-10-CM
N01.8	Rapidly progressive nephritic syndrome with other morphologic changes	ICD-10-CM
N01.9	Rapidly progressive nephritic syndrome with unspecified morphologic changes	ICD-10-CM
N02.0	Recurrent and persistent hematuria with minor glomerular abnormality	ICD-10-CM
N02.1	Recurrent and persistent hematuria with focal and segmental glomerular lesions	ICD-10-CM
N02.2	Recurrent and persistent hematuria with diffuse membranous glomerulonephritis	ICD-10-CM
N02.3	Recurrent and persistent hematuria with diffuse mesangial proliferative glomerulonephritis	ICD-10-CM
N02.4	Recurrent and persistent hematuria with diffuse endocapillary proliferative glomerulonephritis	ICD-10-CM
N02.5	Recurrent and persistent hematuria with diffuse mesangiocapillary glomerulonephritis	ICD-10-CM
N02.6	Recurrent and persistent hematuria with dense deposit disease	ICD-10-CM
N02.7	Recurrent and persistent hematuria with diffuse crescentic glomerulonephritis	ICD-10-CM
N02.8	Recurrent and persistent hematuria with other morphologic changes	ICD-10-CM
N02.9	Recurrent and persistent hematuria with unspecified morphologic changes	ICD-10-CM
N03.0	Chronic nephritic syndrome with minor glomerular abnormality	ICD-10-CM
N03.1	Chronic nephritic syndrome with focal and segmental glomerular lesions	ICD-10-CM
N03.2	Chronic nephritic syndrome with diffuse membranous glomerulonephritis	ICD-10-CM
N03.3	Chronic nephritic syndrome with diffuse mesangial proliferative glomerulonephritis	ICD-10-CM
N03.4	Chronic nephritic syndrome with diffuse endocapillary proliferative glomerulonephritis	ICD-10-CM
N03.5	Chronic nephritic syndrome with diffuse mesangiocapillary glomerulonephritis	ICD-10-CM
N03.6	Chronic nephritic syndrome with dense deposit disease	ICD-10-CM
N03.7	Chronic nephritic syndrome with diffuse crescentic glomerulonephritis	ICD-10-CM
N03.8	Chronic nephritic syndrome with other morphologic changes	ICD-10-CM
N03.9	Chronic nephritic syndrome with unspecified morphologic changes	ICD-10-CM
N04.0	Nephrotic syndrome with minor glomerular abnormality	ICD-10-CM
N04.1	Nephrotic syndrome with focal and segmental glomerular lesions	ICD-10-CM
N04.2	Nephrotic syndrome with diffuse membranous glomerulonephritis	ICD-10-CM
N04.3	Nephrotic syndrome with diffuse mesangial proliferative glomerulonephritis	ICD-10-CM
N04.4	Nephrotic syndrome with diffuse endocapillary proliferative glomerulonephritis	ICD-10-CM
N04.5	Nephrotic syndrome with diffuse mesangiocapillary glomerulonephritis	ICD-10-CM
N04.6	Nephrotic syndrome with dense deposit disease	ICD-10-CM
N04.7	Nephrotic syndrome with diffuse crescentic glomerulonephritis	ICD-10-CM
N04.8	Nephrotic syndrome with other morphologic changes	ICD-10-CM
N04.9	Nephrotic syndrome with unspecified morphologic changes	ICD-10-CM
N05.0	Unspecified nephritic syndrome with minor glomerular abnormality	ICD-10-CM

Appendix C. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) and International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) Codes used to Define Covariates in this Request

Code	Description	Code Type
N05.1	Unspecified nephritic syndrome with focal and segmental glomerular lesions	ICD-10-CM
N05.2	Unspecified nephritic syndrome with diffuse membranous glomerulonephritis	ICD-10-CM
N05.3	Unspecified nephritic syndrome with diffuse mesangial proliferative glomerulonephritis	ICD-10-CM
N05.4	Unspecified nephritic syndrome with diffuse endocapillary proliferative glomerulonephritis	ICD-10-CM
N05.5	Unspecified nephritic syndrome with diffuse mesangiocapillary glomerulonephritis	ICD-10-CM
N05.6	Unspecified nephritic syndrome with dense deposit disease	ICD-10-CM
N05.7	Unspecified nephritic syndrome with diffuse crescentic glomerulonephritis	ICD-10-CM
N05.8	Unspecified nephritic syndrome with other morphologic changes	ICD-10-CM
N05.9	Unspecified nephritic syndrome with unspecified morphologic changes	ICD-10-CM
N06.0	Isolated proteinuria with minor glomerular abnormality	ICD-10-CM
N06.1	Isolated proteinuria with focal and segmental glomerular lesions	ICD-10-CM
N06.2	Isolated proteinuria with diffuse membranous glomerulonephritis	ICD-10-CM
N06.3	Isolated proteinuria with diffuse mesangial proliferative glomerulonephritis	ICD-10-CM
N06.4	Isolated proteinuria with diffuse endocapillary proliferative glomerulonephritis	ICD-10-CM
N06.5	Isolated proteinuria with diffuse mesangiocapillary glomerulonephritis	ICD-10-CM
N06.6	Isolated proteinuria with dense deposit disease	ICD-10-CM
N06.7	Isolated proteinuria with diffuse crescentic glomerulonephritis	ICD-10-CM
N06.8	Isolated proteinuria with other morphologic lesion	ICD-10-CM
N06.9	Isolated proteinuria with unspecified morphologic lesion	ICD-10-CM
N07.0	Hereditary nephropathy, not elsewhere classified with minor glomerular abnormality	ICD-10-CM
N07.1	Hereditary nephropathy, not elsewhere classified with focal and segmental glomerular lesions	ICD-10-CM
N07.2	Hereditary nephropathy, not elsewhere classified with diffuse membranous glomerulonephritis	ICD-10-CM
N07.3	Hereditary nephropathy, not elsewhere classified with diffuse mesangial proliferative glomerulonephritis	ICD-10-CM
N07.4	Hereditary nephropathy, not elsewhere classified with diffuse endocapillary proliferative glomerulonephritis	ICD-10-CM
N07.5	Hereditary nephropathy, not elsewhere classified with diffuse mesangiocapillary glomerulonephritis	ICD-10-CM
N07.6	Hereditary nephropathy, not elsewhere classified with dense deposit disease	ICD-10-CM
N07.7	Hereditary nephropathy, not elsewhere classified with diffuse crescentic glomerulonephritis	ICD-10-CM
N07.8	Hereditary nephropathy, not elsewhere classified with other morphologic lesions	ICD-10-CM
N07.9	Hereditary nephropathy, not elsewhere classified with unspecified morphologic lesions	ICD-10-CM
N08	Glomerular disorders in diseases classified elsewhere	ICD-10-CM
N13.1	Hydronephrosis with ureteral stricture, not elsewhere classified	ICD-10-CM
N13.2	Hydronephrosis with renal and ureteral calculous obstruction	ICD-10-CM
N13.30	Unspecified hydronephrosis	ICD-10-CM
N13.39	Other hydronephrosis	ICD-10-CM
N14.0	Analgesic nephropathy	ICD-10-CM
N14.1	Nephropathy induced by other drugs, medicaments and biological substances	ICD-10-CM
N14.2	Nephropathy induced by unspecified drug, medicament or biological substance	ICD-10-CM
N14.3	Nephropathy induced by heavy metals	ICD-10-CM
N14.4	Toxic nephropathy, not elsewhere classified	ICD-10-CM
N15.0	Balkan nephropathy	ICD-10-CM
N15.8	Other specified renal tubulo-interstitial diseases	ICD-10-CM
N15.9	Renal tubulo-interstitial disease, unspecified	ICD-10-CM
N16	Renal tubulo-interstitial disorders in diseases classified elsewhere	ICD-10-CM
N17.0	Acute kidney failure with tubular necrosis	ICD-10-CM
N17.1	Acute kidney failure with acute cortical necrosis	ICD-10-CM
N17.2	Acute kidney failure with medullary necrosis	ICD-10-CM

Appendix C. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) and International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) Codes used to Define Covariates in this Request

Code	Description	Code Type
N17.8	Other acute kidney failure	ICD-10-CM
N17.9	Acute kidney failure, unspecified	ICD-10-CM
N18.1	Chronic kidney disease, stage 1	ICD-10-CM
N18.2	Chronic kidney disease, stage 2 (mild)	ICD-10-CM
N18.3	Chronic kidney disease, stage 3 (moderate)	ICD-10-CM
N18.4	Chronic kidney disease, stage 4 (severe)	ICD-10-CM
N18.5	Chronic kidney disease, stage 5	ICD-10-CM
N18.6	End stage renal disease	ICD-10-CM
N18.9	Chronic kidney disease, unspecified	ICD-10-CM
N19	Unspecified kidney failure	ICD-10-CM
N25.0	Renal osteodystrophy	ICD-10-CM
N25.1	Nephrogenic diabetes insipidus	ICD-10-CM
N25.81	Secondary hyperparathyroidism of renal origin	ICD-10-CM
N25.89	Other disorders resulting from impaired renal tubular function	ICD-10-CM
N25.9	Disorder resulting from impaired renal tubular function, unspecified	ICD-10-CM
N26.1	Atrophy of kidney (terminal)	ICD-10-CM
N26.9	Renal sclerosis, unspecified	ICD-10-CM
Q61.02	Congenital multiple renal cysts	ICD-10-CM
Q61.11	Cystic dilatation of collecting ducts	ICD-10-CM
Q61.19	Other polycystic kidney, infantile type	ICD-10-CM
Q61.2	Polycystic kidney, adult type	ICD-10-CM
Q61.3	Polycystic kidney, unspecified	ICD-10-CM
Q61.4	Renal dysplasia	ICD-10-CM
Q61.5	Medullary cystic kidney	ICD-10-CM
Q61.8	Other cystic kidney diseases	ICD-10-CM
Q62.0	Congenital hydronephrosis	ICD-10-CM
Q62.10	Congenital occlusion of ureter, unspecified	ICD-10-CM
Q62.11	Congenital occlusion of ureteropelvic junction	ICD-10-CM
Q62.12	Congenital occlusion of ureterovesical orifice	ICD-10-CM
Q62.2	Congenital megaureter	ICD-10-CM
Q62.31	Congenital ureterocele, orthotopic	ICD-10-CM
Q62.32	Cecoureterocele	ICD-10-CM
Q62.39	Other obstructive defects of renal pelvis and ureter	ICD-10-CM
R94.4	Abnormal results of kidney function studies	ICD-10-CM
COPD and bronchiectasis		
490	Bronchitis, not specified as acute or chronic	ICD-9-CM
491.0	Simple chronic bronchitis	ICD-9-CM
491.1	Mucopurulent chronic bronchitis	ICD-9-CM
491.20	Obstructive chronic bronchitis, without exacerbation	ICD-9-CM
491.21	Obstructive chronic bronchitis, with (acute) exacerbation	ICD-9-CM
491.22	Obstructive chronic bronchitis with acute bronchitis	ICD-9-CM
491.8	Other chronic bronchitis	ICD-9-CM
491.9	Unspecified chronic bronchitis	ICD-9-CM
492.0	Emphysematous bleb	ICD-9-CM
492.8	Other emphysema	ICD-9-CM
494.0	Bronchiectasis without acute exacerbation	ICD-9-CM
494.1	Bronchiectasis with acute exacerbation	ICD-9-CM
496	Chronic airway obstruction, not elsewhere classified	ICD-9-CM
J40	Bronchitis, not specified as acute or chronic	ICD-10-CM
J41.0	Simple chronic bronchitis	ICD-10-CM
J41.1	Mucopurulent chronic bronchitis	ICD-10-CM
J41.8	Mixed simple and mucopurulent chronic bronchitis	ICD-10-CM

Appendix C. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) and International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) Codes used to Define Covariates in this Request

Code	Description	Code Type
J42	Unspecified chronic bronchitis	ICD-10-CM
J43.0	Unilateral pulmonary emphysema [MacLeod's syndrome]	ICD-10-CM
J43.1	Panlobular emphysema	ICD-10-CM
J43.2	Centrilobular emphysema	ICD-10-CM
J43.8	Other emphysema	ICD-10-CM
J43.9	Emphysema, unspecified	ICD-10-CM
J44.0	Chronic obstructive pulmonary disease with acute lower respiratory infection	ICD-10-CM
J44.1	Chronic obstructive pulmonary disease with (acute) exacerbation	ICD-10-CM
J44.9	Chronic obstructive pulmonary disease, unspecified	ICD-10-CM
J47.0	Bronchiectasis with acute lower respiratory infection	ICD-10-CM
J47.1	Bronchiectasis with (acute) exacerbation	ICD-10-CM
J47.9	Bronchiectasis, uncomplicated	ICD-10-CM
Depression		
296.20	Major depressive disorder, single episode, unspecified	ICD-9-CM
296.21	Major depressive disorder, single episode, mild	ICD-9-CM
296.22	Major depressive disorder, single episode, moderate	ICD-9-CM
296.23	Major depressive disorder, single episode, severe, without mention of psychotic behavior	ICD-9-CM
296.24	Major depressive disorder, single episode, severe, specified as with psychotic behavior	ICD-9-CM
296.25	Major depressive disorder, single episode, in partial or unspecified remission	ICD-9-CM
296.26	Major depressive disorder, single episode in full remission	ICD-9-CM
296.30	Major depressive disorder, recurrent episode, unspecified	ICD-9-CM
296.31	Major depressive disorder, recurrent episode, mild	ICD-9-CM
296.32	Major depressive disorder, recurrent episode, moderate	ICD-9-CM
296.33	Major depressive disorder, recurrent episode, severe, without mention of psychotic behavior	ICD-9-CM
296.34	Major depressive disorder, recurrent episode, severe, specified as with psychotic behavior	ICD-9-CM
296.35	Major depressive disorder, recurrent episode, in partial or unspecified remission	ICD-9-CM
296.36	Major depressive disorder, recurrent episode, in full remission	ICD-9-CM
296.51	Bipolar I disorder, most recent episode (or current) depressed, mild	ICD-9-CM
296.52	Bipolar I disorder, most recent episode (or current) depressed, moderate	ICD-9-CM
296.53	Bipolar I disorder, most recent episode (or current) depressed, severe, without mention of psychotic behavior	ICD-9-CM
296.54	Bipolar I disorder, most recent episode (or current) depressed, severe, specified as with psychotic behavior	ICD-9-CM
296.55	Bipolar I disorder, most recent episode (or current) depressed, in partial or unspecified remission	ICD-9-CM
296.56	Bipolar I disorder, most recent episode (or current) depressed, in full remission	ICD-9-CM
296.60	Bipolar I disorder, most recent episode (or current) mixed, unspecified	ICD-9-CM
296.61	Bipolar I disorder, most recent episode (or current) mixed, mild	ICD-9-CM
296.62	Bipolar I disorder, most recent episode (or current) mixed, moderate	ICD-9-CM
296.63	Bipolar I disorder, most recent episode (or current) mixed, severe, without mention of psychotic behavior	ICD-9-CM
296.64	Bipolar I disorder, most recent episode (or current) mixed, severe, specified as with psychotic behavior	ICD-9-CM
296.65	Bipolar I disorder, most recent episode (or current) mixed, in partial or unspecified remission	ICD-9-CM
296.66	Bipolar I disorder, most recent episode (or current) mixed, in full remission	ICD-9-CM
296.89	Other and unspecified bipolar disorders	ICD-9-CM
298.0	Depressive type psychosis	ICD-9-CM
300.4	Dysthymic disorder	ICD-9-CM
3ICD-9-CM.1	Prolonged depressive reaction as adjustment reaction	ICD-9-CM
311	Depressive disorder, not elsewhere classified	ICD-9-CM

Appendix C. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) and International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) Codes used to Define Covariates in this Request

Code	Description	Code Type
F31.30	Bipolar disorder, current episode depressed, mild or moderate severity, unspecified	ICD-10-CM
F31.31	Bipolar disorder, current episode depressed, mild	ICD-10-CM
F31.32	Bipolar disorder, current episode depressed, moderate	ICD-10-CM
F31.4	Bipolar disorder, current episode depressed, severe, without psychotic features	ICD-10-CM
F31.5	Bipolar disorder, current episode depressed, severe, with psychotic features	ICD-10-CM
F31.60	Bipolar disorder, current episode mixed, unspecified	ICD-10-CM
F31.61	Bipolar disorder, current episode mixed, mild	ICD-10-CM
F31.62	Bipolar disorder, current episode mixed, moderate	ICD-10-CM
F31.63	Bipolar disorder, current episode mixed, severe, without psychotic features	ICD-10-CM
F31.64	Bipolar disorder, current episode mixed, severe, with psychotic features	ICD-10-CM
F31.75	Bipolar disorder, in partial remission, most recent episode depressed	ICD-10-CM
F31.76	Bipolar disorder, in full remission, most recent episode depressed	ICD-10-CM
F31.77	Bipolar disorder, in partial remission, most recent episode mixed	ICD-10-CM
F31.78	Bipolar disorder, in full remission, most recent episode mixed	ICD-10-CM
F31.81	Bipolar II disorder	ICD-10-CM
F32.0	Major depressive disorder, single episode, mild	ICD-10-CM
F32.1	Major depressive disorder, single episode, moderate	ICD-10-CM
F32.2	Major depressive disorder, single episode, severe without psychotic features	ICD-10-CM
F32.3	Major depressive disorder, single episode, severe with psychotic features	ICD-10-CM
F32.4	Major depressive disorder, single episode, in partial remission	ICD-10-CM
F32.5	Major depressive disorder, single episode, in full remission	ICD-10-CM
F32.9	Major depressive disorder, single episode, unspecified	ICD-10-CM
F33.0	Major depressive disorder, recurrent, mild	ICD-10-CM
F33.1	Major depressive disorder, recurrent, moderate	ICD-10-CM
F33.2	Major depressive disorder, recurrent severe without psychotic features	ICD-10-CM
F33.3	Major depressive disorder, recurrent, severe with psychotic symptoms	ICD-10-CM
F33.40	Major depressive disorder, recurrent, in remission, unspecified	ICD-10-CM
F33.41	Major depressive disorder, recurrent, in partial remission	ICD-10-CM
F33.42	Major depressive disorder, recurrent, in full remission	ICD-10-CM
F33.8	Other recurrent depressive disorders	ICD-10-CM
F33.9	Major depressive disorder, recurrent, unspecified	ICD-10-CM
F34.1	Dysthymic disorder	ICD-10-CM
F43.21	Adjustment disorder with depressed mood	ICD-10-CM
F43.23	Adjustment disorder with mixed anxiety and depressed mood	ICD-10-CM
Diabetes		
249.00	Secondary diabetes mellitus without mention of complication, not stated as uncontrolled, or unspecified	ICD-9-CM
249.01	Secondary diabetes mellitus without mention of complication, uncontrolled	ICD-9-CM
249.10	Secondary diabetes mellitus with ketoacidosis, not stated as uncontrolled, or unspecified	ICD-9-CM
249.11	Secondary diabetes mellitus with ketoacidosis, uncontrolled	ICD-9-CM
249.20	Secondary diabetes mellitus with hyperosmolarity, not stated as uncontrolled, or unspecified	ICD-9-CM
249.21	Secondary diabetes mellitus with hyperosmolarity, uncontrolled	ICD-9-CM
249.30	Secondary diabetes mellitus with other coma, not stated as uncontrolled, or unspecified	ICD-9-CM
249.31	Secondary diabetes mellitus with other coma, uncontrolled	ICD-9-CM
249.40	Secondary diabetes mellitus with renal manifestations, not stated as uncontrolled, or unspecified	ICD-9-CM
249.41	Secondary diabetes mellitus with renal manifestations, uncontrolled	ICD-9-CM
249.50	Secondary diabetes mellitus with ophthalmic manifestations, not stated as uncontrolled, or unspecified	ICD-9-CM
249.51	Secondary diabetes mellitus with ophthalmic manifestations, uncontrolled	ICD-9-CM

Appendix C. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) and International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) Codes used to Define Covariates in this Request

Code	Description	Code Type
249.60	Secondary diabetes mellitus with neurological manifestations, not stated as uncontrolled, or unspecified	ICD-9-CM
249.61	Secondary diabetes mellitus with neurological manifestations, uncontrolled	ICD-9-CM
249.70	Secondary diabetes mellitus with peripheral circulatory disorders, not stated as uncontrolled, or unspecified	ICD-9-CM
249.71	Secondary diabetes mellitus with peripheral circulatory disorders, uncontrolled	ICD-9-CM
249.80	Secondary diabetes mellitus with other specified manifestations, not stated as uncontrolled, or unspecified	ICD-9-CM
249.81	Secondary diabetes mellitus with other specified manifestations, uncontrolled	ICD-9-CM
249.90	Secondary diabetes mellitus with unspecified complication, not stated as uncontrolled, or unspecified	ICD-9-CM
249.91	Secondary diabetes mellitus with unspecified complication, uncontrolled	ICD-9-CM
250.00	Diabetes mellitus without mention of complication, type II or unspecified type, not stated as uncontrolled	ICD-9-CM
250.01	Diabetes mellitus without mention of complication, type I [juvenile type], not stated as uncontrolled	ICD-9-CM
250.02	Diabetes mellitus without mention of complication, type II or unspecified type, uncontrolled	ICD-9-CM
250.03	Diabetes mellitus without mention of complication, type I [juvenile type], uncontrolled	ICD-9-CM
250.10	Diabetes with ketoacidosis, type II or unspecified type, not stated as uncontrolled	ICD-9-CM
250.11	Diabetes with ketoacidosis, type I [juvenile type], not stated as uncontrolled	ICD-9-CM
250.12	Diabetes with ketoacidosis, type II or unspecified type, uncontrolled	ICD-9-CM
250.13	Diabetes with ketoacidosis, type I [juvenile type], uncontrolled	ICD-9-CM
250.20	Diabetes with hyperosmolarity, type II or unspecified type, not stated as uncontrolled	ICD-9-CM
250.21	Diabetes with hyperosmolarity, type I [juvenile type], not stated as uncontrolled	ICD-9-CM
250.22	Diabetes with hyperosmolarity, type II or unspecified type, uncontrolled	ICD-9-CM
250.23	Diabetes with hyperosmolarity, type I [juvenile type], uncontrolled	ICD-9-CM
250.30	Diabetes with other coma, type II or unspecified type, not stated as uncontrolled	ICD-9-CM
250.31	Diabetes with other coma, type I [juvenile type], not stated as uncontrolled	ICD-9-CM
250.32	Diabetes with other coma, type II or unspecified type, uncontrolled	ICD-9-CM
250.33	Diabetes with other coma, type I [juvenile type], uncontrolled	ICD-9-CM
250.40	Diabetes with renal manifestations, type II or unspecified type, not stated as uncontrolled	ICD-9-CM
250.41	Diabetes with renal manifestations, type I [juvenile type], not stated as uncontrolled	ICD-9-CM
250.42	Diabetes with renal manifestations, type II or unspecified type, uncontrolled	ICD-9-CM
250.43	Diabetes with renal manifestations, type I [juvenile type], uncontrolled	ICD-9-CM
250.50	Diabetes with ophthalmic manifestations, type II or unspecified type, not stated as uncontrolled	ICD-9-CM
250.51	Diabetes with ophthalmic manifestations, type I [juvenile type], not stated as uncontrolled	ICD-9-CM
250.52	Diabetes with ophthalmic manifestations, type II or unspecified type, uncontrolled	ICD-9-CM
250.53	Diabetes with ophthalmic manifestations, type I [juvenile type], uncontrolled	ICD-9-CM
250.60	Diabetes with neurological manifestations, type II or unspecified type, not stated as uncontrolled	ICD-9-CM
250.61	Diabetes with neurological manifestations, type I [juvenile type], not stated as uncontrolled	ICD-9-CM
250.62	Diabetes with neurological manifestations, type II or unspecified type, uncontrolled	ICD-9-CM
250.63	Diabetes with neurological manifestations, type I [juvenile type], uncontrolled	ICD-9-CM
250.70	Diabetes with peripheral circulatory disorders, type II or unspecified type, not stated as uncontrolled	ICD-9-CM
250.71	Diabetes with peripheral circulatory disorders, type I [juvenile type], not stated as uncontrolled	ICD-9-CM
250.72	Diabetes with peripheral circulatory disorders, type II or unspecified type, uncontrolled	ICD-9-CM
250.73	Diabetes with peripheral circulatory disorders, type I [juvenile type], uncontrolled	ICD-9-CM
250.80	Diabetes with other specified manifestations, type II or unspecified type, not stated as uncontrolled	ICD-9-CM

Appendix C. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) and International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) Codes used to Define Covariates in this Request

Code	Description	Code Type
250.81	Diabetes with other specified manifestations, type I [juvenile type], not stated as uncontrolled	ICD-9-CM
250.82	Diabetes with other specified manifestations, type II or unspecified type, uncontrolled	ICD-9-CM
250.83	Diabetes with other specified manifestations, type I [juvenile type], uncontrolled	ICD-9-CM
250.90	Diabetes with unspecified complication, type II or unspecified type, not stated as uncontrolled	ICD-9-CM
250.91	Diabetes with unspecified complication, type I [juvenile type], not stated as uncontrolled	ICD-9-CM
250.92	Diabetes with unspecified complication, type II or unspecified type, uncontrolled	ICD-9-CM
250.93	Diabetes with unspecified complication, type I [juvenile type], uncontrolled	ICD-9-CM
357.2	Polyneuropathy in diabetes	ICD-9-CM
362.01	Background diabetic retinopathy	ICD-9-CM
362.02	Proliferative diabetic retinopathy	ICD-9-CM
362.03	Nonproliferative diabetic retinopathy NOS	ICD-9-CM
362.04	Mild nonproliferative diabetic retinopathy	ICD-9-CM
362.05	Moderate nonproliferative diabetic retinopathy	ICD-9-CM
362.06	Severe nonproliferative diabetic retinopathy	ICD-9-CM
366.41	Diabetic cataract	ICD-9-CM
E08.00	Diabetes mellitus due to underlying condition with hyperosmolarity without nonketotic hyperglycemic-hyperosmolar coma (NKHHC)	ICD-10-CM
E08.01	Diabetes mellitus due to underlying condition with hyperosmolarity with coma	ICD-10-CM
E08.10	Diabetes mellitus due to underlying condition with ketoacidosis without coma	ICD-10-CM
E08.11	Diabetes mellitus due to underlying condition with ketoacidosis with coma	ICD-10-CM
E08.21	Diabetes mellitus due to underlying condition with diabetic nephropathy	ICD-10-CM
E08.22	Diabetes mellitus due to underlying condition with diabetic chronic kidney disease	ICD-10-CM
E08.29	Diabetes mellitus due to underlying condition with other diabetic kidney complication	ICD-10-CM
E08.311	Diabetes mellitus due to underlying condition with unspecified diabetic retinopathy with macular edema	ICD-10-CM
E08.319	Diabetes mellitus due to underlying condition with unspecified diabetic retinopathy without macular edema	ICD-10-CM
E08.321	Diabetes mellitus due to underlying condition with mild nonproliferative diabetic retinopathy with macular edema	ICD-10-CM
E08.3211	Diabetes mellitus due to underlying condition with mild nonproliferative diabetic retinopathy with macular edema, right eye	ICD-10-CM
E08.3212	Diabetes mellitus due to underlying condition with mild nonproliferative diabetic retinopathy with macular edema, left eye	ICD-10-CM
E08.3213	Diabetes mellitus due to underlying condition with mild nonproliferative diabetic retinopathy with macular edema, bilateral	ICD-10-CM
E08.3219	Diabetes mellitus due to underlying condition with mild nonproliferative diabetic retinopathy with macular edema, unspecified eye	ICD-10-CM
E08.329	Diabetes mellitus due to underlying condition with mild nonproliferative diabetic retinopathy without macular edema	ICD-10-CM
E08.3291	Diabetes mellitus due to underlying condition with mild nonproliferative diabetic retinopathy without macular edema, right eye	ICD-10-CM
E08.3292	Diabetes mellitus due to underlying condition with mild nonproliferative diabetic retinopathy without macular edema, left eye	ICD-10-CM
E08.3293	Diabetes mellitus due to underlying condition with mild nonproliferative diabetic retinopathy without macular edema, bilateral	ICD-10-CM
E08.3299	Diabetes mellitus due to underlying condition with mild nonproliferative diabetic retinopathy without macular edema, unspecified eye	ICD-10-CM
E08.331	Diabetes mellitus due to underlying condition with moderate nonproliferative diabetic retinopathy with macular edema	ICD-10-CM

Appendix C. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) and International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) Codes used to Define Covariates in this Request

Code	Description	Code Type
E08.3311	Diabetes mellitus due to underlying condition with moderate nonproliferative diabetic retinopathy with macular edema, right eye	ICD-10-CM
E08.3312	Diabetes mellitus due to underlying condition with moderate nonproliferative diabetic retinopathy with macular edema, left eye	ICD-10-CM
E08.3313	Diabetes mellitus due to underlying condition with moderate nonproliferative diabetic retinopathy with macular edema, bilateral	ICD-10-CM
E08.3319	Diabetes mellitus due to underlying condition with moderate nonproliferative diabetic retinopathy with macular edema, unspecified eye	ICD-10-CM
E08.339	Diabetes mellitus due to underlying condition with moderate nonproliferative diabetic retinopathy without macular edema	ICD-10-CM
E08.3391	Diabetes mellitus due to underlying condition with moderate nonproliferative diabetic retinopathy without macular edema, right eye	ICD-10-CM
E08.3392	Diabetes mellitus due to underlying condition with moderate nonproliferative diabetic retinopathy without macular edema, left eye	ICD-10-CM
E08.3393	Diabetes mellitus due to underlying condition with moderate nonproliferative diabetic retinopathy without macular edema, bilateral	ICD-10-CM
E08.3399	Diabetes mellitus due to underlying condition with moderate nonproliferative diabetic retinopathy without macular edema, unspecified eye	ICD-10-CM
E08.341	Diabetes mellitus due to underlying condition with severe nonproliferative diabetic retinopathy with macular edema	ICD-10-CM
E08.3411	Diabetes mellitus due to underlying condition with severe nonproliferative diabetic retinopathy with macular edema, right eye	ICD-10-CM
E08.3412	Diabetes mellitus due to underlying condition with severe nonproliferative diabetic retinopathy with macular edema, left eye	ICD-10-CM
E08.3413	Diabetes mellitus due to underlying condition with severe nonproliferative diabetic retinopathy with macular edema, bilateral	ICD-10-CM
E08.3419	Diabetes mellitus due to underlying condition with severe nonproliferative diabetic retinopathy with macular edema, unspecified eye	ICD-10-CM
E08.349	Diabetes mellitus due to underlying condition with severe nonproliferative diabetic retinopathy without macular edema	ICD-10-CM
E08.3491	Diabetes mellitus due to underlying condition with severe nonproliferative diabetic retinopathy without macular edema, right eye	ICD-10-CM
E08.3492	Diabetes mellitus due to underlying condition with severe nonproliferative diabetic retinopathy without macular edema, left eye	ICD-10-CM
E08.3493	Diabetes mellitus due to underlying condition with severe nonproliferative diabetic retinopathy without macular edema, bilateral	ICD-10-CM
E08.3499	Diabetes mellitus due to underlying condition with severe nonproliferative diabetic retinopathy without macular edema, unspecified eye	ICD-10-CM
E08.351	Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy with macular edema	ICD-10-CM
E08.3511	Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy with macular edema, right eye	ICD-10-CM
E08.3512	Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy with macular edema, left eye	ICD-10-CM
E08.3513	Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy with macular edema, bilateral	ICD-10-CM
E08.3519	Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy with macular edema, unspecified eye	ICD-10-CM
E08.3521	Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy with traction retinal detachment involving the macula, right eye	ICD-10-CM
E08.3522	Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy with traction retinal detachment involving the macula, left eye	ICD-10-CM

Appendix C. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) and International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) Codes used to Define Covariates in this Request

Code	Description	Code Type
E08.3523	Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy with traction retinal detachment involving the macula, bilateral	ICD-10-CM
E08.3529	Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy with traction retinal detachment involving the macula, unspecified eye	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	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	ICD-10-CM
E08.3533	Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, bilateral	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	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	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	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	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	ICD-10-CM
E08.3551	Diabetes mellitus due to underlying condition with stable proliferative diabetic retinopathy, right eye	ICD-10-CM
E08.3552	Diabetes mellitus due to underlying condition with stable proliferative diabetic retinopathy, left eye	ICD-10-CM
E08.3553	Diabetes mellitus due to underlying condition with stable proliferative diabetic retinopathy, bilateral	ICD-10-CM
E08.3559	Diabetes mellitus due to underlying condition with stable proliferative diabetic retinopathy, unspecified eye	ICD-10-CM
E08.359	Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy without macular edema	ICD-10-CM
E08.3591	Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy without macular edema, right eye	ICD-10-CM
E08.3592	Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy without macular edema, left eye	ICD-10-CM
E08.3593	Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy without macular edema, bilateral	ICD-10-CM
E08.3599	Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy without macular edema, unspecified eye	ICD-10-CM
E08.36	Diabetes mellitus due to underlying condition with diabetic cataract	ICD-10-CM
E08.37X1	Diabetes mellitus due to underlying condition with diabetic macular edema, resolved following treatment, right eye	ICD-10-CM
E08.37X2	Diabetes mellitus due to underlying condition with diabetic macular edema, resolved following treatment, left eye	ICD-10-CM
E08.37X3	Diabetes mellitus due to underlying condition with diabetic macular edema, resolved following treatment, bilateral	ICD-10-CM
E08.37X9	Diabetes mellitus due to underlying condition with diabetic macular edema, resolved following treatment, unspecified eye	ICD-10-CM
E08.39	Diabetes mellitus due to underlying condition with other diabetic ophthalmic complication	ICD-10-CM
E08.40	Diabetes mellitus due to underlying condition with diabetic neuropathy, unspecified	ICD-10-CM
E08.41	Diabetes mellitus due to underlying condition with diabetic mononeuropathy	ICD-10-CM
E08.42	Diabetes mellitus due to underlying condition with diabetic polyneuropathy	ICD-10-CM

Appendix C. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) and International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) Codes used to Define Covariates in this Request

Code	Description	Code Type
E08.43	Diabetes mellitus due to underlying condition with diabetic autonomic (poly)neuropathy	ICD-10-CM
E08.44	Diabetes mellitus due to underlying condition with diabetic amyotrophy	ICD-10-CM
E08.49	Diabetes mellitus due to underlying condition with other diabetic neurological complication	ICD-10-CM
E08.51	Diabetes mellitus due to underlying condition with diabetic peripheral angiopathy without gangrene	ICD-10-CM
E08.52	Diabetes mellitus due to underlying condition with diabetic peripheral angiopathy with gangrene	ICD-10-CM
E08.59	Diabetes mellitus due to underlying condition with other circulatory complications	ICD-10-CM
E08.610	Diabetes mellitus due to underlying condition with diabetic neuropathic arthropathy	ICD-10-CM
E08.618	Diabetes mellitus due to underlying condition with other diabetic arthropathy	ICD-10-CM
E08.620	Diabetes mellitus due to underlying condition with diabetic dermatitis	ICD-10-CM
E08.621	Diabetes mellitus due to underlying condition with foot ulcer	ICD-10-CM
E08.622	Diabetes mellitus due to underlying condition with other skin ulcer	ICD-10-CM
E08.628	Diabetes mellitus due to underlying condition with other skin complications	ICD-10-CM
E08.630	Diabetes mellitus due to underlying condition with periodontal disease	ICD-10-CM
E08.638	Diabetes mellitus due to underlying condition with other oral complications	ICD-10-CM
E08.641	Diabetes mellitus due to underlying condition with hypoglycemia with coma	ICD-10-CM
E08.649	Diabetes mellitus due to underlying condition with hypoglycemia without coma	ICD-10-CM
E08.65	Diabetes mellitus due to underlying condition with hyperglycemia	ICD-10-CM
E08.69	Diabetes mellitus due to underlying condition with other specified complication	ICD-10-CM
E08.8	Diabetes mellitus due to underlying condition with unspecified complications	ICD-10-CM
E08.9	Diabetes mellitus due to underlying condition without complications	ICD-10-CM
EICD-9-CM.00	Drug or chemical induced diabetes mellitus with hyperosmolarity without nonketotic hyperglycemic-hyperosmolar coma (NKHHC)	ICD-10-CM
EICD-9-CM.01	Drug or chemical induced diabetes mellitus with hyperosmolarity with coma	ICD-10-CM
EICD-9-CM.10	Drug or chemical induced diabetes mellitus with ketoacidosis without coma	ICD-10-CM
EICD-9-CM.11	Drug or chemical induced diabetes mellitus with ketoacidosis with coma	ICD-10-CM
EICD-9-CM.21	Drug or chemical induced diabetes mellitus with diabetic nephropathy	ICD-10-CM
EICD-9-CM.22	Drug or chemical induced diabetes mellitus with diabetic chronic kidney disease	ICD-10-CM
EICD-9-CM.29	Drug or chemical induced diabetes mellitus with other diabetic kidney complication	ICD-10-CM
EICD-9-CM.311	Drug or chemical induced diabetes mellitus with unspecified diabetic retinopathy with macular edema	ICD-10-CM
EICD-9-CM.319	Drug or chemical induced diabetes mellitus with unspecified diabetic retinopathy without macular edema	ICD-10-CM
EICD-9-CM.321	Drug or chemical induced diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema	ICD-10-CM
EICD-9-CM.321	Drug or chemical induced diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, right eye	ICD-10-CM
EICD-9-CM.321	Drug or chemical induced diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, left eye	ICD-10-CM
EICD-9-CM.321	Drug or chemical induced diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, bilateral	ICD-10-CM
EICD-9-CM.321	Drug or chemical induced diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, unspecified eye	ICD-10-CM
EICD-9-CM.329	Drug or chemical induced diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema	ICD-10-CM
EICD-9-CM.329	Drug or chemical induced diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, right eye	ICD-10-CM
EICD-9-CM.329	Drug or chemical induced diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, left eye	ICD-10-CM

Appendix C. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) and International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) Codes used to Define Covariates in this Request

Code	Description	Code Type
EICD-9-CM.329	Drug or chemical induced diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, bilateral	ICD-10-CM
EICD-9-CM.329	Drug or chemical induced diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, unspecified eye	ICD-10-CM
EICD-9-CM.331	Drug or chemical induced diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema	ICD-10-CM
EICD-9-CM.331	Drug or chemical induced diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, right eye	ICD-10-CM
EICD-9-CM.331	Drug or chemical induced diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, left eye	ICD-10-CM
EICD-9-CM.331	Drug or chemical induced diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, bilateral	ICD-10-CM
EICD-9-CM.331	Drug or chemical induced diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, unspecified eye	ICD-10-CM
EICD-9-CM.339	Drug or chemical induced diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema	ICD-10-CM
EICD-9-CM.339	Drug or chemical induced diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, right eye	ICD-10-CM
EICD-9-CM.339	Drug or chemical induced diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, left eye	ICD-10-CM
EICD-9-CM.339	Drug or chemical induced diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, bilateral	ICD-10-CM
EICD-9-CM.339	Drug or chemical induced diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, unspecified eye	ICD-10-CM
EICD-9-CM.341	Drug or chemical induced diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema	ICD-10-CM
EICD-9-CM.341	Drug or chemical induced diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, right eye	ICD-10-CM
EICD-9-CM.341	Drug or chemical induced diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, left eye	ICD-10-CM
EICD-9-CM.341	Drug or chemical induced diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, bilateral	ICD-10-CM
EICD-9-CM.341	Drug or chemical induced diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, unspecified eye	ICD-10-CM
EICD-9-CM.349	Drug or chemical induced diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema	ICD-10-CM
EICD-9-CM.349	Drug or chemical induced diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema, right eye	ICD-10-CM
EICD-9-CM.349	Drug or chemical induced diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema, left eye	ICD-10-CM
EICD-9-CM.349	Drug or chemical induced diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema, bilateral	ICD-10-CM
EICD-9-CM.349	Drug or chemical induced diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema, unspecified eye	ICD-10-CM
EICD-9-CM.351	Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy with macular edema	ICD-10-CM
EICD-9-CM.351	Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy with macular edema, right eye	ICD-10-CM
EICD-9-CM.351	Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy with macular edema, left eye	ICD-10-CM
EICD-9-CM.351	Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy with macular edema, bilateral	ICD-10-CM

Appendix C. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) and International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) Codes used to Define Covariates in this Request

Code	Description	Code Type
EICD-9-CM.351	Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy with macular edema, unspecified eye	ICD-10-CM
EICD-9-CM.352	Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula, right eye	ICD-10-CM
EICD-9-CM.352	Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula, left eye	ICD-10-CM
EICD-9-CM.352	Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula, bilateral	ICD-10-CM
EICD-9-CM.352	Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula, unspecified eye	ICD-10-CM
EICD-9-CM.353	Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, right eye	ICD-10-CM
EICD-9-CM.353	Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, left eye	ICD-10-CM
EICD-9-CM.353	Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, bilateral	ICD-10-CM
EICD-9-CM.353	Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, unspecified eye	ICD-10-CM
EICD-9-CM.354	Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment, right eye	ICD-10-CM
EICD-9-CM.354	Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment, left eye	ICD-10-CM
EICD-9-CM.354	Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment, bilateral	ICD-10-CM
EICD-9-CM.354	Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment, unspecified eye	ICD-10-CM
EICD-9-CM.355	Drug or chemical induced diabetes mellitus with stable proliferative diabetic retinopathy, right eye	ICD-10-CM
EICD-9-CM.355	Drug or chemical induced diabetes mellitus with stable proliferative diabetic retinopathy, left eye	ICD-10-CM
EICD-9-CM.355	Drug or chemical induced diabetes mellitus with stable proliferative diabetic retinopathy, bilateral	ICD-10-CM
EICD-9-CM.355	Drug or chemical induced diabetes mellitus with stable proliferative diabetic retinopathy, unspecified eye	ICD-10-CM
EICD-9-CM.359	Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy without macular edema	ICD-10-CM
EICD-9-CM.359	Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy without macular edema, right eye	ICD-10-CM
EICD-9-CM.359	Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy without macular edema, left eye	ICD-10-CM
EICD-9-CM.359	Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy without macular edema, bilateral	ICD-10-CM
EICD-9-CM.359	Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy without macular edema, unspecified eye	ICD-10-CM
EICD-9-CM.36	Drug or chemical induced diabetes mellitus with diabetic cataract	ICD-10-CM
EICD-9-CM.37X	Drug or chemical induced diabetes mellitus with diabetic macular edema, resolved following treatment, right eye	ICD-10-CM
EICD-9-CM.37X	Drug or chemical induced diabetes mellitus with diabetic macular edema, resolved following treatment, left eye	ICD-10-CM
EICD-9-CM.37X	Drug or chemical induced diabetes mellitus with diabetic macular edema, resolved following treatment, bilateral	ICD-10-CM

Appendix C. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) and International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) Codes used to Define Covariates in this Request

Code	Description	Code Type
EICD-9-CM.37X	Drug or chemical induced diabetes mellitus with diabetic macular edema, resolved following treatment, unspecified eye	ICD-10-CM
EICD-9-CM.39	Drug or chemical induced diabetes mellitus with other diabetic ophthalmic complication	ICD-10-CM
EICD-9-CM.40	Drug or chemical induced diabetes mellitus with neurological complications with diabetic neuropathy, unspecified	ICD-10-CM
EICD-9-CM.41	Drug or chemical induced diabetes mellitus with neurological complications with diabetic mononeuropathy	ICD-10-CM
EICD-9-CM.42	Drug or chemical induced diabetes mellitus with neurological complications with diabetic polyneuropathy	ICD-10-CM
EICD-9-CM.43	Drug or chemical induced diabetes mellitus with neurological complications with diabetic autonomic (poly)neuropathy	ICD-10-CM
EICD-9-CM.44	Drug or chemical induced diabetes mellitus with neurological complications with diabetic amyotrophy	ICD-10-CM
EICD-9-CM.49	Drug or chemical induced diabetes mellitus with neurological complications with other diabetic neurological complication	ICD-10-CM
EICD-9-CM.51	Drug or chemical induced diabetes mellitus with diabetic peripheral angiopathy without gangrene	ICD-10-CM
EICD-9-CM.52	Drug or chemical induced diabetes mellitus with diabetic peripheral angiopathy with gangrene	ICD-10-CM
EICD-9-CM.59	Drug or chemical induced diabetes mellitus with other circulatory complications	ICD-10-CM
EICD-9-CM.610	Drug or chemical induced diabetes mellitus with diabetic neuropathic arthropathy	ICD-10-CM
EICD-9-CM.618	Drug or chemical induced diabetes mellitus with other diabetic arthropathy	ICD-10-CM
EICD-9-CM.620	Drug or chemical induced diabetes mellitus with diabetic dermatitis	ICD-10-CM
EICD-9-CM.621	Drug or chemical induced diabetes mellitus with foot ulcer	ICD-10-CM
EICD-9-CM.622	Drug or chemical induced diabetes mellitus with other skin ulcer	ICD-10-CM
EICD-9-CM.628	Drug or chemical induced diabetes mellitus with other skin complications	ICD-10-CM
EICD-9-CM.630	Drug or chemical induced diabetes mellitus with periodontal disease	ICD-10-CM
EICD-9-CM.638	Drug or chemical induced diabetes mellitus with other oral complications	ICD-10-CM
EICD-9-CM.641	Drug or chemical induced diabetes mellitus with hypoglycemia with coma	ICD-10-CM
EICD-9-CM.649	Drug or chemical induced diabetes mellitus with hypoglycemia without coma	ICD-10-CM
EICD-9-CM.65	Drug or chemical induced diabetes mellitus with hyperglycemia	ICD-10-CM
EICD-9-CM.69	Drug or chemical induced diabetes mellitus with other specified complication	ICD-10-CM
EICD-9-CM.8	Drug or chemical induced diabetes mellitus with unspecified complications	ICD-10-CM
EICD-9-CM.9	Drug or chemical induced diabetes mellitus without complications	ICD-10-CM
E10.10	Type 1 diabetes mellitus with ketoacidosis without coma	ICD-10-CM
E10.11	Type 1 diabetes mellitus with ketoacidosis with coma	ICD-10-CM
E10.21	Type 1 diabetes mellitus with diabetic nephropathy	ICD-10-CM
E10.22	Type 1 diabetes mellitus with diabetic chronic kidney disease	ICD-10-CM
E10.29	Type 1 diabetes mellitus with other diabetic kidney complication	ICD-10-CM
E10.311	Type 1 diabetes mellitus with unspecified diabetic retinopathy with macular edema	ICD-10-CM
E10.319	Type 1 diabetes mellitus with unspecified diabetic retinopathy without macular edema	ICD-10-CM
E10.321	Type 1 diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema	ICD-10-CM
E10.3211	Type 1 diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, right eye	ICD-10-CM
E10.3212	Type 1 diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, left eye	ICD-10-CM
E10.3213	Type 1 diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, bilateral	ICD-10-CM
E10.3219	Type 1 diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, unspecified eye	ICD-10-CM

Appendix C. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) and International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) Codes used to Define Covariates in this Request

Code	Description	Code Type
E10.329	Type 1 diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema	ICD-10-CM
E10.3291	Type 1 diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, right eye	ICD-10-CM
E10.3292	Type 1 diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, left eye	ICD-10-CM
E10.3293	Type 1 diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, bilateral	ICD-10-CM
E10.3299	Type 1 diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, unspecified eye	ICD-10-CM
E10.331	Type 1 diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema	ICD-10-CM
E10.3311	Type 1 diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, right eye	ICD-10-CM
E10.3312	Type 1 diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, left eye	ICD-10-CM
E10.3313	Type 1 diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, bilateral	ICD-10-CM
E10.3319	Type 1 diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, unspecified eye	ICD-10-CM
E10.339	Type 1 diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema	ICD-10-CM
E10.3391	Type 1 diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, right eye	ICD-10-CM
E10.3392	Type 1 diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, left eye	ICD-10-CM
E10.3393	Type 1 diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, bilateral	ICD-10-CM
E10.3399	Type 1 diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, unspecified eye	ICD-10-CM
E10.341	Type 1 diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema	ICD-10-CM
E10.3411	Type 1 diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, right eye	ICD-10-CM
E10.3412	Type 1 diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, left eye	ICD-10-CM
E10.3413	Type 1 diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, bilateral	ICD-10-CM
E10.3419	Type 1 diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, unspecified eye	ICD-10-CM
E10.349	Type 1 diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema	ICD-10-CM
E10.3491	Type 1 diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema, right eye	ICD-10-CM
E10.3492	Type 1 diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema, left eye	ICD-10-CM
E10.3493	Type 1 diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema, bilateral	ICD-10-CM
E10.3499	Type 1 diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema, unspecified eye	ICD-10-CM
E10.351	Type 1 diabetes mellitus with proliferative diabetic retinopathy with macular edema	ICD-10-CM

Appendix C. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) and International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) Codes used to Define Covariates in this Request

Code	Description	Code Type
E10.3511	Type 1 diabetes mellitus with proliferative diabetic retinopathy with macular edema, right eye	ICD-10-CM
E10.3512	Type 1 diabetes mellitus with proliferative diabetic retinopathy with macular edema, left eye	ICD-10-CM
E10.3513	Type 1 diabetes mellitus with proliferative diabetic retinopathy with macular edema, bilateral	ICD-10-CM
E10.3519	Type 1 diabetes mellitus with proliferative diabetic retinopathy with macular edema, unspecified eye	ICD-10-CM
E10.359	Type 1 diabetes mellitus with proliferative diabetic retinopathy without macular edema	ICD-10-CM
E10.36	Type 1 diabetes mellitus with diabetic cataract	ICD-10-CM
E10.37X1	Type 1 diabetes mellitus with diabetic macular edema, resolved following treatment, right eye	ICD-10-CM
E10.37X2	Type 1 diabetes mellitus with diabetic macular edema, resolved following treatment, left eye	ICD-10-CM
E10.37X3	Type 1 diabetes mellitus with diabetic macular edema, resolved following treatment, bilateral	ICD-10-CM
E10.37X9	Type 1 diabetes mellitus with diabetic macular edema, resolved following treatment, unspecified eye	ICD-10-CM
E10.39	Type 1 diabetes mellitus with other diabetic ophthalmic complication	ICD-10-CM
E10.40	Type 1 diabetes mellitus with diabetic neuropathy, unspecified	ICD-10-CM
E10.41	Type 1 diabetes mellitus with diabetic mononeuropathy	ICD-10-CM
E10.42	Type 1 diabetes mellitus with diabetic polyneuropathy	ICD-10-CM
E10.43	Type 1 diabetes mellitus with diabetic autonomic (poly)neuropathy	ICD-10-CM
E10.44	Type 1 diabetes mellitus with diabetic amyotrophy	ICD-10-CM
E10.49	Type 1 diabetes mellitus with other diabetic neurological complication	ICD-10-CM
E10.51	Type 1 diabetes mellitus with diabetic peripheral angiopathy without gangrene	ICD-10-CM
E10.52	Type 1 diabetes mellitus with diabetic peripheral angiopathy with gangrene	ICD-10-CM
E10.59	Type 1 diabetes mellitus with other circulatory complications	ICD-10-CM
E10.610	Type 1 diabetes mellitus with diabetic neuropathic arthropathy	ICD-10-CM
E10.618	Type 1 diabetes mellitus with other diabetic arthropathy	ICD-10-CM
E10.620	Type 1 diabetes mellitus with diabetic dermatitis	ICD-10-CM
E10.621	Type 1 diabetes mellitus with foot ulcer	ICD-10-CM
E10.622	Type 1 diabetes mellitus with other skin ulcer	ICD-10-CM
E10.628	Type 1 diabetes mellitus with other skin complications	ICD-10-CM
E10.630	Type 1 diabetes mellitus with periodontal disease	ICD-10-CM
E10.638	Type 1 diabetes mellitus with other oral complications	ICD-10-CM
E10.641	Type 1 diabetes mellitus with hypoglycemia with coma	ICD-10-CM
E10.649	Type 1 diabetes mellitus with hypoglycemia without coma	ICD-10-CM
E10.65	Type 1 diabetes mellitus with hyperglycemia	ICD-10-CM
E10.69	Type 1 diabetes mellitus with other specified complication	ICD-10-CM
E10.8	Type 1 diabetes mellitus with unspecified complications	ICD-10-CM
E10.9	Type 1 diabetes mellitus without complications	ICD-10-CM
E11.00	Type 2 diabetes mellitus with hyperosmolarity without nonketotic hyperglycemic-hyperosmolar coma (NKHHC)	ICD-10-CM
E11.01	Type 2 diabetes mellitus with hyperosmolarity with coma	ICD-10-CM
E11.10	Type 2 diabetes mellitus with ketoacidosis without coma	ICD-10-CM
E11.11	Type 2 diabetes mellitus with ketoacidosis with coma	ICD-10-CM
E11.21	Type 2 diabetes mellitus with diabetic nephropathy	ICD-10-CM
E11.22	Type 2 diabetes mellitus with diabetic chronic kidney disease	ICD-10-CM
E11.29	Type 2 diabetes mellitus with other diabetic kidney complication	ICD-10-CM
E11.311	Type 2 diabetes mellitus with unspecified diabetic retinopathy with macular edema	ICD-10-CM
E11.319	Type 2 diabetes mellitus with unspecified diabetic retinopathy without macular edema	ICD-10-CM

Appendix C. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) and International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) Codes used to Define Covariates in this Request

Code	Description	Code Type
E11.321	Type 2 diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema	ICD-10-CM
E11.3211	Type 2 diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, right eye	ICD-10-CM
E11.3212	Type 2 diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, left eye	ICD-10-CM
E11.3213	Type 2 diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, bilateral	ICD-10-CM
E11.3219	Type 2 diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, unspecified eye	ICD-10-CM
E11.329	Type 2 diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema	ICD-10-CM
E11.3291	Type 2 diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, right eye	ICD-10-CM
E11.3292	Type 2 diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, left eye	ICD-10-CM
E11.3293	Type 2 diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, bilateral	ICD-10-CM
E11.3299	Type 2 diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, unspecified eye	ICD-10-CM
E11.331	Type 2 diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema	ICD-10-CM
E11.3311	Type 2 diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, right eye	ICD-10-CM
E11.3312	Type 2 diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, left eye	ICD-10-CM
E11.3313	Type 2 diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, bilateral	ICD-10-CM
E11.3319	Type 2 diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, unspecified eye	ICD-10-CM
E11.339	Type 2 diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema	ICD-10-CM
E11.3391	Type 2 diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, right eye	ICD-10-CM
E11.3392	Type 2 diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, left eye	ICD-10-CM
E11.3393	Type 2 diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, bilateral	ICD-10-CM
E11.3399	Type 2 diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, unspecified eye	ICD-10-CM
E11.341	Type 2 diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema	ICD-10-CM
E11.3411	Type 2 diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, right eye	ICD-10-CM
E11.3412	Type 2 diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, left eye	ICD-10-CM
E11.3413	Type 2 diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, bilateral	ICD-10-CM
E11.3419	Type 2 diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, unspecified eye	ICD-10-CM
E11.349	Type 2 diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema	ICD-10-CM

Appendix C. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) and International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) Codes used to Define Covariates in this Request

Code	Description	Code Type
E11.3491	Type 2 diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema, right eye	ICD-10-CM
E11.3492	Type 2 diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema, left eye	ICD-10-CM
E11.3493	Type 2 diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema, bilateral	ICD-10-CM
E11.3499	Type 2 diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema, unspecified eye	ICD-10-CM
E11.351	Type 2 diabetes mellitus with proliferative diabetic retinopathy with macular edema	ICD-10-CM
E11.3511	Type 2 diabetes mellitus with proliferative diabetic retinopathy with macular edema, right eye	ICD-10-CM
E11.3512	Type 2 diabetes mellitus with proliferative diabetic retinopathy with macular edema, left eye	ICD-10-CM
E11.3513	Type 2 diabetes mellitus with proliferative diabetic retinopathy with macular edema, bilateral	ICD-10-CM
E11.3519	Type 2 diabetes mellitus with proliferative diabetic retinopathy with macular edema, unspecified eye	ICD-10-CM
E11.3521	Type 2 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula, right eye	ICD-10-CM
E11.3522	Type 2 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula, left eye	ICD-10-CM
E11.3523	Type 2 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula, bilateral	ICD-10-CM
E11.3529	Type 2 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula, unspecified eye	ICD-10-CM
E11.3531	Type 2 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, right eye	ICD-10-CM
E11.3532	Type 2 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, left eye	ICD-10-CM
E11.3533	Type 2 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, bilateral	ICD-10-CM
E11.3539	Type 2 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, unspecified eye	ICD-10-CM
E11.3541	Type 2 diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment, right eye	ICD-10-CM
E11.3542	Type 2 diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment, left eye	ICD-10-CM
E11.3543	Type 2 diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment, bilateral	ICD-10-CM
E11.3549	Type 2 diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment, unspecified eye	ICD-10-CM
E11.3551	Type 2 diabetes mellitus with stable proliferative diabetic retinopathy, right eye	ICD-10-CM
E11.3552	Type 2 diabetes mellitus with stable proliferative diabetic retinopathy, left eye	ICD-10-CM
E11.3553	Type 2 diabetes mellitus with stable proliferative diabetic retinopathy, bilateral	ICD-10-CM
E11.3559	Type 2 diabetes mellitus with stable proliferative diabetic retinopathy, unspecified eye	ICD-10-CM
E11.359	Type 2 diabetes mellitus with proliferative diabetic retinopathy without macular edema	ICD-10-CM
E11.3591	Type 2 diabetes mellitus with proliferative diabetic retinopathy without macular edema, right eye	ICD-10-CM
E11.3592	Type 2 diabetes mellitus with proliferative diabetic retinopathy without macular edema, left eye	ICD-10-CM
E11.3593	Type 2 diabetes mellitus with proliferative diabetic retinopathy without macular edema, bilateral	ICD-10-CM

Appendix C. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) and International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) Codes used to Define Covariates in this Request

Code	Description	Code Type
E11.3599	Type 2 diabetes mellitus with proliferative diabetic retinopathy without macular edema, unspecified eye	ICD-10-CM
E11.36	Type 2 diabetes mellitus with diabetic cataract	ICD-10-CM
E11.37X1	Type 2 diabetes mellitus with diabetic macular edema, resolved following treatment, right eye	ICD-10-CM
E11.37X2	Type 2 diabetes mellitus with diabetic macular edema, resolved following treatment, left eye	ICD-10-CM
E11.37X3	Type 2 diabetes mellitus with diabetic macular edema, resolved following treatment, bilateral	ICD-10-CM
E11.37X9	Type 2 diabetes mellitus with diabetic macular edema, resolved following treatment, unspecified eye	ICD-10-CM
E11.39	Type 2 diabetes mellitus with other diabetic ophthalmic complication	ICD-10-CM
E11.40	Type 2 diabetes mellitus with diabetic neuropathy, unspecified	ICD-10-CM
E11.41	Type 2 diabetes mellitus with diabetic mononeuropathy	ICD-10-CM
E11.42	Type 2 diabetes mellitus with diabetic polyneuropathy	ICD-10-CM
E11.43	Type 2 diabetes mellitus with diabetic autonomic (poly)neuropathy	ICD-10-CM
E11.44	Type 2 diabetes mellitus with diabetic amyotrophy	ICD-10-CM
E11.49	Type 2 diabetes mellitus with other diabetic neurological complication	ICD-10-CM
E11.51	Type 2 diabetes mellitus with diabetic peripheral angiopathy without gangrene	ICD-10-CM
E11.52	Type 2 diabetes mellitus with diabetic peripheral angiopathy with gangrene	ICD-10-CM
E11.59	Type 2 diabetes mellitus with other circulatory complications	ICD-10-CM
E11.610	Type 2 diabetes mellitus with diabetic neuropathic arthropathy	ICD-10-CM
E11.618	Type 2 diabetes mellitus with other diabetic arthropathy	ICD-10-CM
E11.620	Type 2 diabetes mellitus with diabetic dermatitis	ICD-10-CM
E11.621	Type 2 diabetes mellitus with foot ulcer	ICD-10-CM
E11.622	Type 2 diabetes mellitus with other skin ulcer	ICD-10-CM
E11.628	Type 2 diabetes mellitus with other skin complications	ICD-10-CM
E11.630	Type 2 diabetes mellitus with periodontal disease	ICD-10-CM
E11.638	Type 2 diabetes mellitus with other oral complications	ICD-10-CM
E11.641	Type 2 diabetes mellitus with hypoglycemia with coma	ICD-10-CM
E11.649	Type 2 diabetes mellitus with hypoglycemia without coma	ICD-10-CM
E11.65	Type 2 diabetes mellitus with hyperglycemia	ICD-10-CM
E11.69	Type 2 diabetes mellitus with other specified complication	ICD-10-CM
E11.8	Type 2 diabetes mellitus with unspecified complications	ICD-10-CM
E11.9	Type 2 diabetes mellitus without complications	ICD-10-CM
E13.00	Other specified diabetes mellitus with hyperosmolarity without nonketotic hyperglycemic-hyperosmolar coma (NKHHC)	ICD-10-CM
E13.01	Other specified diabetes mellitus with hyperosmolarity with coma	ICD-10-CM
E13.10	Other specified diabetes mellitus with ketoacidosis without coma	ICD-10-CM
E13.11	Other specified diabetes mellitus with ketoacidosis with coma	ICD-10-CM
E13.21	Other specified diabetes mellitus with diabetic nephropathy	ICD-10-CM
E13.22	Other specified diabetes mellitus with diabetic chronic kidney disease	ICD-10-CM
E13.29	Other specified diabetes mellitus with other diabetic kidney complication	ICD-10-CM
E13.311	Other specified diabetes mellitus with unspecified diabetic retinopathy with macular edema	ICD-10-CM
E13.319	Other specified diabetes mellitus with unspecified diabetic retinopathy without macular edema	ICD-10-CM
E13.321	Other specified diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema	ICD-10-CM
E13.3211	Other specified diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, right eye	ICD-10-CM
E13.3212	Other specified diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, left eye	ICD-10-CM

Appendix C. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) and International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) Codes used to Define Covariates in this Request

Code	Description	Code Type
E13.3213	Other specified diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, bilateral	ICD-10-CM
E13.3219	Other specified diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, unspecified eye	ICD-10-CM
E13.329	Other specified diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema	ICD-10-CM
E13.3291	Other specified diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, right eye	ICD-10-CM
E13.3292	Other specified diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, left eye	ICD-10-CM
E13.3293	Other specified diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, bilateral	ICD-10-CM
E13.3299	Other specified diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, unspecified eye	ICD-10-CM
E13.331	Other specified diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema	ICD-10-CM
E13.3311	Other specified diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, right eye	ICD-10-CM
E13.3312	Other specified diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, left eye	ICD-10-CM
E13.3313	Other specified diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, bilateral	ICD-10-CM
E13.3319	Other specified diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, unspecified eye	ICD-10-CM
E13.339	Other specified diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema	ICD-10-CM
E13.3391	Other specified diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, right eye	ICD-10-CM
E13.3392	Other specified diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, left eye	ICD-10-CM
E13.3393	Other specified diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, bilateral	ICD-10-CM
E13.3399	Other specified diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, unspecified eye	ICD-10-CM
E13.341	Other specified diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema	ICD-10-CM
E13.3411	Other specified diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, right eye	ICD-10-CM
E13.3412	Other specified diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, left eye	ICD-10-CM
E13.3413	Other specified diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, bilateral	ICD-10-CM
E13.3419	Other specified diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, unspecified eye	ICD-10-CM
E13.349	Other specified diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema	ICD-10-CM
E13.3491	Other specified diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema, right eye	ICD-10-CM
E13.3492	Other specified diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema, left eye	ICD-10-CM
E13.3493	Other specified diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema, bilateral	ICD-10-CM

Appendix C. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) and International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) Codes used to Define Covariates in this Request

Code	Description	Code Type
E13.3499	Other specified diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema, unspecified eye	ICD-10-CM
E13.351	Other specified diabetes mellitus with proliferative diabetic retinopathy with macular edema	ICD-10-CM
E13.3511	Other specified diabetes mellitus with proliferative diabetic retinopathy with macular edema, right eye	ICD-10-CM
E13.3512	Other specified diabetes mellitus with proliferative diabetic retinopathy with macular edema, left eye	ICD-10-CM
E13.3513	Other specified diabetes mellitus with proliferative diabetic retinopathy with macular edema, bilateral	ICD-10-CM
E13.3519	Other specified diabetes mellitus with proliferative diabetic retinopathy with macular edema, unspecified eye	ICD-10-CM
E13.3521	Other specified diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula, right eye	ICD-10-CM
E13.3522	Other specified diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula, left eye	ICD-10-CM
E13.3523	Other specified diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula, bilateral	ICD-10-CM
E13.3529	Other specified diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula, unspecified eye	ICD-10-CM
E13.3531	Other specified diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, right eye	ICD-10-CM
E13.3532	Other specified diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, left eye	ICD-10-CM
E13.3533	Other specified diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, bilateral	ICD-10-CM
E13.3539	Other specified diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, unspecified eye	ICD-10-CM
E13.3541	Other specified diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment, right eye	ICD-10-CM
E13.3542	Other specified diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment, left eye	ICD-10-CM
E13.3543	Other specified diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment, bilateral	ICD-10-CM
E13.3549	Other specified diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment, unspecified eye	ICD-10-CM
E13.3551	Other specified diabetes mellitus with stable proliferative diabetic retinopathy, right eye	ICD-10-CM
E13.3552	Other specified diabetes mellitus with stable proliferative diabetic retinopathy, left eye	ICD-10-CM
E13.3553	Other specified diabetes mellitus with stable proliferative diabetic retinopathy, bilateral	ICD-10-CM
E13.3559	Other specified diabetes mellitus with stable proliferative diabetic retinopathy, unspecified eye	ICD-10-CM
E13.359	Other specified diabetes mellitus with proliferative diabetic retinopathy without macular edema	ICD-10-CM
E13.36	Other specified diabetes mellitus with diabetic cataract	ICD-10-CM
E13.39	Other specified diabetes mellitus with other diabetic ophthalmic complication	ICD-10-CM
E13.40	Other specified diabetes mellitus with diabetic neuropathy, unspecified	ICD-10-CM
E13.41	Other specified diabetes mellitus with diabetic mononeuropathy	ICD-10-CM
E13.42	Other specified diabetes mellitus with diabetic polyneuropathy	ICD-10-CM
E13.43	Other specified diabetes mellitus with diabetic autonomic (poly)neuropathy	ICD-10-CM
E13.44	Other specified diabetes mellitus with diabetic amyotrophy	ICD-10-CM
E13.49	Other specified diabetes mellitus with other diabetic neurological complication	ICD-10-CM
E13.51	Other specified diabetes mellitus with diabetic peripheral angiopathy without gangrene	ICD-10-CM

Appendix C. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) and International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) Codes used to Define Covariates in this Request

Code	Description	Code Type
E13.52	Other specified diabetes mellitus with diabetic peripheral angiopathy with gangrene	ICD-10-CM
E13.59	Other specified diabetes mellitus with other circulatory complications	ICD-10-CM
E13.610	Other specified diabetes mellitus with diabetic neuropathic arthropathy	ICD-10-CM
E13.618	Other specified diabetes mellitus with other diabetic arthropathy	ICD-10-CM
E13.620	Other specified diabetes mellitus with diabetic dermatitis	ICD-10-CM
E13.621	Other specified diabetes mellitus with foot ulcer	ICD-10-CM
E13.622	Other specified diabetes mellitus with other skin ulcer	ICD-10-CM
E13.628	Other specified diabetes mellitus with other skin complications	ICD-10-CM
E13.630	Other specified diabetes mellitus with periodontal disease	ICD-10-CM
E13.638	Other specified diabetes mellitus with other oral complications	ICD-10-CM
E13.641	Other specified diabetes mellitus with hypoglycemia with coma	ICD-10-CM
E13.649	Other specified diabetes mellitus with hypoglycemia without coma	ICD-10-CM
E13.65	Other specified diabetes mellitus with hyperglycemia	ICD-10-CM
E13.69	Other specified diabetes mellitus with other specified complication	ICD-10-CM
E13.8	Other specified diabetes mellitus with unspecified complications	ICD-10-CM
E13.9	Other specified diabetes mellitus without complications	ICD-10-CM
Glaucoma		
362.85	Retinal nerve fiber bundle defects	ICD-9-CM
365.00	Unspecified preglaucoma	ICD-9-CM
365.01	Borderline glaucoma, open angle with borderline findings, low risk	ICD-9-CM
365.02	Borderline glaucoma with anatomical narrow angle	ICD-9-CM
365.03	Borderline glaucoma with steroid responders	ICD-9-CM
365.04	Borderline glaucoma with ocular hypertension	ICD-9-CM
365.10	Unspecified open-angle glaucoma	ICD-9-CM
365.11	Primary open-angle glaucoma	ICD-9-CM
365.12	Low tension open-angle glaucoma	ICD-9-CM
365.13	Pigmentary open-angle glaucoma	ICD-9-CM
365.15	Residual stage of open angle glaucoma	ICD-9-CM
365.20	Unspecified primary angle-closure glaucoma	ICD-9-CM
365.21	Intermittent angle-closure glaucoma	ICD-9-CM
365.22	Acute angle-closure glaucoma	ICD-9-CM
365.23	Chronic angle-closure glaucoma	ICD-9-CM
365.24	Residual stage of angle-closure glaucoma	ICD-9-CM
365.31	Corticosteroid-induced glaucoma, glaucomatous stage	ICD-9-CM
365.32	Corticosteroid-induced glaucoma, residual stage	ICD-9-CM
365.41	Glaucoma associated with chamber angle anomalies	ICD-9-CM
365.42	Glaucoma associated with anomalies of iris	ICD-9-CM
365.43	Glaucoma associated with other anterior segment anomalies	ICD-9-CM
365.51	Phacolytic glaucoma	ICD-9-CM
365.52	Pseudoexfoliation glaucoma	ICD-9-CM
365.59	Glaucoma associated with other lens disorders	ICD-9-CM
365.60	Glaucoma associated with unspecified ocular disorder	ICD-9-CM
365.61	Glaucoma associated with pupillary block	ICD-9-CM
365.62	Glaucoma associated with ocular inflammations	ICD-9-CM
365.63	Glaucoma associated with vascular disorders of eye	ICD-9-CM
365.64	Glaucoma associated with tumors or cysts	ICD-9-CM
365.65	Glaucoma associated with ocular trauma	ICD-9-CM
365.81	Hypersecretion glaucoma	ICD-9-CM
365.82	Glaucoma with increased episcleral venous pressure	ICD-9-CM
365.83	Aqueous misdirection	ICD-9-CM
365.89	Other specified glaucoma	ICD-9-CM
365.9	Unspecified glaucoma	ICD-9-CM

Appendix C. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) and International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) Codes used to Define Covariates in this Request

Code	Description	Code Type
377.14	Glaucomatous atrophy (cupping) of optic disc	ICD-9-CM
H40.001	Preglaucoma, unspecified, right eye	ICD-10-CM
H40.002	Preglaucoma, unspecified, left eye	ICD-10-CM
H40.003	Preglaucoma, unspecified, bilateral	ICD-10-CM
H40.01CD-9-CM	Preglaucoma, unspecified, unspecified eye	ICD-10-CM
H40.011	Open angle with borderline findings, low risk, right eye	ICD-10-CM
H40.012	Open angle with borderline findings, low risk, left eye	ICD-10-CM
H40.013	Open angle with borderline findings, low risk, bilateral	ICD-10-CM
H40.019	Open angle with borderline findings, low risk, unspecified eye	ICD-10-CM
H40.031	Anatomical narrow angle, right eye	ICD-10-CM
H40.032	Anatomical narrow angle, left eye	ICD-10-CM
H40.033	Anatomical narrow angle, bilateral	ICD-10-CM
H40.039	Anatomical narrow angle, unspecified eye	ICD-10-CM
H40.041	Steroid responder, right eye	ICD-10-CM
H40.042	Steroid responder, left eye	ICD-10-CM
H40.043	Steroid responder, bilateral	ICD-10-CM
H40.049	Steroid responder, unspecified eye	ICD-10-CM
H40.051	Ocular hypertension, right eye	ICD-10-CM
H40.052	Ocular hypertension, left eye	ICD-10-CM
H40.053	Ocular hypertension, bilateral	ICD-10-CM
H40.059	Ocular hypertension, unspecified eye	ICD-10-CM
H40.10X0	Unspecified open-angle glaucoma, stage unspecified	ICD-10-CM
H40.10X1	Unspecified open-angle glaucoma, mild stage	ICD-10-CM
H40.10X2	Unspecified open-angle glaucoma, moderate stage	ICD-10-CM
H40.10X3	Unspecified open-angle glaucoma, severe stage	ICD-10-CM
H40.10X4	Unspecified open-angle glaucoma, indeterminate stage	ICD-10-CM
H40.1110	Primary open-angle glaucoma, right eye, stage unspecified	ICD-10-CM
H40.1111	Primary open-angle glaucoma, right eye, mild stage	ICD-10-CM
H40.1112	Primary open-angle glaucoma, right eye, moderate stage	ICD-10-CM
H40.1113	Primary open-angle glaucoma, right eye, severe stage	ICD-10-CM
H40.1114	Primary open-angle glaucoma, right eye, indeterminate stage	ICD-10-CM
H40.1120	Primary open-angle glaucoma, left eye, stage unspecified	ICD-10-CM
H40.1121	Primary open-angle glaucoma, left eye, mild stage	ICD-10-CM
H40.1122	Primary open-angle glaucoma, left eye, moderate stage	ICD-10-CM
H40.1123	Primary open-angle glaucoma, left eye, severe stage	ICD-10-CM
H40.1124	Primary open-angle glaucoma, left eye, indeterminate stage	ICD-10-CM
H40.1130	Primary open-angle glaucoma, bilateral, stage unspecified	ICD-10-CM
H40.1131	Primary open-angle glaucoma, bilateral, mild stage	ICD-10-CM
H40.1132	Primary open-angle glaucoma, bilateral, moderate stage	ICD-10-CM
H40.1133	Primary open-angle glaucoma, bilateral, severe stage	ICD-10-CM
H40.1134	Primary open-angle glaucoma, bilateral, indeterminate stage	ICD-10-CM
H40.1190	Primary open-angle glaucoma, unspecified eye, stage unspecified	ICD-10-CM
H40.1191	Primary open-angle glaucoma, unspecified eye, mild stage	ICD-10-CM
H40.1192	Primary open-angle glaucoma, unspecified eye, moderate stage	ICD-10-CM
H40.1193	Primary open-angle glaucoma, unspecified eye, severe stage	ICD-10-CM
H40.1194	Primary open-angle glaucoma, unspecified eye, indeterminate stage	ICD-10-CM
H40.11X0	Primary open-angle glaucoma, stage unspecified	ICD-10-CM
H40.11X1	Primary open-angle glaucoma, mild stage	ICD-10-CM
H40.11X2	Primary open-angle glaucoma, moderate stage	ICD-10-CM
H40.11X3	Primary open-angle glaucoma, severe stage	ICD-10-CM
H40.11X4	Primary open-angle glaucoma, indeterminate stage	ICD-10-CM
H40.1210	Low-tension glaucoma, right eye, stage unspecified	ICD-10-CM

Appendix C. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) and International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) Codes used to Define Covariates in this Request

Code	Description	Code Type
H40.1211	Low-tension glaucoma, right eye, mild stage	ICD-10-CM
H40.1212	Low-tension glaucoma, right eye, moderate stage	ICD-10-CM
H40.1213	Low-tension glaucoma, right eye, severe stage	ICD-10-CM
H40.1214	Low-tension glaucoma, right eye, indeterminate stage	ICD-10-CM
H40.1220	Low-tension glaucoma, left eye, stage unspecified	ICD-10-CM
H40.1221	Low-tension glaucoma, left eye, mild stage	ICD-10-CM
H40.1222	Low-tension glaucoma, left eye, moderate stage	ICD-10-CM
H40.1223	Low-tension glaucoma, left eye, severe stage	ICD-10-CM
H40.1224	Low-tension glaucoma, left eye, indeterminate stage	ICD-10-CM
H40.1230	Low-tension glaucoma, bilateral, stage unspecified	ICD-10-CM
H40.1231	Low-tension glaucoma, bilateral, mild stage	ICD-10-CM
H40.1232	Low-tension glaucoma, bilateral, moderate stage	ICD-10-CM
H40.1233	Low-tension glaucoma, bilateral, severe stage	ICD-10-CM
H40.1234	Low-tension glaucoma, bilateral, indeterminate stage	ICD-10-CM
H40.1290	Low-tension glaucoma, unspecified eye, stage unspecified	ICD-10-CM
H40.1291	Low-tension glaucoma, unspecified eye, mild stage	ICD-10-CM
H40.1292	Low-tension glaucoma, unspecified eye, moderate stage	ICD-10-CM
H40.1293	Low-tension glaucoma, unspecified eye, severe stage	ICD-10-CM
H40.1294	Low-tension glaucoma, unspecified eye, indeterminate stage	ICD-10-CM
H40.1310	Pigmentary glaucoma, right eye, stage unspecified	ICD-10-CM
H40.1311	Pigmentary glaucoma, right eye, mild stage	ICD-10-CM
H40.1312	Pigmentary glaucoma, right eye, moderate stage	ICD-10-CM
H40.1313	Pigmentary glaucoma, right eye, severe stage	ICD-10-CM
H40.1314	Pigmentary glaucoma, right eye, indeterminate stage	ICD-10-CM
H40.1320	Pigmentary glaucoma, left eye, stage unspecified	ICD-10-CM
H40.1321	Pigmentary glaucoma, left eye, mild stage	ICD-10-CM
H40.1322	Pigmentary glaucoma, left eye, moderate stage	ICD-10-CM
H40.1323	Pigmentary glaucoma, left eye, severe stage	ICD-10-CM
H40.1324	Pigmentary glaucoma, left eye, indeterminate stage	ICD-10-CM
H40.1330	Pigmentary glaucoma, bilateral, stage unspecified	ICD-10-CM
H40.1331	Pigmentary glaucoma, bilateral, mild stage	ICD-10-CM
H40.1332	Pigmentary glaucoma, bilateral, moderate stage	ICD-10-CM
H40.1333	Pigmentary glaucoma, bilateral, severe stage	ICD-10-CM
H40.1334	Pigmentary glaucoma, bilateral, indeterminate stage	ICD-10-CM
H40.1390	Pigmentary glaucoma, unspecified eye, stage unspecified	ICD-10-CM
H40.1391	Pigmentary glaucoma, unspecified eye, mild stage	ICD-10-CM
H40.1392	Pigmentary glaucoma, unspecified eye, moderate stage	ICD-10-CM
H40.1393	Pigmentary glaucoma, unspecified eye, severe stage	ICD-10-CM
H40.1394	Pigmentary glaucoma, unspecified eye, indeterminate stage	ICD-10-CM
H40.1410	Capsular glaucoma with pseudoexfoliation of lens, right eye, stage unspecified	ICD-10-CM
H40.1411	Capsular glaucoma with pseudoexfoliation of lens, right eye, mild stage	ICD-10-CM
H40.1412	Capsular glaucoma with pseudoexfoliation of lens, right eye, moderate stage	ICD-10-CM
H40.1413	Capsular glaucoma with pseudoexfoliation of lens, right eye, severe stage	ICD-10-CM
H40.1414	Capsular glaucoma with pseudoexfoliation of lens, right eye, indeterminate stage	ICD-10-CM
H40.1420	Capsular glaucoma with pseudoexfoliation of lens, left eye, stage unspecified	ICD-10-CM
H40.1421	Capsular glaucoma with pseudoexfoliation of lens, left eye, mild stage	ICD-10-CM
H40.1422	Capsular glaucoma with pseudoexfoliation of lens, left eye, moderate stage	ICD-10-CM
H40.1423	Capsular glaucoma with pseudoexfoliation of lens, left eye, severe stage	ICD-10-CM
H40.1424	Capsular glaucoma with pseudoexfoliation of lens, left eye, indeterminate stage	ICD-10-CM
H40.1430	Capsular glaucoma with pseudoexfoliation of lens, bilateral, stage unspecified	ICD-10-CM
H40.1431	Capsular glaucoma with pseudoexfoliation of lens, bilateral, mild stage	ICD-10-CM
H40.1432	Capsular glaucoma with pseudoexfoliation of lens, bilateral, moderate stage	ICD-10-CM

Appendix C. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) and International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) Codes used to Define Covariates in this Request

Code	Description	Code Type
H40.1433	Capsular glaucoma with pseudoexfoliation of lens, bilateral, severe stage	ICD-10-CM
H40.1434	Capsular glaucoma with pseudoexfoliation of lens, bilateral, indeterminate stage	ICD-10-CM
H40.1490	Capsular glaucoma with pseudoexfoliation of lens, unspecified eye, stage unspecified	ICD-10-CM
H40.1491	Capsular glaucoma with pseudoexfoliation of lens, unspecified eye, mild stage	ICD-10-CM
H40.1492	Capsular glaucoma with pseudoexfoliation of lens, unspecified eye, moderate stage	ICD-10-CM
H40.1493	Capsular glaucoma with pseudoexfoliation of lens, unspecified eye, severe stage	ICD-10-CM
H40.1494	Capsular glaucoma with pseudoexfoliation of lens, unspecified eye, indeterminate stage	ICD-10-CM
H40.151	Residual stage of open-angle glaucoma, right eye	ICD-10-CM
H40.152	Residual stage of open-angle glaucoma, left eye	ICD-10-CM
H40.153	Residual stage of open-angle glaucoma, bilateral	ICD-10-CM
H40.159	Residual stage of open-angle glaucoma, unspecified eye	ICD-10-CM
H40.20X0	Unspecified primary angle-closure glaucoma, stage unspecified	ICD-10-CM
H40.20X1	Unspecified primary angle-closure glaucoma, mild stage	ICD-10-CM
H40.20X2	Unspecified primary angle-closure glaucoma, moderate stage	ICD-10-CM
H40.20X3	Unspecified primary angle-closure glaucoma, severe stage	ICD-10-CM
H40.20X4	Unspecified primary angle-closure glaucoma, indeterminate stage	ICD-10-CM
H40.211	Acute angle-closure glaucoma, right eye	ICD-10-CM
H40.212	Acute angle-closure glaucoma, left eye	ICD-10-CM
H40.213	Acute angle-closure glaucoma, bilateral	ICD-10-CM
H40.219	Acute angle-closure glaucoma, unspecified eye	ICD-10-CM
H40.2210	Chronic angle-closure glaucoma, right eye, stage unspecified	ICD-10-CM
H40.2211	Chronic angle-closure glaucoma, right eye, mild stage	ICD-10-CM
H40.2212	Chronic angle-closure glaucoma, right eye, moderate stage	ICD-10-CM
H40.2213	Chronic angle-closure glaucoma, right eye, severe stage	ICD-10-CM
H40.2214	Chronic angle-closure glaucoma, right eye, indeterminate stage	ICD-10-CM
H40.2220	Chronic angle-closure glaucoma, left eye, stage unspecified	ICD-10-CM
H40.2221	Chronic angle-closure glaucoma, left eye, mild stage	ICD-10-CM
H40.2222	Chronic angle-closure glaucoma, left eye, moderate stage	ICD-10-CM
H40.2223	Chronic angle-closure glaucoma, left eye, severe stage	ICD-10-CM
H40.2224	Chronic angle-closure glaucoma, left eye, indeterminate stage	ICD-10-CM
H40.2230	Chronic angle-closure glaucoma, bilateral, stage unspecified	ICD-10-CM
H40.2231	Chronic angle-closure glaucoma, bilateral, mild stage	ICD-10-CM
H40.2232	Chronic angle-closure glaucoma, bilateral, moderate stage	ICD-10-CM
H40.2233	Chronic angle-closure glaucoma, bilateral, severe stage	ICD-10-CM
H40.2234	Chronic angle-closure glaucoma, bilateral, indeterminate stage	ICD-10-CM
H40.2290	Chronic angle-closure glaucoma, unspecified eye, stage unspecified	ICD-10-CM
H40.2291	Chronic angle-closure glaucoma, unspecified eye, mild stage	ICD-10-CM
H40.2292	Chronic angle-closure glaucoma, unspecified eye, moderate stage	ICD-10-CM
H40.2293	Chronic angle-closure glaucoma, unspecified eye, severe stage	ICD-10-CM
H40.2294	Chronic angle-closure glaucoma, unspecified eye, indeterminate stage	ICD-10-CM
H40.231	Intermittent angle-closure glaucoma, right eye	ICD-10-CM
H40.232	Intermittent angle-closure glaucoma, left eye	ICD-10-CM
H40.233	Intermittent angle-closure glaucoma, bilateral	ICD-10-CM
H40.239	Intermittent angle-closure glaucoma, unspecified eye	ICD-10-CM
H40.241	Residual stage of angle-closure glaucoma, right eye	ICD-10-CM
H40.242	Residual stage of angle-closure glaucoma, left eye	ICD-10-CM
H40.243	Residual stage of angle-closure glaucoma, bilateral	ICD-10-CM
H40.249	Residual stage of angle-closure glaucoma, unspecified eye	ICD-10-CM
H40.30X0	Glaucoma secondary to eye trauma, unspecified eye, stage unspecified	ICD-10-CM
H40.30X1	Glaucoma secondary to eye trauma, unspecified eye, mild stage	ICD-10-CM
H40.30X2	Glaucoma secondary to eye trauma, unspecified eye, moderate stage	ICD-10-CM
H40.30X3	Glaucoma secondary to eye trauma, unspecified eye, severe stage	ICD-10-CM

Appendix C. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) and International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) Codes used to Define Covariates in this Request

Code	Description	Code Type
H40.30X4	Glaucoma secondary to eye trauma, unspecified eye, indeterminate stage	ICD-10-CM
H40.31X0	Glaucoma secondary to eye trauma, right eye, stage unspecified	ICD-10-CM
H40.31X1	Glaucoma secondary to eye trauma, right eye, mild stage	ICD-10-CM
H40.31X2	Glaucoma secondary to eye trauma, right eye, moderate stage	ICD-10-CM
H40.31X3	Glaucoma secondary to eye trauma, right eye, severe stage	ICD-10-CM
H40.31X4	Glaucoma secondary to eye trauma, right eye, indeterminate stage	ICD-10-CM
H40.32X0	Glaucoma secondary to eye trauma, left eye, stage unspecified	ICD-10-CM
H40.32X1	Glaucoma secondary to eye trauma, left eye, mild stage	ICD-10-CM
H40.32X2	Glaucoma secondary to eye trauma, left eye, moderate stage	ICD-10-CM
H40.32X3	Glaucoma secondary to eye trauma, left eye, severe stage	ICD-10-CM
H40.33X0	Glaucoma secondary to eye trauma, bilateral, stage unspecified	ICD-10-CM
H40.33X1	Glaucoma secondary to eye trauma, bilateral, mild stage	ICD-10-CM
H40.33X2	Glaucoma secondary to eye trauma, bilateral, moderate stage	ICD-10-CM
H40.33X3	Glaucoma secondary to eye trauma, bilateral, severe stage	ICD-10-CM
H40.33X4	Glaucoma secondary to eye trauma, bilateral, indeterminate stage	ICD-10-CM
H40.40X0	Glaucoma secondary to eye inflammation, unspecified eye, stage unspecified	ICD-10-CM
H40.40X1	Glaucoma secondary to eye inflammation, unspecified eye, mild stage	ICD-10-CM
H40.40X2	Glaucoma secondary to eye inflammation, unspecified eye, moderate stage	ICD-10-CM
H40.40X3	Glaucoma secondary to eye inflammation, unspecified eye, severe stage	ICD-10-CM
H40.40X4	Glaucoma secondary to eye inflammation, unspecified eye, indeterminate stage	ICD-10-CM
H40.41X0	Glaucoma secondary to eye inflammation, right eye, stage unspecified	ICD-10-CM
H40.41X1	Glaucoma secondary to eye inflammation, right eye, mild stage	ICD-10-CM
H40.41X2	Glaucoma secondary to eye inflammation, right eye, moderate stage	ICD-10-CM
H40.41X3	Glaucoma secondary to eye inflammation, right eye, severe stage	ICD-10-CM
H40.41X4	Glaucoma secondary to eye inflammation, right eye, indeterminate stage	ICD-10-CM
H40.42X0	Glaucoma secondary to eye inflammation, left eye, stage unspecified	ICD-10-CM
H40.42X1	Glaucoma secondary to eye inflammation, left eye, mild stage	ICD-10-CM
H40.42X2	Glaucoma secondary to eye inflammation, left eye, moderate stage	ICD-10-CM
H40.42X3	Glaucoma secondary to eye inflammation, left eye, severe stage	ICD-10-CM
H40.42X4	Glaucoma secondary to eye inflammation, left eye, indeterminate stage	ICD-10-CM
H40.43X0	Glaucoma secondary to eye inflammation, bilateral, stage unspecified	ICD-10-CM
H40.43X1	Glaucoma secondary to eye inflammation, bilateral, mild stage	ICD-10-CM
H40.43X2	Glaucoma secondary to eye inflammation, bilateral, moderate stage	ICD-10-CM
H40.43X3	Glaucoma secondary to eye inflammation, bilateral, severe stage	ICD-10-CM
H40.43X4	Glaucoma secondary to eye inflammation, bilateral, indeterminate stage	ICD-10-CM
H40.50X0	Glaucoma secondary to other eye disorders, unspecified eye, stage unspecified	ICD-10-CM
H40.50X1	Glaucoma secondary to other eye disorders, unspecified eye, mild stage	ICD-10-CM
H40.50X2	Glaucoma secondary to other eye disorders, unspecified eye, moderate stage	ICD-10-CM
H40.50X3	Glaucoma secondary to other eye disorders, unspecified eye, severe stage	ICD-10-CM
H40.50X4	Glaucoma secondary to other eye disorders, unspecified eye, indeterminate stage	ICD-10-CM
H40.51X0	Glaucoma secondary to other eye disorders, right eye, stage unspecified	ICD-10-CM
H40.51X1	Glaucoma secondary to other eye disorders, right eye, mild stage	ICD-10-CM
H40.51X2	Glaucoma secondary to other eye disorders, right eye, moderate stage	ICD-10-CM
H40.51X3	Glaucoma secondary to other eye disorders, right eye, severe stage	ICD-10-CM
H40.51X4	Glaucoma secondary to other eye disorders, right eye, indeterminate stage	ICD-10-CM
H40.52X0	Glaucoma secondary to other eye disorders, left eye, stage unspecified	ICD-10-CM
H40.52X1	Glaucoma secondary to other eye disorders, left eye, mild stage	ICD-10-CM
H40.52X2	Glaucoma secondary to other eye disorders, left eye, moderate stage	ICD-10-CM
H40.52X3	Glaucoma secondary to other eye disorders, left eye, severe stage	ICD-10-CM
H40.52X4	Glaucoma secondary to other eye disorders, left eye, indeterminate stage	ICD-10-CM
H40.53X0	Glaucoma secondary to other eye disorders, bilateral, stage unspecified	ICD-10-CM
H40.53X1	Glaucoma secondary to other eye disorders, bilateral, mild stage	ICD-10-CM

Appendix C. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) and International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) Codes used to Define Covariates in this Request

Code	Description	Code Type
H40.53X2	Glaucoma secondary to other eye disorders, bilateral, moderate stage	ICD-10-CM
H40.53X3	Glaucoma secondary to other eye disorders, bilateral, severe stage	ICD-10-CM
H40.53X4	Glaucoma secondary to other eye disorders, bilateral, indeterminate stage	ICD-10-CM
H40.60X0	Glaucoma secondary to drugs, unspecified eye, stage unspecified	ICD-10-CM
H40.60X1	Glaucoma secondary to drugs, unspecified eye, mild stage	ICD-10-CM
H40.60X2	Glaucoma secondary to drugs, unspecified eye, moderate stage	ICD-10-CM
H40.60X3	Glaucoma secondary to drugs, unspecified eye, severe stage	ICD-10-CM
H40.60X4	Glaucoma secondary to drugs, unspecified eye, indeterminate stage	ICD-10-CM
H40.61X0	Glaucoma secondary to drugs, right eye, stage unspecified	ICD-10-CM
H40.61X1	Glaucoma secondary to drugs, right eye, mild stage	ICD-10-CM
H40.61X2	Glaucoma secondary to drugs, right eye, moderate stage	ICD-10-CM
H40.61X3	Glaucoma secondary to drugs, right eye, severe stage	ICD-10-CM
H40.61X4	Glaucoma secondary to drugs, right eye, indeterminate stage	ICD-10-CM
H40.62X0	Glaucoma secondary to drugs, left eye, stage unspecified	ICD-10-CM
H40.62X1	Glaucoma secondary to drugs, left eye, mild stage	ICD-10-CM
H40.62X2	Glaucoma secondary to drugs, left eye, moderate stage	ICD-10-CM
H40.62X3	Glaucoma secondary to drugs, left eye, severe stage	ICD-10-CM
H40.62X4	Glaucoma secondary to drugs, left eye, indeterminate stage	ICD-10-CM
H40.63X0	Glaucoma secondary to drugs, bilateral, stage unspecified	ICD-10-CM
H40.63X1	Glaucoma secondary to drugs, bilateral, mild stage	ICD-10-CM
H40.63X2	Glaucoma secondary to drugs, bilateral, moderate stage	ICD-10-CM
H40.63X3	Glaucoma secondary to drugs, bilateral, severe stage	ICD-10-CM
H40.63X4	Glaucoma secondary to drugs, bilateral, indeterminate stage	ICD-10-CM
H40.811	Glaucoma with increased episcleral venous pressure, right eye	ICD-10-CM
H40.812	Glaucoma with increased episcleral venous pressure, left eye	ICD-10-CM
H40.813	Glaucoma with increased episcleral venous pressure, bilateral	ICD-10-CM
H40.819	Glaucoma with increased episcleral venous pressure, unspecified eye	ICD-10-CM
H40.821	Hypersecretion glaucoma, right eye	ICD-10-CM
H40.822	Hypersecretion glaucoma, left eye	ICD-10-CM
H40.823	Hypersecretion glaucoma, bilateral	ICD-10-CM
H40.829	Hypersecretion glaucoma, unspecified eye	ICD-10-CM
H40.831	Aqueous misdirection, right eye	ICD-10-CM
H40.832	Aqueous misdirection, left eye	ICD-10-CM
H40.833	Aqueous misdirection, bilateral	ICD-10-CM
H40.839	Aqueous misdirection, unspecified eye	ICD-10-CM
H40.89	Other specified glaucoma	ICD-10-CM
H40.9	Unspecified glaucoma	ICD-10-CM
H42	Glaucoma in diseases classified elsewhere	ICD-10-CM
H44.511	Absolute glaucoma, right eye	ICD-10-CM
H44.512	Absolute glaucoma, left eye	ICD-10-CM
H44.513	Absolute glaucoma, bilateral	ICD-10-CM
H44.519	Absolute glaucoma, unspecified eye	ICD-10-CM
H47.231	Glaucomatous optic atrophy, right eye	ICD-10-CM
H47.232	Glaucomatous optic atrophy, left eye	ICD-10-CM
H47.233	Glaucomatous optic atrophy, bilateral	ICD-10-CM
H47.239	Glaucomatous optic atrophy, unspecified eye	ICD-10-CM
Q15.0	Congenital glaucoma	ICD-10-CM
Heart failure		
398.91	Rheumatic heart failure (congestive)	ICD-9-CM
402.01	Malignant hypertensive heart disease with heart failure	ICD-9-CM
402.11	Benign hypertensive heart disease with heart failure	ICD-9-CM
402.91	Hypertensive heart disease, unspecified, with heart failure	ICD-9-CM

Appendix C. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) and International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) Codes used to Define Covariates in this Request

Code	Description	Code Type
404.01	Hypertensive heart and chronic kidney disease, malignant, with heart failure and with chronic kidney disease stage I through stage IV, or unspecified	ICD-9-CM
404.03	Hypertensive heart and chronic kidney disease, malignant, with heart failure and with chronic kidney disease stage V or end stage renal disease	ICD-9-CM
404.11	Hypertensive heart and chronic kidney disease, benign, with heart failure and with chronic kidney disease stage I through stage IV, or unspecified	ICD-9-CM
404.13	Hypertensive heart and chronic kidney disease, benign, with heart failure and chronic kidney disease stage V or end stage renal disease	ICD-9-CM
404.91	Hypertensive heart and chronic kidney disease, unspecified, with heart failure and with chronic kidney disease stage I through stage IV, or unspecified	ICD-9-CM
404.93	Hypertensive heart and chronic kidney disease, unspecified, with heart failure and chronic kidney disease stage V or end stage renal disease	ICD-9-CM
428.0	Congestive heart failure, unspecified	ICD-9-CM
428.1	Left heart failure	ICD-9-CM
428.20	Unspecified systolic heart failure	ICD-9-CM
428.21	Acute systolic heart failure	ICD-9-CM
428.22	Chronic systolic heart failure	ICD-9-CM
428.23	Acute on chronic systolic heart failure	ICD-9-CM
428.30	Unspecified diastolic heart failure	ICD-9-CM
428.31	Acute diastolic heart failure	ICD-9-CM
428.32	Chronic diastolic heart failure	ICD-9-CM
428.33	Acute on chronic diastolic heart failure	ICD-9-CM
428.40	Unspecified combined systolic and diastolic heart failure	ICD-9-CM
428.41	Acute combined systolic and diastolic heart failure	ICD-9-CM
428.42	Chronic combined systolic and diastolic heart failure	ICD-9-CM
428.43	Acute on chronic combined systolic and diastolic heart failure	ICD-9-CM
428.9	Unspecified heart failure	ICD-9-CM
IICD-9-CM.81	Rheumatic heart failure	ICD-10-CM
I11.0	Hypertensive heart disease with heart failure	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	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	ICD-10-CM
I50.1	Left ventricular failure, unspecified	ICD-10-CM
I50.20	Unspecified systolic (congestive) heart failure	ICD-10-CM
I50.21	Acute systolic (congestive) heart failure	ICD-10-CM
I50.22	Chronic systolic (congestive) heart failure	ICD-10-CM
I50.23	Acute on chronic systolic (congestive) heart failure	ICD-10-CM
I50.30	Unspecified diastolic (congestive) heart failure	ICD-10-CM
I50.31	Acute diastolic (congestive) heart failure	ICD-10-CM
I50.32	Chronic diastolic (congestive) heart failure	ICD-10-CM
I50.33	Acute on chronic diastolic (congestive) heart failure	ICD-10-CM
I50.40	Unspecified combined systolic (congestive) and diastolic (congestive) heart failure	ICD-10-CM
I50.41	Acute combined systolic (congestive) and diastolic (congestive) heart failure	ICD-10-CM
I50.42	Chronic combined systolic (congestive) and diastolic (congestive) heart failure	ICD-10-CM
I50.43	Acute on chronic combined systolic (congestive) and diastolic (congestive) heart failure	ICD-10-CM
I50.810	Right heart failure, unspecified	ICD-10-CM
I50.811	Acute right heart failure	ICD-10-CM
I50.812	Chronic right heart failure	ICD-10-CM
I50.813	Acute on chronic right heart failure	ICD-10-CM
I50.814	Right heart failure due to left heart failure	ICD-10-CM
I50.82	Biventricular heart failure	ICD-10-CM

Appendix C. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) and International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) Codes used to Define Covariates in this Request

Code	Description	Code Type
150.83	High output heart failure	ICD-10-CM
150.84	End stage heart failure	ICD-10-CM
150.89	Other heart failure	ICD-10-CM
150.9	Heart failure, unspecified	ICD-10-CM
Hyperlipidemia		
272.0	Pure hypercholesterolemia	ICD-9-CM
272.1	Pure hyperglyceridemia	ICD-9-CM
272.2	Mixed hyperlipidemia	ICD-9-CM
272.3	Hyperchylomicronemia	ICD-9-CM
272.4	Other and unspecified hyperlipidemia	ICD-9-CM
E78.0	Pure hypercholesterolemia	ICD-10-CM
E78.1	Pure hyperglyceridemia	ICD-10-CM
E78.2	Mixed hyperlipidemia	ICD-10-CM
E78.3	Hyperchylomicronemia	ICD-10-CM
E78.4	Other hyperlipidemia	ICD-10-CM
E78.5	Hyperlipidemia, unspecified	ICD-10-CM
Hypertension		
362.11	Hypertensive retinopathy	ICD-9-CM
401.0	Essential hypertension, malignant	ICD-9-CM
401.1	Essential hypertension, benign	ICD-9-CM
401.9	Unspecified essential hypertension	ICD-9-CM
402.00	Malignant hypertensive heart disease without heart failure	ICD-9-CM
402.01	Malignant hypertensive heart disease with heart failure	ICD-9-CM
402.10	Benign hypertensive heart disease without heart failure	ICD-9-CM
402.11	Benign hypertensive heart disease with heart failure	ICD-9-CM
402.90	Unspecified hypertensive heart disease without heart failure	ICD-9-CM
402.91	Hypertensive heart disease, unspecified, with heart failure	ICD-9-CM
403.00	Hypertensive chronic kidney disease, malignant, with chronic kidney disease stage I through stage IV, or unspecified	ICD-9-CM
403.01	Hypertensive chronic kidney disease, malignant, with chronic kidney disease stage V or end stage renal disease	ICD-9-CM
403.10	Hypertensive chronic kidney disease, benign, with chronic kidney disease stage I through stage IV, or unspecified	ICD-9-CM
403.11	Hypertensive chronic kidney disease, benign, with chronic kidney disease stage V or end stage renal disease	ICD-9-CM
403.90	Hypertensive chronic kidney disease, unspecified, with chronic kidney disease stage I through stage IV, or unspecified	ICD-9-CM
403.91	Hypertensive chronic kidney disease, unspecified, with chronic kidney disease stage V or end stage renal disease	ICD-9-CM
404.00	Hypertensive heart and chronic kidney disease, malignant, without heart failure and with chronic kidney disease stage I through stage IV, or unspecified	ICD-9-CM
404.01	Hypertensive heart and chronic kidney disease, malignant, with heart failure and with chronic kidney disease stage I through stage IV, or unspecified	ICD-9-CM
404.02	Hypertensive heart and chronic kidney disease, malignant, without heart failure and with chronic kidney disease stage V or end stage renal disease	ICD-9-CM
404.03	Hypertensive heart and chronic kidney disease, malignant, with heart failure and with chronic kidney disease stage V or end stage renal disease	ICD-9-CM
404.10	Hypertensive heart and chronic kidney disease, benign, without heart failure and with chronic kidney disease stage I through stage IV, or unspecified	ICD-9-CM
404.11	Hypertensive heart and chronic kidney disease, benign, with heart failure and with chronic kidney disease stage I through stage IV, or unspecified	ICD-9-CM

Appendix C. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) and International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) Codes used to Define Covariates in this Request

Code	Description	Code Type
404.12	Hypertensive heart and chronic kidney disease, benign, without heart failure and with chronic kidney disease stage V or end stage renal disease	ICD-9-CM
404.13	Hypertensive heart and chronic kidney disease, benign, with heart failure and chronic kidney disease stage V or end stage renal disease	ICD-9-CM
404.90	Hypertensive heart and chronic kidney disease, unspecified, without heart failure and with chronic kidney disease stage I through stage IV, or unspecified	ICD-9-CM
404.91	Hypertensive heart and chronic kidney disease, unspecified, with heart failure and with chronic kidney disease stage I through stage IV, or unspecified	ICD-9-CM
404.92	Hypertensive heart and chronic kidney disease, unspecified, without heart failure and with chronic kidney disease stage V or end stage renal disease	ICD-9-CM
404.93	Hypertensive heart and chronic kidney disease, unspecified, with heart failure and chronic kidney disease stage V or end stage renal disease	ICD-9-CM
405.01	Secondary renovascular hypertension, malignant	ICD-9-CM
405	Other secondary hypertension, malignant	ICD-9-CM
405.11	Secondary renovascular hypertension, benign	ICD-9-CM
405.19	Other secondary hypertension, benign	ICD-9-CM
405.91	Secondary renovascular hypertension, unspecified	ICD-9-CM
405.99	Other secondary hypertension, unspecified	ICD-9-CM
437.2	Hypertensive encephalopathy	ICD-9-CM
H35.031	Hypertensive retinopathy, right eye	ICD-10-CM
H35.032	Hypertensive retinopathy, left eye	ICD-10-CM
H35.033	Hypertensive retinopathy, bilateral	ICD-10-CM
H35.039	Hypertensive retinopathy, unspecified eye	ICD-10-CM
I10	Essential (primary) hypertension	ICD-10-CM
I11.0	Hypertensive heart disease with heart failure	ICD-10-CM
I11.9	Hypertensive heart disease without heart failure	ICD-10-CM
I12.0	Hypertensive chronic kidney disease with stage 5 chronic kidney disease or end stage renal disease	ICD-10-CM
I12.9	Hypertensive chronic kidney disease with stage 1 through stage 4 chronic kidney disease, or unspecified chronic kidney disease	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	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	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	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	ICD-10-CM
I15.0	Renovascular hypertension	ICD-10-CM
I15.1	Hypertension secondary to other renal disorders	ICD-10-CM
I15.2	Hypertension secondary to endocrine disorders	ICD-10-CM
I15.8	Other secondary hypertension	ICD-10-CM
I15.9	Secondary hypertension, unspecified	ICD-10-CM
I67.4	Hypertensive encephalopathy	ICD-10-CM
N26.2	Page kidney	ICD-10-CM
Ischemic heart disease		
410.00	Acute myocardial infarction of anterolateral wall, episode of care unspecified	ICD-9-CM
410.01	Acute myocardial infarction of anterolateral wall, initial episode of care	ICD-9-CM
410.02	Acute myocardial infarction of anterolateral wall, subsequent episode of care	ICD-9-CM
410.10	Acute myocardial infarction of other anterior wall, episode of care unspecified	ICD-9-CM
410.11	Acute myocardial infarction of other anterior wall, initial episode of care	ICD-9-CM
410.12	Acute myocardial infarction of other anterior wall, subsequent episode of care	ICD-9-CM

Appendix C. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) and International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) Codes used to Define Covariates in this Request

Code	Description	Code Type
410.20	Acute myocardial infarction of inferolateral wall, episode of care unspecified	ICD-9-CM
410.21	Acute myocardial infarction of inferolateral wall, initial episode of care	ICD-9-CM
410.22	Acute myocardial infarction of inferolateral wall, subsequent episode of care	ICD-9-CM
410.30	Acute myocardial infarction of inferoposterior wall, episode of care unspecified	ICD-9-CM
410.31	Acute myocardial infarction of inferoposterior wall, initial episode of care	ICD-9-CM
410.32	Acute myocardial infarction of inferoposterior wall, subsequent episode of care	ICD-9-CM
410.40	Acute myocardial infarction of other inferior wall, episode of care unspecified	ICD-9-CM
410.41	Acute myocardial infarction of other inferior wall, initial episode of care	ICD-9-CM
410.42	Acute myocardial infarction of other inferior wall, subsequent episode of care	ICD-9-CM
410.50	Acute myocardial infarction of other lateral wall, episode of care unspecified	ICD-9-CM
410.51	Acute myocardial infarction of other lateral wall, initial episode of care	ICD-9-CM
410.52	Acute myocardial infarction of other lateral wall, subsequent episode of care	ICD-9-CM
410.60	Acute myocardial infarction, true posterior wall infarction, episode of care unspecified	ICD-9-CM
410.61	Acute myocardial infarction, true posterior wall infarction, initial episode of care	ICD-9-CM
410.62	Acute myocardial infarction, true posterior wall infarction, subsequent episode of care	ICD-9-CM
410.70	Acute myocardial infarction, subendocardial infarction, episode of care unspecified	ICD-9-CM
410.71	Acute myocardial infarction, subendocardial infarction, initial episode of care	ICD-9-CM
410.72	Acute myocardial infarction, subendocardial infarction, subsequent episode of care	ICD-9-CM
410.80	Acute myocardial infarction of other specified sites, episode of care unspecified	ICD-9-CM
410.81	Acute myocardial infarction of other specified sites, initial episode of care	ICD-9-CM
410.82	Acute myocardial infarction of other specified sites, subsequent episode of care	ICD-9-CM
410.90	Acute myocardial infarction, unspecified site, episode of care unspecified	ICD-9-CM
410.91	Acute myocardial infarction, unspecified site, initial episode of care	ICD-9-CM
410.92	Acute myocardial infarction, unspecified site, subsequent episode of care	ICD-9-CM
411.0	Postmyocardial infarction syndrome	ICD-9-CM
411.1	Intermediate coronary syndrome	ICD-9-CM
411.81	Acute coronary occlusion without myocardial infarction	ICD-9-CM
411.89	Other acute and subacute form of ischemic heart disease	ICD-9-CM
412	Old myocardial infarction	ICD-9-CM
413.0	Angina decubitus	ICD-9-CM
413.1	Prinzmetal angina	ICD-9-CM
413.9	Other and unspecified angina pectoris	ICD-9-CM
414.00	Coronary atherosclerosis of unspecified type of vessel, native or graft	ICD-9-CM
414.01	Coronary atherosclerosis of native coronary artery	ICD-9-CM
414.02	Coronary atherosclerosis of autologous vein bypass graft	ICD-9-CM
414.03	Coronary atherosclerosis of nonautologous biological bypass graft	ICD-9-CM
414.04	Coronary atherosclerosis of artery bypass graft	ICD-9-CM
414.05	Coronary atherosclerosis of unspecified type of bypass graft	ICD-9-CM
414.06	Coronary atherosclerosis, of native coronary artery of transplanted heart	ICD-9-CM
414.07	Coronary atherosclerosis, of bypass graft (artery) (vein) of transplanted heart	ICD-9-CM
414.12	Dissection of coronary artery	ICD-9-CM
414.2	Chronic total occlusion of coronary artery	ICD-9-CM
414.3	Coronary atherosclerosis due to lipid rich plaque	ICD-9-CM
414.4	Coronary atherosclerosis due to calcified coronary lesion	ICD-9-CM
414.8	Other specified forms of chronic ischemic heart disease	ICD-9-CM
414.9	Unspecified chronic ischemic heart disease	ICD-9-CM
I20.0	Unstable angina	ICD-10-CM
I20.1	Angina pectoris with documented spasm	ICD-10-CM
I20.8	Other forms of angina pectoris	ICD-10-CM
I20.9	Angina pectoris, unspecified	ICD-10-CM
I21.01	ST elevation (STEMI) myocardial infarction involving left main coronary artery	ICD-10-CM

Appendix C. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) and International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) Codes used to Define Covariates in this Request

Code	Description	Code Type
I21.02	ST elevation (STEMI) myocardial infarction involving left anterior descending coronary artery	ICD-10-CM
I21.0	ST elevation (STEMI) myocardial infarction involving other coronary artery of anterior wall	ICD-10-CM
I21.11	ST elevation (STEMI) myocardial infarction involving right coronary artery	ICD-10-CM
I21.19	ST elevation (STEMI) myocardial infarction involving other coronary artery of inferior wall	ICD-10-CM
I21.21	ST elevation (STEMI) myocardial infarction involving left circumflex coronary artery	ICD-10-CM
I21.29	ST elevation (STEMI) myocardial infarction involving other sites	ICD-10-CM
I21.3	ST elevation (STEMI) myocardial infarction of unspecified site	ICD-10-CM
I21.4	Non-ST elevation (NSTEMI) myocardial infarction	ICD-10-CM
I21.A1	Myocardial infarction type 2	ICD-10-CM
I21.A9	Other myocardial infarction type	ICD-10-CM
I22.0	Subsequent ST elevation (STEMI) myocardial infarction of anterior wall	ICD-10-CM
I22.1	Subsequent ST elevation (STEMI) myocardial infarction of inferior wall	ICD-10-CM
I22.2	Subsequent non-ST elevation (NSTEMI) myocardial infarction	ICD-10-CM
I22.8	Subsequent ST elevation (STEMI) myocardial infarction of other sites	ICD-10-CM
I22.9	Subsequent ST elevation (STEMI) myocardial infarction of unspecified site	ICD-10-CM
I23.0	Hemopericardium as current complication following acute myocardial infarction	ICD-10-CM
I23.1	Atrial septal defect as current complication following acute myocardial infarction	ICD-10-CM
I23.2	Ventricular septal defect as current complication following acute myocardial infarction	ICD-10-CM
I23.3	Rupture of cardiac wall without hemopericardium as current complication following acute myocardial infarction	ICD-10-CM
I23.4	Rupture of chordae tendineae as current complication following acute myocardial infarction	ICD-10-CM
I23.5	Rupture of papillary muscle as current complication following acute myocardial infarction	ICD-10-CM
I23.6	Thrombosis of atrium, auricular appendage, and ventricle as current complications following acute myocardial infarction	ICD-10-CM
I23.7	Postinfarction angina	ICD-10-CM
I23.8	Other current complications following acute myocardial infarction	ICD-10-CM
I24.0	Acute coronary thrombosis not resulting in myocardial infarction	ICD-10-CM
I24.1	Dressler's syndrome	ICD-10-CM
I24.8	Other forms of acute ischemic heart disease	ICD-10-CM
I24.9	Acute ischemic heart disease, unspecified	ICD-10-CM
I25.10	Atherosclerotic heart disease of native coronary artery without angina pectoris	ICD-10-CM
I25.110	Atherosclerotic heart disease of native coronary artery with unstable angina pectoris	ICD-10-CM
I25.111	Atherosclerotic heart disease of native coronary artery with angina pectoris with documented spasm	ICD-10-CM
I25.118	Atherosclerotic heart disease of native coronary artery with other forms of angina pectoris	ICD-10-CM
I25.119	Atherosclerotic heart disease of native coronary artery with unspecified angina pectoris	ICD-10-CM
I25.2	Old myocardial infarction	ICD-10-CM
I25.3	Aneurysm of heart	ICD-10-CM
I25.41	Coronary artery aneurysm	ICD-10-CM
I25.42	Coronary artery dissection	ICD-10-CM
I25.5	Ischemic cardiomyopathy	ICD-10-CM
I25.6	Silent myocardial ischemia	ICD-10-CM
I25.700	Atherosclerosis of coronary artery bypass graft(s), unspecified, with unstable angina pectoris	ICD-10-CM
I25.701	Atherosclerosis of coronary artery bypass graft(s), unspecified, with angina pectoris with documented spasm	ICD-10-CM
I25.708	Atherosclerosis of coronary artery bypass graft(s), unspecified, with other forms of angina pectoris	ICD-10-CM
I25.71CD-9-CM	Atherosclerosis of coronary artery bypass graft(s), unspecified, with unspecified angina pectoris	ICD-10-CM

Appendix C. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) and International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) Codes used to Define Covariates in this Request

Code	Description	Code Type
I25.710	Atherosclerosis of autologous vein coronary artery bypass graft(s) with unstable angina pectoris	ICD-10-CM
I25.711	Atherosclerosis of autologous vein coronary artery bypass graft(s) with angina pectoris with documented spasm	ICD-10-CM
I25.718	Atherosclerosis of autologous vein coronary artery bypass graft(s) with other forms of angina pectoris	ICD-10-CM
I25.719	Atherosclerosis of autologous vein coronary artery bypass graft(s) with unspecified angina pectoris	ICD-10-CM
I25.720	Atherosclerosis of autologous artery coronary artery bypass graft(s) with unstable angina pectoris	ICD-10-CM
I25.721	Atherosclerosis of autologous artery coronary artery bypass graft(s) with angina pectoris with documented spasm	ICD-10-CM
I25.728	Atherosclerosis of autologous artery coronary artery bypass graft(s) with other forms of angina pectoris	ICD-10-CM
I25.729	Atherosclerosis of autologous artery coronary artery bypass graft(s) with unspecified angina pectoris	ICD-10-CM
I25.730	Atherosclerosis of nonautologous biological coronary artery bypass graft(s) with unstable angina pectoris	ICD-10-CM
I25.731	Atherosclerosis of nonautologous biological coronary artery bypass graft(s) with angina pectoris with documented spasm	ICD-10-CM
I25.738	Atherosclerosis of nonautologous biological coronary artery bypass graft(s) with other forms of angina pectoris	ICD-10-CM
I25.739	Atherosclerosis of nonautologous biological coronary artery bypass graft(s) with unspecified angina pectoris	ICD-10-CM
I25.750	Atherosclerosis of native coronary artery of transplanted heart with unstable angina	ICD-10-CM
I25.751	Atherosclerosis of native coronary artery of transplanted heart with angina pectoris with documented spasm	ICD-10-CM
I25.758	Atherosclerosis of native coronary artery of transplanted heart with other forms of angina pectoris	ICD-10-CM
I25.759	Atherosclerosis of native coronary artery of transplanted heart with unspecified angina pectoris	ICD-10-CM
I25.760	Atherosclerosis of bypass graft of coronary artery of transplanted heart with unstable angina	ICD-10-CM
I25.761	Atherosclerosis of bypass graft of coronary artery of transplanted heart with angina pectoris with documented spasm	ICD-10-CM
I25.768	Atherosclerosis of bypass graft of coronary artery of transplanted heart with other forms of angina pectoris	ICD-10-CM
I25.769	Atherosclerosis of bypass graft of coronary artery of transplanted heart with unspecified angina pectoris	ICD-10-CM
I25.790	Atherosclerosis of other coronary artery bypass graft(s) with unstable angina pectoris	ICD-10-CM
I25.791	Atherosclerosis of other coronary artery bypass graft(s) with angina pectoris with documented spasm	ICD-10-CM
I25.798	Atherosclerosis of other coronary artery bypass graft(s) with other forms of angina pectoris	ICD-10-CM
I25.799	Atherosclerosis of other coronary artery bypass graft(s) with unspecified angina pectoris	ICD-10-CM
I25.810	Atherosclerosis of coronary artery bypass graft(s) without angina pectoris	ICD-10-CM
I25.811	Atherosclerosis of native coronary artery of transplanted heart without angina pectoris	ICD-10-CM
I25.812	Atherosclerosis of bypass graft of coronary artery of transplanted heart without angina pectoris	ICD-10-CM
I25.82	Chronic total occlusion of coronary artery	ICD-10-CM
I25.83	Coronary atherosclerosis due to lipid rich plaque	ICD-10-CM
I25.84	Coronary atherosclerosis due to calcified coronary lesion	ICD-10-CM
I25.89	Other forms of chronic ischemic heart disease	ICD-10-CM

Appendix C. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) and International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) Codes used to Define Covariates in this Request

Code	Description	Code Type
I25.9	Chronic ischemic heart disease, unspecified	ICD-10-CM
Osteoporosis		
733.00	Unspecified osteoporosis	ICD-9-CM
733.01	Senile osteoporosis	ICD-9-CM
733.02	Idiopathic osteoporosis	ICD-9-CM
733.03	Disuse osteoporosis	ICD-9-CM
733	Other osteoporosis	ICD-9-CM
M81.0	Age-related osteoporosis without current pathological fracture	ICD-10-CM
M81.6	Localized osteoporosis [Lequesne]	ICD-10-CM
M81.8	Other osteoporosis without current pathological fracture	ICD-10-CM
Rheumatoid arthritis/osteoarthritis		
714.0	Rheumatoid arthritis	ICD-9-CM
714.1	Felty's syndrome	ICD-9-CM
714.2	Other rheumatoid arthritis with visceral or systemic involvement	ICD-9-CM
714.30	Polyarticular juvenile rheumatoid arthritis, chronic or unspecified	ICD-9-CM
714.31	Polyarticular juvenile rheumatoid arthritis, acute	ICD-9-CM
714.32	Pauciarticular juvenile rheumatoid arthritis	ICD-9-CM
714.33	Monoarticular juvenile rheumatoid arthritis	ICD-9-CM
715.00	Generalized osteoarthritis, unspecified site	ICD-9-CM
715.04	Generalized osteoarthritis, involving hand	ICD-9-CM
715	Generalized osteoarthritis, involving multiple sites	ICD-9-CM
715.10	Primary localized osteoarthritis, unspecified site	ICD-9-CM
715.11	Primary localized osteoarthritis, shoulder region	ICD-9-CM
715.12	Primary localized osteoarthritis, upper arm	ICD-9-CM
715.13	Primary localized osteoarthritis, forearm	ICD-9-CM
715.14	Primary localized osteoarthritis, hand	ICD-9-CM
715.15	Primary localized osteoarthritis, pelvic region and thigh	ICD-9-CM
715.16	Primary localized osteoarthritis, lower leg	ICD-9-CM
715.17	Primary localized osteoarthritis, ankle and foot	ICD-9-CM
715.18	Primary localized osteoarthritis, other specified sites	ICD-9-CM
715.20	Secondary localized osteoarthritis, unspecified site	ICD-9-CM
715.21	Secondary localized osteoarthritis, shoulder region	ICD-9-CM
715.22	Secondary localized osteoarthritis, upper arm	ICD-9-CM
715.23	Secondary localized osteoarthritis, forearm	ICD-9-CM
715.24	Secondary localized osteoarthritis, involving hand	ICD-9-CM
715.25	Secondary localized osteoarthritis, pelvic region and thigh	ICD-9-CM
715.26	Secondary localized osteoarthritis, lower leg	ICD-9-CM
715.27	Secondary localized osteoarthritis, ankle and foot	ICD-9-CM
715.28	Secondary localized osteoarthritis, other specified site	ICD-9-CM
715.30	Localized osteoarthritis not specified whether primary or secondary, unspecified site	ICD-9-CM
715.31	Localized osteoarthritis not specified whether primary or secondary, shoulder region	ICD-9-CM
715.32	Localized osteoarthritis not specified whether primary or secondary, upper arm	ICD-9-CM
715.33	Localized osteoarthritis not specified whether primary or secondary, forearm	ICD-9-CM
715.34	Localized osteoarthritis not specified whether primary or secondary, hand	ICD-9-CM
715.35	Localized osteoarthritis not specified whether primary or secondary, pelvic region and thigh	ICD-9-CM
715.36	Localized osteoarthritis not specified whether primary or secondary, lower leg	ICD-9-CM
715.37	Localized osteoarthritis not specified whether primary or secondary, ankle and foot	ICD-9-CM
715.38	Localized osteoarthritis not specified whether primary or secondary, other specified sites	ICD-9-CM
715.80	Osteoarthritis involving more than one site, but not specified as generalized, unspecified site	ICD-9-CM
715.89	Osteoarthritis involving multiple sites, but not specified as generalized	ICD-9-CM

Appendix C. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) and International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) Codes used to Define Covariates in this Request

Code	Description	Code Type
715.90	Osteoarthritis, unspecified whether generalized or localized, unspecified site	ICD-9-CM
715.91	Osteoarthritis, unspecified whether generalized or localized, shoulder region	ICD-9-CM
715.92	Osteoarthritis, unspecified whether generalized or localized, upper arm	ICD-9-CM
715.93	Osteoarthritis, unspecified whether generalized or localized, forearm	ICD-9-CM
715.94	Osteoarthritis, unspecified whether generalized or localized, hand	ICD-9-CM
715.95	Osteoarthritis, unspecified whether generalized or localized, pelvic region and thigh	ICD-9-CM
715.96	Osteoarthritis, unspecified whether generalized or localized, lower leg	ICD-9-CM
715.97	Osteoarthritis, unspecified whether generalized or localized, ankle and foot	ICD-9-CM
715.98	Osteoarthritis, unspecified whether generalized or localized, other specified sites	ICD-9-CM
720.0	Ankylosing spondylitis	ICD-9-CM
721.0	Cervical spondylosis without myelopathy	ICD-9-CM
721.1	Cervical spondylosis with myelopathy	ICD-9-CM
721.2	Thoracic spondylosis without myelopathy	ICD-9-CM
721.3	Lumbosacral spondylosis without myelopathy	ICD-9-CM
721.90	Spondylosis of unspecified site without mention of myelopathy	ICD-9-CM
721.91	Spondylosis of unspecified site with myelopathy	ICD-9-CM
M05.00	Felty's syndrome, unspecified site	ICD-10-CM
M05.011	Felty's syndrome, right shoulder	ICD-10-CM
M05.012	Felty's syndrome, left shoulder	ICD-10-CM
M05.019	Felty's syndrome, unspecified shoulder	ICD-10-CM
M05.021	Felty's syndrome, right elbow	ICD-10-CM
M05.022	Felty's syndrome, left elbow	ICD-10-CM
M05.029	Felty's syndrome, unspecified elbow	ICD-10-CM
M05.031	Felty's syndrome, right wrist	ICD-10-CM
M05.032	Felty's syndrome, left wrist	ICD-10-CM
M05.039	Felty's syndrome, unspecified wrist	ICD-10-CM
M05.041	Felty's syndrome, right hand	ICD-10-CM
M05.042	Felty's syndrome, left hand	ICD-10-CM
M05.049	Felty's syndrome, unspecified hand	ICD-10-CM
M05.051	Felty's syndrome, right hip	ICD-10-CM
M05.052	Felty's syndrome, left hip	ICD-10-CM
M05.059	Felty's syndrome, unspecified hip	ICD-10-CM
M05.061	Felty's syndrome, right knee	ICD-10-CM
M05.062	Felty's syndrome, left knee	ICD-10-CM
M05.069	Felty's syndrome, unspecified knee	ICD-10-CM
M05.071	Felty's syndrome, right ankle and foot	ICD-10-CM
M05.072	Felty's syndrome, left ankle and foot	ICD-10-CM
M05.079	Felty's syndrome, unspecified ankle and foot	ICD-10-CM
M05.0	Felty's syndrome, multiple sites	ICD-10-CM
M05.20	Rheumatoid vasculitis with rheumatoid arthritis of unspecified site	ICD-10-CM
M05.211	Rheumatoid vasculitis with rheumatoid arthritis of right shoulder	ICD-10-CM
M05.212	Rheumatoid vasculitis with rheumatoid arthritis of left shoulder	ICD-10-CM
M05.219	Rheumatoid vasculitis with rheumatoid arthritis of unspecified shoulder	ICD-10-CM
M05.221	Rheumatoid vasculitis with rheumatoid arthritis of right elbow	ICD-10-CM
M05.222	Rheumatoid vasculitis with rheumatoid arthritis of left elbow	ICD-10-CM
M05.229	Rheumatoid vasculitis with rheumatoid arthritis of unspecified elbow	ICD-10-CM
M05.231	Rheumatoid vasculitis with rheumatoid arthritis of right wrist	ICD-10-CM
M05.232	Rheumatoid vasculitis with rheumatoid arthritis of left wrist	ICD-10-CM
M05.239	Rheumatoid vasculitis with rheumatoid arthritis of unspecified wrist	ICD-10-CM
M05.241	Rheumatoid vasculitis with rheumatoid arthritis of right hand	ICD-10-CM
M05.242	Rheumatoid vasculitis with rheumatoid arthritis of left hand	ICD-10-CM
M05.249	Rheumatoid vasculitis with rheumatoid arthritis of unspecified hand	ICD-10-CM

Appendix C. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) and International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) Codes used to Define Covariates in this Request

Code	Description	Code Type
M05.251	Rheumatoid vasculitis with rheumatoid arthritis of right hip	ICD-10-CM
M05.252	Rheumatoid vasculitis with rheumatoid arthritis of left hip	ICD-10-CM
M05.259	Rheumatoid vasculitis with rheumatoid arthritis of unspecified hip	ICD-10-CM
M05.261	Rheumatoid vasculitis with rheumatoid arthritis of right knee	ICD-10-CM
M05.262	Rheumatoid vasculitis with rheumatoid arthritis of left knee	ICD-10-CM
M05.269	Rheumatoid vasculitis with rheumatoid arthritis of unspecified knee	ICD-10-CM
M05.271	Rheumatoid vasculitis with rheumatoid arthritis of right ankle and foot	ICD-10-CM
M05.272	Rheumatoid vasculitis with rheumatoid arthritis of left ankle and foot	ICD-10-CM
M05.279	Rheumatoid vasculitis with rheumatoid arthritis of unspecified ankle and foot	ICD-10-CM
M05.29	Rheumatoid vasculitis with rheumatoid arthritis of multiple sites	ICD-10-CM
M05.30	Rheumatoid heart disease with rheumatoid arthritis of unspecified site	ICD-10-CM
M05.311	Rheumatoid heart disease with rheumatoid arthritis of right shoulder	ICD-10-CM
M05.312	Rheumatoid heart disease with rheumatoid arthritis of left shoulder	ICD-10-CM
M05.319	Rheumatoid heart disease with rheumatoid arthritis of unspecified shoulder	ICD-10-CM
M05.321	Rheumatoid heart disease with rheumatoid arthritis of right elbow	ICD-10-CM
M05.322	Rheumatoid heart disease with rheumatoid arthritis of left elbow	ICD-10-CM
M05.329	Rheumatoid heart disease with rheumatoid arthritis of unspecified elbow	ICD-10-CM
M05.331	Rheumatoid heart disease with rheumatoid arthritis of right wrist	ICD-10-CM
M05.332	Rheumatoid heart disease with rheumatoid arthritis of left wrist	ICD-10-CM
M05.339	Rheumatoid heart disease with rheumatoid arthritis of unspecified wrist	ICD-10-CM
M05.341	Rheumatoid heart disease with rheumatoid arthritis of right hand	ICD-10-CM
M05.342	Rheumatoid heart disease with rheumatoid arthritis of left hand	ICD-10-CM
M05.349	Rheumatoid heart disease with rheumatoid arthritis of unspecified hand	ICD-10-CM
M05.351	Rheumatoid heart disease with rheumatoid arthritis of right hip	ICD-10-CM
M05.352	Rheumatoid heart disease with rheumatoid arthritis of left hip	ICD-10-CM
M05.359	Rheumatoid heart disease with rheumatoid arthritis of unspecified hip	ICD-10-CM
M05.361	Rheumatoid heart disease with rheumatoid arthritis of right knee	ICD-10-CM
M05.362	Rheumatoid heart disease with rheumatoid arthritis of left knee	ICD-10-CM
M05.369	Rheumatoid heart disease with rheumatoid arthritis of unspecified knee	ICD-10-CM
M05.371	Rheumatoid heart disease with rheumatoid arthritis of right ankle and foot	ICD-10-CM
M05.372	Rheumatoid heart disease with rheumatoid arthritis of left ankle and foot	ICD-10-CM
M05.379	Rheumatoid heart disease with rheumatoid arthritis of unspecified ankle and foot	ICD-10-CM
M05.39	Rheumatoid heart disease with rheumatoid arthritis of multiple sites	ICD-10-CM
M05.40	Rheumatoid myopathy with rheumatoid arthritis of unspecified site	ICD-10-CM
M05.411	Rheumatoid myopathy with rheumatoid arthritis of right shoulder	ICD-10-CM
M05.412	Rheumatoid myopathy with rheumatoid arthritis of left shoulder	ICD-10-CM
M05.419	Rheumatoid myopathy with rheumatoid arthritis of unspecified shoulder	ICD-10-CM
M05.421	Rheumatoid myopathy with rheumatoid arthritis of right elbow	ICD-10-CM
M05.422	Rheumatoid myopathy with rheumatoid arthritis of left elbow	ICD-10-CM
M05.429	Rheumatoid myopathy with rheumatoid arthritis of unspecified elbow	ICD-10-CM
M05.431	Rheumatoid myopathy with rheumatoid arthritis of right wrist	ICD-10-CM
M05.432	Rheumatoid myopathy with rheumatoid arthritis of left wrist	ICD-10-CM
M05.439	Rheumatoid myopathy with rheumatoid arthritis of unspecified wrist	ICD-10-CM
M05.441	Rheumatoid myopathy with rheumatoid arthritis of right hand	ICD-10-CM
M05.442	Rheumatoid myopathy with rheumatoid arthritis of left hand	ICD-10-CM
M05.449	Rheumatoid myopathy with rheumatoid arthritis of unspecified hand	ICD-10-CM
M05.451	Rheumatoid myopathy with rheumatoid arthritis of right hip	ICD-10-CM
M05.452	Rheumatoid myopathy with rheumatoid arthritis of left hip	ICD-10-CM
M05.459	Rheumatoid myopathy with rheumatoid arthritis of unspecified hip	ICD-10-CM
M05.461	Rheumatoid myopathy with rheumatoid arthritis of right knee	ICD-10-CM
M05.462	Rheumatoid myopathy with rheumatoid arthritis of left knee	ICD-10-CM
M05.469	Rheumatoid myopathy with rheumatoid arthritis of unspecified knee	ICD-10-CM

Appendix C. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) and International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) Codes used to Define Covariates in this Request

Code	Description	Code Type
M05.471	Rheumatoid myopathy with rheumatoid arthritis of right ankle and foot	ICD-10-CM
M05.472	Rheumatoid myopathy with rheumatoid arthritis of left ankle and foot	ICD-10-CM
M05.479	Rheumatoid myopathy with rheumatoid arthritis of unspecified ankle and foot	ICD-10-CM
M05.49	Rheumatoid myopathy with rheumatoid arthritis of multiple sites	ICD-10-CM
M05.50	Rheumatoid polyneuropathy with rheumatoid arthritis of unspecified site	ICD-10-CM
M05.511	Rheumatoid polyneuropathy with rheumatoid arthritis of right shoulder	ICD-10-CM
M05.512	Rheumatoid polyneuropathy with rheumatoid arthritis of left shoulder	ICD-10-CM
M05.519	Rheumatoid polyneuropathy with rheumatoid arthritis of unspecified shoulder	ICD-10-CM
M05.521	Rheumatoid polyneuropathy with rheumatoid arthritis of right elbow	ICD-10-CM
M05.522	Rheumatoid polyneuropathy with rheumatoid arthritis of left elbow	ICD-10-CM
M05.529	Rheumatoid polyneuropathy with rheumatoid arthritis of unspecified elbow	ICD-10-CM
M05.531	Rheumatoid polyneuropathy with rheumatoid arthritis of right wrist	ICD-10-CM
M05.532	Rheumatoid polyneuropathy with rheumatoid arthritis of left wrist	ICD-10-CM
M05.539	Rheumatoid polyneuropathy with rheumatoid arthritis of unspecified wrist	ICD-10-CM
M05.541	Rheumatoid polyneuropathy with rheumatoid arthritis of right hand	ICD-10-CM
M05.542	Rheumatoid polyneuropathy with rheumatoid arthritis of left hand	ICD-10-CM
M05.549	Rheumatoid polyneuropathy with rheumatoid arthritis of unspecified hand	ICD-10-CM
M05.551	Rheumatoid polyneuropathy with rheumatoid arthritis of right hip	ICD-10-CM
M05.552	Rheumatoid polyneuropathy with rheumatoid arthritis of left hip	ICD-10-CM
M05.559	Rheumatoid polyneuropathy with rheumatoid arthritis of unspecified hip	ICD-10-CM
M05.561	Rheumatoid polyneuropathy with rheumatoid arthritis of right knee	ICD-10-CM
M05.562	Rheumatoid polyneuropathy with rheumatoid arthritis of left knee	ICD-10-CM
M05.569	Rheumatoid polyneuropathy with rheumatoid arthritis of unspecified knee	ICD-10-CM
M05.571	Rheumatoid polyneuropathy with rheumatoid arthritis of right ankle and foot	ICD-10-CM
M05.572	Rheumatoid polyneuropathy with rheumatoid arthritis of left ankle and foot	ICD-10-CM
M05.579	Rheumatoid polyneuropathy with rheumatoid arthritis of unspecified ankle and foot	ICD-10-CM
M05.59	Rheumatoid polyneuropathy with rheumatoid arthritis of multiple sites	ICD-10-CM
M05.60	Rheumatoid arthritis of unspecified site with involvement of other organs and systems	ICD-10-CM
M05.611	Rheumatoid arthritis of right shoulder with involvement of other organs and systems	ICD-10-CM
M05.612	Rheumatoid arthritis of left shoulder with involvement of other organs and systems	ICD-10-CM
M05.619	Rheumatoid arthritis of unspecified shoulder with involvement of other organs and systems	ICD-10-CM
M05.621	Rheumatoid arthritis of right elbow with involvement of other organs and systems	ICD-10-CM
M05.622	Rheumatoid arthritis of left elbow with involvement of other organs and systems	ICD-10-CM
M05.629	Rheumatoid arthritis of unspecified elbow with involvement of other organs and systems	ICD-10-CM
M05.631	Rheumatoid arthritis of right wrist with involvement of other organs and systems	ICD-10-CM
M05.632	Rheumatoid arthritis of left wrist with involvement of other organs and systems	ICD-10-CM
M05.639	Rheumatoid arthritis of unspecified wrist with involvement of other organs and systems	ICD-10-CM
M05.641	Rheumatoid arthritis of right hand with involvement of other organs and systems	ICD-10-CM
M05.642	Rheumatoid arthritis of left hand with involvement of other organs and systems	ICD-10-CM
M05.649	Rheumatoid arthritis of unspecified hand with involvement of other organs and systems	ICD-10-CM
M05.651	Rheumatoid arthritis of right hip with involvement of other organs and systems	ICD-10-CM
M05.652	Rheumatoid arthritis of left hip with involvement of other organs and systems	ICD-10-CM
M05.659	Rheumatoid arthritis of unspecified hip with involvement of other organs and systems	ICD-10-CM
M05.661	Rheumatoid arthritis of right knee with involvement of other organs and systems	ICD-10-CM
M05.662	Rheumatoid arthritis of left knee with involvement of other organs and systems	ICD-10-CM
M05.669	Rheumatoid arthritis of unspecified knee with involvement of other organs and systems	ICD-10-CM
M05.671	Rheumatoid arthritis of right ankle and foot with involvement of other organs and systems	ICD-10-CM
M05.672	Rheumatoid arthritis of left ankle and foot with involvement of other organs and systems	ICD-10-CM
M05.679	Rheumatoid arthritis of unspecified ankle and foot with involvement of other organs and systems	ICD-10-CM
M05.69	Rheumatoid arthritis of multiple sites with involvement of other organs and systems	ICD-10-CM

Appendix C. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) and International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) Codes used to Define Covariates in this Request

Code	Description	Code Type
M05.70	Rheumatoid arthritis with rheumatoid factor of unspecified site without organ or systems involvement	ICD-10-CM
M05.711	Rheumatoid arthritis with rheumatoid factor of right shoulder without organ or systems involvement	ICD-10-CM
M05.712	Rheumatoid arthritis with rheumatoid factor of left shoulder without organ or systems involvement	ICD-10-CM
M05.719	Rheumatoid arthritis with rheumatoid factor of unspecified shoulder without organ or systems involvement	ICD-10-CM
M05.721	Rheumatoid arthritis with rheumatoid factor of right elbow without organ or systems involvement	ICD-10-CM
M05.722	Rheumatoid arthritis with rheumatoid factor of left elbow without organ or systems involvement	ICD-10-CM
M05.729	Rheumatoid arthritis with rheumatoid factor of unspecified elbow without organ or systems involvement	ICD-10-CM
M05.731	Rheumatoid arthritis with rheumatoid factor of right wrist without organ or systems involvement	ICD-10-CM
M05.732	Rheumatoid arthritis with rheumatoid factor of left wrist without organ or systems involvement	ICD-10-CM
M05.739	Rheumatoid arthritis with rheumatoid factor of unspecified wrist without organ or systems involvement	ICD-10-CM
M05.741	Rheumatoid arthritis with rheumatoid factor of right hand without organ or systems involvement	ICD-10-CM
M05.742	Rheumatoid arthritis with rheumatoid factor of left hand without organ or systems involvement	ICD-10-CM
M05.749	Rheumatoid arthritis with rheumatoid factor of unspecified hand without organ or systems involvement	ICD-10-CM
M05.751	Rheumatoid arthritis with rheumatoid factor of right hip without organ or systems involvement	ICD-10-CM
M05.752	Rheumatoid arthritis with rheumatoid factor of left hip without organ or systems involvement	ICD-10-CM
M05.759	Rheumatoid arthritis with rheumatoid factor of unspecified hip without organ or systems involvement	ICD-10-CM
M05.761	Rheumatoid arthritis with rheumatoid factor of right knee without organ or systems involvement	ICD-10-CM
M05.762	Rheumatoid arthritis with rheumatoid factor of left knee without organ or systems involvement	ICD-10-CM
M05.769	Rheumatoid arthritis with rheumatoid factor of unspecified knee without organ or systems involvement	ICD-10-CM
M05.771	Rheumatoid arthritis with rheumatoid factor of right ankle and foot without organ or systems involvement	ICD-10-CM
M05.772	Rheumatoid arthritis with rheumatoid factor of left ankle and foot without organ or systems involvement	ICD-10-CM
M05.779	Rheumatoid arthritis with rheumatoid factor of unspecified ankle and foot without organ or systems involvement	ICD-10-CM
M05.79	Rheumatoid arthritis with rheumatoid factor of multiple sites without organ or systems involvement	ICD-10-CM
M05.80	Other rheumatoid arthritis with rheumatoid factor of unspecified site	ICD-10-CM
M05.811	Other rheumatoid arthritis with rheumatoid factor of right shoulder	ICD-10-CM
M05.812	Other rheumatoid arthritis with rheumatoid factor of left shoulder	ICD-10-CM
M05.819	Other rheumatoid arthritis with rheumatoid factor of unspecified shoulder	ICD-10-CM
M05.821	Other rheumatoid arthritis with rheumatoid factor of right elbow	ICD-10-CM
M05.822	Other rheumatoid arthritis with rheumatoid factor of left elbow	ICD-10-CM

Appendix C. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) and International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) Codes used to Define Covariates in this Request

Code	Description	Code Type
M05.829	Other rheumatoid arthritis with rheumatoid factor of unspecified elbow	ICD-10-CM
M05.831	Other rheumatoid arthritis with rheumatoid factor of right wrist	ICD-10-CM
M05.832	Other rheumatoid arthritis with rheumatoid factor of left wrist	ICD-10-CM
M05.839	Other rheumatoid arthritis with rheumatoid factor of unspecified wrist	ICD-10-CM
M05.841	Other rheumatoid arthritis with rheumatoid factor of right hand	ICD-10-CM
M05.842	Other rheumatoid arthritis with rheumatoid factor of left hand	ICD-10-CM
M05.849	Other rheumatoid arthritis with rheumatoid factor of unspecified hand	ICD-10-CM
M05.851	Other rheumatoid arthritis with rheumatoid factor of right hip	ICD-10-CM
M05.852	Other rheumatoid arthritis with rheumatoid factor of left hip	ICD-10-CM
M05.859	Other rheumatoid arthritis with rheumatoid factor of unspecified hip	ICD-10-CM
M05.861	Other rheumatoid arthritis with rheumatoid factor of right knee	ICD-10-CM
M05.862	Other rheumatoid arthritis with rheumatoid factor of left knee	ICD-10-CM
M05.869	Other rheumatoid arthritis with rheumatoid factor of unspecified knee	ICD-10-CM
M05.871	Other rheumatoid arthritis with rheumatoid factor of right ankle and foot	ICD-10-CM
M05.872	Other rheumatoid arthritis with rheumatoid factor of left ankle and foot	ICD-10-CM
M05.879	Other rheumatoid arthritis with rheumatoid factor of unspecified ankle and foot	ICD-10-CM
M05.89	Other rheumatoid arthritis with rheumatoid factor of multiple sites	ICD-10-CM
M05.9	Rheumatoid arthritis with rheumatoid factor, unspecified	ICD-10-CM
M06.00	Rheumatoid arthritis without rheumatoid factor, unspecified site	ICD-10-CM
M06.011	Rheumatoid arthritis without rheumatoid factor, right shoulder	ICD-10-CM
M06.012	Rheumatoid arthritis without rheumatoid factor, left shoulder	ICD-10-CM
M06.019	Rheumatoid arthritis without rheumatoid factor, unspecified shoulder	ICD-10-CM
M06.021	Rheumatoid arthritis without rheumatoid factor, right elbow	ICD-10-CM
M06.022	Rheumatoid arthritis without rheumatoid factor, left elbow	ICD-10-CM
M06.029	Rheumatoid arthritis without rheumatoid factor, unspecified elbow	ICD-10-CM
M06.031	Rheumatoid arthritis without rheumatoid factor, right wrist	ICD-10-CM
M06.032	Rheumatoid arthritis without rheumatoid factor, left wrist	ICD-10-CM
M06.039	Rheumatoid arthritis without rheumatoid factor, unspecified wrist	ICD-10-CM
M06.041	Rheumatoid arthritis without rheumatoid factor, right hand	ICD-10-CM
M06.042	Rheumatoid arthritis without rheumatoid factor, left hand	ICD-10-CM
M06.049	Rheumatoid arthritis without rheumatoid factor, unspecified hand	ICD-10-CM
M06.051	Rheumatoid arthritis without rheumatoid factor, right hip	ICD-10-CM
M06.052	Rheumatoid arthritis without rheumatoid factor, left hip	ICD-10-CM
M06.059	Rheumatoid arthritis without rheumatoid factor, unspecified hip	ICD-10-CM
M06.061	Rheumatoid arthritis without rheumatoid factor, right knee	ICD-10-CM
M06.062	Rheumatoid arthritis without rheumatoid factor, left knee	ICD-10-CM
M06.069	Rheumatoid arthritis without rheumatoid factor, unspecified knee	ICD-10-CM
M06.071	Rheumatoid arthritis without rheumatoid factor, right ankle and foot	ICD-10-CM
M06.072	Rheumatoid arthritis without rheumatoid factor, left ankle and foot	ICD-10-CM
M06.079	Rheumatoid arthritis without rheumatoid factor, unspecified ankle and foot	ICD-10-CM
M06.08	Rheumatoid arthritis without rheumatoid factor, vertebrae	ICD-10-CM
M06.0	Rheumatoid arthritis without rheumatoid factor, multiple sites	ICD-10-CM
M06.1	Adult-onset Still's disease	ICD-10-CM
M06.20	Rheumatoid bursitis, unspecified site	ICD-10-CM
M06.211	Rheumatoid bursitis, right shoulder	ICD-10-CM
M06.212	Rheumatoid bursitis, left shoulder	ICD-10-CM
M06.219	Rheumatoid bursitis, unspecified shoulder	ICD-10-CM
M06.221	Rheumatoid bursitis, right elbow	ICD-10-CM
M06.222	Rheumatoid bursitis, left elbow	ICD-10-CM
M06.229	Rheumatoid bursitis, unspecified elbow	ICD-10-CM
M06.231	Rheumatoid bursitis, right wrist	ICD-10-CM
M06.232	Rheumatoid bursitis, left wrist	ICD-10-CM

Appendix C. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) and International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) Codes used to Define Covariates in this Request

Code	Description	Code Type
M06.239	Rheumatoid bursitis, unspecified wrist	ICD-10-CM
M06.241	Rheumatoid bursitis, right hand	ICD-10-CM
M06.242	Rheumatoid bursitis, left hand	ICD-10-CM
M06.249	Rheumatoid bursitis, unspecified hand	ICD-10-CM
M06.251	Rheumatoid bursitis, right hip	ICD-10-CM
M06.252	Rheumatoid bursitis, left hip	ICD-10-CM
M06.259	Rheumatoid bursitis, unspecified hip	ICD-10-CM
M06.261	Rheumatoid bursitis, right knee	ICD-10-CM
M06.262	Rheumatoid bursitis, left knee	ICD-10-CM
M06.269	Rheumatoid bursitis, unspecified knee	ICD-10-CM
M06.271	Rheumatoid bursitis, right ankle and foot	ICD-10-CM
M06.272	Rheumatoid bursitis, left ankle and foot	ICD-10-CM
M06.279	Rheumatoid bursitis, unspecified ankle and foot	ICD-10-CM
M06.28	Rheumatoid bursitis, vertebrae	ICD-10-CM
M06.29	Rheumatoid bursitis, multiple sites	ICD-10-CM
M06.30	Rheumatoid nodule, unspecified site	ICD-10-CM
M06.311	Rheumatoid nodule, right shoulder	ICD-10-CM
M06.312	Rheumatoid nodule, left shoulder	ICD-10-CM
M06.319	Rheumatoid nodule, unspecified shoulder	ICD-10-CM
M06.321	Rheumatoid nodule, right elbow	ICD-10-CM
M06.322	Rheumatoid nodule, left elbow	ICD-10-CM
M06.329	Rheumatoid nodule, unspecified elbow	ICD-10-CM
M06.331	Rheumatoid nodule, right wrist	ICD-10-CM
M06.332	Rheumatoid nodule, left wrist	ICD-10-CM
M06.339	Rheumatoid nodule, unspecified wrist	ICD-10-CM
M06.341	Rheumatoid nodule, right hand	ICD-10-CM
M06.342	Rheumatoid nodule, left hand	ICD-10-CM
M06.349	Rheumatoid nodule, unspecified hand	ICD-10-CM
M06.351	Rheumatoid nodule, right hip	ICD-10-CM
M06.352	Rheumatoid nodule, left hip	ICD-10-CM
M06.359	Rheumatoid nodule, unspecified hip	ICD-10-CM
M06.361	Rheumatoid nodule, right knee	ICD-10-CM
M06.362	Rheumatoid nodule, left knee	ICD-10-CM
M06.369	Rheumatoid nodule, unspecified knee	ICD-10-CM
M06.371	Rheumatoid nodule, right ankle and foot	ICD-10-CM
M06.372	Rheumatoid nodule, left ankle and foot	ICD-10-CM
M06.379	Rheumatoid nodule, unspecified ankle and foot	ICD-10-CM
M06.38	Rheumatoid nodule, vertebrae	ICD-10-CM
M06.39	Rheumatoid nodule, multiple sites	ICD-10-CM
M06.80	Other specified rheumatoid arthritis, unspecified site	ICD-10-CM
M06.811	Other specified rheumatoid arthritis, right shoulder	ICD-10-CM
M06.812	Other specified rheumatoid arthritis, left shoulder	ICD-10-CM
M06.819	Other specified rheumatoid arthritis, unspecified shoulder	ICD-10-CM
M06.821	Other specified rheumatoid arthritis, right elbow	ICD-10-CM
M06.822	Other specified rheumatoid arthritis, left elbow	ICD-10-CM
M06.829	Other specified rheumatoid arthritis, unspecified elbow	ICD-10-CM
M06.831	Other specified rheumatoid arthritis, right wrist	ICD-10-CM
M06.832	Other specified rheumatoid arthritis, left wrist	ICD-10-CM
M06.839	Other specified rheumatoid arthritis, unspecified wrist	ICD-10-CM
M06.841	Other specified rheumatoid arthritis, right hand	ICD-10-CM
M06.842	Other specified rheumatoid arthritis, left hand	ICD-10-CM
M06.849	Other specified rheumatoid arthritis, unspecified hand	ICD-10-CM

Appendix C. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) and International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) Codes used to Define Covariates in this Request

Code	Description	Code Type
M06.851	Other specified rheumatoid arthritis, right hip	ICD-10-CM
M06.852	Other specified rheumatoid arthritis, left hip	ICD-10-CM
M06.859	Other specified rheumatoid arthritis, unspecified hip	ICD-10-CM
M06.861	Other specified rheumatoid arthritis, right knee	ICD-10-CM
M06.862	Other specified rheumatoid arthritis, left knee	ICD-10-CM
M06.869	Other specified rheumatoid arthritis, unspecified knee	ICD-10-CM
M06.871	Other specified rheumatoid arthritis, right ankle and foot	ICD-10-CM
M06.872	Other specified rheumatoid arthritis, left ankle and foot	ICD-10-CM
M06.879	Other specified rheumatoid arthritis, unspecified ankle and foot	ICD-10-CM
M06.88	Other specified rheumatoid arthritis, vertebrae	ICD-10-CM
M06.89	Other specified rheumatoid arthritis, multiple sites	ICD-10-CM
M06.9	Rheumatoid arthritis, unspecified	ICD-10-CM
M08.00	Unspecified juvenile rheumatoid arthritis of unspecified site	ICD-10-CM
M08.011	Unspecified juvenile rheumatoid arthritis, right shoulder	ICD-10-CM
M08.012	Unspecified juvenile rheumatoid arthritis, left shoulder	ICD-10-CM
M08.019	Unspecified juvenile rheumatoid arthritis, unspecified shoulder	ICD-10-CM
M08.021	Unspecified juvenile rheumatoid arthritis, right elbow	ICD-10-CM
M08.022	Unspecified juvenile rheumatoid arthritis, left elbow	ICD-10-CM
M08.029	Unspecified juvenile rheumatoid arthritis, unspecified elbow	ICD-10-CM
M08.031	Unspecified juvenile rheumatoid arthritis, right wrist	ICD-10-CM
M08.032	Unspecified juvenile rheumatoid arthritis, left wrist	ICD-10-CM
M08.039	Unspecified juvenile rheumatoid arthritis, unspecified wrist	ICD-10-CM
M08.041	Unspecified juvenile rheumatoid arthritis, right hand	ICD-10-CM
M08.042	Unspecified juvenile rheumatoid arthritis, left hand	ICD-10-CM
M08.049	Unspecified juvenile rheumatoid arthritis, unspecified hand	ICD-10-CM
M08.051	Unspecified juvenile rheumatoid arthritis, right hip	ICD-10-CM
M08.052	Unspecified juvenile rheumatoid arthritis, left hip	ICD-10-CM
M08.059	Unspecified juvenile rheumatoid arthritis, unspecified hip	ICD-10-CM
M08.061	Unspecified juvenile rheumatoid arthritis, right knee	ICD-10-CM
M08.062	Unspecified juvenile rheumatoid arthritis, left knee	ICD-10-CM
M08.069	Unspecified juvenile rheumatoid arthritis, unspecified knee	ICD-10-CM
M08.071	Unspecified juvenile rheumatoid arthritis, right ankle and foot	ICD-10-CM
M08.072	Unspecified juvenile rheumatoid arthritis, left ankle and foot	ICD-10-CM
M08.079	Unspecified juvenile rheumatoid arthritis, unspecified ankle and foot	ICD-10-CM
M08.08	Unspecified juvenile rheumatoid arthritis, vertebrae	ICD-10-CM
M08.0	Unspecified juvenile rheumatoid arthritis, multiple sites	ICD-10-CM
M08.1	Juvenile ankylosing spondylitis	ICD-10-CM
M08.20	Juvenile rheumatoid arthritis with systemic onset, unspecified site	ICD-10-CM
M08.211	Juvenile rheumatoid arthritis with systemic onset, right shoulder	ICD-10-CM
M08.212	Juvenile rheumatoid arthritis with systemic onset, left shoulder	ICD-10-CM
M08.219	Juvenile rheumatoid arthritis with systemic onset, unspecified shoulder	ICD-10-CM
M08.221	Juvenile rheumatoid arthritis with systemic onset, right elbow	ICD-10-CM
M08.222	Juvenile rheumatoid arthritis with systemic onset, left elbow	ICD-10-CM
M08.229	Juvenile rheumatoid arthritis with systemic onset, unspecified elbow	ICD-10-CM
M08.231	Juvenile rheumatoid arthritis with systemic onset, right wrist	ICD-10-CM
M08.232	Juvenile rheumatoid arthritis with systemic onset, left wrist	ICD-10-CM
M08.239	Juvenile rheumatoid arthritis with systemic onset, unspecified wrist	ICD-10-CM
M08.241	Juvenile rheumatoid arthritis with systemic onset, right hand	ICD-10-CM
M08.242	Juvenile rheumatoid arthritis with systemic onset, left hand	ICD-10-CM
M08.249	Juvenile rheumatoid arthritis with systemic onset, unspecified hand	ICD-10-CM
M08.251	Juvenile rheumatoid arthritis with systemic onset, right hip	ICD-10-CM
M08.252	Juvenile rheumatoid arthritis with systemic onset, left hip	ICD-10-CM

Appendix C. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) and International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) Codes used to Define Covariates in this Request

Code	Description	Code Type
M08.259	Juvenile rheumatoid arthritis with systemic onset, unspecified hip	ICD-10-CM
M08.261	Juvenile rheumatoid arthritis with systemic onset, right knee	ICD-10-CM
M08.262	Juvenile rheumatoid arthritis with systemic onset, left knee	ICD-10-CM
M08.269	Juvenile rheumatoid arthritis with systemic onset, unspecified knee	ICD-10-CM
M08.271	Juvenile rheumatoid arthritis with systemic onset, right ankle and foot	ICD-10-CM
M08.272	Juvenile rheumatoid arthritis with systemic onset, left ankle and foot	ICD-10-CM
M08.279	Juvenile rheumatoid arthritis with systemic onset, unspecified ankle and foot	ICD-10-CM
M08.28	Juvenile rheumatoid arthritis with systemic onset, vertebrae	ICD-10-CM
M08.29	Juvenile rheumatoid arthritis with systemic onset, multiple sites	ICD-10-CM
M08.3	Juvenile rheumatoid polyarthritis (seronegative)	ICD-10-CM
M08.40	Pauciarticular juvenile rheumatoid arthritis, unspecified site	ICD-10-CM
M08.411	Pauciarticular juvenile rheumatoid arthritis, right shoulder	ICD-10-CM
M08.412	Pauciarticular juvenile rheumatoid arthritis, left shoulder	ICD-10-CM
M08.419	Pauciarticular juvenile rheumatoid arthritis, unspecified shoulder	ICD-10-CM
M08.421	Pauciarticular juvenile rheumatoid arthritis, right elbow	ICD-10-CM
M08.422	Pauciarticular juvenile rheumatoid arthritis, left elbow	ICD-10-CM
M08.429	Pauciarticular juvenile rheumatoid arthritis, unspecified elbow	ICD-10-CM
M08.431	Pauciarticular juvenile rheumatoid arthritis, right wrist	ICD-10-CM
M08.432	Pauciarticular juvenile rheumatoid arthritis, left wrist	ICD-10-CM
M08.439	Pauciarticular juvenile rheumatoid arthritis, unspecified wrist	ICD-10-CM
M08.441	Pauciarticular juvenile rheumatoid arthritis, right hand	ICD-10-CM
M08.442	Pauciarticular juvenile rheumatoid arthritis, left hand	ICD-10-CM
M08.449	Pauciarticular juvenile rheumatoid arthritis, unspecified hand	ICD-10-CM
M08.451	Pauciarticular juvenile rheumatoid arthritis, right hip	ICD-10-CM
M08.452	Pauciarticular juvenile rheumatoid arthritis, left hip	ICD-10-CM
M08.459	Pauciarticular juvenile rheumatoid arthritis, unspecified hip	ICD-10-CM
M08.461	Pauciarticular juvenile rheumatoid arthritis, right knee	ICD-10-CM
M08.462	Pauciarticular juvenile rheumatoid arthritis, left knee	ICD-10-CM
M08.469	Pauciarticular juvenile rheumatoid arthritis, unspecified knee	ICD-10-CM
M08.471	Pauciarticular juvenile rheumatoid arthritis, right ankle and foot	ICD-10-CM
M08.472	Pauciarticular juvenile rheumatoid arthritis, left ankle and foot	ICD-10-CM
M08.479	Pauciarticular juvenile rheumatoid arthritis, unspecified ankle and foot	ICD-10-CM
M08.48	Pauciarticular juvenile rheumatoid arthritis, vertebrae	ICD-10-CM
M08.80	Other juvenile arthritis, unspecified site	ICD-10-CM
M08.811	Other juvenile arthritis, right shoulder	ICD-10-CM
M08.812	Other juvenile arthritis, left shoulder	ICD-10-CM
M08.819	Other juvenile arthritis, unspecified shoulder	ICD-10-CM
M08.821	Other juvenile arthritis, right elbow	ICD-10-CM
M08.822	Other juvenile arthritis, left elbow	ICD-10-CM
M08.829	Other juvenile arthritis, unspecified elbow	ICD-10-CM
M08.831	Other juvenile arthritis, right wrist	ICD-10-CM
M08.832	Other juvenile arthritis, left wrist	ICD-10-CM
M08.839	Other juvenile arthritis, unspecified wrist	ICD-10-CM
M08.841	Other juvenile arthritis, right hand	ICD-10-CM
M08.842	Other juvenile arthritis, left hand	ICD-10-CM
M08.849	Other juvenile arthritis, unspecified hand	ICD-10-CM
M08.851	Other juvenile arthritis, right hip	ICD-10-CM
M08.852	Other juvenile arthritis, left hip	ICD-10-CM
M08.859	Other juvenile arthritis, unspecified hip	ICD-10-CM
M08.861	Other juvenile arthritis, right knee	ICD-10-CM
M08.862	Other juvenile arthritis, left knee	ICD-10-CM
M08.869	Other juvenile arthritis, unspecified knee	ICD-10-CM

Appendix C. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) and International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) Codes used to Define Covariates in this Request

Code	Description	Code Type
M08.871	Other juvenile arthritis, right ankle and foot	ICD-10-CM
M08.872	Other juvenile arthritis, left ankle and foot	ICD-10-CM
M08.879	Other juvenile arthritis, unspecified ankle and foot	ICD-10-CM
M08.88	Other juvenile arthritis, other specified site	ICD-10-CM
M08.89	Other juvenile arthritis, multiple sites	ICD-10-CM
M08.90	Juvenile arthritis, unspecified, unspecified site	ICD-10-CM
M08.911	Juvenile arthritis, unspecified, right shoulder	ICD-10-CM
M08.912	Juvenile arthritis, unspecified, left shoulder	ICD-10-CM
M08.919	Juvenile arthritis, unspecified, unspecified shoulder	ICD-10-CM
M08.921	Juvenile arthritis, unspecified, right elbow	ICD-10-CM
M08.922	Juvenile arthritis, unspecified, left elbow	ICD-10-CM
M08.929	Juvenile arthritis, unspecified, unspecified elbow	ICD-10-CM
M08.931	Juvenile arthritis, unspecified, right wrist	ICD-10-CM
M08.932	Juvenile arthritis, unspecified, left wrist	ICD-10-CM
M08.939	Juvenile arthritis, unspecified, unspecified wrist	ICD-10-CM
M08.941	Juvenile arthritis, unspecified, right hand	ICD-10-CM
M08.942	Juvenile arthritis, unspecified, left hand	ICD-10-CM
M08.949	Juvenile arthritis, unspecified, unspecified hand	ICD-10-CM
M08.951	Juvenile arthritis, unspecified, right hip	ICD-10-CM
M08.952	Juvenile arthritis, unspecified, left hip	ICD-10-CM
M08.959	Juvenile arthritis, unspecified, unspecified hip	ICD-10-CM
M08.961	Juvenile arthritis, unspecified, right knee	ICD-10-CM
M08.962	Juvenile arthritis, unspecified, left knee	ICD-10-CM
M08.969	Juvenile arthritis, unspecified, unspecified knee	ICD-10-CM
M08.971	Juvenile arthritis, unspecified, right ankle and foot	ICD-10-CM
M08.972	Juvenile arthritis, unspecified, left ankle and foot	ICD-10-CM
M08.979	Juvenile arthritis, unspecified, unspecified ankle and foot	ICD-10-CM
M08.98	Juvenile arthritis, unspecified, vertebrae	ICD-10-CM
M08.99	Juvenile arthritis, unspecified, multiple sites	ICD-10-CM
M15.0	Primary generalized (osteo)arthritis	ICD-10-CM
M15.1	Heberden's nodes (with arthropathy)	ICD-10-CM
M15.2	Bouchard's nodes (with arthropathy)	ICD-10-CM
M15.3	Secondary multiple arthritis	ICD-10-CM
M15.4	Erosive (osteo)arthritis	ICD-10-CM
M15.8	Other polyosteoarthritis	ICD-10-CM
M15.9	Polyosteoarthritis, unspecified	ICD-10-CM
M16.0	Bilateral primary osteoarthritis of hip	ICD-10-CM
M16.10	Unilateral primary osteoarthritis, unspecified hip	ICD-10-CM
M16.11	Unilateral primary osteoarthritis, right hip	ICD-10-CM
M16.12	Unilateral primary osteoarthritis, left hip	ICD-10-CM
M16.2	Bilateral osteoarthritis resulting from hip dysplasia	ICD-10-CM
M16.30	Unilateral osteoarthritis resulting from hip dysplasia, unspecified hip	ICD-10-CM
M16.31	Unilateral osteoarthritis resulting from hip dysplasia, right hip	ICD-10-CM
M16.32	Unilateral osteoarthritis resulting from hip dysplasia, left hip	ICD-10-CM
M16.4	Bilateral post-traumatic osteoarthritis of hip	ICD-10-CM
M16.50	Unilateral post-traumatic osteoarthritis, unspecified hip	ICD-10-CM
M16.51	Unilateral post-traumatic osteoarthritis, right hip	ICD-10-CM
M16.52	Unilateral post-traumatic osteoarthritis, left hip	ICD-10-CM
M16.6	Other bilateral secondary osteoarthritis of hip	ICD-10-CM
M16.7	Other unilateral secondary osteoarthritis of hip	ICD-10-CM
M16.9	Osteoarthritis of hip, unspecified	ICD-10-CM
M17.0	Bilateral primary osteoarthritis of knee	ICD-10-CM

Appendix C. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) and International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) Codes used to Define Covariates in this Request

Code	Description	Code Type
M17.10	Unilateral primary osteoarthritis, unspecified knee	ICD-10-CM
M17.11	Unilateral primary osteoarthritis, right knee	ICD-10-CM
M17.12	Unilateral primary osteoarthritis, left knee	ICD-10-CM
M17.2	Bilateral post-traumatic osteoarthritis of knee	ICD-10-CM
M17.30	Unilateral post-traumatic osteoarthritis, unspecified knee	ICD-10-CM
M17.31	Unilateral post-traumatic osteoarthritis, right knee	ICD-10-CM
M17.32	Unilateral post-traumatic osteoarthritis, left knee	ICD-10-CM
M17.4	Other bilateral secondary osteoarthritis of knee	ICD-10-CM
M17.5	Other unilateral secondary osteoarthritis of knee	ICD-10-CM
M17.9	Osteoarthritis of knee, unspecified	ICD-10-CM
M18.0	Bilateral primary osteoarthritis of first carpometacarpal joints	ICD-10-CM
M18.10	Unilateral primary osteoarthritis of first carpometacarpal joint, unspecified hand	ICD-10-CM
M18.11	Unilateral primary osteoarthritis of first carpometacarpal joint, right hand	ICD-10-CM
M18.12	Unilateral primary osteoarthritis of first carpometacarpal joint, left hand	ICD-10-CM
M18.2	Bilateral post-traumatic osteoarthritis of first carpometacarpal joints	ICD-10-CM
M18.30	Unilateral post-traumatic osteoarthritis of first carpometacarpal joint, unspecified hand	ICD-10-CM
M18.31	Unilateral post-traumatic osteoarthritis of first carpometacarpal joint, right hand	ICD-10-CM
M18.32	Unilateral post-traumatic osteoarthritis of first carpometacarpal joint, left hand	ICD-10-CM
M18.4	Other bilateral secondary osteoarthritis of first carpometacarpal joints	ICD-10-CM
M18.50	Other unilateral secondary osteoarthritis of first carpometacarpal joint, unspecified hand	ICD-10-CM
M18.51	Other unilateral secondary osteoarthritis of first carpometacarpal joint, right hand	ICD-10-CM
M18.52	Other unilateral secondary osteoarthritis of first carpometacarpal joint, left hand	ICD-10-CM
M18.9	Osteoarthritis of first carpometacarpal joint, unspecified	ICD-10-CM
M19.011	Primary osteoarthritis, right shoulder	ICD-10-CM
M19.012	Primary osteoarthritis, left shoulder	ICD-10-CM
M19.019	Primary osteoarthritis, unspecified shoulder	ICD-10-CM
M19.021	Primary osteoarthritis, right elbow	ICD-10-CM
M19.022	Primary osteoarthritis, left elbow	ICD-10-CM
M19.029	Primary osteoarthritis, unspecified elbow	ICD-10-CM
M19.031	Primary osteoarthritis, right wrist	ICD-10-CM
M19.032	Primary osteoarthritis, left wrist	ICD-10-CM
M19.039	Primary osteoarthritis, unspecified wrist	ICD-10-CM
M19.041	Primary osteoarthritis, right hand	ICD-10-CM
M19.042	Primary osteoarthritis, left hand	ICD-10-CM
M19.049	Primary osteoarthritis, unspecified hand	ICD-10-CM
M19.071	Primary osteoarthritis, right ankle and foot	ICD-10-CM
M19.072	Primary osteoarthritis, left ankle and foot	ICD-10-CM
M19.079	Primary osteoarthritis, unspecified ankle and foot	ICD-10-CM
M19.111	Post-traumatic osteoarthritis, right shoulder	ICD-10-CM
M19.112	Post-traumatic osteoarthritis, left shoulder	ICD-10-CM
M19.119	Post-traumatic osteoarthritis, unspecified shoulder	ICD-10-CM
M19.121	Post-traumatic osteoarthritis, right elbow	ICD-10-CM
M19.122	Post-traumatic osteoarthritis, left elbow	ICD-10-CM
M19.129	Post-traumatic osteoarthritis, unspecified elbow	ICD-10-CM
M19.131	Post-traumatic osteoarthritis, right wrist	ICD-10-CM
M19.132	Post-traumatic osteoarthritis, left wrist	ICD-10-CM
M19.139	Post-traumatic osteoarthritis, unspecified wrist	ICD-10-CM
M19.141	Post-traumatic osteoarthritis, right hand	ICD-10-CM
M19.142	Post-traumatic osteoarthritis, left hand	ICD-10-CM
M19.149	Post-traumatic osteoarthritis, unspecified hand	ICD-10-CM
M19.171	Post-traumatic osteoarthritis, right ankle and foot	ICD-10-CM
M19.172	Post-traumatic osteoarthritis, left ankle and foot	ICD-10-CM

Appendix C. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) and International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) Codes used to Define Covariates in this Request

Code	Description	Code Type
M19.179	Post-traumatic osteoarthritis, unspecified ankle and foot	ICD-10-CM
M19.211	Secondary osteoarthritis, right shoulder	ICD-10-CM
M19.212	Secondary osteoarthritis, left shoulder	ICD-10-CM
M19.219	Secondary osteoarthritis, unspecified shoulder	ICD-10-CM
M19.221	Secondary osteoarthritis, right elbow	ICD-10-CM
M19.222	Secondary osteoarthritis, left elbow	ICD-10-CM
M19.229	Secondary osteoarthritis, unspecified elbow	ICD-10-CM
M19.231	Secondary osteoarthritis, right wrist	ICD-10-CM
M19.232	Secondary osteoarthritis, left wrist	ICD-10-CM
M19.239	Secondary osteoarthritis, unspecified wrist	ICD-10-CM
M19.241	Secondary osteoarthritis, right hand	ICD-10-CM
M19.242	Secondary osteoarthritis, left hand	ICD-10-CM
M19.249	Secondary osteoarthritis, unspecified hand	ICD-10-CM
M19.271	Secondary osteoarthritis, right ankle and foot	ICD-10-CM
M19.272	Secondary osteoarthritis, left ankle and foot	ICD-10-CM
M19.279	Secondary osteoarthritis, unspecified ankle and foot	ICD-10-CM
M19.90	Unspecified osteoarthritis, unspecified site	ICD-10-CM
M19.91	Primary osteoarthritis, unspecified site	ICD-10-CM
M19.92	Post-traumatic osteoarthritis, unspecified site	ICD-10-CM
M19.93	Secondary osteoarthritis, unspecified site	ICD-10-CM
M45.0	Ankylosing spondylitis of multiple sites in spine	ICD-10-CM
M45.1	Ankylosing spondylitis of occipito-atlanto-axial region	ICD-10-CM
M45.2	Ankylosing spondylitis of cervical region	ICD-10-CM
M45.3	Ankylosing spondylitis of cervicothoracic region	ICD-10-CM
M45.4	Ankylosing spondylitis of thoracic region	ICD-10-CM
M45.5	Ankylosing spondylitis of thoracolumbar region	ICD-10-CM
M45.6	Ankylosing spondylitis lumbar region	ICD-10-CM
M45.7	Ankylosing spondylitis of lumbosacral region	ICD-10-CM
M45.8	Ankylosing spondylitis sacral and sacrococcygeal region	ICD-10-CM
M45.9	Ankylosing spondylitis of unspecified sites in spine	ICD-10-CM
M47.011	Anterior spinal artery compression syndromes, occipito-atlanto-axial region	ICD-10-CM
M47.012	Anterior spinal artery compression syndromes, cervical region	ICD-10-CM
M47.013	Anterior spinal artery compression syndromes, cervicothoracic region	ICD-10-CM
M47.014	Anterior spinal artery compression syndromes, thoracic region	ICD-10-CM
M47.015	Anterior spinal artery compression syndromes, thoracolumbar region	ICD-10-CM
M47.016	Anterior spinal artery compression syndromes, lumbar region	ICD-10-CM
M47.019	Anterior spinal artery compression syndromes, site unspecified	ICD-10-CM
M47.021	Vertebral artery compression syndromes, occipito-atlanto-axial region	ICD-10-CM
M47.022	Vertebral artery compression syndromes, cervical region	ICD-10-CM
M47.029	Vertebral artery compression syndromes, site unspecified	ICD-10-CM
M47.10	Other spondylosis with myelopathy, site unspecified	ICD-10-CM
M47.11	Other spondylosis with myelopathy, occipito-atlanto-axial region	ICD-10-CM
M47.12	Other spondylosis with myelopathy, cervical region	ICD-10-CM
M47.13	Other spondylosis with myelopathy, cervicothoracic region	ICD-10-CM
M47.20	Other spondylosis with radiculopathy, site unspecified	ICD-10-CM
M47.21	Other spondylosis with radiculopathy, occipito-atlanto-axial region	ICD-10-CM
M47.22	Other spondylosis with radiculopathy, cervical region	ICD-10-CM
M47.23	Other spondylosis with radiculopathy, cervicothoracic region	ICD-10-CM
M47.24	Other spondylosis with radiculopathy, thoracic region	ICD-10-CM
M47.25	Other spondylosis with radiculopathy, thoracolumbar region	ICD-10-CM
M47.26	Other spondylosis with radiculopathy, lumbar region	ICD-10-CM
M47.27	Other spondylosis with radiculopathy, lumbosacral region	ICD-10-CM

Appendix C. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) and International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) Codes used to Define Covariates in this Request

Code	Description	Code Type
M47.28	Other spondylosis with radiculopathy, sacral and sacrococcygeal region	ICD-10-CM
M47.811	Spondylosis without myelopathy or radiculopathy, occipito-atlanto-axial region	ICD-10-CM
M47.812	Spondylosis without myelopathy or radiculopathy, cervical region	ICD-10-CM
M47.813	Spondylosis without myelopathy or radiculopathy, cervicothoracic region	ICD-10-CM
M47.814	Spondylosis without myelopathy or radiculopathy, thoracic region	ICD-10-CM
M47.815	Spondylosis without myelopathy or radiculopathy, thoracolumbar region	ICD-10-CM
M47.816	Spondylosis without myelopathy or radiculopathy, lumbar region	ICD-10-CM
M47.817	Spondylosis without myelopathy or radiculopathy, lumbosacral region	ICD-10-CM
M47.818	Spondylosis without myelopathy or radiculopathy, sacral and sacrococcygeal region	ICD-10-CM
M47.819	Spondylosis without myelopathy or radiculopathy, site unspecified	ICD-10-CM
M47.891	Other spondylosis, occipito-atlanto-axial region	ICD-10-CM
M47.892	Other spondylosis, cervical region	ICD-10-CM
M47.893	Other spondylosis, cervicothoracic region	ICD-10-CM
M47.894	Other spondylosis, thoracic region	ICD-10-CM
M47.895	Other spondylosis, thoracolumbar region	ICD-10-CM
M47.896	Other spondylosis, lumbar region	ICD-10-CM
M47.897	Other spondylosis, lumbosacral region	ICD-10-CM
M47.898	Other spondylosis, sacral and sacrococcygeal region	ICD-10-CM
M47.899	Other spondylosis, site unspecified	ICD-10-CM
M47.9	Spondylosis, unspecified	ICD-10-CM
M48.8X1	Other specified spondylopathies, occipito-atlanto-axial region	ICD-10-CM
M48.8X2	Other specified spondylopathies, cervical region	ICD-10-CM
M48.8X3	Other specified spondylopathies, cervicothoracic region	ICD-10-CM
M48.8X4	Other specified spondylopathies, thoracic region	ICD-10-CM
M48.8X5	Other specified spondylopathies, thoracolumbar region	ICD-10-CM
M48.8X6	Other specified spondylopathies, lumbar region	ICD-10-CM
M48.8X7	Other specified spondylopathies, lumbosacral region	ICD-10-CM
M48.8X8	Other specified spondylopathies, sacral and sacrococcygeal region	ICD-10-CM
M48.8X9	Other specified spondylopathies, site unspecified	ICD-10-CM
Stroke/transient ischemic attack		
430	Subarachnoid hemorrhage	ICD-9-CM
431	Intracerebral hemorrhage	ICD-9-CM
433.01	Occlusion and stenosis of basilar artery with cerebral infarction	ICD-9-CM
433.11	Occlusion and stenosis of carotid artery with cerebral infarction	ICD-9-CM
433.21	Occlusion and stenosis of vertebral artery with cerebral infarction	ICD-9-CM
433.31	Occlusion and stenosis of multiple and bilateral precerebral arteries with cerebral infarction	ICD-9-CM
433.81	Occlusion and stenosis of other specified precerebral artery with cerebral infarction	ICD-9-CM
433.91	Occlusion and stenosis of unspecified precerebral artery with cerebral infarction	ICD-9-CM
434.00	Cerebral thrombosis without mention of cerebral infarction	ICD-9-CM
434.01	Cerebral thrombosis with cerebral infarction	ICD-9-CM
434.10	Cerebral embolism without mention of cerebral infarction	ICD-9-CM
434.11	Cerebral embolism with cerebral infarction	ICD-9-CM
434.90	Unspecified cerebral artery occlusion without mention of cerebral infarction	ICD-9-CM
434.91	Unspecified cerebral artery occlusion with cerebral infarction	ICD-9-CM
435.0	Basilar artery syndrome	ICD-9-CM
435.1	Vertebral artery syndrome	ICD-9-CM
435.3	Vertebrobasilar artery syndrome	ICD-9-CM
435.8	Other specified transient cerebral ischemias	ICD-9-CM
435.9	Unspecified transient cerebral ischemia	ICD-9-CM
436	Acute, but ill-defined, cerebrovascular disease	ICD-9-CM
997.02	Iatrogenic cerebrovascular infarction or hemorrhage	ICD-9-CM

Appendix C. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) and International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) Codes used to Define Covariates in this Request

Code	Description	Code Type
G45.0	Vertebro-basilar artery syndrome	ICD-10-CM
G45.1	Carotid artery syndrome (hemispheric)	ICD-10-CM
G45.2	Multiple and bilateral precerebral artery syndromes	ICD-10-CM
G45.8	Other transient cerebral ischemic attacks and related syndromes	ICD-10-CM
G45.9	Transient cerebral ischemic attack, unspecified	ICD-10-CM
G46.0	Middle cerebral artery syndrome	ICD-10-CM
G46.1	Anterior cerebral artery syndrome	ICD-10-CM
G46.2	Posterior cerebral artery syndrome	ICD-10-CM
G46.3	Brain stem stroke syndrome	ICD-10-CM
G46.4	Cerebellar stroke syndrome	ICD-10-CM
G46.5	Pure motor lacunar syndrome	ICD-10-CM
G46.6	Pure sensory lacunar syndrome	ICD-10-CM
G46.7	Other lacunar syndromes	ICD-10-CM
G46.8	Other vascular syndromes of brain in cerebrovascular diseases	ICD-10-CM
G97.31	Intraoperative hemorrhage and hematoma of a nervous system organ or structure complicating a nervous system procedure	ICD-10-CM
G97.32	Intraoperative hemorrhage and hematoma of a nervous system organ or structure complicating other procedure	ICD-10-CM
I60.00	Nontraumatic subarachnoid hemorrhage from unspecified carotid siphon and bifurcation	ICD-10-CM
I60.01	Nontraumatic subarachnoid hemorrhage from right carotid siphon and bifurcation	ICD-10-CM
I60.02	Nontraumatic subarachnoid hemorrhage from left carotid siphon and bifurcation	ICD-10-CM
I60.10	Nontraumatic subarachnoid hemorrhage from unspecified middle cerebral artery	ICD-10-CM
I60.11	Nontraumatic subarachnoid hemorrhage from right middle cerebral artery	ICD-10-CM
I60.12	Nontraumatic subarachnoid hemorrhage from left middle cerebral artery	ICD-10-CM
I60.20	Nontraumatic subarachnoid hemorrhage from unspecified anterior communicating artery	ICD-10-CM
I60.21	Nontraumatic subarachnoid hemorrhage from right anterior communicating artery	ICD-10-CM
I60.22	Nontraumatic subarachnoid hemorrhage from left anterior communicating artery	ICD-10-CM
I60.30	Nontraumatic subarachnoid hemorrhage from unspecified posterior communicating artery	ICD-10-CM
I60.31	Nontraumatic subarachnoid hemorrhage from right posterior communicating artery	ICD-10-CM
I60.32	Nontraumatic subarachnoid hemorrhage from left posterior communicating artery	ICD-10-CM
I60.4	Nontraumatic subarachnoid hemorrhage from basilar artery	ICD-10-CM
I60.50	Nontraumatic subarachnoid hemorrhage from unspecified vertebral artery	ICD-10-CM
I60.51	Nontraumatic subarachnoid hemorrhage from right vertebral artery	ICD-10-CM
I60.52	Nontraumatic subarachnoid hemorrhage from left vertebral artery	ICD-10-CM
I60.6	Nontraumatic subarachnoid hemorrhage from other intracranial arteries	ICD-10-CM
I60.7	Nontraumatic subarachnoid hemorrhage from unspecified intracranial artery	ICD-10-CM
I60.8	Other nontraumatic subarachnoid hemorrhage	ICD-10-CM
I60.9	Nontraumatic subarachnoid hemorrhage, unspecified	ICD-10-CM
I61.0	Nontraumatic intracerebral hemorrhage in hemisphere, subcortical	ICD-10-CM
I61.1	Nontraumatic intracerebral hemorrhage in hemisphere, cortical	ICD-10-CM
I61.2	Nontraumatic intracerebral hemorrhage in hemisphere, unspecified	ICD-10-CM
I61.3	Nontraumatic intracerebral hemorrhage in brain stem	ICD-10-CM
I61.4	Nontraumatic intracerebral hemorrhage in cerebellum	ICD-10-CM
I61.5	Nontraumatic intracerebral hemorrhage, intraventricular	ICD-10-CM
I61.6	Nontraumatic intracerebral hemorrhage, multiple localized	ICD-10-CM
I61.8	Other nontraumatic intracerebral hemorrhage	ICD-10-CM
I61.9	Nontraumatic intracerebral hemorrhage, unspecified	ICD-10-CM
I63.00	Cerebral infarction due to thrombosis of unspecified precerebral artery	ICD-10-CM
I63.011	Cerebral infarction due to thrombosis of right vertebral artery	ICD-10-CM
I63.012	Cerebral infarction due to thrombosis of left vertebral artery	ICD-10-CM
I63.013	Cerebral infarction due to thrombosis of bilateral vertebral arteries	ICD-10-CM
I63.019	Cerebral infarction due to thrombosis of unspecified vertebral artery	ICD-10-CM

Appendix C. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) and International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) Codes used to Define Covariates in this Request

Code	Description	Code Type
I63.02	Cerebral infarction due to thrombosis of basilar artery	ICD-10-CM
I63.031	Cerebral infarction due to thrombosis of right carotid artery	ICD-10-CM
I63.032	Cerebral infarction due to thrombosis of left carotid artery	ICD-10-CM
I63.039	Cerebral infarction due to thrombosis of unspecified carotid artery	ICD-10-CM
I63.0	Cerebral infarction due to thrombosis of other precerebral artery	ICD-10-CM
I63.10	Cerebral infarction due to embolism of unspecified precerebral artery	ICD-10-CM
I63.111	Cerebral infarction due to embolism of right vertebral artery	ICD-10-CM
I63.112	Cerebral infarction due to embolism of left vertebral artery	ICD-10-CM
I63.119	Cerebral infarction due to embolism of unspecified vertebral artery	ICD-10-CM
I63.12	Cerebral infarction due to embolism of basilar artery	ICD-10-CM
I63.131	Cerebral infarction due to embolism of right carotid artery	ICD-10-CM
I63.132	Cerebral infarction due to embolism of left carotid artery	ICD-10-CM
I63.139	Cerebral infarction due to embolism of unspecified carotid artery	ICD-10-CM
I63.19	Cerebral infarction due to embolism of other precerebral artery	ICD-10-CM
I63.20	Cerebral infarction due to unspecified occlusion or stenosis of unspecified precerebral arteries	ICD-10-CM
I63.211	Cerebral infarction due to unspecified occlusion or stenosis of right vertebral artery	ICD-10-CM
I63.212	Cerebral infarction due to unspecified occlusion or stenosis of left vertebral artery	ICD-10-CM
I63.213	Cerebral infarction due to unspecified occlusion or stenosis of bilateral vertebral arteries	ICD-10-CM
I63.219	Cerebral infarction due to unspecified occlusion or stenosis of unspecified vertebral arteries	ICD-10-CM
I63.22	Cerebral infarction due to unspecified occlusion or stenosis of basilar artery	ICD-10-CM
I63.231	Cerebral infarction due to unspecified occlusion or stenosis of right carotid arteries	ICD-10-CM
I63.232	Cerebral infarction due to unspecified occlusion or stenosis of left carotid arteries	ICD-10-CM
I63.233	Cerebral infarction due to unspecified occlusion or stenosis of bilateral carotid arteries	ICD-10-CM
I63.239	Cerebral infarction due to unspecified occlusion or stenosis of unspecified carotid arteries	ICD-10-CM
I63.29	Cerebral infarction due to unspecified occlusion or stenosis of other precerebral arteries	ICD-10-CM
I63.30	Cerebral infarction due to thrombosis of unspecified cerebral artery	ICD-10-CM
I63.311	Cerebral infarction due to thrombosis of right middle cerebral artery	ICD-10-CM
I63.312	Cerebral infarction due to thrombosis of left middle cerebral artery	ICD-10-CM
I63.313	Cerebral infarction due to thrombosis of bilateral middle cerebral arteries	ICD-10-CM
I63.319	Cerebral infarction due to thrombosis of unspecified middle cerebral artery	ICD-10-CM
I63.321	Cerebral infarction due to thrombosis of right anterior cerebral artery	ICD-10-CM
I63.322	Cerebral infarction due to thrombosis of left anterior cerebral artery	ICD-10-CM
I63.323	Cerebral infarction due to thrombosis of bilateral anterior cerebral arteries	ICD-10-CM
I63.329	Cerebral infarction due to thrombosis of unspecified anterior cerebral artery	ICD-10-CM
I63.331	Cerebral infarction due to thrombosis of right posterior cerebral artery	ICD-10-CM
I63.332	Cerebral infarction due to thrombosis of left posterior cerebral artery	ICD-10-CM
I63.333	Cerebral infarction to thrombosis of bilateral posterior cerebral arteries	ICD-10-CM
I63.339	Cerebral infarction due to thrombosis of unspecified posterior cerebral artery	ICD-10-CM
I63.341	Cerebral infarction due to thrombosis of right cerebellar artery	ICD-10-CM
I63.342	Cerebral infarction due to thrombosis of left cerebellar artery	ICD-10-CM
I63.343	Cerebral infarction to thrombosis of bilateral cerebellar arteries	ICD-10-CM
I63.349	Cerebral infarction due to thrombosis of unspecified cerebellar artery	ICD-10-CM
I63.39	Cerebral infarction due to thrombosis of other cerebral artery	ICD-10-CM
I63.40	Cerebral infarction due to embolism of unspecified cerebral artery	ICD-10-CM
I63.411	Cerebral infarction due to embolism of right middle cerebral artery	ICD-10-CM
I63.412	Cerebral infarction due to embolism of left middle cerebral artery	ICD-10-CM
I63.413	Cerebral infarction due to embolism of bilateral middle cerebral arteries	ICD-10-CM
I63.419	Cerebral infarction due to embolism of unspecified middle cerebral artery	ICD-10-CM
I63.421	Cerebral infarction due to embolism of right anterior cerebral artery	ICD-10-CM
I63.422	Cerebral infarction due to embolism of left anterior cerebral artery	ICD-10-CM

Appendix C. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) and International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) Codes used to Define Covariates in this Request

Code	Description	Code Type
I63.423	Cerebral infarction due to embolism of bilateral anterior cerebral arteries	ICD-10-CM
I63.429	Cerebral infarction due to embolism of unspecified anterior cerebral artery	ICD-10-CM
I63.431	Cerebral infarction due to embolism of right posterior cerebral artery	ICD-10-CM
I63.432	Cerebral infarction due to embolism of left posterior cerebral artery	ICD-10-CM
I63.433	Cerebral infarction due to embolism of bilateral posterior cerebral arteries	ICD-10-CM
I63.439	Cerebral infarction due to embolism of unspecified posterior cerebral artery	ICD-10-CM
I63.441	Cerebral infarction due to embolism of right cerebellar artery	ICD-10-CM
I63.442	Cerebral infarction due to embolism of left cerebellar artery	ICD-10-CM
I63.443	Cerebral infarction due to embolism of bilateral cerebellar arteries	ICD-10-CM
I63.449	Cerebral infarction due to embolism of unspecified cerebellar artery	ICD-10-CM
I63.49	Cerebral infarction due to embolism of other cerebral artery	ICD-10-CM
I63.50	Cerebral infarction due to unspecified occlusion or stenosis of unspecified cerebral artery	ICD-10-CM
I63.511	Cerebral infarction due to unspecified occlusion or stenosis of right middle cerebral artery	ICD-10-CM
I63.512	Cerebral infarction due to unspecified occlusion or stenosis of left middle cerebral artery	ICD-10-CM
I63.513	Cerebral infarction due to unspecified occlusion or stenosis of bilateral middle cerebral arteries	ICD-10-CM
I63.519	Cerebral infarction due to unspecified occlusion or stenosis of unspecified middle cerebral artery	ICD-10-CM
I63.521	Cerebral infarction due to unspecified occlusion or stenosis of right anterior cerebral artery	ICD-10-CM
I63.522	Cerebral infarction due to unspecified occlusion or stenosis of left anterior cerebral artery	ICD-10-CM
I63.523	Cerebral infarction due to unspecified occlusion or stenosis of bilateral anterior cerebral arteries	ICD-10-CM
I63.529	Cerebral infarction due to unspecified occlusion or stenosis of unspecified anterior cerebral artery	ICD-10-CM
I63.531	Cerebral infarction due to unspecified occlusion or stenosis of right posterior cerebral artery	ICD-10-CM
I63.532	Cerebral infarction due to unspecified occlusion or stenosis of left posterior cerebral artery	ICD-10-CM
I63.533	Cerebral infarction due to unspecified occlusion or stenosis of bilateral posterior cerebral arteries	ICD-10-CM
I63.539	Cerebral infarction due to unspecified occlusion or stenosis of unspecified posterior cerebral artery	ICD-10-CM
I63.541	Cerebral infarction due to unspecified occlusion or stenosis of right cerebellar artery	ICD-10-CM
I63.542	Cerebral infarction due to unspecified occlusion or stenosis of left cerebellar artery	ICD-10-CM
I63.543	Cerebral infarction due to unspecified occlusion or stenosis of bilateral cerebellar arteries	ICD-10-CM
I63.549	Cerebral infarction due to unspecified occlusion or stenosis of unspecified cerebellar artery	ICD-10-CM
I63.59	Cerebral infarction due to unspecified occlusion or stenosis of other cerebral artery	ICD-10-CM
I63.6	Cerebral infarction due to cerebral venous thrombosis, nonpyogenic	ICD-10-CM
I63.8	Other cerebral infarction	ICD-10-CM
I63.9	Cerebral infarction, unspecified	ICD-10-CM
I66.01	Occlusion and stenosis of right middle cerebral artery	ICD-10-CM
I66.02	Occlusion and stenosis of left middle cerebral artery	ICD-10-CM
I66.03	Occlusion and stenosis of bilateral middle cerebral arteries	ICD-10-CM
I66.0	Occlusion and stenosis of unspecified middle cerebral artery	ICD-10-CM
I66.11	Occlusion and stenosis of right anterior cerebral artery	ICD-10-CM
I66.12	Occlusion and stenosis of left anterior cerebral artery	ICD-10-CM
I66.13	Occlusion and stenosis of bilateral anterior cerebral arteries	ICD-10-CM
I66.19	Occlusion and stenosis of unspecified anterior cerebral artery	ICD-10-CM
I66.21	Occlusion and stenosis of right posterior cerebral artery	ICD-10-CM
I66.22	Occlusion and stenosis of left posterior cerebral artery	ICD-10-CM
I66.23	Occlusion and stenosis of bilateral posterior cerebral arteries	ICD-10-CM

Appendix C. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) and International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) Codes used to Define Covariates in this Request

Code	Description	Code Type
I66.29	Occlusion and stenosis of unspecified posterior cerebral artery	ICD-10-CM
I66.3	Occlusion and stenosis of cerebellar arteries	ICD-10-CM
I66.8	Occlusion and stenosis of other cerebral arteries	ICD-10-CM
I66.9	Occlusion and stenosis of unspecified cerebral artery	ICD-10-CM
I67.841	Reversible cerebrovascular vasoconstriction syndrome	ICD-10-CM
I67.848	Other cerebrovascular vasospasm and vasoconstriction	ICD-10-CM
I67.89	Other cerebrovascular disease	ICD-10-CM
I97.810	Intraoperative cerebrovascular infarction during cardiac surgery	ICD-10-CM
I97.811	Intraoperative cerebrovascular infarction during other surgery	ICD-10-CM
I97.820	Postprocedural cerebrovascular infarction following cardiac surgery	ICD-10-CM
I97.821	Postprocedural cerebrovascular infarction following other surgery	ICD-10-CM
Breast cancer		
174.0	Malignant neoplasm of nipple and areola of female breast	ICD-9-CM
174.1	Malignant neoplasm of central portion of female breast	ICD-9-CM
174.2	Malignant neoplasm of upper-inner quadrant of female breast	ICD-9-CM
174.3	Malignant neoplasm of lower-inner quadrant of female breast	ICD-9-CM
174.4	Malignant neoplasm of upper-outer quadrant of female breast	ICD-9-CM
174.5	Malignant neoplasm of lower-outer quadrant of female breast	ICD-9-CM
174.6	Malignant neoplasm of axillary tail of female breast	ICD-9-CM
174.8	Malignant neoplasm of other specified sites of female breast	ICD-9-CM
174.9	Malignant neoplasm of breast (female), unspecified site	ICD-9-CM
175.0	Malignant neoplasm of nipple and areola of male breast	ICD-9-CM
175.9	Malignant neoplasm of other and unspecified sites of male breast	ICD-9-CM
233.0	Carcinoma in situ of breast	ICD-9-CM
V10.3	Personal history of malignant neoplasm of breast	ICD-9-CM
C50.011	Malignant neoplasm of nipple and areola, right female breast	ICD-10-CM
C50.012	Malignant neoplasm of nipple and areola, left female breast	ICD-10-CM
C50.019	Malignant neoplasm of nipple and areola, unspecified female breast	ICD-10-CM
C50.021	Malignant neoplasm of nipple and areola, right male breast	ICD-10-CM
C50.022	Malignant neoplasm of nipple and areola, left male breast	ICD-10-CM
C50.029	Malignant neoplasm of nipple and areola, unspecified male breast	ICD-10-CM
C50.111	Malignant neoplasm of central portion of right female breast	ICD-10-CM
C50.112	Malignant neoplasm of central portion of left female breast	ICD-10-CM
C50.119	Malignant neoplasm of central portion of unspecified female breast	ICD-10-CM
C50.121	Malignant neoplasm of central portion of right male breast	ICD-10-CM
C50.122	Malignant neoplasm of central portion of left male breast	ICD-10-CM
C50.129	Malignant neoplasm of central portion of unspecified male breast	ICD-10-CM
C50.211	Malignant neoplasm of upper-inner quadrant of right female breast	ICD-10-CM
C50.212	Malignant neoplasm of upper-inner quadrant of left female breast	ICD-10-CM
C50.219	Malignant neoplasm of upper-inner quadrant of unspecified female breast	ICD-10-CM
C50.221	Malignant neoplasm of upper-inner quadrant of right male breast	ICD-10-CM
C50.222	Malignant neoplasm of upper-inner quadrant of left male breast	ICD-10-CM
C50.229	Malignant neoplasm of upper-inner quadrant of unspecified male breast	ICD-10-CM
C50.311	Malignant neoplasm of lower-inner quadrant of right female breast	ICD-10-CM
C50.312	Malignant neoplasm of lower-inner quadrant of left female breast	ICD-10-CM
C50.319	Malignant neoplasm of lower-inner quadrant of unspecified female breast	ICD-10-CM
C50.321	Malignant neoplasm of lower-inner quadrant of right male breast	ICD-10-CM
C50.322	Malignant neoplasm of lower-inner quadrant of left male breast	ICD-10-CM
C50.329	Malignant neoplasm of lower-inner quadrant of unspecified male breast	ICD-10-CM
C50.411	Malignant neoplasm of upper-outer quadrant of right female breast	ICD-10-CM
C50.412	Malignant neoplasm of upper-outer quadrant of left female breast	ICD-10-CM
C50.419	Malignant neoplasm of upper-outer quadrant of unspecified female breast	ICD-10-CM

Appendix C. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) and International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) Codes used to Define Covariates in this Request

Code	Description	Code Type
C50.421	Malignant neoplasm of upper-outer quadrant of right male breast	ICD-10-CM
C50.422	Malignant neoplasm of upper-outer quadrant of left male breast	ICD-10-CM
C50.429	Malignant neoplasm of upper-outer quadrant of unspecified male breast	ICD-10-CM
C50.511	Malignant neoplasm of lower-outer quadrant of right female breast	ICD-10-CM
C50.512	Malignant neoplasm of lower-outer quadrant of left female breast	ICD-10-CM
C50.519	Malignant neoplasm of lower-outer quadrant of unspecified female breast	ICD-10-CM
C50.521	Malignant neoplasm of lower-outer quadrant of right male breast	ICD-10-CM
C50.522	Malignant neoplasm of lower-outer quadrant of left male breast	ICD-10-CM
C50.529	Malignant neoplasm of lower-outer quadrant of unspecified male breast	ICD-10-CM
C50.611	Malignant neoplasm of axillary tail of right female breast	ICD-10-CM
C50.612	Malignant neoplasm of axillary tail of left female breast	ICD-10-CM
C50.619	Malignant neoplasm of axillary tail of unspecified female breast	ICD-10-CM
C50.621	Malignant neoplasm of axillary tail of right male breast	ICD-10-CM
C50.622	Malignant neoplasm of axillary tail of left male breast	ICD-10-CM
C50.629	Malignant neoplasm of axillary tail of unspecified male breast	ICD-10-CM
C50.811	Malignant neoplasm of overlapping sites of right female breast	ICD-10-CM
C50.812	Malignant neoplasm of overlapping sites of left female breast	ICD-10-CM
C50.819	Malignant neoplasm of overlapping sites of unspecified female breast	ICD-10-CM
C50.821	Malignant neoplasm of overlapping sites of right male breast	ICD-10-CM
C50.822	Malignant neoplasm of overlapping sites of left male breast	ICD-10-CM
C50.829	Malignant neoplasm of overlapping sites of unspecified male breast	ICD-10-CM
C50.911	Malignant neoplasm of unspecified site of right female breast	ICD-10-CM
C50.912	Malignant neoplasm of unspecified site of left female breast	ICD-10-CM
C50.919	Malignant neoplasm of unspecified site of unspecified female breast	ICD-10-CM
C50.921	Malignant neoplasm of unspecified site of right male breast	ICD-10-CM
C50.922	Malignant neoplasm of unspecified site of left male breast	ICD-10-CM
C50.929	Malignant neoplasm of unspecified site of unspecified male breast	ICD-10-CM
D05.00	Lobular carcinoma in situ of unspecified breast	ICD-10-CM
D05.01	Lobular carcinoma in situ of right breast	ICD-10-CM
D05.02	Lobular carcinoma in situ of left breast	ICD-10-CM
D05.10	Intraductal carcinoma in situ of unspecified breast	ICD-10-CM
D05.11	Intraductal carcinoma in situ of right breast	ICD-10-CM
D05.12	Intraductal carcinoma in situ of left breast	ICD-10-CM
D05.80	Other specified type of carcinoma in situ of unspecified breast	ICD-10-CM
D05.81	Other specified type of carcinoma in situ of right breast	ICD-10-CM
D05.82	Other specified type of carcinoma in situ of left breast	ICD-10-CM
D05.90	Unspecified type of carcinoma in situ of unspecified breast	ICD-10-CM
D05.91	Unspecified type of carcinoma in situ of right breast	ICD-10-CM
D05.92	Unspecified type of carcinoma in situ of left breast	ICD-10-CM
Z85.3	Personal history of malignant neoplasm of breast	ICD-10-CM
Colorectal cancer		
153.0	Malignant neoplasm of hepatic flexure	ICD-9-CM
153.1	Malignant neoplasm of transverse colon	ICD-9-CM
153.2	Malignant neoplasm of descending colon	ICD-9-CM
153.3	Malignant neoplasm of sigmoid colon	ICD-9-CM
153.4	Malignant neoplasm of cecum	ICD-9-CM
153.5	Malignant neoplasm of appendix	ICD-9-CM
153.6	Malignant neoplasm of ascending colon	ICD-9-CM
153.7	Malignant neoplasm of splenic flexure	ICD-9-CM
153.8	Malignant neoplasm of other specified sites of large intestine	ICD-9-CM
153.9	Malignant neoplasm of colon, unspecified site	ICD-9-CM
154.0	Malignant neoplasm of rectosigmoid junction	ICD-9-CM

Appendix C. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) and International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) Codes used to Define Covariates in this Request

Code	Description	Code Type
154.1	Malignant neoplasm of rectum	ICD-9-CM
230.3	Carcinoma in situ of colon	ICD-9-CM
230.4	Carcinoma in situ of rectum	ICD-9-CM
V10.05	Personal history of malignant neoplasm of large intestine	ICD-9-CM
V10.06	Personal history of malignant neoplasm of rectum, rectosigmoid junction, and anus	ICD-9-CM
C18.0	Malignant neoplasm of cecum	ICD-10-CM
C18.1	Malignant neoplasm of appendix	ICD-10-CM
C18.2	Malignant neoplasm of ascending colon	ICD-10-CM
C18.3	Malignant neoplasm of hepatic flexure	ICD-10-CM
C18.4	Malignant neoplasm of transverse colon	ICD-10-CM
C18.5	Malignant neoplasm of splenic flexure	ICD-10-CM
C18.6	Malignant neoplasm of descending colon	ICD-10-CM
C18.7	Malignant neoplasm of sigmoid colon	ICD-10-CM
C18.8	Malignant neoplasm of overlapping sites of colon	ICD-10-CM
C18.9	Malignant neoplasm of colon, unspecified	ICD-10-CM
C19	Malignant neoplasm of rectosigmoid junction	ICD-10-CM
C20	Malignant neoplasm of rectum	ICD-10-CM
D01.0	Carcinoma in situ of colon	ICD-10-CM
D01.1	Carcinoma in situ of rectosigmoid junction	ICD-10-CM
D01.2	Carcinoma in situ of rectum	ICD-10-CM
Z85.038	Personal history of other malignant neoplasm of large intestine	ICD-10-CM
Z85.040	Personal history of malignant carcinoid tumor of rectum	ICD-10-CM
Z85.048	Personal history of other malignant neoplasm of rectum, rectosigmoid junction, and anus	ICD-10-CM
Prostate cancer		
185	Malignant neoplasm of prostate	ICD-9-CM
233.4	Carcinoma in situ of prostate	ICD-9-CM
V10.46	Personal history of malignant neoplasm of prostate	ICD-9-CM
C61	Malignant neoplasm of prostate	ICD-10-CM
D07.5	Carcinoma in situ of prostate	ICD-10-CM
Z85.46	Personal history of malignant neoplasm of prostate	ICD-10-CM
Lung cancer		
162.2	Malignant neoplasm of main bronchus	ICD-9-CM
162.3	Malignant neoplasm of upper lobe, bronchus, or lung	ICD-9-CM
162.4	Malignant neoplasm of middle lobe, bronchus, or lung	ICD-9-CM
162.5	Malignant neoplasm of lower lobe, bronchus, or lung	ICD-9-CM
162.8	Malignant neoplasm of other parts of bronchus or lung	ICD-9-CM
162.9	Malignant neoplasm of bronchus and lung, unspecified site	ICD-9-CM
231.2	Carcinoma in situ of bronchus and lung	ICD-9-CM
V10.11	Personal history of malignant neoplasm of bronchus and lung	ICD-9-CM
C34.00	Malignant neoplasm of unspecified main bronchus	ICD-10-CM
C34.01	Malignant neoplasm of right main bronchus	ICD-10-CM
C34.02	Malignant neoplasm of left main bronchus	ICD-10-CM
C34.10	Malignant neoplasm of upper lobe, unspecified bronchus or lung	ICD-10-CM
C34.11	Malignant neoplasm of upper lobe, right bronchus or lung	ICD-10-CM
C34.12	Malignant neoplasm of upper lobe, left bronchus or lung	ICD-10-CM
C34.2	Malignant neoplasm of middle lobe, bronchus or lung	ICD-10-CM
C34.30	Malignant neoplasm of lower lobe, unspecified bronchus or lung	ICD-10-CM
C34.31	Malignant neoplasm of lower lobe, right bronchus or lung	ICD-10-CM
C34.32	Malignant neoplasm of lower lobe, left bronchus or lung	ICD-10-CM
C34.80	Malignant neoplasm of overlapping sites of unspecified bronchus and lung	ICD-10-CM
C34.81	Malignant neoplasm of overlapping sites of right bronchus and lung	ICD-10-CM
C34.82	Malignant neoplasm of overlapping sites of left bronchus and lung	ICD-10-CM

Appendix C. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) and International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) Codes used to Define Covariates in this Request

Code	Description	Code Type
C34.90	Malignant neoplasm of unspecified part of unspecified bronchus or lung	ICD-10-CM
C34.91	Malignant neoplasm of unspecified part of right bronchus or lung	ICD-10-CM
C34.92	Malignant neoplasm of unspecified part of left bronchus or lung	ICD-10-CM
D02.20	Carcinoma in situ of unspecified bronchus and lung	ICD-10-CM
D02.21	Carcinoma in situ of right bronchus and lung	ICD-10-CM
D02.22	Carcinoma in situ of left bronchus and lung	ICD-10-CM
Z85.110	Personal history of malignant carcinoid tumor of bronchus and lung	ICD-10-CM
Z85.118	Personal history of other malignant neoplasm of bronchus and lung	ICD-10-CM
Endometrial cancer		
182	Malignant neoplasm of corpus uteri, except isthmus	ICD-9-CM
233.2	Carcinoma in situ of other and unspecified parts of uterus	ICD-9-CM
V10.42	Personal history of malignant neoplasm of other parts of the uterus	ICD-9-CM
C54.1	Malignant neoplasm of endometrium	ICD-10-CM
C54.2	Malignant neoplasm of myometrium	ICD-10-CM
C54.3	Malignant neoplasm of fundus uteri	ICD-10-CM
C54.8	Malignant neoplasm of overlapping sites of corpus uteri	ICD-10-CM
C54.9	Malignant neoplasm of corpus uteri, unspecified	ICD-10-CM
D07.0	Carcinoma in situ of endometrium	ICD-10-CM
Z85.42	Personal history of malignant neoplasm of other parts of uterus	ICD-10-CM

Appendix D. List of Generic and Brand Names used to Define Covariates in this Request

Generic Name	Brand Name
Lorcaserin	
lorcaserin HCl	Belviq
lorcaserin HCl	Belviq XR
Bupropion and naltrexone	
naltrexone HCl/bupropion HCl	Contrave
Liraglutide	
liraglutide	Saxenda
Phentermine and topiramate	
phentermine HCl/topiramate	Qsymia
Orlistat	
orlistat	Alli
orlistat	Xenical
Orlistat brand name Alli	
orlistat	Alli
Phentermine	
phentermine HCl	Adipex-P
phentermine HCl	Lomaira
phentermine HCl	phentermine
phentermine HCl	phentermine
phentermine HCl	Suprenza
phentermine HCl	Suprenza
phentermine HCl	Suprenza
Benzphetamine	
benzphetamine HCl	Regimex
benzphetamine HCl	benzphetamine
benzphetamine HCl	Didrex
Diethylpropion	
diethylpropion HCl	diethylpropion
Phendimetrazine	
phendimetrazine tartrate	Bontril PDM
phendimetrazine tartrate	Bontril Slow-Release
phendimetrazine tartrate	Bontril SR
phendimetrazine tartrate	phendimetrazine tartrate

Appendix E. Specifications Defining Parameters in this Analysis

This request used the Cohort Identification and Descriptive Analysis (CIDA) tool, version 7.0.1, to evaluate utilization patterns of obesity drugs in the Sentinel Distributed Database (SDD).

Query period: January 1, 2008 - December 31, 2017
Coverage requirement: Medical and drug coverage
Pre-index enrollment requirement: 183 Days
Post-index enrollment requirement: 0 Days
Enrollment gap: 45 Days
Age groups: 18-44, 45-64, 65+ years
Stratifications: Sex, age group
Episode duration categories: 1-30 Days, 31-60 Days, 61-90 Days, 91-120 Days, 121-150 Days, 151-183 Days, 184-365 Days, 366-547 Days, 548-730 Days, 730+ Days
Days supplied categories: 1-15 Days, 16-30 Days, 31-45 Days, 46-60 Days, 61-75 Days, 75-90 Days, 91+ Days

		Exposure				Baseline	
Scenario	Index exposure	Cohort definition	Incident exposure washout period	Incident with respect to:	Treatment episode gap	Censor treatment episode at evidence of:	Covariates
1	SGLT-2 inhibitors	Include all valid exposure episodes during query period; only the first valid exposure episode's incidence is assessed using washout criteria	183 Days	SGLT-2 inhibitors	14 days	Death; Disenrollment; Query end date; Data Partner end date	See Appendices C and D
2	All obesity drugs	Include all valid exposure episodes during query period; only the first valid exposure episode's incidence is assessed using washout criteria	183 Days	All obesity drugs	14 days	Death; Disenrollment; Query end date; Data Partner end date	See Appendices C and D
3	All long-term obesity drugs (Lorcaserin, bupropion and naltrexone, liraglutide, phentermine and topiramate, orlistat)	Include all valid exposure episodes during query period; only the first valid exposure episode's incidence is assessed using washout criteria	183 Days	All long-term obesity drugs (Lorcaserin, bupropion and naltrexone, liraglutide, phentermine and topiramate, orlistat)	14 days	Death; Disenrollment; Query end date; Data Partner end date	See Appendices C and D
4	All short-term obesity drugs (Phentermine, benzphetamine, diethylpropion, phendimetrazine)	Include all valid exposure episodes during query period; only the first valid exposure episode's incidence is assessed using washout criteria	183 Days	All short-term obesity drugs (Phentermine, benzphetamine, diethylpropion, phendimetrazine)	14 days	Death; Disenrollment; Query end date; Data Partner end date	See Appendices C and D
5	Lorcaserin	Include all valid exposure episodes during query period; only the first valid exposure episode's incidence is assessed using washout criteria	183 Days	Lorcaserin	14 days	Death; Disenrollment; Query end date; Data Partner end date	See Appendices C and D
6	Bupropion and naltrexone	Include all valid exposure episodes during query period; only the first valid exposure episode's incidence is assessed using washout criteria	183 Days	Bupropion and naltrexone	14 days	Death; Disenrollment; Query end date; Data Partner end date	See Appendices C and D
7	Liraglutide	Include all valid exposure episodes during query period; only the first valid exposure episode's incidence is assessed using washout criteria	183 Days	Liraglutide	14 days	Death; Disenrollment; Query end date; Data Partner end date	See Appendices C and D

Exposure						Baseline	
Scenario	Index exposure	Cohort definition	Incident exposure washout period	Incident with respect to:	Treatment episode gap	Censor treatment episode at evidence of:	Covariates
8	Phentermine and topiramate	Include all valid exposure episodes during query period; only the first valid exposure episode's incidence is assessed using washout criteria	183 Days	Phentermine and topiramate	14 days	Death; Disenrollment; Query end date; Data Partner end date	See Appendices C and D
9	Orlistat (including Alli)	Include all valid exposure episodes during query period; only the first valid exposure episode's incidence is assessed using washout criteria	183 Days	Orlistat (including Alli)	14 days	Death; Disenrollment; Query end date; Data Partner end date	See Appendices C and D
10	Orlistat brand name Alli	Include all valid exposure episodes during query period; only the first valid exposure episode's incidence is assessed using washout criteria	183 Days	Orlistat brand name Alli	14 days	Death; Disenrollment; Query end date; Data Partner end date	See Appendices C and D
11	Phentermine	Include all valid exposure episodes during query period; only the first valid exposure episode's incidence is assessed using washout criteria	183 Days	Phentermine	14 days	Death; Disenrollment; Query end date; Data Partner end date	See Appendices C and D
12	Benzphetamine	Include all valid exposure episodes during query period; only the first valid exposure episode's incidence is assessed using washout criteria	183 Days	Benzphetamine	14 days	Death; Disenrollment; Query end date; Data Partner end date	See Appendices C and D
13	Diethylpropion	Include all valid exposure episodes during query period; only the first valid exposure episode's incidence is assessed using washout criteria	183 Days	Diethylpropion	14 days	Death; Disenrollment; Query end date; Data Partner end date	See Appendices C and D
14	Phendimetrazine	Include all valid exposure episodes during query period; only the first valid exposure episode's incidence is assessed using washout criteria	183 Days	Phendimetrazine	14 days	Death; Disenrollment; Query end date; Data Partner end date	See Appendices C and D

International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS), Healthcare Common Procedure Coding System (HCPCS), and Current Procedural Terminology, Fourth Edition (CPT-4) codes are provided by Optum360.

NDC codes are checked against First Data Bank's "National Drug Data File (NDDF®) Plus."