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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: care_mpl1r_wp001

Request ID: care_mpl1r_wp001

Request Description: The goal of this request was to estimate rates of chronic obstructive pulmonary disease (COPD) patients treated with inhaled medications, such as inhaled corticosteroids (ICS), long-acting muscarinic antagonists (LAMA) or long-acting beta agonists (LABA) inhalers in the Sentinel Distributed Database (SDD). Separate cohorts were examined to compare patients with 1) prevalent COPD with drugs of interest (LAMA, LABA or ICS) and without alpha-1 anti-trypsin, asthma, bronchiectasis, cystic fibrosis, sarcoidosis or interstitial lung disease (ILD) ("exclusions"); 2) prevalent COPD with drugs of interest; 3) incident LAMA, LABA or ICS exposure with a baseline COPD diagnosis and without the excluded conditions; 4) prevalent LAMA, LABA or ICS exposure with a baseline COPD diagnosis and without the excluded conditions. For inhaled medications cohorts (3 and 4), sensitivity analyses were also performed and included: 5) incident LAMA, LABA or ICS exposure with evidence of spirometry anytime in the pre-period; 6) prevalent LAMA, LABA or ICS exposure with evidence of spirometry anytime in the pre-period; 7) incident LAMA, LABA or ICS exposure with evidence of smoking anytime in the pre-period; 8) prevalent LAMA, LABA or ICS exposure with evidence of smoking anytime in the pre-period.

Sentinel Routine Querying Module: Cohort Identification and Descriptive Analysis (CIDA) tool, version 7.3.2

Data Source: We distributed this request to 15 Sentinel Data Partners (DPs) on May 10, 2019. The study period included data from January 1, 2008 through August 31, 2018. Please see Appendix A for a list of dates of available data for each Data Partner.

Study Design: The request was designed to identify background rates of exposures and diagnoses. The number of qualifying patients with the exposures of interest were calculated overall, by year of exposure and by sex. The distributions of index drug exposures for the LAMA, LABA, and ICS cohort were also examined. Finally, events (i.e., COPD exacerbations and diagnoses) and dispensings (i.e., oral corticosteroids and antibiotics) were assessed 365 days prior to and on the day of the index COPD diagnosis as well as during the 30 day post-index period for Cohort 1 (see above "Request Description").

Exposures of Interest: The exposures of interest were defined using International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) and International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Diagnosis Codes and National Drug Codes (NDC). Please see Appendix B for the list of diagnosis codes used to define exposures, and Appendix C for a list of generic and brand names of medical products used to define exposures. Only the first valid exposure episode (index dispensing) was included in the given cohort for each qualifying patient.

Cohort Eligibility Criteria: Members' first valid exposure that occurred between January 1, 2008 and August 30, 2018 was included. Those included in the cohorts were required to be continuously enrolled in plans with medical and drug coverage for at least 365 days prior to their index date, during which gaps in coverage of up to 45 days were allowed. The following age groups were included in the cohorts of interest: 40-64, 65+ years. For the COPD cohort, incidence was defined as no evidence of COPD in the previous 365 days. For the LAMA, LABA or ICS cohorts, incident exposure was defined as no evidence of a LAMA, LABA or ICS dispensing in the previous 365 days. Eight separate cohort groups were formed: two COPD cohorts, two LAMA, LABA or ICS cohorts, and four sensitivity analyses cohorts for LAMA, LABA or ICS users.

See Appendices D and E for a list of ICD-9-CM, ICD-10-CM, Healthcare Common Procedure Coding System (HCPCS), Current Procedural Terminology, 4th Edition (CPT-4) codes and generic and brand names of medical products used to define the inclusion and exclusion criteria.

Baseline Characteristics: For the two COPD cohorts, the following demographic and clinical characteristics were assessed in the 365 days prior to and including the index date of COPD diagnosis: age, sex, race, year and Charlson/Elixhauser combined comorbidity score, health service and drug utilization. Evidence of smoking (two separate definitions: one we developed and the second from Desai et al*), spirometry and obesity were assessed during any time prior to index date through 365 days post-index. COPD exacerbations and diagnoses were examined in any and inpatient (IP) only care settings in three separate time windows in relation to the index COPD diagnosis (-365 to 0 days; 1 to 365 days and 1-30 days). Medical products of interest were assessed in any care setting in three separate time windows as well in relation to the index COPD diagnosis (-365 to 0 days; 1 to 365 days and 1-30 days). See Appendices F and G for a list of codes used to define the baseline characteristics of interest.

Overview for Request: care_mpl1r_wp001

Please see Appendix H for the specifications defining parameters in this request.

Limitations: Algorithms used to define the exposure, inclusions, exclusions, and baseline characteristics are imperfect; thus, it is possible that there may be misclassification. Therefore, data should be interpreted with this limitation in mind.

Notes: Please contact the Sentinel Operations Center (info@sentinelssystem.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.sentinelssystem.org/projects/SENTINEL/repos/sentinel-routine-querying-tool-documentation/browse>).

*Desai RJ, Solomon DH, Shadick N, Iannaccone C, Kim SC. Identification of smoking using Medicare data--a validation study of claims-based algorithms. *Pharmacoepidemiol Drug Saf.* 2016 Apr;25(4):472-5.

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

Amount Supplied - number of units (pills, tablets, vials) dispensed. Net amount per NDC per dispensing.

Blackout Period - number of days at the beginning of a treatment episode that events are to be ignored. If an event occurs during the blackout period, the episode is excluded.

Care Setting - type of medical encounter or facility where the exposure, event, or condition code was recorded. Possible care settings include: Inpatient Hospital Stay (IP), Non-Acute Institutional Stay (IS), Emergency Department (ED), Ambulatory Visit (AV), and Other Ambulatory Visit (OA). For laboratory results, possible care settings include: Emergency Department (E), Home (H), Inpatient (I), Outpatient (O), or Unknown or Missing (U). The Care Setting, along with the Principal Diagnosis Indicator (PDX), forms the Care Setting/PDX parameter.

Ambulatory Visit (AV) - includes visits at outpatient clinics, same-day surgeries, urgent care visits, and other same-day ambulatory hospital encounters, but excludes emergency department encounters.

Emergency Department (ED) - includes ED encounters that become inpatient stays (in which case inpatient stays would be a separate encounter). Excludes urgent care visits.

Inpatient Hospital Stay (IP) - includes all inpatient stays, same-day hospital discharges, hospital transfers, and acute hospital care where the discharge is after the admission date.

Non-Acute Institutional Stay (IS) - includes hospice, skilled nursing facility (SNF), rehab center, nursing home, residential, overnight non-hospital dialysis and other non-hospital stays.

Other Ambulatory Visit (OA) - includes other non overnight AV encounters such as hospice visits, home health visits, skilled nursing facility visits, other non-hospital visits, as well as telemedicine, telephone and email consultations.

Charlson/Elixhauser Combined Comorbidity Score - calculated based on comorbidities observed during a requester-defined window around the exposure episode start date (e.g., in the 183 days prior to index).

Code Days - the minimum number of times the diagnosis must be found during the evaluation period in order to fulfill the algorithm to identify the corresponding patient characteristic.

Cohort Definition (drug/exposure) - indicates how the cohort will be defined: 01: Cohort includes only the first valid treatment episode during the query period; 02: Cohort includes all valid treatment episodes during the query period; 03: Cohort includes all valid treatment episodes during the query period until an event occurs.

Computed Start Marketing Date - represents the first observed dispensing date among all valid users within a GROUP (scenario) within each Data Partner site.

Days Supplied - number of days supplied for all dispensings in qualifying treatment episodes.

Eligible Members - number of members eligible for an incident treatment episode (defined by the drug/exposure and event washout periods) with drug and medical coverage during the query period.

Enrollment Gap - number of days allowed between two consecutive enrollment periods without breaking a "continuously enrolled" sequence.

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

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

Event Deduplication - specifies how events are counted by the Modular Program (MP) algorithm: 0: Counts all occurrences of a health outcome of interest (HOI) during an exposure episode; 1: de-duplicates occurrences of the same HOI code and code type on the same day; 2: de-duplicates occurrences of the same HOI group on the same day (e.g., de-duplicates at the group level).

Exposure Episode Length - number of days after exposure initiation that is considered "exposed time."

Exposure Extension Period - number of days post treatment period in which the outcomes/events are counted for a treatment episode. Extensions are added after any episode gaps have been bridged.

Lookback Period - number of days wherein a member is required to have evidence of pre-existing condition (diagnosis/procedure/drug dispensing).

Maximum Episode Duration - truncates exposure episodes after a requester-specified number of exposed days. Applied after any gaps are bridged and extension days added to the length of the exposure episode.

Member-Years - sum of all days of enrollment with medical and drug coverage in the query period preceded by an exposure washout period all divided by 365.25.

Minimum Days Supplied - specifies a minimum number of days in length of the days supplied for the episode to be considered.

Minimum Episode Duration - specifies a minimum number of days in length of the episode for it to be considered. Applied after any gaps are bridged and extension days added to the length of the exposure episode.

Monitoring Period - used to define time periods of interest for both sequential analysis and simple cohort characterization requests.

Principal Diagnosis (PDX) - diagnosis or condition established to be chiefly responsible for admission of the patient to the hospital. 'P' = principal diagnosis, 'S' = secondary diagnosis, 'X' = unspecified diagnosis, '.' = blank. Along with the Care Setting values, forms the Caresetting/PDX parameter.

Query Period - period in which the modular program looks for exposures and outcomes of interest.

Switch Evaluation Step Value - value used to differentiate evaluation step. Each switch pattern can support up to 2 evaluation steps (0 = switch pattern evaluation start; 1 = first evaluation; 2 = second evaluation).

Switch Gap Inclusion Indicator - indicator for whether gaps in treatment episodes that are included in a switch episode will be counted as part of the switch episode duration.

Switch Pattern Cohort Inclusion Date - indicates which date to use for inclusion into the switch pattern cohort of interest as well as optionally as the index date of the treatment episode initiating the switch pattern. Valid options are the product approval date, product marketing date, other requester defined date, or computed start marketing date.

Switch Pattern Cohort Inclusion Strategy - indicates how the switch pattern cohort inclusion date will be used: 01: used only as a switch cohort entry date. First treatment episode dispensing date is used as index for computing time to first switch; 02: used as switch cohort entry date and as initial switch step index date for computing time to first switch.

Treatment Episode Truncation Indicator - indicates whether the exposure episode will be truncated at the occurrence of a requester-specified code.

Washout Period (drug/exposure) - number of days a user is required to have no evidence of prior exposure (drug dispensing/procedure) and continuous drug and medical coverage prior to an incident treatment episode.

Washout Period (event/outcome) - number of days a user is required to have no evidence of a prior event (procedure/diagnosis) and continuous drug and medical coverage prior to an incident treatment episode.

Years at Risk - number of days supplied plus any episode gaps and exposure extension periods all divided by 365.25.

*all terms may not be used in this report

Table 1a. Baseline Characteristics for Chronic Obstructive Pulmonary Disease (COPD) Patients with Long-Acting Muscarinic Antagonists (LAMA), Long-Acting Beta Agonists (LABA) or Inhaled Corticosteroids (ICS), No Evidence of Exclusion Conditions, and at least 365 Days of Continuous Enrollment in the Sentinel Distributed Database (SDD) between January 1, 2008 and August 31, 2018

Characteristic	Number	
Number of episodes	3,831,638	
Number of unique patients	3,831,638	
Demographics	Mean	Standard Deviation
Mean Age (Years)	70.5	10.9
	Number	Percent
Age (Years)		
40-64	1,051,570	27.4%
65+	2,780,068	72.6%
Sex		
Female	2,147,528	56.0%
Male	1,684,095	44.0%
Other	15	0.0%
Race		
Unknown	487,850	12.7%
American Indian or Alaska Native	19,768	0.5%
Asian	51,041	1.3%
Black or African American	288,969	7.5%
Native Hawaiian or Other Pacific Islander	3,750	0.1%
White	2,980,260	77.8%
Year		
2008	111,736	2.9%
2009	101,612	2.7%
2010	79,582	2.1%
2011	905,636	23.6%
2012	444,006	11.6%
2013	407,687	10.6%
2014	466,381	12.2%
2015	412,971	10.8%
2016	390,991	10.2%
2017	378,210	9.9%
2018	132,826	3.5%
Recorded history of:	Mean	Standard Deviation
Prior combined comorbidity raw score	3.4	3.1
	Number	Percent
Smoking	2,591,537	67.6%
Smoking (Desai definition)	2,340,065	61.1%
Spirometry	2,117,033	55.3%
Obesity	1,233,332	32.2%
COPD Exacerbation Code J440 (in -365 to 0 days period)	257,490	6.7%
COPD Exacerbation Code J441 (in -365 to 0 days period)	1,138,532	29.7%
COPD Exacerbation Code J440, J441 (in -365 to 0 days period)	1,218,306	31.8%
COPD Exacerbation Code J440 (in 1 to 365 days period)	248,862	6.5%
COPD Exacerbation Code J441 (in 1 to 365 days period)	1,056,795	27.6%
COPD Exacerbation Code J440 J441 (in 1 to 365 days period)	1,124,304	29.3%

Table 1a. Baseline Characteristics for Chronic Obstructive Pulmonary Disease (COPD) Patients with Long-Acting Muscarinic Antagonists (LAMA), Long-Acting Beta Agonists (LABA) or Inhaled Corticosteroids (ICS), No Evidence of Exclusion Conditions, and at least 365 Days of Continuous Enrollment in the Sentinel Distributed Database (SDD) between January 1, 2008 and August 31, 2018

Recorded history of:	Number	Percent
COPD Exacerbation Code J440 (in 1 to 30 days period)	47,246	1.2%
COPD Exacerbation Code J441 (in 1 to 30 days period)	305,677	8.0%
COPD Exacerbation Code J440 J441 (in 1 to 30 days period)	327,293	8.5%
IP COPD Exacerbation Code J440 (in -365 to 0 days period)	147,325	3.8%
IP COPD Exacerbation Code J441 (in -365 to 0 days period)	547,466	14.3%
IP COPD Exacerbation Code J440 J441 (in -365 to 0 days period)	581,410	15.2%
IP COPD Exacerbation Code J440 (in 1 to 365 days period)	149,034	3.9%
IP COPD Exacerbation Code J441 (in 1 to 365 days period)	552,068	14.4%
IP COPD Exacerbation Code J440, J441 (in 1 to 365 days period)	582,414	15.2%
IP COPD Exacerbation Code J440 (in 1 to 30 days period)	28,066	0.7%
IP COPD Exacerbation Code J441 (in 1 to 30 days period)	152,482	4.0%
IP COPD Exacerbation Code J440, J441 (in 1 to 30 days period)	161,702	4.2%
Oral Corticosteroids (in -365 to 0 days period)	1,599,631	41.7%
Oral Corticosteroids (in 1 to 365 days period)	1,594,884	41.6%
Oral Corticosteroids (in 1 to 30 days period)	746,988	19.5%
Antibiotics (in -365 to 0 days period)	2,517,633	65.7%
Antibiotics (in 1 to 365 days period)	2,372,925	61.9%
Antibiotics (in 1 to 30 days period)	1,010,206	26.4%
Roflumilast	33,734	0.9%
Azithromycin (at least 2 times)	371,940	9.7%
Azithromycin (at least 4 times)	64,433	1.7%
ICS	314,725	8.2%
LABA	81,288	2.1%
LAMA	1,453,893	37.9%
Trelegy Ellipta	777	0.02%
COPD J40 (in -365 to 0 days period)	513,850	13.4%
COPD J41 (in -365 to 0 days period)	103,711	2.7%
COPD J42 (in -365 to 0 days period)	136,161	3.6%
COPD J43 (in -365 to 0 days period)	701,280	18.3%
COPD J44 (in -365 to 0 days period)	3,546,973	92.6%
IP Diagnosis for COPD (in -365 to 0 days period)	1,122,387	29.3%
IP Diagnosis for COPD (in 1 to 365 days period)	1,166,486	30.4%
IP Diagnosis for COPD (in 1 to 30 days period)	375,142	9.8%
IP Principal Diagnosis for COPD (in -365 to 0 days period)	289,500	7.6%
IP Principal Diagnosis for COPD (in 1 to 365 days period)	254,376	6.6%
IP Principal Diagnosis for COPD (in 1 to 30 days period)	45,684	1.2%
Alpha-1 anti-trypsin	0	0.0%
Asthma	0	0.0%
Bronchiectasis	0	0.0%
Cystic fibrosis	0	0.0%
Sarcoidosis	0	0.0%
Interstitial lung disease (ILD)	0	0.0%
LABA and LAMA	135,696	3.5%

Table 1a. Baseline Characteristics for Chronic Obstructive Pulmonary Disease (COPD) Patients with Long-Acting Muscarinic Antagonists (LAMA), Long-Acting Beta Agonists (LABA) or Inhaled Corticosteroids (ICS), No Evidence of Exclusion Conditions, and at least 365 Days of Continuous Enrollment in the Sentinel Distributed Database (SDD) between January 1, 2008 and August 31, 2018

Recorded history of:	Number	Percent
ICS and LABA	2,072,450	54.1%
ICS and LABA and LAMA	760,897	19.9%
Health Service and Drug Utilization:	Mean	Standard Deviation
Mean number of ambulatory encounters (AV)	21.3	16.9
Mean number of emergency room encounters (ED)	0.8	1.7
Mean number of inpatient hospital encounters (IP)	0.6	1.2
Mean number of non-acute institutional encounters (IS)	0.2	0.9
Mean number of other ambulatory encounters (OA)	8.9	15.6
Mean number of unique drug classes	12.9	5.9
Mean number of generics	14.3	7.1
Mean number of filled prescriptions	61.3	45.9

Table 1b. Baseline Characteristics for Chronic Obstructive Pulmonary Disease (COPD) Patients with Long-Acting Muscarinic Antagonists (LAMA), Long-Acting Beta Agonists (LABA) or Inhaled Corticosteroids (ICS), and at least 365 Days of Continuous Enrollment in the Sentinel Distributed Database (SDD) between January 1, 2008 and August 31, 2018, Without Exclusion Conditions

Characteristic	Number	
Number of episodes	5,204,140	
Number of unique patients	5,204,140	
Demographics	Mean	Standard Deviation
Mean Age (Years)	69.7	11.3
	Number	Percent
Age (Years)		
40-64	1,536,319	29.5%
65+	3,667,821	70.5%
Sex		
Female	3,069,499	59.0%
Male	2,134,625	41.0%
Other	16	0.0%
Race		
Unknown	741,456	14.2%
American Indian or Alaska Native	27,542	0.5%
Asian	80,379	1.5%
Black or African American	449,570	8.6%
Native Hawaiian or Other Pacific Islander	6,142	0.1%
White	3,899,051	74.9%
Year		
2008	174,843	3.4%
2009	149,471	2.9%
2010	112,605	2.2%
2011	1,325,150	25.5%
2012	561,859	10.8%
2013	525,894	10.1%
2014	612,462	11.8%
2015	538,504	10.3%
2016	520,293	10.0%
2017	507,492	9.8%
2018	175,567	3.4%
Recorded history of:	Mean	Standard Deviation
Prior combined comorbidity raw score	3.4	3
	Number	Percent
Alpha-1 anti-trypsin	7,916	0.2%
Asthma	1,703,807	32.7%
Bronchiectasis	160,322	3.1%
Cystic fibrosis	3,090	0.1%
Sarcoidosis	34,693	0.7%
Interstitial lung disease (ILD)	335,989	6.5%

Table 2. Summary of Chronic Obstructive Pulmonary Disease (COPD) and Long-Acting Muscarinic Antagonists (LAMA)/Long-Acting Beta Agonists (LABA)/Inhaled Corticosteroids (ICS) Users in the Sentinel Distributed Database (SDD) between January 1, 2008 and August 31, 2018, Overall

Level	Patients	Episodes	Number of Codes	Number of Exposed Members per 100K Eligible Members	Eligible Members¹	Eligible Member-Days¹	Eligible Member-Years¹
Prevalence							
<i>COPD with LAMA, LABA, or ICS and exclusion diagnoses of interest</i>							
	3,831,638	3,831,638	4,413,113	59,294	6,462,057	1,106,074,023	3,028,266
<i>COPD with LAMA, LABA, or ICS</i>							
	5,204,140	5,204,140	6,010,369	63,670	8,173,655	2,334,098,467	6,390,413
<i>Prevalent users of LAMA, LABA, or ICS</i>							
	3,755,358	3,755,358	4,400,370	22,395	16,768,582	6,514,442,737	17,835,572
Incidence							
<i>Incident users of LAMA, LABA, or ICS</i>							
	1,913,898	1,913,898	2,132,689	12,829	14,919,070	6,400,714,855	17,524,202
Sensitivity Analysis							
<i>Incident users of LAMA, LABA, or ICS with evidence of Spirometry in the Pre-Period</i>							
	961,589	961,589	1,080,894	22,823	4,213,320	1,803,054,947	4,936,495
<i>Prevalent users of LAMA, LABA, or ICS with evidence of Spirometry in the Pre-Period</i>							
	2,161,117	2,161,117	2,626,752	39,648	5,450,774	1,872,129,316	5,125,611
<i>Incident users of LAMA, LABA, or ICS with evidence of Smoking in the Pre-Period</i>							
	1,301,051	1,301,051	1,466,801	17,229	7,551,312	3,276,687,659	8,971,082
<i>Prevalent users of LAMA, LABA, or ICS with evidence of Smoking in the Pre-Period</i>							
	2,647,546	2,647,546	3,165,793	29,646	8,930,388	3,363,124,312	9,207,733

¹Eligible Members, Member-Days, and Member-Years are reflective of the number of patients that met all cohort entry criteria on at least one day during the query period

Table 3. Summary of Chronic Obstructive Pulmonary Disease (COPD) and Long-Acting Muscarinic Antagonists (LAMA)/Long-Acting Beta Agonists (LABA)/Inhaled Corticosteroids (ICS) Users in the Sentinel Distributed Database (SDD) between January 1, 2008 and August 31, 2018, by Year

Year	Patients	Episodes	Number of Codes	Number of Exposed Members per 100K Eligible Members	Eligible Members ¹	Eligible Member-Days ¹	Eligible Member-Years ¹
Prevalence							
<i>COPD with LAMA, LABA, or ICS and exclusion diagnoses of interest</i>							
2008	111,736	111,736	125,074	29,360	380,578	36,744,813	100,602
2009	101,612	101,612	113,262	26,234	387,323	50,516,470	138,307
2010	79,582	79,582	88,967	22,458	354,352	47,940,995	131,255
2011	905,636	905,636	1,058,815	53,705	1,686,311	180,670,162	494,648
2012	444,006	444,006	510,308	37,530	1,183,082	129,172,907	353,656
2013	407,687	407,687	466,211	38,425	1,060,987	123,645,147	338,522
2014	466,381	466,381	531,653	39,861	1,170,027	133,431,856	365,317
2015	412,971	412,971	470,136	37,929	1,088,809	124,800,424	341,685
2016	390,991	390,991	452,484	34,574	1,130,882	121,759,179	333,359
2017	378,210	378,210	440,929	36,000	1,050,577	119,811,987	328,027
2018	132,826	132,826	155,274	23,420	567,149	37,580,083	102,889
<i>COPD with LAMA, LABA, or ICS</i>							
2008	174,843	174,843	196,196	27,695	631,325	81,842,139	224,072
2009	149,471	149,471	166,554	25,926	576,531	111,016,655	303,947
2010	112,605	112,605	125,927	21,758	517,524	105,432,339	288,658
2011	1,325,150	1,325,150	1,559,074	55,580	2,384,241	350,148,704	958,655
2012	561,859	561,859	646,228	35,006	1,605,045	258,036,975	706,467
2013	525,894	525,894	601,783	36,880	1,425,943	250,167,712	684,922
2014	612,462	612,462	699,383	38,384	1,595,623	275,735,036	754,921
2015	538,504	538,504	613,780	35,665	1,509,880	267,354,855	731,978
2016	520,293	520,293	604,191	31,785	1,636,929	270,962,541	741,855
2017	507,492	507,492	592,555	33,170	1,529,960	277,240,237	759,042
2018	175,567	175,567	204,698	17,703	991,734	86,161,274	235,897

Table 3. Summary of Chronic Obstructive Pulmonary Disease (COPD) and Long-Acting Muscarinic Antagonists (LAMA)/Long-Acting Beta Agonists (LABA)/Inhaled Corticosteroids (ICS) Users in the Sentinel Distributed Database (SDD) between January 1, 2008 and August 31, 2018, by Year

Year	Patients	Episodes	Number of Codes	Number of Exposed Members per 100K Eligible Members	Eligible Members ¹	Eligible Member-Days ¹	Eligible Member-Years ¹
<i>Prevalent users of LAMA, LABA, or ICS</i>							
2008	112,995	112,995	135,993	10,444	1,081,909	155,056,775	424,522
2009	103,225	103,225	121,195	9,207	1,121,102	199,472,924	546,127
2010	80,066	80,066	92,140	7,734	1,035,262	192,353,872	526,636
2011	874,983	874,983	1,059,000	18,886	4,632,929	810,006,621	2,217,677
2012	432,121	432,121	504,445	10,041	4,303,365	768,348,289	2,103,623
2013	401,228	401,228	467,251	9,840	4,077,544	777,752,955	2,129,372
2014	454,489	454,489	536,944	10,311	4,407,757	817,382,418	2,237,871
2015	405,698	405,698	470,271	9,135	4,441,060	848,905,210	2,324,176
2016	385,005	385,005	440,493	8,269	4,656,274	845,425,465	2,314,649
2017	374,632	374,632	425,760	8,588	4,362,145	838,009,880	2,294,346
2018	130,916	130,916	146,878	4,375	2,992,191	261,728,328	716,573
Incidence							
<i>Incident users of LAMA, LABA, or ICS</i>							
2008	34,813	34,813	39,269	3,713	937,682	146,017,458	399,774
2009	50,231	50,231	56,150	4,825	1,040,958	192,682,629	527,536
2010	47,727	47,727	53,387	4,838	986,529	188,858,625	517,067
2011	235,023	235,023	264,693	6,173	3,807,481	744,624,178	2,038,670
2012	239,619	239,619	269,786	5,991	3,999,420	750,880,011	2,055,797
2013	240,644	240,644	270,534	6,194	3,885,199	769,964,471	2,108,048
2014	249,936	249,936	280,942	5,988	4,173,753	808,017,944	2,212,233
2015	249,627	249,627	278,171	5,837	4,276,460	847,128,744	2,319,312
2016	242,990	242,990	267,262	5,424	4,480,065	847,239,648	2,319,616
2017	243,265	243,265	266,373	5,727	4,247,784	843,185,650	2,308,517
2018	80,023	80,023	86,122	2,707	2,956,614	262,115,497	717,633

Table 3. Summary of Chronic Obstructive Pulmonary Disease (COPD) and Long-Acting Muscarinic Antagonists (LAMA)/Long-Acting Beta Agonists (LABA)/Inhaled Corticosteroids (ICS) Users in the Sentinel Distributed Database (SDD) between January 1, 2008 and August 31, 2018, by Year

Year	Patients	Episodes	Number of Codes	Number of Exposed Members per 100K Eligible Members	Eligible Members ¹	Eligible Member-Days ¹	Eligible Member-Years ¹
Sensitivity Analysis							
<i>Incident users of LAMA, LABA, or ICS with evidence of Spirometry in the Pre-Period</i>							
2008	15,523	15,523	17,918	8,039	193,102	30,385,943	83,192
2009	22,611	22,611	25,748	9,359	241,598	43,280,055	118,494
2010	23,677	23,677	26,903	8,933	265,057	48,906,134	133,898
2011	91,802	91,802	105,084	11,200	819,670	149,281,335	408,710
2012	107,276	107,276	122,359	10,757	997,288	184,636,985	505,509
2013	116,879	116,879	132,767	10,824	1,079,778	209,213,839	572,796
2014	129,470	129,470	146,858	10,624	1,218,613	235,733,574	645,403
2015	134,795	134,795	151,500	10,254	1,314,553	258,636,901	708,109
2016	136,411	136,411	150,900	9,610	1,419,405	274,212,460	750,753
2017	139,652	139,652	153,856	9,893	1,411,637	281,773,312	771,453
2018	43,493	43,493	47,001	4,456	975,960	86,994,409	238,178
<i>Prevalent users of LAMA, LABA, or ICS with evidence of Spirometry in the Pre-Period</i>							
2008	58,823	58,823	74,107	22,158	265,474	34,916,137	95,595
2009	55,353	55,353	67,916	19,086	290,012	47,009,376	128,705
2010	48,569	48,569	58,380	16,098	301,706	51,355,417	140,604
2011	363,744	363,744	459,161	30,883	1,177,797	175,450,026	480,356
2012	251,397	251,397	307,967	20,778	1,209,924	197,480,395	540,672
2013	247,685	247,685	301,436	19,870	1,246,515	217,650,915	595,896
2014	281,407	281,407	345,620	20,074	1,401,876	243,782,516	667,440
2015	265,572	265,572	320,077	18,129	1,464,863	262,602,628	718,967
2016	256,419	256,419	303,877	16,418	1,561,859	275,370,705	753,924
2017	251,390	251,390	295,376	16,541	1,519,793	279,861,055	766,218
2018	80,758	80,758	92,835	8,024	1,006,397	86,650,146	237,235

Table 3. Summary of Chronic Obstructive Pulmonary Disease (COPD) and Long-Acting Muscarinic Antagonists (LAMA)/Long-Acting Beta Agonists (LABA)/Inhaled Corticosteroids (ICS) Users in the Sentinel Distributed Database (SDD) between January 1, 2008 and August 31, 2018, by Year

Year	Patients	Episodes	Number of Codes	Number of Exposed Members per 100K Eligible Members	Eligible Members ¹	Eligible Member-Days ¹	Eligible Member-Years ¹
<i>Incident users of LAMA, LABA, or ICS with evidence of Smoking in the Pre-Period</i>							
2008	17,872	17,872	20,693	5,609	318,656	55,087,761	150,822
2009	23,888	23,888	27,201	6,548	364,788	69,426,951	190,081
2010	24,750	24,750	28,215	6,641	372,669	73,392,771	200,939
2011	117,057	117,057	134,801	8,514	1,374,926	255,297,775	698,967
2012	142,692	142,692	163,590	8,257	1,728,183	323,474,619	885,625
2013	158,935	158,935	181,232	8,381	1,896,434	372,431,199	1,019,661
2014	176,178	176,178	200,701	8,054	2,187,465	425,383,402	1,164,636
2015	185,628	185,628	209,310	7,716	2,405,809	475,799,567	1,302,668
2016	191,341	191,341	212,345	7,150	2,676,133	516,265,523	1,413,458
2017	198,277	198,277	218,807	7,366	2,691,627	541,941,264	1,483,754
2018	64,433	64,433	69,906	3,396	1,897,076	168,186,827	460,470
<i>Prevalent users of LAMA, LABA, or ICS with evidence of Smoking in the Pre-Period</i>							
2008	56,814	56,814	70,215	14,934	380,436	59,546,488	163,029
2009	47,556	47,556	56,907	11,889	400,014	72,327,850	198,023
2010	43,612	43,612	51,719	10,912	399,677	75,228,263	205,964
2011	424,459	424,459	526,881	23,751	1,787,154	286,707,288	784,962
2012	308,353	308,353	372,695	15,605	1,975,965	339,165,838	928,586
2013	305,545	305,545	366,288	14,646	2,086,131	382,779,285	1,047,993
2014	345,459	345,459	416,670	14,415	2,396,454	435,644,277	1,192,729
2015	336,732	336,732	400,314	13,028	2,584,778	481,828,955	1,319,176
2016	336,289	336,289	393,646	11,758	2,860,006	519,636,119	1,422,686
2017	331,006	331,006	383,221	11,715	2,825,524	541,564,425	1,482,723
2018	111,721	111,721	127,237	5,754	1,941,561	168,695,524	461,863

¹Eligible Members, Member-Days, and Member-Years are reflective of the number of patients that met all cohort entry criteria on at least one day during the query period

Table 4. Summary of Chronic Obstructive Pulmonary Disease (COPD) and Long-Acting Muscarinic Antagonists (LAMA)/Long-Acting Beta Agonists (LABA)/Inhaled Corticosteroids (ICS) Users in the Sentinel Distributed Database (SDD) between January 1, 2008 and August 31, 2018, by Sex

Sex	Patients	Episodes	Number of Codes	Number of Exposed Members per 100K Eligible Members	Eligible Members ¹	Eligible Member-Days ¹	Eligible Member-Years ¹
Prevalence							
<i>COPD with LAMA, LABA, or ICS and exclusion diagnoses of interest</i>							
Female	2,147,528	2,147,528	2,476,724	56,642	3,791,424	666,907,297	1,825,893
Male	1,684,095	1,684,095	1,936,372	63,060	2,670,605	439,160,304	1,202,355
Other	15	15	17	53,571	28	6,422	18
<i>COPD with LAMA, LABA, or ICS</i>							
Female	3,069,499	3,069,499	3,548,215	61,839	4,963,690	1,521,731,431	4,166,274
Male	2,134,625	2,134,625	2,462,136	66,501	3,209,930	812,350,799	2,224,095
Other	16	16	18	45,714	35	16,237	45
<i>Prevalent users of LAMA, LABA, or ICS</i>							
Female	2,110,347	2,110,347	2,465,647	22,397	9,422,589	3,596,624,050	9,847,020
Male	1,644,997	1,644,997	1,934,704	22,393	7,345,910	2,917,786,327	7,988,464
Other	14	14	19	16,867	83	32,360	89
Incidence							
<i>Incident users of LAMA, LABA, or ICS</i>							
Female	1,042,343	1,042,343	1,156,042	12,494	8,342,420	3,528,158,355	9,659,571
Male	*****	*****	*****	13,252	*****	2,872,524,578	7,864,544
Other	*****	*****	*****	10,526	*****	31,922	87
Sensitivity Analysis							
<i>Incident users of LAMA, LABA, or ICS with evidence of Spirometry in the Pre-Period</i>							
Female	509,172	509,172	569,816	22,472	2,265,777	951,179,027	2,604,186
Male	*****	*****	*****	23,230	*****	851,868,008	2,332,288
Other	*****	*****	*****	25,000	*****	7,912	22
<i>Prevalent users of LAMA, LABA, or ICS with evidence of Spirometry in the Pre-Period</i>							
Female	1,188,821	1,188,821	1,442,567	40,006	2,971,642	991,945,106	2,715,798
Male	*****	*****	1,184,172	39,219	*****	880,175,977	2,409,791
Other	*****	*****	13	36,000	*****	8,233	23

Table 4. Summary of Chronic Obstructive Pulmonary Disease (COPD) and Long-Acting Muscarinic Antagonists (LAMA)/Long-Acting Beta Agonists (LABA)/Inhaled Corticosteroids (ICS) Users in the Sentinel Distributed Database (SDD) between January 1, 2008 and August 31, 2018, by Sex

Sex	Patients	Episodes	Number of Codes	Number of Exposed Members per 100K Eligible Members	Eligible Members ¹	Eligible Member-Days ¹	Eligible Member-Years ¹
<i>Incident users of LAMA, LABA, or ICS with evidence of Smoking in the Pre-Period</i>							
Female	680,943	680,943	766,228	18,212	3,738,895	1,628,411,098	4,458,347
Male	*****	*****	*****	16,265	*****	1,648,254,160	4,512,674
Other	*****	*****	*****	18,182	*****	22,401	61
<i>Prevalent users of LAMA, LABA, or ICS with evidence of Smoking in the Pre-Period</i>							
Female	1,432,714	1,432,714	1,714,986	31,783	4,507,740	1,676,649,249	4,590,416
Male	1,214,820	1,214,820	1,450,791	27,468	4,422,599	1,686,452,423	4,617,255
Other	12	12	16	24,490	49	22,640	62

¹Eligible Members, Member-Days, and Member-Years are reflective of the number of patients that met all cohort entry criteria on at least one day during the query period

*****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. Summary of Chronic Obstructive Pulmonary Disease (COPD) and Long-Acting Muscarinic Antagonists (LAMA)/Long-Acting Beta Agonists (LABA)/Inhaled Corticosteroids (ICS) Users in the Sentinel Distributed Database (SDD) between January 1, 2008 and August 31, 2018, by Age Group

Age Group	Patients	Episodes	Number of Codes	Number of Exposed Members per 100K Eligible Members	Eligible Members ¹	Eligible Member-Days ¹	Eligible Member-Years ¹
Prevalence							
<i>COPD with LAMA, LABA, or ICS and exclusion diagnoses of interest</i>							
40-64	1,051,570	1,051,570	1,207,147	44,613.29	2,357,078	471,821,781	1,291,777.6
65+	2,780,068	2,780,068	3,205,966	66,570.33	4,176,137	634,252,242	1,736,488.0
<i>COPD with LAMA, LABA, or ICS</i>							
40-64	1,536,319	1,536,319	1,767,762	48,939.09	3,139,247	1,080,450,684	2,958,112.8
65+	3,667,821	3,667,821	4,242,607	71,282.61	5,145,464	1,253,647,783	3,432,300.6
<i>Prevalent users of LAMA, LABA, or ICS</i>							
40-64	1,052,786	1,052,786	1,233,683	19,906.72	5,288,595	1,781,970,311	4,878,768.8
65+	2,702,572	2,702,572	3,166,687	22,850.91	11,826,980	4,732,472,426	12,956,803.4
Incidence							
<i>Incident users of LAMA, LABA, or ICS</i>							
40-64	541,500	541,500	601,435	11,437.55	4,734,405	1,738,428,473	4,759,557.8
65+	1,372,398	1,372,398	1,531,254	13,047.68	10,518,331	4,662,286,382	12,764,644.4
Sensitivity Analysis							
<i>Incident users of LAMA, LABA, or ICS with evidence of Spirometry in the Pre-Period</i>							
40-64	252,656	252,656	284,917	20,924.20	1,207,482	440,434,821	1,205,844.8
65+	708,933	708,933	795,977	22,859.89	3,101,209	1,362,620,126	3,730,650.6
<i>Prevalent users of LAMA, LABA, or ICS with evidence of Spirometry in the Pre-Period</i>							
40-64	577,589	577,589	707,693	36,913.58	1,564,706	464,720,385	1,272,335.1
65+	1,583,528	1,583,528	1,919,059	39,700.45	3,988,690	1,407,408,931	3,853,275.6
<i>Incident users of LAMA, LABA, or ICS with evidence of Smoking in the Pre-Period</i>							
40-64	411,645	411,645	462,060	16,356.70	2,516,675	997,009,611	2,729,663.5
65+	889,406	889,406	1,004,741	17,009.24	5,228,959	2,279,678,048	6,241,418.3
<i>Prevalent users of LAMA, LABA, or ICS with evidence of Smoking in the Pre-Period</i>							
40-64	813,926	813,926	968,717	27,746.03	2,933,486	1,027,719,930	2,813,743.8
65+	1,833,620	1,833,620	2,197,076	29,574.95	6,199,910	2,335,404,382	6,393,988.7

¹Eligible Members, Member-Days, and Member-Years are reflective of the number of patients that met all cohort entry criteria on at least one day during the query period

Table 6a. Full Code Distribution of Incident Users of Long-Acting Muscarinic Antagonists (LAMA), Long-Acting Beta Agonists (LABA) or Inhaled Corticosteroids (ICS) in the Sentinel Distributed Database (SDD) between January 1, 2008 and August 31, 2018

Code Description	Code Category	Overall Counts
fluticasone propionate/salmeterol xinafoate	RX	488,562
tiotropium bromide	RX	479,818
budesonide/formoterol fumarate	RX	342,522
fluticasone propionate	RX	122,271
fluticasone furoate/vilanterol trifenate	RX	84,405
umeclidinium bromide/vilanterol trifenate	RX	64,864
tiotropium bromide	RX	64,554
fluticasone propionate/salmeterol xinafoate	RX	54,285
mometasone furoate/formoterol fumarate	RX	51,346
budesonide	RX	33,486
tiotropium bromide	RX	21,845
budesonide/formoterol fumarate	RX	19,870
mometasone furoate	RX	17,687
umeclidinium bromide	RX	14,757
tiotropium bromide/olodaterol HCl	RX	9,156
aclidinium bromide	RX	5,648
salmeterol xinafoate	RX	5,212
formoterol fumarate	RX	3,499
tiotropium bromide	RX	3,401
mometasone furoate/formoterol fumarate	RX	3,397
tiotropium bromide	RX	3,217
fluticasone propionate	RX	2,954
glycopyrrolate/formoterol fumarate	RX	2,820
tiotropium bromide	RX	2,217
fluticasone furoate/vilanterol trifenate	RX	1,372
arformoterol tartrate	RX	1,014
umeclidinium bromide	RX	994
fluticasone furoate/vilanterol trifenate	RX	917
fluticasone furoate	RX	902
budesonide	RX	880
arformoterol tartrate	RX	766
tiotropium bromide	RX	736
mometasone furoate	RX	643
tiotropium bromide	RX	
budesonide	RX	
tiotropium bromide	RX	
salmeterol xinafoate	RX	
tiotropium bromide	RX	
formoterol fumarate	RX	
budesonide/formoterol fumarate	RX	
aclidinium bromide	RX	
formoterol fumarate	RX	
budesonide	RX	
ciclesonide	RX	
fluticasone propionate/salmeterol xinafoate	RX	
aclidinium bromide	RX	

Table 6a. Full Code Distribution of Incident Users of Long-Acting Muscarinic Antagonists (LAMA), Long-Acting Beta Agonists (LABA) or Inhaled Corticosteroids (ICS) in the Sentinel Distributed Database (SDD) between January 1, 2008 and August 31, 2018

Code Description	Code Category	Overall Counts
umeclidinium bromide	RX	606
budesonide/formoterol fumarate	RX	
indacaterol maleate	RX	432
fluticasone propionate/salmeterol xinafoate	RX	429
budesonide/formoterol fumarate	RX	
umeclidinium bromide	RX	390
fluticasone propionate/salmeterol xinafoate	RX	
olodaterolHCl	RX	378
salmeterol xinafoate	RX	328
fluticasone propionate	RX	
mometasone furoate	RX	236
formoterol fumarate	RX	
mometasone furoate/formoterol fumarate	RX	221
acridinium bromide	RX	
fluticasone propionate/salmeterol xinafoate	RX	215
fluticasone propionate	RX	
umeclidinium bromide/vilanterol trifenate	RX	205
fluticasone furoate	RX	
umeclidinium bromide/vilanterol trifenate	RX	186
fluticasone furoate/vilanterol trifenate	RX	
indacaterol maleate glycopyrrolate	RX	185
fluticasone propionate/salmeterol xinafoate	RX	177
budesonide	RX	
fluticasone furoate/vilanterol trifenate	RX	159
acridinium bromide	RX	
umeclidinium bromide/vilanterol trifenate	RX	147
fluticasone propionate	RX	
fluticasone propionate	RX	100
budesonide/formoterol fumarate	RX	
formoterol fumarate	RX	81
fluticasone propionate	RX	
tiotropium bromide	RX	
fluticasone propionate/salmeterol xinafoate	RX	81
budesonide/formoterol fumarate	RX	
tiotropium bromide	RX	80
arformoterol tartrate	RX	
salmeterol xinafoate	RX	78
mometasone furoate	RX	
fluticasone furoate/vilanterol trifenate	RX	78
budesonide/formoterol fumarate	RX	
budesonide/formoterol fumarate	RX	76
budesonide	RX	
fluticasone propionate/salmeterol xinafoate	RX	72
fluticasone furoate/vilanterol trifenate	RX	
umeclidinium bromide/vilanterol trifenate	RX	71
budesonide/formoterol fumarate	RX	

Table 6a. Full Code Distribution of Incident Users of Long-Acting Muscarinic Antagonists (LAMA), Long-Acting Beta Agonists (LABA) or Inhaled Corticosteroids (ICS) in the Sentinel Distributed Database (SDD) between January 1, 2008 and August 31, 2018

Code Description	Code Category	Overall Counts
tiotropium bromide	RX	
budesonide	RX	63
arformoterol tartrate	RX	
umeclidinium bromide	RX	
fluticasone propionate	RX	61
tiotropium bromide	RX	
mometasone furoate	RX	59
formoterol fumarate	RX	
salmeterol xinafoate	RX	
budesonide	RX	59
umeclidinium bromide/vilanterol trifenate	RX	
tiotropium bromide	RX	56
tiotropium bromide/olodaterol HCl	RX	
fluticasone propionate	RX	56
umeclidinium bromide/vilanterol trifenate	RX	
fluticasone propionate/salmeterol xinafoate	RX	56
tiotropium bromide	RX	
indacaterol maleate	RX	55
tiotropium bromide	RX	
aclidinium bromide	RX	53
umeclidinium bromide/vilanterol trifenate	RX	
budesonide	RX	53
mometasone furoate/formoterol fumarate	RX	
budesonide/formoterol fumarate	RX	52
mometasone furoate/formoterol fumarate	RX	
fluticasone propionate/salmeterol xinafoate	RX	51
tiotropium bromide/olodaterol HCl	RX	
budesonide/formoterol fumarate	RX	48
tiotropium bromide	RX	
formoterol fumarate	RX	47
budesonide	RX	
fluticasone propionate	RX	
aclidinium bromide	RX	46
fluticasone propionate	RX	
budesonide	RX	46
umeclidinium bromide	RX	
fluticasone furoate	RX	42
tiotropium bromide	RX	
fluticasone propionate/salmeterol xinafoate	RX	39
budesonide	RX	
tiotropium bromide/olodaterol HCl	RX	
fluticasone furoate	RX	39
tiotropium bromide	RX	
olodaterol HCl	RX	35
tiotropium bromide/olodaterol HCl	RX	
mometasone furoate	RX	34

Table 6a. Full Code Distribution of Incident Users of Long-Acting Muscarinic Antagonists (LAMA), Long-Acting Beta Agonists (LABA) or Inhaled Corticosteroids (ICS) in the Sentinel Distributed Database (SDD) between January 1, 2008 and August 31, 2018

Code Description	Code Category	Overall Counts
salmeterol xinafoate	RX	34
fluticasone propionate/salmeterol xinafoate	RX	
umeclidinium bromide/vilanterol trifenate	RX	32
mometasone furoate	RX	
mometasone furoate	RX	31
fluticasone propionate/salmeterol xinafoate	RX	
umeclidinium bromide	RX	31
budesonide	RX	
tiotropium bromide	RX	
salmeterol xinafoate	RX	30
fluticasone propionate	RX	
umeclidinium bromide	RX	29
tiotropium bromide	RX	
tiotropium bromide	RX	28
ciclesonide	RX	
tiotropium bromide	RX	
fluticasone propionate/salmeterol xinafoate	RX	28
fluticasone propionate	RX	
tiotropium bromide/olodaterol HCl	RX	26
fluticasone furoate/vilanterol trifenate	RX	
tiotropium bromide	RX	25
fluticasone furoate	RX	
mometasone furoate	RX	23
budesonide/formoterol fumarate	RX	
tiotropium bromide	RX	
formoterol fumarate	RX	22
fluticasone propionate	RX	
umeclidinium bromide	RX	20
salmeterol xinafoate	RX	
formoterol fumarate	RX	19
fluticasone propionate/salmeterol xinafoate	RX	
glycopyrrolate	RX	17
umeclidinium bromide/vilanterol trifenate	RX	17
umeclidinium bromide	RX	
mometasone furoate/formoterol fumarate	RX	
fluticasone propionate/salmeterol xinafoate	RX	16
budesonide/formoterol fumarate	RX	
mometasone furoate/formoterol fumarate	RX	15
fluticasone propionate	RX	
tiotropium bromide	RX	
budesonide/formoterol fumarate	RX	15
budesonide	RX	
umeclidinium bromide/vilanterol trifenate	RX	15
tiotropium bromide/olodaterol HCl	RX	
tiotropium bromide/olodaterol HCl	RX	15
fluticasone propionate/salmeterol xinafoate	RX	

Table 6a. Full Code Distribution of Incident Users of Long-Acting Muscarinic Antagonists (LAMA), Long-Acting Beta Agonists (LABA) or Inhaled Corticosteroids (ICS) in the Sentinel Distributed Database (SDD) between January 1, 2008 and August 31, 2018

Code Description	Code Category	Overall Counts
glycopyrrolate/formoterol fumarate	RX	14
budesonide/formoterol fumarate	RX	
tiotropium bromide	RX	
salmeterol xinafoate	RX	13
mometasone furoate	RX	
salmeterol xinafoate	RX	
acclidinium bromide	RX	13
salmeterol xinafoate	RX	
budesonide formoterol fumarate	RX	13
fluticasone furoate/vilanterol trifenate	RX	
budesonide	RX	13
mometasone furoate	RX	
fluticasone propionate	RX	12
umeclidinium bromide	RX	
mometasone furoate/formoterol fumarate	RX	12
budesonide	RX	
acclidinium bromide	RX	12
tiotropium bromide	RX	
fluticasone propionate	RX	11
budesonide/formoterol fumarate	RX	
formoterol fumarate	RX	*****
budesonide/formoterol fumarate	RX	
formoterol fumarate	RX	*****
acclidinium bromide	RX	
tiotropium bromide/olodaterol HCl	RX	*****
budesonide	RX	
fluticasone propionate/salmeterol xinafoate	RX	*****
arformoterol tartrate	RX	
tiotropium bromide	RX	
mometasone furoate	RX	*****
fluticasone propionate/salmeterol xinafoate	RX	
tiotropium bromide/olodaterol HCl	RX	*****
tiotropium bromide	RX	
glycopyrrolate/formoterol fumarate	RX	*****
budesonide	RX	
tiotropium bromide	RX	
mometasone furoate/formoterol fumarate	RX	*****
fluticasone propionate/salmeterol xinafoate	RX	
tiotropium bromide/olodaterol HCl	RX	*****
mometasone furoate/formoterol fumarate	RX	
mometasone furoate	RX	*****
acclidinium bromide	RX	
fluticasone propionate	RX	*****
arformoterol tartrate	RX	
fluticasone furoate/vilanterol trifenate	RX	*****
fluticasone furoate	RX	

Table 6a. Full Code Distribution of Incident Users of Long-Acting Muscarinic Antagonists (LAMA), Long-Acting Beta Agonists (LABA) or Inhaled Corticosteroids (ICS) in the Sentinel Distributed Database (SDD) between January 1, 2008 and August 31, 2018

Code Description	Code Category	Overall Counts
indacaterol maleate	RX	*****
aclidinium bromide	RX	*****
fluticasone propionate/salmeterol xinafoate	RX	*****
budesonide	RX	*****
arformoterol tartrate	RX	*****
fluticasone propionate	RX	*****
fluticasone furoate/vilanterol trifenate	RX	*****
glycopyrrolate/formoterol fumarate	RX	*****
fluticasone furoate	RX	*****
mometasone furoate	RX	*****
budesonide	RX	*****
salmeterol xinafoate	RX	*****
mometasone furoate/formoterol fumarate	RX	*****
tiotropium bromide	RX	*****
mometasone furoate/formoterol fumarate	RX	*****
budesonide/formoterol fumarate	RX	*****
tiotropium bromide	RX	*****
fluticasone furoate/vilanterol trifenate	RX	*****
budesonide/formoterol fumarate	RX	*****
formoterol fumarate	RX	*****
arformoterol tartrate	RX	*****
tiotropium bromide	RX	*****
formoterol fumarate	RX	*****
fluticasone propionate/salmeterol xinafoate	RX	*****
umeclidiniumbromide	RX	*****
mometasone furoate	RX	*****
formoterol fumarate	RX	*****
budesonide	RX	*****
aclidinium bromide	RX	*****
umeclidinium bromide/vilanterol trifenate	RX	*****
aclidinium bromide	RX	*****
tiotropium bromide	RX	*****
salmeterol xinafoate	RX	*****
fluticasone propionate/salmeterol xinafoate	RX	*****
tiotropium bromide	RX	*****
fluticasone propionate/salmeterol xinafoate	RX	*****
fluticasone furoate/vilanterol trifenate	RX	*****
salmeterol xinafoate	RX	*****
formoterol fumarate	RX	*****
tiotropium bromide	RX	*****
formoterol fumarate	RX	*****
budesonide/formoterol fumarate	RX	*****
formoterol fumarate	RX	*****
ciclesonide	RX	*****
tiotropium bromide	RX	*****
glycopyrrolate/formoterol fumarate	RX	*****
glycopyrrolate/nebulizer and accessories	RX	*****

Table 6a. Full Code Distribution of Incident Users of Long-Acting Muscarinic Antagonists (LAMA), Long-Acting Beta Agonists (LABA) or Inhaled Corticosteroids (ICS) in the Sentinel Distributed Database (SDD) between January 1, 2008 and August 31, 2018

Code Description	Code Category	Overall Counts
tiotropium bromide	RX	
mometasone furoate/formoterol fumarate	RX	*****
budesonide	RX	
mometasone furoate/formoterol fumarate	RX	*****
budesonide	RX	
mometasone furoate/formoterol fumarate	RX	*****
fluticasone furoate/vilanterol trifenate	RX	
tiotropium bromide	RX	
budesonide/formoterol fumarate	RX	*****
aclidinium bromide	RX	
tiotropium bromide	RX	
fluticasone propionate/salmeterol xinafoate	RX	*****
aclidinium bromide	RX	
tiotropium bromide	RX	
salmeterol xinafoate	RX	*****
fluticasone propionate/salmeterol xinafoate	RX	
fluticasone propionate	RX	
salmeterol xinafoate	RX	
fluticasone propionate/salmeterol xinafoate	RX	*****
fluticasone propionate	RX	
tiotropium bromide	RX	
fluticasone propionate	RX	*****
budesonide	RX	
tiotropium bromide	RX	
fluticasone propionate/salmeterol xinafoate	RX	*****
arformoterol tartrate	RX	
ciclesonide	RX	*****
budesonide/formoterol fumarate	RX	
formoterol fumarate	RX	
budesonide/formoterol fumarate	RX	*****
budesonide	RX	
mometasone furoate	RX	*****
glycopyrrolate/formoterol fumarate	RX	
umeclidinium bromide/vilanterol trifenate	RX	*****
glycopyrrolate/formoterol fumarate	RX	
glycopyrrolate/formoterol fumarate	RX	*****
fluticasone furoate/vilanterol trifenate	RX	
tiotropium bromide	RX	
mometasone furoate	RX	*****
arformoterol tartrate	RX	
mometasone furoate/formoterol fumarate	RX	
fluticasone propionate/salmeterol xinafoate	RX	*****
fluticasone propionate	RX	
budesonide/formoterol fumarate	RX	
arformoterol tartrate	RX	*****
aclidinium bromide	RX	

Table 6a. Full Code Distribution of Incident Users of Long-Acting Muscarinic Antagonists (LAMA), Long-Acting Beta Agonists (LABA) or Inhaled Corticosteroids (ICS) in the Sentinel Distributed Database (SDD) between January 1, 2008 and August 31, 2018

Code Description	Code Category	Overall Counts
salmeterol xinafoate	RX	
fluticasone propionate	RX	*****
aclidinium bromide	RX	
tiotropium bromide	RX	
salmeterol xinafoate	RX	*****
budesonide	RX	
tiotropium bromide	RX	
salmeterol xinafoate	RX	*****
budesonide/formoterol fumarate	RX	
umeclidinium bromide	RX	
tiotropium bromide	RX	*****
fluticasone furoate/vilanterol trifrenatate	RX	
umeclidinium bromide/vilanterol trifrenatate	RX	
tiotropium bromide	RX	*****
budesonide/formoterol fumarate	RX	
budesonide/formoterol fumarate	RX	
budesonide	RX	*****
arformoterol tartrate	RX	
fluticasone propionate	RX	*****
fluticasone furoate	RX	
mometasone furoate	RX	
formoterol fumarate	RX	*****
fluticasone propionate/salmeterol xinafoate	RX	
mometasone furoate/formoterol fumarate	RX	*****
formoterol fumarate	RX	
glycopyrrolate	RX	*****
budesonide/formoterol fumarate	RX	
glycopyrrolate/formoterol fumarate	RX	*****
fluticasone propionate	RX	
glycopyrrolate/nebulizer accessories	RX	*****
tiotropium bromide	RX	
indacaterol maleate	RX	*****
budesonide/formoterol fumarate	RX	
indacaterol maleate	RX	*****
budesonide	RX	
mometasone furoate/formoterol fumarate	RX	*****
mometasone furoate	RX	
mometasone furoate	RX	*****
arformoterol tartrate	RX	
tiotropium bromide	RX	
mometasone furoate	RX	*****
budesonide/formoterol fumarate	RX	
mometasone furoate		
fluticasone furoate	RX	*****
vilanterol trifrenatate	RX	

Table 6a. Full Code Distribution of Incident Users of Long-Acting Muscarinic Antagonists (LAMA), Long-Acting Beta Agonists (LABA) or Inhaled Corticosteroids (ICS) in the Sentinel Distributed Database (SDD) between January 1, 2008 and August 31, 2018

Code Description	Code Category	Overall Counts
mometasone furoate	RX	
fluticasone propionate salmeterol xinafoate	RX	*****
fluticasone propionate	RX	
umeclidinium bromide/vilanterol trifenate	RX	*****
mometasone furoate/formoterol fumarate	RX	
tiotropium bromide/olodaterol HCl	RX	*****
olodaterol HCl	RX	
salmeterol xinafoate	RX	
fluticasone propionate/salmeterol xinafoate	RX	*****
fluticasone propionate	RX	
budesonide/formoterol fumarate	RX	
tiotropium bromide	RX	
fluticasone propionate/salmeterol xinafoate	RX	*****
fluticasone propionate	RX	
budesonide/formoterol fumarate	RX	
umeclidinium bromide	RX	*****
tiotropium bromide/olodaterol HCl	RX	
umeclidinium bromide/vilanterol trifenate	RX	
umeclidinium bromide	RX	*****
fluticasone furoate/vilanterol trifenate	RX	
umeclidinium bromide	RX	
fluticasone propionate/salmeterol xinafoate	RX	*****
fluticasone furoate/vilanterol trifenate	RX	
umeclidinium bromide/vilanterol trifenate	RX	*****
ciclesonide	RX	
tiotropium bromide	RX	
budesonide/formoterol fumarate	RX	*****
budesonide	RX	
arformoterol tartrate	RX	
tiotropium bromide	RX	
fluticasone propionate/salmeterol xinafoate	RX	*****
budesonide	RX	
arformoterol tartrate	RX	
umeclidinium bromide	RX	*****
arformoterol tartrate	RX	
budesonide/formoterol fumarate	RX	*****
arformoterol tartrate	RX	
fluticasone furoate/vilanterol trifenate	RX	*****
arformoterol tartrate	RX	
fluticasone furoate	RX	*****
budesonide/formoterol fumarate	RX	
fluticasone propionate/salmeterol xinafoate	RX	
fluticasone furoate/vilanterol trifenate	RX	*****
budesonide/formoterol fumarate	RX	

Table 6a. Full Code Distribution of Incident Users of Long-Acting Muscarinic Antagonists (LAMA), Long-Acting Beta Agonists (LABA) or Inhaled Corticosteroids (ICS) in the Sentinel Distributed Database (SDD) between January 1, 2008 and August 31, 2018

Code Description	Code Category	Overall Counts
tiotropium bromide	RX	
salmeterol xinafoate	RX	
mometasone furoate	RX	*****
formoterol fumarate	RX	
fluticasone propionate	RX	
mometasone furoate	RX	
formoterol fumarate	RX	
fluticasone propionate/salmeterol xinafoate	RX	*****
fluticasone propionate	RX	
budesonide	RX	
salmeterol xinafoate	RX	
mometasone furoate formoterol fumarate	RX	*****
formoterol fumarate	RX	
tiotropium bromide	RX	
salmeterol xinafoate	RX	*****
formoterol fumarate	RX	
tiotropium bromide	RX	
salmeterol xinafoate	RX	
formoterol fumarate	RX	*****
fluticasone propionate/salmeterol xinafoate	RX	
fluticasone propionate	RX	
salmeterol xinafoate	RX	
formoterol fumarate	RX	*****
fluticasone propionate	RX	
tiotropium bromide	RX	
formoterol fumarate	RX	*****
fluticasone propionate/salmeterol xinafoate	RX	
budesonide	RX	
tiotropium bromide/olodaterol HCl	RX	*****
formoterol fumarate	RX	
umeclidinium bromide	RX	
formoterol fumarate	RX	*****
fluticasone furoate/vilanterol trifenate	RX	
umeclidinium bromide/vilanterol trifenate	RX	*****
formoterol fumarate	RX	
tiotropium bromide	RX	
salmeterol xinafoate	RX	*****
formoterol fumarate	RX	
arformoterol tartrate	RX	
formoterol fumarate	RX	
budesonide	RX	*****
arformoterol tartrate	RX	
formoterol fumarate	RX	
fluticasone propionate/salmeterol xinafoate	RX	*****
budesonide	RX	

Table 6a. Full Code Distribution of Incident Users of Long-Acting Muscarinic Antagonists (LAMA), Long-Acting Beta Agonists (LABA) or Inhaled Corticosteroids (ICS) in the Sentinel Distributed Database (SDD) between January 1, 2008 and August 31, 2018

Code Description	Code Category	Overall Counts
mometasone furoate/formoterol fumarate	RX	*****
glycopyrrolate/formoterol fumarate	RX	
umeclidinium bromide/vilanterol trifenate	RX	
tiotropium bromide/olodaterol HCl	RX	*****
tiotropium bromide/glycopyrrolate	RX	
formoterol fumarate	RX	
tiotropium bromide/glycopyrrolate	RX	
formoterol fumarate	RX	*****
budesonide/formoterol fumarate	RX	
umeclidinium bromide/vilanterol trifenate	RX	
umeclidinium bromide	RX	*****
glycopyrrolate/formoterol fumarate	RX	
glycopyrrolate/formoterol fumarate	RX	
fluticasone propionate/salmeterol xinafoate	RX	*****
fluticasone furoate/vilanterol trifenate	RX	
glycopyrrolate/nebulizer and accessories	RX	*****
arformoterol tartrate	RX	
mometasone furoate	RX	*****
indacaterol maleate	RX	
umeclidinium bromide	RX	*****
indacaterol maleate	RX	
indacaterol maleate	RX	*****
fluticasone propionate	RX	
indacaterol maleate	RX	*****
fluticasone propionate/salmeterol xinafoate	RX	
tiotropium bromide	RX	*****
indacaterol maleate/glycopyrrolate	RX	
tiotropium bromide	RX	
olodaterol HCl	RX	*****
mometasone furoate	RX	
salmeterol xinafoate	RX	
mometasone furoate	RX	*****
fluticasone propionate	RX	
salmeterol xinafoate	RX	
mometasone furoate	RX	*****
fluticasone propionate/salmeterol xinafoate	RX	
umeclidinium bromide/vilanterol trifenate	RX	
tiotropium bromide	RX	*****
mometasone furoate	RX	
tiotropium bromide	RX	
mometasone furoate	RX	*****
fluticasone propionate/salmeterol xinafoate	RX	
budesonide/formoterol fumarate	RX	
tiotropium bromide	RX	
mometasone furoate	RX	*****
fluticasone furoate/vilanterol trifenate	RX	

Table 6a. Full Code Distribution of Incident Users of Long-Acting Muscarinic Antagonists (LAMA), Long-Acting Beta Agonists (LABA) or Inhaled Corticosteroids (ICS) in the Sentinel Distributed Database (SDD) between January 1, 2008 and August 31, 2018

Code Description	Code Category	Overall Counts
tiotropium bromide	RX	
mometasone furoate	RX	*****
fluticasone propionate	RX	
tiotropium bromide	RX	
salmeterol xinafoate	RX	*****
mometasone furoate/formoterol fumarate	RX	
umeclidinium bromide/vilanterol trifenate	RX	
salmeterol xinafoate	RX	
mometasone furoate	RX	*****
formoterol fumarate	RX	
fluticasone propionate	RX	
salmeterol xinafoate	RX	
mometasone furoate	RX	
formoterol fumarate	RX	*****
fluticasone propionate/salmeterol xinafoate	RX	
fluticasone furoate	RX	
salmeterol xinafoate	RX	
mometasone furoate/formoterol fumarate	RX	*****
fluticasone propionate/salmeterol xinafoate	RX	
budesonide/formoterol fumarate	RX	
salmeterol xinafoate	RX	
mometasone furoate/formoterol fumarate	RX	*****
fluticasone propionate	RX	
tiotropium bromide/olodaterol HCl	RX	
tiotropium bromide	RX	*****
mometasone furoate/formoterol fumarate	RX	
tiotropium bromide	RX	
mometasone furoate/formoterol fumarate	RX	
fluticasone propionate	RX	*****
salmeterol xinafoate	RX	
fluticasone furoate	RX	
tiotropium bromide	RX	
mometasone furoate/formoterol fumarate	RX	*****
fluticasone propionate	RX	
umeclidinium bromide	RX	
mometasone furoate/formoterol fumarate	RX	*****
fluticasone propionate/salmeterol xinafoate	RX	
umeclidinium bromide	RX	
vilanterol trifenate	RX	
mometasone furoate/formoterol fumarate	RX	*****
fluticasone propionate/salmeterol xinafoate	RX	
fluticasone furoate	RX	
mometasone furoate/formoterol fumarate	RX	
fluticasone propionate/salmeterol xinafoate	RX	*****
budesonide/formoterol fumarate	RX	
budesonide	RX	

Table 6a. Full Code Distribution of Incident Users of Long-Acting Muscarinic Antagonists (LAMA), Long-Acting Beta Agonists (LABA) or Inhaled Corticosteroids (ICS) in the Sentinel Distributed Database (SDD) between January 1, 2008 and August 31, 2018

Code Description	Code Category	Overall Counts
mometasone furoate/formoterol fumarate	RX	
fluticasone propionate/salmeterol xinafoate	RX	*****
fluticasone propionate	RX	
salmeterol xinafoate	RX	*****
olodaterol HCl	RX	
umeclidinium bromide	RX	*****
olodaterol HCl	RX	
umeclidinium bromide/vilanterol trifenate	RX	*****
olodaterol HCl	RX	
olodaterol HCl	RX	*****
budesonide/formoterol fumarate	RX	
olodaterol HCl	RX	*****
fluticasone propionate/salmeterol xinafoate	RX	
mometasone furoate	RX	
budesonide/formoterol fumarate	RX	*****
acridinium bromide	RX	
tiotropium bromide	RX	
mometasone furoate/formoterol fumarate	RX	*****
acridinium bromide	RX	
mometasone furoate/formoterol fumarate	RX	
budesonide/formoterol fumarate	RX	*****
acridinium bromide	RX	
mometasone furoate/formoterol fumarate	RX	
ciclesonide	RX	*****
acridinium bromide	RX	
olodaterol HCl	RX	*****
acridinium bromide	RX	
umeclidinium bromide/vilanterol trifenate	RX	
tiotropium bromide	RX	*****
acridinium bromide	RX	
tiotropium bromide/olodaterol HCl	RX	*****
acridinium bromide	RX	
umeclidinium bromide	RX	
fluticasone furoate/vilanterol trifenate	RX	*****
acridinium bromide	RX	
umeclidinium bromide/vilanterol trifenate	RX	
fluticasone propionate/salmeterol xinafoate	RX	*****
acridinium bromide	RX	
budesonide/formoterol fumarate	RX	
budesonide	RX	*****
acridinium bromide	RX	
fluticasone propionate/salmeterol xinafoate	RX	
budesonide	RX	*****
acridinium bromide	RX	
fluticasone propionate/salmeterol xinafoate	RX	
budesonide/formoterol fumarate	RX	*****
acridinium bromide	RX	

Table 6a. Full Code Distribution of Incident Users of Long-Acting Muscarinic Antagonists (LAMA), Long-Acting Beta Agonists (LABA) or Inhaled Corticosteroids (ICS) in the Sentinel Distributed Database (SDD) between January 1, 2008 and August 31, 2018

Code Description	Code Category	Overall Counts
fluticasone propionate/salmeterol xinafoate	RX	
fluticasone propionate	RX	*****
aclidinium bromide	RX	
tiotropium bromide	RX	
salmeterol xinafoate	RX	*****
fluticasone propionate/salmeterol xinafoate	RX	
budesonide/formoterol fumarate	RX	
umeclidinium bromide/vilanterol trifenate	RX	
tiotropium bromide/olodaterol HCl	RX	*****
salmeterol xinafoate	RX	
fluticasone furoate	RX	
umeclidinium bromide	RX	
salmeterol xinafoate	RX	*****
fluticasone furoate/vilanterol trifenate	RX	
umeclidinium bromide	RX	
salmeterol xinafoate	RX	*****
fluticasone propionate	RX	
umeclidinium bromide/vilanterol trifenate	RX	*****
salmeterol xinafoate	RX	
salmeterol xinafoate	RX	
fluticasone propionate	RX	*****
budesonide	RX	
salmeterol xinafoate	RX	
fluticasone propionate	RX	*****
budesonide/formoterol fumarate	RX	
salmeterol xinafoate	RX	*****
ciclesonide	RX	
salmeterol xinafoate	RX	*****
fluticasone furoate	RX	
tiotropium bromide/olodaterol HCl	RX	
tiotropium bromide	RX	*****
fluticasone propionate/salmeterol xinafoate	RX	
umeclidinium bromide	RX	
tiotropium bromide	RX	*****
fluticasone propionate/salmeterol xinafoate	RX	
fluticasone furoate/vilanterol trifenate	RX	
umeclidinium bromide	RX	
tiotropium bromide	RX	*****
fluticasone propionate	RX	
umeclidinium bromide	RX	
tiotropium bromide	RX	*****
fluticasone propionate/salmeterol xinafoate	RX	
umeclidinium bromide/vilanterol trifenate	RX	
tiotropium bromide	RX	*****
fluticasone furoate/vilanterol trifenate	RX	

Table 6a. Full Code Distribution of Incident Users of Long-Acting Muscarinic Antagonists (LAMA), Long-Acting Beta Agonists (LABA) or Inhaled Corticosteroids (ICS) in the Sentinel Distributed Database (SDD) between January 1, 2008 and August 31, 2018

Code Description	Code Category	Overall Counts
umeclidinium bromide/vilanterol trifenate	RX	
tiotropium bromide	RX	*****
fluticasone propionate/salmeterol xinafoate	RX	
fluticasone furoate	RX	
tiotropium bromide	RX	
ciclesonide	RX	*****
budesonide/formoterol fumarate	RX	
umeclidinium bromide/vilanterol trifenate	RX	
tiotropium bromide/olodaterol HCl	RX	*****
fluticasone furoate/vilanterol trifenate	RX	
tiotropium bromide/olodaterol HCl	RX	
fluticasone propionate/salmeterol xinafoate	RX	*****
fluticasone furoate/vilanterol trifenate	RX	
umeclidinium bromide	RX	
fluticasone propionate/salmeterol xinafoate	RX	*****
budesonide/formoterol fumarate	RX	
umeclidinium bromide/vilanterol trifenate	RX	
fluticasone propionate/salmeterol xinafoate	RX	*****
fluticasone furoate/vilanterol trifenate	RX	
tiotropium bromide	RX	
fluticasone propionate	RX	*****
arformoterol tartrate	RX	
umeclidinium bromide		
vilanterol trifenate	RX	*****
arformoterol tartrate	RX	
ciclesonide	RX	*****
arformoterol tartrate	RX	
fluticasone propionate/salmeterol xinafoate	RX	
fluticasone propionate	RX	*****
budesonide	RX	
fluticasone propionate/salmeterol xinafoate	RX	
fluticasone propionate	RX	*****
budesonide/formoterol fumarate	RX	
fluticasone propionate	RX	*****
ciclesonide	RX	
fluticasone propionate/salmeterol xinafoate	RX	
fluticasone propionate	RX	*****
fluticasone furoate/vilanterol trifenate	RX	

*****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 6b. Total Code Counts of Incident Users of Long-Acting Muscarinic Antagonists (LAMA), Long-Acting Beta Agonists (LABA) or Inhaled Corticosteroids (ICS) in the Sentinel Distributed Database (SDD) between January 1, 2008 and August 31, 2018

Code Description	Code Category	Overall Counts
tiotropium bromide	RX	594,700
fluticasone propionate/salmeterol xinafoate	RX	555,527
budesonide/formoterol fumarate	RX	378,608
fluticasone propionate	RX	127,031
fluticasone furoate/vilanterol trifrenatate	RX	91,219
umeclidinium bromide/vilanterol trifrenatate	RX	65,735
mometasone furoate/formoterol fumarate	RX	59,930
budesonide	RX	55,181
umeclidinium bromide	RX	23,926
mometasone furoate	RX	23,434
tiotropium bromide/olodaterol HCl	RX	17,959
aclidinium bromide	RX	16,846
salmeterol xinafoate	RX	10,718
formoterol fumarate	RX	7,847
arformoterol tartrate	RX	4,530
glycopyrrolate/formoterol fumarate	RX	3,449
fluticasone furoate	RX	2,548
ciclesonide	RX	779
indacaterol maleate	RX	502
olodaterol HCl	RX	422
indacaterol maleate/glycopyrrolate	RX	186
glycopyrrolate	RX	*****
glycopyrrolate/nebulizer and accessories	RX	*****
glycopyrrolate/nebulizer accessories	RX	*****

*****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 7a. Full Code Distribution of Prevalent Users of Long-Acting Muscarinic Antagonists (LAMA), Long-Acting Beta Agonists (LABA) or Inhaled Corticosteroids (ICS) in the Sentinel Distributed Database (SDD) between January 1, 2008 and August 31, 2018

Code Description	Code Category	Overall Counts
fluticasone propionate/salmeterol xinafoate	RX	1,120,257
tiotropium bromide	RX	1,025,997
budesonide/formoterol fumarate	RX	606,946
fluticasone propionate	RX	211,815
tiotropium bromide	RX	140,611
fluticasone propionate/salmeterol xinafoate	RX	116,925
fluticasone furoate/vilanterol trifenate	RX	84,861
mometasone furoate/formoterol fumarate	RX	84,767
umeclidinium bromide/vilanterol trifenate	RX	79,548
budesonide	RX	57,858
tiotropium bromide	RX	40,494
budesonide/formoterol fumarate	RX	29,577
mometasone furoate	RX	25,076
umeclidinium bromide	RX	23,473
salmeterol xinafoate	RX	23,307
tiotropium bromide/olodaterol HCl	RX	17,718
aclidinium bromide	RX	7,675
formoterol fumarate	RX	7,207
tiotropium bromide	RX	4,937
mometasone furoate/formoterol fumarate	RX	4,610
tiotropium bromide	RX	3,952
fluticasone propionate	RX	3,884
tiotropium bromide	RX	2,952
fluticasone furoate/vilanterol trifenate	RX	2,677
arformoterol tartrate	RX	2,218
glycopyrrolate/formoterol fumarate	RX	2,069
umeclidinium bromide	RX	1,692
fluticasone furoate/vilanterol trifenate	RX	1,685
fluticasone furoate	RX	1,684
tiotropium bromide	RX	1,509
formoterol fumarate	RX	1,491
tiotropium bromide	RX	1,308
mometasone furoate	RX	
tiotropium bromide	RX	
salmeterol xinafoate	RX	
tiotropium bromide	RX	
budesonide	RX	
ciclesonide	RX	
budesonide	RX	
arformoterol tartrate	RX	
budesonide/formoterol fumarate	RX	
aclidinium bromide	RX	
salmeterol xinafoate	RX	
fluticasone propionate	RX	
fluticasone propionate/salmeterol xinafoate	RX	
aclidinium bromide	RX	

Table 7a. Full Code Distribution of Prevalent Users of Long-Acting Muscarinic Antagonists (LAMA), Long-Acting Beta Agonists (LABA) or Inhaled Corticosteroids (ICS) in the Sentinel Distributed Database (SDD) between January 1, 2008 and August 31, 2018

Code Description	Code Category	Overall Counts
umeclidinium bromide	RX	1,087
budesonide/formoterol fumarate	RX	
fluticasone propionate/salmeterol xinafoate	RX	1,069
budesonide/formoterol fumarate	RX	
formoterol fumarate	RX	1,043
budesonide	RX	
indacaterol maleate	RX	870
umeclidinium bromide	RX	845
fluticasone propionate/salmeterol xinafoate	RX	
fluticasone propionate/salmeterol xinafoate	RX	685
fluticasone propionate	RX	
olodaterol HCl	RX	569
mometasone furoate	RX	486
formoterol fumarate	RX	
mometasone furoate/formoterol fumarate	RX	399
acridinium bromide	RX	
salmeterol xinafoate	RX	358
mometasone furoate	RX	
umeclidinium bromide/vilanterol trifenate	RX	332
fluticasone furoate	RX	
formoterol fumarate	RX	303
fluticasone propionate	RX	
fluticasone propionate/salmeterol xinafoate	RX	296
budesonide	RX	
fluticasone furoate/vilanterol trifenate	RX	270
acridinium bromide	RX	
fluticasone propionate	RX	263
budesonide/formoterol fumarate	RX	
umeclidinium bromide/vilanterol trifenate	RX	248
fluticasone propionate	RX	
umeclidinium bromide/vilanterol trifenate	RX	242
fluticasone furoate/vilanterol trifenate	RX	
salmeterol xinafoate	RX	219
budesonide	RX	
indacaterol maleate/glycopyrrolate	RX	213
tiotropium bromide	RX	
fluticasone propionate/salmeterol xinafoate	RX	209
budesonide/formoterol fumarate	RX	
tiotropium bromide	RX	142
arformoterol tartrate	RX	
tiotropium bromide	RX	
salmeterol xinafoate	RX	139
fluticasone propionate	RX	
fluticasone furoate/vilanterol trifenate	RX	132
budesonide/formoterol fumarate	RX	
umeclidinium bromide/vilanterol trifenate	RX	131
budesonide/formoterol fumarate	RX	

Table 7a. Full Code Distribution of Prevalent Users of Long-Acting Muscarinic Antagonists (LAMA), Long-Acting Beta Agonists (LABA) or Inhaled Corticosteroids (ICS) in the Sentinel Distributed Database (SDD) between January 1, 2008 and August 31, 2018

Code Description	Code Category	Overall Counts
tiotropium bromide	RX	
mometasone furoate	RX	127
formoterol fumarate	RX	
tiotropium bromide	RX	
fluticasone propionate/salmeterol xinafoate	RX	120
fluticasone propionate	RX	
budesonide/formoterol fumarate	RX	
budesonide	RX	119
mometasone furoate/formoterol fumarate	RX	
fluticasone propionate/salmeterol xinafoate	RX	113
tiotropium bromide	RX	
indacaterol maleate	RX	112
fluticasone propionate/salmeterol xinafoate	RX	
fluticasone furoate/vilanterol trifenate	RX	110
umeclidinium bromide/vilanterol trifenate	RX	
fluticasone propionate/salmeterol xinafoate	RX	104
mometasone furoate/formoterol fumarate	RX	
budesonide/formoterol fumarate	RX	98
umeclidinium bromide	RX	
fluticasone propionate	RX	94
tiotropium bromide	RX	
formoterol fumarate	RX	
budesonide	RX	93
tiotropium bromide	RX	
budesonide	RX	92
arformoterol tartrate	RX	
mometasone furoate	RX	
fluticasone propionate/salmeterol xinafoate	RX	91
tiotropium bromide	RX	
formoterol fumarate	RX	
fluticasone propionate	RX	82
umeclidinium bromide/vilanterol trifenate	RX	
budesonide	RX	80
tiotropium bromide	RX	
ciclesonide	RX	78
fluticasone propionate	RX	
budesonide	RX	78
umeclidinium bromide/vilanterol trifenate	RX	
tiotropium bromide	RX	77
tiotropium bromide/olodaterol HCl	RX	
fluticasone propionate	RX	77
tiotropium bromide/olodaterol HCl	RX	
budesonide formoterol fumarate	RX	75
tiotropium bromide	RX	
acridinium bromide	RX	74
salmeterol xinafoate	RX	
fluticasone propionate/salmeterol xinafoate	RX	72

Table 7a. Full Code Distribution of Prevalent Users of Long-Acting Muscarinic Antagonists (LAMA), Long-Acting Beta Agonists (LABA) or Inhaled Corticosteroids (ICS) in the Sentinel Distributed Database (SDD) between January 1, 2008 and August 31, 2018

Code Description	Code Category	Overall Counts
fluticasone propionate	RX	71
acclidinium bromide	RX	
umeclidinium bromide	RX	68
fluticasone furoate	RX	
formoterol fumarate	RX	67
fluticasone propionate/salmeterol xinafoate	RX	
tiotropium bromide	RX	66
fluticasone propionate/salmeterol xinafoate	RX	
budesonide	RX	58
tiotropium bromide	RX	
olodaterol HCl	RX	57
tiotropium bromide	RX	
salmeterol xinafoate	RX	57
mometasone furoate	RX	
tiotropium bromide/olodaterol HCl	RX	55
fluticasone furoate	RX	
umeclidinium bromide	RX	52
tiotropium bromide	RX	
mometasone furoate	RX	51
budesonide/formoterol fumarate	RX	
tiotropium bromide/olodaterol HCl	RX	49
mometasone furoate	RX	
umeclidinium bromide	RX	46
budesonide	RX	
tiotropium bromide	RX	45
fluticasone propionate	RX	
budesonide/formoterol fumarate	RX	40
umeclidinium bromide/vilanterol trifenate	RX	
mometasone furoate	RX	40
tiotropium bromide	RX	
fluticasone furoate	RX	39
tiotropium bromide/olodaterol HCl	RX	
fluticasone furoate/vilanterol trifenate	RX	37
formoterol fumarate	RX	
budesonide/formoterol fumarate	RX	32
mometasone furoate	RX	
fluticasone propionate	RX	32
tiotropium bromide/olodaterol HCl	RX	
fluticasone propionate/salmeterol xinafoate	RX	31
salmeterol xinafoate	RX	
budesonide/formoterol fumarate	RX	30
mometasone furoate/formoterol fumarate	RX	
fluticasone propionate	RX	29
tiotropium bromide/olodaterol HCl	RX	
tiotropium bromide	RX	

Table 7a. Full Code Distribution of Prevalent Users of Long-Acting Muscarinic Antagonists (LAMA), Long-Acting Beta Agonists (LABA) or Inhaled Corticosteroids (ICS) in the Sentinel Distributed Database (SDD) between January 1, 2008 and August 31, 2018

Code Description	Code Category	Overall Counts
tiotropium bromide	RX	
mometasone furoate	RX	27
fluticasone propionate/salmeterol xinafoate	RX	
tiotropium bromide	RX	
salmeterol xinafoate	RX	27
budesonide	RX	
umeclidinium bromide	RX	
salmeterol xinafoate	RX	27
fluticasone furoate/vilanterol trifenate	RX	
budesonide	RX	27
umeclidinium bromide	RX	
mometasone furoate/formoterol fumarate	RX	26
tiotropium bromide	RX	
budesonide/formoterol fumarate	RX	24
budesonide	RX	
tiotropium bromide	RX	
formoterol fumarate	RX	22
fluticasone propionate/salmeterol xinafoate	RX	
budesonide	RX	22
aclidinium bromide	RX	
umeclidinium bromide/vilanterol trifenate	RX	
tiotropium bromide/olodaterol HCl	RX	22
tiotropium bromide/olodaterol HCl	RX	
budesonide	RX	22
formoterol fumarate	RX	
aclidinium bromide	RX	20
umeclidinium bromide/vilanterol trifenate	RX	
umeclidinium bromide	RX	20
mometasone furoate	RX	
aclidinium bromide	RX	19
salmeterol xinafoate	RX	
aclidinium bromide	RX	19
glycopyrrolate/formoterol fumarate	RX	
budesonide/formoterol fumarate	RX	17
fluticasone propionate	RX	
fluticasone furoate/vilanterol trifenate	RX	17
mometasone furoate/formoterol fumarate	RX	
fluticasone propionate/salmeterol xinafoate	RX	16
budesonide/formoterol fumarate	RX	
mometasone furoate/formoterol fumarate	RX	
mometasone furoate	RX	15
formoterol fumarate	RX	
ciclesonide	RX	14
glycopyrrolate	RX	14
mometasone furoate/formoterol fumarate	RX	
budesonide	RX	14

Table 7a. Full Code Distribution of Prevalent Users of Long-Acting Muscarinic Antagonists (LAMA), Long-Acting Beta Agonists (LABA) or Inhaled Corticosteroids (ICS) in the Sentinel Distributed Database (SDD) between January 1, 2008 and August 31, 2018

Code Description	Code Category	Overall Counts
fluticasone propionate/salmeterol xinafoate	RX	14
arformoterol tartrate	RX	
tiotropium bromide	RX	13
mometasone furoate/formoterol fumarate	RX	
budesonide/formoterol fumarate	RX	13
mometasone furoate/formoterol fumarate	RX	
fluticasone furoate/vilanterol trifenate	RX	12
tiotropium bromide	RX	
formoterol fumarate	RX	12
budesonide/formoterol fumarate	RX	
tiotropium bromide	RX	12
mometasone furoate/formoterol fumarate	RX	
fluticasone propionate/salmeterol xinafoate	RX	12
fluticasone propionate	RX	
arformoterol tartrate	RX	11
mometasone furoate	RX	
budesonide	RX	11
indacaterol maleate	RX	
aclidinium bromide	RX	11
tiotropium bromide	RX	
salmeterol xinafoate	RX	11
fluticasone propionate/salmeterol xinafoate	RX	
fluticasone furoate/vilanterol trifenate	RX	11
fluticasone furoate	RX	
salmeterol xinafoate	RX	*****
formoterol fumarate	RX	
glycopyrrolate/formoterol fumarate	RX	*****
budesonide	RX	
glycopyrrolate/formoterol fumarate	RX	*****
fluticasone furoate	RX	
salmeterol xinafoate	RX	*****
mometasone furoate/formoterol fumarate	RX	
tiotropium bromide	RX	*****
fluticasone furoate/vilanterol trifenate	RX	
budesonide/formoterol fumarate	RX	*****
budesonide/formoterol fumarate	RX	
arformoterol tartrate	RX	*****
ciclesonide	RX	
budesonide/formoterol fumarate	RX	*****
tiotropium bromide	RX	
mometasone furoate	RX	*****
budesonide/formoterol fumarate	RX	
tiotropium bromide/olodaterol HCl	RX	*****
mometasone furoate/formoterol fumarate	RX	

Table 7a. Full Code Distribution of Prevalent Users of Long-Acting Muscarinic Antagonists (LAMA), Long-Acting Beta Agonists (LABA) or Inhaled Corticosteroids (ICS) in the Sentinel Distributed Database (SDD) between January 1, 2008 and August 31, 2018

Code Description	Code Category	Overall Counts
tiotropium bromide	RX	
budesonide/formoterol fumarate	RX	*****
aclidinium bromide	RX	
salmeterol xinafoate	RX	*****
ciclesonide	RX	
salmeterol xinafoate	RX	
fluticasone propionate/salmeterol xinafoate	RX	*****
fluticasone propionate	RX	
tiotropium bromide	RX	
fluticasone propionate/salmeterol xinafoate	RX	*****
fluticasone furoate/vilanterol trifenate	RX	
fluticasone propionate/salmeterol xinafoate	RX	
budesonide	RX	*****
arformoterol tartrate	RX	
tiotropium bromide	RX	
fluticasone propionate/salmeterol xinafoate	RX	*****
aclidinium bromide	RX	
formoterol fumarate	RX	*****
arformoterol tartrate	RX	
umeclidinium bromide	RX	*****
mometasone furoate	RX	
tiotropium bromide	RX	
salmeterol xinafoate	RX	*****
fluticasone propionate/salmeterol xinafoate	RX	
fluticasone propionate	RX	
umeclidinium bromide	RX	
tiotropium bromide	RX	*****
fluticasone furoate/vilanterol trifenate	RX	
tiotropium bromide	RX	
fluticasone propionate	RX	*****
budesonide	RX	
tiotropium bromide	RX	
fluticasone propionate/salmeterol xinafoate	RX	*****
arformoterol tartrate	RX	
umeclidinium bromide/vilanterol trifenate	RX	*****
aclidinium bromide	RX	
budesonide/formoterol fumarate	RX	
budesonide	RX	*****
arformoterol tartrate	RX	
tiotropium bromide	RX	*****
glycopyrrolate/formoterol fumarate	RX	
tiotropium bromide	RX	
salmeterol xinafoate	RX	*****
ciclesonide	RX	
tiotropium bromide	RX	
fluticasone propionate/salmeterol xinafoate	RX	*****
fluticasone propionate	RX	
budesonide/formoterol fumarate	RX	

Table 7a. Full Code Distribution of Prevalent Users of Long-Acting Muscarinic Antagonists (LAMA), Long-Acting Beta Agonists (LABA) or Inhaled Corticosteroids (ICS) in the Sentinel Distributed Database (SDD) between January 1, 2008 and August 31, 2018

Code Description	Code Category	Overall Counts
fluticasone propionate/salmeterol xinafoate	RX	
fluticasone furoate/vilanterol trifenate	RX	*****
budesonide/formoterol fumarate	RX	
fluticasone propionate	RX	*****
fluticasone furoate	RX	
mometasone furoate/formoterol fumarate	RX	*****
formoterol fumarate	RX	
mometasone furoate	RX	*****
glycopyrrolate/formoterol fumarate	RX	
umeclidinium bromide/vilanterol trifenate	RX	*****
glycopyrrolate/formoterol fumarate	RX	
mometasone furoate	RX	*****
arformoterol tartrate	RX	
mometasone furoate	RX	*****
fluticasone furoate/vilanterol trifenate	RX	
formoterol fumarate	RX	
budesonide	RX	*****
aclidinium bromide	RX	
arformoterol tartrate	RX	*****
aclidinium bromide	RX	
tiotropium bromide	RX	
salmeterol xinafoate	RX	*****
budesonide/formoterol fumarate	RX	
tiotropium bromide	RX	
ciclesonide	RX	*****
budesonide/formoterol fumarate	RX	
tiotropium bromide	RX	
fluticasone propionate	RX	*****
fluticasone furoate/vilanterol trifenate	RX	
umeclidinium bromide	RX	
fluticasone propionate/salmeterol xinafoate	RX	*****
fluticasone furoate/vilanterol trifenate	RX	
mometasone furoate	RX	
formoterol fumarate	RX	*****
fluticasone propionate/salmeterol xinafoate	RX	
glycopyrrolate/formoterol fumarate	RX	*****
fluticasone furoate/vilanterol trifenate	RX	
glycopyrrolate/formoterol fumarate	RX	*****
fluticasone propionate	RX	
indacaterol maleate	RX	*****
budesonide/formoterol fumarate	RX	
tiotropium bromide	RX	
mometasone furoate	RX	*****
budesonide	RX	
tiotropium bromide	RX	
mometasone furoate/formoterol fumarate	RX	*****
budesonide	RX	

Table 7a. Full Code Distribution of Prevalent Users of Long-Acting Muscarinic Antagonists (LAMA), Long-Acting Beta Agonists (LABA) or Inhaled Corticosteroids (ICS) in the Sentinel Distributed Database (SDD) between January 1, 2008 and August 31, 2018

Code Description	Code Category	Overall Counts
tiotropium bromide	RX	
mometasone furoate/formoterol fumarate	RX	*****
fluticasone propionate	RX	
umeclidinium bromide/vilanterol trifenate	RX	*****
mometasone furoate/formoterol fumarate	RX	
mometasone furoate/formoterol fumarate	RX	
fluticasone propionate/salmeterol xinafoate	RX	*****
fluticasone propionate	RX	
budesonide/formoterol fumarate	RX	
tiotropium bromide	RX	
mometasone furoate/formoterol fumarate	RX	*****
aclidinium bromide	RX	
salmeterol xinafoate	RX	
fluticasone propionate	RX	*****
aclidinium bromide	RX	
umeclidinium bromide	RX	*****
aclidinium bromide	RX	
umeclidinium bromide	RX	
salmeterol xinafoate	RX	*****
fluticasone propionate	RX	
salmeterol xinafoate	RX	
fluticasone propionate	RX	*****
budesonide/formoterol fumarate	RX	
salmeterol xinafoate	RX	*****
fluticasone furoate/vilanterol trifenate	RX	
umeclidinium bromide	RX	
tiotropium bromide	RX	*****
budesonide/formoterol fumarate	RX	
umeclidinium bromide	RX	
tiotropium bromide	RX	*****
fluticasone propionate/salmeterol xinafoate	RX	
tiotropium bromide	RX	
fluticasone propionate/salmeterol xinafoate	RX	*****
ciclesonide	RX	
umeclidinium bromide/vilanterol trifenate	RX	*****
ciclesonide	RX	
tiotropium bromide	RX	
budesonide/formoterol fumarate	RX	*****
budesonide	RX	
arformoterol tartrate	RX	
tiotropium bromide	RX	
fluticasone propionate/salmeterol xinafoate	RX	*****
budesonide	RX	
arformoterol tartrate	RX	
tiotropium bromide	RX	
budesonide/formoterol fumarate	RX	*****
arformoterol tartrate	RX	

Table 7a. Full Code Distribution of Prevalent Users of Long-Acting Muscarinic Antagonists (LAMA), Long-Acting Beta Agonists (LABA) or Inhaled Corticosteroids (ICS) in the Sentinel Distributed Database (SDD) between January 1, 2008 and August 31, 2018

Code Description	Code Category	Overall Counts
fluticasone furoate/vilanterol trifenate	RX	*****
arformoterol tartrate	RX	
fluticasone furoate	RX	*****
budesonide/formoterol fumarate	RX	
fluticasone propionate/salmeterol xinafoate	RX	
fluticasone propionate	RX	*****
budesonide/formoterol fumarate	RX	
fluticasone propionate/salmeterol xinafoate	RX	*****
fluticasone furoate	RX	
tiotropium bromide	RX	
salmeterol xinafoate	RX	*****
formoterol fumarate	RX	
umeclidinium bromide/vilanterol trifenate	RX	*****
formoterol fumarate	RX	
formoterol fumarate	RX	
budesonide/formoterol fumarate	RX	*****
budesonide	RX	
glycopyrrolate/formoterol fumarate	RX	*****
fluticasone propionate/salmeterol xinafoate	RX	
glycopyrrolate/nebulizer accessories	RX	*****
glycopyrrolate/nebulizer and accessories	RX	*****
tiotropium bromide	RX	
mometasone furoate	RX	*****
indacaterol maleate	RX	
umeclidinium bromide	RX	*****
indacaterol maleate	RX	
indacaterol maleate	RX	*****
budesonide	RX	
indacaterol maleate	RX	*****
ciclesonide	RX	
indacaterol maleate	RX	*****
fluticasone propionate	RX	
indacaterol maleate	RX	*****
fluticasone propionate/salmeterol xinafoate	RX	
tiotropium bromide	RX	*****
indacaterol maleate/glycopyrrolate	RX	
salmeterol xinafoate	RX	
mometasone furoate	RX	*****
fluticasone propionate	RX	
tiotropium bromide	RX	
mometasone furoate	RX	*****
fluticasone furoate/vilanterol trifenate	RX	
tiotropium bromide	RX	
mometasone furoate	RX	*****
fluticasone propionate	RX	
tiotropium bromide	RX	
mometasone furoate	RX	*****
arformoterol tartrate	RX	

Table 7a. Full Code Distribution of Prevalent Users of Long-Acting Muscarinic Antagonists (LAMA), Long-Acting Beta Agonists (LABA) or Inhaled Corticosteroids (ICS) in the Sentinel Distributed Database (SDD) between January 1, 2008 and August 31, 2018

Code Description	Code Category	Overall Counts
mometasone furoate	RX	
fluticasone propionate/salmeterol xinafoate	RX	*****
fluticasone propionate	RX	
mometasone furoate/formoterol fumarate	RX	*****
arformoterol tartrate	RX	
mometasone furoate/formoterol fumarate	RX	*****
ciclesonide	RX	
tiotropium bromide/olodaterol HCl	RX	*****
olodaterol HCl	RX	
olodaterol HCl	RX	*****
budesonide/formoterol fumarate	RX	
olodaterol HCl	RX	*****
fluticasone propionate/salmeterol xinafoate	RX	
tiotropium bromide	RX	
fluticasone furoate/vilanterol trifenate	RX	*****
aclidinium bromide	RX	
fluticasone propionate/salmeterol xinafoate	RX	
budesonide	RX	*****
aclidinium bromide	RX	
fluticasone propionate/salmeterol xinafoate	RX	
budesonide/formoterol fumarate	RX	*****
aclidinium bromide	RX	
fluticasone propionate/salmeterol xinafoate	RX	
fluticasone propionate	RX	*****
aclidinium bromide	RX	
salmeterol xinafoate	RX	
fluticasone propionate/salmeterol xinafoate	RX	
fluticasone propionate	RX	*****
budesonide/formoterol fumarate	RX	
tiotropium bromide/olodaterol HCl	RX	
tiotropium bromide	RX	*****
budesonide/formoterol fumarate	RX	
umeclidinium bromide/vilanterol trifenate	RX	
tiotropium bromide	RX	*****
budesonide/formoterol fumarate	RX	
umeclidinium bromide/vilanterol trifenate	RX	
umeclidinium bromide	RX	*****
fluticasone furoate/vilanterol trifenate	RX	
umeclidinium bromide	RX	
fluticasone propionate/salmeterol xinafoate	RX	*****
budesonide/formoterol fumarate	RX	
umeclidinium bromide	RX	*****
arformoterol tartrate	RX	
fluticasone propionate	RX	*****
ciclesonide	RX	
indacaterol maleate	RX	*****
formoterol fumarate	RX	

Table 7a. Full Code Distribution of Prevalent Users of Long-Acting Muscarinic Antagonists (LAMA), Long-Acting Beta Agonists (LABA) or Inhaled Corticosteroids (ICS) in the Sentinel Distributed Database (SDD) between January 1, 2008 and August 31, 2018

Code Description	Code Category	Overall Counts
tiotropium bromide/salmeterol xinafoate	RX	
mometasone furoate	RX	
formoterol fumarate	RX	*****
fluticasone propionate/salmeterol xinafoate budesonide/formoterol fumarate	RX	
mometasone furoate/formoterol fumarate	RX	
fluticasone propionate/salmeterol xinafoate fluticasone propionate	RX	*****
budesonide/formoterol fumarate	RX	
budesonide	RX	
salmeterol xinafoate	RX	
mometasone furoate/formoterol fumarate	RX	*****
formoterol fumarate	RX	
tiotropium bromide	RX	
salmeterol xinafoate	RX	
formoterol fumarate	RX	*****
fluticasone propionate salmeterol xinafoate fluticasone propionate	RX	
salmeterol xinafoate	RX	
formoterol fumarate	RX	*****
fluticasone propionate	RX	
tiotropium bromide	RX	
formoterol fumarate	RX	
fluticasone propionate/salmeterol xinafoate	RX	*****
budesonide	RX	
tiotropium bromide	RX	
formoterol fumarate	RX	*****
ciclesonide	RX	
tiotropium bromide	RX	
formoterol fumarate	RX	*****
fluticasone propionate/salmeterol xinafoate	RX	
fluticasone propionate	RX	
tiotropium bromide/olodaterol HCl	RX	*****
formoterol fumarate	RX	
umeclidinium bromide	RX	*****
formoterol fumarate	RX	
umeclidinium bromide	RX	
formoterol fumarate	RX	*****
fluticasone furoate/vilanterol trifenate	RX	
tiotropium bromide	RX	
salmeterol xinafoate	RX	*****
formoterol fumarate	RX	
arformoterol tartrate	RX	
formoterol fumarate	RX	
budesonide	RX	*****
arformoterol tartrate	RX	
formoterol fumarate	RX	
fluticasone propionate/salmeterol xinafoate	RX	*****
budesonide	RX	

Table 7a. Full Code Distribution of Prevalent Users of Long-Acting Muscarinic Antagonists (LAMA), Long-Acting Beta Agonists (LABA) or Inhaled Corticosteroids (ICS) in the Sentinel Distributed Database (SDD) between January 1, 2008 and August 31, 2018

Code Description	Code Category	Overall Counts
formoterol fumarate	RX	
fluticasone propionate	RX	*****
budesonide/formoterol fumarate	RX	
formoterol fumarate	RX	
fluticasone propionate/salmeterol xinafoate	RX	*****
fluticasone propionate	RX	
glycopyrrolate	RX	*****
budesonide/formoterol fumarate	RX	
mometasone furoate/formoterol fumarate		
glycopyrrolate	RX	*****
formoterol fumarate	RX	
umeclidinium bromide/vilanterol trifenate	RX	
tiotropium bromide/olodaterol HCl	RX	
tiotropium bromide	RX	*****
glycopyrrolate/formoterol fumarate	RX	
tiotropium bromide	RX	
glycopyrrolate/formoterol fumarate	RX	*****
budesonide/formoterol fumarate	RX	
tiotropium bromide/olodaterol HCl	RX	*****
glycopyrrolate/formoterol fumarate	RX	
umeclidinium bromide	RX	*****
glycopyrrolate/formoterol fumarate	RX	
umeclidinium bromide/vilanterol trifenate	RX	
umeclidinium bromide	RX	*****
glycopyrrolate/formoterol fumarate	RX	
glycopyrrolate/formoterol fumarate	RX	
fluticasone propionate/salmeterol xinafoate	RX	*****
fluticasone furoate/vilanterol trifenate	RX	
glycopyrrolate/nebulizer and accessories	RX	*****
arformoterol tartrate	RX	
mometasone furoate	RX	*****
indacaterol maleate	RX	
umeclidinium bromide	RX	
mometasone furoate	RX	*****
indacaterol maleate	RX	
tiotropium bromide	RX	
indacaterol maleate	RX	*****
budesonide/formoterol fumarate	RX	
indacaterol maleate/glycopyrrolate	RX	*****
budesonide	RX	
tiotropium bromide	RX	
mometasone furoate/formoterol fumarate	RX	*****
mometasone furoate	RX	
salmeterol xinafoate	RX	
mometasone furoate	RX	*****
fluticasone propionate/salmeterol xinafoate	RX	

Table 7a. Full Code Distribution of Prevalent Users of Long-Acting Muscarinic Antagonists (LAMA), Long-Acting Beta Agonists (LABA) or Inhaled Corticosteroids (ICS) in the Sentinel Distributed Database (SDD) between January 1, 2008 and August 31, 2018

Code Description	Code Category	Overall Counts
umeclidinium bromide/vilanterol trifenate	RX	
tiotropium bromide	RX	*****
mometasone furoate	RX	
tiotropium bromide	RX	
mometasone furoate	RX	*****
fluticasone propionate/salmeterol xinafoate	RX	
budesonide/formoterol fumarate	RX	
tiotropium bromide	RX	
salmeterol xinafoate	RX	*****
mometasone furoate/formoterol fumarate	RX	
umeclidinium bromide/vilanterol trifenate	RX	
salmeterol xinafoate	RX	
mometasone furoate/formoterol fumarate	RX	*****
fluticasone propionate/salmeterol xinafoate	RX	
furoate/vilanterol trifenate budesonide/formoterol fumarate	RX	
salmeterol xinafoate	RX	
mometasone furoate/formoterol fumarate	RX	
fluticasone propionate/salmeterol xinafoate	RX	*****
fluticasone furoate/vilanterol trifenate	RX	
budesonide/formoterol fumarate	RX	
salmeterol xinafoate	RX	
mometasone furoate/ formoterol fumarate fluticasone	RX	*****
propionate/salmeterol xinafoate	RX	
budesonide/formoterol fumarate	RX	
salmeterol xinafoate	RX	
mometasone furoate/formoterol fumarate	RX	*****
fluticasone propionate	RX	
tiotropium bromide	RX	
mometasone furoate/formoterol fumarate	RX	
fluticasone propionate/salmeterol xinafoate	RX	*****
fluticasone furoate/vilanterol trifenate	RX	
budesonide/formoterol fumarate	RX	
tiotropium bromide	RX	
mometasone furoate/formoterol fumarate	RX	
fluticasone propionate/salmeterol xinafoate	RX	*****
budesonide/formoterol fumarate	RX	
umeclidinium bromide/vilanterol trifenate	RX	
mometasone furoate/formoterol fumarate	RX	
fluticasone propionate/salmeterol xinafoate	RX	*****
fluticasone furoate/vilanterol trifenate	RX	
budesonide/formoterol fumarate	RX	
mometasone furoate/formoterol fumarate	RX	
budesonide	RX	*****
arformoterol tartrate	RX	
mometasone furoate/formoterol fumarate	RX	
fluticasone propionate/salmeterol xinafoate	RX	*****
budesonide/formoterol fumarate	RX	
budesonide	RX	

Table 7a. Full Code Distribution of Prevalent Users of Long-Acting Muscarinic Antagonists (LAMA), Long-Acting Beta Agonists (LABA) or Inhaled Corticosteroids (ICS) in the Sentinel Distributed Database (SDD) between January 1, 2008 and August 31, 2018

Code Description	Code Category	Overall Counts
mometasone furoate/formoterol fumarate	RX	
fluticasone propionate/salmeterol xinafoate	RX	*****
fluticasone propionate	RX	
salmeterol xinafoate	RX	*****
olodaterol HCl	RX	
umeclidinium bromide	RX	*****
olodaterol HCl	RX	
umeclidinium bromide/vilanterol trifenate	RX	*****
olodaterol HCl	RX	
olodaterol HCl	RX	*****
fluticasone furoate/vilanterol trifenate	RX	
olodaterol HCl	RX	*****
fluticasone propionate	RX	
mometasone furoate	RX	
formoterol fumarate	RX	*****
acridinium bromide	RX	
glycopyrrolate/formoterol fumarate	RX	*****
acridinium bromide	RX	
salmeterol xinafoate	RX	
mometasone furoate	RX	*****
acridinium bromide	RX	
umeclidinium bromide/vilanterol trifenate	RX	
mometasone furoate	RX	*****
acridinium bromide	RX	
mometasone furoate	RX	
budesonide/formoterol fumarate	RX	*****
acridinium bromide	RX	
mometasone furoate/formoterol fumarate	RX	
budesonide/formoterol fumarate	RX	*****
acridinium bromide	RX	
mometasone furoate/formoterol fumarate	RX	
ciclesonide	RX	*****
acridinium bromide	RX	
mometasone furoate/formoterol fumarate	RX	
fluticasone propionate/salmeterol xinafoate	RX	*****
acridinium bromide	RX	
umeclidinium bromide/vilanterol trifenate	RX	
tiotropium bromide	RX	*****
acridinium bromide	RX	
tiotropium bromide	RX	
fluticasone propionate	RX	*****
budesonide/formoterol fumarate	RX	
acridinium bromide	RX	
tiotropium bromide/olodaterol HCl	RX	*****
acridinium bromide	RX	
umeclidinium bromide	RX	
fluticasone furoate/vilanterol trifenate	RX	*****
acridinium bromide	RX	

Table 7a. Full Code Distribution of Prevalent Users of Long-Acting Muscarinic Antagonists (LAMA), Long-Acting Beta Agonists (LABA) or Inhaled Corticosteroids (ICS) in the Sentinel Distributed Database (SDD) between January 1, 2008 and August 31, 2018

Code Description	Code Category	Overall Counts
umeclidinium bromide/vilanterol trifrenatate	RX	
fluticasone propionate/salmeterol xinafoate	RX	*****
acldinium bromide	RX	
budesonide	RX	
arformoterol tartrate	RX	*****
acldinium bromide	RX	
budesonide/formoterol fumarate	RX	
budesonide	RX	*****
arformoterol tartrate	RX	
acldinium bromide	RX	
budesonide/formoterol fumarate	RX	
budesonide	RX	*****
acldinium bromide	RX	
fluticasone propionate	RX	
budesonide/formoterol fumarate	RX	*****
acldinium bromide	RX	
ciclesonide	RX	*****
acldinium bromide	RX	
tiotropium bromide	RX	
salmeterol xinafoate	RX	
fluticasone propionate	RX	*****
budesonide/formoterol fumarate	RX	
tiotropium bromide	RX	
salmeterol xinafoate	RX	
fluticasone propionate/salmeterol xinafoate	RX	*****
budesonide/formoterol fumarate	RX	
umeclidinium bromide/vilanterol trifrenatate	RX	
tiotropium bromide/olodaterol HCl	RX	*****
salmeterol xinafoate	RX	
fluticasone furoate/vilanterol trifrenatate	RX	
umeclidinium bromide	RX	
salmeterol xinafoate	RX	*****
fluticasone furoate/vilanterol trifrenatate	RX	
umeclidinium bromide/vilanterol trifrenatate	RX	*****
salmeterol xinafoate	RX	
salmeterol xinafoate	RX	
fluticasone propionate	RX	*****
budesonide	RX	
salmeterol xinafoate	RX	*****
fluticasone furoate	RX	
tiotropium bromide/olodaterol HCl	RX	
tiotropium bromide	RX	*****
fluticasone propionate/salmeterol xinafoate	RX	
umeclidinium bromide	RX	
tiotropium bromide	RX	
fluticasone furoate/vilanterol trifrenatate	RX	*****
budesonide/formoterol fumarate	RX	

Table 7a. Full Code Distribution of Prevalent Users of Long-Acting Muscarinic Antagonists (LAMA), Long-Acting Beta Agonists (LABA) or Inhaled Corticosteroids (ICS) in the Sentinel Distributed Database (SDD) between January 1, 2008 and August 31, 2018

Code Description	Code Category	Overall Counts
umeclidinium bromide	RX	
tiotropium bromide	RX	*****
fluticasone propionate/salmeterol xinafoate	RX	
fluticasone furoate/vilanterol trifenate	RX	
umeclidinium bromide	RX	
tiotropium bromide	RX	*****
fluticasone propionate	RX	
umeclidinium bromide/vilanterol trifenate	RX	
tiotropium bromide	RX	*****
budesonide	RX	
umeclidinium bromide/vilanterol trifenate	RX	
tiotropium bromide	RX	*****
fluticasone furoate/vilanterol trifenate	RX	
umeclidinium bromide/vilanterol trifenate	RX	
tiotropium bromide	RX	*****
fluticasone propionate/salmeterol xinafoate	RX	
fluticasone furoate/vilanterol trifenate	RX	
umeclidinium bromide/vilanterol trifenate	RX	
tiotropium bromide	RX	*****
fluticasone propionate	RX	
tiotropium bromide	RX	
fluticasone propionate/salmeterol xinafoate	RX	*****
fluticasone furoate	RX	
umeclidinium bromide	RX	*****
tiotropium bromide/olodaterol HCl	RX	
tiotropium bromide olodaterol HCl	RX	
fluticasone propionate salmeterol xinafoate	RX	*****
fluticasone furoate vilanterol trifenate	RX	
umeclidinium bromide/vilanterol trifenate	RX	
umeclidinium bromide	RX	*****
budesonide/formoterol fumarate	RX	
umeclidinium bromide	RX	
fluticasone furoate/vilanterol trifenate	RX	*****
budesonide	RX	
umeclidinium bromide	RX	
fluticasone furoate/vilanterol trifenate	RX	*****
budesonide/formoterol fumarate	RX	
umeclidinium bromide/vilanterol trifenate	RX	
fluticasone propionate	RX	*****
budesonide	RX	
umeclidinium bromide/vilanterol trifenate	RX	
fluticasone furoate/vilanterol trifenate	RX	*****
budesonide/formoterol fumarate	RX	
umeclidinium bromide/vilanterol trifenate	RX	
fluticasone propionate	RX	*****
budesonide/formoterol fumarate	RX	
umeclidinium bromide/vilanterol trifenate	RX	
fluticasone propionate/salmeterol xinafoate	RX	*****
budesonide/formoterol fumarate	RX	

Table 7a. Full Code Distribution of Prevalent Users of Long-Acting Muscarinic Antagonists (LAMA), Long-Acting Beta Agonists (LABA) or Inhaled Corticosteroids (ICS) in the Sentinel Distributed Database (SDD) between January 1, 2008 and August 31, 2018

Code Description	Code Category	Overall Counts
umeclidinium bromide/vilanterol trifenate	RX	
fluticasone propionate	RX	*****
fluticasone furoate/vilanterol trifenate	RX	
umeclidinium bromide/vilanterol trifenate	RX	
fluticasone propionate/salmeterol xinafoate	RX	*****
fluticasone furoate/vilanterol trifenate	RX	
tiotropium bromide	RX	
fluticasone furoate/vilanterol trifenate	RX	*****
budesonide	RX	
arformoterol tartrate	RX	
tiotropium bromide	RX	
fluticasone propionate	RX	*****
arformoterol tartrate	RX	
umeclidinium bromide	RX	
budesonide	RX	*****
arformoterol tartrate	RX	
umeclidinium bromide/vilanterol trifenate	RX	*****
arformoterol tartrate	RX	
ciclesonide	RX	*****
arformoterol tartrate	RX	
fluticasone furoate/vilanterol trifenate	RX	
budesonide/formoterol fumarate	RX	*****
budesonide	RX	
fluticasone propionate/salmeterol xinafoate	RX	
fluticasone propionate	RX	*****
budesonide/formoterol fumarate	RX	
budesonide	RX	
ciclesonide	RX	*****
budesonide	RX	
fluticasone propionate/salmeterol xinafoate	RX	
fluticasone propionate	RX	*****
budesonide	RX	
fluticasone propionate/salmeterol xinafoate	RX	*****
ciclesonide	RX	
fluticasone propionate/salmeterol xinafoate	RX	
fluticasone propionate	RX	*****
fluticasone furoate/vilanterol trifenate	RX	

*****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 7b. Total Code Counts of Prevalent Users of Long-Acting Muscarinic Antagonists (LAMA), Long-Acting Beta Agonists (LABA) or Inhaled Corticosteroids (ICS) in the Sentinel Distributed Database (SDD) between January 1, 2008 and August 31, 2018

Code Description	Code Category	Overall Counts
fluticasone propionate/salmeterol xinafoate	RX	1,266,291
tiotropium bromide	RX	1,254,959
budesonide/formoterol fumarate	RX	669,882
fluticasone propionate	RX	222,903
fluticasone furoate/vilanterol trifenate	RX	126,688
mometasone furoate/formoterol fumarate	RX	93,344
umeclidinium bromide/vilanterol trifenate	RX	86,108
budesonide	RX	85,277
mometasone furoate	RX	44,133
umeclidinium bromide	RX	35,780
salmeterol xinafoate	RX	29,688
acridinium bromide	RX	27,095
tiotropium bromide/olodaterol HCl	RX	23,894
formoterol fumarate	RX	22,753
arformoterol tartrate	RX	6,630
glycopyrrolate/formoterol fumarate	RX	4,018
fluticasone furoate	RX	3,481
ciclesonide	RX	1,823
indacaterol maleate	RX	1,012
olodaterol HCl	RX	638
indacaterol maleate/glycopyrrolate	RX	216
glycopyrrolate	RX	*****
glycopyrrolate/nebulizer and accessories	RX	*****
glycopyrrolate/nebulizer accessories	RX	*****

*****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 8a. Events and Dispensings of Interest in the 365 Days Prior to and Including the Index Date for Chronic Obstructive Pulmonary Disease (COPD) Patients with Long-Acting Muscarinic Antagonists (LAMA), Long-Acting Beta Agonists (LABA) or Inhaled Corticosteroids (ICS), No Evidence of Exclusion Conditions and at least 365 Days of Continuous Enrollment in the Sentinel Distributed Database (SDD) between January 1, 2008 and August 31, 2018

COPD Exacerbation	Oral Corticosteroids	Antibiotics	COPD Diagnosis	Number of Patients	Percent
0	0	0	1	900,160	23.5%
0	0	1	1	921,743	24.1%
0	1	0	1	170,239	4.4%
0	1	1	1	621,190	16.2%
1	0	0	1	146,252	3.8%
1	0	1	1	263,852	6.9%
1	1	0	1	97,354	2.5%
1	1	1	1	710,848	18.6%
Total				3,831,638	100%

Table 8b. Events and Dispensings of Interest in the 30 Days Post-index for Chronic Obstructive Pulmonary Disease (COPD) Patients with Long-Acting Muscarinic Antagonists (LAMA), Long-Acting Beta Agonists (LABA) or Inhaled Corticosteroids (ICS), No Evidence of Exclusion Conditions and at least 365 Days of Continuous Enrollment in the Sentinel Distributed Database (SDD) between January 1, 2008 and August 31, 2018

COPD Exacerbation	Oral Corticosteroids	Antibiotics	COPD Diagnosis	Number of Patients	Percent
0	0	0	0	2,188,893	57.1%
0	0	0	1	206,107	5.4%
0	0	1	0	481,373	12.6%
0	0	1	1	61,321	1.6%
0	1	0	0	237,068	6.2%
0	1	0	1	32,425	0.8%
0	1	1	0	250,730	6.5%
0	1	1	1	46,428	1.2%
1	0	0	0	67,947	1.8%
1	0	0	1	31,707	0.8%
1	0	1	0	32,515	0.8%
1	0	1	1	14,787	0.4%
1	1	0	0	38,878	1.0%
1	1	0	1	18,407	0.5%
1	1	1	0	81,780	2.1%
1	1	1	1	41,272	1.1%
Total				3,831,638	100.0%

Appendix A. Start and End Dates for Each Data Partner (DP) up to Request End Date (May 10, 2019)

Data Partner ID	Start Date¹	End Date¹
DP01	01/01/2000	07/31/2017
DP02	01/01/2000	03/31/2018
DP03	01/01/2004	08/31/2018
DP04	01/01/2010	03/31/2018
DP05	01/01/2000	06/30/2018
DP06	01/01/2006	05/31/2018
DP07	01/01/2000	12/31/2017
DP08	06/01/2007	07/31/2018
DP09	01/01/2000	03/31/2016
DP10	01/01/2005	09/30/2017
DP11	01/01/2000	06/30/2018
DP12	01/01/2000	03/31/2018
DP13	01/01/2000	12/31/2017
DP14	01/01/2000	04/30/2018
DP15	01/01/2008	06/30/2018

¹End 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 International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) and International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Diagnosis Codes Used to Define Exposures in this Request

Code	Description	Code Category	Code Type
490	Bronchitis, not specified as acute or chronic	Diagnosis	ICD-9-CM
491.0	Simple chronic bronchitis	Diagnosis	ICD-9-CM
491.1	Mucopurulent chronic bronchitis	Diagnosis	ICD-9-CM
491.20	Obstructive chronic bronchitis, without exacerbation	Diagnosis	ICD-9-CM
491.21	Obstructive chronic bronchitis, with (acute) exacerbation	Diagnosis	ICD-9-CM
491.22	Obstructive chronic bronchitis with acute bronchitis	Diagnosis	ICD-9-CM
491.8	Other chronic bronchitis	Diagnosis	ICD-9-CM
491.9	Unspecified chronic bronchitis	Diagnosis	ICD-9-CM
492.0	Emphysematous bleb	Diagnosis	ICD-9-CM
492.8	Other emphysema	Diagnosis	ICD-9-CM
493.20	Chronic obstructive asthma, unspecified	Diagnosis	ICD-9-CM
493.21	Chronic obstructive asthma with status asthmaticus	Diagnosis	ICD-9-CM
493.22	Chronic obstructive asthma, with (acute) exacerbation	Diagnosis	ICD-9-CM
496	Chronic airway obstruction, not elsewhere classified	Diagnosis	ICD-9-CM
J40	Bronchitis, not specified as acute or chronic	Diagnosis	ICD-10-CM
J41	Simple and mucopurulent chronic bronchitis	Diagnosis	ICD-10-CM
J41.0	Simple chronic bronchitis	Diagnosis	ICD-10-CM
J41.1	Mucopurulent chronic bronchitis	Diagnosis	ICD-10-CM
J41.8	Mixed simple and mucopurulent chronic bronchitis	Diagnosis	ICD-10-CM
J42	Unspecified chronic bronchitis	Diagnosis	ICD-10-CM
J43	Emphysema	Diagnosis	ICD-10-CM
J43.1	Panlobular emphysema	Diagnosis	ICD-10-CM
J43.2	Centrilobular emphysema	Diagnosis	ICD-10-CM
J43.8	Other emphysema	Diagnosis	ICD-10-CM
J43.9	Emphysema, unspecified	Diagnosis	ICD-10-CM
J44	Other chronic obstructive pulmonary disease	Diagnosis	ICD-10-CM
J44.0	Chronic obstructive pulmonary disease with acute lower respiratory infection	Diagnosis	ICD-10-CM
J44.1	Chronic obstructive pulmonary disease with (acute) exacerbation	Diagnosis	ICD-10-CM
J44.9	Chronic obstructive pulmonary disease, unspecified	Diagnosis	ICD-10-CM

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

Generic Name	Brand Name
budesonide	budesonide
budesonide	Pulmicort Flexhaler
budesonide	Pulmicort
ciclesonide	Alvesco
fluticasone furoate	Arnuity Ellipta
fluticasone propionate	Flovent Diskus
fluticasone propionate	Flovent HFA
fluticasone propionate	ArmonAir RespiClick
mometasone furoate	Asmanex Twisthaler
mometasone furoate	Asmanex HFA
arformoterol tartrate	Brovana
formoterol fumarate	Foradil Aerolizer
formoterol fumarate	Perforomist
indacaterol maleate	Arcapta Neohaler
olodaterol HCl	Striverdi Respimat
salmeterol xinafoate	Serevent Diskus
acclidinium bromide	Tudorza Pressair
glycopyrrolate	Seebri Neohaler
glycopyrrolate/nebulizer accessories	Lonhala Magnair Refill
glycopyrrolate/nebulizer and accessories	Lonhala Magnair Starter
tiotropium bromide	Spiriva with HandiHaler
tiotropium bromide	Spiriva Respimat
umeclidinium bromide	Incruse Ellipta
glycopyrrolate/formoterol fumarate	Bevespi Aerosphere
indacaterol maleate/glycopyrrolate	Utibron Neohaler
tiotropium bromide/olodaterol HCl	Stiolto Respimat
umeclidinium bromide/vilanterol trifenate	Anoro Ellipta
budesonide/formoterol fumarate	Symbicort
fluticasone propionate/salmeterol xinafoate	fluticasone-salmeterol
fluticasone propionate/salmeterol xinafoate	Advair Diskus
fluticasone propionate/salmeterol xinafoate	Advair HFA
fluticasone propionate/salmeterol xinafoate	AirDuo RespiClick
mometasone furoate/formoterol fumarate	Dulera
fluticasone propionate/salmeterol	Wixela InHub
fluticasone furoate/vilanterol trifenate	Breo Ellipta

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Code	Description	Code Category	Code Type
Alpha-1 Anti-trypsin			
273.4	Alpha-1-antitrypsin deficiency	Diagnosis	ICD-9-CM
E88.01	Alpha-1-antitrypsin deficiency	Diagnosis	ICD-10-CM
Asthma			
J45	Asthma	Diagnosis	ICD-10-CM
J45.2	Mild intermittent asthma	Diagnosis	ICD-10-CM
J45.20	Mild intermittent asthma, uncomplicated	Diagnosis	ICD-10-CM
J45.21	Mild intermittent asthma with (acute) exacerbation	Diagnosis	ICD-10-CM
J45.22	Mild intermittent asthma with status asthmaticus	Diagnosis	ICD-10-CM
J45.3	Mild persistent asthma	Diagnosis	ICD-10-CM
J45.30	Mild persistent asthma, uncomplicated	Diagnosis	ICD-10-CM
J45.31	Mild persistent asthma with (acute) exacerbation	Diagnosis	ICD-10-CM
J45.32	Mild persistent asthma with status asthmaticus	Diagnosis	ICD-10-CM
J45.4	Moderate persistent asthma	Diagnosis	ICD-10-CM
J45.40	Moderate persistent asthma, uncomplicated	Diagnosis	ICD-10-CM
J45.41	Moderate persistent asthma with (acute) exacerbation	Diagnosis	ICD-10-CM
J45.42	Moderate persistent asthma with status asthmaticus	Diagnosis	ICD-10-CM
J45.5	Severe persistent asthma	Diagnosis	ICD-10-CM
J45.50	Severe persistent asthma, uncomplicated	Diagnosis	ICD-10-CM
J45.51	Severe persistent asthma with (acute) exacerbation	Diagnosis	ICD-10-CM
J45.52	Severe persistent asthma with status asthmaticus	Diagnosis	ICD-10-CM
J45.9	Other and unspecified asthma	Diagnosis	ICD-10-CM
J45.90	Unspecified asthma	Diagnosis	ICD-10-CM
J45.901	Unspecified asthma with (acute) exacerbation	Diagnosis	ICD-10-CM
J45.902	Unspecified asthma with status asthmaticus	Diagnosis	ICD-10-CM
J45.909	Unspecified asthma, uncomplicated	Diagnosis	ICD-10-CM
J45.99	Other asthma	Diagnosis	ICD-10-CM
J45.991	Cough variant asthma	Diagnosis	ICD-10-CM
J45.998	Other asthma	Diagnosis	ICD-10-CM
493.00	Extrinsic asthma, unspecified	Diagnosis	ICD-9-CM
493.10	Intrinsic asthma, unspecified	Diagnosis	ICD-9-CM
493.02	Extrinsic asthma, with (acute) exacerbation	Diagnosis	ICD-9-CM
493.12	Intrinsic asthma, with (acute) exacerbation	Diagnosis	ICD-9-CM
493.01	Extrinsic asthma with status asthmaticus	Diagnosis	ICD-9-CM
493.11	Intrinsic asthma with status asthmaticus	Diagnosis	ICD-9-CM
493.92	Asthma, unspecified, with (acute) exacerbation	Diagnosis	ICD-9-CM
493.91	Asthma, unspecified with status asthmaticus	Diagnosis	ICD-9-CM
493.90	Asthma, unspecified, unspecified status	Diagnosis	ICD-9-CM
493.82	Cough variant asthma	Diagnosis	ICD-9-CM
Bronchiectasis			
J47	Bronchiectasis	Diagnosis	ICD-10-CM
J47.0	Bronchiectasis with acute lower respiratory infection	Diagnosis	ICD-10-CM
J47.1	Bronchiectasis with (acute) exacerbation	Diagnosis	ICD-10-CM
J47.9	Bronchiectasis, uncomplicated	Diagnosis	ICD-10-CM
Q33.4	Congenital bronchiectasis	Diagnosis	ICD-10-CM
A15.0	Tuberculous bronchiectasis (current disease)	Diagnosis	ICD-10-CM
494.0	Bronchiectasis without acute exacerbation	Diagnosis	ICD-9-CM

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Code	Description	Code Category	Code Type
494.1	Bronchiectasis with acute exacerbation	Diagnosis	ICD-9-CM
748.61	Congenital bronchiectasis	Diagnosis	ICD-9-CM
011.90	Unspecified pulmonary tuberculosis, confirmation unspecified	Diagnosis	ICD-9-CM
011.00	Tuberculosis of lung, infiltrative, confirmation unspecified	Diagnosis	ICD-9-CM
011.01	Tuberculosis of lung, infiltrative, bacteriological or histological examination not done	Diagnosis	ICD-9-CM
011.02	Tuberculosis of lung, infiltrative, bacteriological or histological examination unknown (at present)	Diagnosis	ICD-9-CM
011.03	Tuberculosis of lung, infiltrative, tubercle bacilli found (in sputum) by microscopy	Diagnosis	ICD-9-CM
011.04	Tuberculosis of lung, infiltrative, tubercle bacilli not found (in sputum) by microscopy, but found by bacterial culture	Diagnosis	ICD-9-CM
011.05	Tuberculosis of lung, infiltrative, tubercle bacilli not found by bacteriological examination, but tuberculosis confirmed histologically	Diagnosis	ICD-9-CM
011.06	Tuberculosis of lung, infiltrative, tubercle bacilli not found bacteriological or histological examination, but tuberculosis confirmed by other methods (inoculation of animals)	Diagnosis	ICD-9-CM
011.10	Tuberculosis of lung, nodular, confirmation unspecified	Diagnosis	ICD-9-CM
011.11	Tuberculosis of lung, nodular, bacteriological or histological examination not done	Diagnosis	ICD-9-CM
011.12	Tuberculosis of lung, nodular, bacteriological or histological examination unknown (at present)	Diagnosis	ICD-9-CM
011.13	Tuberculosis of lung, nodular, tubercle bacilli found (in sputum) by microscopy	Diagnosis	ICD-9-CM
011.14	Tuberculosis of lung, nodular, tubercle bacilli not found (in sputum) by microscopy, but found by bacterial culture	Diagnosis	ICD-9-CM
011.15	Tuberculosis of lung, nodular, tubercle bacilli not found by bacteriological examination, but tuberculosis confirmed histologically	Diagnosis	ICD-9-CM
011.16	Tuberculosis of lung, nodular, tubercle bacilli not found by bacteriological or histological examination, but tuberculosis confirmed by other methods [inoculation of animals]	Diagnosis	ICD-9-CM
011.20	Tuberculosis of lung with cavitation, confirmation unspecified	Diagnosis	ICD-9-CM
011.21	Tuberculosis of lung with cavitation, bacteriological or histological examination not done	Diagnosis	ICD-9-CM
011.22	Tuberculosis of lung with cavitation, bacteriological or histological examination unknown (at present)	Diagnosis	ICD-9-CM
011.23	Tuberculosis of lung with cavitation, tubercle bacilli found (in sputum) by microscopy	Diagnosis	ICD-9-CM
011.24	Tuberculosis of lung with cavitation, tubercle bacilli not found (in sputum) by microscopy, but found by bacterial culture	Diagnosis	ICD-9-CM
011.25	Tuberculosis of lung with cavitation, tubercle bacilli not found by bacteriological examination, but tuberculosis confirmed histologically	Diagnosis	ICD-9-CM
011.26	Tuberculosis of lung with cavitation, tubercle bacilli not found by bacteriological or histological examination, but tuberculosis confirmed by other methods [inoculation of animals]	Diagnosis	ICD-9-CM
011.40	Tuberculous fibrosis of lung, confirmation unspecified	Diagnosis	ICD-9-CM
011.41	Tuberculous fibrosis of lung, bacteriological or histological examination not done	Diagnosis	ICD-9-CM
011.42	Tuberculous fibrosis of lung, bacteriological or histological examination unknown (at present)	Diagnosis	ICD-9-CM
011.43	Tuberculous fibrosis of lung, tubercle bacilli found (in sputum) by microscopy	Diagnosis	ICD-9-CM
011.44	Tuberculous fibrosis of lung, tubercle bacilli not found (in sputum) by microscopy, but found by bacterial culture	Diagnosis	ICD-9-CM
011.45	Tuberculous fibrosis of lung, tubercle bacilli not found by bacteriological examination, but tuberculosis confirmed histologically	Diagnosis	ICD-9-CM

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Code	Description	Code Category	Code Type
011.46	Tuberculous fibrosis of lung, tubercle bacilli not found by bacteriological or histological examination, but tuberculosis confirmed by other methods [inoculation of animals]	Diagnosis	ICD-9-CM
011.50	Tuberculous bronchiectasis, confirmation unspecified	Diagnosis	ICD-9-CM
011.51	Tuberculous bronchiectasis, bacteriological or histological examination not done	Diagnosis	ICD-9-CM
011.52	Tuberculous bronchiectasis, bacteriological or histological examination unknown (at present)	Diagnosis	ICD-9-CM
011.53	Tuberculous bronchiectasis, tubercle bacilli found (in sputum) by microscopy	Diagnosis	ICD-9-CM
011.54	Tuberculous bronchiectasis, tubercle bacilli not found (in sputum) by microscopy, but found by bacterial culture	Diagnosis	ICD-9-CM
011.55	Tuberculous bronchiectasis, tubercle bacilli not found by bacteriological examination, but tuberculosis confirmed histologically	Diagnosis	ICD-9-CM
011.56	Tuberculous bronchiectasis, tubercle bacilli not found by bacteriological or histological examination, but tuberculosis confirmed by other methods [inoculation of animals]	Diagnosis	ICD-9-CM
011.60	Tuberculous pneumonia (any form), confirmation unspecified	Diagnosis	ICD-9-CM
011.61	Tuberculous pneumonia (any form), bacteriological or histological examination not done	Diagnosis	ICD-9-CM
011.62	Tuberculous pneumonia (any form), bacteriological or histological examination unknown (at present)	Diagnosis	ICD-9-CM
011.63	Tuberculous pneumonia (any form), tubercle bacilli found (in sputum) by microscopy	Diagnosis	ICD-9-CM
011.64	Tuberculous pneumonia (any form), tubercle bacilli not found (in sputum) by microscopy, but found by bacterial culture	Diagnosis	ICD-9-CM
011.65	Tuberculous pneumonia (any form), tubercle bacilli not found by bacteriological examination, but tuberculosis confirmed histologically	Diagnosis	ICD-9-CM
011.66	Tuberculous pneumonia (any form), tubercle bacilli not found by bacteriological or histological examination, but tuberculosis confirmed by other methods [inoculation of animals]	Diagnosis	ICD-9-CM
011.70	Tuberculous pneumothorax, confirmation unspecified	Diagnosis	ICD-9-CM
011.71	Tuberculous pneumothorax, bacteriological or histological examination not done	Diagnosis	ICD-9-CM
011.72	Tuberculous pneumothorax, bacteriological or histological examination unknown (at present)	Diagnosis	ICD-9-CM
011.73	Tuberculous pneumothorax, tubercle bacilli not found (in sputum) by microscopy	Diagnosis	ICD-9-CM
011.74	Tuberculous pneumothorax, tubercle bacilli not found (in sputum) by microscopy, but found by bacterial culture	Diagnosis	ICD-9-CM
011.75	Tuberculous pneumothorax, tubercle bacilli not found by bacteriological examination, but tuberculosis confirmed histologically	Diagnosis	ICD-9-CM
011.76	Tuberculous pneumothorax, tubercle bacilli not found by bacteriological or histological examination but tuberculosis confirmed by other methods [inoculation of animals]	Diagnosis	ICD-9-CM
011.80	Other specified pulmonary tuberculosis, confirmation unspecified	Diagnosis	ICD-9-CM
011.81	Other specified pulmonary tuberculosis, bacteriological or histological examination not done	Diagnosis	ICD-9-CM
011.82	Other specified pulmonary tuberculosis, bacteriological or histological examination unknown (at present)	Diagnosis	ICD-9-CM
011.83	Other specified pulmonary tuberculosis, tubercle bacilli found (in sputum) by microscopy	Diagnosis	ICD-9-CM
011.84	Other specified pulmonary tuberculosis, tubercle bacilli not found (in sputum) by microscopy, but found by bacterial culture	Diagnosis	ICD-9-CM

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Code	Description	Code Category	Code Type
011.85	Other specified pulmonary tuberculosis, tubercle bacilli not found by bacteriological examination, but tuberculosis confirmed histologically	Diagnosis	ICD-9-CM
011.86	Other specified pulmonary tuberculosis, tubercle bacilli not found by bacteriological or histological examination, but tuberculosis confirmed by other methods [inoculation of animals]	Diagnosis	ICD-9-CM
011.91	Unspecified pulmonary tuberculosis, bacteriological or histological examination not done	Diagnosis	ICD-9-CM
011.92	Unspecified pulmonary tuberculosis, bacteriological or histological examination unknown (at present)	Diagnosis	ICD-9-CM
011.93	Unspecified pulmonary tuberculosis, tubercle bacilli found (in sputum) by microscopy	Diagnosis	ICD-9-CM
011.94	Unspecified pulmonary tuberculosis, tubercle bacilli not found (in sputum) by microscopy, but found by bacterial culture	Diagnosis	ICD-9-CM
011.95	Unspecified pulmonary tuberculosis, tubercle bacilli not found by bacteriological examination, but tuberculosis confirmed histologically	Diagnosis	ICD-9-CM
011.96	Unspecified pulmonary tuberculosis, tubercle bacilli not found by bacteriological or histological examination, but tuberculosis confirmed by other methods [inoculation of animals]	Diagnosis	ICD-9-CM
Cystic fibrosis			
E84	Cystic fibrosis	Diagnosis	ICD-10-CM
E84.0	Cystic fibrosis with pulmonary manifestations	Diagnosis	ICD-10-CM
E84.1	Cystic fibrosis with intestinal manifestations	Diagnosis	ICD-10-CM
E84.11	Meconium ileus in cystic fibrosis	Diagnosis	ICD-10-CM
E84.19	Cystic fibrosis with other intestinal manifestations	Diagnosis	ICD-10-CM
E84.8	Cystic fibrosis with other manifestations	Diagnosis	ICD-10-CM
E84.9	Cystic fibrosis, unspecified	Diagnosis	ICD-10-CM
277.00	Cystic fibrosis without mention of meconium ileus	Diagnosis	ICD-9-CM
277.01	Cystic fibrosis with meconium ileus	Diagnosis	ICD-9-CM
277.02	Cystic fibrosis with pulmonary manifestations	Diagnosis	ICD-9-CM
277.03	Cystic fibrosis with gastrointestinal manifestations	Diagnosis	ICD-9-CM
277.09	Cystic fibrosis with other manifestations	Diagnosis	ICD-9-CM
277.00	Cystic fibrosis without mention of meconium ileus	Diagnosis	ICD-9-CM
277.01	Cystic fibrosis with meconium ileus	Diagnosis	ICD-9-CM
277.02	Cystic fibrosis with pulmonary manifestations	Diagnosis	ICD-9-CM
277.03	Cystic fibrosis with gastrointestinal manifestations	Diagnosis	ICD-9-CM
277.09	Cystic fibrosis with other manifestations	Diagnosis	ICD-9-CM
Sarcoidosis			
D86	Sarcoidosis	Diagnosis	ICD-10-CM
D860	Sarcoidosis of lung	Diagnosis	ICD-10-CM
D861	Sarcoidosis of lymph nodes	Diagnosis	ICD-10-CM
D862	Sarcoidosis of lung with sarcoidosis of lymph nodes	Diagnosis	ICD-10-CM
D863	Sarcoidosis of skin	Diagnosis	ICD-10-CM
D868	Sarcoidosis of other sites	Diagnosis	ICD-10-CM
D8681	Sarcoid meningitis	Diagnosis	ICD-10-CM
D8682	Multiple cranial nerve palsies in sarcoidosis	Diagnosis	ICD-10-CM
D8683	Sarcoid iridocyclitis	Diagnosis	ICD-10-CM
D8684	Sarcoid pyelonephritis	Diagnosis	ICD-10-CM
D8685	Sarcoid myocarditis	Diagnosis	ICD-10-CM
D8686	Sarcoid arthropathy	Diagnosis	ICD-10-CM
D8687	Sarcoid myositis	Diagnosis	ICD-10-CM

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Code	Description	Code Category	Code Type
D8689	Sarcoidosis of other sites	Diagnosis	ICD-10-CM
D869	Sarcoidosis, unspecified	Diagnosis	ICD-10-CM
135	Sarcoidosis	Diagnosis	ICD-9-CM
Interstitial Lung Diseases, Pneumoconioses, and Miscellaneous Lung Diseases (ILD)			
J84	Other interstitial pulmonary diseases	Diagnosis	ICD-10-CM
J84.0	Alveolar and pareto-alveolar conditions	Diagnosis	ICD-10-CM
J84.01	Alveolar proteinosis	Diagnosis	ICD-10-CM
J84.02	Pulmonary alveolar microlithiasis	Diagnosis	ICD-10-CM
J84.03	Idiopathic pulmonary hemosiderosis	Diagnosis	ICD-10-CM
J84.09	Other alveolar and parieto-alveolar conditions	Diagnosis	ICD-10-CM
J84.1	Other interstitial pulmonary diseases with fibrosis	Diagnosis	ICD-10-CM
J84.11	Idiopathic interstitial pneumonia	Diagnosis	ICD-10-CM
J84.111	... not otherwise specified	Diagnosis	ICD-10-CM
J84.112	Idiopathic pulmonary fibrosis	Diagnosis	ICD-10-CM
J84.113	Idiopathic non-specific interstitial pneumonitis	Diagnosis	ICD-10-CM
J84.114	Acute interstitial pneumonitis	Diagnosis	ICD-10-CM
J84115	Respiratory bronchiolitis interstitial lung disease	Diagnosis	ICD-10-CM
J84.116	Cryptogenic organizing pneumonia	Diagnosis	ICD-10-CM
J84.117	Desquamative interstitial pneumonia	Diagnosis	ICD-10-CM
J84.17	... in diseases classified elsewhere	Diagnosis	ICD-10-CM
J84.2	Lymphoid interstitial pneumonia	Diagnosis	ICD-10-CM
J84.8	Other specified interstitial pulmonary diseases	Diagnosis	ICD-10-CM
J84.81	Lymphangioleiomyomatosis	Diagnosis	ICD-10-CM
J84.82	Adult pulmonary Langerhans cell histiocytosis	Diagnosis	ICD-10-CM
J84.83	Surfactant mutations of the lung	Diagnosis	ICD-10-CM
J8484	Other interstitial lung diseases of childhood	Diagnosis	ICD-10-CM
J84.841	Neuroendocrine cell hyperplasia of infancy	Diagnosis	ICD-10-CM
J84.842	Pulmonary interstitial glycogenosis	Diagnosis	ICD-10-CM
J84.843	Alveolar capillary dysplasia with vein misalignment	Diagnosis	ICD-10-CM
J84848	Other interstitial lung diseases of childhood	Diagnosis	ICD-10-CM
J84.89	Other specified interstitial pulmonary diseases	Diagnosis	ICD-10-CM
J84.9	Interstitial Pulmonary Disease, unspecified	Diagnosis	ICD-10-CM
J60	Coalworker's pneumoconiosis	Diagnosis	ICD-10-CM
J61	Pneumoconiosis due to asbestos and other mineral fibers	Diagnosis	ICD-10-CM
J62	Pneumoconiosis due to dust containing silica	Diagnosis	ICD-10-CM
J63	Pneumoconiosis due to other inorganic dusts	Diagnosis	ICD-10-CM
J64	Unspecified pneumoconiosis	Diagnosis	ICD-10-CM
J65	Pneumoconiosis associated with tuberculosis	Diagnosis	ICD-10-CM
J66	Airway disease due to specific organic dust	Diagnosis	ICD-10-CM
J67	Hypersensitivity pneumonitis due to organic dust	Diagnosis	ICD-10-CM
J68	Respiratory conditions due to inhalation of chemicals, gases, fumes and vapors	Diagnosis	ICD-10-CM
J69	Pneumonitis due to solids and liquids	Diagnosis	ICD-10-CM
J70	Respiratory conditions due to other external agents	Diagnosis	ICD-10-CM
J70.0	Acute pulmonary manifestations due to radiation	Diagnosis	ICD-10-CM
J70.1	Chronic and other pulmonary manifestations due to radiation	Diagnosis	ICD-10-CM
J70.2	Acute drug-induced interstitial lung disorders	Diagnosis	ICD-10-CM
J70.3	Chronic drug-induced interstitial lung disorders	Diagnosis	ICD-10-CM
J70.4	Drug-induced interstitial lung disorders, unspecified	Diagnosis	ICD-10-CM
J70.5	Respiratory conditions due to smoke inhalation	Diagnosis	ICD-10-CM
J70.8	Respiratory conditions due to other specified external agents	Diagnosis	ICD-10-CM

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Code	Description	Code Category	Code Type
J70.9	Respiratory conditions due to unspecified external agent	Diagnosis	ICD-10-CM
516.34	Respiratory bronchiolitis interstitial lung disease	Diagnosis	ICD-9-CM
516.69	Other interstitial lung diseases of childhood	Diagnosis	ICD-9-CM
516.0	Pulmonary alveolar proteinosis	Diagnosis	ICD-9-CM
516.2	Pulmonary alveolar microlithiasis	Diagnosis	ICD-9-CM
516.1	Idiopathic pulmonary hemosiderosis	Diagnosis	ICD-9-CM
516.8	Other specified alveolar and parietoalveolar pneumonopathies	Diagnosis	ICD-9-CM
516.30	Idiopathic interstitial pneumonia, not otherwise specified	Diagnosis	ICD-9-CM
516.31	Idiopathic pulmonary fibrosis	Diagnosis	ICD-9-CM
516.32	Idiopathic non-specific interstitial pneumonitis	Diagnosis	ICD-9-CM
516.33	Acute interstitial pneumonitis	Diagnosis	ICD-9-CM
516.36	Cryptogenic organizing pneumonia	Diagnosis	ICD-9-CM
516.37	Desquamative interstitial pneumonia	Diagnosis	ICD-9-CM
515	Postinflammatory pulmonary fibrosis	Diagnosis	ICD-9-CM
516.35	Idiopathic lymphoid interstitial pneumonia	Diagnosis	ICD-9-CM
516.4	Lymphangioleiomyomatosis	Diagnosis	ICD-9-CM
516.5	Adult pulmonary Langerhans cell histiocytosis	Diagnosis	ICD-9-CM
516.63	Surfactant mutations of the lung	Diagnosis	ICD-9-CM
516.61	Neuroendocrine cell hyperplasia of infancy	Diagnosis	ICD-9-CM
516.62	Pulmonary interstitial glycogenosis	Diagnosis	ICD-9-CM
516.64	Alveolar capillary dysplasia with vein misalignment	Diagnosis	ICD-9-CM
516.9	Unspecified alveolar and parietoalveolar pneumonopathy	Diagnosis	ICD-9-CM
500	Coal workers' pneumoconiosis	Diagnosis	ICD-9-CM
501	Asbestosis	Diagnosis	ICD-9-CM
505	Unspecified pneumoconiosis	Diagnosis	ICD-9-CM
508.0	Acute pulmonary manifestations due to radiation	Diagnosis	ICD-9-CM
508.1	Chronic and other pulmonary manifestations due to radiation	Diagnosis	ICD-9-CM
508.8	Respiratory conditions due to other specified external agents	Diagnosis	ICD-9-CM
508.2	Respiratory conditions due to smoke inhalation	Diagnosis	ICD-9-CM
508.9	Respiratory conditions due to unspecified external agent	Diagnosis	ICD-9-CM
Spirometry Testing Relevant to COPD (Spirometry)			
3023F	Spirometry results documented and reviewed (COPD)	Procedure	CPT-4
3025F	Spirometry test results demonstrate FEV1/FVC less than 70% with COPD symptoms (eg, dyspnea, cough/sputum, wheezing) (CAP, COPD)	Procedure	CPT-4
94010	Spirometry, including graphic record, total and timed vital capacity, expiratory flow rate measurement(s), with or without maximal voluntary ventilation	Procedure	CPT-4
94014	Patient-initiated spirometric recording per 30-day period of time; includes reinforced education, transmission of spirometric tracing, data capture, analysis of transmitted data, periodic recalibration and review and interpretation by a physician or other qualified health care professional	Procedure	CPT-4
94015	Patient-initiated spirometric recording per 30-day period of time; recording (includes hook-up, reinforced education, data transmission, data capture, trend analysis, and periodic recalibration)	Procedure	CPT-4
94016	Patient-initiated spirometric recording per 30-day period of time; review and interpretation only by a physician or other qualified health care professional	Procedure	CPT-4
94060	Bronchodilation responsiveness, spirometry as in 94010, pre- and post-bronchodilator administration	Procedure	CPT-4
94617	Exercise test for bronchospasm, including pre- and post-spirometry, electrocardiographic recording(s), and pulse oximetry	Procedure	CPT-4

Appendix D. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) and International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Diagnosis Codes, Healthcare Common Procedure Coding System (HCPCS) and Current Procedural Terminology, 4th Edition (CPT-4) Codes Used to Define Inclusion and Exclusion Criteria in this Request

Code	Description	Code Category	Code Type
94620	Pulmonary stress testing; simple (eg, 6-minute walk test, prolonged exercise test for bronchospasm with pre- and post-spirometry and oximetry)	Procedure	CPT-4
G8292	COPD patient with spirometry results documented	Procedure	HCPCS
G8924	Spirometry test results demonstrate FEV1/FVC < 70%, FEV < 60% predicted and patient has COPD symptoms (e.g., dyspnea, cough/sputum, wheezing)	Procedure	HCPCS
94070	Bronchospasm provocation evaluation, multiple spirometric determinations as in 94010, with administered agents (eg, antigen[sl, cold air, methacholine)	Procedure	CPT-4
94375	Respiratory flow volume loop	Procedure	CPT-4
Designators of Smoking (Smoking)			
1034F	Current tobacco smoker (CAD, CAP, COPD, PV) (DM)	Procedure	CPT-4
1035F	Current smokeless tobacco user (eg, chew, snuff) (PV)	Procedure	CPT-4
305.1	Tobacco use disorder	Diagnosis	ICD-9-CM
4000F	Tobacco use cessation intervention, counseling (COPD, CAP, CAD, Asthma) (DM) (PV)	Procedure	CPT-4
4001F	Tobacco use cessation intervention, pharmacologic therapy (COPD, CAD, CAP, PV, Asthma) (DM) (PV)	Procedure	CPT-4
4004F	Patient screened for tobacco use and received tobacco cessation intervention (counseling, pharmacotherapy, or both), if identified as a tobacco user (PV, CAD)	Procedure	CPT-4
649.0	Tobacco use disorder complicating pregnancy, childbirth, or the puerperium	Diagnosis	ICD-9-CM
649.00	Tobacco use disorder complicating pregnancy, childbirth, or the puerperium, unspecified as to episode of care or not applicable	Diagnosis	ICD-9-CM
649.01	Tobacco use disorder complicating pregnancy, childbirth, or the puerperium, delivered, with or without mention of antepartum condition	Diagnosis	ICD-9-CM
649.02	Tobacco use disorder complicating pregnancy, childbirth, or the puerperium, delivered, with mention of postpartum complication	Diagnosis	ICD-9-CM
649.03	Tobacco use disorder complicating pregnancy, childbirth, or the puerperium, antepartum condition or complication	Diagnosis	ICD-9-CM
649.04	Tobacco use disorder complicating pregnancy, childbirth, or the puerperium, postpartum condition or complication	Diagnosis	ICD-9-CM
83887	Nicotine	Procedure	CPT-4
989.84	Toxic effect of tobacco	Diagnosis	ICD-9-CM
99406	Smoking and tobacco use cessation counseling visit; intermediate, greater than 3 minutes up to 10 minutes	Procedure	CPT-4
99407	Smoking and tobacco use cessation counseling visit; intensive, greater than 10 minutes	Procedure	CPT-4
C9801	Smoking and tobacco cessation counseling visit for the asymptomatic patient; intermediate, greater than 3 minutes, up to 10 minutes	Procedure	HCPCS
C9802	Smoking and tobacco cessation counseling visit for the asymptomatic patient; intensive, greater than 10 minutes	Procedure	HCPCS
D1320	Tobacco counseling for the control and prevention of oral disease	Procedure	HCPCS
F17	Nicotine dependence	Diagnosis	ICD-10-CM
F17.2	Nicotine dependence	Diagnosis	ICD-10-CM
F17.20	Nicotine dependence, unspecified	Diagnosis	ICD-10-CM
F17.200	Nicotine dependence, unspecified, uncomplicated	Diagnosis	ICD-10-CM
F17.201	Nicotine dependence, unspecified, in remission	Diagnosis	ICD-10-CM
F17.203	Nicotine dependence unspecified, with withdrawal	Diagnosis	ICD-10-CM
F17.208	Nicotine dependence, unspecified, with other nicotine-induced disorders	Diagnosis	ICD-10-CM
F17.209	Nicotine dependence, unspecified, with unspecified nicotine-induced disorders	Diagnosis	ICD-10-CM
F17.21	Nicotine dependence, cigarettes	Diagnosis	ICD-10-CM
F17.210	Nicotine dependence, cigarettes, uncomplicated	Diagnosis	ICD-10-CM
F17.211	Nicotine dependence, cigarettes, in remission	Diagnosis	ICD-10-CM

Appendix D. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) and International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Diagnosis Codes, Healthcare Common Procedure Coding System (HCPCS) and Current Procedural Terminology, 4th Edition (CPT-4) Codes Used to Define Inclusion and Exclusion Criteria in this Request

Code	Description	Code Category	Code Type
F17.213	Nicotine dependence, cigarettes, with withdrawal	Diagnosis	ICD-10-CM
F17.218	Nicotine dependence, cigarettes, with other nicotine-induced disorders	Diagnosis	ICD-10-CM
F17.219	Nicotine dependence, cigarettes, with unspecified nicotine-induced disorders	Diagnosis	ICD-10-CM
F17.220	Nicotine dependence, chewing tobacco, uncomplicated	Diagnosis	ICD-10-CM
F17.221	Nicotine dependence, chewing tobacco, in remission	Diagnosis	ICD-10-CM
F17.290	Nicotine dependence, other tobacco product, uncomplicated	Diagnosis	ICD-10-CM
F17.291	Nicotine dependence, other tobacco product, in remission	Diagnosis	ICD-10-CM
G0375	Smoking and tobacco use cessation counseling visit; intermediate, greater than 3 minutes up to 10 minutes	Procedure	HCPCS
G0376	Smoking and tobacco use cessation counseling visit; intensive, greater than 10 minutes	Procedure	HCPCS
G0436	Smoking and tobacco cessation counseling visit for the asymptomatic patient; intermediate, greater than 3 minutes, up to 10 minutes	Procedure	HCPCS
G0437	Smoking and tobacco cessation counseling visit for the asymptomatic patient; intensive, greater than 10 minutes	Procedure	HCPCS
G8093	Newly diagnosed chronic obstructive pulmonary disease (COPD) patient documented to have received smoking cessation intervention, within 3 months of diagnosis	Procedure	HCPCS
G8094	Newly diagnosed chronic obstructive pulmonary disease (COPD) patient not documented to have received smoking cessation intervention, within 3 months of diagnosis	Procedure	HCPCS
G8402	Tobacco (smoke) use cessation intervention, counseling	Procedure	HCPCS
G8403	Tobacco (smoke) use cessation intervention not counseled	Procedure	HCPCS
G8453	Tobacco use cessation intervention, counseling	Procedure	HCPCS
G8454	Tobacco use cessation intervention not counseled, reason not specified	Procedure	HCPCS
G8455	Current tobacco smoker	Procedure	HCPCS
G8456	Current smokeless tobacco user	Procedure	HCPCS
G8688	Currently a smokeless tobacco user (e.g., chew, snuff) and no exposure to secondhand smoke	Procedure	HCPCS
G8690	Current tobacco smoker or current exposure to secondhand smoke	Procedure	HCPCS
G8692	Current smokeless tobacco user (e.g., chew, snuff) and no exposure to secondhand smoke	Procedure	HCPCS
G9016	Smoking cessation counseling, individual, in the absence of or in addition to any other evaluation and management service, per session (6-10 minutes) [demo project code only]	Procedure	HCPCS
G9276	Documentation that patient is a current tobacco user	Procedure	HCPCS
G9458	Patient documented as tobacco user and received tobacco cessation intervention (must include at least one of the following: advice given to quit smoking or tobacco use, counseling on the benefits of quitting smoking or tobacco use, assistance with or referral to external smoking or tobacco cessation support programs, or current enrollment in smoking or tobacco use cessation program) if identified as a tobacco user	Procedure	HCPCS
O99.33	Tobacco use disorder complicating pregnancy, childbirth, and the puerperium	Diagnosis	ICD-10-CM
O99.330	Smoking (tobacco) complicating pregnancy, unspecified trimester	Diagnosis	ICD-10-CM
O99.331	Smoking (tobacco) complicating pregnancy, first trimester	Diagnosis	ICD-10-CM
O99.332	Smoking (tobacco) complicating pregnancy, second trimester	Diagnosis	ICD-10-CM
O99.333	Smoking (tobacco) complicating pregnancy, third trimester	Diagnosis	ICD-10-CM
O99.334	Smoking (tobacco) complicating childbirth	Diagnosis	ICD-10-CM
O99.335	Smoking (tobacco) complicating the puerperium	Diagnosis	ICD-10-CM
S4990	Nicotine patches, legend	Procedure	HCPCS

Appendix D. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) and International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Diagnosis Codes, Healthcare Common Procedure Coding System (HCPCS) and Current Procedural Terminology, 4th Edition (CPT-4) Codes Used to Define Inclusion and Exclusion Criteria in this Request

Code	Description	Code Category	Code Type
S4991	Nicotine patches, non-legend	Procedure	HCPCS
S4995	Smoking cessation gum	Procedure	HCPCS
S9075	Smoking cessation treatment	Procedure	HCPCS
S9453	Smoking cessation classes, non-physician provider, per session	Procedure	HCPCS
T65.211A	Toxic effect of chewing tobacco, accidental (unintentional), initial encounter	Diagnosis	ICD-10-CM
T65.212A	Toxic effect of chewing tobacco, intentional self-harm, initial encounter	Diagnosis	ICD-10-CM
T65.213A	Toxic effect of chewing tobacco, assault, initial encounter	Diagnosis	ICD-10-CM
T65.214A	Toxic effect of chewing tobacco, undetermined, initial encounter	Diagnosis	ICD-10-CM
T65.221A	Toxic effect of tobacco cigarettes, accidental (unintentional), initial encounter	Diagnosis	ICD-10-CM
T65.222A	Toxic effect of tobacco cigarettes, intentional self-harm, initial encounter	Diagnosis	ICD-10-CM
T65.223A	Toxic effect of tobacco cigarettes, assault, initial encounter	Diagnosis	ICD-10-CM
T65.224A	Toxic effect of tobacco cigarettes, undetermined, initial encounter	Diagnosis	ICD-10-CM
T65.291A	Toxic effect of other tobacco and nicotine, accidental (unintentional), initial encounter	Diagnosis	ICD-10-CM
T65.292A	Toxic effect of other tobacco and nicotine, intentional self-harm, initial encounter	Diagnosis	ICD-10-CM
T65.293A	Toxic effect of other tobacco and nicotine, assault, initial encounter	Diagnosis	ICD-10-CM
T65.294A	Toxic effect of other tobacco and nicotine, undetermined, initial encounter	Diagnosis	ICD-10-CM
V15.82	Personal history of tobacco use, presenting hazards to health	Diagnosis	ICD-9-CM
Z72.0	Tobacco use	Diagnosis	ICD-10-CM
Z87.891	Personal history of nicotine dependence	Diagnosis	ICD-10-CM
292.0	Drug withdrawal	Diagnosis	ICD-9-CM
292.89	Other specified drug-induced mental disorder	Diagnosis	ICD-9-CM
292.9	Unspecified drug-induced mental disorder	Diagnosis	ICD-9-CM
V69.8	Other problems related to lifestyle	Diagnosis	ICD-9-CM
E866.8	Accidental poisoning by other specified solid or liquid substances	Diagnosis	ICD-9-CM
E950.9	Suicide and self-inflicted poisoning by other and unspecified solid and liquid substances	Diagnosis	ICD-9-CM
E962.1	Assault by other solid and liquid substances	Diagnosis	ICD-9-CM
E980.9	Poisoning by other and unspecified solid and liquid substances, undetermined whether accidentally or purposely inflicted	Diagnosis	ICD-9-CM

Appendix E. List of Generic and Brand Names of Medical Products Used to Define Inclusion and Exclusion Criteria in this

Generic Name	Brand Name
Smoking	
bupropion HCl	Buproban
bupropion HCl	bupropion HCl (smoking deter)
varenicline tartrate	Chantix
varenicline tartrate	Chantix Continuing Month Box
varenicline tartrate	Chantix Continuing Month Pak
varenicline tartrate	Chantix Starting Month Box
varenicline tartrate	Chantix Starting Month Pak
nicotine polacrilex	Commit
nicotine	Habitrol
nicotine	Nicoderm CQ
nicotine polacrilex	Nicorelief
nicotine polacrilex	Nicorette
nicotine polacrilex	Nicorette Refill
nicotine polacrilex	Nicorette Starter Kit
nicotine	nicotine
nicotine polacrilex	nicotine (polacrilex)
nicotine polacrilex	nicotine polacrilex (bulk)
nicotine bitartrate	Nicotine Tartrate
nicotine	Nicotrol
nicotine	Nicotrol NS
nicotine	NTS Step 1
nicotine	NTS Step 2
nicotine	NTS Step 3
nicotine polacrilex	Quit 2
nicotine polacrilex	Quit 4
silver nitrate	silver nitrate (bulk)
nicotine polacrilex	Stop Smoking Aid
nicotine polacrilex	Thrive Nicotine
bupropion HCl	Zyban

Appendix F. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Diagnosis Codes, and Current Procedural Terminology, 4th Edition (CPT-4) Codes Used to Define Baseline Characteristics in this Request

Code	Description	Code Category	Code Type
Smoking			
1034F	Current tobacco smoker (CAD, CAP, COPD, PV) (DM)	Procedure	CPT-4
1035F	Current smokeless tobacco user (eg, chew, snuff) (PV)	Procedure	CPT-4
305.1	Tobacco use disorder	Diagnosis	ICD-9-CM
4000F	Tobacco use cessation intervention, counseling (COPD, CAP, CAD, Asthma) (DM) (PV)	Procedure	CPT-4
4001F	Tobacco use cessation intervention, pharmacologic therapy (COPD, CAD, CAP, PV, Asthma) (DM) (PV)	Procedure	CPT-4
4004F	Patient screened for tobacco use and received tobacco cessation intervention (counseling, pharmacotherapy, or both), if identified as a tobacco user (PV, CAD)	Procedure	CPT-4
649.0	Tobacco use disorder complicating pregnancy, childbirth, or the puerperium	Diagnosis	ICD-9-CM
649.00	Tobacco use disorder complicating pregnancy, childbirth, or the puerperium, unspecified as to episode of care or not applicable	Diagnosis	ICD-9-CM
649.01	Tobacco use disorder complicating pregnancy, childbirth, or the puerperium, delivered, with or without mention of antepartum condition	Diagnosis	ICD-9-CM
649.02	Tobacco use disorder complicating pregnancy, childbirth, or the puerperium, delivered, with mention of postpartum complication	Diagnosis	ICD-9-CM
649.03	Tobacco use disorder complicating pregnancy, childbirth, or the puerperium, antepartum condition or complication	Diagnosis	ICD-9-CM
649.04	Tobacco use disorder complicating pregnancy, childbirth, or the puerperium, postpartum condition or complication	Diagnosis	ICD-9-CM
83887	Nicotine	Procedure	CPT-4
989.84	Toxic effect of tobacco	Diagnosis	ICD-9-CM
99406	Smoking and tobacco use cessation counseling visit; intermediate, greater than 3 minutes up to 10 minutes	Procedure	CPT-4
99407	Smoking and tobacco use cessation counseling visit; intensive, greater than 10 minutes	Procedure	CPT-4
C9801	Smoking and tobacco cessation counseling visit for the asymptomatic patient; intermediate, greater than 3 minutes, up to 10 minutes	Procedure	HCPCS
C9802	Smoking and tobacco cessation counseling visit for the asymptomatic patient; intensive, greater than 10 minutes	Procedure	HCPCS
D1320	Tobacco counseling for the control and prevention of oral disease	Procedure	HCPCS
F17	Nicotine dependence	Diagnosis	ICD-10-CM
F17.2	Nicotine dependence	Diagnosis	ICD-10-CM
F17.20	Nicotine dependence, unspecified	Diagnosis	ICD-10-CM
F17.200	Nicotine dependence, unspecified, uncomplicated	Diagnosis	ICD-10-CM
F17.201	Nicotine dependence, unspecified, in remission	Diagnosis	ICD-10-CM
F17.203	Nicotine dependence unspecified, with withdrawal	Diagnosis	ICD-10-CM
F17.208	Nicotine dependence, unspecified, with other nicotine-induced disorders	Diagnosis	ICD-10-CM
F17.209	Nicotine dependence, unspecified, with unspecified nicotine-induced disorders	Diagnosis	ICD-10-CM
F17.21	Nicotine dependence, cigarettes	Diagnosis	ICD-10-CM
F17.210	Nicotine dependence, cigarettes, uncomplicated	Diagnosis	ICD-10-CM
F17.211	Nicotine dependence, cigarettes, in remission	Diagnosis	ICD-10-CM
F17.213	Nicotine dependence, cigarettes, with withdrawal	Diagnosis	ICD-10-CM
F17.218	Nicotine dependence, cigarettes, with other nicotine-induced disorders	Diagnosis	ICD-10-CM
F17.219	Nicotine dependence, cigarettes, with unspecified nicotine-induced disorders	Diagnosis	ICD-10-CM
F17.220	Nicotine dependence, chewing tobacco, uncomplicated	Diagnosis	ICD-10-CM
F17.221	Nicotine dependence, chewing tobacco, in remission	Diagnosis	ICD-10-CM
F17.290	Nicotine dependence, other tobacco product, uncomplicated	Diagnosis	ICD-10-CM
F17.291	Nicotine dependence, other tobacco product, in remission	Diagnosis	ICD-10-CM

Appendix F. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Diagnosis Codes, and Current Procedural Terminology, 4th Edition (CPT-4) Codes Used to Define Baseline Characteristics in this Request

Code	Description	Code Category	Code Type
G0375	Smoking and tobacco use cessation counseling visit; intermediate, greater than 3 minutes up to 10 minutes	Procedure	HCPCS
G0376	Smoking and tobacco use cessation counseling visit; intensive, greater than 10 minutes	Procedure	HCPCS
G0436	Smoking and tobacco cessation counseling visit for the asymptomatic patient; intermediate, greater than 3 minutes, up to 10 minutes	Procedure	HCPCS
G0437	Smoking and tobacco cessation counseling visit for the asymptomatic patient; intensive, greater than 10 minutes	Procedure	HCPCS
G8093	Newly diagnosed chronic obstructive pulmonary disease (COPD) patient documented to have received smoking cessation intervention, within 3 months of diagnosis	Procedure	HCPCS
G8094	Newly diagnosed chronic obstructive pulmonary disease (COPD) patient not documented to have received smoking cessation intervention, within 3 months of diagnosis	Procedure	HCPCS
G8402	Tobacco (smoke) use cessation intervention, counseling	Procedure	HCPCS
G8403	Tobacco (smoke) use cessation intervention not counseled	Procedure	HCPCS
G8453	Tobacco use cessation intervention, counseling	Procedure	HCPCS
G8454	Tobacco use cessation intervention not counseled, reason not specified	Procedure	HCPCS
G8455	Current tobacco smoker	Procedure	HCPCS
G8456	Current smokeless tobacco user	Procedure	HCPCS
G8688	Currently a smokeless tobacco user (e.g., chew, snuff) and no exposure to secondhand smoke	Procedure	HCPCS
G8690	Current tobacco smoker or current exposure to secondhand smoke	Procedure	HCPCS
G8692	Current smokeless tobacco user (e.g., chew, snuff) and no exposure to secondhand smoke	Procedure	HCPCS
G9016	Smoking cessation counseling, individual, in the absence of or in addition to any other evaluation and management service, per session (6-10 minutes) [demo project code only]	Procedure	HCPCS
G9276	Documentation that patient is a current tobacco user	Procedure	HCPCS
G9458	Patient documented as tobacco user and received tobacco cessation intervention (must include at least one of the following: advice given to quit smoking or tobacco use, counseling on the benefits of quitting smoking or tobacco use, assistance with or referral to external smoking or tobacco cessation support programs, or current enrollment in smoking or tobacco use cessation program) if identified as a tobacco user	Procedure	HCPCS
O99.33	Tobacco use disorder complicating pregnancy, childbirth, and the puerperium	Diagnosis	ICD-10-CM
O99.330	Smoking (tobacco) complicating pregnancy, unspecified trimester	Diagnosis	ICD-10-CM
O99.331	Smoking (tobacco) complicating pregnancy, first trimester	Diagnosis	ICD-10-CM
O99.332	Smoking (tobacco) complicating pregnancy, second trimester	Diagnosis	ICD-10-CM
O99.333	Smoking (tobacco) complicating pregnancy, third trimester	Diagnosis	ICD-10-CM
O99.334	Smoking (tobacco) complicating childbirth	Diagnosis	ICD-10-CM
O99.335	Smoking (tobacco) complicating the puerperium	Diagnosis	ICD-10-CM
S4990	Nicotine patches, legend	Procedure	HCPCS
S4991	Nicotine patches, non-legend	Procedure	HCPCS
S4995	Smoking cessation gum	Procedure	HCPCS
S9075	Smoking cessation treatment	Procedure	HCPCS
S9453	Smoking cessation classes, non-physician provider, per session	Procedure	HCPCS
T65.211A	Toxic effect of chewing tobacco, accidental (unintentional), initial encounter	Diagnosis	ICD-10-CM
T65.212A	Toxic effect of chewing tobacco, intentional self-harm, initial encounter	Diagnosis	ICD-10-CM

Appendix F. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Diagnosis Codes, and Current Procedural Terminology, 4th Edition (CPT-4) Codes Used to Define Baseline Characteristics in this Request

Code	Description	Code Category	Code Type
T65.213A	Toxic effect of chewing tobacco, assault, initial encounter	Diagnosis	ICD-10-CM
T65.214A	Toxic effect of chewing tobacco, undetermined, initial encounter	Diagnosis	ICD-10-CM
T65.221A	Toxic effect of tobacco cigarettes, accidental (unintentional), initial encounter	Diagnosis	ICD-10-CM
T65.222A	Toxic effect of tobacco cigarettes, intentional self-harm, initial encounter	Diagnosis	ICD-10-CM
T65.223A	Toxic effect of tobacco cigarettes, assault, initial encounter	Diagnosis	ICD-10-CM
T65.224A	Toxic effect of tobacco cigarettes, undetermined, initial encounter	Diagnosis	ICD-10-CM
T65.291A	Toxic effect of other tobacco and nicotine, accidental (unintentional), initial encounter	Diagnosis	ICD-10-CM
T65.292A	Toxic effect of other tobacco and nicotine, intentional self-harm, initial encounter	Diagnosis	ICD-10-CM
T65.293A	Toxic effect of other tobacco and nicotine, assault, initial encounter	Diagnosis	ICD-10-CM
T65.294A	Toxic effect of other tobacco and nicotine, undetermined, initial encounter	Diagnosis	ICD-10-CM
V15.82	Personal history of tobacco use, presenting hazards to health	Diagnosis	ICD-9-CM
Z72.0	Tobacco use	Diagnosis	ICD-10-CM
Z87.891	Personal history of nicotine dependence	Diagnosis	ICD-10-CM
292.0	Drug withdrawal	Diagnosis	ICD-9-CM
292.89	Other specified drug-induced mental disorder	Diagnosis	ICD-9-CM
292.9	Unspecified drug-induced mental disorder	Diagnosis	ICD-9-CM
V69.8	Other problems related to lifestyle	Diagnosis	ICD-9-CM
E866.8	Accidental poisoning by other specified solid or liquid substances	Diagnosis	ICD-9-CM
E950.9	Suicide and self-inflicted poisoning by other and unspecified solid and liquid substances	Diagnosis	ICD-9-CM
E962.1	Assault by other solid and liquid substances	Diagnosis	ICD-9-CM
E980.9	Poisoning by other and unspecified solid and liquid substances, undetermined whether accidentally or purposely inflicted	Diagnosis	ICD-9-CM
Smoking (Desai definition)			
305.1	Tobacco use disorder	Diagnosis	ICD-9-CM
649.0x	Tobacco use complicating pregnancy	Diagnosis	ICD-9-CM
989.84	Toxic effect of tobacco	Diagnosis	ICD-9-CM
V15.82	Personal history of tobacco use	Diagnosis	ICD-9-CM
99406	Smoking counseling visits	Procedure	CPT-4
99407	Smoking counseling visits	Procedure	CPT-4
G0436	Smoking counseling visits	Procedure	CPT-4
G0437	Smoking counseling visits	Procedure	CPT-4
G9016	Smoking counseling visits	Procedure	CPT-4
S9453	Smoking cessation classes	Procedure	CPT-4
S4995	Smoking cessation gum	Procedure	CPT-4
G9276	Documented tobacco user advised to quit	Procedure	CPT-4
G9458	Documented tobacco user advised to quit	Procedure	CPT-4
1034F	Current smoker	Procedure	CPT-4
4004F	Screened for tobacco use and received an intervention	Procedure	CPT-4
4001F	Screened for tobacco use and received an intervention	Procedure	CPT-4
Chronic Obstructive Pulmonary Disease (COPD) Exacerbation			
J44.0	Chronic obstructive pulmonary disease with acute lower respiratory infection	Diagnosis	ICD-10-CM
J44.1	Chronic obstructive pulmonary disease with (acute) exacerbation	Diagnosis	ICD-10-CM
491.22	Obstructive chronic bronchitis with acute bronchitis	Diagnosis	ICD-9-CM
491.21	Obstructive chronic bronchitis, with (acute) exacerbation	Diagnosis	ICD-9-CM

Appendix F. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Diagnosis Codes, and Current Procedural Terminology, 4th Edition (CPT-4) Codes Used to Define Baseline Characteristics in this Request

Code	Description	Code Category	Code Type
Obesity			
278.00	Obesity, unspecified	Diagnosis	ICD-9-CM
278.01	Morbid obesity	Diagnosis	ICD-9-CM
278.03	Obesity hypoventilation syndrome	Diagnosis	ICD-9-CM
649.1	Obesity complicating pregnancy, childbirth, or the puerperium	Diagnosis	ICD-9-CM
649.10	Obesity complicating pregnancy, childbirth, or the puerperium, unspecified as to episode of care or not applicable	Diagnosis	ICD-9-CM
649.11	Obesity complicating pregnancy, childbirth, or the puerperium, delivered, with or without mention of antepartum condition	Diagnosis	ICD-9-CM
649.12	Obesity complicating pregnancy, childbirth, or the puerperium, delivered, with mention of postpartum complication	Diagnosis	ICD-9-CM
649.13	Obesity complicating pregnancy, childbirth, or the puerperium, antepartum condition or complication	Diagnosis	ICD-9-CM
649.14	Obesity complicating pregnancy, childbirth, or the puerperium, postpartum condition or complication	Diagnosis	ICD-9-CM
E65	Localized adiposity	Diagnosis	ICD-10-CM
E66	Overweight and obesity	Diagnosis	ICD-10-CM
E66.0	Obesity due to excess calories	Diagnosis	ICD-10-CM
E66.01	Morbid (severe) obesity due to excess calories	Diagnosis	ICD-10-CM
E66.09	Other obesity due to excess calories	Diagnosis	ICD-10-CM
E66.1	Drug-induced obesity	Diagnosis	ICD-10-CM
E66.2	Morbid (severe) obesity with alveolar hypoventilation	Diagnosis	ICD-10-CM
E66.3	Overweight	Diagnosis	ICD-10-CM
E66.8	Other obesity	Diagnosis	ICD-10-CM
E66.9	Obesity, unspecified	Diagnosis	ICD-10-CM
O99.21	Obesity complicating pregnancy, childbirth, and the puerperium	Diagnosis	ICD-10-CM
O99.210	Obesity complicating pregnancy, unspecified trimester	Diagnosis	ICD-10-CM
O99.211	Obesity complicating pregnancy, first trimester	Diagnosis	ICD-10-CM
O99.212	Obesity complicating pregnancy, second trimester	Diagnosis	ICD-10-CM
O99.213	Obesity complicating pregnancy, third trimester	Diagnosis	ICD-10-CM
O99.214	Obesity complicating childbirth	Diagnosis	ICD-10-CM
O99.215	Obesity complicating the puerperium	Diagnosis	ICD-10-CM
V85.3	Body Mass Index between 30-39, adult	Diagnosis	ICD-9-CM
V85.30	Body Mass Index 30.0-30.9, adult	Diagnosis	ICD-9-CM
V85.31	Body Mass Index 31.0-31.9, adult	Diagnosis	ICD-9-CM
V85.32	Body Mass Index 32.0-32.9, adult	Diagnosis	ICD-9-CM
V85.33	Body Mass Index 33.0-33.9, adult	Diagnosis	ICD-9-CM
V85.34	Body Mass Index 34.0-34.9, adult	Diagnosis	ICD-9-CM
V85.35	Body Mass Index 35.0-35.9, adult	Diagnosis	ICD-9-CM
V85.36	Body Mass Index 36.0-36.9, adult	Diagnosis	ICD-9-CM
V85.37	Body Mass Index 37.0-37.9, adult	Diagnosis	ICD-9-CM
V85.38	Body Mass Index 38.0-38.9, adult	Diagnosis	ICD-9-CM
V85.39	Body Mass Index 39.0-39.9, adult	Diagnosis	ICD-9-CM
V85.4	Body Mass Index 40 and over, adult	Diagnosis	ICD-9-CM
V85.41	Body Mass Index 40.0-44.9, adult	Diagnosis	ICD-9-CM
V85.42	Body Mass Index 45.0-49.9, adult	Diagnosis	ICD-9-CM
V85.43	Body Mass Index 50.0-59.9, adult	Diagnosis	ICD-9-CM
V85.44	Body Mass Index 60.0-69.9, adult	Diagnosis	ICD-9-CM
V85.45	Body Mass Index 70 and over, adult	Diagnosis	ICD-9-CM
Z68.30	Body mass index (BMI) 30.0-30.9, adult	Diagnosis	ICD-10-CM
Z68.31	Body mass index (BMI) 31.0-31.9, adult	Diagnosis	ICD-10-CM

Appendix F. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Diagnosis Codes, and Current Procedural Terminology, 4th Edition (CPT-4) Codes Used to Define Baseline Characteristics in this Request

Code	Description	Code Category	Code Type
Z68.32	Body mass index (BMI) 32.0-32.9, adult	Diagnosis	ICD-10-CM
Z68.33	Body mass index (BMI) 33.0-33.9, adult	Diagnosis	ICD-10-CM
Z68.34	Body mass index (BMI) 34.0-34.9, adult	Diagnosis	ICD-10-CM
Z68.35	Body mass index (BMI) 35.0-35.9, adult	Diagnosis	ICD-10-CM
Z68.36	Body mass index (BMI) 36.0-36.9, adult	Diagnosis	ICD-10-CM
Z68.37	Body mass index (BMI) 37.0-37.9, adult	Diagnosis	ICD-10-CM
Z68.38	Body mass index (BMI) 38.0-38.9, adult	Diagnosis	ICD-10-CM
Z68.39	Body mass index (BMI) 39.0-39.9, adult	Diagnosis	ICD-10-CM
Z68.41	Body mass index (BMI) 40.0-44.9, adult	Diagnosis	ICD-10-CM
Z68.42	Body mass index (BMI) 45.0-49.9, adult	Diagnosis	ICD-10-CM
Z68.43	Body mass index (BMI) 50-59.9, adult	Diagnosis	ICD-10-CM
Z68.44	Body mass index (BMI) 60.0-69.9, adult	Diagnosis	ICD-10-CM
Z68.45	Body mass index (BMI) 70 or greater, adult	Diagnosis	ICD-10-CM
278.1	Localized adiposity	Diagnosis	ICD-9-CM
278.02	Overweight	Diagnosis	ICD-9-CM
278.2	Hypervitaminosis A	Diagnosis	ICD-9-CM
278.3	Hypercarotemia	Diagnosis	ICD-9-CM
278.8	Other hyperalimentation	Diagnosis	ICD-9-CM
278.4	Hypervitaminosis D	Diagnosis	ICD-9-CM
E67	Other hyperalimentation	Diagnosis	ICD-10-CM
E67.0	Hypervitaminosis A	Diagnosis	ICD-10-CM
E67.1	Hypercarotenemia	Diagnosis	ICD-10-CM
E67.2	Megavitamin-B6 syndrome	Diagnosis	ICD-10-CM
E67.3	Hypervitaminosis D	Diagnosis	ICD-10-CM
E67.8	Other specified hyperalimentation	Diagnosis	ICD-10-CM
E68	Sequelae of hyperalimentation	Diagnosis	ICD-10-CM

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

Generic Name	Brand Name
Smoking (Desai Definition)	
varenicline tartrate	Chantix
varenicline tartrate	Chantix Continuing Month Box
varenicline tartrate	Chantix Continuing Month Pak
varenicline tartrate	Chantix Starting Month Box
varenicline tartrate	Chantix Starting Month Pak
nicotine polacrilex	Commit
nicotine	Habitrol
nicotine	Nicoderm CQ
nicotine polacrilex	Nicorelief
nicotine polacrilex	Nicorette
nicotine polacrilex	Nicorette Refill
nicotine polacrilex	Nicorette Starter Kit
nicotine	nicotine
nicotine polacrilex	nicotine (polacrilex)
nicotine polacrilex	nicotine polacrilex (bulk)
nicotine bitartrate	Nicotine Tartrate
nicotine	Nicotrol
nicotine	Nicotrol NS
nicotine	NTS Step 1
nicotine	NTS Step 2
nicotine	NTS Step 3
nicotine polacrilex	Quit 2
nicotine polacrilex	Quit 4
nicotine polacrilex	Stop Smoking Aid
nicotine polacrilex	Thrive Nicotine
Oral Corticosteroids (OCS)	
methylprednisolone sodium succinate	A-Methapred
Prednisolone Sodium Phosphate/Peak Flow Meter	Asmalpred
Prednisolone Sodium Phosphate/Peak Flow Meter	Asmalpred Plus
prednisone	Deltasone
methylprednisolone acetate	Depo-Medrol
prednisolone acetate	Flo-Pred
methylprednisolone	Medrol
methylprednisolone	Medrol (Pak)
methylprednisolone	Meprolone Unipak
methylprednisolone acetate in sodium chloride,iso-osmotic/PF	methylpred ac(PF)-NaCl,iso-osm
methylprednisolone acetate/bupivacaine HCl in sterile water	methylprednisol ac-bupivac-wat
methylprednisolone	methylprednisolone
methylprednisolone acetate	methylprednisolone acetate
methylprednisolone acetate in sterile water for injection	methylprednisolone acet-water
methylprednisolone sodium succinate	methylprednisolone sodium succ
prednisolone	Millipred
prednisolone	Millipred DP
prednisolone sod phosphate	Orapred
prednisolone sod phosphate	Orapred ODT
methylprednisolone acetate	P-Care D40
methylprednisolone acetate	P-Care D80
prednisolone sod phosphate	Pediapred
methylprednisolone acetate/bupivacaine HCl	Physicians EZ Use M-Pred
prednisolone	prednisolone
prednisolone sod phosphate	prednisolone sodium phosphate
prednisone	prednisone

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

Generic Name	Brand Name
prednisone	Prednisone Intensol
prednisolone	Prelone
prednisone	Rayos
methylprednisolone acetate	ReadySharp Methylprednisolone
methylprednisolone sodium succinate	Solu-Medrol
methylprednisolone sodium succinate/PF	Solu-Medrol (PF)
prednisone	Sterapred
prednisone	Sterapred DS
prednisolone sod phosphate	Veripred 20
Antibiotics	
doxycycline hyclate	Acticlate
doxycycline monohydrate	Adoxa
doxycycline monohydrate	Adoxa Pak
amoxicillin	amoxicillin
amoxicillin/potassium clavulanate	amoxicillin-pot clavulanate
amoxicillin	Amoxil
amoxicillin/potassium clavulanate	Augmentin
amoxicillin/potassium clavulanate	Augmentin ES-600
amoxicillin/potassium clavulanate	Augmentin XR
moxifloxacin HCl	Avelox
moxifloxacin HCl	Avelox ABC Pack
moxifloxacin HCl/sodium chloride, iso-osmotic	Avelox in NaCl (iso-osmotic)
doxycycline monohydrate	Avidoxy
ceftazidime/avibactam sodium	Avycaz
azithromycin	azithromycin
azithromycin hydrogen citrate	azithromycin hydrogen citrate
sulfamethoxazole/trimethoprim	Bactrim
sulfamethoxazole/trimethoprim	Bactrim DS
clarithromycin	Biaxin
clarithromycin	Biaxin XL
clarithromycin	Biaxin XL Pak
cefotaxime sodium	cefotaxime
ceftazidime	ceftazidime
ceftazidime in dextrose 5% and water	ceftazidime in D5W
ceftriaxone sodium	ceftriaxone
ceftriaxone sodium in iso-osmotic dextrose	ceftriaxone in dextrose,iso-os
cefotaxime sodium	Claforan
cefotaxime sodium/dextrose, iso-osmotic	Claforan in dextrose(iso-osm)
clarithromycin	clarithromycin
doxycycline hyclate	Doryx
doxycycline hyclate	Doryx MPC
doxycycline hyclate	Doxy-100
doxycycline hyclate	doxycycline hyclate
doxycycline monohydrate	doxycycline monohydrate
ceftazidime	Fortaz
ceftazidime sodium in iso-osmotic dextrose	Fortaz in dextrose 5 %
levofloxacin	Levaquin
levofloxacin/dextrose 5 % in water	Levaquin in 5 % dextrose
levofloxacin	Levaquin Leva-Pak
levofloxacin	levofloxacin
levofloxacin/dextrose 5 % in water	levofloxacin in D5W
doxycycline monohydrate	Mondoxylene NL
doxycycline monohydrate	Monodox

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

Generic Name	Brand Name
doxycycline hyclate	Morgidox
amoxicillin	Moxatag
moxifloxacin HCl	moxifloxacin
moxifloxacin HCl/sodium chloride, iso-osmotic	moxifloxacin in NaCl (iso-osm)
moxifloxacin HCl in sodium acetate and sulfate,water,iso-osm	moxifloxacin-sod.ace,sul-water
doxycycline monohydrate	Okebo
doxycycline monohydrate	Oracea
doxycycline hyclate	Oraxyl
doxycycline hyclate	Periostat
piperacillin sodium/tazobactam sodium	piperacillin-tazobactam
ceftriaxone sodium	Rocephin
sulfamethoxazole/trimethoprim	Septra
sulfamethoxazole/trimethoprim	Septra DS
sulfamethoxazole/trimethoprim	SMZ-TMP DS
doxycycline hyclate	Soloxide
sulfamethoxazole/trimethoprim	sulfamethoxazole-trimethoprim
sulfamethoxazole/trimethoprim	Sulfatrim
doxycycline hyclate	Targadox
ceftazidime	TAZICEF
tobramycin sulfate/sodium chloride	tobramycin in 0.9 % NaCl
tobramycin sulfate	tobramycin sulfate
amoxicillin	Trimox
doxycycline calcium	Vibramycin
doxycycline hyclate	Vibra-Tabs
azithromycin	Zithromax
azithromycin	Zithromax TRI-PAK
azithromycin	Zithromax Z-Pak
azithromycin	Zmax
azithromycin	Zmax Pediatric
piperacillin sodium/tazobactam sodium	Zosyn
piperacillin and tazobactam in dextrose, iso-osmotic	Zosyn in dextrose (iso-osm)
Roflumilast	
roflumilast	Daliresp
Azithromycin	
azithromycin	azithromycin
azithromycin hydrogen citrate	azithromycin hydrogen citrate
azithromycin	Zithromax
azithromycin	Zithromax TRI-PAK
azithromycin	Zithromax Z-Pak
azithromycin	Zmax
azithromycin	Zmax Pediatric
Trelegy Ellipta	
fluticasone furoate/umeclidinium bromide/vilanterol trifenate	Trelegy Ellipta

Appendix H.1. Specifications Defining Parameters in this Request

This request executed the Cohort Identification and Descriptive Analysis (CIDA) tool version 7.3.2 to estimate rates of chronic obstructive pulmonary disease (COPD) patients treated with inhaled medications, such as inhaled corticosteroids (ICS), long-acting muscarinic antagonists (LAMA) or long-acting bronchodilator asthma (LABA) inhalers with inclusion/exclusion criteria specified below in the Sentinel Distributed Database (SDD).

Query period: January 1, 2008 - August 31, 2018
Coverage requirement: Medical & Drug Coverage
Pre-index enrollment requirement: 365 days
Post-index enrollment requirement: 0 days
Enrollment gap: 45 days
Age groups: Aged ≥ 40 to <65 and ≥ 65.
Stratifications: Age group, Sex, Calendar year, Race

Exposure Episode Parameters

Scenario	Index Exposure	Cohort definition	Incident exposure washout period	Incident w/ respect to:	Exposure episode length	Care setting	Principal diagnosis position	Censor treatment episode at evidence of:
1	Any COPD diagnosis	First valid exposure episode during query period	0	-	365	Any	Any	Death, DP end date, Query end date, Event, Disenrollment
2	Any COPD diagnosis	First valid exposure episode during query period	0	-	365	Any	Any	Death, DP end date, Query end date, Event, Disenrollment
3	LAMA, LABA <u>or</u> ICS	First valid exposure episode during query period	365	LAMA, LABA, or ICS	365	Any	Any	Death, DP end date, Query end date, Event, Disenrollment, Discontinue treatment

Appendix H.1. Specifications Defining Parameters in this Request

Scenario	Index Exposure	Cohort definition	Exposure Episode Parameters					Principal diagnosis position	Tensor treatment episode at evidence of:
			Incident exposure washout period	Incident w/ respect to:	Exposure episode length	Care setting			
4	LAMA, LABA <u>or</u> ICS	First valid exposure episode during query period	0	-	365	Any	Any	Death, DP end date, Query end date, Event, Disenrollment, Discontinue treatment	
5	LAMA, LABA <u>or</u> ICS	First valid exposure episode during query period	365	LAMA, LABA, or ICS	365	Any	Any	Death, DP end date, Query end date, Event, Disenrollment, Discontinue treatment	
6	LAMA, LABA <u>or</u> ICS	First valid exposure episode during query period	0	-	365	Any	Any	Death, DP end date, Query end date, Event, Disenrollment, Discontinue treatment	
7	LAMA, LABA <u>or</u> ICS	First valid exposure episode during query period	365	LAMA, LABA, or ICS	365	Any	Any	Death, DP end date, Query end date, Event, Disenrollment, Discontinue treatment	

Appendix H.1. Specifications Defining Parameters in this Request

Exposure Episode Parameters								
Scenario	Index Exposure	Cohort definition	Incident exposure washout period	Incident w/ respect to:	Exposure episode length	Care setting	Principal diagnosis position	Censor treatment episode at evidence of:
8	LAMA, LABA <u>or</u> ICS	First valid exposure episode during query period	0	-	365	Any	Any	Death, DP end date, Query end date, Event, Disenrollment, Discontinue treatment

ICD-9, ICD-10, HCPCS, and CPT codes are provided by Optum360.
 NDC codes are checked against First Data Bank's "National Drug Data File (NDDF®) Plus."

Appendix H.2. Specifications Defining Parameters in this Request (Continued)

Scenario	Inclusion/Exclusion Criteria						
	Inclusion/ Exclusion group	Criteria	Care setting	Principal diagnosis position	Evaluation period start	Evaluation period end	Number of instances the criteria should be found in evaluation period
1	Alpha-1 anti-trypsin	Exclusion	Any	Any	-365	0	1
	Asthma	Exclusion	Any	Any	-365	0	1
	Bronchiectasis	Exclusion	Any	Any	-365	0	1
	Cystic fibrosis	Exclusion	Any	Any	-365	0	1
	Sarcoidosis	Exclusion	Any	Any	-365	0	1
	ILD	Exclusion	Any	Any	-365	0	1
	ICS, LABA, or LAMA	Inclusion	Any	Any	-365	0	1
2	ICS, LABA, or LAMA	Inclusion	Any	Any	-365	0	1
3	COPD (any ICD9/ICD10 code)	Inclusion	Any	Any	-365	0	1
	Alpha-1 anti-trypsin	Exclusion	Any	Any	-365	0	1
	Asthma	Exclusion	Any	Any	-365	0	1
	Bronchiectasis	Exclusion	Any	Any	-365	0	1
	Cystic fibrosis	Exclusion	Any	Any	-365	0	1
	Sarcoidosis	Exclusion	Any	Any	-365	0	1
	ILD	Exclusion	Any	Any	-365	0	1
4	COPD (any ICD9/ICD10 code)	Inclusion	Any	Any	-365	0	1
	Alpha-1 anti-trypsin	Exclusion	Any	Any	-365	0	1
	Asthma	Exclusion	Any	Any	-365	0	1
	Bronchiectasis	Exclusion	Any	Any	-365	0	1
	Cystic fibrosis	Exclusion	Any	Any	-365	0	1
	Sarcoidosis	Exclusion	Any	Any	-365	0	1
	ILD	Exclusion	Any	Any	-365	0	1
5	COPD (any ICD9/ICD10 code)	Inclusion	Any	Any	-365	0	1
	Alpha-1 anti-trypsin	Exclusion	Any	Any	-365	0	1
	Asthma	Exclusion	Any	Any	-365	0	1
	Bronchiectasis	Exclusion	Any	Any	-365	0	1
	Cystic fibrosis	Exclusion	Any	Any	-365	0	1
	Sarcoidosis	Exclusion	Any	Any	-365	0	1
	ILD	Exclusion	Any	Any	-365	0	1
	Spirometry	Inclusion	Any	Any	EVER	0	1

Appendix H.2. Specifications Defining Parameters in this Request (Continued)

Scenario	Inclusion/Exclusion Criteria						
	Inclusion/ Exclusion group	Criteria	Care setting	Principal diagnosis position	Evaluation period start	Evaluation period end	Number of instances the criteria should be found in evaluation period
6	COPD (any ICD9/ICD10 code)	Inclusion	Any	Any	-365	0	1
	Alpha-1 anti-trypsin	Exclusion	Any	Any	-365	0	1
	Asthma	Exclusion	Any	Any	-365	0	1
	Bronchiectasis	Exclusion	Any	Any	-365	0	1
	Cystic fibrosis	Exclusion	Any	Any	-365	0	1
	Sarcoidosis	Exclusion	Any	Any	-365	0	1
	ILD	Exclusion	Any	Any	-365	0	1
	Spirometry	Inclusion	Any	Any	EVER	0	1
7	COPD (any ICD9/ICD10 code)	Inclusion	Any	Any	-365	0	1
	Alpha-1 anti-trypsin	Exclusion	Any	Any	-365	0	1
	Asthma	Exclusion	Any	Any	-365	0	1
	Bronchiectasis	Exclusion	Any	Any	-365	0	1
	Cystic fibrosis	Exclusion	Any	Any	-365	0	1
	Sarcoidosis	Exclusion	Any	Any	-365	0	1
	ILD	Exclusion	Any	Any	-365	0	1
	Smoking	Inclusion	Any	Any	EVER	0	1
8	COPD (any ICD9/ICD10 code)	Inclusion	Any	Any	-365	0	1
	Alpha-1 anti-trypsin	Exclusion	Any	Any	-365	0	1
	Asthma	Exclusion	Any	Any	-365	0	1
	Bronchiectasis	Exclusion	Any	Any	-365	0	1
	Cystic fibrosis	Exclusion	Any	Any	-365	0	1
	Sarcoidosis	Exclusion	Any	Any	-365	0	1
	ILD	Exclusion	Any	Any	-365	0	1
	Smoking	Inclusion	Any	Any	EVER	0	1

ICD-9, ICD-10, HCPCS, and CPT codes are provided by Optum360.

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

Appendix H.3. Specifications Defining Parameters for Baseline Characteristics in this Request (Scenario 1)

Baseline Characteristics					
Characteristic	Care setting	Principal diagnosis position	Evaluation period start	Evaluation period end	Number of instances the covariate should be found in evaluation period
<i>Demographic Characteristics</i>					
Age	Any	Any	-365	0	at least 1
Sex	Any	Any	-365	0	at least 1
Race	Any	Any	-365	0	at least 1
<i>Conditions/Tests/Risk Factors</i>					
Evidence of smoking	Any	Any	EVER	+365	at least 1
Evidence of smoking (algorithm 2 from Desai et al study only)	Any	Any	EVER	+365	at least 1
Spirometry	Any	Any	EVER	+365	at least 1
Obesity	Any	Any	EVER	+365	at least 1
<i>Chronic Obstructive Pulmonary Disease (COPD) Exacerbation</i>					
Exacerbation code (ExacCode, J44.0)	Any	Any	-365	0	at least 1
Exacerbation code (ExacCode, J44.1)	Any	Any	-365	0	at least 1
Exacerbation code (ExacCode, J44.0 OR J44.1)	Any	Any	-365	0	at least 1
Exacerbation code (ExacCode, J44.0)	Any	Any	1	+365	at least 1
Exacerbation code (ExacCode, J44.1)	Any	Any	1	+365	at least 1
Exacerbation code (ExacCode, J44.0 OR J44.1)	Any	Any	1	+365	at least 1
Exacerbation code (ExacCode, J44.0)	Any	Any	1	30	at least 1
Exacerbation code (ExacCode, J44.1)	Any	Any	1	30	at least 1
Exacerbation code (ExacCode, J44.0 OR J44.1)	Any	Any	1	30	at least 1
Inpt ExacCode (J44.0)	IP	Any	-365	0	at least 1
Inpt ExacCode (J44.1)	IP	Any	-365	0	at least 1
Inpt ExacCode (J44.0 OR J44.1)	IP	Any	-365	0	at least 1
Inpt ExacCode (J44.0)	IP	Any	1	+365	at least 1
Inpt ExacCode (J44.1)	IP	Any	1	+365	at least 1
Inpt ExacCode (J44.0 OR J44.1)	IP	Any	1	+365	at least 1
Inpt ExacCode (J44.0)	IP	Any	1	30	at least 1
Inpt ExacCode (J44.1)	IP	Any	1	30	at least 1
Inpt ExacCode (J44.0 OR J44.1)	IP	Any	1	30	at least 1
<i>Medical Products</i>					
Corticosteroid dispensing (OCS)	Any	Any	-365	0	at least 1
Corticosteroid dispensing (OCS)	Any	Any	1	+365	at least 1
Corticosteroid dispensing (OCS)	Any	Any	1	30	at least 1
Antibiotic dispensing (Abx)	Any	Any	-365	0	at least 1
Antibiotic dispensing (Abx)	Any	Any	1	+365	at least 1
Antibiotic dispensing (Abx)	Any	Any	1	30	at least 1
Roflumilast dispensing	Any	Any	1	+365	at least 2 times
Azithromycin dispensing	Any	Any	1	+365	at least 2 times

Appendix H.3. Specifications Defining Parameters for Baseline Characteristics in this Request (Scenario 1)

Baseline Characteristics

Characteristic	Care setting	Principal diagnosis position	Evaluation period start	Evaluation period end	Number of instances the covariate should be found in evaluation period
<i>Medical Products</i>					
Azithromycin dispensing	Any	Any	1	+365	at least 4 times
ICS	Any	Any	-365	+365	at least 2 times
LABA	Any	Any	-365	+365	at least 2 times
LAMA	Any	Any	-365	+365	at least 2 times
LABA + LAMA	Any	Any	-365	+365	at least 2 times
ICS + LABA	Any	Any	-365	+365	at least 2 times
ICS + LABA + LAMA	Any	Any	-365	+365	at least 2 times
Trelegy Ellipta	Any	Any	-365	+365	at least 2 times
<i>Chronic Obstructive Pulmonary Disease (COPD)</i>					
COPD (ICD-10: J40)	Any	Any	-365	0	at least 1
COPD (ICD-10: J41)	Any	Any	-365	0	at least 1
COPD (ICD-10: J42)	Any	Any	-365	0	at least 1
COPD (ICD-10: J43)	Any	Any	-365	0	at least 1
COPD (ICD-10: J44)	Any	Any	-365	0	at least 1
Inpt Diag for COPD	IP	Any	-365	0	at least 1
Inpt Diag for COPD	IP	Any	1	+365	at least 1
Inpt Diag for COPD	IP	Any	1	30	at least 1
Primary diagnosis code (Diag) for COPD	IP	Principal	1	+365	at least 1
Primary diagnosis code (Diag) for COPD	IP	Principal	-365	0	at least 1
Primary diagnosis code (Diag) for COPD	IP	Principal	1	30	at least 1
<i>Utilization</i>					
Prior combined comorbidity score			-365	0	at least 1
Mean number of ambulatory encounters			-365	0	at least 1
Mean number of emergency room encounters			-365	0	at least 1
Mean number of inpatient hospital encounters			-365	0	at least 1
Mean number of non-acute institutional encounters			-365	0	at least 1
Mean number of other ambulatory encounters			-365	0	at least 1
Mean number of unique drug classes			-365	0	at least 1
Mean number of generics			-365	0	at least 1
Mean number of filled prescriptions			-365	0	at least 1

Appendix H.4. Specifications Defining Parameters for Baseline Characteristics in this Request (Scenario 2)

Baseline Characteristics

Characteristic	Care setting	Principal diagnosis position	Evaluation period start	Evaluation period end	Number of instances the covariate should be found in evaluation period
Alpha-1 anti-trypsin	Any	Any	-365	0	at least 1
Asthma	Any	Any	-365	0	at least 1
Bronchiectasis	Any	Any	-365	0	at least 1
Cystic fibrosis	Any	Any	-365	0	at least 1
Sarcoidosis	Any	Any	-365	0	at least 1
ILD	Any	Any	-365	0	at least 1