Disclaimer

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

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

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

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

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Overview for Request: cder_mpl1p_wp111

Request ID: cder_mpl1p_wp111

Request Description: In this report, we describe the proportion of patients that were tested for dihydropyrimidine dehydrogenase (DPYD) gene variants among incident users of fluoropyrimidines. Additionally, we describe the rate of use of fluoropyrimidines among patients with receipt of DPYD gene variant testing or other pharmacogenetic testing.

Sentinel Routine Querying Module: Cohort Identification and Descriptive Analysis (CIDA) module, version 14.2.1

Data Source: We distributed this query to 13 Sentinel Data Partners on January 9, 2026, including the Center for Medicare and Medicaid Services - Medicaid Data. These 13 Data Partners are a subset of the Sentinel Distributed Database (SDD). Data from fee-for-service Medicare enrollees are included. The study period included data from January 1, 2018, to May 31, 2025. Please see Appendix A for a list of dates of available data for each Data Partner.

Study Design: We identified two distinct cohort groups. The first group consisted of eligible individuals with incident use of any fluoropyrimidine, fluorouracil, any non-topical fluoropyrimidine, non-topical fluorouracil, and capecitabine. Within this group, we examined the use of DPYD gene variant testing, both as baseline characteristics and outcomes. The second cohort group consisted of eligible individuals with incident use of DPYD gene variant testing and other pharmacogenetic testing. For these individuals, we examined fluoropyrimidine treatment rates in the follow-up. This is a Type 2 analysis in the Query Request Package (QRP) documentation.

Exposures of Interest: For the first cohort group, we defined the drug exposures of interest using National Drug Codes (NDCs), Current Procedural Terminology, Fourth Edition (CPT-4) codes, and Healthcare Common Procedure Coding System, Level II (HCPCS) codes. We created five drug exposure cohorts: any fluoropyrimidine, fluorouracil, any non-topical fluoropyrimidine, non-topical fluorouracil, and capecitabine.

For the second cohort group, we defined DPYD and other pharmacogenetic testing (here exposures of interest) using CPT-4 codes. We created four testing cohorts: pharmacogenetic testing overall (CPT 81232, 0349U or 81418), DPYD gene variant test (CPT 81232), other pharmacogenetic testing (CPT 0349U or 81418), and other pharmacogenetic testing sensitivity analysis (CPT 0349U,

The date of the first eligible treatment or DPYD gene variant testing served as the index date. Only the first eligible treatment or DPYD gene variant testing for each member was included; cohort re-entry was not allowed.

Please refer to Appendix B for CPT-4 and HCPCS codes and Appendix C for generic and brand names of medical products used to define exposures in this request.

Outcomes of Interest: For the incident drug use cohorts, the outcome of interest was DPYD gene variant test (CPT 81232) or other pharmacogenetic testing (CPT 0349U or 81418). For the testing cohorts, the outcome of interest was use of any fluoropyrimidine (fluorouracil or capecitabine). Please see Appendix D for a list of CPT-4 and HCPCS codes and Appendix E for brand and generic names used to define outcomes in this request.

Cohort Eligibility Criteria: We required members to be enrolled in health plans with medical and drug coverage in the 183 days prior to their index date; a gap in coverage of up to 45 days was allowed and treated as continuous enrollment. For the cohorts indexing on incident drug use, index drug use was defined as no previous dispensing for the index-defining drugs ever prior to the index date. For the testing cohorts, index testing was defined as no prior occurrence of any of the index-defining tests in the 183 days prior to the index date.

The following age groups were included in the cohort: 0-17, 18-24, 25-40, 41-64, 65+ years. We required patients in cohorts to have a diagnosis code for any of the following cancers as of the index date: breast cancer, colorectal cancer, esophageal cancer, pancreatic cancer, other gastrointestinal cancers, basal/squamous cell carcinoma of skin.

Inclusion criteria were defined using ICD, Tenth Revision, Clinical Modification (ICD-10-CM) codes. Please see Appendix F for the list of codes used to define inclusion criteria in this request.

Overview for Request: cder_mpl1p_wp111

Follow-up Time: Follow-up began on the index date. For the incident drug use cohorts, follow-up continued until any of the following: 1) death, 2) disenrollment, 3) end of Data Partner data, 4) query end date, 5) 60 days following the index date, or 6) occurrence of the outcome of interest (CPT 81232, 0349U or 81418). For the testing cohorts, follow-up continued until any of the following: 1) death, 2) disenrollment, 3) end of Data Partner data, 4) query end date, or 5) occurrence of the outcome of interest (any fluoropyrimidine use).

Baseline Characteristics: Age, sex, race, ethnicity, calendar year, and calendar year-quarter were assessed on the index date. Cancer diagnosis type and combined comorbidity score[i], [ii] were assessed in 183 days prior to the index date through the index date (days -183 through 0), and prior medical product use and drug utilization were assessed in the 183 days prior to the index date (days -183 through -1).

For the incident drug use cohorts, we assessed DPYD or other pharmacogenetic testing (CPT 81232, 0349U or 81418) in three time windows: fom 60 days before the index date up to (but not including) the index date (days -60 through -1), from index date through day 60 after the index date (days 0 through 60), and 60 days before the index date through 60 days after the index date (days -60 through 60). Additionally, we assessed the three CPT codes as mutually exclusive categories (e.g., CPT 81232 and no occurrence of CPT 0349U or 81418) in two time windows: days -60 through -1 and days 0 through 60.

For the testing cohorts, we assessed the use of fluoropyrimidine rescue antidote in two windows: 60 days prior to the index date (days -60 through -1) and index date through day 60 after the index date (days 0 through 60).

Please see Appendix G for the list of ICD-10-CM, CPT-4, and HCPCS codes, Appendix H for the list of generic and brand names used to define baseline characteristics in this query.

Please see Appendices I, J, and K for the specifications of parameters used in this request and Appendix L for the design diagrams.

Limitations: Algorithms used to define exposures and inclusion and exclusion criteria are imperfect; thus, it is possible that there may be misclassification. Therefore, data should be interpreted with these limitations in mind.

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

[i]Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A combined comorbidity score predicted mortality in elderly patients better than existing scores. J Clin Epidemiol. 2011;64(7):749-759.

[ii]Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and validation of the combined comorbidity score for ICD-10-CM. Med Care. 2017;55(12):1046-1051.

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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.

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”

Episodes - treatment episodes; length of episode is determined by days supplied in one dispensing or consecutive dispensings

Episode Gap - number of days allowed between two (or more) consecutive exposures (dispensings/procedures) to be considered

Evaluation Period - number of days relative to index wherein a member is required to have evidence of a condition

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.

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

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

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.

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

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 before exposure episode that 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 Characteristics of Overall Fluoropyrimidines Cohort in the Sentinel Distributed Database from January 1, 2018 to May 31, 2025

Patient Characteristics	Number/Mean	Percent/ Standard Deviation[1]
Unique patients	1,141,786	N/A
Demographic Characteristics		
Age (years)	72.3	9.1
Age		
0-17 years	97	0.0%
18-24 years	287	0.0%
25-40 years	12,315	1.1%
41-64 years	211,059	18.5%
≥ 65 years	918,028	80.4%
Sex		
Female	525,681	46.0%
Male	616,105	54.0%
Race[2]		
American Indian or Alaska Native	2,178	0.2%
Asian	8,514	0.7%
Black or African American	27,486	2.4%
Multi-racial	4,944	0.4%
Native Hawaiian or Other Pacific Islander	1,100	0.1%
Unknown	155,867	13.7%
White	941,697	82.5%
Hispanic origin		
Yes	15,055	1.3%
No	914,506	80.1%
Unknown	212,225	18.6%
Year		
2018	151,836	13.3%
2019	159,432	14.0%
2020	152,179	13.3%
2021	169,166	14.8%
2022	150,560	13.2%
2023	160,472	14.1%
2024	185,112	16.2%
2025	13,029	1.1%
Quarter Year		
Q1 2018	37,707	3.3%
Q2 2018	33,676	2.9%
Q3 2018	36,588	3.2%
Q4 2018	43,865	3.8%
Q1 2019	39,136	3.4%

Table 1a. Aggregated Characteristics of Overall Fluoropyrimidines Cohort in the Sentinel Distributed Database from January 1, 2018 to May 31, 2025

Patient Characteristics	Number/Mean	Percent/ Standard Deviation[1]
Q2 2019	35,266	3.1%
Q3 2019	38,945	3.4%
Q4 2019	46,085	4.0%
Q1 2020	39,280	3.4%
Q2 2020	28,802	2.5%
Q3 2020	39,476	3.5%
Q4 2020	44,621	3.9%
Q1 2021	41,781	3.7%
Q2 2021	37,820	3.3%
Q3 2021	41,518	3.6%
Q4 2021	48,047	4.2%
Q1 2022	37,723	3.3%
Q2 2022	33,065	2.9%
Q3 2022	36,597	3.2%
Q4 2022	43,175	3.8%
Q1 2023	39,243	3.4%
Q2 2023	34,796	3.0%
Q3 2023	39,196	3.4%
Q4 2023	47,237	4.1%
Q1 2024	44,881	3.9%
Q2 2024	39,936	3.5%
Q3 2024	46,366	4.1%
Q4 2024	53,929	4.7%
Q1 2025	12,805	1.1%
Q2 2025	224	0.0%
Q3 2025	0	0.0%
Q4 2025	0	0.0%
Health Characteristics		
Combined comorbidity score[3]	2.9	3.7
Cancer Diagnosis 183 days prior to index		
Breast Cancer	68,255	6.0%
Colorectal Cancer	142,428	12.5%
Esophageal Cancer	25,181	2.2%
Pancreatic Cancer	56,139	4.9%
Other Gastrointestinal Cancer	93,129	8.2%
Basal/Squamous Cell Skin Cancer	570,508	50.0%
Health Service Utilization Intensity Metrics		
Mean number of ambulatory encounters	14.5	12.8
Mean number of emergency room encounters	0.3	0.9

Table 1a. Aggregated Characteristics of Overall Fluoropyrimidines Cohort in the Sentinel Distributed Database from January 1, 2018 to May 31, 2025

Patient Characteristics	Number/Mean	Percent/ Standard Deviation[1]
Mean number of inpatient hospital encounters	0.2	0.6
Mean number of non-acute institutional encounters	0.0	0.2
Mean number of other ambulatory encounters[4]	4.5	8.7
Mean number of filled prescriptions	16.1	14.3
Mean number of generics dispensed	7.7	5.0
Mean number of unique drug classes dispensed	7.2	4.5

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

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

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

[4]Other ambulatory encounters 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.

N/A: Not Applicable

Table 1b. Aggregated Characteristics of Fluorouracil Cohort in the Sentinel Distributed Database from January 1, 2018 to May 31, 2025

Patient Characteristics	Number/Mean	Percent/ Standard Deviation[1]
Unique patients	1,091,685	N/A
Demographic Characteristics		
Age (years)	72.7	8.9
Age		
0-17 years	79	0.0%
18-24 years	227	0.0%
25-40 years	8,815	0.8%
41-64 years	184,556	16.9%
≥ 65 years	898,008	82.3%
Sex		
Female	491,332	45.0%
Male	600,353	55.0%
Race[2]		
American Indian or Alaska Native	1,926	0.2%
Asian	6,447	0.6%
Black or African American	21,078	1.9%
Multi-racial	4,380	0.4%
Native Hawaiian or Other Pacific Islander	799	0.1%
Unknown	139,714	12.8%
White	917,341	84.0%
Hispanic origin		
Yes	11,322	1.0%
No	886,920	81.2%
Unknown	193,443	17.7%
Year		
2018	144,174	13.2%
2019	151,735	13.9%
2020	143,803	13.2%
2021	160,043	14.7%
2022	145,333	13.3%
2023	155,000	14.2%
2024	179,337	16.4%
2025	12,260	1.1%
Quarter Year		
Q1 2018	35,749	3.3%
Q2 2018	31,838	2.9%
Q3 2018	34,565	3.2%
Q4 2018	42,022	3.8%
Q1 2019	37,333	3.4%

Table 1b. Aggregated Characteristics of Fluorouracil Cohort in the Sentinel Distributed Database from January 1, 2018 to May 31, 2025

Patient Characteristics	Number/Mean	Percent/ Standard Deviation[1]
Q2 2019	33,487	3.1%
Q3 2019	36,952	3.4%
Q4 2019	43,963	4.0%
Q1 2020	37,364	3.4%
Q2 2020	26,902	2.5%
Q3 2020	37,221	3.4%
Q4 2020	42,316	3.9%
Q1 2021	39,749	3.6%
Q2 2021	35,609	3.3%
Q3 2021	39,055	3.6%
Q4 2021	45,630	4.2%
Q1 2022	36,453	3.3%
Q2 2022	31,810	2.9%
Q3 2022	35,223	3.2%
Q4 2022	41,847	3.8%
Q1 2023	37,889	3.5%
Q2 2023	33,539	3.1%
Q3 2023	37,690	3.5%
Q4 2023	45,882	4.2%
Q1 2024	43,520	4.0%
Q2 2024	38,571	3.5%
Q3 2024	44,825	4.1%
Q4 2024	52,421	4.8%
Q1 2025	12,053	1.1%
Q2 2025	207	0.0%
Q3 2025	0	0.0%
Q4 2025	0	0.0%
Health Characteristics		
Combined comorbidity score[3]	2.7	3.7
Cancer Diagnosis 183 days prior to index		
Breast Cancer	47,037	4.3%
Colorectal Cancer	122,151	11.2%
Esophageal Cancer	24,137	2.2%
Pancreatic Cancer	52,711	4.8%
Other Gastrointestinal Cancer	82,743	7.6%
Basal/Squamous Cell Skin Cancer	568,741	52.1%
Health Service Utilization Intensity Metrics		
Mean number of ambulatory encounters	14.2	12.7
Mean number of emergency room encounters	0.3	0.8

Table 1b. Aggregated Characteristics of Fluorouracil Cohort in the Sentinel Distributed Database from January 1, 2018 to May 31, 2025

Patient Characteristics	Number/Mean	Percent/ Standard Deviation[1]
Mean number of inpatient hospital encounters	0.2	0.6
Mean number of non-acute institutional encounters	0.0	0.2
Mean number of other ambulatory encounters[4]	4.4	8.3
Mean number of filled prescriptions	16.0	14.1
Mean number of generics dispensed	7.6	5.0
Mean number of unique drug classes dispensed	7.2	4.5

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

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

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

[4]Other ambulatory encounters 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.

N/A: Not Applicable

Table 1c. Aggregated Characteristics of Overall Fluoropyrimidines Cohort Excluding Topical Codes in the Sentinel Distributed Database from January 1, 2018 to May 31, 2025

Patient Characteristics	Number/Mean	Percent/ Standard Deviation[1]
Unique patients	319,853	N/A
Demographic Characteristics		
Age (years)	68.0	9.7
Age		
0-17 years	60	0.0%
18-24 years	241	0.1%
25-40 years	9,008	2.8%
41-64 years	96,939	30.3%
≥ 65 years	213,605	66.8%
Sex		
Female	162,420	50.8%
Male	157,433	49.2%
Race[2]		
American Indian or Alaska Native	1,224	0.4%
Asian	7,539	2.4%
Black or African American	26,573	8.3%
Multi-racial	1,866	0.6%
Native Hawaiian or Other Pacific Islander	836	0.3%
Unknown	63,341	19.8%
White	218,474	68.3%
Hispanic origin		
Yes	11,464	3.6%
No	230,943	72.2%
Unknown	77,446	24.2%
Year		
2018	42,324	13.2%
2019	46,157	14.4%
2020	46,096	14.4%
2021	50,003	15.6%
2022	41,352	12.9%
2023	43,265	13.5%
2024	47,286	14.8%
2025	3,370	1.1%
Quarter Year		
Q1 2018	10,282	3.2%
Q2 2018	10,254	3.2%
Q3 2018	10,969	3.4%
Q4 2018	10,819	3.4%
Q1 2019	10,956	3.4%

Table 1c. Aggregated Characteristics of Overall Fluoropyrimidines Cohort Excluding Topical Codes in the Sentinel Distributed Database from January 1, 2018 to May 31, 2025

Patient Characteristics	Number/Mean	Percent/ Standard Deviation[1]
Q2 2019	10,987	3.4%
Q3 2019	12,216	3.8%
Q4 2019	11,998	3.8%
Q1 2020	11,850	3.7%
Q2 2020	9,946	3.1%
Q3 2020	12,046	3.8%
Q4 2020	12,254	3.8%
Q1 2021	11,881	3.7%
Q2 2021	12,333	3.9%
Q3 2021	13,148	4.1%
Q4 2021	12,641	4.0%
Q1 2022	10,128	3.2%
Q2 2022	10,075	3.1%
Q3 2022	10,614	3.3%
Q4 2022	10,535	3.3%
Q1 2023	10,572	3.3%
Q2 2023	10,413	3.3%
Q3 2023	11,279	3.5%
Q4 2023	11,001	3.4%
Q1 2024	11,158	3.5%
Q2 2024	11,258	3.5%
Q3 2024	12,539	3.9%
Q4 2024	12,331	3.9%
Q1 2025	3,317	1.0%
Q2 2025	53	0.0%
Q3 2025	0	0.0%
Q4 2025	0	0.0%
Health Characteristics		
Combined comorbidity score[3]	6.7	4.1
Cancer Diagnosis 183 days prior to index		
Breast Cancer	36,763	11.5%
Colorectal Cancer	138,603	43.3%
Esophageal Cancer	25,161	7.9%
Pancreatic Cancer	57,083	17.8%
Other Gastrointestinal Cancer	92,212	28.8%
Basal/Squamous Cell Skin Cancer	56,139	17.6%
Health Service Utilization Intensity Metrics		
Mean number of ambulatory encounters	21.0	13.6
Mean number of emergency room encounters	0.7	1.3

Table 1c. Aggregated Characteristics of Overall Fluoropyrimidines Cohort Excluding Topical Codes in the Sentinel Distributed Database from January 1, 2018 to May 31, 2025

Patient Characteristics	Number/Mean	Percent/ Standard Deviation[1]
Mean number of inpatient hospital encounters	0.7	0.9
Mean number of non-acute institutional encounters	0.0	0.3
Mean number of other ambulatory encounters[4]	8.1	11.8
Mean number of filled prescriptions	18.8	15.2
Mean number of generics dispensed	9.8	5.6
Mean number of unique drug classes dispensed	9.0	4.9

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

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

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

[4]Other ambulatory encounters 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.

N/A: Not Applicable

Table 1d. Aggregated Characteristics of Fluorouracil Cohort Excluding Topical Codes in the Sentinel Distributed Database from January 1, 2018 to May 31, 2025

Patient Characteristics	Number/Mean	Percent/ Standard Deviation[1]
Unique patients	268,437	N/A
Demographic Characteristics		
Age (years)	69.1	9.3
Age		
0-17 years	42	0.0%
18-24 years	181	0.1%
25-40 years	5,495	2.0%
41-64 years	70,082	26.1%
≥ 65 years	192,637	71.8%
Sex		
Female	127,398	47.5%
Male	141,039	52.5%
Race[2]		
American Indian or Alaska Native	967	0.4%
Asian	5,466	2.0%
Black or African American	20,160	7.5%
Multi-racial	1,285	0.5%
Native Hawaiian or Other Pacific Islander	531	0.2%
Unknown	46,911	17.5%
White	193,117	71.9%
Hispanic origin		
Yes	7,714	2.9%
No	202,497	75.4%
Unknown	58,226	21.7%
Year		
2018	34,505	12.9%
2019	38,305	14.3%
2020	37,533	14.0%
2021	40,714	15.2%
2022	35,952	13.4%
2023	37,570	14.0%
2024	41,284	15.4%
2025	2,574	1.0%
Quarter Year		
Q1 2018	8,285	3.1%
Q2 2018	8,385	3.1%
Q3 2018	8,913	3.3%
Q4 2018	8,922	3.3%
Q1 2019	9,124	3.4%

Table 1d. Aggregated Characteristics of Fluorouracil Cohort Excluding Topical Codes in the Sentinel Distributed Database from January 1, 2018 to May 31, 2025

Patient Characteristics	Number/Mean	Percent/ Standard Deviation[1]
Q2 2019	9,169	3.4%
Q3 2019	10,177	3.8%
Q4 2019	9,835	3.7%
Q1 2020	9,901	3.7%
Q2 2020	7,999	3.0%
Q3 2020	9,740	3.6%
Q4 2020	9,893	3.7%
Q1 2021	9,815	3.7%
Q2 2021	10,077	3.8%
Q3 2021	10,643	4.0%
Q4 2021	10,179	3.8%
Q1 2022	8,821	3.3%
Q2 2022	8,774	3.3%
Q3 2022	9,191	3.4%
Q4 2022	9,166	3.4%
Q1 2023	9,158	3.4%
Q2 2023	9,107	3.4%
Q3 2023	9,724	3.6%
Q4 2023	9,581	3.6%
Q1 2024	9,740	3.6%
Q2 2024	9,830	3.7%
Q3 2024	10,954	4.1%
Q4 2024	10,760	4.0%
Q1 2025	2,538	0.9%
Q2 2025	36	0.0%
Q3 2025	0	0.0%
Q4 2025	0	0.0%
Health Characteristics		
Combined comorbidity score[3]	6.8	4.2
Cancer Diagnosis 183 days prior to index		
Breast Cancer	15,227	5.7%
Colorectal Cancer	117,771	43.9%
Esophageal Cancer	24,082	9.0%
Pancreatic Cancer	53,540	19.9%
Other Gastrointestinal Cancer	81,492	30.4%
Basal/Squamous Cell Skin Cancer	53,995	20.1%
Health Service Utilization Intensity Metrics		
Mean number of ambulatory encounters	21.1	13.5
Mean number of emergency room encounters	0.7	1.3

Table 1d. Aggregated Characteristics of Fluorouracil Cohort Excluding Topical Codes in the Sentinel Distributed Database from January 1, 2018 to May 31, 2025

Patient Characteristics	Number/Mean	Percent/ Standard Deviation[1]
Mean number of inpatient hospital encounters	0.7	0.9
Mean number of non-acute institutional encounters	0.0	0.3
Mean number of other ambulatory encounters[4]	8.0	11.2
Mean number of filled prescriptions	18.7	14.8
Mean number of generics dispensed	9.9	5.5
Mean number of unique drug classes dispensed	9.1	4.9

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

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

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

[4]Other ambulatory encounters 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.

N/A: Not Applicable

Table 1e. Aggregated Characteristics of Capecitabine Cohort in the Sentinel Distributed Database from January 1, 2018 to May 31, 2025

Patient Characteristics	Number/Mean	Percent/ Standard Deviation[1]
Unique patients	77,663	N/A
Demographic Characteristics		
Age (years)	61.6	11.2
Age		
0-17 years	23	0.0%
18-24 years	98	0.1%
25-40 years	4,951	6.4%
41-64 years	42,260	54.4%
≥ 65 years	30,331	39.1%
Sex		
Female	46,395	59.7%
Male	31,268	40.3%
Race[2]		
American Indian or Alaska Native	371	0.5%
Asian	3,042	3.9%
Black or African American	9,029	11.6%
Multi-racial	914	1.2%
Native Hawaiian or Other Pacific Islander	428	0.6%
Unknown	25,875	33.3%
White	38,004	48.9%
Hispanic origin		
Yes	5,233	6.7%
No	41,762	53.8%
Unknown	30,668	39.5%
Year		
2018	11,438	14.7%
2019	11,805	15.2%
2020	12,873	16.6%
2021	13,658	17.6%
2022	8,382	10.8%
2023	8,992	11.6%
2024	9,268	11.9%
2025	1,247	1.6%
Quarter Year		
Q1 2018	2,872	3.7%
Q2 2018	2,719	3.5%
Q3 2018	2,981	3.8%
Q4 2018	2,866	3.7%
Q1 2019	2,764	3.6%

Table 1e. Aggregated Characteristics of Capecitabine Cohort in the Sentinel Distributed Database from January 1, 2018 to May 31, 2025

Patient Characteristics	Number/Mean	Percent/ Standard Deviation[1]
Q2 2019	2,762	3.6%
Q3 2019	3,096	4.0%
Q4 2019	3,183	4.1%
Q1 2020	3,049	3.9%
Q2 2020	2,990	3.8%
Q3 2020	3,422	4.4%
Q4 2020	3,412	4.4%
Q1 2021	3,097	4.0%
Q2 2021	3,310	4.3%
Q3 2021	3,665	4.7%
Q4 2021	3,586	4.6%
Q1 2022	2,010	2.6%
Q2 2022	2,027	2.6%
Q3 2022	2,214	2.9%
Q4 2022	2,131	2.7%
Q1 2023	2,195	2.8%
Q2 2023	2,121	2.7%
Q3 2023	2,407	3.1%
Q4 2023	2,269	2.9%
Q1 2024	2,201	2.8%
Q2 2024	2,170	2.8%
Q3 2024	2,462	3.2%
Q4 2024	2,435	3.1%
Q1 2025	1,220	1.6%
Q2 2025	27	0.0%
Q3 2025	0	0.0%
Q4 2025	0	0.0%
Health Characteristics		
Combined comorbidity score[3]	6.6	3.6
Cancer Diagnosis 183 days prior to index		
Breast Cancer	22,649	29.2%
Colorectal Cancer	39,808	51.3%
Esophageal Cancer	2,043	2.6%
Pancreatic Cancer	8,139	10.5%
Other Gastrointestinal Cancer	17,755	22.9%
Basal/Squamous Cell Skin Cancer	2,665	3.4%
Health Service Utilization Intensity Metrics		
Mean number of ambulatory encounters	24.1	14.7
Mean number of emergency room encounters	0.8	1.5

Table 1e. Aggregated Characteristics of Capecitabine Cohort in the Sentinel Distributed Database from January 1, 2018 to May 31, 2025

Patient Characteristics	Number/Mean	Percent/ Standard Deviation[1]
Mean number of inpatient hospital encounters	0.7	0.9
Mean number of non-acute institutional encounters	0.0	0.3
Mean number of other ambulatory encounters[4]	9.6	14.9
Mean number of filled prescriptions	20.0	17.0
Mean number of generics dispensed	9.6	5.8
Mean number of unique drug classes dispensed	8.8	5.1

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

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

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

[4]Other ambulatory encounters 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.

N/A: Not Applicable

Table 1f. Aggregated Characteristics of Pharmacogenetic Testing Overall Cohort (CPT 81232, 0349U or 81418) in the Sentinel Distributed Database from January 1, 2018 to May 31, 2025

Patient Characteristics	Number/Mean	Percent/ Standard Deviation[1]
Unique patients	30,603	N/A
Demographic Characteristics		
Age (years)	73.5	9.0
Age		
0-17 years	*****	*****
18-24 years	*****	*****
25-40 years	*****	*****
41-64 years	4,280	14.0%
≥ 65 years	26,025	85.0%
Sex		
Female	18,553	60.6%
Male	12,050	39.4%
Race[2]		
American Indian or Alaska Native	65	0.2%
Asian	332	1.1%
Black or African American	2,053	6.7%
Multi-racial	97	0.3%
Native Hawaiian or Other Pacific Islander	15	0.0%
Unknown	2,941	9.6%
White	25,100	82.0%
Hispanic origin		
Yes	439	1.4%
No	26,043	85.1%
Unknown	4,121	13.5%
Year		
2018	2,968	9.7%
2019	4,354	14.2%
2020	2,056	6.7%
2021	2,708	8.8%
2022	2,234	7.3%
2023	6,175	20.2%
2024	9,769	31.9%
2025	339	1.1%
Quarter Year		
Q1 2018	566	1.8%
Q2 2018	568	1.9%
Q3 2018	894	2.9%
Q4 2018	940	3.1%
Q1 2019	1,203	3.9%

Table 1f. Aggregated Characteristics of Pharmacogenetic Testing Overall Cohort (CPT 81232, 0349U or 81418) in the Sentinel Distributed Database from January 1, 2018 to May 31, 2025

Patient Characteristics	Number/Mean	Percent/ Standard Deviation[1]
Q2 2019	1,694	5.5%
Q3 2019	955	3.1%
Q4 2019	502	1.6%
Q1 2020	565	1.8%
Q2 2020	414	1.4%
Q3 2020	547	1.8%
Q4 2020	530	1.7%
Q1 2021	443	1.4%
Q2 2021	577	1.9%
Q3 2021	862	2.8%
Q4 2021	826	2.7%
Q1 2022	543	1.8%
Q2 2022	576	1.9%
Q3 2022	582	1.9%
Q4 2022	533	1.7%
Q1 2023	790	2.6%
Q2 2023	970	3.2%
Q3 2023	1,830	6.0%
Q4 2023	2,585	8.4%
Q1 2024	1,544	5.0%
Q2 2024	2,602	8.5%
Q3 2024	2,727	8.9%
Q4 2024	2,896	9.5%
Q1 2025	339	1.1%
Q2 2025	0	0.0%
Q3 2025	0	0.0%
Q4 2025	0	0.0%
Health Characteristics		
Combined comorbidity score[3]	5.1	3.8
Cancer Diagnosis 183 days prior to index		
Breast Cancer	4,523	14.8%
Colorectal Cancer	6,194	20.2%
Esophageal Cancer	668	2.2%
Pancreatic Cancer	2,670	8.7%
Other Gastrointestinal Cancer	3,477	11.4%
Basal/Squamous Cell Skin Cancer	4,093	13.4%
Rescue Antidote Use 60 days before testing		
Rescue-Antidote	0	0.0%
Rescue Antidote Use 60 days after testing		

Table 1f. Aggregated Characteristics of Pharmacogenetic Testing Overall Cohort (CPT 81232, 0349U or 81418) in the Sentinel Distributed Database from January 1, 2018 to May 31, 2025

Patient Characteristics	Number/Mean	Percent/ Standard Deviation[1]
Rescue-Antidote	*****	*****
Health Service Utilization Intensity Metrics		
Mean number of ambulatory encounters	19.2	15.4
Mean number of emergency room encounters	0.5	1.1
Mean number of inpatient hospital encounters	0.4	0.8
Mean number of non-acute institutional encounters	0.1	0.4
Mean number of other ambulatory encounters[4]	10.2	16.6
Mean number of filled prescriptions	25.9	24.2
Mean number of generics dispensed	10.4	5.9
Mean number of unique drug classes dispensed	9.7	5.3

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

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

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

[4]Other ambulatory encounters 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.

N/A: Not Applicable

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

Table 1g. Aggregated Characteristics of Dihydropyrimidine Dehydrogenase Testing Cohort (CPT 81232) in the Sentinel Distributed Database from January 1, 2018 to May 31, 2025

Patient Characteristics	Number/Mean	Percent/ Standard Deviation[1]
Unique patients	26,186	N/A
Demographic Characteristics		
Age (years)	73.0	8.7
Age		
0-17 years	*****	*****
18-24 years	*****	*****
25-40 years	*****	*****
41-64 years	3,891	14.9%
≥ 65 years	22,022	84.1%
Sex		
Female	15,734	60.1%
Male	10,452	39.9%
Race[2]		
American Indian or Alaska Native	49	0.2%
Asian	310	1.2%
Black or African American	1,804	6.9%
Multi-racial	90	0.3%
Native Hawaiian or Other Pacific Islander	11	0.0%
Unknown	2,680	10.2%
White	21,242	81.1%
Hispanic origin		
Yes	414	1.6%
No	22,074	84.3%
Unknown	3,698	14.1%
Year		
2018	2,968	11.3%
2019	4,354	16.6%
2020	2,056	7.9%
2021	2,708	10.3%
2022	2,234	8.5%
2023	4,767	18.2%
2024	6,846	26.1%
2025	253	1.0%
Quarter Year		
Q1 2018	566	2.2%
Q2 2018	568	2.2%
Q3 2018	894	3.4%
Q4 2018	940	3.6%
Q1 2019	1,203	4.6%

Table 1g. Aggregated Characteristics of Dihydropyrimidine Dehydrogenase Testing Cohort (CPT 81232) in the Sentinel Distributed Database from January 1, 2018 to May 31, 2025

Patient Characteristics	Number/Mean	Percent/ Standard Deviation[1]
Q2 2019	1,694	6.5%
Q3 2019	955	3.6%
Q4 2019	502	1.9%
Q1 2020	565	2.2%
Q2 2020	414	1.6%
Q3 2020	547	2.1%
Q4 2020	530	2.0%
Q1 2021	443	1.7%
Q2 2021	577	2.2%
Q3 2021	862	3.3%
Q4 2021	826	3.2%
Q1 2022	543	2.1%
Q2 2022	576	2.2%
Q3 2022	582	2.2%
Q4 2022	533	2.0%
Q1 2023	600	2.3%
Q2 2023	696	2.7%
Q3 2023	1,492	5.7%
Q4 2023	1,979	7.6%
Q1 2024	1,178	4.5%
Q2 2024	1,907	7.3%
Q3 2024	1,940	7.4%
Q4 2024	1,821	7.0%
Q1 2025	253	1.0%
Q2 2025	0	0.0%
Q3 2025	0	0.0%
Q4 2025	0	0.0%
Health Characteristics		
Combined comorbidity score[3]	5.1	3.8
Cancer Diagnosis 183 days prior to index		
Breast Cancer	4,024	15.4%
Colorectal Cancer	5,750	22.0%
Esophageal Cancer	601	2.3%
Pancreatic Cancer	2,471	9.4%
Other Gastrointestinal Cancer	3,201	12.2%
Basal/Squamous Cell Skin Cancer	3,474	13.3%
Rescue Antidote Use 60 days before testing		
Rescue-Antidote	0	0.0%
Rescue Antidote Use 60 days after testing		

Table 1g. Aggregated Characteristics of Dihydropyrimidine Dehydrogenase Testing Cohort (CPT 81232) in the Sentinel Distributed Database from January 1, 2018 to May 31, 2025

Patient Characteristics	Number/Mean	Percent/ Standard Deviation[1]
Rescue-Antidote Use	*****	*****
Health Service Utilization Intensity Metrics		
Mean number of ambulatory encounters	19.5	15.1
Mean number of emergency room encounters	0.5	1.1
Mean number of inpatient hospital encounters	0.4	0.8
Mean number of non-acute institutional encounters	0.1	0.3
Mean number of other ambulatory encounters[4]	8.3	12.8
Mean number of filled prescriptions	23.7	20.7
Mean number of generics dispensed	10.2	5.8
Mean number of unique drug classes dispensed	9.6	5.2

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

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

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

[4]Other ambulatory encounters 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.

N/A: Not Applicable

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

Table 1h. Aggregated Characteristics of Other Pharmacogenetic Testing Cohort (CPT 0349U or 81418) in the Sentinel Distributed Database from January 1, 2018 to May 31, 2025

Patient Characteristics	Number/Mean	Percent/ Standard Deviation[1]
Unique patients	4,475	N/A
Demographic Characteristics		
Age (years)	77.0	9.8
Age		
0-17 years	*****	*****
18-24 years	*****	*****
25-40 years	*****	*****
41-64 years	399	8.9%
≥ 65 years	4,051	90.5%
Sex		
Female	2,856	63.8%
Male	1,619	36.2%
Race[2]		
American Indian or Alaska Native	17	0.4%
Asian	23	0.5%
Black or African American	254	5.7%
Multi-racial	*****	*****
Native Hawaiian or Other Pacific Islander	*****	*****
Unknown	265	5.9%
White	3,905	87.3%
Hispanic origin		
Yes	25	0.6%
No	4,014	89.7%
Unknown	436	9.7%
Year		
2018	0	0.0%
2019	0	0.0%
2020	0	0.0%
2021	0	0.0%
2022	0	0.0%
2023	1,434	32.0%
2024	2,955	66.0%
2025	86	1.9%
Quarter Year		
Q1 2018	0	0.0%
Q2 2018	0	0.0%
Q3 2018	0	0.0%
Q4 2018	0	0.0%
Q1 2019	0	0.0%

Table 1h. Aggregated Characteristics of Other Pharmacogenetic Testing Cohort (CPT 0349U or 81418) in the Sentinel Distributed Database from January 1, 2018 to May 31, 2025

Patient Characteristics	Number/Mean	Percent/ Standard Deviation[1]
Q2 2019	0	0.0%
Q3 2019	0	0.0%
Q4 2019	0	0.0%
Q1 2020	0	0.0%
Q2 2020	0	0.0%
Q3 2020	0	0.0%
Q4 2020	0	0.0%
Q1 2021	0	0.0%
Q2 2021	0	0.0%
Q3 2021	0	0.0%
Q4 2021	0	0.0%
Q1 2022	0	0.0%
Q2 2022	0	0.0%
Q3 2022	0	0.0%
Q4 2022	0	0.0%
Q1 2023	197	4.4%
Q2 2023	279	6.2%
Q3 2023	342	7.6%
Q4 2023	616	13.8%
Q1 2024	372	8.3%
Q2 2024	701	15.7%
Q3 2024	798	17.8%
Q4 2024	1,084	24.2%
Q1 2025	86	1.9%
Q2 2025	0	0.0%
Q3 2025	0	0.0%
Q4 2025	0	0.0%
Health Characteristics		
Combined comorbidity score[3]	5.2	3.7
Cancer Diagnosis 183 days prior to index		
Breast Cancer	504	11.3%
Colorectal Cancer	452	10.1%
Esophageal Cancer	67	1.5%
Pancreatic Cancer	205	4.6%
Other Gastrointestinal Cancer	279	6.2%
Basal/Squamous Cell Skin Cancer	625	14.0%
Rescue Antidote Use 60 days before testing		
Rescue-Antidote	0	0.0%
Rescue Antidote Use 60 days after testing		

Table 1h. Aggregated Characteristics of Other Pharmacogenetic Testing Cohort (CPT 0349U or 81418) in the Sentinel Distributed Database from January 1, 2018 to May 31, 2025

Patient Characteristics	Number/Mean	Percent/ Standard Deviation[1]
Rescue-Antidote	0	0.0%
Health Service Utilization Intensity Metrics		
Mean number of ambulatory encounters	17.2	17.0
Mean number of emergency room encounters	0.6	1.3
Mean number of inpatient hospital encounters	0.4	0.8
Mean number of non-acute institutional encounters	0.2	0.6
Mean number of other ambulatory encounters[4]	21.6	27.2
Mean number of filled prescriptions	38.9	35.9
Mean number of generics dispensed	11.2	6.0
Mean number of unique drug classes dispensed	10.5	5.3

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

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

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

[4]Other ambulatory encounters 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.

N/A: Not Applicable

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

Table 1i. Aggregated Characteristics of Other Pharmacogenetic Testing Sensitivity Analysis Cohort (CPT 0349U, 81418, 0347U, 0348U, 0350U, 0438U, 0380U, or 0434U) in the Sentinel Distributed Database from January 1, 2018 to May 31, 2025

Patient Characteristics	Number/Mean	Percent/ Standard Deviation[1]
Unique patients	4,592	N/A
Demographic Characteristics		
Age (years)	76.8	9.7
Age		
0-17 years	*****	*****
18-24 years	*****	*****
25-40 years	*****	*****
41-64 years	428	9.3%
≥ 65 years	4,138	90.1%
Sex		
Female	2,919	63.6%
Male	1,673	36.4%
Race[2]		
American Indian or Alaska Native	17	0.4%
Asian	25	0.5%
Black or African American	264	5.7%
Multi-racial	*****	*****
Native Hawaiian or Other Pacific Islander	*****	*****
Unknown	280	6.1%
White	3,995	87.0%
Hispanic origin		
Yes	26	0.6%
No	4,106	89.4%
Unknown	460	10.0%
Year		
2018	0	0.0%
2019	0	0.0%
2020	0	0.0%
2021	0	0.0%
2022	53	1.2%
2023	1,458	31.8%
2024	2,994	65.2%
2025	87	1.9%
Quarter Year		
Q1 2018	0	0.0%
Q2 2018	0	0.0%
Q3 2018	0	0.0%
Q4 2018	0	0.0%
Q1 2019	0	0.0%

Table 1i. Aggregated Characteristics of Other Pharmacogenetic Testing Sensitivity Analysis Cohort (CPT 0349U, 81418, 0347U, 0348U, 0350U, 0438U, 0380U, or 0434U) in the Sentinel Distributed Database from January 1, 2018 to May 31, 2025

Patient Characteristics	Number/Mean	Percent/ Standard Deviation[1]
Q2 2019	0	0.0%
Q3 2019	0	0.0%
Q4 2019	0	0.0%
Q1 2020	0	0.0%
Q2 2020	0	0.0%
Q3 2020	0	0.0%
Q4 2020	0	0.0%
Q1 2021	0	0.0%
Q2 2021	0	0.0%
Q3 2021	0	0.0%
Q4 2021	0	0.0%
Q1 2022	0	0.0%
Q2 2022	0	0.0%
Q3 2022	0	0.0%
Q4 2022	53	1.2%
Q1 2023	209	4.6%
Q2 2023	289	6.3%
Q3 2023	342	7.4%
Q4 2023	618	13.5%
Q1 2024	375	8.2%
Q2 2024	714	15.5%
Q3 2024	807	17.6%
Q4 2024	1,098	23.9%
Q1 2025	87	1.9%
Q2 2025	0	0.0%
Q3 2025	0	0.0%
Q4 2025	0	0.0%
Health Characteristics		
Combined comorbidity score[3]	5.3	3.7
Cancer Diagnosis 183 days prior to index		
Breast Cancer	519	11.3%
Colorectal Cancer	483	10.5%
Esophageal Cancer	73	1.6%
Pancreatic Cancer	225	4.9%
Other Gastrointestinal Cancer	301	6.6%
Basal/Squamous Cell Skin Cancer	637	13.9%
Rescue Antidote Use 60 days before testing		
Rescue-Antidote	0	0.0%
Rescue Antidote Use 60 days after testing		

Table 1i. Aggregated Characteristics of Other Pharmacogenetic Testing Sensitivity Analysis Cohort (CPT 0349U, 81418, 0347U, 0348U, 0350U, 0438U, 0380U, or 0434U) in the Sentinel Distributed Database from January 1, 2018 to May 31, 2025

Patient Characteristics	Number/Mean	Percent/ Standard Deviation[1]
Rescue-Antidote	0	0.0%
Health Service Utilization Intensity Metrics		
Mean number of ambulatory encounters	17.2	16.9
Mean number of emergency room encounters	0.7	1.3
Mean number of inpatient hospital encounters	0.4	0.8
Mean number of non-acute institutional encounters	0.2	0.6
Mean number of other ambulatory encounters[4]	21.2	26.9
Mean number of filled prescriptions	38.5	35.6
Mean number of generics dispensed	11.2	6.0
Mean number of unique drug classes dispensed	10.4	5.3

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

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

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

[4]Other ambulatory encounters 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.

N/A: Not Applicable

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

Table 2. Summary of Dihydropyrimidine Dehydrogenase and Other Pharmacogenetic Gene Panel Testing among Fluoropyrimidine Users in the Sentinel Distributed Database from January 1, 2018 to June 30, 2024

	Overall Fluoropyrimidines Cohort (n =1,141,786)[1]	Fluorouracil Cohort (n = 1,091,685)[1]	Overall Fluoropyrimidines Cohort Without Topical (n = 319,853)[1]	Fluorouracil Cohort Without Topical (n = 268,437)[1]	Capecitabine Cohort (n = 77,663)
DPYD assessment (CPT 81232, 0349U or 81418) 60 days before through 60 days after Fluoropyrimidine Use, by care setting					
CPT 81232, 0349U or 81418 in IP, ED	72 (0.0%)	63 (0.0%)	76 (0.0%)	67 (0.0%)	18 (0.0%)
CPT 81232, 0349U or 81418 in IS, AV, OA	5,013 (0.4%)	4,196 (0.4%)	5,086 (1.6%)	4,253 (1.6%)	1,072 (1.4%)
CPT 81232, 0349U or 81418 in any care setting	5,084 (0.4%)	4,258 (0.4%)	5,161 (1.6%)	4,319 (1.6%)	1,089 (1.4%)
Q1 2018	64	60	57	52	*****
Q2 2018	60	46	63	48	21
Q3 2018	95	84	92	81	19
Q4 2018	74	67	70	63	12
Q1 2019	96	82	95	81	18
Q2 2019	115	101	112	98	20
Q3 2019	125	101	126	102	31
Q4 2019	104	96	106	98	21
Q1 2020	119	105	123	109	17
Q2 2020	99	94	102	97	*****
Q3 2020	107	92	109	94	22
Q4 2020	114	95	120	100	25
Q1 2021	105	93	105	93	17
Q2 2021	123	98	129	103	33
Q3 2021	124	111	124	111	21
Q4 2021	125	107	131	113	24
Q1 2022	122	109	126	114	22
Q2 2022	137	132	140	135	16
Q3 2022	171	139	175	143	39
Q4 2022	149	133	149	133	26
Q1 2023	220	186	233	197	48
Q2 2023	224	195	230	201	42
Q3 2023	238	198	247	206	50
Q4 2023	293	242	291	237	62
Q1 2024	320	253	321	252	84
Q2 2024	416	341	418	342	83
Q3 2024	459	373	465	378	105
Q4 2024	501	400	514	410	121
Q1 2025	185	125	188	128	69
Q2 2025	0	0	0	0	0
DPYD assessment (CPT 81232, 0349U or 81418) 60 days before Fluoropyrimidine Use, by care setting					
CPT 81232, 0349U or 81418 in IP, ED	23 (0.0%)	24 (0.0%)	24 (0.0%)	25 (0.0%)	*****
CPT 81232, 0349U or 81418 in IS, AV, OA	3,330 (0.3%)	2,815 (0.3%)	3,407 (1.1%)	2,883 (1.1%)	670 (0.9%)

Table 2. Summary of Dihydropyrimidine Dehydrogenase and Other Pharmacogenetic Gene Panel Testing among Fluoropyrimidine Users in the Sentinel Distributed Database from January 1, 2018 to June 30, 2024

	Overall Fluoropyrimidines Cohort (n =1,141,786)[1]	Fluorouracil Cohort (n = 1,091,685)[1]	Overall Fluoropyrimidines Cohort Without Topical (n = 319,853)[1]	Fluorouracil Cohort Without Topical (n = 268,437)[1]	Capecitabine Cohort (n = 77,663)
CPT 81232, 0349U or 81418 in any care setting	3,353 (0.3%)	2,839 (0.3%)	3,431 (1.1%)	2,908 (1.1%)	674 (0.9%)
DPYD assessment (CPT 81232, 0349U or 81418) 60 days after Fluoropyrimidine Use, by care setting					
CPT 81232, 0349U or 81418 in IP, ED	49 (0.0%)	39 (0.0%)	52 (0.0%)	42 (0.5%)	14 (0.0%)
CPT 81232, 0349U or 81418 in IS, AV, OA	1,717 (0.2%)	1,403 (0.1%)	1,713 (0.5%)	1,392 (0.5%)	414 (0.5%)
CPT 81232, 0349U or 81418 in any care setting	1,766 (0.2%)	1,442 (0.1%)	1,765 (0.6%)	1,434 (0.5%)	428 (0.6%)
DPYD assessment (CPT 81232 AND NOT (0349U or 81418 in any care setting)) 60 days before Fluoropyrimidine Use, by care					
CPT 81232 in IP, ED AND NOT (0349U or 81418 in any care setting)	17 (0.3%)	19 (0.0%)	17 (0.0%)	19 (0.0%)	*****
CPT 81232 in IS, AV, OA AND NOT (0349U or 81418 in any care setting)	2,993 (0.0%)	2,533 (0.2%)	3,063 (1.0%)	2,597 (1.0%)	605 (0.8%)
CPT 81232 in any care setting AND NOT (0349U or 81418 in any care setting)	3,010 (0.3%)	2,552 (0.2%)	3,080 (1.0%)	2,616 (1.0%)	608 (0.8%)
DPYD assessment (CPT 81232 AND NOT (0349U or 81418 in any care setting)) 60 days after Fluoropyrimidine Use, by care setting					
CPT 81232 in IP, ED AND NOT (0349U or 81418 in any care setting)	46 (0.0%)	36 (0.0%)	49 (0.0%)	39 (0.0%)	14 (0.0%)
CPT 81232 in IS, AV, OA AND NOT (0349U or 81418 in any care setting)	1,660 (0.1%)	1,359 (0.1%)	1,664 (0.5%)	1,357 (0.5%)	393 (0.5%)
CPT 81232 in any care setting AND NOT (0349U or 81418 in any care setting)	1,706 (0.1%)	1,395 (0.1%)	1,713 (0.5%)	1,396 (0.5%)	407 (0.5%)
DPYD assessment (CPT 0349U AND NOT (81232 or 81418 in any care setting)) 60 days before Fluoropyrimidine Use, by care					
CPT 0349U in IP, ED AND NOT (81232 or 81418 in any care setting)	*****	*****	*****	*****	*****
CPT 0349U in IS, AV, OA AND NOT (81232 or 81418 in any care setting)	294 (0.0%)	241 (0.0%)	304 (0.1%)	248 (0.1%)	63 (0.1%)
CPT 0349U in any care setting AND NOT (81232 or 81418 in any care setting)	300 (0.0%)	246 (0.0%)	311 (0.1%)	254 (0.1%)	64 (0.1%)
DPYD assessment (CPT 0349U AND NOT (81232 or 81418 in any care setting)) 60 days after Fluoropyrimidine Use, by care setting					
CPT 0349U in IP, ED AND NOT (81232 or 81418 in any care setting)	*****	*****	*****	*****	0 (0.0%)
CPT 0349U in IS, AV, OA AND NOT (81232 or 81418 in any care setting)	38 (0.0%)	26 (0.0%)	39 (0.0%)	26 (0.0%)	19 (0.0%)
CPT 0349U in any care setting AND NOT (81232 or 81418 in any care setting)	40 (0.0%)	28 (0.0%)	41 (0.0%)	28 (0.0%)	19 (0.0%)

Table 2. Summary of Dihydropyrimidine Dehydrogenase and Other Pharmacogenetic Gene Panel Testing among Fluoropyrimidine Users in the Sentinel Distributed Database from January 1, 2018 to June 30, 2024

	Overall Fluoropyrimidines Cohort (n =1,141,786)[1]	Fluorouracil Cohort (n = 1,091,685)[1]	Overall Fluoropyrimidines Cohort Without Topical (n = 319,853)[1]	Fluorouracil Cohort Without Topical (n = 268,437)[1]	Capecitabine Cohort (n = 77,663)
DPYD assessment (CPT 81418 AND NOT (0349U or 81232 in any care setting)) 60 days before Fluoropyrimidine Use, by care					
CPT 81418 in IP, ED AND NOT (0349U or 81232 in any care setting)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
CPT 81418 in IS, AV, OA AND NOT (0349U or 81232 in any care setting)	40 (0.0%)	38 (0.0%)	37 (0.0%)	35 (0.0%)	*****
CPT 81418 in any care setting AND NOT (0349U or 81232 in any care setting)	40 (0.0%)	38 (0.0%)	37 (0.0%)	35 (0.0%)	*****
DPYD assessment (CPT 81418 AND NOT (0349U or 81232 in any care setting)) 60 days after Fluoropyrimidine Use, by care setting					
CPT 81418 in IP, ED AND NOT (0349U or 81232 in any care setting)	*****	*****	*****	*****	0 (0.0%)
CPT 81418 in IS, AV, OA AND NOT (0349U or 81232 in any care setting)	17 (0.0%)	16 (0.0%)	*****	*****	*****
CPT 81418 in any care setting AND NOT (0349U or 81232 in any care setting)	18 (0.0%)	17 (0.0%)	*****	*****	*****

[1]In the overall fluoropyrimidine and fluorouracil cohorts, the incident exposure washout excludes index dates with any prior non-topical or topical fluoropyrimidine and fluorouracil use, respectively; whereas, the corresponding systemic ("Without Topical") drug cohorts exclude index dates with any prior use only of systemic fluoropyrimidine and fluorouracil, respectively. Thus, for patients who used both topical and systemic index drugs, with topical use preceding systemic use, the topical use index date is selected in the overall drug cohort, while the non-topical use index date is included in corresponding systemic drug cohort. Therefore, testing numbers in the overall drug cohorts are lower than the corresponding systemic drug cohorts.

IPP: inpatient hospital stays, principal diagnoses
IPS: inpatient hospital stays, secondary diagnoses
IPX: inpatient hospital stays, unclassified diagnoses
ISP: non-acute institutional stays, principal diagnoses
ISS: non-acute institutional stays, secondary diagnoses
ISX: non-acute institutional stays, unclassified diagnoses
ED: emergency department encounters
AV: ambulatory visits

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Table 3. Dihydropyrimidine Dehydrogenase and Other Pharmacogenetic Gene Panel Testing and Subsequent Fluoropyrimidine Treatment in the Sentinel Distributed Database from from January 1, 2018 to May 31, 2025

	Number of Patients	Number of Fluoropyrimidine Treatment Events	Proportion of Patients with an Event	Total Person Years of Follow-up	Fluoropyrimidine Treatment Rate per 100,000 Patient-Years of Follow-up (95% Confidence Interval)
Pharmacogenetic Testing Overall Cohort (CPT 81232, 0349U or 81418)	30,603	7,186	0.23	41,565.1	17,288.53 (16,893.38, 17,692.92)
Dihydropyrimidine Dehydrogenase Testing Cohort (CPT 81232)	26,186	6,653	0.25	39,066.4	17,029.99 (16,625.64, 17,444.17)
Other Pharmacogenetic Testing Cohort (CPT 0349U or 81418)	4,475	542	0.12	2,543.7	21,307.87 (19,587.42, 23,179.45)
Other Pharmacogenetic Testing Sensitivity Analysis Cohort (CPT 0349U, 81418, 0347U, 0348U, 0350U, 0438U, 0380U, or 0434U)	4,592	589	0.13	2,608.4	22,581.27 (20,829.30, 24,480.61)

Table 4. Summary of Time to End of At-Risk Period due to Fluoropyrimidine Treatment after Dihydropyrimidine Dehydrogenase and Other Pharmacogenetic Gene Panel Testing in the Sentinel Distributed Database from January 1, 2018 to May 31, 2025

			Number of Episodes Censored due to Occurrence of Outcome of Interest by Episode Length[1,2]					
			1-5 days		6-10 days		11-15 days	
	Total Number of Episodes	Total Number of Episodes Censored due to Occurrence of Outcome of Interest[1]	Number of Episodes	Percent of Total Episodes	Number of Episodes	Percent of Total Episodes	Number of Episodes	Percent of Total Episodes
Pharmacogenetic Testing Overall Cohort (CPT 81232, 0349U or 81418)	30,603	7,186	1,120	15.6%	1,119	15.6%	1,136	15.8%
Dihydropyrimidine Dehydrogenase Testing Cohort (CPT 81232)	26,186	6,653	1,045	15.7%	1,040	15.6%	1,062	16.0%
Other Pharmacogenetic Testing Cohort (CPT 0349U or 81418)	4,475	542	77	14.2%	80	14.8%	76	14.0%
Other Pharmacogenetic Testing Sensitivity Analysis Cohort (CPT 0349U, 81418, 0347U, 0348U, 0350U, 0438U, 0380U, or 0434U)	4,592	589	90	15.3%	89	15.1%	81	13.8%

[1]Index date has an Episode Length of 1

[2]Represents episodes censored due to occurrence of request-defined event.

Table 4. Summary of Time to End of At-Risk Period due to Fluoropyrimidine Treatment after Dihydropyrimidine Dehydrogenase and Other Pharmacogenetic Gene Panel Testing in the Sentinel Distributed Database from January 1, 2018 to May 31, 2025

	Number of Episodes Censored due to Occurrence of Outcome of Interest by Episode Length[1,2]							
	16-20 days		21-25 days		26-30 days		31-35 days	
	Number of Episodes	Percent of Total Episodes	Number of Episodes	Percent of Total Episodes	Number of Episodes	Percent of Total Episodes	Number of Episodes	Percent of Total Episodes
Pharmacogenetic Testing Overall Cohort (CPT 81232, 0349U or 81418)	669	9.3%	588	8.2%	398	5.5%	176	2.4%
Dihydropyrimidine Dehydrogenase Testing Cohort (CPT 81232)	611	9.2%	523	7.9%	357	5.4%	167	2.5%
Other Pharmacogenetic Testing Cohort (CPT 0349U or 81418)	59	10.9%	66	12.2%	42	7.7%	*****	*****
Other Pharmacogenetic Testing Sensitivity Analysis Cohort (CPT 0349U, 81418, 0347U, 0348U, 0350U, 0438U, 0380U, or 0434U)	68	11.5%	69	11.7%	44	7.5%	*****	*****

[1]Index date has an Episode Length of 1

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Table 4. Summary of Time to End of At-Risk Period due to Fluoropyrimidine Treatment after Dihydropyrimidine Dehydrogenase and Other Pharmacogenetic Gene Panel Testing in the Sentinel Distributed Database from January 1, 2018 to May 31, 2025

	Number of Episodes Censored due to Occurrence of Outcome of Interest by Episode Length[1,2]							
	36-40 days		41-45 days		46-50 days		51-55 days	
	Number of Episodes	Percent of Total Episodes	Number of Episodes	Percent of Total Episodes	Number of Episodes	Percent of Total Episodes	Number of Episodes	Percent of Total Episodes
Pharmacogenetic Testing Overall Cohort (CPT 81232, 0349U or 81418)	171	2.4%	116	1.6%	91	1.3%	59	0.8%
Dihydropyrimidine Dehydrogenase Testing Cohort (CPT 81232)	156	2.3%	109	1.6%	83	1.2%	58	0.9%
Other Pharmacogenetic Testing Cohort (CPT 0349U or 81418)	15	2.8%	*****	*****	*****	*****	*****	*****
Other Pharmacogenetic Testing Sensitivity Analysis Cohort (CPT 0349U, 81418, 0347U, 0348U, 0350U, 0438U, 0380U, or 0434U)	16	2.7%	*****	*****	*****	*****	*****	*****

[1]Index date has an Episode Length of 1

[2]Represents episodes censored due to occurrence of request-defined event.

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Table 4. Summary of Time to End of At-Risk Period due to Fluoropyrimidine Treatment after Dihydropyrimidine Dehydrogenase and Other Pharmacogenetic Gene Panel Testing in the Sentinel Distributed Database from January 1, 2018 to May 31, 2025

	Number of Episodes Censored due to Occurrence of Outcome of Interest by Episode Length[1,2]							
	56-60 days		61-90 days		91-120 days		121-150 days	
	Number of Episodes	Percent of Total Episodes	Number of Episodes	Percent of Total Episodes	Number of Episodes	Percent of Total Episodes	Number of Episodes	Percent of Total Episodes
Pharmacogenetic Testing Overall Cohort (CPT 81232, 0349U or 81418)	62	0.9%	253	3.5%	175	2.4%	92	1.3%
Dihydropyrimidine Dehydrogenase Testing Cohort (CPT 81232)	60	0.9%	229	3.4%	159	2.4%	81	1.2%
Other Pharmacogenetic Testing Cohort (CPT 0349U or 81418)	*****	*****	24	4.4%	16	3.0%	11	2.0%
Other Pharmacogenetic Testing Sensitivity Analysis Cohort (CPT 0349U, 81418, 0347U, 0348U, 0350U, 0438U, 0380U, or 0434U)	*****	*****	25	4.2%	16	2.7%	11	1.9%

[1]Index date has an Episode Length of 1

[2]Represents episodes censored due to occurrence of request-defined event.

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Table 4. Summary of Time to End of At-Risk Period due to Fluoropyrimidine Treatment after Dihydropyrimidine Dehydrogenase and Other Pharmacogenetic Gene Panel Testing in the Sentinel Distributed Database from January 1, 2018 to May 31, 2025

	Number of Episodes Censored due to Occurrence of Outcome of Interest by Episode Length[1,2]										
	151-180 days		181+ days		Distribution of Follow-up in Days, by Episode						
	Number of Episodes	Percent of Total Episodes	Number of Episodes	Percent of Total Episodes	Minimum	Q1	Median	Q3	Maximum	Mean	Standard Deviation
Pharmacogenetic Testing Overall Cohort (CPT 81232, 0349U or 81418)	79	1.1%	882	12.3%	1	8	17	41	2,452	104.9	273.7
Dihydropyrimidine Dehydrogenase Testing Cohort (CPT 81232)	69	1.0%	844	12.7%	1	8	17	42	2,452	109.4	282.8
Other Pharmacogenetic Testing Cohort (CPT 0349U or 81418)	*****	*****	38	7.0%	1	8	19	34	653	48.3	88.3
Other Pharmacogenetic Testing Sensitivity Analysis Cohort (CPT 0349U, 81418, 0347U, 0348U, 0350U, 0438U, 0380U, or 0434U)	*****	*****	40	6.8%	1	8	18	31	653	46.6	86.8

[1]Index date has an Episode Length of 1

[2]Represents episodes censored due to occurrence of request-defined event.

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

Table 5. Fluoropyrimidine Treatment and Subsequent DPYD Testing in the 60 Day Period After Drug Initiation in the Sentinel Distributed Database from January 1, 2018 to May 31, 2025

	Number of Patients	Number of Pharmacogenetic Testing Events	Proportion of Patients with an Event	Total Person Years of Follow-up	Pharmacogenetic Testing Rate per 100,000 Patient-Years of Follow-up (95% Confidence Interval)
Overall Fluoropyrimidines Cohort	1,141,786	1,764	0.00	184,945.1	953.80 (910.31, 999.36)
Fluorouracil Cohort	1,091,685	1,442	0.00	176,980.7	814.78 (773.79, 857.94)
Overall Fluoropyrimidines Cohort Excluding Topical Codes	319,853	1,763	0.01	50,859.0	3,466.45 (3,308.35, 3,632.10)
Fluorouracil Cohort Excluding Topical Codes	268,437	1,434	0.01	42,682.2	3,359.71 (3,190.24, 3,538.18)
Capecitabine Cohort	77,663	426	0.01	12,362.4	3,445.94 (3,133.76, 3,789.22)

Table 6. Fluoropyrimidine Treatment and Subsequent DPYD testing in the 60 Day Period After Drug Initiation in the Sentinel Distributed Database from January 1, 2018 to May 31, 2025, by Year and Quarter

	Number of Patients	Number of Exposure Episodes with an Event	Proportion of Patients with an Event	Total Person Years of Follow-up	Event Rate per 100,000 Patient-Years of Follow-up (95% Confidence Interval)
Overall Fluoropyrimidines Cohort					
2018					
Quarter 1	37,707	38	0.00	6,227.1	610.24 (444.03, 838.66)
Quarter 2	33,676	32	0.00	5,554.0	576.16 (407.44, 814.74)
Quarter 3	36,588	55	0.00	6,035.0	911.36 (699.70, 1,187.04)
Quarter 4	43,865	38	0.00	7,146.7	531.72 (386.90, 730.74)
2019					
Quarter 1	39,136	50	0.00	6,457.2	774.33 (586.87, 1,021.66)
Quarter 2	35,266	60	0.00	5,812.5	1,032.26 (801.49, 1,329.48)
Quarter 3	38,945	43	0.00	6,420.0	669.78 (496.74, 903.12)
Quarter 4	46,085	36	0.00	7,515.6	479.01 (345.52, 664.06)
2020					
Quarter 1	39,280	51	0.00	6,478.7	787.20 (598.26, 1,035.81)
Quarter 2	28,802	41	0.00	4,734.7	865.95 (637.61, 1,176.06)
Quarter 3	39,476	43	0.00	6,511.3	660.39 (489.77, 890.45)
Quarter 4	44,621	47	0.00	7,262.4	647.17 (486.24, 861.35)
2021					
Quarter 1	41,781	41	0.00	6,897.9	594.38 (437.65, 807.24)
Quarter 2	37,820	68	0.00	6,240.0	1,089.75 (859.22, 1,382.14)
Quarter 3	41,518	56	0.00	6,845.9	818.01 (629.52, 1,062.93)
Quarter 4	48,047	46	0.00	7,694.1	597.86 (447.81, 798.19)
2022					
Quarter 1	37,723	47	0.00	6,226.5	754.84 (567.14, 1,004.65)
Quarter 2	33,065	58	0.00	5,452.8	1,063.68 (822.32, 1,375.89)
Quarter 3	36,597	67	0.00	6,038.6	1,109.53 (873.26, 1,409.71)
Quarter 4	43,175	58	0.00	7,038.1	824.09 (637.09, 1,065.97)
2023					
Quarter 1	39,243	66	0.00	6,482.0	1,018.20 (799.94, 1,296.02)
Quarter 2	34,796	62	0.00	5,736.0	1,080.88 (842.70, 1,386.38)
Quarter 3	39,196	74	0.00	6,471.3	1,143.52 (910.52, 1,436.13)
Quarter 4	47,237	93	0.00	7,704.7	1,207.05 (985.05, 1,479.09)
2024					
Quarter 1	44,881	85	0.00	7,391.2	1,150.02 (929.77, 1,422.43)
Quarter 2	39,936	126	0.00	6,579.7	1,914.97 (1,608.16, 2,280.32)
Quarter 3	46,366	124	0.00	7,653.6	1,620.15 (1,358.67, 1,931.95)
Quarter 4	53,929	123	0.00	7,126.3	1,726.01 (1,446.41, 2,059.66)
2025					
Quarter 1	12,805	36	0.00	1,195.6	3,010.96 (2,171.88, 4,174.21)
Quarter 2	224	0	0.00	15.7	0.00 (0.00, 0.00)
Fluorouracil Cohort					
2018					
Quarter 1	35,749	37	0.00	5,908.3	626.24 (453.73, 864.33)
Quarter 2	31,838	23	0.00	5,255.9	437.61 (290.80, 658.53)

Table 6. Fluoropyrimidine Treatment and Subsequent DPYD testing in the 60 Day Period After Drug Initiation in the Sentinel Distributed Database from January 1, 2018 to May 31, 2025, by Year and Quarter

	Number of Patients	Number of Exposure Episodes with an Event	Proportion of Patients with an Event	Total Person Years of Follow-up	Event Rate per 100,000 Patient-Years of Follow-up (95% Confidence Interval)
Quarter 3	34,565	52	0.00	5,706.2	911.29 (694.40, 1,195.91)
Quarter 4	42,022	35	0.00	6,851.6	510.83 (366.77, 711.47)
2019					
Quarter 1	37,333	43	0.00	6,165.0	697.49 (517.28, 940.47)
Quarter 2	33,487	49	0.00	5,525.1	886.86 (670.27, 1,173.43)
Quarter 3	36,952	33	0.00	6,097.1	541.24 (384.78, 761.32)
Quarter 4	43,963	38	0.00	7,175.5	529.58 (385.34, 727.81)
2020					
Quarter 1	37,364	45	0.00	6,167.4	729.65 (544.78, 977.25)
Quarter 2	26,902	43	0.00	4,427.0	971.31 (720.36, 1,309.68)
Quarter 3	37,221	35	0.00	6,143.3	569.73 (409.06, 793.51)
Quarter 4	42,316	37	0.00	6,896.6	536.50 (388.71, 740.47)
2021					
Quarter 1	39,749	36	0.00	6,567.0	548.20 (395.43, 759.99)
Quarter 2	35,609	54	0.00	5,879.6	918.43 (703.41, 1,199.17)
Quarter 3	39,055	44	0.00	6,444.6	682.74 (508.08, 917.45)
Quarter 4	45,630	38	0.00	7,355.7	516.60 (375.90, 709.97)
2022					
Quarter 1	36,453	41	0.00	6,020.7	680.99 (501.42, 924.86)
Quarter 2	31,810	52	0.00	5,248.0	990.84 (755.03, 1,300.31)
Quarter 3	35,223	50	0.00	5,815.3	859.81 (651.66, 1,134.44)
Quarter 4	41,847	51	0.00	6,828.5	746.87 (567.61, 982.74)
2023					
Quarter 1	37,889	58	0.00	6,262.3	926.17 (716.02, 1,198.02)
Quarter 2	33,539	50	0.00	5,534.3	903.45 (684.74, 1,192.02)
Quarter 3	37,690	58	0.00	6,227.9	931.30 (719.98, 1,204.65)
Quarter 4	45,882	72	0.00	7,491.2	961.12 (762.89, 1,210.87)
2024					
Quarter 1	43,520	63	0.00	7,173.1	878.28 (686.11, 1,124.29)
Quarter 2	38,571	99	0.00	6,359.9	1,556.63 (1,278.31, 1,895.55)
Quarter 3	44,825	101	0.00	7,405.5	1,363.86 (1,122.20, 1,657.56)
Quarter 4	52,421	84	0.00	6,905.1	1,216.49 (982.27, 1,506.55)
2025					
Quarter 1	12,053	21	0.00	1,128.3	1,861.15 (1,213.47, 2,854.51)
Quarter 2	207	0	0.00	14.6	0.00 (0.00, 0.00)
Overall Fluoropyrimidines Cohort Excluding Topical Codes					
2018					
Quarter 1	10,282	33	0.00	1,663.9	1,983.34 (1,410.00, 2,789.81)
Quarter 2	10,254	33	0.00	1,661.0	1,986.70 (1,412.39, 2,794.54)
Quarter 3	10,969	53	0.00	1,777.5	2,981.77 (2,277.98, 3,902.99)
Quarter 4	10,819	36	0.00	1,728.4	2,082.83 (1,502.40, 2,887.51)
2019					
Quarter 1	10,956	48	0.00	1,772.0	2,708.75 (2,041.29, 3,594.44)
Quarter 2	10,987	56	0.01	1,777.9	3,149.74 (2,423.96, 4,092.83)

Table 6. Fluoropyrimidine Treatment and Subsequent DPYD testing in the 60 Day Period After Drug Initiation in the Sentinel Distributed Database from January 1, 2018 to May 31, 2025, by Year and Quarter

	Number of Patients	Number of Exposure Episodes with an Event	Proportion of Patients with an Event	Total Person Years of Follow-up	Event Rate per 100,000 Patient-Years of Follow-up (95% Confidence Interval)
Quarter 3	12,216	42	0.00	1,976.3	2,125.13 (1,570.51, 2,875.62)
Quarter 4	11,998	36	0.00	1,919.0	1,876.02 (1,353.22, 2,600.80)
2020					
Quarter 1	11,850	50	0.00	1,917.0	2,608.25 (1,976.83, 3,441.36)
Quarter 2	9,946	42	0.00	1,601.7	2,622.22 (1,937.86, 3,548.25)
Quarter 3	12,046	43	0.00	1,948.9	2,206.37 (1,636.32, 2,975.00)
Quarter 4	12,254	49	0.00	1,947.7	2,515.81 (1,901.41, 3,328.75)
2021					
Quarter 1	11,881	41	0.00	1,923.5	2,131.55 (1,569.49, 2,894.90)
Quarter 2	12,333	71	0.01	2,001.6	3,547.09 (2,810.94, 4,476.03)
Quarter 3	13,148	55	0.00	2,131.4	2,580.43 (1,981.13, 3,361.01)
Quarter 4	12,641	49	0.00	1,905.8	2,571.08 (1,943.18, 3,401.87)
2022					
Quarter 1	10,128	49	0.00	1,637.7	2,992.09 (2,261.37, 3,958.92)
Quarter 2	10,075	59	0.01	1,630.0	3,619.62 (2,804.43, 4,671.78)
Quarter 3	10,614	70	0.01	1,716.2	4,078.90 (3,227.03, 5,155.64)
Quarter 4	10,535	58	0.01	1,679.3	3,453.73 (2,670.04, 4,467.44)
2023					
Quarter 1	10,572	70	0.01	1,711.2	4,090.76 (3,236.41, 5,170.64)
Quarter 2	10,413	64	0.01	1,683.5	3,801.50 (2,975.45, 4,856.88)
Quarter 3	11,279	76	0.01	1,828.1	4,157.43 (3,320.35, 5,205.55)
Quarter 4	11,001	87	0.01	1,752.0	4,965.71 (4,024.59, 6,126.91)
2024					
Quarter 1	11,158	84	0.01	1,798.3	4,671.09 (3,771.75, 5,784.87)
Quarter 2	11,258	122	0.01	1,821.1	6,699.37 (5,610.07, 8,000.17)
Quarter 3	12,539	126	0.01	2,026.2	6,218.48 (5,222.18, 7,404.86)
Quarter 4	12,331	124	0.01	1,622.3	7,643.61 (6,409.99, 9,114.65)
2025					
Quarter 1	3,317	37	0.01	295.8	12,507.98 (9,062.50, 17,263.41)
Quarter 2	53	0	0.00	3.6	0.00 (0.00, 0.00)
Fluorouracil Cohort Excluding Topical Codes					
2018					
Quarter 1	8,285	32	0.00	1,338.7	2,390.45 (1,690.46, 3,380.30)
Quarter 2	8,385	24	0.00	1,357.7	1,767.63 (1,184.78, 2,637.22)
Quarter 3	8,913	50	0.01	1,443.3	3,464.29 (2,625.63, 4,570.82)
Quarter 4	8,922	33	0.00	1,424.8	2,316.07 (1,646.55, 3,257.84)
2019					
Quarter 1	9,124	41	0.00	1,475.2	2,779.27 (2,046.41, 3,774.58)
Quarter 2	9,169	45	0.00	1,484.1	3,032.07 (2,263.84, 4,060.98)
Quarter 3	10,177	32	0.00	1,645.9	1,944.19 (1,374.88, 2,749.25)
Quarter 4	9,835	38	0.00	1,572.5	2,416.47 (1,758.31, 3,320.99)
2020					
Quarter 1	9,901	44	0.00	1,600.3	2,749.49 (2,046.10, 3,694.69)
Quarter 2	7,999	44	0.01	1,286.2	3,420.90 (2,545.74, 4,596.91)

Table 6. Fluoropyrimidine Treatment and Subsequent DPYD testing in the 60 Day Period After Drug Initiation in the Sentinel Distributed Database from January 1, 2018 to May 31, 2025, by Year and Quarter

	Number of Patients	Number of Exposure Episodes with an Event	Proportion of Patients with an Event	Total Person Years of Follow-up	Event Rate per 100,000 Patient-Years of Follow-up (95% Confidence Interval)
Quarter 3	9,740	35	0.00	1,572.5	2,225.82 (1,598.11, 3,100.07)
Quarter 4	9,893	39	0.00	1,572.7	2,479.84 (1,811.84, 3,394.12)
2021					
Quarter 1	9,815	36	0.00	1,586.9	2,268.64 (1,636.42, 3,145.10)
Quarter 2	10,077	56	0.01	1,633.9	3,427.31 (2,637.58, 4,453.51)
Quarter 3	10,643	43	0.00	1,723.1	2,495.48 (1,850.73, 3,364.83)
Quarter 4	10,179	41	0.00	1,560.2	2,627.90 (1,934.95, 3,569.00)
2022					
Quarter 1	8,821	43	0.00	1,425.6	3,016.18 (2,236.91, 4,066.93)
Quarter 2	8,774	53	0.01	1,417.9	3,737.93 (2,855.67, 4,892.77)
Quarter 3	9,191	53	0.01	1,484.7	3,569.66 (2,727.12, 4,672.52)
Quarter 4	9,166	51	0.01	1,463.1	3,485.63 (2,649.03, 4,586.44)
2023					
Quarter 1	9,158	61	0.01	1,481.6	4,117.11 (3,203.36, 5,291.51)
Quarter 2	9,107	51	0.01	1,473.8	3,460.51 (2,629.94, 4,553.38)
Quarter 3	9,724	59	0.01	1,576.8	3,741.80 (2,899.09, 4,829.47)
Quarter 4	9,581	66	0.01	1,528.1	4,319.12 (3,393.26, 5,497.59)
2024					
Quarter 1	9,740	60	0.01	1,571.2	3,818.70 (2,965.00, 4,918.22)
Quarter 2	9,830	95	0.01	1,590.7	5,972.04 (4,884.16, 7,302.23)
Quarter 3	10,954	102	0.01	1,770.9	5,759.72 (4,743.71, 6,993.34)
Quarter 4	10,760	85	0.01	1,390.8	6,111.68 (4,941.21, 7,559.42)
2025					
Quarter 1	2,538	22	0.01	226.2	9,725.38 (6,403.64, 14,770.21)
Quarter 2	36	0	0.00	2.6	0.00 (0.00, 0.00)
Capecitabine Cohort					
2018					
Quarter 1	2,872	*****	*****	*****	642.93 (207.35, 1,993.49)
Quarter 2	2,719	12	0.00	441.5	2,718.17 (1,543.66, 4,786.33)
Quarter 3	2,981	*****	*****	*****	1,238.74 (556.51, 2,757.34)
Quarter 4	2,866	*****	*****	*****	1,311.08 (589.01, 2,918.35)
2019					
Quarter 1	2,764	*****	*****	*****	1,783.20 (891.76, 3,565.74)
Quarter 2	2,762	13	0.00	447.3	2,906.42 (1,687.62, 5,005.46)
Quarter 3	3,096	13	0.00	502.8	2,585.67 (1,501.37, 4,453.06)
Quarter 4	3,183	*****	*****	*****	1,180.24 (530.23, 2,627.10)
2020					
Quarter 1	3,049	*****	*****	*****	1,816.52 (945.15, 3,491.24)
Quarter 2	2,990	*****	*****	*****	617.55 (199.17, 1,914.80)
Quarter 3	3,422	*****	*****	*****	1,789.53 (962.85, 3,325.96)
Quarter 4	3,412	12	0.00	541.8	2,214.99 (1,257.90, 3,900.29)
2021					
Quarter 1	3,097	*****	*****	*****	1,189.07 (534.19, 2,646.76)
Quarter 2	3,310	16	0.00	539.6	2,965.05 (1,816.47, 4,839.90)

Table 6. Fluoropyrimidine Treatment and Subsequent DPYD testing in the 60 Day Period After Drug Initiation in the Sentinel Distributed Database from January 1, 2018 to May 31, 2025, by Year and Quarter

	Number of Patients	Number of Exposure Episodes with an Event	Proportion of Patients with an Event	Total Person Years of Follow-up	Event Rate per 100,000 Patient-Years of Follow-up (95% Confidence Interval)
Quarter 3	3,665	12	0.00	597.9	2,006.92 (1,139.74, 3,533.91)
Quarter 4	3,586	13	0.00	507.5	2,561.72 (1,487.46, 4,411.81)
2022					
Quarter 1	2,010	*****	*****	*****	3,065.52 (1,649.40, 5,697.47)
Quarter 2	2,027	*****	*****	*****	2,423.61 (1,212.03, 4,846.33)
Quarter 3	2,214	22	0.01	359.7	6,115.76 (4,026.90, 9,288.18)
Quarter 4	2,131	*****	*****	*****	2,657.65 (1,382.80, 5,107.84)
2023					
Quarter 1	2,195	15	0.01	355.9	4,214.46 (2,540.73, 6,990.77)
Quarter 2	2,121	18	0.01	341.1	5,277.12 (3,324.78, 8,375.89)
Quarter 3	2,407	19	0.01	390.5	4,865.36 (3,103.36, 7,627.76)
Quarter 4	2,269	24	0.01	359.6	6,673.72 (4,473.16, 9,956.85)
2024					
Quarter 1	2,201	30	0.01	353.8	8,479.20 (5,928.50, 12,127.33)
Quarter 2	2,170	29	0.01	351.2	8,257.65 (5,738.38, 11,882.93)
Quarter 3	2,462	31	0.01	398.1	7,786.67 (5,476.06, 11,072.22)
Quarter 4	2,435	44	0.02	360.8	12,195.14 (9,075.30, 16,387.50)
2025					
Quarter 1	1,220	19	0.02	106.1	17,908.11 (11,422.66, 28,075.81)
Quarter 2	27	0	0.00	2.0	0.00 (0.00, 0.00)

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

Table 7. Summary of Time to End of At-Risk Period due to DPYD testing in the 60 Day Period After Fluoropyrimidine Initiation in the Sentinel Distributed Database from January 1, 2018 to May 31, 2025

			Number of Episodes Censored due to Occurrence of Outcome of Interest by Episode Length[1,2]					
			1-5 days		6-10 days		11-15 days	
	Total Number of Episodes	Total Number of Episodes Censored due to Occurrence of Outcome of Interest[1]	Number of Episodes	Percent of Total Episodes	Number of Episodes	Percent of Total Episodes	Number of Episodes	Percent of Total Episodes
Overall Fluoropyrimidines Cohort	1,141,786	1,764	367	20.8%	179	10.1%	215	12.2%
Fluorouracil Cohort	1,091,685	1,442	300	20.8%	140	9.7%	201	13.9%
Overall Fluoropyrimidines Cohort Excluding Topical Codes	319,853	1,763	375	21.3%	177	10.0%	216	12.3%
Fluorouracil Cohort Excluding Topical Codes	268,437	1,434	307	21.4%	137	9.6%	202	14.1%
Capecitabine Cohort	77,663	426	90	21.1%	49	11.5%	27	6.3%

[1]Index date has an Episode Length of 1

[2]Represents episodes censored due to occurrence of request-defined event.

Table 7. Summary of Time to End of At-Risk Period due to DPYD testing in the 60 Day Period After Fluoropyrimidine Initiation in the Sentinel Distributed Database from January 1, 2018 to May 31, 2025

	Number of Episodes Censored due to Occurrence of Outcome of Interest by Episode Length[1,2]							
	16-20 days		21-25 days		26-30 days		31-35 days	
	Number of Episodes	Percent of Total Episodes	Number of Episodes	Percent of Total Episodes	Number of Episodes	Percent of Total Episodes	Number of Episodes	Percent of Total Episodes
Overall Fluoropyrimidines Cohort	150	8.5%	160	9.1%	159	9.0%	90	5.1%
Fluorouracil Cohort	129	8.9%	132	9.2%	129	8.9%	68	4.7%
Overall Fluoropyrimidines Cohort Excluding Topical Codes	150	8.5%	161	9.1%	161	9.1%	93	5.3%
Fluorouracil Cohort Excluding Topical Codes	129	9.0%	131	9.1%	131	9.1%	70	4.9%
Capecitabine Cohort	28	6.6%	34	8.0%	41	9.6%	26	6.1%

[1]Index date has an Episode Length of 1

[2]Represents episodes censored due to occurrence of request-defined event.

Table 7. Summary of Time to End of At-Risk Period due to DPYD testing in the 60 Day Period After Fluoropyrimidine Initiation in the Sentinel Distributed Database from January 1, 2018 to May 31, 2025

	Number of Episodes Censored due to Occurrence of Outcome of Interest by Episode Length[1,2]							
	36-40 days		41-45 days		46-50 days		51-55 days	
	Number of Episodes	Percent of Total Episodes	Number of Episodes	Percent of Total Episodes	Number of Episodes	Percent of Total Episodes	Number of Episodes	Percent of Total Episodes
Overall Fluoropyrimidines Cohort	114	6.5%	94	5.3%	76	4.3%	57	3.2%
Fluorouracil Cohort	97	6.7%	73	5.1%	55	3.8%	40	2.8%
Overall Fluoropyrimidines Cohort Excluding Topical Codes	111	6.3%	92	5.2%	70	4.0%	55	3.1%
Fluorouracil Cohort Excluding Topical Codes	94	6.6%	71	5.0%	49	3.4%	37	2.6%
Capecitabine Cohort	27	6.3%	31	7.3%	23	5.4%	20	4.7%

[1]Index date has an Episode Length of 1

[2]Represents episodes censored due to occurrence of request-defined event.

Table 7. Summary of Time to End of At-Risk Period due to DPYD testing in the 60 Day Period After Fluoropyrimidine Initiation in the Sentinel Distributed Database from January 1, 2018 to May 31, 2025

	Number of Episodes Censored due to Occurrence of Outcome of Interest by Episode Length[1,2]										
	56-60 days		61-90 days		Distribution of Follow-up in Days, by Episode						
	Number of Episodes	Percent of Total Episodes	Number of Episodes	Percent of Total Episodes	Minimum	Q1	Median	Q3	Maximum	Mean	Standard Deviation
Overall Fluoropyrimidines Cohort	94	5.3%	*****	*****	1	8	19	36	61	22.5	17.4
Fluorouracil Cohort	75	5.2%	*****	*****	1	8	18	34	61	21.9	16.9
Overall Fluoropyrimidines Cohort Excluding Topical Codes	93	5.3%	*****	*****	1	8	19	35	61	22.3	17.3
Fluorouracil Cohort Excluding Topical Codes	73	5.1%	*****	*****	1	8	17	33	61	21.6	16.8
Capecitabine Cohort	24	5.6%	*****	*****	1	7	23	40	61	24.6	18.6

[1]Index date has an Episode Length of 1

[2]Represents episodes censored due to occurrence of request-defined event.

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

Table 8. Summary of Patient-Level Cohort Attrition in the Sentinel Distributed Database from January 1, 2018 to May 31, 2025

	Overall Fluoropyrimidines Cohort		Fluorouracil Cohort		Overall Fluoropyrimidines Cohort Excluding Topical Codes		Fluorouracil Cohort Excluding Topical Codes	
	Remaining	Excluded	Remaining	Excluded	Remaining	Excluded	Remaining	Excluded
Members meeting enrollment and demographic requirements								
Enrolled at any point during the query period	356,593,701	N/A	356,593,701	N/A	356,593,701	N/A	356,593,701	N/A
Had required coverage type (medical and/or drug coverage)	265,834,706	90,758,995	265,834,706	90,758,995	265,834,706	90,758,995	265,834,706	90,758,995
Enrolled during specified age range	265,828,446	6,260	265,828,446	6,260	265,828,446	6,260	265,828,446	6,260
Had requestable medical charts	265,828,446	0	265,828,446	0	265,828,446	0	265,828,446	0
Met demographic requirements (sex, race, and Hispanic origin)	265,728,298	100,148	265,728,298	100,148	265,728,298	100,148	265,728,298	100,148
Members with a valid index event								
Had any cohort-defining claim during the query period	2,445,638	263,282,660	2,370,922	263,357,376	480,767	265,247,531	405,124	265,323,174
Claim recorded during specified age range	*****	*****	*****	*****	480,767	0	405,124	0
Episode defining index claim recorded during the query period	2,120,150	325,485	*****	*****	446,101	34,666	377,482	27,642
Members with required pre-index history								
Had sufficient pre-index continuous enrollment	1,878,545	241,605	1,826,909	225,987	349,401	96,700	296,430	81,052
Met inclusion andexclusion criteria[1]	1,141,786	736,759	1,091,685	735,224	319,853	29,548	268,437	27,993
No evidence of Any Prior C ancer Diagnosis	N/A	736,759	N/A	735,224	N/A	29,548	N/A	27,993
Met event incidence criteria	1,141,786	0	1,091,685	0	319,853	0	268,437	0
Members with required post-index follow-up								
Had sufficient post-index continuous enrollment	1,141,786	0	1,091,685	0	319,853	0	268,437	0

Table 8. Summary of Patient-Level Cohort Attrition in the Sentinel Distributed Database from January 1, 2018 to May 31, 2025

	Overall Fluoropyrimidines Cohort		Fluorouracil Cohort		Overall Fluoropyrimidines Cohort Excluding Topical Codes		Fluorouracil Cohort Excluding Topical Codes	
	Remaining	Excluded	Remaining	Excluded	Remaining	Excluded	Remaining	Excluded
Had index episode of at least required length	1,141,786	0	1,091,685	0	319,853	0	268,437	0
Had index episode longer than blackout period	1,141,786	0	1,091,685	0	319,853	0	268,437	0
Did not have an event during blackout period	1,141,786	0	1,091,685	0	319,853	0	268,437	0
Final cohort								
Number of members	1,141,786	N/A	1,091,685	N/A	319,853	N/A	268,437	N/A
Number of episodes	1,141,786	N/A	1,091,685	N/A	319,853	N/A	268,437	N/A

[1]Patients can meet multiple inclusion and/or exclusion criteria; therefore, the total number of patients excluded overall may not equal the sum of all patients in each criterion.

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

N/A: Not Applicable

Table 8. Summary of Patient-Level Cohort Attrition in the Sentinel Distributed Database from January 1, 2018 to May 31, 2025

	Capecitabine Cohort		Pharmacogenetic Testing Overall Cohort (CPT 81232, 0349U or 81418)		Dihydropyrimidine Dehydrogenase Testing Cohort (CPT 81232)		Other Pharmacogenetic Testing Cohort (CPT 0349U or 81418)	
	Remaining	Excluded	Remaining	Excluded	Remaining	Excluded	Remaining	Excluded
Members meeting enrollment and demographic requirements								
Enrolled at any point during the query period	356,593,701	N/A	356,593,701	N/A	356,593,701	N/A	356,593,701	N/A
Had required coverage type (medical and/or drug coverage)	265,834,706	90,758,995	265,834,706	90,758,995	265,834,706	90,758,995	265,834,706	90,758,995
Enrolled during specified age range	265,828,446	6,260	265,828,446	6,260	265,828,446	6,260	265,828,446	6,260
Had requestable medical charts	265,828,446	0	265,828,446	0	265,828,446	0	265,828,446	0
Met demographic requirements (sex, race, and Hispanic origin)	265,728,298	100,148	265,728,298	100,148	265,728,298	100,148	265,728,298	100,148
Members with a valid index event								
Had any cohort-defining claim during the query period	103,742	265,624,556	132,043	265,596,255	107,077	265,621,221	25,574	265,702,724
Claim recorded during specified age range	103,742	0	*****	*****	*****	*****	25,574	0
Episode defining index claim recorded during the query period	97,667	6,075	*****	*****	*****	*****	25,574	0
Members with required pre-index history								
Had sufficient pre-index continuous enrollment	79,328	18,339	118,687	13,354	96,769	10,306	22,410	3,164
Met inclusion andexclusion criteria[1]	77,663	1,665	30,603	88,084	26,186	70,583	4,475	17,935
No evidence of Any P rior Cancer Diagnosis	N/A	1,665	N/A	88,084	N/A	70,583	N/A	17,935

Table 8. Summary of Patient-Level Cohort Attrition in the Sentinel Distributed Database from January 1, 2018 to May 31, 2025

	Capecitabine Cohort		Pharmacogenetic Testing Overall Cohort (CPT 81232, 0349U or 81418)		Dihydropyrimidine Dehydrogenase Testing Cohort (CPT 81232)		Other Pharmacogenetic Testing Cohort (CPT 0349U or 81418)	
	Remaining	Excluded	Remaining	Excluded	Remaining	Excluded	Remaining	Excluded
Met event incidence criteria	77,663	0	30,603	0	26,186	0	4,475	0
Members with required post-index follow-up								
Had sufficient post-index continuous enrollment	77,663	0	30,603	0	26,186	0	4,475	0
Had index episode of at least required length	77,663	0	30,603	0	26,186	0	4,475	0
Had index episode longer than blackout period	77,663	0	30,603	0	26,186	0	4,475	0
Did not have an event during blackout period	77,663	0	30,603	0	26,186	0	4,475	0
Final cohort								
Number of members	77,663	N/A	30,603	N/A	26,186	N/A	4,475	N/A
Number of episodes	77,663	N/A	30,603	N/A	26,186	N/A	4,475	N/A

[1]Patients can meet multiple inclusion and/or exclusion criteria; therefore, the total number of patients excluded overall may not equal the sum of all patients in each criterion.

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

N/A: Not Applicable

Table 8. Summary of Patient-Level Cohort Attrition in the Sentinel Distributed Database from January 1, 2018 to May 31, 2025

	Other Pharmacogenetic Testing Sensitivity Analysis Cohort (CPT 0349U, 81418, 0347U, 0348U, 0350U, 0438U, 0380U, or 0434U)	
	Remaining	**Excluded**
Members meeting enrollment and demographic requirements		
Enrolled at any point during the query period	356,593,701	N/A
Had required coverage type (medical and/or drug coverage)	265,834,706	90,758,995
Enrolled during specified age range	265,828,446	6,260
Had requestable medical charts	265,828,446	0
Met demographic requirements (sex, race, and Hispanic origin)	265,728,298	100,148
Members with a valid index event		
Had any cohort-defining claim during the query period	26,056	265,702,242
Claim recorded during specified age range	26,056	0
Episode defining index claim recorded during the query period	26,056	0
Members with required pre-index history		
Had sufficient pre-index continuous enrollment	22,856	3,200
Met inclusion andexclusion criteria[1]	4,592	18,264
No evidence of Any Prior Cancer Diagnosis	N/A	18,264
Met event incidence criteria	4,592	0
Members with required post-index follow-up		
Had sufficient post-index continuous enrollment	4,592	0
Had index episode of at least required length	4,592	0
Had index episode longer than blackout period	4,592	0
Did not have an event during blackout period	4,592	0
Final cohort		
Number of members	4,592	N/A
Number of episodes	4,592	N/A

[1]Patients can meet multiple inclusion and/or exclusion criteria; therefore, the total number of patients excluded overall may not equal the sum of all patients in each criterion.

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

N/A: Not Applicable

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

Masked DP ID	DP Start Date	DP End Date[1]
DP01	01/01/2004	05/31/2025
DP02	01/01/2005	07/31/2022
DP03	01/01/2010	12/31/2024
DP04	01/01/2000	04/30/2025
DP05	01/01/2000	01/31/2024
DP06	01/01/2000	04/30/2024
DP07	01/01/2008	12/31/2024
DP08	01/01/2000	01/31/2024
DP09	01/01/2000	04/30/2024
DP10	01/01/2007	02/28/2025
DP11	01/01/2014	12/31/2021
DP12	01/01/2008	03/31/2025
DP13	01/01/2006	01/31/2025

[1]End Date represents the earliest of: (1) query end date, or (2) last day of the most recent month for which all of a Data Partner's data tables (enrollment, dispensing, etc.) have at least 80% of the record count relative to the prior month.

Appendix B. List of Current Procedural Terminology, Fourth Edition (CPT-4) and Healthcare Common Procedure Coding System, Level II (HCPCS) Codes Used to Define Exposures in this Request

Code	Description	Code Category	Code Type
	Fluorouracil Cohort		
J9190	Injection, fluorouracil, 500 mg	Procedure	HCPCS
S3722	Dose optimization by area under the curve (AUC) analysis, for infusional 5-fluorouracil	Procedure	HCPCS
	Capecitabine Cohort		
J8520	Capecitabine, oral, 150 mg	Procedure	HCPCS
J8521	Capecitabine, oral, 500 mg	Procedure	HCPCS
J8522	Capecitabine, oral, 50 mg	Procedure	HCPCS
	Fluorouracil Excluding Topical Codes Cohort		
J9190	Injection, fluorouracil, 500 mg	Procedure	HCPCS
S3722	Dose optimization by area under the curve (AUC) analysis, for infusional 5-fluorouracil	Procedure	HCPCS
	Overall Fluoropyrimidines Cohort		
J8520	Capecitabine, oral, 150 mg	Procedure	HCPCS
J8521	Capecitabine, oral, 500 mg	Procedure	HCPCS
J8522	Capecitabine, oral, 50 mg	Procedure	HCPCS
J9190	Injection, fluorouracil, 500 mg	Procedure	HCPCS
S3722	Dose optimization by area under the curve (AUC) analysis, for infusional 5-fluorouracil	Procedure	HCPCS
	Overall Fluoropyrimidines Excluding Topical Codes Cohort		
J8520	Capecitabine, oral, 150 mg	Procedure	HCPCS
J8521	Capecitabine, oral, 500 mg	Procedure	HCPCS
J8522	Capecitabine, oral, 50 mg	Procedure	HCPCS
J9190	Injection, fluorouracil, 500 mg	Procedure	HCPCS
S3722	Dose optimization by area under the curve (AUC) analysis, for infusional 5-fluorouracil	Procedure	HCPCS
	Pharmacogenetic Testing Overall Cohort		
0349U	Drug metabolism or processing (multiple conditions), whole blood or buccal specimen, DNA analysis, 27 gene report, with variant analysis, including reported phenotypes and impacted gene-drug interactions	Procedure	CPT-4
81232	DPYD (dihydropyrimidine dehydrogenase) (eg, 5-fluorouracil/5-FU and capecitabine drug metabolism), gene analysis, common variant(s) (eg, *2A, *4, *5, *6)	Procedure	CPT-4

Appendix B. List of Current Procedural Terminology, Fourth Edition (CPT-4) and Healthcare Common Procedure Coding System, Level II (HCPCS) Codes Used to Define Exposures in this Request

Code	Description	Code Category	Code Type
81418	Drug metabolism (eg, pharmacogenomics) genomic sequence analysis panel, must include testing of at least 6 genes, including CYP2C19, CYP2D6, and CYP2D6 duplication/deletion analysis	Procedure	CPT-4
	Dihydropyrimidine Dehydrogenase Testing Cohort		
81232	DPYD (dihydropyrimidine dehydrogenase) (eg, 5-fluorouracil/5-FU and capecitabine drug metabolism), gene analysis, common variant(s) (eg, *2A, *4, *5, *6)	Procedure	CPT-4
	Other Pharmacogenetic Testing cohort		
0349U	Drug metabolism or processing (multiple conditions), whole blood or buccal specimen, DNA analysis, 27 gene report, with variant analysis, including reported phenotypes and impacted gene-drug interactions	Procedure	CPT-4
81418	Drug metabolism (eg, pharmacogenomics) genomic sequence analysis panel, must include testing of at least 6 genes, including CYP2C19, CYP2D6, and CYP2D6 duplication/deletion analysis	Procedure	CPT-4
	Other Pharmacogenetic Testing Sensitivity Analysis Cohort		
0347U	Drug metabolism or processing (multiple conditions), whole blood or buccal specimen, DNA analysis, 16 gene report, with variant analysis and reported phenotypes	Procedure	CPT-4
0348U	Drug metabolism or processing (multiple conditions), whole blood or buccal specimen, DNA analysis, 25 gene report, with variant analysis and reported phenotypes	Procedure	CPT-4
0349U	Drug metabolism or processing (multiple conditions), whole blood or buccal specimen, DNA analysis, 27 gene report, with variant analysis, including reported phenotypes and impacted gene-drug interactions	Procedure	CPT-4
0350U	Drug metabolism or processing (multiple conditions), whole blood or buccal specimen, DNA analysis, 27 gene report, with variant analysis and reported phenotypes	Procedure	CPT-4
0380U	Drug metabolism (adverse drug reactions and drug response), targeted sequence analysis, 20 gene variants and CYP2D6 deletion or duplication analysis with reported genotype and phenotype	Procedure	CPT-4
0434U	Drug metabolism (adverse drug reactions and drug response), genomic analysis panel, variant analysis of 25 genes with reported phenotypes	Procedure	CPT-4
0438U	Drug metabolism (adverse drug reactions and drug response), buccal specimen, gene-drug interactions, variant analysis of 33 genes, including deletion/duplication analysis of CYP2D6, including reported phenotypes and impacted gene-drug interactions	Procedure	CPT-4

Appendix B. List of Current Procedural Terminology, Fourth Edition (CPT-4) and Healthcare Common Procedure Coding System, Level II (HCPCS) Codes Used to Define Exposures in this Request

Code	Description	Code Category	Code Type
81418	Drug metabolism (eg, pharmacogenomics) genomic sequence analysis panel, must include testing of at least 6 genes, including CYP2C19, CYP2D6, and CYP2D6 duplication/deletion analysis	Procedure	CPT-4

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

Generic Name	Brand Name
fluorouracil cohort	
fluorouracil	Adrucil
fluorouracil	Carac
fluorouracil	Efudex
fluorouracil	Fluoroplex
fluorouracil	Tolak
fluorouracil	fluorouracil
fluorouracil/calcipotriene	Kefunova
capecitabine cohort	
capecitabine	Xeloda
capecitabine	capecitabine
fluorouracil excluding topical codes cohort	
fluorouracil	Adrucil
fluorouracil	fluorouracil
Overall Fluoropyrimidines cohort	
capecitabine	Xeloda
capecitabine	capecitabine
fluorouracil	Adrucil
fluorouracil	Carac
fluorouracil	Efudex
fluorouracil	Fluoroplex
fluorouracil	Tolak
fluorouracil	fluorouracil
fluorouracil/calcipotriene	Kefunova
Overall Fluoropyrimidines excluding topical codes cohort	
capecitabine	Xeloda
capecitabine	capecitabine
fluorouracil	Adrucil
fluorouracil	fluorouracil

Appendix D. List of Current Procedural Terminology, Fourth Edition (CPT-4) and Healthcare Common Procedure Coding System, Level II (HCPCS) Codes Used to Define Outcomes in this Request

Code	Description	Code Category	Code Type
	Fluoropyrimidine Use Cohorts Outcome Codes		
0349U	Drug metabolism or processing (multiple conditions), whole blood or buccal specimen, DNA analysis, 27 gene report, with variant analysis, including reported phenotypes and impacted gene-drug interactions	Procedure	CPT-4
81232	DPYD (dihydropyrimidine dehydrogenase) (eg, 5-fluorouracil/5-FU and capecitabine drug metabolism), gene analysis, common variant(s) (eg, *2A, *4, *5, *6)	Procedure	CPT-4
81418	Drug metabolism (eg, pharmacogenomics) genomic sequence analysis panel, must include testing of at least 6 genes, including CYP2C19, CYP2D6, and CYP2D6 duplication/deletion analysis	Procedure	CPT-4
	DPYD Testing Cohorts Outcome Codes		
J8520	Capecitabine, oral, 150 mg	Procedure	HCPCS
J8521	Capecitabine, oral, 500 mg	Procedure	HCPCS
J8522	Capecitabine, oral, 50 mg	Procedure	HCPCS
J9190	Injection, fluorouracil, 500 mg	Procedure	HCPCS
S3722	Dose optimization by area under the curve (AUC) analysis, for infusional 5-fluorouracil	Procedure	HCPCS

Appendix E. List of Generic and Brand Names of Medical Products Used to Define Outcomes in this Request

Generic Name	Brand Name
DPYD Testing Cohorts Outcome Codes	
capecitabine	Xeloda
capecitabine	capecitabine
fluorouracil	Adrucil
fluorouracil	Carac
fluorouracil	Efudex
fluorouracil	Fluoroplex
fluorouracil	Tolak
fluorouracil	fluorouracil
fluorouracil/calcipotriene	Kefunova

Appendix F. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Inclusion Criteria in this Request

Code	Description	Code Category	Code Type
	Breast Cancer		
C50	Malignant neoplasm of breast	Diagnosis	ICD-10-CM
C50.0	Malignant neoplasm of nipple and areola	Diagnosis	ICD-10-CM
C50.01	Malignant neoplasm of nipple and areola, female	Diagnosis	ICD-10-CM
C50.011	Malignant neoplasm of nipple and areola, right female breast	Diagnosis	ICD-10-CM
C50.012	Malignant neoplasm of nipple and areola, left female breast	Diagnosis	ICD-10-CM
C50.019	Malignant neoplasm of nipple and areola, unspecified female breast	Diagnosis	ICD-10-CM
C50.02	Malignant neoplasm of nipple and areola, male	Diagnosis	ICD-10-CM
C50.021	Malignant neoplasm of nipple and areola, right male breast	Diagnosis	ICD-10-CM
C50.022	Malignant neoplasm of nipple and areola, left male breast	Diagnosis	ICD-10-CM
C50.029	Malignant neoplasm of nipple and areola, unspecified male breast	Diagnosis	ICD-10-CM
C50.1	Malignant neoplasm of central portion of breast	Diagnosis	ICD-10-CM
C50.11	Malignant neoplasm of central portion of breast, female	Diagnosis	ICD-10-CM
C50.111	Malignant neoplasm of central portion of right female breast	Diagnosis	ICD-10-CM
C50.112	Malignant neoplasm of central portion of left female breast	Diagnosis	ICD-10-CM
C50.119	Malignant neoplasm of central portion of unspecified female breast	Diagnosis	ICD-10-CM
C50.12	Malignant neoplasm of central portion of breast, male	Diagnosis	ICD-10-CM
C50.121	Malignant neoplasm of central portion of right male breast	Diagnosis	ICD-10-CM
C50.122	Malignant neoplasm of central portion of left male breast	Diagnosis	ICD-10-CM
C50.129	Malignant neoplasm of central portion of unspecified male breast	Diagnosis	ICD-10-CM
C50.2	Malignant neoplasm of upper-inner quadrant of breast	Diagnosis	ICD-10-CM
C50.21	Malignant neoplasm of upper-inner quadrant of breast, female	Diagnosis	ICD-10-CM
C50.211	Malignant neoplasm of upper-inner quadrant of right female breast	Diagnosis	ICD-10-CM
C50.212	Malignant neoplasm of upper-inner quadrant of left female breast	Diagnosis	ICD-10-CM
C50.219	Malignant neoplasm of upper-inner quadrant of unspecified female breast	Diagnosis	ICD-10-CM
C50.22	Malignant neoplasm of upper-inner quadrant of breast, male	Diagnosis	ICD-10-CM
C50.221	Malignant neoplasm of upper-inner quadrant of right male breast	Diagnosis	ICD-10-CM
C50.222	Malignant neoplasm of upper-inner quadrant of left male breast	Diagnosis	ICD-10-CM
C50.229	Malignant neoplasm of upper-inner quadrant of unspecified male breast	Diagnosis	ICD-10-CM
C50.3	Malignant neoplasm of lower-inner quadrant of breast	Diagnosis	ICD-10-CM
C50.31	Malignant neoplasm of lower-inner quadrant of breast, female	Diagnosis	ICD-10-CM
C50.311	Malignant neoplasm of lower-inner quadrant of right female breast	Diagnosis	ICD-10-CM
C50.312	Malignant neoplasm of lower-inner quadrant of left female breast	Diagnosis	ICD-10-CM
C50.319	Malignant neoplasm of lower-inner quadrant of unspecified female breast	Diagnosis	ICD-10-CM
C50.32	Malignant neoplasm of lower-inner quadrant of breast, male	Diagnosis	ICD-10-CM
C50.321	Malignant neoplasm of lower-inner quadrant of right male breast	Diagnosis	ICD-10-CM
C50.322	Malignant neoplasm of lower-inner quadrant of left male breast	Diagnosis	ICD-10-CM
C50.329	Malignant neoplasm of lower-inner quadrant of unspecified male breast	Diagnosis	ICD-10-CM
C50.4	Malignant neoplasm of upper-outer quadrant of breast	Diagnosis	ICD-10-CM

Appendix F. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Inclusion Criteria in this Request

Code	Description	Code Category	Code Type
C50.41	Malignant neoplasm of upper-outer quadrant of breast, female	Diagnosis	ICD-10-CM
C50.411	Malignant neoplasm of upper-outer quadrant of right female breast	Diagnosis	ICD-10-CM
C50.412	Malignant neoplasm of upper-outer quadrant of left female breast	Diagnosis	ICD-10-CM
C50.419	Malignant neoplasm of upper-outer quadrant of unspecified female breast	Diagnosis	ICD-10-CM
C50.42	Malignant neoplasm of upper-outer quadrant of breast, male	Diagnosis	ICD-10-CM
C50.421	Malignant neoplasm of upper-outer quadrant of right male breast	Diagnosis	ICD-10-CM
C50.422	Malignant neoplasm of upper-outer quadrant of left male breast	Diagnosis	ICD-10-CM
C50.429	Malignant neoplasm of upper-outer quadrant of unspecified male breast	Diagnosis	ICD-10-CM
C50.5	Malignant neoplasm of lower-outer quadrant of breast	Diagnosis	ICD-10-CM
C50.51	Malignant neoplasm of lower-outer quadrant of breast, female	Diagnosis	ICD-10-CM
C50.511	Malignant neoplasm of lower-outer quadrant of right female breast	Diagnosis	ICD-10-CM
C50.512	Malignant neoplasm of lower-outer quadrant of left female breast	Diagnosis	ICD-10-CM
C50.519	Malignant neoplasm of lower-outer quadrant of unspecified female breast	Diagnosis	ICD-10-CM
C50.52	Malignant neoplasm of lower-outer quadrant of breast, male	Diagnosis	ICD-10-CM
C50.521	Malignant neoplasm of lower-outer quadrant of right male breast	Diagnosis	ICD-10-CM
C50.522	Malignant neoplasm of lower-outer quadrant of left male breast	Diagnosis	ICD-10-CM
C50.529	Malignant neoplasm of lower-outer quadrant of unspecified male breast	Diagnosis	ICD-10-CM
C50.6	Malignant neoplasm of axillary tail of breast	Diagnosis	ICD-10-CM
C50.61	Malignant neoplasm of axillary tail of breast, female	Diagnosis	ICD-10-CM
C50.611	Malignant neoplasm of axillary tail of right female breast	Diagnosis	ICD-10-CM
C50.612	Malignant neoplasm of axillary tail of left female breast	Diagnosis	ICD-10-CM
C50.619	Malignant neoplasm of axillary tail of unspecified female breast	Diagnosis	ICD-10-CM
C50.62	Malignant neoplasm of axillary tail of breast, male	Diagnosis	ICD-10-CM
C50.621	Malignant neoplasm of axillary tail of right male breast	Diagnosis	ICD-10-CM
C50.622	Malignant neoplasm of axillary tail of left male breast	Diagnosis	ICD-10-CM
C50.629	Malignant neoplasm of axillary tail of unspecified male breast	Diagnosis	ICD-10-CM
C50.8	Malignant neoplasm of overlapping sites of breast	Diagnosis	ICD-10-CM
C50.81	Malignant neoplasm of overlapping sites of breast, female	Diagnosis	ICD-10-CM
C50.811	Malignant neoplasm of overlapping sites of right female breast	Diagnosis	ICD-10-CM
C50.812	Malignant neoplasm of overlapping sites of left female breast	Diagnosis	ICD-10-CM
C50.819	Malignant neoplasm of overlapping sites of unspecified female breast	Diagnosis	ICD-10-CM
C50.82	Malignant neoplasm of overlapping sites of breast, male	Diagnosis	ICD-10-CM
C50.821	Malignant neoplasm of overlapping sites of right male breast	Diagnosis	ICD-10-CM
C50.822	Malignant neoplasm of overlapping sites of left male breast	Diagnosis	ICD-10-CM
C50.829	Malignant neoplasm of overlapping sites of unspecified male breast	Diagnosis	ICD-10-CM
C50.9	Malignant neoplasm of breast of unspecified site	Diagnosis	ICD-10-CM
C50.91	Malignant neoplasm of breast of unspecified site, female	Diagnosis	ICD-10-CM
C50.911	Malignant neoplasm of unspecified site of right female breast	Diagnosis	ICD-10-CM
C50.912	Malignant neoplasm of unspecified site of left female breast	Diagnosis	ICD-10-CM

Appendix F. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Inclusion Criteria in this Request

Code	Description	Code Category	Code Type
C50.919	Malignant neoplasm of unspecified site of unspecified female breast	Diagnosis	ICD-10-CM
C50.92	Malignant neoplasm of breast of unspecified site, male	Diagnosis	ICD-10-CM
C50.921	Malignant neoplasm of unspecified site of right male breast	Diagnosis	ICD-10-CM
C50.922	Malignant neoplasm of unspecified site of left male breast	Diagnosis	ICD-10-CM
C50.929	Malignant neoplasm of unspecified site of unspecified male breast	Diagnosis	ICD-10-CM
D05.00	Lobular carcinoma in situ of unspecified breast	Diagnosis	ICD-10-CM
D05.01	Lobular carcinoma in situ of right breast	Diagnosis	ICD-10-CM
D05.02	Lobular carcinoma in situ of left breast	Diagnosis	ICD-10-CM
D05.10	Intraductal carcinoma in situ of unspecified breast	Diagnosis	ICD-10-CM
D05.11	Intraductal carcinoma in situ of right breast	Diagnosis	ICD-10-CM
D05.12	Intraductal carcinoma in situ of left breast	Diagnosis	ICD-10-CM
D05.80	Other specified type of carcinoma in situ of unspecified breast	Diagnosis	ICD-10-CM
D05.81	Other specified type of carcinoma in situ of right breast	Diagnosis	ICD-10-CM
D05.82	Other specified type of carcinoma in situ of left breast	Diagnosis	ICD-10-CM
D05.90	Unspecified type of carcinoma in situ of unspecified breast	Diagnosis	ICD-10-CM
D05.91	Unspecified type of carcinoma in situ of right breast	Diagnosis	ICD-10-CM
D05.92	Unspecified type of carcinoma in situ of left breast	Diagnosis	ICD-10-CM
Z17.0	Estrogen receptor positive status [ER+]	Diagnosis	ICD-10-CM
Z17.1	Estrogen receptor negative status [ER-]	Diagnosis	ICD-10-CM
Z19.1	Hormone sensitive malignancy status	Diagnosis	ICD-10-CM
Z19.2	Hormone resistant malignancy status	Diagnosis	ICD-10-CM
	Colorectal Cancer		
C18	Malignant neoplasm of colon	Diagnosis	ICD-10-CM
C18.0	Malignant neoplasm of cecum	Diagnosis	ICD-10-CM
C18.1	Malignant neoplasm of appendix	Diagnosis	ICD-10-CM
C18.2	Malignant neoplasm of ascending colon	Diagnosis	ICD-10-CM
C18.3	Malignant neoplasm of hepatic flexure	Diagnosis	ICD-10-CM
C18.4	Malignant neoplasm of transverse colon	Diagnosis	ICD-10-CM
C18.5	Malignant neoplasm of splenic flexure	Diagnosis	ICD-10-CM
C18.6	Malignant neoplasm of descending colon	Diagnosis	ICD-10-CM
C18.7	Malignant neoplasm of sigmoid colon	Diagnosis	ICD-10-CM
C18.8	Malignant neoplasm of overlapping sites of colon	Diagnosis	ICD-10-CM
C18.9	Malignant neoplasm of colon, unspecified	Diagnosis	ICD-10-CM
C19	Malignant neoplasm of rectosigmoid junction	Diagnosis	ICD-10-CM
C20	Malignant neoplasm of rectum	Diagnosis	ICD-10-CM
D01.0	Carcinoma in situ of colon	Diagnosis	ICD-10-CM
D01.1	Carcinoma in situ of rectosigmoid junction	Diagnosis	ICD-10-CM
D01.2	Carcinoma in situ of rectum	Diagnosis	ICD-10-CM
Esophageal Cancer			

Appendix F. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Inclusion Criteria in this Request

Code	Description	Code Category	Code Type
C15	Malignant neoplasm of esophagus	Diagnosis	ICD-10-CM
C15.3	Malignant neoplasm of upper third of esophagus	Diagnosis	ICD-10-CM
C15.4	Malignant neoplasm of middle third of esophagus	Diagnosis	ICD-10-CM
C15.5	Malignant neoplasm of lower third of esophagus	Diagnosis	ICD-10-CM
C15.8	Malignant neoplasm of overlapping sites of esophagus	Diagnosis	ICD-10-CM
C15.9	Malignant neoplasm of esophagus, unspecified	Diagnosis	ICD-10-CM
D00.1	Carcinoma in situ of esophagus	Diagnosis	ICD-10-CM
	Other Gastrointestinal Cancer		
C16	Malignant neoplasm of stomach	Diagnosis	ICD-10-CM
C16.0	Malignant neoplasm of cardia	Diagnosis	ICD-10-CM
C16.1	Malignant neoplasm of fundus of stomach	Diagnosis	ICD-10-CM
C16.2	Malignant neoplasm of body of stomach	Diagnosis	ICD-10-CM
C16.3	Malignant neoplasm of pyloric antrum	Diagnosis	ICD-10-CM
C16.4	Malignant neoplasm of pylorus	Diagnosis	ICD-10-CM
C16.5	Malignant neoplasm of lesser curvature of stomach, unspecified	Diagnosis	ICD-10-CM
C16.6	Malignant neoplasm of greater curvature of stomach, unspecified	Diagnosis	ICD-10-CM
C16.8	Malignant neoplasm of overlapping sites of stomach	Diagnosis	ICD-10-CM
C16.9	Malignant neoplasm of stomach, unspecified	Diagnosis	ICD-10-CM
C17	Malignant neoplasm of small intestine	Diagnosis	ICD-10-CM
C17.0	Malignant neoplasm of duodenum	Diagnosis	ICD-10-CM
C17.1	Malignant neoplasm of jejunum	Diagnosis	ICD-10-CM
C17.2	Malignant neoplasm of ileum	Diagnosis	ICD-10-CM
C17.3	Meckel's diverticulum, malignant	Diagnosis	ICD-10-CM
C17.8	Malignant neoplasm of overlapping sites of small intestine	Diagnosis	ICD-10-CM
C17.9	Malignant neoplasm of small intestine, unspecified	Diagnosis	ICD-10-CM
C21	Malignant neoplasm of anus and anal canal	Diagnosis	ICD-10-CM
C21.0	Malignant neoplasm of anus, unspecified	Diagnosis	ICD-10-CM
C21.1	Malignant neoplasm of anal canal	Diagnosis	ICD-10-CM
C21.2	Malignant neoplasm of cloacogenic zone	Diagnosis	ICD-10-CM
C21.8	Malignant neoplasm of overlapping sites of rectum, anus and anal canal	Diagnosis	ICD-10-CM
C22	Malignant neoplasm of liver and intrahepatic bile ducts	Diagnosis	ICD-10-CM
C22.0	Liver cell carcinoma	Diagnosis	ICD-10-CM
C22.1	Intrahepatic bile duct carcinoma	Diagnosis	ICD-10-CM
C22.2	Hepatoblastoma	Diagnosis	ICD-10-CM
C22.3	Angiosarcoma of liver	Diagnosis	ICD-10-CM
C22.4	Other sarcomas of liver	Diagnosis	ICD-10-CM
C22.7	Other specified carcinomas of liver	Diagnosis	ICD-10-CM
C22.8	Malignant neoplasm of liver, primary, unspecified as to type	Diagnosis	ICD-10-CM
C22.9	Malignant neoplasm of liver, not specified as primary or secondary	Diagnosis	ICD-10-CM

Appendix F. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Inclusion Criteria in this Request

Code	Description	Code Category	Code Type
C23	Malignant neoplasm of gallbladder	Diagnosis	ICD-10-CM
C24	Malignant neoplasm of other and unspecified parts of biliary tract	Diagnosis	ICD-10-CM
C24.0	Malignant neoplasm of extrahepatic bile duct	Diagnosis	ICD-10-CM
C24.1	Malignant neoplasm of ampulla of Vater	Diagnosis	ICD-10-CM
C24.8	Malignant neoplasm of overlapping sites of biliary tract	Diagnosis	ICD-10-CM
C24.9	Malignant neoplasm of biliary tract, unspecified	Diagnosis	ICD-10-CM
C26	Malignant neoplasm of other and ill-defined digestive organs	Diagnosis	ICD-10-CM
C26.0	Malignant neoplasm of intestinal tract, part unspecified	Diagnosis	ICD-10-CM
C26.1	Malignant neoplasm of spleen	Diagnosis	ICD-10-CM
C26.9	Malignant neoplasm of ill-defined sites within the digestive system	Diagnosis	ICD-10-CM
D00.2	Carcinoma in situ of stomach	Diagnosis	ICD-10-CM
D01.3	Carcinoma in situ of anus and anal canal	Diagnosis	ICD-10-CM
D01.4	Carcinoma in situ of other and unspecified parts of the intestine	Diagnosis	ICD-10-CM
D01.5	Carcinoma in situ of liver, gallbladder, and bile ducts	Diagnosis	ICD-10-CM
D01.7	Carcinoma in situ of other specified digestive organs	Diagnosis	ICD-10-CM
D01.9	Carcinoma in situ of digestive organ, unspecified	Diagnosis	ICD-10-CM
	Pancreatic Cancer		
C25	Malignant neoplasm of pancreas	Diagnosis	ICD-10-CM
C25.0	Malignant neoplasm of head of pancreas	Diagnosis	ICD-10-CM
C25.1	Malignant neoplasm of body of pancreas	Diagnosis	ICD-10-CM
C25.2	Malignant neoplasm of tail of pancreas	Diagnosis	ICD-10-CM
C25.3	Malignant neoplasm of pancreatic duct	Diagnosis	ICD-10-CM
C25.4	Malignant neoplasm of endocrine pancreas	Diagnosis	ICD-10-CM
C25.7	Malignant neoplasm of other parts of pancreas	Diagnosis	ICD-10-CM
C25.8	Malignant neoplasm of overlapping sites of pancreas	Diagnosis	ICD-10-CM
C25.9	Malignant neoplasm of pancreas, unspecified	Diagnosis	ICD-10-CM
	Skin Cancer		
C44.01	Basal cell carcinoma of skin of lip	Diagnosis	ICD-10-CM
C44.02	Squamous cell carcinoma of skin of lip	Diagnosis	ICD-10-CM
C44.11	Basal cell carcinoma of skin of eyelid, including canthus	Diagnosis	ICD-10-CM
C44.111	Basal cell carcinoma of skin of unspecified eyelid, including canthus	Diagnosis	ICD-10-CM
C44.112	Basal cell carcinoma of skin of right eyelid, including canthus	Diagnosis	ICD-10-CM
C44.1121	Basal cell carcinoma of skin of right upper eyelid, including canthus	Diagnosis	ICD-10-CM
C44.1122	Basal cell carcinoma of skin of right lower eyelid, including canthus	Diagnosis	ICD-10-CM
C44.119	Basal cell carcinoma of skin of left eyelid, including canthus	Diagnosis	ICD-10-CM
C44.1191	Basal cell carcinoma of skin of left upper eyelid, including canthus	Diagnosis	ICD-10-CM
C44.1192	Basal cell carcinoma of skin of left lower eyelid, including canthus	Diagnosis	ICD-10-CM
C44.12	Squamous cell carcinoma of skin of eyelid, including canthus	Diagnosis	ICD-10-CM
C44.121	Squamous cell carcinoma of skin of unspecified eyelid, including canthus	Diagnosis	ICD-10-CM

Appendix F. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Inclusion Criteria in this Request

Code	Description	Code Category	Code Type
C44.122	Squamous cell carcinoma of skin of right eyelid, including canthus	Diagnosis	ICD-10-CM
C44.1221	Squamous cell carcinoma of skin of right upper eyelid, including canthus	Diagnosis	ICD-10-CM
C44.1222	Squamous cell carcinoma of skin of right lower eyelid, including canthus	Diagnosis	ICD-10-CM
C44.129	Squamous cell carcinoma of skin of left eyelid, including canthus	Diagnosis	ICD-10-CM
C44.1291	Squamous cell carcinoma of skin of left upper eyelid, including canthus	Diagnosis	ICD-10-CM
C44.1292	Squamous cell carcinoma of skin of left lower eyelid, including canthus	Diagnosis	ICD-10-CM
C44.21	Basal cell carcinoma of skin of ear and external auricular canal	Diagnosis	ICD-10-CM
C44.211	Basal cell carcinoma of skin of unspecified ear and external auricular canal	Diagnosis	ICD-10-CM
C44.212	Basal cell carcinoma of skin of right ear and external auricular canal	Diagnosis	ICD-10-CM
C44.219	Basal cell carcinoma of skin of left ear and external auricular canal	Diagnosis	ICD-10-CM
C44.22	Squamous cell carcinoma of skin of ear and external auricular canal	Diagnosis	ICD-10-CM
C44.221	Squamous cell carcinoma of skin of unspecified ear and external auricular canal	Diagnosis	ICD-10-CM
C44.222	Squamous cell carcinoma of skin of right ear and external auricular canal	Diagnosis	ICD-10-CM
C44.229	Squamous cell carcinoma of skin of left ear and external auricular canal	Diagnosis	ICD-10-CM
C44.31	Basal cell carcinoma of skin of other and unspecified parts of face	Diagnosis	ICD-10-CM
C44.310	Basal cell carcinoma of skin of unspecified parts of face	Diagnosis	ICD-10-CM
C44.311	Basal cell carcinoma of skin of nose	Diagnosis	ICD-10-CM
C44.319	Basal cell carcinoma of skin of other parts of face	Diagnosis	ICD-10-CM
C44.32	Squamous cell carcinoma of skin of other and unspecified parts of face	Diagnosis	ICD-10-CM
C44.320	Squamous cell carcinoma of skin of unspecified parts of face	Diagnosis	ICD-10-CM
C44.321	Squamous cell carcinoma of skin of nose	Diagnosis	ICD-10-CM
C44.329	Squamous cell carcinoma of skin of other parts of face	Diagnosis	ICD-10-CM
C44.41	Basal cell carcinoma of skin of scalp and neck	Diagnosis	ICD-10-CM
C44.42	Squamous cell carcinoma of skin of scalp and neck	Diagnosis	ICD-10-CM
C44.51	Basal cell carcinoma of skin of trunk	Diagnosis	ICD-10-CM
C44.510	Basal cell carcinoma of anal skin	Diagnosis	ICD-10-CM
C44.511	Basal cell carcinoma of skin of breast	Diagnosis	ICD-10-CM
C44.519	Basal cell carcinoma of skin of other part of trunk	Diagnosis	ICD-10-CM
C44.52	Squamous cell carcinoma of skin of trunk	Diagnosis	ICD-10-CM
C44.520	Squamous cell carcinoma of anal skin	Diagnosis	ICD-10-CM
C44.521	Squamous cell carcinoma of skin of breast	Diagnosis	ICD-10-CM
C44.529	Squamous cell carcinoma of skin of other part of trunk	Diagnosis	ICD-10-CM
C44.61	Basal cell carcinoma of skin of upper limb, including shoulder	Diagnosis	ICD-10-CM
C44.611	Basal cell carcinoma of skin of unspecified upper limb, including shoulder	Diagnosis	ICD-10-CM
C44.612	Basal cell carcinoma of skin of right upper limb, including shoulder	Diagnosis	ICD-10-CM
C44.619	Basal cell carcinoma of skin of left upper limb, including shoulder	Diagnosis	ICD-10-CM
C44.62	Squamous cell carcinoma of skin of upper limb, including shoulder	Diagnosis	ICD-10-CM
C44.621	Squamous cell carcinoma of skin of unspecified upper limb, including shoulder	Diagnosis	ICD-10-CM

Appendix F. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Inclusion Criteria in this Request

Code	Description	Code Category	Code Type
C44.622	Squamous cell carcinoma of skin of right upper limb, including shoulder	Diagnosis	ICD-10-CM
C44.629	Squamous cell carcinoma of skin of left upper limb, including shoulder	Diagnosis	ICD-10-CM
C44.71	Basal cell carcinoma of skin of lower limb, including hip	Diagnosis	ICD-10-CM
C44.711	Basal cell carcinoma of skin of unspecified lower limb, including hip	Diagnosis	ICD-10-CM
C44.712	Basal cell carcinoma of skin of right lower limb, including hip	Diagnosis	ICD-10-CM
C44.719	Basal cell carcinoma of skin of left lower limb, including hip	Diagnosis	ICD-10-CM
C44.72	Squamous cell carcinoma of skin of lower limb, including hip	Diagnosis	ICD-10-CM
C44.721	Squamous cell carcinoma of skin of unspecified lower limb, including hip	Diagnosis	ICD-10-CM
C44.722	Squamous cell carcinoma of skin of right lower limb, including hip	Diagnosis	ICD-10-CM
C44.729	Squamous cell carcinoma of skin of left lower limb, including hip	Diagnosis	ICD-10-CM
C44.81	Basal cell carcinoma of overlapping sites of skin	Diagnosis	ICD-10-CM
C44.82	Squamous cell carcinoma of overlapping sites of skin	Diagnosis	ICD-10-CM
C44.91	Basal cell carcinoma of skin, unspecified	Diagnosis	ICD-10-CM
C44.92	Squamous cell carcinoma of skin, unspecified	Diagnosis	ICD-10-CM
D04	Carcinoma in situ of skin	Diagnosis	ICD-10-CM
D04.0	Carcinoma in situ of skin of lip	Diagnosis	ICD-10-CM
D04.1	Carcinoma in situ of skin of eyelid, including canthus	Diagnosis	ICD-10-CM
D04.10	Carcinoma in situ of skin of unspecified eyelid, including canthus	Diagnosis	ICD-10-CM
D04.11	Carcinoma in situ of skin of right eyelid, including canthus	Diagnosis	ICD-10-CM
D04.111	Carcinoma in situ of skin of right upper eyelid, including canthus	Diagnosis	ICD-10-CM
D04.112	Carcinoma in situ of skin of right lower eyelid, including canthus	Diagnosis	ICD-10-CM
D04.12	Carcinoma in situ of skin of left eyelid, including canthus	Diagnosis	ICD-10-CM
D04.121	Carcinoma in situ of skin of left upper eyelid, including canthus	Diagnosis	ICD-10-CM
D04.122	Carcinoma in situ of skin of left lower eyelid, including canthus	Diagnosis	ICD-10-CM
D04.2	Carcinoma in situ of skin of ear and external auricular canal	Diagnosis	ICD-10-CM
D04.20	Carcinoma in situ of skin of unspecified ear and external auricular canal	Diagnosis	ICD-10-CM
D04.21	Carcinoma in situ of skin of right ear and external auricular canal	Diagnosis	ICD-10-CM
D04.22	Carcinoma in situ of skin of left ear and external auricular canal	Diagnosis	ICD-10-CM
D04.3	Carcinoma in situ of skin of other and unspecified parts of face	Diagnosis	ICD-10-CM
D04.30	Carcinoma in situ of skin of unspecified part of face	Diagnosis	ICD-10-CM
D04.39	Carcinoma in situ of skin of other parts of face	Diagnosis	ICD-10-CM
D04.4	Carcinoma in situ of skin of scalp and neck	Diagnosis	ICD-10-CM
D04.5	Carcinoma in situ of skin of trunk	Diagnosis	ICD-10-CM
D04.6	Carcinoma in situ of skin of upper limb, including shoulder	Diagnosis	ICD-10-CM
D04.60	Carcinoma in situ of skin of unspecified upper limb, including shoulder	Diagnosis	ICD-10-CM
D04.61	Carcinoma in situ of skin of right upper limb, including shoulder	Diagnosis	ICD-10-CM
D04.62	Carcinoma in situ of skin of left upper limb, including shoulder	Diagnosis	ICD-10-CM
D04.7	Carcinoma in situ of skin of lower limb, including hip	Diagnosis	ICD-10-CM
D04.70	Carcinoma in situ of skin of unspecified lower limb, including hip	Diagnosis	ICD-10-CM

Appendix F. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Inclusion Criteria in this Request

Code	Description	Code Category	Code Type
D04.71	Carcinoma in situ of skin of right lower limb, including hip	Diagnosis	ICD-10-CM
D04.72	Carcinoma in situ of skin of left lower limb, including hip	Diagnosis	ICD-10-CM
D04.8	Carcinoma in situ of skin of other sites	Diagnosis	ICD-10-CM
D04.9	Carcinoma in situ of skin, unspecified	Diagnosis	ICD-10-CM

Appendix G. List of Current Procedural Terminology, Fourth Edition (CPT-4), Healthcare Common Procedure Coding System, Level II (HCPCS), and International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Baseline Characteristics in this Request

Code	Description	Code Category	Code Type
	Breast Cancer		
C50	Malignant neoplasm of breast	Diagnosis	ICD-10-CM
C50.0	Malignant neoplasm of nipple and areola	Diagnosis	ICD-10-CM
C50.01	Malignant neoplasm of nipple and areola, female	Diagnosis	ICD-10-CM
C50.011	Malignant neoplasm of nipple and areola, right female breast	Diagnosis	ICD-10-CM
C50.012	Malignant neoplasm of nipple and areola, left female breast	Diagnosis	ICD-10-CM
C50.019	Malignant neoplasm of nipple and areola, unspecified female breast	Diagnosis	ICD-10-CM
C50.02	Malignant neoplasm of nipple and areola, male	Diagnosis	ICD-10-CM
C50.021	Malignant neoplasm of nipple and areola, right male breast	Diagnosis	ICD-10-CM
C50.022	Malignant neoplasm of nipple and areola, left male breast	Diagnosis	ICD-10-CM
C50.029	Malignant neoplasm of nipple and areola, unspecified male breast	Diagnosis	ICD-10-CM
C50.1	Malignant neoplasm of central portion of breast	Diagnosis	ICD-10-CM
C50.11	Malignant neoplasm of central portion of breast, female	Diagnosis	ICD-10-CM
C50.111	Malignant neoplasm of central portion of right female breast	Diagnosis	ICD-10-CM
C50.112	Malignant neoplasm of central portion of left female breast	Diagnosis	ICD-10-CM
C50.119	Malignant neoplasm of central portion of unspecified female breast	Diagnosis	ICD-10-CM
C50.12	Malignant neoplasm of central portion of breast, male	Diagnosis	ICD-10-CM
C50.121	Malignant neoplasm of central portion of right male breast	Diagnosis	ICD-10-CM
C50.122	Malignant neoplasm of central portion of left male breast	Diagnosis	ICD-10-CM
C50.129	Malignant neoplasm of central portion of unspecified male breast	Diagnosis	ICD-10-CM
C50.2	Malignant neoplasm of upper-inner quadrant of breast	Diagnosis	ICD-10-CM
C50.21	Malignant neoplasm of upper-inner quadrant of breast, female	Diagnosis	ICD-10-CM
C50.211	Malignant neoplasm of upper-inner quadrant of right female breast	Diagnosis	ICD-10-CM
C50.212	Malignant neoplasm of upper-inner quadrant of left female breast	Diagnosis	ICD-10-CM
C50.219	Malignant neoplasm of upper-inner quadrant of unspecified female breast	Diagnosis	ICD-10-CM
C50.22	Malignant neoplasm of upper-inner quadrant of breast, male	Diagnosis	ICD-10-CM
C50.221	Malignant neoplasm of upper-inner quadrant of right male breast	Diagnosis	ICD-10-CM
C50.222	Malignant neoplasm of upper-inner quadrant of left male breast	Diagnosis	ICD-10-CM
C50.229	Malignant neoplasm of upper-inner quadrant of unspecified male breast	Diagnosis	ICD-10-CM
C50.3	Malignant neoplasm of lower-inner quadrant of breast	Diagnosis	ICD-10-CM
C50.31	Malignant neoplasm of lower-inner quadrant of breast, female	Diagnosis	ICD-10-CM
C50.311	Malignant neoplasm of lower-inner quadrant of right female breast	Diagnosis	ICD-10-CM
C50.312	Malignant neoplasm of lower-inner quadrant of left female breast	Diagnosis	ICD-10-CM
C50.319	Malignant neoplasm of lower-inner quadrant of unspecified female breast	Diagnosis	ICD-10-CM
C50.32	Malignant neoplasm of lower-inner quadrant of breast, male	Diagnosis	ICD-10-CM
C50.321	Malignant neoplasm of lower-inner quadrant of right male breast	Diagnosis	ICD-10-CM
C50.322	Malignant neoplasm of lower-inner quadrant of left male breast	Diagnosis	ICD-10-CM
C50.329	Malignant neoplasm of lower-inner quadrant of unspecified male breast	Diagnosis	ICD-10-CM
C50.4	Malignant neoplasm of upper-outer quadrant of breast	Diagnosis	ICD-10-CM

Appendix G. List of Current Procedural Terminology, Fourth Edition (CPT-4), Healthcare Common Procedure Coding System, Level II (HCPCS), and International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Baseline Characteristics in this Request

Code	Description	Code Category	Code Type
C50.41	Malignant neoplasm of upper-outer quadrant of breast, female	Diagnosis	ICD-10-CM
C50.411	Malignant neoplasm of upper-outer quadrant of right female breast	Diagnosis	ICD-10-CM
C50.412	Malignant neoplasm of upper-outer quadrant of left female breast	Diagnosis	ICD-10-CM
C50.419	Malignant neoplasm of upper-outer quadrant of unspecified female breast	Diagnosis	ICD-10-CM
C50.42	Malignant neoplasm of upper-outer quadrant of breast, male	Diagnosis	ICD-10-CM
C50.421	Malignant neoplasm of upper-outer quadrant of right male breast	Diagnosis	ICD-10-CM
C50.422	Malignant neoplasm of upper-outer quadrant of left male breast	Diagnosis	ICD-10-CM
C50.429	Malignant neoplasm of upper-outer quadrant of unspecified male breast	Diagnosis	ICD-10-CM
C50.5	Malignant neoplasm of lower-outer quadrant of breast	Diagnosis	ICD-10-CM
C50.51	Malignant neoplasm of lower-outer quadrant of breast, female	Diagnosis	ICD-10-CM
C50.511	Malignant neoplasm of lower-outer quadrant of right female breast	Diagnosis	ICD-10-CM
C50.512	Malignant neoplasm of lower-outer quadrant of left female breast	Diagnosis	ICD-10-CM
C50.519	Malignant neoplasm of lower-outer quadrant of unspecified female breast	Diagnosis	ICD-10-CM
C50.52	Malignant neoplasm of lower-outer quadrant of breast, male	Diagnosis	ICD-10-CM
C50.521	Malignant neoplasm of lower-outer quadrant of right male breast	Diagnosis	ICD-10-CM
C50.522	Malignant neoplasm of lower-outer quadrant of left male breast	Diagnosis	ICD-10-CM
C50.529	Malignant neoplasm of lower-outer quadrant of unspecified male breast	Diagnosis	ICD-10-CM
C50.6	Malignant neoplasm of axillary tail of breast	Diagnosis	ICD-10-CM
C50.61	Malignant neoplasm of axillary tail of breast, female	Diagnosis	ICD-10-CM
C50.611	Malignant neoplasm of axillary tail of right female breast	Diagnosis	ICD-10-CM
C50.612	Malignant neoplasm of axillary tail of left female breast	Diagnosis	ICD-10-CM
C50.619	Malignant neoplasm of axillary tail of unspecified female breast	Diagnosis	ICD-10-CM
C50.62	Malignant neoplasm of axillary tail of breast, male	Diagnosis	ICD-10-CM
C50.621	Malignant neoplasm of axillary tail of right male breast	Diagnosis	ICD-10-CM
C50.622	Malignant neoplasm of axillary tail of left male breast	Diagnosis	ICD-10-CM
C50.629	Malignant neoplasm of axillary tail of unspecified male breast	Diagnosis	ICD-10-CM
C50.8	Malignant neoplasm of overlapping sites of breast	Diagnosis	ICD-10-CM
C50.81	Malignant neoplasm of overlapping sites of breast, female	Diagnosis	ICD-10-CM
C50.811	Malignant neoplasm of overlapping sites of right female breast	Diagnosis	ICD-10-CM
C50.812	Malignant neoplasm of overlapping sites of left female breast	Diagnosis	ICD-10-CM
C50.819	Malignant neoplasm of overlapping sites of unspecified female breast	Diagnosis	ICD-10-CM
C50.82	Malignant neoplasm of overlapping sites of breast, male	Diagnosis	ICD-10-CM
C50.821	Malignant neoplasm of overlapping sites of right male breast	Diagnosis	ICD-10-CM
C50.822	Malignant neoplasm of overlapping sites of left male breast	Diagnosis	ICD-10-CM
C50.829	Malignant neoplasm of overlapping sites of unspecified male breast	Diagnosis	ICD-10-CM
C50.9	Malignant neoplasm of breast of unspecified site	Diagnosis	ICD-10-CM
C50.91	Malignant neoplasm of breast of unspecified site, female	Diagnosis	ICD-10-CM
C50.911	Malignant neoplasm of unspecified site of right female breast	Diagnosis	ICD-10-CM
C50.912	Malignant neoplasm of unspecified site of left female breast	Diagnosis	ICD-10-CM

Appendix G. List of Current Procedural Terminology, Fourth Edition (CPT-4), Healthcare Common Procedure Coding System, Level II (HCPCS), and International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Baseline Characteristics in this Request

Code	Description	Code Category	Code Type
C50.919	Malignant neoplasm of unspecified site of unspecified female breast	Diagnosis	ICD-10-CM
C50.92	Malignant neoplasm of breast of unspecified site, male	Diagnosis	ICD-10-CM
C50.921	Malignant neoplasm of unspecified site of right male breast	Diagnosis	ICD-10-CM
C50.922	Malignant neoplasm of unspecified site of left male breast	Diagnosis	ICD-10-CM
C50.929	Malignant neoplasm of unspecified site of unspecified male breast	Diagnosis	ICD-10-CM
D05.00	Lobular carcinoma in situ of unspecified breast	Diagnosis	ICD-10-CM
D05.01	Lobular carcinoma in situ of right breast	Diagnosis	ICD-10-CM
D05.02	Lobular carcinoma in situ of left breast	Diagnosis	ICD-10-CM
D05.10	Intraductal carcinoma in situ of unspecified breast	Diagnosis	ICD-10-CM
D05.11	Intraductal carcinoma in situ of right breast	Diagnosis	ICD-10-CM
D05.12	Intraductal carcinoma in situ of left breast	Diagnosis	ICD-10-CM
D05.80	Other specified type of carcinoma in situ of unspecified breast	Diagnosis	ICD-10-CM
D05.81	Other specified type of carcinoma in situ of right breast	Diagnosis	ICD-10-CM
D05.82	Other specified type of carcinoma in situ of left breast	Diagnosis	ICD-10-CM
D05.90	Unspecified type of carcinoma in situ of unspecified breast	Diagnosis	ICD-10-CM
D05.91	Unspecified type of carcinoma in situ of right breast	Diagnosis	ICD-10-CM
D05.92	Unspecified type of carcinoma in situ of left breast	Diagnosis	ICD-10-CM
Z17.0	Estrogen receptor positive status [ER+]	Diagnosis	ICD-10-CM
Z17.1	Estrogen receptor negative status [ER-]	Diagnosis	ICD-10-CM
Z19.1	Hormone sensitive malignancy status	Diagnosis	ICD-10-CM
Z19.2	Hormone resistant malignancy status	Diagnosis	ICD-10-CM
	Colorectal Cancer		
C18	Malignant neoplasm of colon	Diagnosis	ICD-10-CM
C18.0	Malignant neoplasm of cecum	Diagnosis	ICD-10-CM
C18.1	Malignant neoplasm of appendix	Diagnosis	ICD-10-CM
C18.2	Malignant neoplasm of ascending colon	Diagnosis	ICD-10-CM
C18.3	Malignant neoplasm of hepatic flexure	Diagnosis	ICD-10-CM
C18.4	Malignant neoplasm of transverse colon	Diagnosis	ICD-10-CM
C18.5	Malignant neoplasm of splenic flexure	Diagnosis	ICD-10-CM
C18.6	Malignant neoplasm of descending colon	Diagnosis	ICD-10-CM
C18.7	Malignant neoplasm of sigmoid colon	Diagnosis	ICD-10-CM
C18.8	Malignant neoplasm of overlapping sites of colon	Diagnosis	ICD-10-CM
C18.9	Malignant neoplasm of colon, unspecified	Diagnosis	ICD-10-CM
C19	Malignant neoplasm of rectosigmoid junction	Diagnosis	ICD-10-CM
C20	Malignant neoplasm of rectum	Diagnosis	ICD-10-CM
D01.0	Carcinoma in situ of colon	Diagnosis	ICD-10-CM
D01.1	Carcinoma in situ of rectosigmoid junction	Diagnosis	ICD-10-CM
D01.2	Carcinoma in situ of rectum	Diagnosis	ICD-10-CM
	Esophageal Cancer		

Appendix G. List of Current Procedural Terminology, Fourth Edition (CPT-4), Healthcare Common Procedure Coding System, Level II (HCPCS), and International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Baseline Characteristics in this Request

Code	Description	Code Category	Code Type
C15	Malignant neoplasm of esophagus	Diagnosis	ICD-10-CM
C15.3	Malignant neoplasm of upper third of esophagus	Diagnosis	ICD-10-CM
C15.4	Malignant neoplasm of middle third of esophagus	Diagnosis	ICD-10-CM
C15.5	Malignant neoplasm of lower third of esophagus	Diagnosis	ICD-10-CM
C15.8	Malignant neoplasm of overlapping sites of esophagus	Diagnosis	ICD-10-CM
C15.9	Malignant neoplasm of esophagus, unspecified	Diagnosis	ICD-10-CM
D00.1	Carcinoma in situ of esophagus	Diagnosis	ICD-10-CM
	Other Gastrointestinal Cancer		
C16	Malignant neoplasm of stomach	Diagnosis	ICD-10-CM
C16.0	Malignant neoplasm of cardia	Diagnosis	ICD-10-CM
C16.1	Malignant neoplasm of fundus of stomach	Diagnosis	ICD-10-CM
C16.2	Malignant neoplasm of body of stomach	Diagnosis	ICD-10-CM
C16.3	Malignant neoplasm of pyloric antrum	Diagnosis	ICD-10-CM
C16.4	Malignant neoplasm of pylorus	Diagnosis	ICD-10-CM
C16.5	Malignant neoplasm of lesser curvature of stomach, unspecified	Diagnosis	ICD-10-CM
C16.6	Malignant neoplasm of greater curvature of stomach, unspecified	Diagnosis	ICD-10-CM
C16.8	Malignant neoplasm of overlapping sites of stomach	Diagnosis	ICD-10-CM
C16.9	Malignant neoplasm of stomach, unspecified	Diagnosis	ICD-10-CM
C17	Malignant neoplasm of small intestine	Diagnosis	ICD-10-CM
C17.0	Malignant neoplasm of duodenum	Diagnosis	ICD-10-CM
C17.1	Malignant neoplasm of jejunum	Diagnosis	ICD-10-CM
C17.2	Malignant neoplasm of ileum	Diagnosis	ICD-10-CM
C17.3	Meckel's diverticulum, malignant	Diagnosis	ICD-10-CM
C17.8	Malignant neoplasm of overlapping sites of small intestine	Diagnosis	ICD-10-CM
C17.9	Malignant neoplasm of small intestine, unspecified	Diagnosis	ICD-10-CM
C21	Malignant neoplasm of anus and anal canal	Diagnosis	ICD-10-CM
C21.0	Malignant neoplasm of anus, unspecified	Diagnosis	ICD-10-CM
C21.1	Malignant neoplasm of anal canal	Diagnosis	ICD-10-CM
C21.2	Malignant neoplasm of cloacogenic zone	Diagnosis	ICD-10-CM
C21.8	Malignant neoplasm of overlapping sites of rectum, anus and anal canal	Diagnosis	ICD-10-CM
C22	Malignant neoplasm of liver and intrahepatic bile ducts	Diagnosis	ICD-10-CM
C22.0	Liver cell carcinoma	Diagnosis	ICD-10-CM
C22.1	Intrahepatic bile duct carcinoma	Diagnosis	ICD-10-CM
C22.2	Hepatoblastoma	Diagnosis	ICD-10-CM
C22.3	Angiosarcoma of liver	Diagnosis	ICD-10-CM
C22.4	Other sarcomas of liver	Diagnosis	ICD-10-CM
C22.7	Other specified carcinomas of liver	Diagnosis	ICD-10-CM
C22.8	Malignant neoplasm of liver, primary, unspecified as to type	Diagnosis	ICD-10-CM
C22.9	Malignant neoplasm of liver, not specified as primary or secondary	Diagnosis	ICD-10-CM

Appendix G. List of Current Procedural Terminology, Fourth Edition (CPT-4), Healthcare Common Procedure Coding System, Level II (HCPCS), and International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Baseline Characteristics in this Request

Code	Description	Code Category	Code Type
C23	Malignant neoplasm of gallbladder	Diagnosis	ICD-10-CM
C24	Malignant neoplasm of other and unspecified parts of biliary tract	Diagnosis	ICD-10-CM
C24.0	Malignant neoplasm of extrahepatic bile duct	Diagnosis	ICD-10-CM
C24.1	Malignant neoplasm of ampulla of Vater	Diagnosis	ICD-10-CM
C24.8	Malignant neoplasm of overlapping sites of biliary tract	Diagnosis	ICD-10-CM
C24.9	Malignant neoplasm of biliary tract, unspecified	Diagnosis	ICD-10-CM
C26	Malignant neoplasm of other and ill-defined digestive organs	Diagnosis	ICD-10-CM
C26.0	Malignant neoplasm of intestinal tract, part unspecified	Diagnosis	ICD-10-CM
C26.1	Malignant neoplasm of spleen	Diagnosis	ICD-10-CM
C26.9	Malignant neoplasm of ill-defined sites within the digestive system	Diagnosis	ICD-10-CM
D00.2	Carcinoma in situ of stomach	Diagnosis	ICD-10-CM
D01.3	Carcinoma in situ of anus and anal canal	Diagnosis	ICD-10-CM
D01.4	Carcinoma in situ of other and unspecified parts of the intestine	Diagnosis	ICD-10-CM
D01.5	Carcinoma in situ of liver, gallbladder, and bile ducts	Diagnosis	ICD-10-CM
D01.7	Carcinoma in situ of other specified digestive organs	Diagnosis	ICD-10-CM
D01.9	Carcinoma in situ of digestive organ, unspecified	Diagnosis	ICD-10-CM
	Pancreatic Cancer		
C25	Malignant neoplasm of pancreas	Diagnosis	ICD-10-CM
C25.0	Malignant neoplasm of head of pancreas	Diagnosis	ICD-10-CM
C25.1	Malignant neoplasm of body of pancreas	Diagnosis	ICD-10-CM
C25.2	Malignant neoplasm of tail of pancreas	Diagnosis	ICD-10-CM
C25.3	Malignant neoplasm of pancreatic duct	Diagnosis	ICD-10-CM
C25.4	Malignant neoplasm of endocrine pancreas	Diagnosis	ICD-10-CM
C25.7	Malignant neoplasm of other parts of pancreas	Diagnosis	ICD-10-CM
C25.8	Malignant neoplasm of overlapping sites of pancreas	Diagnosis	ICD-10-CM
C25.9	Malignant neoplasm of pancreas, unspecified	Diagnosis	ICD-10-CM
	Skin Cancer		
C44.01	Basal cell carcinoma of skin of lip	Diagnosis	ICD-10-CM
C44.02	Squamous cell carcinoma of skin of lip	Diagnosis	ICD-10-CM
C44.11	Basal cell carcinoma of skin of eyelid, including canthus	Diagnosis	ICD-10-CM
C44.111	Basal cell carcinoma of skin of unspecified eyelid, including canthus	Diagnosis	ICD-10-CM
C44.112	Basal cell carcinoma of skin of right eyelid, including canthus	Diagnosis	ICD-10-CM
C44.1121	Basal cell carcinoma of skin of right upper eyelid, including canthus	Diagnosis	ICD-10-CM
C44.1122	Basal cell carcinoma of skin of right lower eyelid, including canthus	Diagnosis	ICD-10-CM
C44.119	Basal cell carcinoma of skin of left eyelid, including canthus	Diagnosis	ICD-10-CM
C44.1191	Basal cell carcinoma of skin of left upper eyelid, including canthus	Diagnosis	ICD-10-CM
C44.1192	Basal cell carcinoma of skin of left lower eyelid, including canthus	Diagnosis	ICD-10-CM
C44.12	Squamous cell carcinoma of skin of eyelid, including canthus	Diagnosis	ICD-10-CM

Appendix G. List of Current Procedural Terminology, Fourth Edition (CPT-4), Healthcare Common Procedure Coding System, Level II (HCPCS), and International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Baseline Characteristics in this Request

Code	Description	Code Category	Code Type
C44.121	Squamous cell carcinoma of skin of unspecified eyelid, including canthus	Diagnosis	ICD-10-CM
C44.122	Squamous cell carcinoma of skin of right eyelid, including canthus	Diagnosis	ICD-10-CM
C44.1221	Squamous cell carcinoma of skin of right upper eyelid, including canthus	Diagnosis	ICD-10-CM
C44.1222	Squamous cell carcinoma of skin of right lower eyelid, including canthus	Diagnosis	ICD-10-CM
C44.129	Squamous cell carcinoma of skin of left eyelid, including canthus	Diagnosis	ICD-10-CM
C44.1291	Squamous cell carcinoma of skin of left upper eyelid, including canthus	Diagnosis	ICD-10-CM
C44.1292	Squamous cell carcinoma of skin of left lower eyelid, including canthus	Diagnosis	ICD-10-CM
C44.21	Basal cell carcinoma of skin of ear and external auricular canal	Diagnosis	ICD-10-CM
C44.211	Basal cell carcinoma of skin of unspecified ear and external auricular canal	Diagnosis	ICD-10-CM
C44.212	Basal cell carcinoma of skin of right ear and external auricular canal	Diagnosis	ICD-10-CM
C44.219	Basal cell carcinoma of skin of left ear and external auricular canal	Diagnosis	ICD-10-CM
C44.22	Squamous cell carcinoma of skin of ear and external auricular canal	Diagnosis	ICD-10-CM
C44.221	Squamous cell carcinoma of skin of unspecified ear and external auricular canal	Diagnosis	ICD-10-CM
C44.222	Squamous cell carcinoma of skin of right ear and external auricular canal	Diagnosis	ICD-10-CM
C44.229	Squamous cell carcinoma of skin of left ear and external auricular canal	Diagnosis	ICD-10-CM
C44.31	Basal cell carcinoma of skin of other and unspecified parts of face	Diagnosis	ICD-10-CM
C44.310	Basal cell carcinoma of skin of unspecified parts of face	Diagnosis	ICD-10-CM
C44.311	Basal cell carcinoma of skin of nose	Diagnosis	ICD-10-CM
C44.319	Basal cell carcinoma of skin of other parts of face	Diagnosis	ICD-10-CM
C44.32	Squamous cell carcinoma of skin of other and unspecified parts of face	Diagnosis	ICD-10-CM
C44.320	Squamous cell carcinoma of skin of unspecified parts of face	Diagnosis	ICD-10-CM
C44.321	Squamous cell carcinoma of skin of nose	Diagnosis	ICD-10-CM
C44.329	Squamous cell carcinoma of skin of other parts of face	Diagnosis	ICD-10-CM
C44.41	Basal cell carcinoma of skin of scalp and neck	Diagnosis	ICD-10-CM
C44.42	Squamous cell carcinoma of skin of scalp and neck	Diagnosis	ICD-10-CM
C44.51	Basal cell carcinoma of skin of trunk	Diagnosis	ICD-10-CM
C44.510	Basal cell carcinoma of anal skin	Diagnosis	ICD-10-CM
C44.511	Basal cell carcinoma of skin of breast	Diagnosis	ICD-10-CM
C44.519	Basal cell carcinoma of skin of other part of trunk	Diagnosis	ICD-10-CM
C44.52	Squamous cell carcinoma of skin of trunk	Diagnosis	ICD-10-CM
C44.520	Squamous cell carcinoma of anal skin	Diagnosis	ICD-10-CM
C44.521	Squamous cell carcinoma of skin of breast	Diagnosis	ICD-10-CM
C44.529	Squamous cell carcinoma of skin of other part of trunk	Diagnosis	ICD-10-CM
C44.61	Basal cell carcinoma of skin of upper limb, including shoulder	Diagnosis	ICD-10-CM
C44.611	Basal cell carcinoma of skin of unspecified upper limb, including shoulder	Diagnosis	ICD-10-CM
C44.612	Basal cell carcinoma of skin of right upper limb, including shoulder	Diagnosis	ICD-10-CM
C44.619	Basal cell carcinoma of skin of left upper limb, including shoulder	Diagnosis	ICD-10-CM
C44.62	Squamous cell carcinoma of skin of upper limb, including shoulder	Diagnosis	ICD-10-CM

Appendix G. List of Current Procedural Terminology, Fourth Edition (CPT-4), Healthcare Common Procedure Coding System, Level II (HCPCS), and International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Baseline Characteristics in this Request

Code	Description	Code Category	Code Type
C44.621	Squamous cell carcinoma of skin of unspecified upper limb, including shoulder	Diagnosis	ICD-10-CM
C44.622	Squamous cell carcinoma of skin of right upper limb, including shoulder	Diagnosis	ICD-10-CM
C44.629	Squamous cell carcinoma of skin of left upper limb, including shoulder	Diagnosis	ICD-10-CM
C44.71	Basal cell carcinoma of skin of lower limb, including hip	Diagnosis	ICD-10-CM
C44.711	Basal cell carcinoma of skin of unspecified lower limb, including hip	Diagnosis	ICD-10-CM
C44.712	Basal cell carcinoma of skin of right lower limb, including hip	Diagnosis	ICD-10-CM
C44.719	Basal cell carcinoma of skin of left lower limb, including hip	Diagnosis	ICD-10-CM
C44.72	Squamous cell carcinoma of skin of lower limb, including hip	Diagnosis	ICD-10-CM
C44.721	Squamous cell carcinoma of skin of unspecified lower limb, including hip	Diagnosis	ICD-10-CM
C44.722	Squamous cell carcinoma of skin of right lower limb, including hip	Diagnosis	ICD-10-CM
C44.729	Squamous cell carcinoma of skin of left lower limb, including hip	Diagnosis	ICD-10-CM
C44.81	Basal cell carcinoma of overlapping sites of skin	Diagnosis	ICD-10-CM
C44.82	Squamous cell carcinoma of overlapping sites of skin	Diagnosis	ICD-10-CM
C44.91	Basal cell carcinoma of skin, unspecified	Diagnosis	ICD-10-CM
C44.92	Squamous cell carcinoma of skin, unspecified	Diagnosis	ICD-10-CM
D04	Carcinoma in situ of skin	Diagnosis	ICD-10-CM
D04.0	Carcinoma in situ of skin of lip	Diagnosis	ICD-10-CM
D04.1	Carcinoma in situ of skin of eyelid, including canthus	Diagnosis	ICD-10-CM
D04.10	Carcinoma in situ of skin of unspecified eyelid, including canthus	Diagnosis	ICD-10-CM
D04.11	Carcinoma in situ of skin of right eyelid, including canthus	Diagnosis	ICD-10-CM
D04.111	Carcinoma in situ of skin of right upper eyelid, including canthus	Diagnosis	ICD-10-CM
D04.112	Carcinoma in situ of skin of right lower eyelid, including canthus	Diagnosis	ICD-10-CM
D04.12	Carcinoma in situ of skin of left eyelid, including canthus	Diagnosis	ICD-10-CM
D04.121	Carcinoma in situ of skin of left upper eyelid, including canthus	Diagnosis	ICD-10-CM
D04.122	Carcinoma in situ of skin of left lower eyelid, including canthus	Diagnosis	ICD-10-CM
D04.2	Carcinoma in situ of skin of ear and external auricular canal	Diagnosis	ICD-10-CM
D04.20	Carcinoma in situ of skin of unspecified ear and external auricular canal	Diagnosis	ICD-10-CM
D04.21	Carcinoma in situ of skin of right ear and external auricular canal	Diagnosis	ICD-10-CM
D04.22	Carcinoma in situ of skin of left ear and external auricular canal	Diagnosis	ICD-10-CM
D04.3	Carcinoma in situ of skin of other and unspecified parts of face	Diagnosis	ICD-10-CM
D04.30	Carcinoma in situ of skin of unspecified part of face	Diagnosis	ICD-10-CM
D04.39	Carcinoma in situ of skin of other parts of face	Diagnosis	ICD-10-CM
D04.4	Carcinoma in situ of skin of scalp and neck	Diagnosis	ICD-10-CM
D04.5	Carcinoma in situ of skin of trunk	Diagnosis	ICD-10-CM
D04.6	Carcinoma in situ of skin of upper limb, including shoulder	Diagnosis	ICD-10-CM
D04.60	Carcinoma in situ of skin of unspecified upper limb, including shoulder	Diagnosis	ICD-10-CM
D04.61	Carcinoma in situ of skin of right upper limb, including shoulder	Diagnosis	ICD-10-CM
D04.62	Carcinoma in situ of skin of left upper limb, including shoulder	Diagnosis	ICD-10-CM
D04.7	Carcinoma in situ of skin of lower limb, including hip	Diagnosis	ICD-10-CM

Appendix G. List of Current Procedural Terminology, Fourth Edition (CPT-4), Healthcare Common Procedure Coding System, Level II (HCPCS), and International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Baseline Characteristics in this Request

Code	Description	Code Category	Code Type
D04.70	Carcinoma in situ of skin of unspecified lower limb, including hip	Diagnosis	ICD-10-CM
D04.71	Carcinoma in situ of skin of right lower limb, including hip	Diagnosis	ICD-10-CM
D04.72	Carcinoma in situ of skin of left lower limb, including hip	Diagnosis	ICD-10-CM
D04.8	Carcinoma in situ of skin of other sites	Diagnosis	ICD-10-CM
D04.9	Carcinoma in situ of skin, unspecified	Diagnosis	ICD-10-CM
	DPYD		
81232	DPYD (dihydropyrimidine dehydrogenase) (eg, 5-fluorouracil/5-FU and capecitabine drug metabolism), gene analysis, common variant(s) (eg, *2A, *4, *5, *6)	Procedure	CPT-4
	Other DPYD		
0349U	Drug metabolism or processing (multiple conditions), whole blood or buccal specimen, DNA analysis, 27 gene report, with variant analysis, including reported phenotypes and impacted gene-drug interactions	Procedure	CPT-4
81418	Drug metabolism (eg, pharmacogenomics) genomic sequence analysis panel, must include testing of at least 6 genes, including CYP2C19, CYP2D6, and CYP2D6 duplication/deletion analysis	Procedure	CPT-4
	All Fluoropyrimidines		
J8520	Capecitabine, oral, 150 mg	Procedure	HCPCS
J8521	Capecitabine, oral, 500 mg	Procedure	HCPCS
J8522	Capecitabine, oral, 50 mg	Procedure	HCPCS
J9190	Injection, fluorouracil, 500 mg	Procedure	HCPCS
S3722	Dose optimization by area under the curve (AUC) analysis, for infusional 5-	Procedure	HCPCS
	Intravenous Fluorouracil		
J9190	Injection, fluorouracil, 500 mg	Procedure	HCPCS
S3722	Dose optimization by area under the curve (AUC) analysis, for infusional 5-fluorouracil	Procedure	HCPCS
	Capecitabine		
J8520	Capecitabine, oral, 150 mg	Procedure	HCPCS
J8521	Capecitabine, oral, 500 mg	Procedure	HCPCS
J8522	Capecitabine, oral, 50 mg	Procedure	HCPCS

Appendix H. List of Generic and Brand Names of Medical Products Used to Define Baseline Characteristics in this Request

Generic Name	Brand Name
All Fluoropyrimidines	
capecitabine	Xeloda
capecitabine	capecitabine
fluorouracil	Adrucil
fluorouracil	Carac
fluorouracil	Efudex
fluorouracil	Fluoroplex
fluorouracil	Tolak
fluorouracil	fluorouracil
fluorouracil/calcipotriene	Kefunova
Intravenous Fluorouracil	
fluorouracil	Adrucil
fluorouracil	fluorouracil
Topical Fluorouracil	
fluorouracil	Carac
fluorouracil	Efudex
fluorouracil	Fluoroplex
fluorouracil	Tolak
fluorouracil	fluorouracil
fluorouracil/calcipotriene	Kefunova
Capecitabine	
capecitabine	Xeloda
capecitabine	capecitabine
Rescue-Antidote	
uridine triacetate	Vistogard

Appendix I. Specifications Defining Parameters for this Request

The Cohort Identification and Descriptive Analysis (CIDA) tool version 14.2.1 was executed to estimate Dihydropyrimidine Dehydrogenase and Other Pharmacogenetic Panel Testing Patterns among Patients Treated with Fluoropyrimidines in the Sentinel Distributed Database (SDD).

Query period:	01/01/2018 - 05/31/2025
Coverage requirement:	*Medical & Drug Coverage
Pre-index enrollment requirement:	183 days
Post-index requirement:	N/A
Post-episode requirement for Type 2 analyses:	N/A
Enrollment gap:	45 days
Age groups:	0-17, 18-24, 25-40, 41-64, 65+
Sex:	M, F
Other Demographic Restrictions:	N/A
Stratifications:	quarter-year; quarter-year*covar 9
Follow up time output categorization[1]:	0-5 6-10 11-15 16-20 21-25 26-30 31-35 36-40 41-45 46-50 51-55 56-60 61-90 91-120 121-150 151-180 181+
Restrictions:	N/A
Envelope macro:	*Reclassify encounters during inpatient stay as inpatient
Distribution of index-defining codes:	N/A
Never-exposed cohort:	N/A
Drop Censor Output Indicator	Y
Freeze data:	N

		Exposure			
Scenario	**Index Exposure**	**Cohort Definition**	**Incident Exposure Washout Period**	**Exclude Evidence of Days Supply if Event Washout Includes Dispensings**	**Build Episodes on Point Exposure?**
#	Name of cohort specified	**01:** Cohort includes only the first valid exposure episode during the query period **02:** Cohort includes all valid exposure episodes during the query period **03:** Cohort includes all valid exposure episodes during the query period until an outcome of interest occurs	Days specified	**N:** Lookback period should search for evidence of a date or an interval **Y:** Lookback period should search for evidence of a date only	**Y:** Define exposure as a point exposure **N:** Do not define exposure as a point exposure
Fluoropyrimidines Cohorts					

Appendix I. Specifications Defining Parameters for this Request					
Scenario	**Index Exposure**	**Cohort Definition**	**Incident Exposure Washout Period**	**Exclude Evidence of Days Supply if Event Washout Includes Dispensings [Exposure]**	**Build Episodes on Point Exposure?**
1	Fluoropyrimidines	01	all available history	N/A	Y
2	flouropyr_non_top	01	all available history	N/A	Y
3	capecitabine	01	all available history	N/A	Y
4	Fluoropyrimidines	01	all available history	N/A	Y
5	flouropyr_non_top	01	all available history	N/A	Y
DPYD Testing Cohorts					
6	overall_gen_test	01	183	N	Y
7	dpyd_test	01	183	N	Y
8	other_dpyd_test	01	183	N	Y
9	gen_test_sens	01	183	N	Y

Appendix I. Specifications Defining Parameters for this Request

	Exposure				
Scenario	**Maximum Exposure Episode Duration**	**Care Setting and Diagnosis Position Requirements**	**Forced Supply to Attach to Dispensings**	**Create Baseline Table?**	**End At-Risk Period at Evidence of**
#	Days specified	**IPP:** inpatient hospital stays, principal diagnoses **IPS:** inpatient hospital stays, secondary diagnoses **IPX:** inpatient hospital stays, unclassified diagnoses **ISP:** non-acute institutional stays, principal diagnoses **ISS:** non-acute institutional stays, secondary diagnoses **ISX:** non-acute institutional stays, unclassified diagnoses **ED*:** emergency department encounters **AV*:** ambulatory visits **OA*:** other ambulatory visits	Numeric specified; Indicates a forced supply that should be attached to the NDC to replace the exposure code's RxSup value	**Y:** baseline table will be produced for corresponding COHORTGRP **N:** baseline table will NOT be produced for corresponding COHORTGRP	*Death *DP end date (QRP will automatically censor for this) *Query end date *Occurence of an exposure or event *Exceeding maximum cumulative dose of X
Fluoropyrimidines Cohorts					
1	61	Any	N/A	Y	*Death *DP end date (QRP will automatically censor for this) *Query end date *Disenrollment
2	61	Any	N/A	Y	*Death *DP end date (QRP will automatically censor for this) *Query end date *Disenrollment
3	61	Any	N/A	Y	*Death *DP end date (QRP will automatically censor for this) *Query end date *Disenrollment

Appendix I. Specifications Defining Parameters for this Request					
	Exposure				
Scenario	Maximum Exposure Episode Duration	Care Setting and Diagnosis Position Requirements	Forced Supply to Attach to Dispensings	Create Baseline Table?	End At-Risk Period at Evidence of
4	61	Any	N/A	Y	*Death *DP end date (QRP will automatically censor for this) *Query end date *Disenrollment
5	61	Any	N/A	Y	*Death *DP end date (QRP will automatically censor for this) *Query end date *Disenrollment
DPYD Testing Cohorts					
6	N/A	Any	N/A	Y	*Death *DP end date (QRP will automatically censor for this) *Query end date *Disenrollment
7	N/A	Any	N/A	Y	*Death *DP end date (QRP will automatically censor for this) *Query end date *Disenrollment
8	N/A	Any	N/A	Y	*Death *DP end date (QRP will automatically censor for this) *Query end date *Disenrollment
9	N/A	Any	N/A	Y	*Death *DP end date (QRP will automatically censor for this) *Query end date *Disenrollment

Appendix I. Specifications Defining Parameters for this Request

	Inclusion/Exclusion Criteria							
Scenario	**Inclusion/ Exclusion Group**	**Criteria**	**Name of Include/Exclude Condition**	**Care Setting and Diagnosis Position Requirements**	**Evaluation Period Start**	**Evaluation Period End**	**Exclude Evidence of Days Supply if Event Washout Includes Dispensings**	**Number of Instances for the Condition**
#	Name of inclusion or exclusion criteria specified	*Inclusion *Exclusion	Name of inclusion or exclusion criteria specified	**IPP:** inpatient hospital stays, principal diagnoses **IPS:** inpatient hospital stays, secondary diagnoses **IPX:** inpatient hospital stays, unclassified diagnoses **ISP:** non-acute institutional stays, principal diagnoses **ISS:** non-acute institutional stays, secondary diagnoses **ISX:** non-acute institutional stays, unclassified diagnoses **ED*:** emergency department encounters **AV*:** ambulatory visits **OA*:** other ambulatory visits	Numeric specified	Numeric specified	**N:** Lookback period should search for evidence of a date or an interval **Y:** Lookback period should search for evidence of a date only	Numeric specified
Fluoropyrimidines Cohorts								
1	Cancer diagnosis code	Inclusion	any_cancer	Any	-ever	0	N/A	1
2	Cancer diagnosis code	Inclusion	any_cancer	Any	-ever	0	N/A	1
3	Cancer diagnosis code	Inclusion	any_cancer	Any	-ever	0	N/A	1
4	Cancer diagnosis code	Inclusion	any_cancer	Any	-ever	0	N/A	1

Appendix I. Specifications Defining Parameters for this Request

	Inclusion/Exclusion Criteria							
Scenario	Inclusion/ Exclusion Group	Criteria	Name of Include/Exclude Condition	Care Setting and Diagnosis Position Requirements	Evaluation Period Start	Evaluation Period End	Exclude Evidence of Days Supply if Event Washout Includes Dispensings	Number of Instances for the Condition
5	Cancer diagnosis code	Inclusion	any_cancer	Any	-ever	0	N/A	1
DPYD Testing Cohorts								
6	Cancer diagnosis code	Inclusion	any_cancer	Any	-ever	0	N/A	1
7	Cancer diagnosis code	Inclusion	any_cancer	Any	-ever	0	N/A	1
8	Cancer diagnosis code	Inclusion	any_cancer	Any	-ever	0	N/A	1
9	Cancer diagnosis code	Inclusion	any_cancer	Any	-ever	0	N/A	1

Appendix I. Specifications Defining Parameters for this Request							
	Inclusion/Exclusion Criteria						
Scenario	Minimum Days Supplied	Minimum Cumulative Dose	Minimum Average Filled Daily Dose	Maximum Average Filled Daily Dose	Minimum Current Filled Daily Dose	Maximum Current Filled Daily Dose	Forced Supply to Attach to Dispensings
#	Numeric specified	Numeric and units specified	Numeric and units specified	Numeric and units specified	Numeric and units specified	Numeric and units specified	Numeric specified; Indicates a forced supply that should be attached to the NDC to replace the exposure code's RxSup value
Fluoropyrimidines Cohorts							
1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
DPYD Testing Cohorts							
6	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Appendix I. Specifications Defining Parameters for this Request

	Health Outcomes of Interest (HOI)			
Scenario	**Event**	**HOI Washout Period**	**Care Setting and Diagnosis Position Requirements**	**Exclude Evidence of Days Supply if Event Washout Includes Dispensings**
#	Health outcome of interest	Days specified	**IPP:** inpatient hospital stays, principal diagnoses **IPS:** inpatient hospital stays, secondary diagnoses **IPX:** inpatient hospital stays, unclassified diagnoses **ISP:** non-acute institutional stays, principal diagnoses **ISS:** non-acute institutional stays, secondary diagnoses **ISX:** non-acute institutional stays, unclassified diagnoses **ED*:** emergency department encounters **AV*:** ambulatory visits **OA*:** other ambulatory visits	**N:** Lookback period should search for evidence of a date or an interval **Y:** Lookback period should search for evidence of a date only
Fluoropyrimidines Cohorts				
1	Dihydropyrimidine Dehydrogenase (DPYD) Testing or Other Dihydropyrimidine Dehydrogenase (DPYD) Testing (CPT 81232, 0349U or 81418)	N/A	Any	N/A
2	Dihydropyrimidine Dehydrogenase (DPYD) Testing or Other Dihydropyrimidine Dehydrogenase (DPYD) Testing (CPT 81232, 0349U or 81418)	N/A	Any	N/A
3	Dihydropyrimidine Dehydrogenase (DPYD) Testing or Other Dihydropyrimidine Dehydrogenase (DPYD) Testing (CPT 81232, 0349U or 81418)	N/A	Any	N/A
4	Dihydropyrimidine Dehydrogenase (DPYD) Testing or Other Dihydropyrimidine Dehydrogenase (DPYD) Testing (CPT 81232, 0349U or 81418)	N/A	Any	N/A

Appendix I. Specifications Defining Parameters for this Request

	Health Outcomes of Interest (HOI)			
Scenario	**Event**	**HOI Washout Period**	**Care Setting and Diagnosis Position Requirements**	**Exclude Evidence of Days Supply if Event Washout Includes Dispensings**
5	Dihydropyrimidine Dehydrogenase (DPYD) Testing or Other Dihydropyrimidine Dehydrogenase (DPYD) Testing (CPT 81232, 0349U or 81418)	N/A	Any	N/A
DPYD Testing Cohorts				
6	Any fluoropyrimidine use	N/A	Any	N
7	Any fluoropyrimidine use	N/A	Any	N
8	Any fluoropyrimidine use	N/A	Any	N
9	Any fluoropyrimidine use	N/A	Any	N

Appendix I. Specifications Defining Parameters for this Request					
	Health Outcomes of Interest (HOI)				
Scenario	Event De-Duplication	Exclude Evidence of Days Supply if Event Washout Includes Dispensings [HOI]	Forced Supply to Attach to Dispensings	Blackout Period	Risk Window Interval Start
#	**0:** counts all occurrences of an HOI during an exposure episode. **1:** de-duplicates occurrences of the same HOI code and code type on the same day (i.e., de-duplicates at the exact match code level). Note: a patient may have the same HOI code and code type on the same day if they were recorded by different providers and/or occurred in different care settings. **2:** de-duplicates occurrences of the same HOI GROUP on the same day (e.g., de-duplicates at the GROUP level). blank: HOI count is not relevant (for signal identification analyses)	**N:** Lookback period should search for evidence of a date or an interval **Y:** Lookback period should search for evidence of a date only	Numeric specified; Indicates a forced supply that should be attached to the NDC to replace the exposure code's RxSup value	Numeric specified *(BLACKOUTPER)*	Numeric specified; days relative to the exposure start date
Fluoropyrimidines Cohorts					
1	1	Y	N/A	N/A	0
2	1	Y	N/A	N/A	0
3	1	Y	N/A	N/A	0
4	1	Y	N/A	N/A	0

Appendix I. Specifications Defining Parameters for this Request					
	Health Outcomes of Interest (HOI)				
Scenario	Event De-Duplication	Exclude Evidence of Days Supply if Event Washout Includes Dispensings [HOI]	Forced Supply to Attach to Dispensings	Blackout Period	Risk Window Interval Start
5	1	Y	N/A	N/A	0
DPYD Testing Cohorts					
6	1	Y	N/A	N/A	0
7	1	Y	N/A	N/A	0
8	1	Y	N/A	N/A	0
9	1	Y	N/A	N/A	0

International Classification of Diseases, Ninth Revision (ICD-9), International Classification of Diseases, Tenth Revision (ICD-10), Healthcare Common Procedure Coding System (HCPCS), and CPT (Current Procedural Terminology) codes are provided by Optum360. National Drug Codes (NDCs) are checked against FirstDataBank's FDBMedKnowledge®

1 The fluorouracil, capecitabine, overall Fluoropyrimidines, fluorouracil excluding topical, and overall Fluoropyrimidines excluding topical cohorts will only include the follow up time category up through days 56-60. The rest of the cohorts will include all categories of follow up time.

N/A: Not Applicable

Appendix J. Baseline Characteristics for this Request

Name of characteristic specified	Numeric indicator for each characteristic	Tables that the characteristic applies to	**Code Category** **RX:** Drug code **DX:** Diagnosis code **PX:** Procedure code **CC:** Complex characteristic (multiple COVARNUM values are used to define a characteristic) **EN:** Encounter **LB:** Lab Code
Cancer Diagnosis 183 days prior to index			
Breast	1	Tables 1a-1i	DX
Colorectal	2	Tables 1a-1i	DX
Esophageal	3	Tables 1a-1i	DX
Pancreatic	4	Tables 1a-1i	DX
Other gastrointestinal	5	Tables 1a-1i	DX
Basal/squamous cell skin	6	Tables 1a-1i	DX
CPT 81232, 0349U or 81418 60 days before or after Fluoropyrimidine Use, by care setting			
81232, 0349U or 81418 in IP, ED	7	Table 7	PX
81232, 0349U or 81418 in IS, AV, OA	8	Table 7	PX
81232, 0349U or 81418 in any care setting	9	Table 7	PX
CPT 81232, 0349U or 81418 60 days before Fluoropyrimidine Use, by care setting			
81232, 0349U or 81418 in IP, ED	10	Table 7	PX
81232, 0349U or 81418 in IS, AV, OA	11	Table 7	PX
81232, 0349U or 81418 in any care setting	12	Table 7	PX
CPT 81232 AND NOT (0349U or 81418 in any care setting) 60 days before Fluoropyrimidine Use, by care setting			
81232 in IP, ED	13	N/A	PX
81232 in IS, AV, OA	14	N/A	PX
81232 in any care setting	15	N/A	PX
0349U or 81418 in any care setting	16	Table 7	PX

Appendix J. Baseline Characteristics for this Request

Name of characteristic specified	Numeric indicator for each characteristic	Tables that the characteristic applies to	**Code Category** **RX:** Drug code **DX:** Diagnosis code **PX:** Procedure code **CC:** Complex characteristic (multiple COVARNUM values are used to define a characteristic) **EN:** Encounter **LB:** Lab Code
81232 in IP, ED AND NOT (0349U or 81418 in any care setting)	50	Table 7	CC
81232 in IS, AV, OA AND NOT (0349U or 81418 in any care setting)	51	Table 7	CC
81232 in any care setting AND NOT (0349U or 81418 in any care setting)	52	Table 7	CC
CPT 0349U AND NOT (81232 or 81418 in any care setting) 60 days before Fluoropyrimidine Use, by care setting			
0349U in IP, ED	17	N/A	PX
0349U in IS, AV, OA	18	N/A	PX
0349U in any care setting	19	N/A	PX
81232 or 81418 in any care setting	20	N/A	PX
0349U in IP, ED AND NOT 81232 or 81418 in any care setting	53	Table 7	CC
0349U in IS, AV, OA AND NOT 81232 or 81418 in any care setting	54	Table 7	CC
0349U in any care setting AND NOT 81232 or 81418 in any care setting	55	Table 7	CC
CPT 81418 AND NOT (0349U or 81232 in any care setting) 60 days before Fluoropyrimidine Use, by care setting			
81418 in IP, ED	21	N/A	PX
81418 in IS, AV, OA	22	N/A	PX
81418 in any care setting	23	N/A	PX
0349U or 81232 in any care setting	24	N/A	PX
81418 in IP, ED AND NOT 0349U or 81232 in any care setting	56	Table 7	CC
81418 in IS, AV, OA AND NOT 0349U or 81232 in any care setting	57	Table 7	CC
81418 in any care setting AND NOT 0349U or 81232 in any care setting	58	Table 7	CC

Appendix J. Baseline Characteristics for this Request

Name of characteristic specified	Numeric indicator for each characteristic	Tables that the characteristic applies to	**Code Category** **RX:** Drug code **DX:** Diagnosis code **PX:** Procedure code **CC:** Complex characteristic (multiple COVARNUM values are used to define a characteristic) **EN:** Encounter **LB:** Lab Code
CPT 81232, 0349U or 81418 60 days after Fluoropyrimidine Use, by care setting			
81232, 0349U or 81418 in IP, ED	25	Table 7	PX
81232, 0349U or 81418 in IS, AV, OA	26	Table 7	PX
81232, 0349U or 81418 in any care setting	27	Table 7	PX
CPT 81232 AND NOT (0349U or 81418 in any care setting) 60 days after Fluoropyrimidine Use, by care setting			
81232 in IP, ED	28	N/A	PX
81232 in IS, AV, OA	29	N/A	PX
81232 in any care setting	30	N/A	PX
0349U or 81418 in any care setting	31	N/A	PX
81232 in IP, ED AND NOT 0349U or 81418 in any care setting	59	Table 7	CC
81232 in AS, AV, OA AND NOT 0349U or 81418 in any care setting	60	Table 7	CC
81232 in any care setting AND NOT 0349U or 81418 in any care setting	61	Table 7	CC
CPT 0349U AND NOT (81232 or 81418 in any care setting) 60 days after Fluoropyrimidine Use, by care setting			
0349U in IP, ED	32	N/A	PX
0349U in IS, AV, OA	33	N/A	PX
0349U in any care setting	34	N/A	PX
81232 or 81418 in any care setting	35	N/A	PX
0349U in IP, ED AND NOT 81232 or 81418 in any care setting	62	Table 7	CC
0349U in IS, AV, OA AND NOT 81232 or 81418 in any care setting	63	Table 7	CC
0349U in any care setting AND NOT 81232 or 81418 in any care setting	64	Table 7	CC

Appendix J. Baseline Characteristics for this Request

Name of characteristic specified	Numeric indicator for each characteristic	Tables that the characteristic applies to	**Code Category** **RX:** Drug code **DX:** Diagnosis code **PX:** Procedure code **CC:** Complex characteristic (multiple COVARNUM values are used to define a characteristic) **EN:** Encounter **LB:** Lab Code
CPT 81418 AND NOT (0349U or 81232 in any care setting) 60 days after Fluoropyrimidine Use, by care setting			
81418 in IP, ED	36	N/A	PX
81418 in IS, AV, OA	37	N/A	PX
81418 in any care setting	38	N/A	PX
0349U or 81232 in any care setting	39	N/A	PX
81418 in IP, ED AND NOT 0349U or 81232 in any care setting	65	Table 7	CC
81418 in IS, AV, OA AND NOT 0349U or 81232 in any care setting	66	Table 7	CC
81418 in any care setting AND NOT 0349U or 81232 in any care setting	67	Table 7	CC
Product-Specific Use 60 days before testing			
All Fluoropyrimidines	40	Tables 1f-1i	PX, RX
Fluorouracil - Intravenous	41	Tables 1f-1i	PX, RX
Fluorouracil - Topical	42	Tables 1f-1i	RX
Capecitabine	43	Tables 1f-1i	PX, RX

Appendix J. Baseline Characteristics for this Request

Name of characteristic specified	Numeric indicator for each characteristic	Tables that the characteristic applies to	**Code Category** **RX:** Drug code **DX:** Diagnosis code **PX:** Procedure code **CC:** Complex characteristic (multiple COVARNUM values are used to define a characteristic) **EN:** Encounter **LB:** Lab Code
Product-Specific Use 60 days after testing			
All Fluoropyrimidines	44	Tables 1f-1i	PX, RX
Fluorouracil - Intravenous	45	Tables 1f-1i	PX, RX
Fluorouracil - Topical	46	Tables 1f-1i	RX
Capecitabine	47	Tables 1f-1i	PX, RX
Rescue-Antidote Use 60 days before testing			
Rescue-Antidote	48	Tables 1f-1i	RX
Rescue-Antidote Use 60 days after testing			
Rescue-Antidote	49	Tables 1f-1i	RX

Appendix J. Baseline Characteristics for this Request

Name of characteristic specified	**Care Setting and Diagnosis Position Requirements** **IPP:** inpatient hospital stays, principal diagnoses **IPS:** inpatient hospital stays, secondary diagnoses **IPX:** inpatient hospital stays, unclassified diagnoses **ISP:** non-acute institutional stays, principal diagnoses **ISS:** non-acute institutional stays, secondary diagnoses **ISX:** non-acute institutional stays, unclassified diagnoses **ED*:** emergency department encounters **AV*:** ambulatory visits **OA*:** other ambulatory visits	**Characteristic Evaluation Period Start**	**Characteristic Evaluation Period End**	**Number of Instances the Characteristic Should be Found in Evaluation Period**
Cancer Diagnosis 183 days prior to index				
Breast	Any	-183	0	1
Colorectal	Any	-183	0	1
Esophageal	Any	-183	0	1
Pancreatic	Any	-183	0	1
Other gastrointestinal	Any	-183	0	1
Basal/squamous cell skin	Any	-183	0	1
CPT 81232, 0349U or 81418 60 days before or after Fluoropyrimidine Use, by care setting				
81232, 0349U or 81418 in IP, ED	IP*, ED*	N/A	N/A	1
81232, 0349U or 81418 in IS, AV, OA	IS*, AV*, OA*	N/A	N/A	1
81232, 0349U or 81418 in any care setting	Any	N/A	N/A	1
CPT 81232, 0349U or 81418 60 days before Fluoropyrimidine Use, by care setting				
81232, 0349U or 81418 in IP, ED	IP*, ED*	N/A	N/A	1
81232, 0349U or 81418 in IS, AV, OA	IS*, AV*, OA*	N/A	N/A	1

Appendix J. Baseline Characteristics for this Request

Name of characteristic specified	**Care Setting and Diagnosis Position Requirements** **IPP:** inpatient hospital stays, principal diagnoses **IPS:** inpatient hospital stays, secondary diagnoses **IPX:** inpatient hospital stays, unclassified diagnoses **ISP:** non-acute institutional stays, principal diagnoses **ISS:** non-acute institutional stays, secondary diagnoses **ISX:** non-acute institutional stays, unclassified diagnoses **ED*:** emergency department encounters **AV*:** ambulatory visits **OA*:** other ambulatory visits	**Characteristic Evaluation Period Start**	**Characteristic Evaluation Period End**	**Number of Instances the Characteristic Should be Found in Evaluation Period**
81232, 0349U or 81418 in any care setting	Any	N/A	N/A	1
CPT 81232 AND NOT (0349U or 81418 in any care setting) 60 days before Fluoropyrimidine Use, by care setting				
81232 in IP, ED	IP*, ED*	-60	-1	1
81232 in IS, AV, OA	IS*, AV*, OA*	-60	-1	1
81232 in any care setting	Any	-60	-1	1
0349U or 81418 in any care setting	Any	-60	-1	1
81232 in IP, ED AND NOT (0349U or 81418 in any care setting)	N/A	N/A	N/A	1
81232 in IS, AV, OA AND NOT (0349U or 81418 in any care setting)	N/A	N/A	N/A	1
81232 in any care setting AND NOT (0349U or 81418 in any care setting)	N/A	N/A	N/A	1
CPT 0349U AND NOT (81232 or 81418 in any care setting) 60 days before Fluoropyrimidine Use, by care setting				
0349U in IP, ED	IP*, ED*	-60	-1	1

Appendix J. Baseline Characteristics for this Request

Name of characteristic specified	**Care Setting and Diagnosis Position Requirements** **IPP:** inpatient hospital stays, principal diagnoses **IPS:** inpatient hospital stays, secondary diagnoses **IPX:** inpatient hospital stays, unclassified diagnoses **ISP:** non-acute institutional stays, principal diagnoses **ISS:** non-acute institutional stays, secondary diagnoses **ISX:** non-acute institutional stays, unclassified diagnoses **ED*:** emergency department encounters **AV*:** ambulatory visits **OA*:** other ambulatory visits	**Characteristic Evaluation Period Start**	**Characteristic Evaluation Period End**	**Number of Instances the Characteristic Should be Found in Evaluation Period**
0349U in IS, AV, OA	IS*, AV*, OA*	-60	-1	1
0349U in any care setting	Any	-60	-1	1
81232 or 81418 in any care setting	Any	-60	-1	1
0349U in IP, ED AND NOT 81232 or 81418 in any care setting	N/A	N/A	N/A	1
0349U in IS, AV, OA AND NOT 81232 or 81418 in any care setting	N/A	N/A	N/A	1
0349U in any care setting AND NOT 81232 or 81418 in any care setting	N/A	N/A	N/A	1
CPT 81418 AND NOT (0349U or 81232 in any care setting) 60 days before Fluoropyrimidine Use, by care setting				
81418 in IP, ED	IP*, ED*	-60	-1	1
81418 in IS, AV, OA	IS*, AV*, OA*	-60	-1	1
81418 in any care setting	Any	-60	-1	1
0349U or 81232 in any care setting	Any	-60	-1	1
81418 in IP, ED AND NOT 0349U or 81232 in any care setting	N/A	N/A	N/A	1

Appendix J. Baseline Characteristics for this Request

Name of characteristic specified	**Care Setting and Diagnosis Position Requirements** **IPP:** inpatient hospital stays, principal diagnoses **IPS:** inpatient hospital stays, secondary diagnoses **IPX:** inpatient hospital stays, unclassified diagnoses **ISP:** non-acute institutional stays, principal diagnoses **ISS:** non-acute institutional stays, secondary diagnoses **ISX:** non-acute institutional stays, unclassified diagnoses **ED*:** emergency department encounters **AV*:** ambulatory visits **OA*:** other ambulatory visits	**Characteristic Evaluation Period Start**	**Characteristic Evaluation Period End**	**Number of Instances the Characteristic Should be Found in Evaluation Period**
81418 in IS, AV, OA AND NOT 0349U or 81232 in any care setting	N/A	N/A	N/A	1
81418 in any care setting AND NOT 0349U or 81232 in any care setting	N/A	N/A	N/A	1
CPT 81232, 0349U or 81418 60 days after Fluoropyrimidine Use, by care setting				
81232, 0349U or 81418 in IP, ED	IP*, ED*	0	60	1
81232, 0349U or 81418 in IS, AV, OA	IS*, AV*, OA*	0	60	1
81232, 0349U or 81418 in any care setting	Any	0	60	1
CPT 81232 AND NOT (0349U or 81418 in any care setting) 60 days after Fluoropyrimidine Use, by care setting				
81232 in IP, ED	IP*, ED*	0	60	1
81232 in IS, AV, OA	IS*, AV*, OA*	0	60	1
81232 in any care setting	Any	0	60	1
0349U or 81418 in any care setting	Any	0	60	1
81232 in IP, ED AND NOT 0349U or 81418 in any	N/A	N/A	N/A	1

Appendix J. Baseline Characteristics for this Request

Name of characteristic specified	**Care Setting and Diagnosis Position Requirements** **IPP:** inpatient hospital stays, principal diagnoses **IPS:** inpatient hospital stays, secondary diagnoses **IPX:** inpatient hospital stays, unclassified diagnoses **ISP:** non-acute institutional stays, principal diagnoses **ISS:** non-acute institutional stays, secondary diagnoses **ISX:** non-acute institutional stays, unclassified diagnoses **ED*:** emergency department encounters **AV*:** ambulatory visits **OA*:** other ambulatory visits	**Characteristic Evaluation Period Start**	**Characteristic Evaluation Period End**	**Number of Instances the Characteristic Should be Found in Evaluation Period**
81232 in AS, AV, OA AND NOT 0349U or 81418 in any care setting	N/A	N/A	N/A	1
81232 in any care setting AND NOT 0349U or 81418 in any care setting	N/A	N/A	N/A	1
CPT 0349U AND NOT (81232 or 81418 in any care setting) 60 days after Fluoropyrimidine Use, by care setting				
0349U in IP, ED	IP*, ED*	0	60	1
0349U in IS, AV, OA	IS*, AV*, OA*	0	60	1
0349U in any care setting	Any	0	60	1
81232 or 81418 in any care setting	Any	0	60	1
0349U in IP, ED AND NOT 81232 or 81418 in any care setting	N/A	N/A	N/A	1
0349U in IS, AV, OA AND NOT 81232 or 81418 in any care setting	N/A	N/A	N/A	1
0349U in any care setting AND NOT 81232 or 81418 in any care setting	N/A	N/A	N/A	1

Appendix J. Baseline Characteristics for this Request

Name of characteristic specified	**Care Setting and Diagnosis Position Requirements** **IPP:** inpatient hospital stays, principal diagnoses **IPS:** inpatient hospital stays, secondary diagnoses **IPX:** inpatient hospital stays, unclassified diagnoses **ISP:** non-acute institutional stays, principal diagnoses **ISS:** non-acute institutional stays, secondary diagnoses **ISX:** non-acute institutional stays, unclassified diagnoses **ED*:** emergency department encounters **AV*:** ambulatory visits **OA*:** other ambulatory visits	**Characteristic Evaluation Period Start**	**Characteristic Evaluation Period End**	**Number of Instances the Characteristic Should be Found in Evaluation Period**
CPT 81418 AND NOT (0349U or 81232 in any care setting) 60 days after Fluoropyrimidine Use, by care setting				
81418 in IP, ED	IP*, ED*	0	60	1
81418 in IS, AV, OA	IS*, AV*, OA*	0	60	1
81418 in any care setting	Any	0	60	1
0349U or 81232 in any care setting	Any	0	60	1
81418 in IP, ED AND NOT 0349U or 81232 in any care setting	N/A	N/A	N/A	1
81418 in IS, AV, OA AND NOT 0349U or 81232 in any care setting	N/A	N/A	N/A	1
81418 in any care setting AND NOT 0349U or 81232 in any care setting	N/A	N/A	N/A	1
Product-Specific Use 60 days before testing				
All Fluoropyrimidines	Any	-60	-1	1
Fluorouracil - Intravenous	Any	-60	-1	1
Fluorouracil - Topical	Any	-60	-1	1
Capecitabine	Any	-60	-1	1

Appendix J. Baseline Characteristics for this Request

Name of characteristic specified	**Care Setting and Diagnosis Position Requirements** **IPP:** inpatient hospital stays, principal diagnoses **IPS:** inpatient hospital stays, secondary diagnoses **IPX:** inpatient hospital stays, unclassified diagnoses **ISP:** non-acute institutional stays, principal diagnoses **ISS:** non-acute institutional stays, secondary diagnoses **ISX:** non-acute institutional stays, unclassified diagnoses **ED*:** emergency department encounters **AV*:** ambulatory visits **OA*:** other ambulatory visits	**Characteristic Evaluation Period Start**	**Characteristic Evaluation Period End**	**Number of Instances the Characteristic Should be Found in Evaluation Period**
Product-Specific Use 60 days after testing				
All Fluoropyrimidines	Any	0	60	1
Fluorouracil - Intravenous	Any	0	60	1
Fluorouracil - Topical	Any	0	60	1
Capecitabine	Any	0	60	1
Rescue-Antidote Use 60 days before testing				
Rescue-Antidote	Any	-60	-1	1
Rescue-Antidote Use 60 days after testing				
Rescue-Antidote	Any	0	60	1

Appendix J. Baseline Characteristics for this Request

Characteristic Name	Forced Supply to Attach to a Code *(only applies to RX codes)*	Lookback Period Date Only N: Lookback period should search for evidence of a date or an interval Y: Lookback period should search for evidence of a date only	Minimum Cumulative Number of Days *(only for CODECAT=RX)*	Minimum Average Filled Daily Dose *(only for CODECAT=RX)*	Maximum Average Filled Daily Dose *(only for CODECAT=RX)*
Cancer Diagnosis 183 days prior to index					
Breast	N/A	Y	N/A	N/A	N/A
Colorectal	N/A	Y	N/A	N/A	N/A
Esophageal	N/A	Y	N/A	N/A	N/A
Pancreatic	N/A	Y	N/A	N/A	N/A
Other gastrointestinal	N/A	Y	N/A	N/A	N/A
Basal/squamous cell skin	N/A	Y	N/A	N/A	N/A
CPT 81232, 0349U or 81418 60 days before or after Fluoropyrimidine Use, by care setting					
81232, 0349U or 81418 in IP, ED	N/A	Y	N/A	N/A	N/A
81232, 0349U or 81418 in IS, AV, OA	N/A	Y	N/A	N/A	N/A
81232, 0349U or 81418 in any care setting*	N/A	Y	N/A	N/A	N/A
CPT 81232, 0349U or 81418 60 days before Fluoropyrimidine Use, by care setting					
81232, 0349U or 81418 in IP, ED	N/A	Y	N/A	N/A	N/A
81232, 0349U or 81418 in IS, AV, OA	N/A	Y	N/A	N/A	N/A
81232, 0349U or 81418 in any care setting	N/A	Y	N/A	N/A	N/A
CPT 81232 AND NOT (0349U or 81418 in any care setting) 60 days before Fluoropyrimidine Use, by care setting					
81232 in IP, ED	N/A	Y	N/A	N/A	N/A
81232 in IS, AV, OA	N/A	Y	N/A	N/A	N/A
81232 in any care setting	N/A	Y	N/A	N/A	N/A
0349U or 81418 in any care setting	N/A	Y	N/A	N/A	N/A

Appendix J. Baseline Characteristics for this Request

Characteristic Name	Forced Supply to Attach to a Code *(only applies to RX codes)*	Lookback Period Date Only N: Lookback period should search for evidence of a date or an interval Y: Lookback period should search for evidence of a date only	Minimum Cumulative Number of Days *(only for CODECAT=RX)*	Minimum Average Filled Daily Dose *(only for CODECAT=RX)*	Maximum Average Filled Daily Dose *(only for CODECAT=RX)*
81232 in IP, ED AND NOT (0349U or 81418 in any care setting)	N/A	Y	N/A	N/A	N/A
81232 in IS, AV, OA AND NOT (0349U or 81418 in any care	N/A	Y	N/A	N/A	N/A
81232 in any care setting AND NOT (0349U or 81418 in any care setting)	N/A	Y	N/A	N/A	N/A
CPT 0349U AND NOT (81232 or 81418 in any care setting) 60 days before Fluoropyrimidine Use, by care setting					
0349U in IP, ED	N/A	Y	N/A	N/A	N/A
0349U in IS, AV, OA	N/A	Y	N/A	N/A	N/A
0349U in any care setting	N/A	Y	N/A	N/A	N/A
81232 or 81418 in any care setting	N/A	Y	N/A	N/A	N/A
0349U in IP, ED AND NOT 81232 or 81418 in any care setting	N/A	Y	N/A	N/A	N/A
0349U in IS, AV, OA AND NOT 81232 or 81418 in any care setting	N/A	Y	N/A	N/A	N/A
0349U in any care setting AND NOT 81232 or 81418 in any care setting	N/A	Y	N/A	N/A	N/A
CPT 81418 AND NOT (0349U or 81232 in any care setting) 60 days before Fluoropyrimidine Use, by care setting					
81418 in IP, ED	N/A	Y	N/A	N/A	N/A
81418 in IS, AV, OA	N/A	Y	N/A	N/A	N/A
81418 in any care setting	N/A	Y	N/A	N/A	N/A
0349U or 81232 in any care setting	N/A	Y	N/A	N/A	N/A
81418 in IP, ED AND NOT 0349U or 81232 in any care setting	N/A	Y	N/A	N/A	N/A

Appendix J. Baseline Characteristics for this Request

Characteristic Name	Forced Supply to Attach to a Code *(only applies to RX codes)*	Lookback Period Date Only N: Lookback period should search for evidence of a date or an interval Y: Lookback period should search for evidence of a date only	Minimum Cumulative Number of Days *(only for CODECAT=RX)*	Minimum Average Filled Daily Dose *(only for CODECAT=RX)*	Maximum Average Filled Daily Dose *(only for CODECAT=RX)*
81418 in IS, AV, OA AND NOT 0349U or 81232 in any care setting	N/A	Y	N/A	N/A	N/A
81418 in any care setting AND NOT 0349U or 81232 in any care setting	N/A	Y	N/A	N/A	N/A
CPT 81232, 0349U or 81418 60 days after Fluoropyrimidine Use, by care setting					
81232, 0349U or 81418 in IP, ED	N/A	Y	N/A	N/A	N/A
81232, 0349U or 81418 in IS, AV, OA	N/A	Y	N/A	N/A	N/A
81232, 0349U or 81418 in any care setting	N/A	Y	N/A	N/A	N/A
CPT 81232 AND NOT (0349U or 81418 in any care setting) 60 days after Fluoropyrimidine Use, by care setting					
81232 in IP, ED	N/A	Y	N/A	N/A	N/A
81232 in IS, AV, OA	N/A	Y	N/A	N/A	N/A
81232 in any care setting	N/A	Y	N/A	N/A	N/A
0349U or 81418 in any care setting	N/A	Y	N/A	N/A	N/A
81232 in IP, ED AND NOT 0349U or 81418 in any care setting	N/A	Y	N/A	N/A	N/A
81232 in AS, AV, OA AND NOT 0349U or 81418 in any care	N/A	Y	N/A	N/A	N/A
81232 in any care setting AND NOT 0349U or 81418 in any care setting	N/A	Y	N/A	N/A	N/A

Appendix J. Baseline Characteristics for this Request

Characteristic Name	Forced Supply to Attach to a Code *(only applies to RX codes)*	Lookback Period Date Only N: Lookback period should search for evidence of a date or an interval Y: Lookback period should search for evidence of a date only	Minimum Cumulative Number of Days *(only for CODECAT=RX)*	Minimum Average Filled Daily Dose *(only for CODECAT=RX)*	Maximum Average Filled Daily Dose *(only for CODECAT=RX)*
CPT 0349U AND NOT (81232 or 81418 in any care setting) 60 days after Fluoropyrimidine Use, by care setting					
0349U in IP, ED	N/A	Y	N/A	N/A	N/A
0349U in IS, AV, OA	N/A	Y	N/A	N/A	N/A
0349U in any care setting	N/A	Y	N/A	N/A	N/A
81232 or 81418 in any care setting	N/A	Y	N/A	N/A	N/A
0349U in IP, ED AND NOT 81232 or 81418 in any care setting	N/A	Y	N/A	N/A	N/A
0349U in IS, AV, OA AND NOT 81232 or 81418 in any care	N/A	Y	N/A	N/A	N/A
0349U in any care setting AND NOT 81232 or 81418 in any care setting	N/A	Y	N/A	N/A	N/A
CPT 81418 AND NOT (0349U or 81232 in any care setting) 60 days after Fluoropyrimidine Use, by care setting					
81418 in IP, ED	N/A	Y	N/A	N/A	N/A
81418 in IS, AV, OA	N/A	Y	N/A	N/A	N/A
81418 in any care setting	N/A	Y	N/A	N/A	N/A
0349U or 81232 in any care setting	N/A	Y	N/A	N/A	N/A
81418 in IP, ED AND NOT 0349U or 81232 in any care setting	N/A	Y	N/A	N/A	N/A
81418 in IS, AV, OA AND NOT 0349U or 81232 in any care	N/A	Y	N/A	N/A	N/A
81418 in any care setting AND NOT 0349U or 81232 in any care setting	N/A	Y	N/A	N/A	N/A

Appendix J. Baseline Characteristics for this Request

Characteristic Name	Forced Supply to Attach to a Code *(only applies to RX codes)*	Lookback Period Date Only N: Lookback period should search for evidence of a date or an interval Y: Lookback period should search for evidence of a date only	Minimum Cumulative Number of Days *(only for CODECAT=RX)*	Minimum Average Filled Daily Dose *(only for CODECAT=RX)*	Maximum Average Filled Daily Dose *(only for CODECAT=RX)*
Product-Specific Use 60 days before testing					
All Fluoropyrimidines	N/A	Y	N/A	N/A	N/A
Fluorouracil - Intravenous	N/A	Y	N/A	N/A	N/A
Fluorouracil - Topical	N/A	Y	N/A	N/A	N/A
Capecitabine	N/A	Y	N/A	N/A	N/A

Appendix J. Baseline Characteristics for this Request

Characteristic Name	Forced Supply to Attach to a Code *(only applies to RX codes)*	Lookback Period Date Only N: Lookback period should search for evidence of a date or an interval Y: Lookback period should search for evidence of a date only	Minimum Cumulative Number of Days *(only for CODECAT=RX)*	Minimum Average Filled Daily Dose *(only for CODECAT=RX)*	Maximum Average Filled Daily Dose *(only for CODECAT=RX)*
Product-Specific Use 60 days after testing					
All Fluoropyrimidines	N/A	Y	N/A	N/A	N/A
Fluorouracil - Intravenous	N/A	Y	N/A	N/A	N/A
Fluorouracil - Topical	N/A	Y	N/A	N/A	N/A
Capecitabine	N/A	Y	N/A	N/A	N/A
Rescue-Antidote Use 60 days before testing					
Rescue-Antidote	N/A	Y	N/A	N/A	N/A
Rescue-Antidote Use 60 days after testing					
Rescue-Antidote	N/A	Y	N/A	N/A	N/A

N/A: Not Applicable

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.

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 Care setting/PDX parameter.

Appendix K. Risk Score and Utilization for this Requst

Risk Score

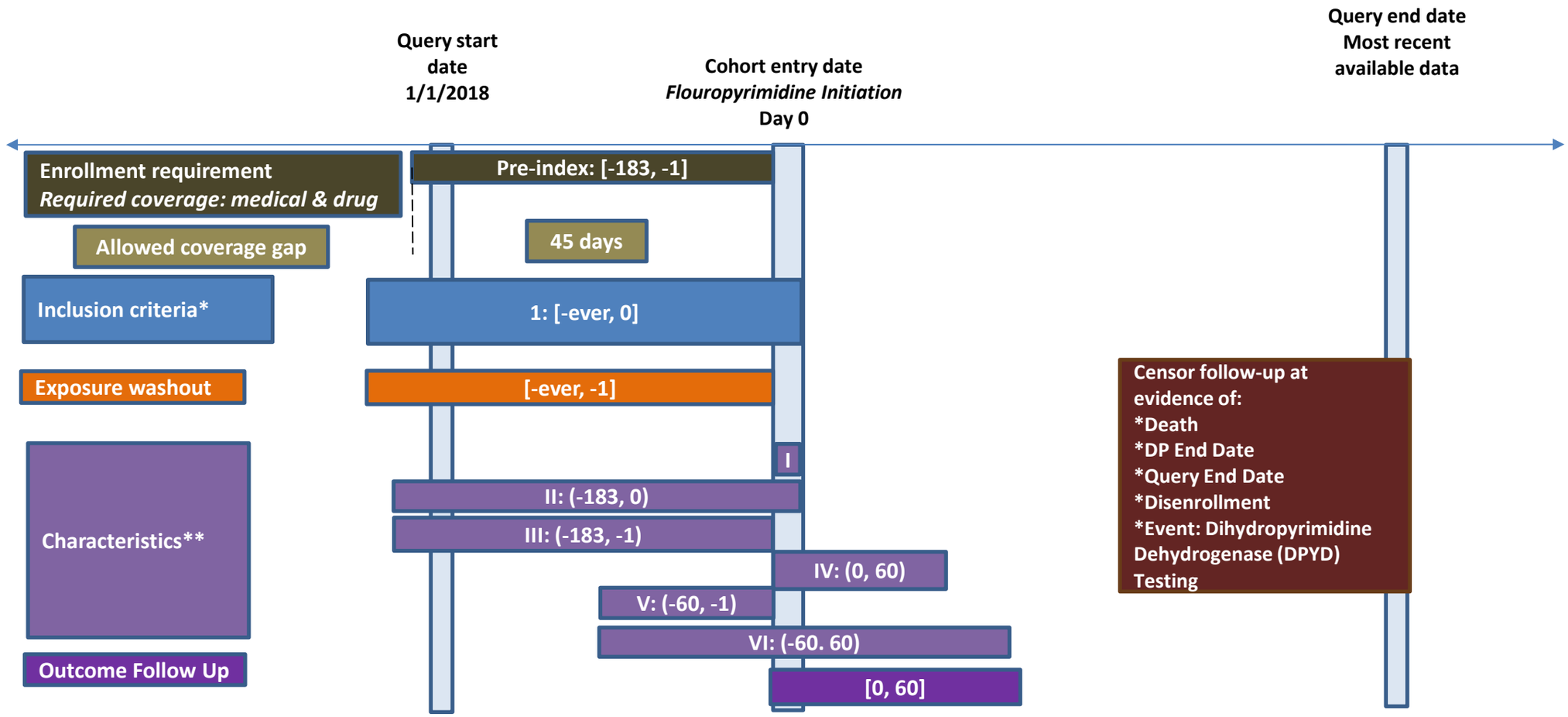
Risk Score	Evaluation Period Start	Evaluation Period End	Risk Score Categories
CCI	-183	0	

Utilization

Medical Utilization Evaluation Period Start	Medical Utilization Evaluation Period End	Drug Utilization Evaluation Period Start	Drug Utilization Evaluation Period End
-183	-1	-183	-1

Appendix L. Design Diagrams for this Request

Figure 1. Design Diagram of Cohort Entry Requirements, Index Exposure, and Event Outcome Assessment for Fluoropyrimidine Cohorts

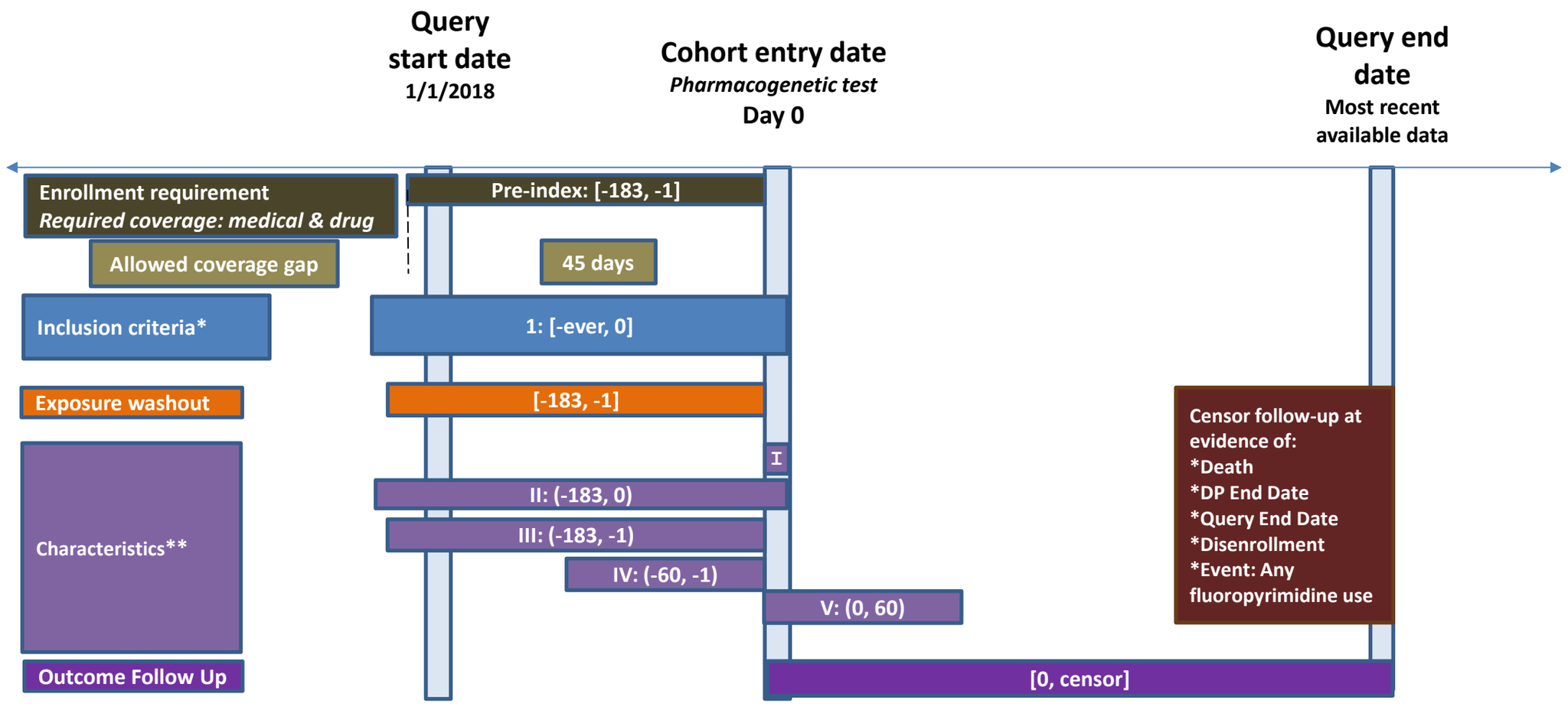


***Inclusion Criteria**
Window 1: Cancer diagnosis for relevant cancer indication

****Characteristics:**
Window I: Age, Year, Race, Sex
Window II: Cancer diagnosis type, CCI Comorbidity Score
Window III: Health Service Utilization
Window IV: DPYD Testing (CPT 81232, 0349U or 81418, and assessed individually), by care setting
Window V: DPYD Testing (CPT 81232, 0349U or 81418, and assessed individually), by care setting
Window VI: DPYD Testing (CPT 81232, 0349U or 81418, and assessed individually), by care setting

Appendix L. Design Diagrams for this Request

Figure 2. Design Diagram of Cohort Entry Requirements, Index Exposure, and Event Outcome Assessment for DPYD Testing Cohorts



***Inclusion Criteria**

Window 1: Cancer diagnosis for relevant cancer indication

****Characteristics:**

Window I: Age, Year, Race, Sex, Health Service Utilization
Window II: Cancer Diagnosis Type, CCI Comorbidity Score
Window III: Health Service Utilization
Window IV: Rescue Antidote Use
Window V: Rescue Antidote Use