

## Disclaimer

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

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

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

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

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

## Overview for Request: care\_mpl1p\_wp001

**Request ID:** care\_mpl1p\_wp001

**Request Description:** We evaluated various definitions of severe and moderate chronic obstructive pulmonary disease (COPD) and asthma exacerbations, estimated the proportion of patients who had multiple severe or moderate exacerbations during their follow-up, and assessed incidence of exacerbations in the Sentinel Distributed Database (SDD).

**Sentinel Routine Querying Module:** Cohort Identification and Descriptive Analysis (CIDA) tool, version 9.5.0, with ad hoc programming

**Data Source:** We distributed this request to 15 Sentinel Data Partners on September 3, 2020. The study period included data from January 1, 2008 through February 29, 2020. Please see Appendix A for a list of dates of available data for each Data

**Study Design:** We identified counts and proportions of COPD and asthma diagnoses. Only the first qualifying (index) diagnosis for each member was included; cohort re-entry was not allowed. We assessed historic use of antibiotics and oral corticosteroid (OCS) dispensings in the baseline. This is a Type 1 analysis as described in the Query Request Package (QRP) documentation. In addition, we assessed various definitions of exacerbation outcome events using ad hoc programming.

**Cohorts of Interest:** We identified patients of interest with any COPD and asthma general diagnoses, using International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) diagnosis codes. Please see Appendix B for the specific diagnosis codes used.

**Cohort Eligibility Criteria:** We required members to be continuously enrolled in health plans with medical and drug coverage in the 365 days prior to their index date, during which gaps in coverage of up to 45 days were allowed. For the COPD cohorts, we included the age groups of 40-64 and 65+ years, and for the asthma cohorts, we included the age groups of 18-39, 40-64 and 65+ years. For both cohorts, we required at least one dispensing of inhaled corticosteroid (ICS)-containing, long-acting beta agonist (LABA)-containing, or long-acting muscarinic antagonist (LAMA)-containing medication in the 365 days prior to the index date. We further required no evidence of alpha-1-antitrypsin deficiency, sarcoidosis, cystic fibrosis, bronchiectasis, interstitial lung disease, pneumoconiosis and miscellaneous other lung diseases in the 365 days prior to and including the index date. For the COPD cohorts only, we required no evidence of asthma diagnoses in the 365 days prior to and including the index date. For the asthma cohorts only, we required no evidence of COPD diagnoses in the 365 days prior to and including the index date.

*Please see Appendix E for a list of generic and brand drug names, and Appendix F for a list of ICD-9-CM and ICD-10-CM diagnosis codes used to define inclusion and exclusion criteria in this request.*

**Baseline Characteristics:** For both the COPD and asthma cohorts, we considered the following demographic characteristics on the index date of diagnosis: age, sex, race, ethnicity and calendar year. For the COPD cohort, we assessed historic use of antibiotics or OCS in the seven days prior to the index date, and in the 14 days prior to the index date. For the asthma cohort, we assessed historic use of OCS in the seven days prior to the index date, and in the 14 days prior to the index date.

*Please see Appendix G for a list of generic and brand names of medical products, Appendix H for a list of HCPCS codes, and Appendix I for a list of ICD-9-CM and ICD-10-CM diagnosis codes to define baseline characteristics in this request.*

**Outcomes of Interest:** Using ad hoc programming, we assessed various definitions of exacerbation outcome events. For the COPD cohort, we evaluated two outcome definitions of severe COPD exacerbations and two outcome definitions of moderate COPD exacerbations.

1. Severe COPD definition 1 - COPD exacerbation or COPD dx OR [acute respiratory failure dx and COPD dx]
  2. Severe COPD definition 2 - COPD exacerbation or COPD dx OR [acute respiratory failure dx and COPD dx] AND No heart failure, cardiac arrhythmia, acute MI, pneumonia, pneumothorax, or pulmonary embolism
  3. Moderate COPD definition 1 - COPD exacerbation AND Oral corticosteroids or Antibiotics
  4. Moderate COPD definition 2 - COPD diagnosis AND Oral corticosteroids or Antibiotics
- For the asthma cohort, we evaluated one outcome definition of severe asthma exacerbations and two outcome definitions of moderate asthma exacerbations.

1. Severe Asthma - Asthma exacerbation OR Asthma diagnosis OR [Acute respiratory failure dx and Asthma dx]
2. Moderate Asthma definition 1 - Asthma exacerbation AND Oral corticosteroids
3. Moderate Asthma definition 2 - Asthma diagnosis AND Oral corticosteroids

For all outcome definitions, we identified counts and proportions of patients that have multiple outcome events during their follow-up, and calculated the incidence rate of exacerbations.

**Overview for Request: care\_mpl1p\_wp001**

*Please see Appendix C for a list of generic and brand names of medical products and Appendix D for a list of HCPCS codes used to define outcome characteristics in this request. Please see Appendices J and J.1 for the specifications of parameters used in this*

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

**Notes:** Please contact the Sentinel Operations Center ([info@sentinel-system.org](mailto:info@sentinel-system.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.sentinel-system.org/projects/sentinel/repos/sentinel-routine-querying-tool-documentation/browse>).

## Table of Contents

<b><u>Glossary</u></b>	List of Terms Found in this Report and their Definitions
<b><u>Table 1a</u></b>	Baseline Characteristics for COPD Patients with ICS-, LAMA-, or LABA-containing Medications, with no Evidence of Exclusion Conditions, and at least 365 days of Continuous Enrollment in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020
<b><u>Table 1b</u></b>	Baseline Characteristics for Asthma Patients with ICS-, LAMA-, or LABA-containing Medications, with no Evidence of Exclusion Conditions, and at least 365 days of Continuous Enrollment in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020
<b><u>Table 2</u></b>	Summary of Severe COPD Exacerbations (Definition 1) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, Overall
<b><u>Table 3</u></b>	Summary of Severe COPD Exacerbations (Definition 1) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Year
<b><u>Table 4</u></b>	Summary of Severe COPD Exacerbations (Definition 1) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Sex
<b><u>Table 5</u></b>	Summary of Severe COPD Exacerbations (Definition 1) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Age Group
<b><u>Table 6</u></b>	Summary of Severe COPD Exacerbations (Definition 1) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Sex and Age Group
<b><u>Table 7</u></b>	Summary of Severe COPD Exacerbations (Definition 2) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, Overall
<b><u>Table 8</u></b>	Summary of Severe COPD Exacerbations (Definition 2) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Year
<b><u>Table 9</u></b>	Summary of Severe COPD Exacerbations (Definition 2) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Sex
<b><u>Table 10</u></b>	Summary of Severe COPD Exacerbations (Definition 2) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Age Group
<b><u>Table 11</u></b>	Summary of Severe COPD Exacerbations (Definition 2) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Sex and Age Group
<b><u>Table 12</u></b>	Summary of Moderate COPD Exacerbations (Definition 1) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, Overall
<b><u>Table 13</u></b>	Summary of Moderate COPD Exacerbations (Definition 1) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Year
<b><u>Table 14</u></b>	Summary of Moderate COPD Exacerbations (Definition 1) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Sex
<b><u>Table 15</u></b>	Summary of Moderate COPD Exacerbations (Definition 1) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Age Group
<b><u>Table 16</u></b>	Summary of Moderate COPD Exacerbations (Definition 1) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Sex and Age Group
<b><u>Table 17</u></b>	Summary of Moderate COPD Exacerbations (Definition 2) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, Overall
<b><u>Table 18</u></b>	Summary of Moderate COPD Exacerbations (Definition 2) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Year
<b><u>Table 19</u></b>	Summary of Moderate COPD Exacerbations (Definition 2) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Sex
<b><u>Table 20</u></b>	Summary of Moderate COPD Exacerbations (Definition 2) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Age Group
<b><u>Table 21</u></b>	Summary of Moderate COPD Exacerbations (Definition 2) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Sex and Age Group

<b><u>Table 22</u></b>	Summary of Severe Asthma Exacerbations in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, Overall
<b><u>Table 23</u></b>	Summary of Severe Asthma Exacerbations in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Year
<b><u>Table 24</u></b>	Summary of Severe Asthma Exacerbations in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Sex
<b><u>Table 25</u></b>	Summary of Severe Asthma Exacerbations in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Age Group
<b><u>Table 26</u></b>	Summary of Severe Asthma Exacerbations in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Sex and Age Group
<b><u>Table 27</u></b>	Summary of Moderate Asthma Exacerbations (Definition 1) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, Overall
<b><u>Table 28</u></b>	Summary of Moderate Asthma Exacerbations (Definition 1) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by year
<b><u>Table 29</u></b>	Summary of Moderate Asthma Exacerbations (Definition 1) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Sex
<b><u>Table 30</u></b>	Summary of Moderate Asthma Exacerbations (Definition 1) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Age Group
<b><u>Table 31</u></b>	Summary of Moderate Asthma Exacerbations (Definition 1) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Sex and Age Group
<b><u>Table 32</u></b>	Summary of Moderate Asthma Exacerbations (Definition 2) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, Overall
<b><u>Table 33</u></b>	Summary of Moderate Asthma Exacerbations (Definition 2) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Year
<b><u>Table 34</u></b>	Summary of Moderate Asthma Exacerbations (Definition 2) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Sex
<b><u>Table 35</u></b>	Summary of Moderate Asthma Exacerbations (Definition 2) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Age Group
<b><u>Table 36</u></b>	Summary of Moderate Asthma Exacerbations (Definition 2) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Sex and Age Group
<b><u>Appendix A</u></b>	Dates of Available Data for Each Data Partner (DP) up to request End Date (March 30, 2020) as of Query Distribution Date
<b><u>Appendix B</u></b>	List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) Diagnosis Codes to Define Exposures in this Request
<b><u>Appendix C</u></b>	List of Generic and Brand Drug Names used to Define Outcomes in this Request
<b><u>Appendix D</u></b>	List of Healthcare Common Procedure Coding System (HCPCS) Codes to Define Outcomes in this Request
<b><u>Appendix E</u></b>	List of Generic and Brand Drug Names used to Define Inclusion/Exclusion Criteria in this Request
<b><u>Appendix F</u></b>	List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) Diagnosis Codes to Define Inclusion/Exclusion Criteria in this Request
<b><u>Appendix G</u></b>	List of Generic and Brand Drug Names used to Define Baseline Characteristics in this Request
<b><u>Appendix H</u></b>	List of Healthcare Common Procedure Coding System (HCPCS) Codes to Define Exposures and Baseline
<b><u>Appendix I</u></b>	List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) Diagnosis Codes to Define Baseline Characteristics in this Request
<b><u>Appendix J</u></b>	Specifications for a Type 1 Request with Ad Hoc Programming [care_mpl1p_wp001_nsdp_v01]
<b><u>Appendix J.1</u></b>	Specifications for Baseline Characteristics

### List of Terms Found in this Report and their Definitions

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

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

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

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

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

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

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

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

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

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

**Computed Start Marketing Date** - represents the first observed dispensing date among all valid users within a GROUP (scenario)

**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.

---

\*not all terms may be used in this report

**Table 1a. Baseline Characteristics for COPD Patients with ICS-, LAMA-, or LABA-containing Medications, with no Evidence of Exclusion Conditions, and at least 365 days of Continuous Enrollment in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020**

<b>Characteristic</b>	<b>Number</b>	
Number of unique patients	3,384,740	
<b>Demographics</b>	<b>Mean</b>	<b>Standard Deviation</b>
Mean Age (Years)	70.5	10.7
Age (Years):	<b>Number</b>	<b>Percent</b>
40-64	915,257	27.0%
65+	2,469,483	73.0%
Sex:	<b>Number</b>	<b>Percent</b>
Female	1,891,323	55.9%
Male	1,493,417	44.1%
Race/Ethnicity:		
Unknown	406,051	12.0%
American Indian or Alaska Native	18,000	0.5%
Asian	43,765	1.3%
Black or African American	247,056	7.3%
Native Hawaiian or Other Pacific Islander	3,566	0.1%
White	2,666,302	78.8%
Hispanic Origin	51,188	1.5%
Year:		
2008	79,773	2.4%
2009	71,845	2.1%
2010	57,584	1.7%
2011	585,579	17.3%
2012	343,799	10.2%
2013	313,662	9.3%
2014	357,208	10.6%
2015	321,971	9.5%
2016	333,160	9.8%
2017	314,424	9.3%
2018	309,249	9.1%
2019	287,937	8.5%
2020	8,549	0.3%
<b>Recorded history of:</b>		
Antibiotics or OCS dispensing [-7,-1] <sup>1,2</sup>	227,189	6.7%
Antibiotics or OCS dispensing [-14,-1] <sup>1,2</sup>	403,667	11.9%

<sup>1</sup>The notion [x,y] represents a baseline evaluation window from day x to day y, in relation to the index date which is day 0

<sup>2</sup>Patient counts and proportions in the two time periods may not be mutually exclusive



**Table 1b. Baseline Characteristics for Asthma Patients with ICS-, LAMA-, or LABA-containing Medications, with no Evidence of Exclusion Conditions, and at least 365 days of Continuous Enrollment in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020**

<b>Characteristic</b>	<b>Number</b>	
Number of unique patients	3,102,442	
<b>Demographics</b>	<b>Mean</b>	<b>Standard Deviation</b>
Mean Age (Years)	56.3	15.3
Age (Years)	<b>Number</b>	<b>Percent</b>
18-39	638,743	20.6%
40-64	1,228,487	39.6%
65+	1,235,212	39.8%
Sex:		
Female	2,119,990	68.3%
Male	982,452	31.7%
Race:		
Unknown	1,081,928	34.9%
American Indian or Alaska Native	16,791	0.5%
Asian	108,757	3.5%
Black or African American	274,776	8.9%
Native Hawaiian or Other Pacific Islander	13,079	0.4%
White	1,607,111	51.8%
Hispanic Origin	141,605	4.6%
Year:		
2008	217,604	7.0%
2009	195,869	6.3%
2010	146,649	4.7%
2011	402,271	13.0%
2012	267,660	8.6%
2013	253,608	8.2%
2014	309,709	10.0%
2015	283,307	9.1%
2016	263,605	8.5%
2017	269,338	8.7%
2018	254,474	8.2%
2019	226,850	7.3%
2020	11,498	0.4%
<b>Recorded history of:</b>	<b>Number</b>	<b>Percent</b>
OCS dispensing [-7,-1] <sup>1,2</sup>	88,029	2.8%
OCS dispensing [-14,-1] <sup>1,2</sup>	160,161	5.2%

<sup>1</sup>The notion [x,y] represents a baseline evaluation window from day x to day y, in relation to the index date which is day 0

<sup>2</sup>Patient counts and proportions in the two time periods may not be mutually exclusive

**Table 2. Summary of Severe COPD Exacerbations (Definition 1) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, Overall**

Follow-up Time (months)	Number of Patients			Percentage of Patients		Number of Patients		Percentage of Patients		Total Number of Outcomes	Mean Number of Outcomes per Patient with Index	Mean Number of Outcomes per Patient with 1+	Mean Number of Outcomes per Patient with 2+	Total Number of Patient-Days At-Risk	Mean Number of Days At-Risk per Patient	Incident Event Rate per 10,000 Person-Days At-Risk
	with Index Diagnosis	Censored due to Death	Percentage Censored due to Death	with 1+ Outcome	with 1+ Outcome	with 2+ Outcomes	with 2+ Outcomes									
<6	359,737	126,546	35.18%	45,831	12.74%	7,136	1.98%	54,149	0.15	1.18	2.17	26,234,143	72.93	20.64		
6-<12	385,685	114,505	29.69%	74,783	19.39%	22,913	5.94%	108,548	0.28	1.45	2.47	93,674,274	242.88	11.59		
12-<18	330,873	103,793	31.37%	82,794	25.02%	31,758	9.60%	138,730	0.42	1.68	2.76	138,509,371	418.62	10.02		
18-<24	304,533	93,984	30.86%	86,677	28.46%	37,059	12.17%	159,784	0.52	1.84	2.97	183,806,157	603.57	8.69		
24-<30	262,987	84,052	31.96%	84,736	32.22%	39,480	15.01%	169,620	0.64	2.00	3.15	204,895,452	779.11	8.28		
30-<36	241,924	74,503	30.80%	82,008	33.90%	39,867	16.48%	174,398	0.72	2.13	3.32	233,479,522	965.09	7.47		
36-<42	214,159	65,956	30.80%	78,882	36.83%	40,308	18.82%	177,964	0.83	2.26	3.46	244,288,422	1140.69	7.28		
42-<48	194,360	58,019	29.85%	74,734	38.45%	39,265	20.20%	176,410	0.91	2.36	3.59	257,853,990	1326.68	6.84		
48+	1,090,482	264,449	24.25%	480,208	44.04%	275,696	25.28%	1,304,837	1.20	2.72	3.99	2,443,886,916	2241.11	5.34		
Any	3,384,740	985,807	29.13%	1,090,653	32.22%	533,482	15.76%	2,464,440	0.73	2.26	3.58	3,826,628,247	1130.55	6.44		
<12	745,422	241,051	32.34%	120,614	16.18%	30,049	4.03%	162,697	0.22	1.35	2.40	119,908,417	160.86	13.57		
<24	1,380,828	438,828	31.78%	290,085	21.01%	98,866	7.16%	461,211	0.33	1.59	2.73	442,223,945	320.26	10.43		
24+	2,003,912	546,979	27.30%	800,568	39.95%	434,616	21.69%	2,003,229	1.00	2.50	3.77	3,384,404,302	1688.90	5.92		

**Table 3. Summary of Severe COPD Exacerbations (Definition 1) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Year**

Follow-up Time (months)	Year	Number of Patients			Number of Patients			Total Number of Outcomes	Mean Number of Outcomes per Patient with Index Diagnosis	Mean Number of Outcomes per Patient with 1+	Mean Number of Outcomes per Patient with 2+	Total Number of Patient-Days At-Risk	Mean Number of Days At-Risk per Patient	Incident Event Rate per 10,000 Person-Days At-Risk	
		with Index Diagnosis	Patients Censored due to Death	Percentage of Patients Censored due to Death	with 1+ Outcome	Percentage of Patients with 1+ Outcome	with 2+ Outcomes								Percentage of Patients with 2+ Outcomes
<6	2008	7,109	2,413	33.94%	967	13.60%	150	2.11%	1,138	0.16	1.18	2.14	533,542	75.05	21.33
<6	2009	7,154	1,572	21.97%	711	9.94%	90	1.26%	816	0.11	1.15	2.17	525,755	73.49	15.52
<6	2010	5,882	*****	*****	528	8.98%	*****	*****	595	0.10	1.13	2.12	434,818	73.92	13.68
<6	2011	37,321	26,256	70.35%	8,623	23.10%	1,518	4.07%	10,421	0.28	1.21	2.18	2,657,332	71.20	39.22
<6	2012	24,372	15,042	61.72%	4,706	19.31%	799	3.28%	5,641	0.23	1.20	2.17	1,747,403	71.70	32.28
<6	2013	22,241	13,022	58.55%	3,835	17.24%	628	2.82%	4,558	0.20	1.19	2.15	1,595,354	71.73	28.57
<6	2014	26,011	14,612	56.18%	4,502	17.31%	698	2.68%	5,311	0.20	1.18	2.16	1,890,732	72.69	28.09
<6	2015	22,852	11,993	52.48%	3,771	16.50%	595	2.60%	4,455	0.19	1.18	2.15	1,661,648	72.71	26.81
<6	2016	24,830	11,827	47.63%	4,107	16.54%	682	2.75%	4,915	0.20	1.20	2.18	1,826,875	73.58	26.90
<6	2017	25,449	10,820	42.52%	3,970	15.60%	683	2.68%	4,771	0.19	1.20	2.17	1,874,422	73.65	25.45
<6	2018	25,416	10,224	40.23%	3,808	14.98%	538	2.12%	4,445	0.17	1.17	2.18	1,877,769	73.88	23.67
<6	2019	122,551	7,383	6.02%	6,148	5.02%	692	0.56%	6,925	0.06	1.13	2.12	9,367,797	76.44	7.39
<6	2020	8,549	*****	*****	155	1.81%	*****	*****	158	0.02	1.02	2.00	240,696	28.15	6.56
6-<12	2008	7,810	2,304	29.50%	1,590	20.36%	449	5.75%	2,235	0.29	1.41	2.44	1,874,687	240.04	11.92
6-<12	2009	7,857	1,430	18.20%	1,226	15.60%	318	4.05%	1,699	0.22	1.39	2.49	1,906,949	242.71	8.91
6-<12	2010	6,186	1,258	20.34%	871	14.08%	245	3.96%	1,227	0.20	1.41	2.45	1,501,135	242.67	8.17
6-<12	2011	38,695	24,697	63.82%	12,604	32.57%	4,484	11.59%	19,379	0.50	1.54	2.51	9,486,679	245.17	20.43
6-<12	2012	25,269	14,256	56.42%	7,396	29.27%	2,557	10.12%	11,213	0.44	1.52	2.49	6,171,359	244.23	18.17
6-<12	2013	23,071	11,872	51.46%	5,793	25.11%	1,922	8.33%	8,575	0.37	1.48	2.45	5,628,753	243.98	15.23
6-<12	2014	27,466	13,562	49.38%	7,114	25.90%	2,343	8.53%	10,576	0.39	1.49	2.48	6,697,966	243.86	15.79
6-<12	2015	24,060	11,225	46.65%	6,030	25.06%	1,960	8.15%	8,937	0.37	1.48	2.48	5,855,471	243.37	15.26
6-<12	2016	26,472	11,299	42.68%	6,587	24.88%	2,088	7.89%	9,705	0.37	1.47	2.49	6,436,412	243.14	15.08
6-<12	2017	27,374	10,224	37.35%	6,376	23.29%	2,019	7.38%	9,366	0.34	1.47	2.48	6,647,557	242.84	14.09
6-<12	2018	31,383	9,655	30.77%	6,493	20.69%	1,929	6.15%	9,373	0.30	1.44	2.49	7,779,504	247.89	12.05
6-<12	2019	140,042	2,723	1.94%	12,703	9.07%	2,599	1.86%	16,263	0.12	1.28	2.37	33,687,802	240.55	4.83
12-<18	2008	6,750	2,136	31.64%	1,853	27.45%	691	10.24%	3,020	0.45	1.63	2.69	2,835,339	420.05	10.65
12-<18	2009	6,589	1,333	20.23%	1,399	21.23%	473	7.18%	2,136	0.32	1.53	2.56	2,732,719	414.74	7.82
12-<18	2010	4,847	*****	*****	1,035	21.35%	381	7.86%	1,633	0.34	1.58	2.57	2,017,952	416.33	8.09
12-<18	2011	36,984	24,974	67.53%	14,754	39.89%	6,595	17.83%	26,787	0.72	1.82	2.82	15,480,670	418.58	17.30
12-<18	2012	22,506	12,840	57.05%	7,648	33.98%	3,280	14.57%	13,586	0.60	1.78	2.81	9,420,757	418.59	14.42
12-<18	2013	21,414	11,231	52.45%	6,711	31.34%	2,740	12.80%	11,711	0.55	1.75	2.82	8,981,421	419.42	13.04
12-<18	2014	24,080	12,564	52.18%	7,693	31.95%	3,193	13.26%	13,401	0.56	1.74	2.79	10,056,593	417.63	13.33
12-<18	2015	22,545	10,729	47.59%	6,901	30.61%	2,717	12.05%	11,810	0.52	1.71	2.81	9,496,498	421.22	12.44
12-<18	2016	24,653	10,397	42.17%	7,516	30.49%	3,015	12.23%	12,841	0.52	1.71	2.77	10,346,730	419.69	12.41
12-<18	2017	23,749	9,405	39.60%	6,891	29.02%	2,714	11.43%	11,633	0.49	1.69	2.75	9,934,607	418.32	11.71
12-<18	2018	111,412	7,069	6.34%	17,406	15.62%	5,246	4.71%	26,142	0.23	1.50	2.67	48,226,635	432.87	5.42
12-<18	2019	25,344	*****	*****	2,987	11.79%	713	2.81%	4,030	0.16	1.35	2.46	8,979,450	354.30	4.49
18-<24	2008	5,726	1,959	34.21%	1,754	30.63%	734	12.82%	3,187	0.56	1.82	2.95	3,428,849	598.82	9.29

**Table 3. Summary of Severe COPD Exacerbations (Definition 1) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Year**

Follow-up Time (months)	Year	Number of Patients			Percentage of Patients			Total Number of Outcomes	Mean Number of Outcomes per Patient with Index Diagnosis	Mean Number of Outcomes per Patient with 1+	Mean Number of Outcomes per Patient with 2+	Total Number of Patient-Days At-Risk	Mean Number of Days At-Risk per Patient	Incident Event Rate per 10,000 Person-Days At-Risk	
		with Index Diagnosis	Patients Censored due to Death	Percentage of Patients Censored due to Death	Number of Patients with 1+ Outcome	Percentage of Patients with 1+ Outcome	Number of Patients with 2+ Outcomes								Percentage of Patients with 2+ Outcomes
18-<24	2009	5,859	1,301	22.21%	1,440	24.58%	549	9.37%	2,434	0.42	1.69	2.81	3,544,825	605.02	6.87
18-<24	2010	4,301	981	22.81%	966	22.46%	374	8.70%	1,710	0.40	1.77	2.99	2,601,948	604.96	6.57
18-<24	2011	36,219	23,980	66.21%	15,566	42.98%	7,662	21.15%	31,388	0.87	2.02	3.06	21,906,982	604.85	14.33
18-<24	2012	21,667	12,248	56.53%	8,181	37.76%	3,870	17.86%	16,147	0.75	1.97	3.06	13,056,786	602.61	12.37
18-<24	2013	19,893	10,930	54.94%	7,137	35.88%	3,351	16.85%	14,009	0.70	1.96	3.05	11,974,608	601.95	11.70
18-<24	2014	21,838	11,673	53.45%	8,038	36.81%	3,671	16.81%	15,260	0.70	1.90	2.97	13,181,431	603.60	11.58
18-<24	2015	21,189	9,915	46.79%	7,354	34.71%	3,295	15.55%	13,962	0.66	1.90	3.01	12,782,733	603.27	10.92
18-<24	2016	23,414	9,820	41.94%	7,960	34.00%	3,630	15.50%	15,142	0.65	1.90	2.98	14,119,112	603.02	10.72
18-<24	2017	25,701	8,732	33.98%	7,669	29.84%	3,213	12.50%	13,989	0.54	1.82	2.97	15,671,262	609.75	8.93
18-<24	2018	118,726	2,445	2.06%	20,612	17.36%	6,710	5.65%	32,556	0.27	1.58	2.78	71,537,621	602.54	4.55
24-<30	2008	4,967	1,915	38.55%	1,773	35.70%	856	17.23%	3,582	0.72	2.02	3.11	3,871,522	779.45	9.25
24-<30	2009	4,609	1,153	25.02%	1,355	29.40%	622	13.50%	2,666	0.58	1.97	3.11	3,567,712	774.08	7.47
24-<30	2010	3,428	950	27.71%	998	29.11%	435	12.69%	1,909	0.56	1.91	3.09	2,670,424	779.00	7.15
24-<30	2011	33,397	22,451	67.22%	15,674	46.93%	8,304	24.86%	34,442	1.03	2.20	3.26	25,914,766	775.96	13.29
24-<30	2012	20,569	11,664	56.71%	8,396	40.82%	4,205	20.44%	17,911	0.87	2.13	3.26	16,035,947	779.62	11.17
24-<30	2013	17,320	9,991	57.68%	7,075	40.85%	3,566	20.59%	15,066	0.87	2.13	3.24	13,477,266	778.13	11.18
24-<30	2014	21,539	11,106	51.56%	8,483	39.38%	4,192	19.46%	17,593	0.82	2.07	3.17	16,805,886	780.25	10.47
24-<30	2015	20,470	9,284	45.35%	7,838	38.29%	3,956	19.33%	16,508	0.81	2.11	3.19	15,986,075	780.95	10.33
24-<30	2016	20,551	9,045	44.01%	7,783	37.87%	3,755	18.27%	15,940	0.78	2.05	3.17	16,044,135	780.70	9.94
24-<30	2017	93,825	6,473	6.90%	20,978	22.36%	8,142	8.68%	36,969	0.39	1.76	2.96	74,548,748	794.55	4.96
24-<30	2018	22,312	20	0.09%	4,383	19.64%	1,447	6.49%	7,034	0.32	1.60	2.83	15,972,971	715.89	4.40
30-<36	2008	4,491	1,838	40.93%	1,729	38.50%	841	18.73%	3,752	0.84	2.17	3.41	4,298,077	957.04	8.73
30-<36	2009	4,077	1,049	25.73%	1,249	30.64%	592	14.52%	2,538	0.62	2.03	3.18	3,939,346	966.24	6.44
30-<36	2010	3,043	865	28.43%	920	30.23%	425	13.97%	1,853	0.61	2.01	3.20	2,944,141	967.51	6.29
30-<36	2011	31,573	20,699	65.56%	15,062	47.71%	8,336	26.40%	35,600	1.13	2.36	3.46	30,420,155	963.49	11.70
30-<36	2012	18,710	11,134	59.51%	8,278	44.24%	4,527	24.20%	19,597	1.05	2.37	3.50	17,977,051	960.83	10.90
30-<36	2013	15,856	9,426	59.45%	6,936	43.74%	3,662	23.10%	15,736	0.99	2.27	3.40	15,258,555	962.32	10.31
30-<36	2014	22,103	10,390	47.01%	8,916	40.34%	4,529	20.49%	19,412	0.88	2.18	3.32	21,367,135	966.71	9.08
30-<36	2015	19,354	8,531	44.08%	7,690	39.73%	3,961	20.47%	17,195	0.89	2.24	3.40	18,636,749	962.94	9.23
30-<36	2016	22,728	8,244	36.27%	8,033	35.34%	3,968	17.46%	17,330	0.76	2.16	3.34	22,072,196	971.15	7.85
30-<36	2017	99,989	2,327	2.33%	23,195	23.20%	9,026	9.03%	41,385	0.41	1.78	3.02	96,566,117	965.77	4.29
36-<42	2008	3,795	1,593	41.98%	1,513	39.87%	781	20.58%	3,366	0.89	2.22	3.37	4,333,912	1142.01	7.77
36-<42	2009	3,333	910	27.30%	1,125	33.75%	542	16.26%	2,390	0.72	2.12	3.33	3,793,454	1138.15	6.30
36-<42	2010	2,908	****	****	932	32.05%	453	15.58%	2,006	0.69	2.15	3.37	3,328,573	1144.63	6.03
36-<42	2011	30,624	19,953	65.15%	15,499	50.61%	8,954	29.24%	38,784	1.27	2.50	3.60	34,865,273	1138.50	11.12
36-<42	2012	16,537	10,059	60.83%	7,851	47.48%	4,421	26.73%	19,529	1.18	2.49	3.64	18,828,760	1138.58	10.37
36-<42	2013	14,919	8,859	59.38%	6,974	46.75%	3,920	26.28%	17,041	1.14	2.44	3.57	17,002,627	1139.66	10.02
36-<42	2014	20,225	9,436	46.66%	8,940	44.20%	4,895	24.20%	21,275	1.05	2.38	3.52	23,002,618	1137.34	9.25

**Table 3. Summary of Severe COPD Exacerbations (Definition 1) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Year**

Follow-up Time (months)	Year	Number of Patients			Number of Patients			Total Number of Outcomes	Mean Number of Outcomes per Patient with Index Diagnosis	Mean Number of Outcomes per Patient with 1+	Mean Number of Outcomes per Patient with 2+	Total Number of Patient-Days At-Risk	Mean Number of Days At-Risk per Patient	Incident Event Rate per 10,000 Person-Days At-Risk	
		with Index Diagnosis	Patients Censored due to Death	Percentage of Patients Censored due to Death	with 1+ Outcome	Percentage of Patients with 1+ Outcome	with 2+ Outcomes								Percentage of Patients with 2+ Outcomes
36-<42	2015	17,077	8,101	47.44%	7,372	43.17%	4,047	23.70%	17,460	1.02	2.37	3.49	19,478,741	1140.64	8.96
36-<42	2016	86,404	6,168	7.14%	24,074	27.86%	10,442	12.09%	47,704	0.55	1.98	3.26	99,937,631	1156.63	4.77
36-<42	2017	18,337	*****	*****	4,602	25.10%	1,853	10.11%	8,409	0.46	1.83	3.05	19,716,833	1075.25	4.26
42-<48	2008	3,563	1,493	41.90%	1,510	42.38%	836	23.46%	3,595	1.01	2.38	3.49	4,714,379	1323.15	7.63
42-<48	2009	2,989	969	32.42%	1,176	39.34%	636	21.28%	2,790	0.93	2.37	3.54	3,962,842	1325.81	7.04
42-<48	2010	2,629	741	28.19%	961	36.55%	491	18.68%	2,166	0.82	2.25	3.45	3,492,161	1328.32	6.20
42-<48	2011	28,670	18,526	64.62%	14,793	51.60%	8,808	30.72%	39,587	1.38	2.68	3.81	37,933,232	1323.10	10.44
42-<48	2012	14,898	9,471	63.57%	7,504	50.37%	4,373	29.35%	19,528	1.31	2.60	3.75	19,688,646	1321.56	9.92
42-<48	2013	14,239	8,371	58.79%	6,903	48.48%	3,918	27.52%	17,810	1.25	2.58	3.78	18,837,738	1322.97	9.45
42-<48	2014	19,474	8,746	44.91%	8,941	45.91%	4,919	25.26%	21,837	1.12	2.44	3.62	25,819,410	1325.84	8.46
42-<48	2015	18,586	7,523	40.48%	7,843	42.20%	4,289	23.08%	19,083	1.03	2.43	3.62	24,760,509	1332.21	7.71
42-<48	2016	89,312	2,179	2.44%	25,103	28.11%	10,995	12.31%	50,014	0.56	1.99	3.27	118,645,073	1328.43	4.22
48+	2008	35,562	12,594	35.41%	17,301	48.65%	10,269	28.88%	47,568	1.34	2.75	3.95	101,716,389	2860.26	4.68
48+	2009	29,378	7,488	25.49%	12,659	43.09%	7,145	24.32%	32,893	1.12	2.60	3.83	80,737,832	2748.24	4.07
48+	2010	24,360	*****	*****	9,858	40.47%	5,417	22.24%	24,826	1.02	2.52	3.76	64,730,343	2657.24	3.84
48+	2011	312,096	122,432	39.23%	166,657	53.40%	104,135	33.37%	501,953	1.61	3.01	4.22	803,331,196	2573.99	6.25
48+	2012	179,271	51,865	28.93%	84,464	47.12%	49,765	27.76%	239,206	1.33	2.83	4.11	427,515,033	2384.74	5.60
48+	2013	164,709	34,048	20.67%	69,274	42.06%	38,742	23.52%	182,260	1.11	2.63	3.92	356,274,008	2163.05	5.12
48+	2014	174,472	22,847	13.09%	66,403	38.06%	34,730	19.91%	160,216	0.92	2.41	3.70	335,085,607	1920.57	4.78
48+	2015	155,838	7,412	4.76%	49,340	31.66%	23,564	15.12%	107,084	0.69	2.17	3.45	253,207,247	1624.81	4.23
48+	2016	14,796	*****	*****	4,252	28.74%	1,929	13.04%	8,831	0.60	2.08	3.37	21,289,261	1438.85	4.15
Any	2008	79,773	28,245	35.41%	29,990	37.59%	15,607	19.56%	71,443	0.90	2.38	3.66	127,606,696	1599.62	5.60
Any	2009	71,845	17,205	23.95%	22,340	31.09%	10,967	15.26%	50,362	0.70	2.25	3.56	104,711,434	1457.46	4.81
Any	2010	57,584	13,906	24.15%	17,069	29.64%	8,281	14.38%	37,925	0.66	2.22	3.52	83,721,495	1453.90	4.53
Any	2011	585,579	303,968	51.91%	279,232	47.68%	158,796	27.12%	738,341	1.26	2.64	3.89	981,996,285	1676.97	7.52
Any	2012	343,799	148,579	43.22%	144,424	42.01%	77,797	22.63%	362,358	1.05	2.51	3.80	530,441,742	1542.88	6.83
Any	2013	313,662	117,750	37.54%	120,638	38.46%	62,449	19.91%	286,766	0.91	2.38	3.66	449,030,330	1431.57	6.39
Any	2014	357,208	114,936	32.18%	129,030	36.12%	63,170	17.68%	284,881	0.80	2.21	3.47	453,907,378	1270.71	6.28
Any	2015	321,971	84,713	26.31%	104,139	32.34%	48,384	15.03%	216,494	0.67	2.08	3.32	361,865,671	1123.91	5.98
Any	2016	333,160	68,989	20.71%	95,415	28.64%	40,504	12.16%	182,422	0.55	1.91	3.15	310,717,425	932.64	5.87
Any	2017	314,424	47,986	15.26%	73,681	23.43%	27,650	8.79%	126,522	0.40	1.72	2.91	224,959,546	715.47	5.62
Any	2018	309,249	29,413	9.51%	52,702	17.04%	15,870	5.13%	79,550	0.26	1.51	2.69	145,394,500	470.15	5.47
Any	2019	287,937	*****	*****	21,838	7.58%	*****	*****	27,218	0.09	1.25	2.34	52,035,049	180.72	5.23
Any	2020	8,549	*****	*****	155	1.81%	*****	*****	158	0.02	1.02	2.00	240,696	28.15	6.56

**Table 4. Summary of Severe COPD Exacerbations (Definition 1) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Sex**

Follow-up Time (months)	Sex	Number of Patients with Index Diagnosis	Number of Patients Censored due to Death	Percentage of Patients Censored due to Death	Number of Patients with 1+ Outcome	Percentage of Patients with 1+ Outcome	Number of Patients with 2+ Outcomes	Percentage of Patients with 2+ Outcomes	Total Number of Outcomes	Mean Number of Outcomes per Patient with Index Diagnosis	Mean Number of Outcomes per Patient with 1+ Outcomes	Mean Number of Outcomes per Patient with 2+ Outcomes	Total Number of Patient-Days At-Risk	Mean Number of Days At-Risk per Patient	Incident Event Rate per 10,000 Person-Days At-Risk
<6	Female	194,516	67,218	34.56%	24,593	12.64%	3,913	2.01%	29,147	0.15	1.19	2.16	14,190,063	72.95	20.54
<6	Male	165,221	59,328	35.91%	21,238	12.85%	3,223	1.95%	25,002	0.15	1.18	2.17	12,044,080	72.90	20.76
6-<12	Female	209,960	61,387	29.24%	40,915	19.49%	12,696	6.05%	59,677	0.28	1.46	2.48	50,984,788	242.83	11.70
6-<12	Male	175,725	53,118	30.23%	33,868	19.27%	10,217	5.81%	48,871	0.28	1.44	2.47	42,689,486	242.93	11.45
12-<18	Female	181,282	56,048	30.92%	45,734	25.23%	17,539	9.67%	76,781	0.42	1.68	2.77	75,910,685	418.74	10.11
12-<18	Male	149,591	47,745	31.92%	37,060	24.77%	14,219	9.51%	61,949	0.41	1.67	2.75	62,598,686	418.47	9.90
18-<24	Female	167,286	50,985	30.48%	48,472	28.98%	21,119	12.62%	90,820	0.54	1.87	3.01	100,922,517	603.29	9.00
18-<24	Male	137,247	42,999	31.33%	38,205	27.84%	15,940	11.61%	68,964	0.50	1.81	2.93	82,883,640	603.90	8.32
24-<30	Female	145,905	46,140	31.62%	47,820	32.77%	22,509	15.43%	96,686	0.66	2.02	3.17	113,651,856	778.94	8.51
24-<30	Male	117,082	37,912	32.38%	36,916	31.53%	16,971	14.49%	72,934	0.62	1.98	3.12	91,243,596	779.31	7.99
30-<36	Female	134,173	40,990	30.55%	46,266	34.48%	22,718	16.93%	99,522	0.74	2.15	3.34	129,405,647	964.47	7.69
30-<36	Male	107,751	33,513	31.10%	35,742	33.17%	17,149	15.92%	74,876	0.69	2.09	3.28	104,073,875	965.87	7.19
36-<42	Female	119,660	36,373	30.40%	44,694	37.35%	23,172	19.36%	102,211	0.85	2.29	3.48	136,451,502	1140.33	7.49
36-<42	Male	94,499	29,583	31.31%	34,188	36.18%	17,136	18.13%	75,753	0.80	2.22	3.43	107,836,920	1141.14	7.02
42-<48	Female	109,069	32,498	29.80%	42,834	39.27%	22,802	20.91%	102,627	0.94	2.40	3.62	144,616,082	1325.91	7.10
42-<48	Male	85,291	25,521	29.92%	31,900	37.40%	16,463	19.30%	73,783	0.87	2.31	3.54	113,237,908	1327.67	6.52
48+	Female	629,472	149,912	23.82%	283,645	45.06%	164,871	26.19%	786,589	1.25	2.77	4.05	1,415,148,716	2248.15	5.56
48+	Male	461,010	114,537	24.84%	196,563	42.64%	110,825	24.04%	518,248	1.12	2.64	3.90	1,028,738,200	2231.49	5.04
Any	Female	1,891,323	541,551	28.63%	624,973	33.04%	311,339	16.46%	1,444,060	0.76	2.31	3.63	2,181,281,856	1153.31	6.62
Any	Male	1,493,417	444,256	29.75%	465,680	31.18%	222,143	14.87%	1,020,380	0.68	2.19	3.50	1,645,346,391	1101.73	6.20

**Table 5. Summary of Severe COPD Exacerbations (Definition 1) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Age Group**

Follow-up Time (months)	Age	Number of Patients with Index Diagnosis	Number of Patients Censored due to Death	Percentage of Patients Censored due to Death	Number of Patients with 1+ Outcome	Percentage of Patients with 1+ Outcome	Number of Patients with 2+ Outcomes	Percentage of Patients with 2+ Outcomes	Total Number of Outcomes	Mean Number	Mean Number	Mean	Total Number of Patient-Days At-Risk	Mean Number of Days At-Risk per Patient	Incident Event Rate per 10,000 Person-Days At-Risk
										of Outcomes per Patient with Index Diagnosis	of Outcomes per Patient with 1+ Outcomes	Number of Outcomes per Patient with 2+ Outcomes			
<6	40-64	98,538	16,124	16.36%	7,182	7.29%	1,054	1.07%	8,425	0.09	1.17	2.18	7,312,006	74.20	11.52
<6	65+	261,199	110,422	42.28%	38,649	14.80%	6,082	2.33%	45,724	0.18	1.18	2.16	18,922,137	72.44	24.16
6-<12	40-64	106,284	14,725	13.85%	13,704	12.89%	4,054	3.81%	19,919	0.19	1.45	2.53	25,761,889	242.39	7.73
6-<12	65+	279,401	99,780	35.71%	61,079	21.86%	18,859	6.75%	88,629	0.32	1.45	2.46	67,912,385	243.06	13.05
12-<18	40-64	89,778	13,631	15.18%	16,203	18.05%	6,141	6.84%	27,860	0.31	1.72	2.90	37,590,691	418.71	7.41
12-<18	65+	241,095	90,162	37.40%	66,591	27.62%	25,617	10.63%	110,870	0.46	1.66	2.73	100,918,680	418.58	10.99
18-<24	40-64	80,532	12,538	15.57%	17,362	21.56%	7,444	9.24%	33,580	0.42	1.93	3.18	48,576,984	603.20	6.91
18-<24	65+	224,001	81,446	36.36%	69,315	30.94%	29,615	13.22%	126,204	0.56	1.82	2.92	135,229,173	603.70	9.33
24-<30	40-64	69,235	11,338	16.38%	17,372	25.09%	8,073	11.66%	36,974	0.53	2.13	3.43	53,990,635	779.82	6.85
24-<30	65+	193,752	72,714	37.53%	67,364	34.77%	31,407	16.21%	132,646	0.68	1.97	3.08	150,904,817	778.86	8.79
30-<36	40-64	62,414	10,350	16.58%	16,963	27.18%	8,281	13.27%	39,064	0.63	2.30	3.67	60,183,430	964.26	6.49
30-<36	65+	179,510	64,153	35.74%	65,045	36.23%	31,586	17.60%	135,334	0.75	2.08	3.23	173,296,092	965.38	7.81
36-<42	40-64	55,680	9,176	16.48%	16,730	30.05%	8,656	15.55%	40,831	0.73	2.44	3.78	63,570,821	1141.72	6.42
36-<42	65+	158,479	56,780	35.83%	62,152	39.22%	31,652	19.97%	137,133	0.87	2.21	3.37	180,717,601	1140.33	7.59
42-<48	40-64	50,051	8,352	16.69%	16,155	32.28%	8,632	17.25%	41,937	0.84	2.60	3.99	66,369,542	1326.04	6.32
42-<48	65+	144,309	49,667	34.42%	58,579	40.59%	30,633	21.23%	134,473	0.93	2.30	3.48	191,484,448	1326.91	7.02
48+	40-64	302,745	40,804	13.48%	117,628	38.85%	68,335	22.57%	358,694	1.18	3.05	4.53	687,702,831	2271.56	5.22
48+	65+	787,737	223,645	28.39%	362,580	46.03%	207,361	26.32%	946,143	1.20	2.61	3.81	1,756,184,085	2229.40	5.39
Any	40-64	915,257	137,038	14.97%	239,299	26.15%	120,670	13.18%	607,284	0.66	2.54	4.05	1,051,058,829	1148.38	5.78
Any	65+	2,469,483	848,769	34.37%	851,354	34.47%	412,812	16.72%	1,857,156	0.75	2.18	3.44	2,775,569,418	1123.95	6.69

**Table 6. Summary of Severe COPD Exacerbations (Definition 1) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Sex and Age Group**

Follow-up Time (months)	Sex & Age	Number	Number of	Percentage	Number of	Percentage	Number of	Percentage	Mean Number	Mean Number	Mean	Mean	Mean	Incident Event	
		of Patients with Index Diagnosis	Patients Censored due to Death	of Patients Censored due to Death	Patients with 1+ Outcome	of Patients with 1+ Outcome	Patients with 2+ Outcomes	of Patients with 2+ Outcomes	Total Number of Outcomes	of Outcomes per Patient with Index Diagnosis	of Outcomes per Patient with 1+ Outcomes	Number of Outcomes per Patient with 2+ Outcomes	Total Number of Patient-Days At-Risk	Number of Days At-Risk per Patient	Rate per 10,000 Person-Days At-Risk
<6	Female & 40-64	52,328	7,389	14.12%	3,746	7.16%	562	1.07%	4,406	0.08	1.18	2.17	3,886,705	74.28	11.34
<6	Female & 65+	142,188	59,829	42.08%	20,847	14.66%	3,351	2.36%	24,741	0.17	1.19	2.16	10,303,358	72.46	24.01
<6	Male & 40-64	46,210	8,735	18.90%	3,436	7.44%	492	1.06%	4,019	0.09	1.17	2.18	3,425,301	74.12	11.73
<6	Male & 65+	119,011	50,593	42.51%	17,802	14.96%	2,731	2.29%	20,983	0.18	1.18	2.16	8,618,779	72.42	24.35
6-<12	Female & 40-64	56,905	7,007	12.31%	7,327	12.88%	2,209	3.88%	10,741	0.19	1.47	2.55	13,779,203	242.14	7.80
6-<12	Female & 65+	153,055	54,380	35.53%	33,588	21.95%	10,487	6.85%	48,936	0.32	1.46	2.46	37,205,585	243.09	13.15
6-<12	Male & 40-64	49,379	7,718	15.63%	6,377	12.91%	1,845	3.74%	9,178	0.19	1.44	2.52	11,982,686	242.67	7.66
6-<12	Male & 65+	126,346	45,400	35.93%	27,491	21.76%	8,372	6.63%	39,693	0.31	1.44	2.46	30,706,800	243.04	12.93
12-<18	Female & 40-64	47,994	6,502	13.55%	8,829	18.40%	3,328	6.93%	15,112	0.31	1.71	2.89	20,095,759	418.71	7.52
12-<18	Female & 65+	133,288	49,546	37.17%	36,905	27.69%	14,211	10.66%	61,669	0.46	1.67	2.74	55,814,926	418.75	11.05
12-<18	Male & 40-64	41,784	7,129	17.06%	7,374	17.65%	2,813	6.73%	12,748	0.31	1.73	2.91	17,494,932	418.70	7.29
12-<18	Male & 65+	107,807	40,616	37.67%	29,686	27.54%	11,406	10.58%	49,201	0.46	1.66	2.71	45,103,754	418.38	10.91
18-<24	Female & 40-64	43,242	6,042	13.97%	9,525	22.03%	4,228	9.78%	18,971	0.44	1.99	3.23	26,064,278	602.75	7.28
18-<24	Female & 65+	124,044	44,943	36.23%	38,947	31.40%	16,891	13.62%	71,849	0.58	1.84	2.95	74,858,239	603.48	9.60
18-<24	Male & 40-64	37,290	6,496	17.42%	7,837	21.02%	3,216	8.62%	14,609	0.39	1.86	3.11	22,512,706	603.72	6.49
18-<24	Male & 65+	99,957	36,503	36.52%	30,368	30.38%	12,724	12.73%	54,355	0.54	1.79	2.89	60,370,934	603.97	9.00
24-<30	Female & 40-64	37,421	5,596	14.95%	9,643	25.77%	4,512	12.06%	20,753	0.55	2.15	3.46	29,168,772	779.48	7.11
24-<30	Female & 65+	108,484	40,544	37.37%	38,177	35.19%	17,997	16.59%	75,933	0.70	1.99	3.10	84,483,084	778.76	8.99
24-<30	Male & 40-64	31,814	5,742	18.05%	7,729	24.29%	3,561	11.19%	16,221	0.51	2.10	3.38	24,821,863	780.22	6.53
24-<30	Male & 65+	85,268	32,170	37.73%	29,187	34.23%	13,410	15.73%	56,713	0.67	1.94	3.05	66,421,733	778.98	8.54
30-<36	Female & 40-64	33,615	5,138	15.28%	9,404	27.98%	4,656	13.85%	22,018	0.66	2.34	3.71	32,378,996	963.23	6.80
30-<36	Female & 65+	100,558	35,852	35.65%	36,862	36.66%	18,062	17.96%	77,504	0.77	2.10	3.25	97,026,651	964.88	7.99
30-<36	Male & 40-64	28,799	5,212	18.10%	7,559	26.25%	3,625	12.59%	17,046	0.59	2.26	3.62	27,804,434	965.47	6.13
30-<36	Male & 65+	78,952	28,301	35.85%	28,183	35.70%	13,524	17.13%	57,830	0.73	2.05	3.19	76,269,441	966.02	7.58
36-<42	Female & 40-64	30,467	4,635	15.21%	9,431	30.95%	4,966	16.30%	23,209	0.76	2.46	3.77	34,771,057	1141.27	6.67
36-<42	Female & 65+	89,193	31,738	35.58%	35,263	39.54%	18,206	20.41%	79,002	0.89	2.24	3.40	101,680,445	1140.00	7.77
36-<42	Male & 40-64	25,213	4,541	18.01%	7,299	28.95%	3,690	14.64%	17,622	0.70	2.41	3.80	28,799,764	1142.26	6.12
36-<42	Male & 65+	69,286	25,042	36.14%	26,889	38.81%	13,446	19.41%	58,131	0.84	2.16	3.32	79,037,156	1140.74	7.35
42-<48	Female & 40-64	27,324	4,129	15.11%	9,088	33.26%	4,899	17.93%	23,893	0.87	2.63	4.02	36,206,533	1325.08	6.60
42-<48	Female & 65+	81,745	28,369	34.70%	33,746	41.28%	17,903	21.90%	78,734	0.96	2.33	3.51	108,409,549	1326.19	7.26
42-<48	Male & 40-64	22,727	4,223	18.58%	7,067	31.10%	3,733	16.43%	18,044	0.79	2.55	3.94	30,163,009	1327.19	5.98
42-<48	Male & 65+	62,564	21,298	34.04%	24,833	39.69%	12,730	20.35%	55,739	0.89	2.24	3.43	83,074,899	1327.84	6.71
48+	Female & 40-64	169,298	21,287	12.57%	68,720	40.59%	40,577	23.97%	216,527	1.28	3.15	4.64	385,260,686	2275.64	5.62
48+	Female & 65+	460,174	128,625	27.95%	214,925	46.71%	124,294	27.01%	570,062	1.24	2.65	3.86	1,029,888,030	2238.04	5.54
48+	Male & 40-64	133,447	19,517	14.63%	48,908	36.65%	27,758	20.80%	142,167	1.07	2.91	4.36	302,442,145	2266.38	4.70
48+	Male & 65+	327,563	95,020	29.01%	147,655	45.08%	83,067	25.36%	376,081	1.15	2.55	3.75	726,296,055	2217.27	5.18
Any	Female & 40-64	498,594	67,725	13.58%	135,713	27.22%	69,937	14.03%	355,630	0.71	2.62	4.14	581,611,989	1166.50	6.11
Any	Female & 65+	1,392,729	473,826	34.02%	489,260	35.13%	241,402	17.33%	1,088,430	0.78	2.22	3.48	1,599,669,867	1148.59	6.80
Any	Male & 40-64	416,663	69,313	16.64%	103,586	24.86%	50,733	12.18%	251,654	0.60	2.43	3.92	469,446,840	1126.68	5.36
Any	Male & 65+	1,076,754	374,943	34.82%	362,094	33.63%	171,410	15.92%	768,726	0.71	2.12	3.37	1,175,899,551	1092.08	6.54



**Table 7. Summary of Severe COPD Exacerbations (Definition 2) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, Overall**

Follow-up Time (months)	Number of Patients with Index Diagnosis	Number of Patients Censored due to Death	Percentage of Patients Censored due to Death	Number of Patients with 1+ Outcome	Percentage of Patients with 1+ Outcome	Number of Patients with 2+ Outcomes	Percentage of Patients with 2+ Outcomes	Total Number of Outcomes	Mean Number of Outcomes per Patient with Index Diagnosis	Mean Number of Outcomes per Patient with 1+ Outcomes	Mean Number of Outcomes per Patient with 2+ Outcomes	Total Number of Patient-Days At-Risk	Mean Number of Days At-Risk per Patient	Incident Event Rate per 10,000 Person-Days At-Risk
<6	359,737	126,546	35.18%	37,762	10.50%	5,148	1.43%	43,672	0.12	1.16	2.15	26,509,087	73.69	16.47
6-<12	385,685	114,505	29.69%	60,947	15.80%	16,443	4.26%	84,080	0.22	1.38	2.41	94,228,771	244.32	8.92
12-<18	330,873	103,793	31.37%	67,715	20.47%	23,060	6.97%	105,717	0.32	1.56	2.65	139,220,835	420.77	7.59
18-<24	304,533	93,984	30.86%	71,020	23.32%	26,971	8.86%	119,851	0.39	1.69	2.81	184,647,145	606.33	6.49
24-<30	262,987	84,052	31.96%	69,775	26.53%	29,042	11.04%	126,814	0.48	1.82	2.96	205,784,663	782.49	6.16
30-<36	241,924	74,503	30.80%	67,608	27.95%	29,510	12.20%	129,152	0.53	1.91	3.09	234,411,636	968.95	5.51
36-<42	214,159	65,956	30.80%	65,142	30.42%	29,839	13.93%	130,513	0.61	2.00	3.19	245,256,360	1145.21	5.32
42-<48	194,360	58,019	29.85%	61,864	31.83%	29,129	14.99%	129,233	0.66	2.09	3.31	258,809,219	1331.60	4.99
48+	1,090,482	264,449	24.25%	397,562	36.46%	204,567	18.76%	930,274	0.85	2.34	3.60	2,451,277,034	2247.88	3.80
Any	3,384,740	985,807	29.13%	899,395	26.57%	393,709	11.63%	1,799,306	0.53	2.00	3.29	3,840,144,750	1134.55	4.69
<12	745,422	241,051	32.34%	98,709	13.24%	21,591	2.90%	127,752	0.17	1.29	2.35	120,737,858	161.97	10.58
<24	1,380,828	438,828	31.78%	237,444	17.20%	71,622	5.19%	353,320	0.26	1.49	2.62	444,605,838	321.98	7.95
24+	2,003,912	546,979	27.30%	661,951	33.03%	322,087	16.07%	1,445,986	0.72	2.18	3.43	3,395,538,912	1694.46	4.26

**Table 8. Summary of Severe COPD Exacerbations (Definition 2) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Year**

Follow-up Time (months)	Year	Number of Patients						Total Number of Outcomes	Mean	Mean	Mean	Total Number of Patient-Days At-Risk	Mean	Incident Event Rate per 10,000 Person-Days At-Risk	
		Number of Patients with Index Diagnosis	Patients Censored due to Death	Percentage of Patients Censored due to Death	Number of Patients with 1+ Outcome	Percentage of Patients with 1+ Outcome	Number of Patients with 2+ Outcomes		Percentage of Patients with 2+ Outcomes	Number of Outcomes per Patient with Index Diagnosis	Number of Outcomes per Patient with 1+		Number of Outcomes per Patient with 2+		Number of Days At-Risk per Patient
<6	2008	7,109	2,413	33.94%	709	9.97%	85	1.20%	806	0.11	1.14	2.14	541,783	76.21	14.88
<6	2009	7,154	1,572	21.97%	524	7.32%	55	0.77%	583	0.08	1.11	2.07	531,747	74.33	10.96
<6	2010	5,882	*****	*****	409	6.95%	*****	*****	450	0.08	1.10	2.00	438,684	74.58	10.26
<6	2011	37,321	26,256	70.35%	6,960	18.65%	1,017	2.73%	8,146	0.22	1.17	2.17	2,715,170	72.75	30.00
<6	2012	24,372	15,042	61.72%	3,828	15.71%	560	2.30%	4,484	0.18	1.17	2.17	1,777,318	72.92	25.23
<6	2013	22,241	13,022	58.55%	3,059	13.75%	430	1.93%	3,545	0.16	1.16	2.13	1,621,833	72.92	21.86
<6	2014	26,011	14,612	56.18%	3,676	14.13%	500	1.92%	4,248	0.16	1.16	2.14	1,917,820	73.73	22.15
<6	2015	22,852	11,993	52.48%	3,129	13.69%	437	1.91%	3,614	0.16	1.16	2.11	1,683,244	73.66	21.47
<6	2016	24,830	11,827	47.63%	3,574	14.39%	544	2.19%	4,207	0.17	1.18	2.16	1,845,226	74.31	22.80
<6	2017	25,449	10,820	42.52%	3,449	13.55%	534	2.10%	4,064	0.16	1.18	2.15	1,893,287	74.40	21.47
<6	2018	25,416	10,224	40.23%	3,355	13.20%	427	1.68%	3,854	0.15	1.15	2.17	1,894,479	74.54	20.34
<6	2019	122,551	7,383	6.02%	4,987	4.07%	515	0.42%	5,565	0.05	1.12	2.12	9,406,706	76.76	5.92
<6	2020	8,549	*****	*****	103	1.20%	*****	*****	106	0.01	1.03	2.00	241,790	28.28	4.38
6-<12	2008	7,810	2,304	29.50%	1,177	15.07%	248	3.18%	1,511	0.19	1.28	2.35	1,890,981	242.12	7.99
6-<12	2009	7,857	1,430	18.20%	911	11.59%	188	2.39%	1,169	0.15	1.28	2.37	1,918,367	244.16	6.09
6-<12	2010	6,186	1,258	20.34%	652	10.54%	152	2.46%	855	0.14	1.31	2.34	1,509,578	244.03	5.66
6-<12	2011	38,695	24,697	63.82%	10,122	26.16%	3,022	7.81%	14,453	0.37	1.43	2.43	9,594,296	247.95	15.06
6-<12	2012	25,269	14,256	56.42%	6,039	23.90%	1,757	6.95%	8,505	0.34	1.41	2.40	6,232,338	246.64	13.65
6-<12	2013	23,071	11,872	51.46%	4,713	20.43%	1,361	5.90%	6,600	0.29	1.40	2.39	5,672,787	245.88	11.63
6-<12	2014	27,466	13,562	49.38%	5,738	20.89%	1,684	6.13%	8,059	0.29	1.40	2.38	6,754,019	245.90	11.93
6-<12	2015	24,060	11,225	46.65%	5,067	21.06%	1,464	6.08%	7,153	0.30	1.41	2.42	5,896,382	245.07	12.13
6-<12	2016	26,472	11,299	42.68%	5,614	21.21%	1,624	6.13%	7,957	0.30	1.42	2.44	6,476,502	244.65	12.29
6-<12	2017	27,374	10,224	37.35%	5,472	19.99%	1,575	5.75%	7,724	0.28	1.41	2.43	6,684,464	244.19	11.56
6-<12	2018	31,383	9,655	30.77%	5,559	17.71%	1,482	4.72%	7,693	0.25	1.38	2.44	7,818,898	249.14	9.84
6-<12	2019	140,042	2,723	1.94%	9,883	7.06%	1,886	1.35%	12,401	0.09	1.25	2.34	33,780,159	241.21	3.67
12-<18	2008	6,750	2,136	31.64%	1,362	20.18%	433	6.41%	2,037	0.30	1.50	2.56	2,856,194	423.14	7.13
12-<18	2009	6,589	1,333	20.23%	1,047	15.89%	290	4.40%	1,464	0.22	1.40	2.44	2,747,036	416.91	5.33
12-<18	2010	4,847	*****	*****	801	16.53%	241	4.97%	1,160	0.24	1.45	2.49	2,028,050	418.41	5.72
12-<18	2011	36,984	24,974	67.53%	12,012	32.48%	4,560	12.33%	19,625	0.53	1.63	2.67	15,633,313	422.70	12.55
12-<18	2012	22,506	12,840	57.05%	6,235	27.70%	2,309	10.26%	10,067	0.45	1.61	2.66	9,496,866	421.97	10.60
12-<18	2013	21,414	11,231	52.45%	5,423	25.32%	1,955	9.13%	8,804	0.41	1.62	2.73	9,044,388	422.36	9.73
12-<18	2014	24,080	12,564	52.18%	6,360	26.41%	2,317	9.62%	10,258	0.43	1.61	2.68	10,124,382	420.45	10.13
12-<18	2015	22,545	10,729	47.59%	5,902	26.18%	2,116	9.39%	9,462	0.42	1.60	2.68	9,548,106	423.51	9.91
12-<18	2016	24,653	10,397	42.17%	6,427	26.07%	2,356	9.56%	10,379	0.42	1.61	2.68	10,400,699	421.88	9.98
12-<18	2017	23,749	9,405	39.60%	5,886	24.78%	2,135	8.99%	9,395	0.40	1.60	2.64	9,982,488	420.33	9.41
12-<18	2018	111,412	7,069	6.34%	13,973	12.54%	3,866	3.47%	20,103	0.18	1.44	2.59	48,356,189	434.03	4.16

**Table 8. Summary of Severe COPD Exacerbations (Definition 2) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Year**

Follow-up Time (months)	Year	Number of Percentage						Total Number of Outcomes	Mean	Mean	Mean	Total Number of Patient-Days At-Risk	Mean	Incident Event Rate per 10,000 Person-Days At-Risk	
		Number of Patients with Index Diagnosis	Patients Censored due to Death	Percentage of Patients Censored due to Death	Number of Patients with 1+ Outcome	Percentage of Patients with 1+ Outcome	Number of Patients with 2+ Outcomes		Percentage of Patients with 2+ Outcomes	Number of Outcomes per Patient with Index Diagnosis	Number of Outcomes per Patient with 1+		Number of Outcomes per Patient with 2+		Number of Days At-Risk per Patient
12-<18	2019	25,344	*****	*****	2,287	9.02%	482	1.90%	2,963	0.12	1.30	2.40	9,003,124	355.24	3.29
18-<24	2008	5,726	1,959	34.21%	1,341	23.42%	466	8.14%	2,087	0.36	1.56	2.60	3,452,663	602.98	6.04
18-<24	2009	5,859	1,301	22.21%	1,046	17.85%	342	5.84%	1,614	0.28	1.54	2.66	3,561,730	607.91	4.53
18-<24	2010	4,301	981	22.81%	740	17.21%	248	5.77%	1,199	0.28	1.62	2.85	2,612,532	607.42	4.59
18-<24	2011	36,219	23,980	66.21%	12,744	35.19%	5,341	14.75%	22,590	0.62	1.77	2.84	22,091,940	609.95	10.23
18-<24	2012	21,667	12,248	56.53%	6,710	30.97%	2,771	12.79%	11,944	0.55	1.78	2.89	13,145,438	606.70	9.09
18-<24	2013	19,893	10,930	54.94%	5,859	29.45%	2,402	12.07%	10,307	0.52	1.76	2.85	12,052,858	605.88	8.55
18-<24	2014	21,838	11,673	53.45%	6,736	30.85%	2,747	12.58%	11,657	0.53	1.73	2.79	13,257,885	607.10	8.79
18-<24	2015	21,189	9,915	46.79%	6,285	29.66%	2,520	11.89%	10,984	0.52	1.75	2.86	12,845,875	606.25	8.55
18-<24	2016	23,414	9,820	41.94%	6,786	28.98%	2,832	12.10%	12,010	0.51	1.77	2.84	14,186,095	605.88	8.47
18-<24	2017	25,701	8,732	33.98%	6,541	25.45%	2,506	9.75%	11,143	0.43	1.70	2.84	15,730,525	612.06	7.08
18-<24	2018	118,726	2,445	2.06%	16,232	13.67%	4,796	4.04%	24,316	0.20	1.50	2.69	71,709,604	603.99	3.39
24-<30	2008	4,967	1,915	38.55%	1,391	28.00%	587	11.82%	2,466	0.50	1.77	2.83	3,894,160	784.01	6.33
24-<30	2009	4,609	1,153	25.02%	1,053	22.85%	419	9.09%	1,828	0.40	1.74	2.85	3,584,894	777.80	5.10
24-<30	2010	3,428	950	27.71%	765	22.32%	292	8.52%	1,292	0.38	1.69	2.80	2,683,401	782.79	4.81
24-<30	2011	33,397	22,451	67.22%	12,985	38.88%	5,956	17.83%	24,946	0.75	1.92	3.01	26,114,669	781.95	9.55
24-<30	2012	20,569	11,664	56.71%	6,841	33.26%	3,011	14.64%	12,916	0.63	1.89	3.02	16,139,970	784.67	8.00
24-<30	2013	17,320	9,991	57.68%	5,798	33.48%	2,582	14.91%	10,977	0.63	1.89	3.01	13,562,106	783.03	8.09
24-<30	2014	21,539	11,106	51.56%	7,199	33.42%	3,191	14.81%	13,516	0.63	1.88	2.98	16,891,590	784.23	8.00
24-<30	2015	20,470	9,284	45.35%	6,784	33.14%	3,121	15.25%	13,071	0.64	1.93	3.01	16,057,802	784.46	8.14
24-<30	2016	20,551	9,045	44.01%	6,723	32.71%	2,946	14.34%	12,697	0.62	1.89	3.03	16,111,542	783.98	7.88
24-<30	2017	93,825	6,473	6.90%	16,830	17.94%	5,924	6.31%	27,924	0.30	1.66	2.87	74,733,357	796.52	3.74
24-<30	2018	22,312	20	0.09%	3,406	15.27%	1,013	4.54%	5,181	0.23	1.52	2.75	16,011,172	717.60	3.24
30-<36	2008	4,491	1,838	40.93%	1,349	30.04%	556	12.38%	2,486	0.55	1.84	3.04	4,324,366	962.90	5.75
30-<36	2009	4,077	1,049	25.73%	968	23.74%	387	9.49%	1,715	0.42	1.77	2.93	3,956,950	970.55	4.33
30-<36	2010	3,043	865	28.43%	726	23.86%	282	9.27%	1,276	0.42	1.76	2.95	2,956,005	971.41	4.32
30-<36	2011	31,573	20,699	65.56%	12,461	39.47%	5,988	18.97%	25,334	0.80	2.03	3.15	30,631,286	970.17	8.27
30-<36	2012	18,710	11,134	59.51%	6,894	36.85%	3,329	17.79%	14,267	0.76	2.07	3.21	18,088,229	966.77	7.89
30-<36	2013	15,856	9,426	59.45%	5,796	36.55%	2,757	17.39%	11,617	0.73	2.00	3.11	15,343,986	967.71	7.57
30-<36	2014	22,103	10,390	47.01%	7,635	34.54%	3,542	16.02%	15,051	0.68	1.97	3.09	21,457,423	970.79	7.01
30-<36	2015	19,354	8,531	44.08%	6,563	33.91%	3,107	16.05%	13,280	0.69	2.02	3.16	18,718,209	967.15	7.09
30-<36	2016	22,728	8,244	36.27%	6,937	30.52%	3,140	13.82%	13,727	0.60	1.98	3.16	22,146,982	974.44	6.20
30-<36	2017	99,989	2,327	2.33%	18,279	18.28%	6,422	6.42%	30,399	0.30	1.66	2.89	96,788,200	967.99	3.14
36-<42	2008	3,795	1,593	41.98%	1,179	31.07%	524	13.81%	2,241	0.59	1.90	3.03	4,357,509	1148.22	5.14
36-<42	2009	3,333	910	27.30%	859	25.77%	344	10.32%	1,596	0.48	1.86	3.14	3,809,621	1143.00	4.19
36-<42	2010	2,908	*****	*****	715	24.59%	310	10.66%	1,354	0.47	1.89	3.06	3,341,850	1149.19	4.05

**Table 8. Summary of Severe COPD Exacerbations (Definition 2) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Year**

Follow-up Time (months)	Year	Number of Patients						Total Number of Outcomes	Mean	Mean	Mean	Total Number of Patient-Days At-Risk	Mean	Incident Event Rate per 10,000 Person-Days At-Risk	
		Number of Patients with Index Diagnosis	Patients Censored due to Death	Percentage of Patients Censored due to Death	Number of Patients with 1+ Outcome	Percentage of Patients with 1+ Outcome	Number of Patients with 2+ Outcomes		Percentage of Patients with 2+ Outcomes	Number of Outcomes per Patient with Index Diagnosis	Number of Outcomes per Patient with 1+ Outcomes		Number of Outcomes per Patient with 2+ Outcomes		Number of Days At-Risk per Patient
36-<42	2011	30,624	19,953	65.15%	12,854	41.97%	6,571	21.46%	27,414	0.90	2.13	3.22	35,097,628	1146.08	7.81
36-<42	2012	16,537	10,059	60.83%	6,539	39.54%	3,277	19.82%	14,093	0.85	2.16	3.31	18,941,165	1145.38	7.44
36-<42	2013	14,919	8,859	59.38%	5,982	40.10%	3,005	20.14%	12,926	0.87	2.16	3.31	17,087,012	1145.32	7.56
36-<42	2014	20,225	9,436	46.66%	7,592	37.54%	3,770	18.64%	16,140	0.80	2.13	3.27	23,108,098	1142.55	6.98
36-<42	2015	17,077	8,101	47.44%	6,365	37.27%	3,187	18.66%	13,574	0.79	2.13	3.26	19,558,314	1145.30	6.94
36-<42	2016	86,404	6,168	7.14%	19,421	22.48%	7,581	8.77%	35,089	0.41	1.81	3.07	100,191,691	1159.57	3.50
36-<42	2017	18,337	*****	*****	3,636	19.83%	1,270	6.93%	6,086	0.33	1.67	2.93	19,763,472	1077.79	3.08
42-<48	2008	3,563	1,493	41.90%	1,213	34.04%	567	15.91%	2,427	0.68	2.00	3.14	4,738,331	1329.87	5.12
42-<48	2009	2,989	969	32.42%	955	31.95%	443	14.82%	1,933	0.65	2.02	3.21	3,980,806	1331.82	4.86
42-<48	2010	2,629	741	28.19%	738	28.07%	326	12.40%	1,480	0.56	2.01	3.28	3,505,845	1333.53	4.22
42-<48	2011	28,670	18,526	64.62%	12,286	42.85%	6,432	22.43%	27,722	0.97	2.26	3.40	38,174,041	1331.50	7.26
42-<48	2012	14,898	9,471	63.57%	6,377	42.80%	3,319	22.28%	14,162	0.95	2.22	3.35	19,798,738	1328.95	7.15
42-<48	2013	14,239	8,371	58.79%	5,912	41.52%	3,050	21.42%	13,494	0.95	2.28	3.49	18,926,052	1329.17	7.13
42-<48	2014	19,474	8,746	44.91%	7,552	38.78%	3,744	19.23%	16,498	0.85	2.18	3.39	25,927,713	1331.40	6.36
42-<48	2015	18,586	7,523	40.48%	6,785	36.51%	3,434	18.48%	15,094	0.81	2.22	3.42	24,842,138	1336.60	6.08
42-<48	2016	89,312	2,179	2.44%	20,046	22.44%	7,814	8.75%	36,423	0.41	1.82	3.10	118,915,555	1331.46	3.06
48+	2008	35,562	12,594	35.41%	14,155	39.80%	7,287	20.49%	32,213	0.91	2.28	3.48	102,019,314	2868.77	3.16
48+	2009	29,378	7,488	25.49%	10,175	34.63%	5,089	17.32%	22,300	0.76	2.19	3.38	80,947,310	2755.37	2.75
48+	2010	24,360	*****	*****	7,985	32.78%	3,900	16.01%	17,320	0.71	2.17	3.39	64,881,296	2663.44	2.67
48+	2011	312,096	122,432	39.23%	140,230	44.93%	78,200	25.06%	354,763	1.14	2.53	3.74	806,230,133	2583.28	4.40
48+	2012	179,271	51,865	28.93%	70,503	39.33%	37,449	20.89%	171,604	0.96	2.43	3.70	428,851,603	2392.20	4.00
48+	2013	164,709	34,048	20.67%	57,214	34.74%	28,859	17.52%	131,943	0.80	2.31	3.59	357,268,018	2169.09	3.69
48+	2014	174,472	22,847	13.09%	54,263	31.10%	25,589	14.67%	116,264	0.67	2.14	3.42	335,949,575	1925.52	3.46
48+	2015	155,838	7,412	4.76%	39,659	25.45%	16,863	10.82%	77,582	0.50	1.96	3.25	253,790,417	1628.55	3.06
48+	2016	14,796	*****	*****	3,378	22.83%	1,331	9.00%	6,285	0.42	1.86	3.18	21,339,368	1442.24	2.95
Any	2008	79,773	28,245	35.41%	23,876	29.93%	10,753	13.48%	48,274	0.61	2.02	3.27	128,075,301	1605.50	3.77
Any	2009	71,845	17,205	23.95%	17,538	24.41%	7,557	10.52%	34,202	0.48	1.95	3.21	105,038,461	1462.01	3.26
Any	2010	57,584	13,906	24.15%	13,531	23.50%	5,792	10.06%	26,386	0.46	1.95	3.22	83,957,241	1458.00	3.14
Any	2011	585,579	303,968	51.91%	232,654	39.73%	117,087	20.00%	524,993	0.90	2.26	3.50	986,282,476	1684.29	5.32
Any	2012	343,799	148,579	43.22%	119,966	34.89%	57,782	16.81%	262,042	0.76	2.18	3.46	532,471,665	1548.79	4.92
Any	2013	313,662	117,750	37.54%	99,756	31.80%	46,401	14.79%	210,213	0.67	2.11	3.38	450,579,040	1436.51	4.67
Any	2014	357,208	114,936	32.18%	106,751	29.88%	47,084	13.18%	211,691	0.59	1.98	3.23	455,388,505	1274.86	4.65
Any	2015	321,971	84,713	26.31%	86,539	26.88%	36,249	11.26%	163,814	0.51	1.89	3.13	362,940,487	1127.25	4.51
Any	2016	333,160	68,989	20.71%	78,906	23.68%	30,168	9.06%	138,774	0.42	1.76	2.98	311,613,660	935.33	4.45
Any	2017	314,424	47,986	15.26%	60,093	19.11%	20,366	6.48%	96,735	0.31	1.61	2.80	225,575,793	717.43	4.29
Any	2018	309,249	29,413	9.51%	42,525	13.75%	11,584	3.75%	61,147	0.20	1.44	2.61	145,790,342	471.43	4.19

**Table 8. Summary of Severe COPD Exacerbations (Definition 2) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Year**

Follow-up Time (months)	Year	Number of Patients		Percentage of Patients		Number of Patients		Percentage of Patients		Total Number of Outcomes	Mean Number of Outcomes per Patient with Index Diagnosis	Mean Number of Outcomes per Patient with 1+	Mean Number of Outcomes per Patient with 2+	Total Number of Patient-Days At-Risk	Mean Number of Days At-Risk per Patient	Incident Event Rate per 10,000 Person-Days At-Risk
		with Index Diagnosis	Censored due to Death	Censored due to Death	with 1+ Outcome	with 1+ Outcome	with 2+ Outcomes	with 2+ Outcomes	Diagnosis		Outcomes	Outcomes	Outcomes		Days At-Risk	
Any	2019	287,937	*****	*****	17,157	5.96%	*****	*****	20,929	0.07	1.22	2.31	52,189,989	181.25	4.01	
Any	2020	8,549	*****	*****	103	1.20%	*****	*****	106	0.01	1.03	2.00	241,790	28.28	4.38	

**Table 9. Summary of Severe COPD Exacerbations (Definition 2) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Sex**

Follow-up Time (months)	Sex	Number of Patients with Index Diagnosis	Number of Patients Censored due to Death	Percentage of Patients Censored due to Death	Number of Patients with 1+ Outcome	Percentage of Patients with 1+ Outcome	Number of Patients with 2+ Outcomes	Percentage of Patients with 2+ Outcomes	Total Number of Outcomes	Mean	Mean	Mean	Total Number of Patient-Days At-Risk	Mean	Incident
										Number of Outcomes per Patient with Index Diagnosis	Number of Outcomes per Patient with 1+ Outcomes	Number of Outcomes per Patient with 2+ Outcomes		Number of Days At-Risk per Patient	Event Rate per 10,000 Person-Days At-Risk
<6	Female	194,516	67,218	34.56%	19,908	10.23%	2,720	1.40%	23,026	0.12	1.16	2.15	14,349,083	73.77	16.05
<6	Male	165,221	59,328	35.91%	17,854	10.81%	2,428	1.47%	20,646	0.12	1.16	2.15	12,160,004	73.60	16.98
6-<12	Female	209,960	61,387	29.24%	32,782	15.61%	8,974	4.27%	45,398	0.22	1.38	2.41	51,306,331	244.36	8.85
6-<12	Male	175,725	53,118	30.23%	28,165	16.03%	7,469	4.25%	38,682	0.22	1.37	2.41	42,922,440	244.26	9.01
12-<18	Female	181,282	56,048	30.92%	36,804	20.30%	12,486	6.89%	57,296	0.32	1.56	2.64	76,329,107	421.05	7.51
12-<18	Male	149,591	47,745	31.92%	30,911	20.66%	10,574	7.07%	48,421	0.32	1.57	2.66	62,891,728	420.42	7.70
18-<24	Female	167,286	50,985	30.48%	38,974	23.30%	14,968	8.95%	66,277	0.40	1.70	2.82	101,436,093	606.36	6.53
18-<24	Male	137,247	42,999	31.33%	32,046	23.35%	12,003	8.75%	53,574	0.39	1.67	2.79	83,211,052	606.29	6.44
24-<30	Female	145,905	46,140	31.62%	38,600	26.46%	16,123	11.05%	70,301	0.48	1.82	2.97	114,198,364	782.69	6.16
24-<30	Male	117,082	37,912	32.38%	31,175	26.63%	12,919	11.03%	56,513	0.48	1.81	2.96	91,586,299	782.24	6.17
30-<36	Female	134,173	40,990	30.55%	37,437	27.90%	16,309	12.16%	71,725	0.53	1.92	3.10	129,977,702	968.73	5.52
30-<36	Male	107,751	33,513	31.10%	30,171	28.00%	13,201	12.25%	57,427	0.53	1.90	3.06	104,433,934	969.22	5.50
36-<42	Female	119,660	36,373	30.40%	36,287	30.33%	16,591	13.87%	73,037	0.61	2.01	3.22	137,045,532	1145.29	5.33
36-<42	Male	94,499	29,583	31.31%	28,855	30.53%	13,248	14.02%	57,476	0.61	1.99	3.16	108,210,828	1145.10	5.31
42-<48	Female	109,069	32,498	29.80%	34,798	31.90%	16,416	15.05%	73,154	0.67	2.10	3.34	145,212,599	1331.38	5.04
42-<48	Male	85,291	25,521	29.92%	27,066	31.73%	12,713	14.91%	56,079	0.66	2.07	3.28	113,596,620	1331.87	4.94
48+	Female	629,472	149,912	23.82%	230,815	36.67%	119,085	18.92%	545,062	0.87	2.36	3.64	1,419,912,235	2255.72	3.84
48+	Male	461,010	114,537	24.84%	166,747	36.17%	85,482	18.54%	385,212	0.84	2.31	3.56	1,031,364,799	2237.19	3.73
Any	Female	1,891,323	541,551	28.63%	506,405	26.78%	223,672	11.83%	1,025,276	0.54	2.02	3.32	2,189,767,046	1157.80	4.68
Any	Male	1,493,417	444,256	29.75%	392,990	26.31%	170,037	11.39%	774,030	0.52	1.97	3.24	1,650,377,704	1105.10	4.69

**Table 10. Summary of Severe COPD Exacerbations (Definition 2) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Age Group**

Follow-up Time (months)	Age	Number of Patients with Index Diagnosis	Number of Patients Censored due to Death	Percentage of Patients Censored due to Death	Number of Patients with 1+ Outcome	Percentage of Patients with 1+ Outcome	Number of Patients with 2+ Outcomes	Percentage of Patients with 2+ Outcomes	Total Number of Outcomes	Mean	Mean	Mean	Total Number of Patient-Days At-Risk	Mean	Incident
										Number of Outcomes per Patient with Index Diagnosis	Number of Outcomes per Patient with 1+ Outcomes	Number of Outcomes per Patient with 2+ Outcomes		Number of Days At-Risk per Patient	Event Rate per 10,000 Person-Days At-Risk
<6	40-64	98,538	16,124	16.36%	5,298	5.38%	655	0.66%	6,056	0.06	1.14	2.16	7,377,134	74.87	8.21
<6	65+	261,199	110,422	42.28%	32,464	12.43%	4,493	1.72%	37,616	0.14	1.16	2.15	19,131,953	73.25	19.66
6-<12	40-64	106,284	14,725	13.85%	10,082	9.49%	2,595	2.44%	13,793	0.13	1.37	2.43	25,904,027	243.72	5.32
6-<12	65+	279,401	99,780	35.71%	50,865	18.21%	13,848	4.96%	70,287	0.25	1.38	2.40	68,324,744	244.54	10.29
12-<18	40-64	89,778	13,631	15.18%	12,027	13.40%	3,907	4.35%	18,876	0.21	1.57	2.75	37,788,037	420.91	5.00
12-<18	65+	241,095	90,162	37.40%	55,688	23.10%	19,153	7.94%	86,841	0.36	1.56	2.63	101,432,798	420.72	8.56
18-<24	40-64	80,532	12,538	15.57%	12,993	16.13%	4,762	5.91%	22,268	0.28	1.71	2.95	48,815,483	606.16	4.56
18-<24	65+	224,001	81,446	36.36%	58,027	25.90%	22,209	9.91%	97,583	0.44	1.68	2.78	135,831,662	606.39	7.18
24-<30	40-64	69,235	11,338	16.38%	13,123	18.95%	5,375	7.76%	24,852	0.36	1.89	3.18	54,244,962	783.49	4.58
24-<30	65+	193,752	72,714	37.53%	56,652	29.24%	23,667	12.22%	101,962	0.53	1.80	2.91	151,539,701	782.13	6.73
30-<36	40-64	62,414	10,350	16.58%	12,959	20.76%	5,580	8.94%	25,897	0.41	2.00	3.32	60,458,105	968.66	4.28
30-<36	65+	179,510	64,153	35.74%	54,649	30.44%	23,930	13.33%	103,255	0.58	1.89	3.03	173,953,531	969.05	5.94
36-<42	40-64	55,680	9,176	16.48%	12,814	23.01%	5,815	10.44%	26,865	0.48	2.10	3.42	63,859,886	1146.91	4.21
36-<42	65+	158,479	56,780	35.83%	52,328	33.02%	24,024	15.16%	103,648	0.65	1.98	3.14	181,396,474	1144.61	5.71
42-<48	40-64	50,051	8,352	16.69%	12,460	24.89%	5,886	11.76%	27,626	0.55	2.22	3.58	66,663,462	1331.91	4.14
42-<48	65+	144,309	49,667	34.42%	49,404	34.23%	23,243	16.11%	101,607	0.70	2.06	3.25	192,145,757	1331.49	5.29
48+	40-64	302,745	40,804	13.48%	92,009	30.39%	47,586	15.72%	233,621	0.77	2.54	3.98	690,191,220	2279.78	3.38
48+	65+	787,737	223,645	28.39%	305,553	38.79%	156,981	19.93%	696,653	0.88	2.28	3.49	1,761,085,814	2235.63	3.96
Any	40-64	915,257	137,038	14.97%	183,765	20.08%	82,161	8.98%	399,854	0.44	2.18	3.63	1,055,302,316	1153.01	3.79
Any	65+	2,469,483	848,769	34.37%	715,630	28.98%	311,548	12.62%	1,399,452	0.57	1.96	3.19	2,784,842,434	1127.70	5.03

**Table 11. Summary of Severe COPD Exacerbations (Definition 2) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Sex and Age Group**

Follow-up Time (months)	Sex & Age	Number of Patients with Index Diagnosis	Number of Patients Censored due to Death	Percentage of Patients Censored due to Death	Number of Patients with 1+ Outcome	Percentage of Patients with 1+ Outcome	Number of Patients with 2+ Outcomes	Percentage of Patients with 2+ Outcomes	Total Number of Outcomes	Mean	Mean	Mean	Total Number of Patient-Days At-Risk	Mean Number of Days At-Risk per Patient	Incident Event Rate per 10,000 Person-Days At-Risk
										Number of Outcomes per Patient with Index Diagnosis	Number of Outcomes per Patient with 1+ Outcomes	Number of Outcomes per Patient with 2+ Outcomes			
<6	Female & 40-64	52,328	7,389	14.12%	2,694	5.15%	332	0.63%	3,074	0.06	1.14	2.14	3,922,200	74.95	7.84
<6	Female & 65+	142,188	59,829	42.08%	17,214	12.11%	2,388	1.68%	19,952	0.14	1.16	2.15	10,426,883	73.33	19.14
<6	Male & 40-64	46,210	8,735	18.90%	2,604	5.64%	323	0.70%	2,982	0.06	1.15	2.17	3,454,934	74.77	8.63
<6	Male & 65+	119,011	50,593	42.51%	15,250	12.81%	2,105	1.77%	17,664	0.15	1.16	2.15	8,705,070	73.15	20.29
6-<12	Female & 40-64	56,905	7,007	12.31%	5,276	9.27%	1,392	2.45%	7,276	0.13	1.38	2.44	13,859,273	243.55	5.25
6-<12	Female & 65+	153,055	54,380	35.53%	27,506	17.97%	7,582	4.95%	38,122	0.25	1.39	2.40	37,447,058	244.66	10.18
6-<12	Male & 40-64	49,379	7,718	15.63%	4,806	9.73%	1,203	2.44%	6,517	0.13	1.36	2.42	12,044,754	243.92	5.41
6-<12	Male & 65+	126,346	45,400	35.93%	23,359	18.49%	6,266	4.96%	32,165	0.25	1.38	2.41	30,877,686	244.39	10.42
12-<18	Female & 40-64	47,994	6,502	13.55%	6,339	13.21%	2,035	4.24%	9,868	0.21	1.56	2.73	20,209,645	421.09	4.88
12-<18	Female & 65+	133,288	49,546	37.17%	30,465	22.86%	10,451	7.84%	47,428	0.36	1.56	2.62	56,119,462	421.04	8.45
12-<18	Male & 40-64	41,784	7,129	17.06%	5,688	13.61%	1,872	4.48%	9,008	0.22	1.58	2.77	17,578,392	420.70	5.12
12-<18	Male & 65+	107,807	40,616	37.67%	25,223	23.40%	8,702	8.07%	39,413	0.37	1.56	2.63	45,313,336	420.32	8.70
18-<24	Female & 40-64	43,242	6,042	13.97%	6,929	16.02%	2,602	6.02%	12,083	0.28	1.74	2.98	26,207,813	606.07	4.61
18-<24	Female & 65+	124,044	44,943	36.23%	32,045	25.83%	12,366	9.97%	54,194	0.44	1.69	2.79	75,228,280	606.46	7.20
18-<24	Male & 40-64	37,290	6,496	17.42%	6,064	16.26%	2,160	5.79%	10,185	0.27	1.68	2.91	22,607,670	606.27	4.51
18-<24	Male & 65+	99,957	36,503	36.52%	25,982	25.99%	9,843	9.85%	43,389	0.43	1.67	2.77	60,603,382	606.29	7.16
24-<30	Female & 40-64	37,421	5,596	14.95%	7,072	18.90%	2,892	7.73%	13,422	0.36	1.90	3.20	29,320,899	783.54	4.58
24-<30	Female & 65+	108,484	40,544	37.37%	31,528	29.06%	13,231	12.20%	56,879	0.52	1.80	2.92	84,877,465	782.40	6.70
24-<30	Male & 40-64	31,814	5,742	18.05%	6,051	19.02%	2,483	7.80%	11,430	0.36	1.89	3.17	24,924,063	783.43	4.59
24-<30	Male & 65+	85,268	32,170	37.73%	25,124	29.46%	10,436	12.24%	45,083	0.53	1.79	2.91	66,662,236	781.80	6.76
30-<36	Female & 40-64	33,615	5,138	15.28%	7,051	20.98%	2,995	8.91%	14,075	0.42	2.00	3.35	32,544,407	968.15	4.32
30-<36	Female & 65+	100,558	35,852	35.65%	30,386	30.22%	13,314	13.24%	57,650	0.57	1.90	3.05	97,433,295	968.93	5.92
30-<36	Male & 40-64	28,799	5,212	18.10%	5,908	20.51%	2,585	8.98%	11,822	0.41	2.00	3.29	27,913,698	969.26	4.24
30-<36	Male & 65+	78,952	28,301	35.85%	24,263	30.73%	10,616	13.45%	45,605	0.58	1.88	3.01	76,520,236	969.20	5.96
36-<42	Female & 40-64	30,467	4,635	15.21%	7,096	23.29%	3,210	10.54%	14,790	0.49	2.08	3.40	34,945,074	1146.98	4.23
36-<42	Female & 65+	89,193	31,738	35.58%	29,191	32.73%	13,381	15.00%	58,247	0.65	2.00	3.17	102,100,458	1144.71	5.70
36-<42	Male & 40-64	25,213	4,541	18.01%	5,718	22.68%	2,605	10.33%	12,075	0.48	2.11	3.44	28,914,812	1146.82	4.18
36-<42	Male & 65+	69,286	25,042	36.14%	23,137	33.39%	10,643	15.36%	45,401	0.66	1.96	3.09	79,296,016	1144.47	5.73
42-<48	Female & 40-64	27,324	4,129	15.11%	6,849	25.07%	3,224	11.80%	15,241	0.56	2.23	3.60	36,383,513	1331.56	4.19
42-<48	Female & 65+	81,745	28,369	34.70%	27,949	34.19%	13,192	16.14%	57,913	0.71	2.07	3.27	108,829,086	1331.32	5.32
42-<48	Male & 40-64	22,727	4,223	18.58%	5,611	24.69%	2,662	11.71%	12,385	0.54	2.21	3.54	30,279,949	1332.33	4.09
42-<48	Male & 65+	62,564	21,298	34.04%	21,455	34.29%	10,051	16.07%	43,694	0.70	2.04	3.21	83,316,671	1331.70	5.24
48+	Female & 40-64	169,298	21,287	12.57%	52,856	31.22%	27,452	16.22%	136,780	0.81	2.59	4.06	386,841,849	2284.98	3.54
48+	Female & 65+	460,174	128,625	27.95%	177,959	38.67%	91,633	19.91%	408,282	0.89	2.29	3.51	1,033,070,386	2244.96	3.95



**Table 11. Summary of Severe COPD Exacerbations (Definition 2) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Sex and Age Group**

Follow-up Time (months)	Sex & Age	Number of Patients with Index Diagnosis	Number of Patients Censored due to Death	Percentage of Patients Censored due to Death	Number of Patients with 1+ Outcome	Percentage of Patients with 1+ Outcome	Number of Patients with 2+ Outcomes	Percentage of Patients with 2+ Outcomes	Total Number of Outcomes	Mean	Mean	Mean	Total Number of Patient-Days At-Risk	Mean	Incident
										Number of Outcomes per Patient with Index Diagnosis	Number of Outcomes per Patient with 1+ Outcomes	Number of Outcomes per Patient with 2+ Outcomes		Number of Days At-Risk per Patient	Event Rate per 10,000 Person-Days At-Risk
48+	Male & 40-64	133,447	19,517	14.63%	39,153	29.34%	20,134	15.09%	96,841	0.73	2.47	3.87	303,349,371	2273.18	3.19
48+	Male & 65+	327,563	95,020	29.01%	127,594	38.95%	65,348	19.95%	288,371	0.88	2.26	3.46	728,015,428	2222.52	3.96
Any	Female & 40-64	498,594	67,725	13.58%	102,162	20.49%	46,134	9.25%	226,609	0.45	2.22	3.70	584,234,673	1171.76	3.88
Any	Female & 65+	1,392,729	473,826	34.02%	404,243	29.03%	177,538	12.75%	798,667	0.57	1.98	3.22	1,605,532,373	1152.80	4.97
Any	Male & 40-64	416,663	69,313	16.64%	81,603	19.58%	36,027	8.65%	173,245	0.42	2.12	3.54	471,067,643	1130.57	3.68
Any	Male & 65+	1,076,754	374,943	34.82%	311,387	28.92%	134,010	12.45%	600,785	0.56	1.93	3.16	1,179,310,061	1095.25	5.09

**Table 12. Summary of Moderate COPD Exacerbations (Definition 1) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, Overall**

Follow-up Time (months)	Number of Patients			Percentage of Patients		Number of Patients		Percentage of Patients		Total Number of Outcomes	Mean Number of Outcomes per Patient with Index Diagnosis	Mean Number of Outcomes per Patient with 1+	Mean Number of Outcomes per Patient with 2+	Total Number of Patient-Days At-Risk	Mean Number of Days At-Risk per Patient	Incident Event Rate per 10,000 Person-Days At-Risk
	with Index Diagnosis	Censored due to Death	Percentage Censored due to Death	with 1+ Outcome	Percentage with 1+ Outcome	with 2+ Outcomes	Percentage with 2+ Outcomes									
<6	359,737	126,546	35.18%	26,653	7.41%	3,431	0.95%	30,692	0.09	1.15	2.18	27,074,677	75.26	11.34		
6-<12	385,685	114,505	29.69%	68,554	17.77%	19,139	4.96%	96,825	0.25	1.41	2.48	94,650,644	245.41	10.23		
12-<18	330,873	103,793	31.37%	86,036	26.00%	32,580	9.85%	144,395	0.44	1.68	2.79	139,390,467	421.28	10.36		
18-<24	304,533	93,984	30.86%	96,224	31.60%	42,275	13.88%	183,990	0.60	1.91	3.08	184,531,535	605.95	9.97		
24-<30	262,987	84,052	31.96%	96,955	36.87%	47,384	18.02%	207,635	0.79	2.14	3.34	205,460,162	781.26	10.11		
30-<36	241,924	74,503	30.80%	97,692	40.38%	51,075	21.11%	229,877	0.95	2.35	3.59	233,813,486	966.47	9.83		
36-<42	214,159	65,956	30.80%	95,505	44.60%	53,414	24.94%	246,148	1.15	2.58	3.82	244,436,898	1141.38	10.07		
42-<48	194,360	58,019	29.85%	91,722	47.19%	53,399	27.47%	253,232	1.30	2.76	4.02	257,861,309	1326.72	9.82		
48+	1,090,482	264,449	24.25%	616,023	56.49%	409,648	37.57%	2,239,790	2.05	3.64	4.96	2,438,292,523	2235.98	9.19		
Any	3,384,740	985,807	29.13%	1,275,364	37.68%	712,345	21.05%	3,632,584	1.07	2.85	4.31	3,825,511,701	1130.22	9.50		
<12	745,422	241,051	32.34%	95,207	12.77%	22,570	3.03%	127,517	0.17	1.34	2.43	121,725,321	163.30	10.48		
<24	1,380,828	438,828	31.78%	277,467	20.09%	97,425	7.06%	455,902	0.33	1.64	2.83	445,647,323	322.74	10.23		
24+	2,003,912	546,979	27.30%	997,897	49.80%	614,920	30.69%	3,176,682	1.59	3.18	4.54	3,379,864,378	1686.63	9.40		

**Table 13. Summary of Moderate COPD Exacerbations (Definition 1) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Year**

Follow-up Time (months)	Year	Number of Patients with Index Diagnosis	Number of Patients Censored due to Death	Percentage of Patients Censored due to Death	Number of Patients with 1+ Outcome	Percentage of Patients with 1+ Outcome	Number of Patients with 2+ Outcomes	Percentage of Patients with 2+ Outcomes	Total Number of Outcomes	Mean Number of Outcomes per Patient with Index Diagnosis	Number of Outcomes per Patient with 1+ Outcomes	Mean Number of Outcomes per Patient with 2+ Outcomes	Total Number of Patient-Days At-Risk	Mean Number of Days At-Risk per Patient	Incident Event Rate per 10,000 Person-Days At-Risk
		Diagnosis	Death	Death	Outcome	Outcome	Outcomes	Outcomes	Outcomes	Diagnosis	Outcomes	Outcomes	Days At-Risk	Patient	Risk
<6	2008	7,109	2,413	33.94%	456	6.41%	63	0.89%	528	0.07	1.16	2.14	545,361	76.71	9.68
<6	2009	7,154	1,572	21.97%	368	5.14%	43	0.60%	417	0.06	1.13	2.14	535,749	74.89	7.78
<6	2010	5,882	*****	*****	292	4.96%	*****	*****	329	0.06	1.13	2.12	442,118	75.16	7.44
<6	2011	37,321	26,256	70.35%	3,526	9.45%	483	1.29%	4,090	0.11	1.16	2.17	2,847,547	76.30	14.36
<6	2012	24,372	15,042	61.72%	1,975	8.10%	234	0.96%	2,261	0.09	1.14	2.22	1,847,308	75.80	12.24
<6	2013	22,241	13,022	58.55%	1,710	7.69%	238	1.07%	1,982	0.09	1.16	2.14	1,676,559	75.38	11.82
<6	2014	26,011	14,612	56.18%	1,948	7.49%	260	1.00%	2,259	0.09	1.16	2.20	1,981,146	76.17	11.40
<6	2015	22,852	11,993	52.48%	1,855	8.12%	249	1.09%	2,147	0.09	1.16	2.17	1,734,494	75.90	12.38
<6	2016	24,830	11,827	47.63%	2,141	8.62%	296	1.19%	2,491	0.10	1.16	2.18	1,903,401	76.66	13.09
<6	2017	25,449	10,820	42.52%	2,225	8.74%	319	1.25%	2,604	0.10	1.17	2.19	1,946,016	76.47	13.38
<6	2018	25,416	10,224	40.23%	2,101	8.27%	306	1.20%	2,468	0.10	1.17	2.20	1,946,739	76.60	12.68
<6	2019	122,551	7,383	6.02%	7,775	6.34%	899	0.73%	8,827	0.07	1.14	2.17	9,427,971	76.93	9.36
<6	2020	8,549	*****	*****	281	3.29%	*****	*****	289	0.03	1.03	2.00	240,268	28.10	12.03
6-<12	2008	7,810	2,304	29.50%	1,158	14.83%	316	4.05%	1,625	0.21	1.40	2.48	1,891,021	242.13	8.59
6-<12	2009	7,857	1,430	18.20%	1,044	13.29%	264	3.36%	1,423	0.18	1.36	2.44	1,918,158	244.13	7.42
6-<12	2010	6,186	1,258	20.34%	797	12.88%	193	3.12%	1,046	0.17	1.31	2.29	1,510,720	244.22	6.92
6-<12	2011	38,695	24,697	63.82%	7,938	20.51%	2,478	6.40%	11,607	0.30	1.46	2.48	9,738,848	251.68	11.92
6-<12	2012	25,269	14,256	56.42%	5,119	20.26%	1,503	5.95%	7,332	0.29	1.43	2.47	6,308,379	249.65	11.62
6-<12	2013	23,071	11,872	51.46%	4,116	17.84%	1,141	4.95%	5,816	0.25	1.41	2.49	5,731,999	248.45	10.15
6-<12	2014	27,466	13,562	49.38%	5,019	18.27%	1,392	5.07%	7,069	0.26	1.41	2.47	6,822,149	248.39	10.36
6-<12	2015	24,060	11,225	46.65%	4,647	19.31%	1,328	5.52%	6,631	0.28	1.43	2.49	5,951,617	247.37	11.14
6-<12	2016	26,472	11,299	42.68%	5,449	20.58%	1,590	6.01%	7,847	0.30	1.44	2.51	6,530,379	246.69	12.02
6-<12	2017	27,374	10,224	37.35%	5,529	20.20%	1,607	5.87%	7,999	0.29	1.45	2.54	6,732,302	245.94	11.88
6-<12	2018	31,383	9,655	30.77%	6,131	19.54%	1,747	5.57%	8,752	0.28	1.43	2.50	7,858,114	250.39	11.14
6-<12	2019	140,042	2,723	1.94%	21,607	15.43%	5,580	3.98%	29,678	0.21	1.37	2.45	33,656,958	240.33	8.82
12-<18	2008	6,750	2,136	31.64%	1,461	21.64%	502	7.44%	2,317	0.34	1.59	2.71	2,855,408	423.02	8.11
12-<18	2009	6,589	1,333	20.23%	1,283	19.47%	438	6.65%	2,014	0.31	1.57	2.67	2,743,398	416.36	7.34
12-<18	2010	4,847	1,110	22.90%	945	19.50%	326	6.73%	1,518	0.31	1.61	2.76	2,026,839	418.16	7.49

**Table 13. Summary of Moderate COPD Exacerbations (Definition 1) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Year**

Follow-up Time (months)	Year	Number of Patients with Index Diagnosis	Number of Patients Censored due to Death	Percentage of Patients Censored due to Death	Number of Patients with 1+ Outcome	Percentage of Patients with 1+ Outcome	Number of Patients with 2+ Outcomes	Percentage of Patients with 2+ Outcomes	Total Number of Outcomes	Mean Number of Outcomes per Patient with Index Diagnosis	Number of Outcomes per Patient with 1+ Outcomes	Mean Number of Outcomes per Patient with 2+ Outcomes	Total Number of Patient-Days At-Risk	Mean Number of Days At-Risk per Patient	Incident Event Rate per 10,000 Person-Days At-Risk
		Diagnosis	Death	Death	Outcome	Outcome	Outcomes	Outcomes	Outcomes	Diagnosis	Outcomes	Outcomes	Days At-Risk	Patient	Risk
12-<18	2011	36,984	24,974	67.53%	11,014	29.78%	4,420	11.95%	19,016	0.51	1.73	2.81	15,778,732	426.64	12.05
12-<18	2012	22,506	12,840	57.05%	6,170	27.41%	2,415	10.73%	10,540	0.47	1.71	2.81	9,559,830	424.77	11.03
12-<18	2013	21,414	11,231	52.45%	5,540	25.87%	2,138	9.98%	9,427	0.44	1.70	2.82	9,098,931	424.91	10.36
12-<18	2014	24,080	12,564	52.18%	6,395	26.56%	2,390	9.93%	10,715	0.44	1.68	2.81	10,186,063	423.01	10.52
12-<18	2015	22,545	10,729	47.59%	6,323	28.05%	2,439	10.82%	10,769	0.48	1.70	2.82	9,591,600	425.44	11.23
12-<18	2016	24,653	10,397	42.17%	7,232	29.34%	2,887	11.71%	12,523	0.51	1.73	2.83	10,435,194	423.28	12.00
12-<18	2017	23,749	9,405	39.60%	6,796	28.62%	2,670	11.24%	11,650	0.49	1.71	2.82	10,014,329	421.67	11.63
12-<18	2018	111,412	7,069	6.34%	27,228	24.44%	10,112	9.08%	45,221	0.41	1.66	2.78	48,153,602	432.21	9.39
12-<18	2019	25,344	*****	*****	5,649	22.29%	1,843	7.27%	8,685	0.34	1.54	2.65	8,946,541	353.00	9.71
18-<24	2008	5,726	1,959	34.21%	1,526	26.65%	625	10.92%	2,705	0.47	1.77	2.89	3,447,594	602.09	7.85
18-<24	2009	5,859	1,301	22.21%	1,427	24.36%	553	9.44%	2,461	0.42	1.72	2.87	3,554,751	606.72	6.92
18-<24	2010	4,301	981	22.81%	1,029	23.92%	416	9.67%	1,816	0.42	1.76	2.89	2,608,848	606.57	6.96
18-<24	2011	36,219	23,980	66.21%	12,793	35.32%	5,955	16.44%	25,340	0.70	1.98	3.11	22,206,957	613.13	11.41
18-<24	2012	21,667	12,248	56.53%	7,157	33.03%	3,228	14.90%	13,795	0.64	1.93	3.06	13,198,716	609.16	10.45
18-<24	2013	19,893	10,930	54.94%	6,359	31.97%	2,821	14.18%	12,462	0.63	1.96	3.16	12,091,729	607.84	10.31
18-<24	2014	21,838	11,673	53.45%	7,272	33.30%	3,226	14.77%	13,855	0.63	1.91	3.04	13,300,354	609.05	10.42
18-<24	2015	21,189	9,915	46.79%	7,030	33.18%	3,132	14.78%	13,788	0.65	1.96	3.16	12,877,501	607.74	10.71
18-<24	2016	23,414	9,820	41.94%	8,256	35.26%	3,834	16.37%	16,564	0.71	2.01	3.17	14,197,117	606.35	11.67
18-<24	2017	25,701	8,732	33.98%	8,736	33.99%	3,967	15.44%	17,026	0.66	1.95	3.09	15,719,807	611.64	10.83
18-<24	2018	118,726	2,445	2.06%	34,639	29.18%	14,518	12.23%	64,178	0.54	1.85	3.03	71,328,161	600.78	9.00
24-<30	2008	4,967	1,915	38.55%	1,557	31.35%	743	14.96%	3,201	0.64	2.06	3.21	3,887,993	782.76	8.23
24-<30	2009	4,609	1,153	25.02%	1,389	30.14%	651	14.12%	2,749	0.60	1.98	3.09	3,576,948	776.08	7.69
24-<30	2010	3,428	950	27.71%	1,006	29.35%	425	12.40%	1,949	0.57	1.94	3.22	2,678,142	781.25	7.28
24-<30	2011	33,397	22,451	67.22%	13,443	40.25%	6,764	20.25%	29,694	0.89	2.21	3.40	26,213,904	784.92	11.33
24-<30	2012	20,569	11,664	56.71%	7,640	37.14%	3,717	18.07%	16,245	0.79	2.13	3.32	16,178,969	786.57	10.04
24-<30	2013	17,320	9,991	57.68%	6,606	38.14%	3,274	18.90%	14,224	0.82	2.15	3.33	13,587,059	784.47	10.47
24-<30	2014	21,539	11,106	51.56%	8,354	38.79%	4,068	18.89%	17,866	0.83	2.14	3.34	16,915,721	785.35	10.56
24-<30	2015	20,470	9,284	45.35%	8,158	39.85%	4,159	20.32%	18,149	0.89	2.22	3.40	16,068,424	784.97	11.29

**Table 13. Summary of Moderate COPD Exacerbations (Definition 1) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Year**

Follow-up Time (months)	Year	Number of Patients with Index Diagnosis	Number of Patients Censored due to Death	Percentage of Patients Censored due to Death	Number of Patients with 1+ Outcome	Percentage of Patients with 1+ Outcome	Number of Patients with 2+ Outcomes	Percentage of Patients with 2+ Outcomes	Total Number of Outcomes	Mean Number of Outcomes per Patient with Index Diagnosis	Number of Outcomes per Patient with 1+ Outcomes	Mean Number of Outcomes per Patient with 2+ Outcomes	Total Number of Patient-Days At-Risk	Mean Number of Days At-Risk per Patient	Incident Event Rate per 10,000 Person-Days At-Risk
		Diagnosis	Death	Death	Outcome	Outcome	Outcomes	Outcomes	Outcomes	Diagnosis	Outcomes	Outcomes	Days At-Risk	Patient	Risk
24-<30	2016	20,551	9,045	44.01%	8,382	40.79%	4,360	21.22%	19,097	0.93	2.28	3.46	16,101,773	783.50	11.86
24-<30	2017	93,825	6,473	6.90%	32,884	35.05%	15,780	16.82%	69,422	0.74	2.11	3.32	74,343,283	792.36	9.34
24-<30	2018	22,312	20	0.09%	7,536	33.78%	3,443	15.43%	15,039	0.67	2.00	3.18	15,907,946	712.98	9.45
30-<36	2008	4,491	1,838	40.93%	1,647	36.67%	806	17.95%	3,590	0.80	2.18	3.41	4,313,051	960.38	8.32
30-<36	2009	4,077	1,049	25.73%	1,337	32.79%	611	14.99%	2,802	0.69	2.10	3.40	3,946,536	968.00	7.10
30-<36	2010	3,043	865	28.43%	1,011	33.22%	473	15.54%	2,135	0.70	2.11	3.38	2,947,556	968.63	7.24
30-<36	2011	31,573	20,699	65.56%	13,676	43.32%	7,368	23.34%	33,124	1.05	2.42	3.64	30,688,859	972.00	10.79
30-<36	2012	18,710	11,134	59.51%	7,830	41.85%	4,207	22.49%	18,975	1.01	2.42	3.65	18,117,499	968.33	10.47
30-<36	2013	15,856	9,426	59.45%	6,624	41.78%	3,522	22.21%	15,954	1.01	2.41	3.65	15,357,770	968.58	10.39
30-<36	2014	22,103	10,390	47.01%	9,247	41.84%	4,850	21.94%	21,690	0.98	2.35	3.57	21,458,289	970.83	10.11
30-<36	2015	19,354	8,531	44.08%	8,457	43.70%	4,656	24.06%	21,078	1.09	2.49	3.71	18,689,929	965.69	11.28
30-<36	2016	22,728	8,244	36.27%	9,688	42.63%	5,143	22.63%	23,524	1.04	2.43	3.69	22,095,702	972.18	10.65
30-<36	2017	99,989	2,327	2.33%	38,175	38.18%	19,439	19.44%	87,005	0.87	2.28	3.51	96,198,295	962.09	9.04
36-<42	2008	3,795	1,593	41.98%	1,500	39.53%	772	20.34%	3,384	0.89	2.26	3.44	4,344,207	1144.72	7.79
36-<42	2009	3,333	910	27.30%	1,214	36.42%	642	19.26%	2,866	0.86	2.36	3.57	3,795,225	1138.68	7.55
36-<42	2010	2,908	*****	*****	1,009	34.70%	517	17.78%	2,359	0.81	2.34	3.61	3,333,168	1146.21	7.08
36-<42	2011	30,624	19,953	65.15%	14,576	47.60%	8,336	27.22%	38,290	1.25	2.63	3.84	35,118,125	1146.75	10.90
36-<42	2012	16,537	10,059	60.83%	7,507	45.40%	4,245	25.67%	19,495	1.18	2.60	3.82	18,954,586	1146.19	10.29
36-<42	2013	14,919	8,859	59.38%	6,920	46.38%	3,933	26.36%	18,363	1.23	2.65	3.91	17,095,063	1145.86	10.74
36-<42	2014	20,225	9,436	46.66%	9,638	47.65%	5,538	27.38%	25,766	1.27	2.67	3.91	23,071,244	1140.73	11.17
36-<42	2015	17,077	8,101	47.44%	8,082	47.33%	4,687	27.45%	21,663	1.27	2.68	3.90	19,528,663	1143.57	11.09
36-<42	2016	86,404	6,168	7.14%	37,217	43.07%	20,477	23.70%	95,054	1.10	2.55	3.82	99,574,125	1152.42	9.55
36-<42	2017	18,337	*****	*****	7,842	42.77%	4,267	23.27%	18,908	1.03	2.41	3.59	19,622,492	1070.10	9.64
42-<48	2008	3,563	1,493	41.90%	1,505	42.24%	821	23.04%	3,736	1.05	2.48	3.72	4,723,674	1325.76	7.91
42-<48	2009	2,989	969	32.42%	1,223	40.92%	654	21.88%	2,970	0.99	2.43	3.67	3,970,936	1328.52	7.48
42-<48	2010	2,629	741	28.19%	1,040	39.56%	546	20.77%	2,472	0.94	2.38	3.62	3,496,707	1330.05	7.07
42-<48	2011	28,670	18,526	64.62%	14,163	49.40%	8,504	29.66%	40,477	1.41	2.86	4.09	38,173,637	1331.48	10.60
42-<48	2012	14,898	9,471	63.57%	7,389	49.60%	4,374	29.36%	21,130	1.42	2.86	4.14	19,791,727	1328.48	10.68

**Table 13. Summary of Moderate COPD Exacerbations (Definition 1) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Year**

Follow-up Time (months)	Year	Number of Patients with Index Diagnosis	Number of Patients Censored due to Death	Percentage of Patients Censored due to Death	Number of Patients with 1+ Outcome	Percentage of Patients with 1+ Outcome	Number of Patients with 2+ Outcomes	Percentage of Patients with 2+ Outcomes	Total Number of Outcomes	Mean Number of Outcomes per Patient with Index Diagnosis	Number of Outcomes per Patient with 1+ Outcomes	Mean Number of Outcomes per Patient with 2+ Outcomes	Total Number of Patient-Days At-Risk	Mean Number of Days At-Risk per Patient	Incident Event Rate per 10,000 Person-Days At-Risk
		Diagnosis	Death	Death	Outcome	Outcome	Outcomes	Outcomes	Outcomes	Diagnosis	Outcomes	Outcomes	Days At-Risk	Patient	Risk
42-<48	2013	14,239	8,371	58.79%	6,993	49.11%	4,174	29.31%	20,074	1.41	2.87	4.13	18,917,213	1328.55	10.61
42-<48	2014	19,474	8,746	44.91%	9,627	49.44%	5,789	29.73%	27,257	1.40	2.83	4.05	25,877,607	1328.83	10.53
42-<48	2015	18,586	7,523	40.48%	9,228	49.65%	5,526	29.73%	26,347	1.42	2.86	4.10	24,777,032	1333.10	10.63
42-<48	2016	89,312	2,179	2.44%	40,554	45.41%	23,011	25.76%	108,769	1.22	2.68	3.96	118,132,776	1322.70	9.21
48+	2008	35,562	12,594	35.41%	19,889	55.93%	13,248	37.25%	73,266	2.06	3.68	5.03	101,503,925	2854.28	7.22
48+	2009	29,378	7,488	25.49%	15,600	53.10%	10,035	34.16%	55,199	1.88	3.54	4.95	80,545,248	2741.69	6.85
48+	2010	24,360	5,753	23.62%	12,666	52.00%	8,216	33.73%	43,803	1.80	3.46	4.79	64,570,040	2650.66	6.78
48+	2011	312,096	122,432	39.23%	194,334	62.27%	136,608	43.77%	790,468	2.53	4.07	5.36	802,270,591	2570.59	9.85
48+	2012	179,271	51,865	28.93%	105,084	58.62%	71,372	39.81%	399,292	2.23	3.80	5.12	426,693,674	2380.16	9.36
48+	2013	164,709	34,048	20.67%	91,785	55.73%	60,314	36.62%	324,287	1.97	3.53	4.85	355,367,549	2157.55	9.13
48+	2014	174,472	22,847	13.09%	93,263	53.45%	59,587	34.15%	306,226	1.76	3.28	4.57	333,984,169	1914.26	9.17
48+	2015	155,838	*****	*****	76,327	48.98%	46,029	29.54%	227,052	1.46	2.97	4.27	252,176,842	1618.20	9.00
48+	2016	14,796	*****	*****	7,075	47.82%	4,239	28.65%	20,197	1.37	2.85	4.10	21,180,485	1431.50	9.54
Any	2008	79,773	28,245	35.41%	30,699	38.48%	17,896	22.43%	94,352	1.18	3.07	4.56	127,512,234	1598.44	7.40
Any	2009	71,845	17,205	23.95%	24,885	34.64%	13,891	19.33%	72,901	1.01	2.93	4.46	104,586,949	1455.73	6.97
Any	2010	57,584	13,906	24.15%	19,795	34.38%	11,145	19.35%	57,427	1.00	2.90	4.38	83,614,138	1452.04	6.87
Any	2011	585,579	303,968	51.91%	285,463	48.75%	180,916	30.90%	992,106	1.69	3.48	4.91	983,037,200	1678.74	10.09
Any	2012	343,799	148,579	43.22%	155,871	45.34%	95,295	27.72%	509,065	1.48	3.27	4.71	530,650,688	1543.49	9.59
Any	2013	313,662	117,750	37.54%	136,653	43.57%	81,555	26.00%	422,589	1.35	3.09	4.51	448,923,872	1431.23	9.41
Any	2014	357,208	114,936	32.18%	150,763	42.21%	87,100	24.38%	432,703	1.21	2.87	4.24	453,596,742	1269.84	9.54
Any	2015	321,971	84,713	26.31%	130,107	40.41%	72,205	22.43%	347,624	1.08	2.67	4.01	361,396,102	1122.45	9.62
Any	2016	333,160	68,989	20.71%	125,994	37.82%	65,837	19.76%	306,066	0.92	2.43	3.74	310,150,952	930.94	9.87
Any	2017	314,424	47,986	15.26%	102,187	32.50%	48,049	15.28%	214,614	0.68	2.10	3.34	224,576,524	714.25	9.56
Any	2018	309,249	29,413	9.51%	77,635	25.10%	30,126	9.74%	135,658	0.44	1.75	2.93	145,194,562	469.51	9.34
Any	2019	287,937	*****	*****	35,031	12.17%	*****	*****	47,190	0.16	1.35	2.46	52,031,470	180.70	9.07
Any	2020	8,549	*****	*****	281	3.29%	*****	*****	289	0.03	1.03	2.00	240,268	28.10	12.03

**Table 14. Summary of Moderate COPD Exacerbations (Definition 1) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Sex**

Follow-up Time (months)	Sex	Number of Patients with Index Diagnosis	Number of Patients Censored due to Death	Percentage of Patients Censored due to Death	Number of Patients with 1+ Outcome	Percentage of Patients with 1+ Outcome	Number of Patients with 2+ Outcomes	Percentage of Patients with 2+ Outcomes	Total Number of Outcomes	Mean	Mean	Mean	Total Number of Patient-Days At-Risk	Mean Number of Days At-Risk per Patient	Incident Event Rate per 10,000 Person-Days At-Risk
										Number of Outcomes per Patient with Index Diagnosis	Number of Outcomes per Patient with 1+ Outcomes	Number of Outcomes per Patient with 2+ Outcomes			
<6	Female	194,516	67,218	34.56%	14,969	7.70%	1,928	0.99%	17,235	0.09	1.15	2.18	14,633,673	75.23	11.78
<6	Male	165,221	59,328	35.91%	11,684	7.07%	1,503	0.91%	13,457	0.08	1.15	2.18	12,441,004	75.30	10.82
6-<12	Female	209,960	61,387	29.24%	38,906	18.53%	10,864	5.17%	54,840	0.26	1.41	2.47	51,499,339	245.28	10.65
6-<12	Male	175,725	53,118	30.23%	29,648	16.87%	8,275	4.71%	41,985	0.24	1.42	2.49	43,151,305	245.56	9.73
12-<18	Female	181,282	56,048	30.92%	48,958	27.01%	18,853	10.40%	82,778	0.46	1.69	2.79	76,358,882	421.22	10.84
12-<18	Male	149,591	47,745	31.92%	37,078	24.79%	13,727	9.18%	61,617	0.41	1.66	2.79	63,031,585	421.36	9.78
18-<24	Female	167,286	50,985	30.48%	55,641	33.26%	24,941	14.91%	107,590	0.64	1.93	3.08	101,290,465	605.49	10.62
18-<24	Male	137,247	42,999	31.33%	40,583	29.57%	17,334	12.63%	76,400	0.56	1.88	3.07	83,241,070	606.51	9.18
24-<30	Female	145,905	46,140	31.62%	56,075	38.43%	27,804	19.06%	121,532	0.83	2.17	3.35	113,928,683	780.84	10.67
24-<30	Male	117,082	37,912	32.38%	40,880	34.92%	19,580	16.72%	86,103	0.74	2.11	3.31	91,531,479	781.77	9.41
30-<36	Female	134,173	40,990	30.55%	56,204	41.89%	29,755	22.18%	133,922	1.00	2.38	3.61	129,559,668	965.62	10.34
30-<36	Male	107,751	33,513	31.10%	41,488	38.50%	21,320	19.79%	95,955	0.89	2.31	3.55	104,253,818	967.54	9.20
36-<42	Female	119,660	36,373	30.40%	55,068	46.02%	31,386	26.23%	144,399	1.21	2.62	3.85	136,495,758	1140.70	10.58
36-<42	Male	94,499	29,583	31.31%	40,437	42.79%	22,028	23.31%	101,749	1.08	2.52	3.78	107,941,140	1142.25	9.43
42-<48	Female	109,069	32,498	29.80%	53,272	48.84%	31,521	28.90%	149,550	1.37	2.81	4.05	144,592,384	1325.70	10.34
42-<48	Male	85,291	25,521	29.92%	38,450	45.08%	21,878	25.65%	103,682	1.22	2.70	3.98	113,268,925	1328.03	9.15
48+	Female	629,472	149,912	23.82%	366,491	58.22%	246,936	39.23%	1,359,846	2.16	3.71	5.02	1,411,665,239	2242.62	9.63
48+	Male	461,010	114,537	24.84%	249,532	54.13%	162,712	35.29%	879,944	1.91	3.53	4.87	1,026,627,284	2226.91	8.57
Any	Female	1,891,323	541,551	28.63%	745,584	39.42%	423,988	22.42%	2,171,692	1.15	2.91	4.36	2,180,024,091	1152.65	9.96
Any	Male	1,493,417	444,256	29.75%	529,780	35.47%	288,357	19.31%	1,460,892	0.98	2.76	4.23	1,645,487,610	1101.83	8.88

**Table 15. Summary of Moderate COPD Exacerbations (Definition 1) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Age Group**

Follow-up Time (months)	Age	Number of Patients with Index Diagnosis	Number of Patients Censored due to Death	Percentage of Patients Censored due to Death	Number of Patients with 1+ Outcome	Percentage of Patients with 1+ Outcome	Number of Patients with 2+ Outcomes	Percentage of Patients with 2+ Outcomes	Total Number of Outcomes	Mean Number of Outcomes per Patient with Index Diagnosis	Mean Number of Outcomes per Patient with 1+ Outcomes	Mean Number of Outcomes per Patient with 2+ Outcomes	Total Number of Patient-Days At-Risk	Mean Number of Days At-Risk per Patient	Incident
															Event Rate per 10,000 Person-Days At-Risk
<6	40-64	98,538	16,124	16.36%	6,776	6.88%	876	0.89%	7,822	0.08	1.15	2.19	7,408,653	75.19	10.56
<6	65+	261,199	110,422	42.28%	19,877	7.61%	2,555	0.98%	22,870	0.09	1.15	2.17	19,666,024	75.29	11.63
6-<12	40-64	106,284	14,725	13.85%	18,133	17.06%	5,169	4.86%	25,828	0.24	1.42	2.49	25,836,757	243.09	10.00
6-<12	65+	279,401	99,780	35.71%	50,421	18.05%	13,970	5.00%	70,997	0.25	1.41	2.47	68,813,887	246.29	10.32
12-<18	40-64	89,778	13,631	15.18%	22,902	25.51%	8,720	9.71%	39,084	0.44	1.71	2.86	37,634,470	419.19	10.39
12-<18	65+	241,095	90,162	37.40%	63,134	26.19%	23,860	9.90%	105,311	0.44	1.67	2.77	101,755,997	422.06	10.35
18-<24	40-64	80,532	12,538	15.57%	25,003	31.05%	11,288	14.02%	49,250	0.61	1.97	3.15	48,582,832	603.27	10.14
18-<24	65+	224,001	81,446	36.36%	71,221	31.79%	30,987	13.83%	134,740	0.60	1.89	3.05	135,948,703	606.91	9.91
24-<30	40-64	69,235	11,338	16.38%	25,120	36.28%	12,636	18.25%	56,290	0.81	2.24	3.47	53,963,757	779.43	10.43
24-<30	65+	193,752	72,714	37.53%	71,835	37.08%	34,748	17.93%	151,345	0.78	2.11	3.29	151,496,405	781.91	9.99
30-<36	40-64	62,414	10,350	16.58%	24,983	40.03%	13,398	21.47%	62,006	0.99	2.48	3.76	60,113,782	963.15	10.31
30-<36	65+	179,510	64,153	35.74%	72,709	40.50%	37,677	20.99%	167,871	0.94	2.31	3.53	173,699,704	967.63	9.66
36-<42	40-64	55,680	9,176	16.48%	24,469	43.95%	14,052	25.24%	66,551	1.20	2.72	3.99	63,469,206	1139.89	10.49
36-<42	65+	158,479	56,780	35.83%	71,036	44.82%	39,362	24.84%	179,597	1.13	2.53	3.76	180,967,692	1141.90	9.92
42-<48	40-64	50,051	8,352	16.69%	23,402	46.76%	13,910	27.79%	68,637	1.37	2.93	4.25	66,261,585	1323.88	10.36
42-<48	65+	144,309	49,667	34.42%	68,320	47.34%	39,489	27.36%	184,595	1.28	2.70	3.94	191,599,724	1327.70	9.63
48+	40-64	302,745	40,804	13.48%	171,782	56.74%	116,464	38.47%	679,306	2.24	3.95	5.36	685,333,002	2263.73	9.91
48+	65+	787,737	223,645	28.39%	444,241	56.39%	293,184	37.22%	1,560,484	1.98	3.51	4.81	1,752,959,521	2225.31	8.90
Any	40-64	915,257	137,038	14.97%	342,570	37.43%	196,513	21.47%	1,054,774	1.15	3.08	4.62	1,048,604,044	1145.69	10.06
Any	65+	2,469,483	848,769	34.37%	932,794	37.77%	515,832	20.89%	2,577,810	1.04	2.76	4.19	2,776,907,657	1124.49	9.28



**Table 16. Summary of Moderate COPD Exacerbations (Definition 1) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Sex and Age Group**

Follow-up Time (months)	Sex & Age	Number of Patients with Index Diagnosis	Number of Patients Censored due to Death	Percentage of Patients Censored due to Death	Number of Patients with 1+ Outcome	Percentage of Patients with 1+ Outcome	Number of Patients with 2+ Outcomes	Percentage of Patients with 2+ Outcomes	Total Number of Outcomes	Mean Number of Outcomes per Patient with Index Diagnosis	Mean Number of Outcomes per Patient with 1+ Outcomes	Mean Number of Outcomes per Patient with 2+ Outcomes	Total Number of Patient-Days At-Risk	Mean Number of Days At-Risk per Patient	Incident Event Rate per 10,000 Person-Days At-Risk
<6	Female & 40-64	52,328	7,389	14.12%	3,968	7.58%	533	1.02%	4,604	0.09	1.16	2.19	3,929,996	75.10	11.72
<6	Female & 65+	142,188	59,829	42.08%	11,001	7.74%	1,395	0.98%	12,631	0.09	1.15	2.17	10,703,677	75.28	11.80
<6	Male & 40-64	46,210	8,735	18.90%	2,808	6.08%	343	0.74%	3,218	0.07	1.15	2.20	3,478,657	75.28	9.25
<6	Male & 65+	119,011	50,593	42.51%	8,876	7.46%	1,160	0.97%	10,239	0.09	1.15	2.18	8,962,347	75.31	11.42
6-<12	Female & 40-64	56,905	7,007	12.31%	10,639	18.70%	3,137	5.51%	15,304	0.27	1.44	2.49	13,801,425	242.53	11.09
6-<12	Female & 65+	153,055	54,380	35.53%	28,267	18.47%	7,727	5.05%	39,536	0.26	1.40	2.46	37,697,914	246.30	10.49
6-<12	Male & 40-64	49,379	7,718	15.63%	7,494	15.18%	2,032	4.12%	10,524	0.21	1.40	2.49	12,035,332	243.73	8.74
6-<12	Male & 65+	126,346	45,400	35.93%	22,154	17.53%	6,243	4.94%	31,461	0.25	1.42	2.49	31,115,973	246.28	10.11
12-<18	Female & 40-64	47,994	6,502	13.55%	13,493	28.11%	5,348	11.14%	23,437	0.49	1.74	2.86	20,087,552	418.54	11.67
12-<18	Female & 65+	133,288	49,546	37.17%	35,465	26.61%	13,505	10.13%	59,341	0.45	1.67	2.77	56,271,330	422.18	10.55
12-<18	Male & 40-64	41,784	7,129	17.06%	9,409	22.52%	3,372	8.07%	15,647	0.37	1.66	2.85	17,546,918	419.94	8.92
12-<18	Male & 65+	107,807	40,616	37.67%	27,669	25.67%	10,355	9.61%	45,970	0.43	1.66	2.77	45,484,667	421.91	10.11
18-<24	Female & 40-64	43,242	6,042	13.97%	14,940	34.55%	7,043	16.29%	30,229	0.70	2.02	3.17	26,030,887	601.98	11.61
18-<24	Female & 65+	124,044	44,943	36.23%	40,701	32.81%	17,898	14.43%	77,361	0.62	1.90	3.05	75,259,578	606.72	10.28
18-<24	Male & 40-64	37,290	6,496	17.42%	10,063	26.99%	4,245	11.38%	19,021	0.51	1.89	3.11	22,551,945	604.77	8.43
18-<24	Male & 65+	99,957	36,503	36.52%	30,520	30.53%	13,089	13.09%	57,379	0.57	1.88	3.05	60,689,125	607.15	9.45
24-<30	Female & 40-64	37,421	5,596	14.95%	14,793	39.53%	7,698	20.57%	34,100	0.91	2.31	3.51	29,116,462	778.08	11.71
24-<30	Female & 65+	108,484	40,544	37.37%	41,282	38.05%	20,106	18.53%	87,432	0.81	2.12	3.30	84,812,221	781.79	10.31
24-<30	Male & 40-64	31,814	5,742	18.05%	10,327	32.46%	4,938	15.52%	22,190	0.70	2.15	3.40	24,847,295	781.02	8.93
24-<30	Male & 65+	85,268	32,170	37.73%	30,553	35.83%	14,642	17.17%	63,913	0.75	2.09	3.28	66,684,184	782.05	9.58
30-<36	Female & 40-64	33,615	5,138	15.28%	14,634	43.53%	8,034	23.90%	37,446	1.11	2.56	3.84	32,304,191	961.01	11.59
30-<36	Female & 65+	100,558	35,852	35.65%	41,570	41.34%	21,721	21.60%	96,476	0.96	2.32	3.53	97,255,477	967.16	9.92
30-<36	Male & 40-64	28,799	5,212	18.10%	10,349	35.94%	5,364	18.63%	24,560	0.85	2.37	3.65	27,809,591	965.64	8.83
30-<36	Male & 65+	78,952	28,301	35.85%	31,139	39.44%	15,956	20.21%	71,395	0.90	2.29	3.52	76,444,227	968.24	9.34
36-<42	Female & 40-64	30,467	4,635	15.21%	14,410	47.30%	8,578	28.16%	40,621	1.33	2.82	4.06	34,672,879	1138.05	11.72
36-<42	Female & 65+	89,193	31,738	35.58%	40,658	45.58%	22,808	25.57%	103,778	1.16	2.55	3.77	101,822,879	1141.60	10.19
36-<42	Male & 40-64	25,213	4,541	18.01%	10,059	39.90%	5,474	21.71%	25,930	1.03	2.58	3.90	28,796,327	1142.12	9.00
36-<42	Male & 65+	69,286	25,042	36.14%	30,378	43.84%	16,554	23.89%	75,819	1.09	2.50	3.75	79,144,813	1142.29	9.58
42-<48	Female & 40-64	27,324	4,129	15.11%	13,858	50.72%	8,508	31.14%	42,016	1.54	3.03	4.31	36,102,233	1321.26	11.64
42-<48	Female & 65+	81,745	28,369	34.70%	39,414	48.22%	23,013	28.15%	107,534	1.32	2.73	3.96	108,490,151	1327.18	9.91
42-<48	Male & 40-64	22,727	4,223	18.58%	9,544	41.99%	5,402	23.77%	26,621	1.17	2.79	4.16	30,159,352	1327.03	8.83
42-<48	Male & 65+	62,564	21,298	34.04%	28,906	46.20%	16,476	26.33%	77,061	1.23	2.67	3.92	83,109,573	1328.39	9.27
48+	Female & 40-64	169,298	21,287	12.57%	103,180	60.95%	72,216	42.66%	430,304	2.54	4.17	5.53	383,540,722	2265.48	11.22
48+	Female & 65+	460,174	128,625	27.95%	263,311	57.22%	174,720	37.97%	929,542	2.02	3.53	4.81	1,028,124,517	2234.21	9.04
48+	Male & 40-64	133,447	19,517	14.63%	68,602	51.41%	44,248	33.16%	249,002	1.87	3.63	5.08	301,792,280	2261.51	8.25
48+	Male & 65+	327,563	95,020	29.01%	180,930	55.24%	118,464	36.17%	630,942	1.93	3.49	4.80	724,835,004	2212.81	8.70
Any	Female & 40-64	498,594	67,725	13.58%	203,915	40.90%	121,095	24.29%	658,061	1.32	3.23	4.75	579,586,347	1162.44	11.35
Any	Female & 65+	1,392,729	473,826	34.02%	541,669	38.89%	302,893	21.75%	1,513,631	1.09	2.79	4.21	1,600,437,744	1149.14	9.46
Any	Male & 40-64	416,663	69,313	16.64%	138,655	33.28%	75,418	18.10%	396,713	0.95	2.86	4.42	469,017,697	1125.65	8.46
Any	Male & 65+	1,076,754	374,943	34.82%	391,125	36.32%	212,939	19.78%	1,064,179	0.99	2.72	4.16	1,176,469,913	1092.61	9.05

**Table 17. Summary of Moderate COPD Exacerbations (Definition 2) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, Overall**

Follow-up Time (months)	Number of Patients with Index Diagnosis	Number of Patients Censored due to Death	Percentage of Patients Censored due to Death	Number of Patients with 1+ Outcome	Percentage of Patients with 1+ Outcome	Number of Patients with 2+ Outcomes	Percentage of Patients with 2+ Outcomes	Total Number of Outcomes	Mean Number of Outcomes per Patient with Index Diagnosis	Mean	Mean	Total Number of Patient-Days At-Risk	Mean	Incident
										Number of Outcomes per Patient with 1+ Outcomes	Number of Outcomes per Patient with 2+ Outcomes		Number of Days At-Risk per Patient	Event Rate per 10,000 Person-Days At-Risk
<6	359,737	126,546	35.18%	47,823	13.29%	7,091	1.97%	56,038	0.16	1.17	2.16	26,740,523	74.33	20.96
6-<12	385,685	114,505	29.69%	130,576	33.86%	44,549	11.55%	197,287	0.51	1.51	2.50	93,267,068	241.82	21.15
12-<18	330,873	103,793	31.37%	156,508	47.30%	73,789	22.30%	295,766	0.89	1.89	2.89	137,288,065	414.93	21.54
18-<24	304,533	93,984	30.86%	169,875	55.78%	93,611	30.74%	381,543	1.25	2.25	3.26	181,779,931	596.91	20.99
24-<30	262,987	84,052	31.96%	163,645	62.23%	100,698	38.29%	427,065	1.62	2.61	3.62	202,396,790	769.61	21.10
30-<36	241,924	74,503	30.80%	161,093	66.59%	105,709	43.70%	472,062	1.95	2.93	3.94	230,429,836	952.49	20.49
36-<42	214,159	65,956	30.80%	152,204	71.07%	105,915	49.46%	501,508	2.34	3.29	4.30	240,866,851	1124.71	20.82
42-<48	194,360	58,019	29.85%	143,294	73.73%	103,673	53.34%	517,555	2.66	3.61	4.61	254,163,869	1307.70	20.36
48+	1,090,482	264,449	24.25%	893,666	81.95%	724,510	66.44%	4,712,206	4.32	5.27	6.27	2,403,677,413	2204.23	19.60
Any	3,384,740	985,807	29.13%	2,018,684	59.64%	1,359,545	40.17%	7,561,030	2.23	3.75	5.08	3,770,610,346	1114.00	20.05
<12	745,422	241,051	32.34%	178,399	23.93%	51,640	6.93%	253,325	0.34	1.42	2.45	120,007,591	160.99	21.11
<24	1,380,828	438,828	31.78%	504,782	36.56%	219,040	15.86%	930,634	0.67	1.84	2.94	439,075,587	317.98	21.20
24+	2,003,912	546,979	27.30%	1,513,902	75.55%	1,140,505	56.91%	6,630,396	3.31	4.38	5.49	3,331,534,759	1662.52	19.90

**Table 18. Summary of Moderate COPD Exacerbations (Definition 2) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Year**

Follow-up Time (months)	Year	Number of	Number of	Percentage	Number	Percentage	Number	Percentage	Total	Mean	Mean	Mean	Total	Mean	Incident
		Patients with Index Diagnosis	Patients Censored due to Death	of Patients Censored due to Death	of Patients with 1+ Outcome	of Patients with 1+ Outcome	of Patients with 2+ Outcomes	of Patients with 2+ Outcomes		Number of Outcomes per Patient with Index Diagnosis	Number of Outcomes per Patient with 1+ Outcomes	Number of Outcomes per Patient with 2+ Outcomes		Number of Patient-Days At-Risk	
<6	2008	7,109	2,413	33.94%	1,058	14.88%	195	2.74%	1,291	0.18	1.22	2.19	535,290	75.30	24.12
<6	2009	7,154	1,572	21.97%	880	12.30%	115	1.61%	1,014	0.14	1.15	2.17	527,933	73.80	19.21
<6	2010	5,882	*****	*****	720	12.24%	*****	*****	849	0.14	1.18	2.15	435,200	73.99	19.51
<6	2011	37,321	26,256	70.35%	6,595	17.67%	1,121	3.00%	7,927	0.21	1.20	2.19	2,797,277	74.95	28.34
<6	2012	24,372	15,042	61.72%	3,802	15.60%	604	2.48%	4,506	0.18	1.19	2.17	1,817,987	74.59	24.79
<6	2013	22,241	13,022	58.55%	3,260	14.66%	523	2.35%	3,859	0.17	1.18	2.15	1,651,895	74.27	23.36
<6	2014	26,011	14,612	56.18%	3,797	14.60%	608	2.34%	4,510	0.17	1.19	2.17	1,951,528	75.03	23.11
<6	2015	22,852	11,993	52.48%	3,277	14.34%	539	2.36%	3,913	0.17	1.19	2.18	1,711,336	74.89	22.87
<6	2016	24,830	11,827	47.63%	3,729	15.02%	572	2.30%	4,393	0.18	1.18	2.16	1,878,602	75.66	23.38
<6	2017	25,449	10,820	42.52%	3,617	14.21%	541	2.13%	4,252	0.17	1.18	2.17	1,924,193	75.61	22.10
<6	2018	25,416	10,224	40.23%	3,507	13.80%	528	2.08%	4,110	0.16	1.17	2.14	1,924,931	75.74	21.35
<6	2019	122,551	7,383	6.02%	13,192	10.76%	1,624	1.33%	15,016	0.12	1.14	2.12	9,345,271	76.26	16.07
<6	2020	8,549	*****	*****	389	4.55%	*****	*****	398	0.05	1.02	2.00	239,080	27.97	16.65
6-<12	2008	7,810	2,304	29.50%	2,816	36.06%	1,063	13.61%	4,515	0.58	1.60	2.60	1,851,365	237.05	24.39
6-<12	2009	7,857	1,430	18.20%	2,491	31.70%	905	11.52%	3,889	0.49	1.56	2.54	1,884,145	239.80	20.64
6-<12	2010	6,186	1,258	20.34%	1,976	31.94%	660	10.67%	2,980	0.48	1.51	2.52	1,484,026	239.90	20.08
6-<12	2011	38,695	24,697	63.82%	15,884	41.05%	6,222	16.08%	25,500	0.66	1.61	2.55	9,548,447	246.76	26.71
6-<12	2012	25,269	14,256	56.42%	10,196	40.35%	3,873	15.33%	16,198	0.64	1.59	2.55	6,186,623	244.83	26.18
6-<12	2013	23,071	11,872	51.46%	8,741	37.89%	3,165	13.72%	13,453	0.58	1.54	2.49	5,627,330	243.91	23.91
6-<12	2014	27,466	13,562	49.38%	10,198	37.13%	3,666	13.35%	15,834	0.58	1.55	2.54	6,701,729	244.00	23.63
6-<12	2015	24,060	11,225	46.65%	8,731	36.29%	3,117	12.96%	13,415	0.56	1.54	2.50	5,857,927	243.47	22.90
6-<12	2016	26,472	11,299	42.68%	9,548	36.07%	3,318	12.53%	14,503	0.55	1.52	2.49	6,438,829	243.23	22.52
6-<12	2017	27,374	10,224	37.35%	9,533	34.83%	3,172	11.59%	14,307	0.52	1.50	2.51	6,644,657	242.74	21.53
6-<12	2018	31,383	9,655	30.77%	10,803	34.42%	3,663	11.67%	16,341	0.52	1.51	2.51	7,753,815	247.07	21.07
6-<12	2019	140,042	2,723	1.94%	39,659	28.32%	11,725	8.37%	56,352	0.40	1.42	2.42	33,288,175	237.70	16.93
12-<18	2008	6,750	2,136	31.64%	3,363	49.82%	1,714	25.39%	6,784	1.01	2.02	3.00	2,793,587	413.86	24.28
12-<18	2009	6,589	1,333	20.23%	2,994	45.44%	1,432	21.73%	5,758	0.87	1.92	2.93	2,691,395	408.47	21.39
12-<18	2010	4,847	*****	*****	2,184	45.06%	1,033	21.31%	4,179	0.86	1.91	2.93	1,990,056	410.57	21.00
12-<18	2011	36,984	24,974	67.53%	20,621	55.76%	11,026	29.81%	42,574	1.15	2.06	2.99	15,452,508	417.82	27.55
12-<18	2012	22,506	12,840	57.05%	11,838	52.60%	5,972	26.54%	23,548	1.05	1.99	2.96	9,379,389	416.75	25.11
12-<18	2013	21,414	11,231	52.45%	10,789	50.38%	5,403	25.23%	21,391	1.00	1.98	2.96	8,932,680	417.14	23.95
12-<18	2014	24,080	12,564	52.18%	12,357	51.32%	6,160	25.58%	24,229	1.01	1.96	2.93	9,998,882	415.24	24.23
12-<18	2015	22,545	10,729	47.59%	11,026	48.91%	5,325	23.62%	21,247	0.94	1.93	2.92	9,446,027	418.99	22.49
12-<18	2016	24,653	10,397	42.17%	12,187	49.43%	5,858	23.76%	23,332	0.95	1.91	2.90	10,285,241	417.20	22.68
12-<18	2017	23,749	9,405	39.60%	11,324	47.68%	5,285	22.25%	21,188	0.89	1.87	2.87	9,881,576	416.08	21.44
12-<18	2018	111,412	7,069	6.34%	48,056	43.13%	20,817	18.68%	85,557	0.77	1.78	2.80	47,592,054	427.17	17.98
12-<18	2019	25,344	*****	*****	9,769	38.55%	3,764	14.85%	15,979	0.63	1.64	2.65	8,844,670	348.98	18.07
18-<24	2008	5,726	1,959	34.21%	3,378	58.99%	1,935	33.79%	8,171	1.43	2.42	3.48	3,371,927	588.88	24.23

**Table 18. Summary of Moderate COPD Exacerbations (Definition 2) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Year**

Follow-up Time (months)	Year	Number of	Number of	Percentage	Number	Percentage	Number	Percentage	Total Number of Outcomes	Mean	Mean	Mean	Total Number of Patient-Days At-Risk	Mean	Incident Event Rate per 10,000 Person-Days At-Risk
		Patients with Index Diagnosis	Patients Censored due to Death	of Patients Censored due to Death	of Patients with 1+ Outcome	of Patients with 1+ Outcome	of Patients with 2+ Outcomes	of Patients with 2+ Outcomes		Number of Outcomes per Patient with Index Diagnosis	Number of Outcomes per Patient with 1+ Outcomes	Number of Outcomes per Patient with 2+ Outcomes		Days At-Risk per Patient	
18-<24	2009	5,859	1,301	22.21%	3,180	54.28%	1,757	29.99%	7,272	1.24	2.29	3.33	3,487,795	595.29	20.85
18-<24	2010	4,301	981	22.81%	2,181	50.71%	1,189	27.64%	4,943	1.15	2.27	3.32	2,565,315	596.45	19.27
18-<24	2011	36,219	23,980	66.21%	23,192	64.03%	14,068	38.84%	57,606	1.59	2.48	3.45	21,758,268	600.74	26.48
18-<24	2012	21,667	12,248	56.53%	12,952	59.78%	7,680	35.45%	31,459	1.45	2.43	3.41	12,953,310	597.84	24.29
18-<24	2013	19,893	10,930	54.94%	11,630	58.46%	6,750	33.93%	27,514	1.38	2.37	3.35	11,882,469	597.32	23.16
18-<24	2014	21,838	11,673	53.45%	13,085	59.92%	7,545	34.55%	30,501	1.40	2.33	3.31	13,068,574	598.43	23.34
18-<24	2015	21,189	9,915	46.79%	12,089	57.05%	6,649	31.38%	27,393	1.29	2.27	3.30	12,687,721	598.79	21.59
18-<24	2016	23,414	9,820	41.94%	13,515	57.72%	7,531	32.16%	30,572	1.31	2.26	3.26	14,001,868	598.01	21.83
18-<24	2017	25,701	8,732	33.98%	14,403	56.04%	7,956	30.96%	32,058	1.25	2.23	3.22	15,510,164	603.48	20.67
18-<24	2018	118,726	2,445	2.06%	60,270	50.76%	30,551	25.73%	124,054	1.04	2.06	3.09	70,492,520	593.74	17.60
24-<30	2008	4,967	1,915	38.55%	3,196	64.34%	2,104	42.36%	9,313	1.87	2.91	3.91	3,802,653	765.58	24.49
24-<30	2009	4,609	1,153	25.02%	2,800	60.75%	1,789	38.82%	7,696	1.67	2.75	3.74	3,507,719	761.06	21.94
24-<30	2010	3,428	950	27.71%	2,028	59.16%	1,240	36.17%	5,587	1.63	2.75	3.87	2,627,361	766.44	21.26
24-<30	2011	33,397	22,451	67.22%	23,192	69.44%	15,513	46.45%	67,929	2.03	2.93	3.88	25,680,794	768.96	26.45
24-<30	2012	20,569	11,664	56.71%	13,458	65.43%	8,703	42.31%	37,547	1.83	2.79	3.77	15,882,228	772.14	23.64
24-<30	2013	17,320	9,991	57.68%	11,432	66.00%	7,298	42.14%	31,328	1.81	2.74	3.73	13,348,406	770.69	23.47
24-<30	2014	21,539	11,106	51.56%	14,054	65.25%	8,926	41.44%	37,698	1.75	2.68	3.65	16,639,064	772.51	22.66
24-<30	2015	20,470	9,284	45.35%	13,133	64.16%	8,217	40.14%	34,815	1.70	2.65	3.64	15,835,745	773.61	21.99
24-<30	2016	20,551	9,045	44.01%	13,142	63.95%	8,263	40.21%	34,818	1.69	2.65	3.62	15,882,168	772.82	21.92
24-<30	2017	93,825	6,473	6.90%	54,761	58.37%	31,737	33.83%	131,950	1.41	2.41	3.43	73,469,624	783.05	17.96
24-<30	2018	22,312	20	0.09%	12,449	55.80%	6,908	30.96%	28,384	1.27	2.28	3.31	15,721,028	704.60	18.05
30-<36	2008	4,491	1,838	40.93%	3,188	70.99%	2,169	48.30%	10,370	2.31	3.25	4.31	4,219,000	939.43	24.58
30-<36	2009	4,077	1,049	25.73%	2,585	63.40%	1,710	41.94%	7,818	1.92	3.02	4.06	3,876,389	950.79	20.17
30-<36	2010	3,043	865	28.43%	1,930	63.42%	1,269	41.70%	5,808	1.91	3.01	4.06	2,896,181	951.75	20.05
30-<36	2011	31,573	20,699	65.56%	22,869	72.43%	16,197	51.30%	75,371	2.39	3.30	4.24	30,099,684	953.34	25.04
30-<36	2012	18,710	11,134	59.51%	13,266	70.90%	9,201	49.18%	42,377	2.26	3.19	4.16	17,790,944	950.88	23.82
30-<36	2013	15,856	9,426	59.45%	11,001	69.38%	7,597	47.91%	34,444	2.17	3.13	4.09	15,099,573	952.29	22.81
30-<36	2014	22,103	10,390	47.01%	15,160	68.59%	10,125	45.81%	45,328	2.05	2.99	3.98	21,128,224	955.90	21.45
30-<36	2015	19,354	8,531	44.08%	13,316	68.80%	8,836	45.65%	39,526	2.04	2.97	3.97	18,431,645	952.34	21.44
30-<36	2016	22,728	8,244	36.27%	15,386	67.70%	10,097	44.43%	45,104	1.98	2.93	3.94	21,793,957	958.90	20.70
30-<36	2017	99,989	2,327	2.33%	62,392	62.40%	38,508	38.51%	165,916	1.66	2.66	3.69	95,094,239	951.05	17.45
36-<42	2008	3,795	1,593	41.98%	2,796	73.68%	2,009	52.94%	9,850	2.60	3.52	4.51	4,254,364	1121.04	23.15
36-<42	2009	3,333	910	27.30%	2,279	68.38%	1,629	48.87%	7,875	2.36	3.46	4.44	3,724,867	1117.57	21.14
36-<42	2010	2,908	*****	*****	1,955	67.23%	1,325	45.56%	6,683	2.30	3.42	4.57	3,272,560	1125.36	20.42
36-<42	2011	30,624	19,953	65.15%	23,448	76.57%	17,436	56.94%	86,800	2.83	3.70	4.63	34,441,411	1124.65	25.20
36-<42	2012	16,537	10,059	60.83%	12,281	74.26%	8,898	53.81%	43,661	2.64	3.56	4.53	18,616,764	1125.76	23.45
36-<42	2013	14,919	8,859	59.38%	11,031	73.94%	7,938	53.21%	38,533	2.58	3.49	4.46	16,812,854	1126.94	22.92
36-<42	2014	20,225	9,436	46.66%	14,843	73.39%	10,565	52.24%	50,414	2.49	3.40	4.37	22,726,218	1123.67	22.18

**Table 18. Summary of Moderate COPD Exacerbations (Definition 2) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Year**

Follow-up Time (months)	Year	Number of	Number of	Percentage	Number	Percentage	Number	Percentage	Total Number of Outcomes	Mean	Mean	Mean	Total Number of Patient-Days At-Risk	Mean	Incident Event Rate per 10,000 Person-Days At-Risk
		Patients with Index Diagnosis	Patients Censored due to Death	of Patients Censored due to Death	of Patients with 1+ Outcome	of Patients with 1+ Outcome	of Patients with 2+ Outcomes	of Patients with 2+ Outcomes		Number of Outcomes per Patient with Index Diagnosis	Number of Outcomes per Patient with 1+ Outcomes	Number of Outcomes per Patient with 2+ Outcomes			
36-<42	2015	17,077	8,101	47.44%	12,447	72.89%	8,710	51.00%	41,260	2.42	3.31	4.31	19,254,684	1127.52	21.43
36-<42	2016	86,404	6,168	7.14%	58,956	68.23%	39,553	45.78%	181,452	2.10	3.08	4.10	98,365,805	1138.44	18.45
36-<42	2017	18,337	*****	*****	12,168	66.36%	7,852	42.82%	34,980	1.91	2.87	3.91	19,397,324	1057.82	18.03
42-<48	2008	3,563	1,493	41.90%	2,728	76.56%	2,016	56.58%	10,805	3.03	3.96	5.01	4,625,029	1298.07	23.36
42-<48	2009	2,989	969	32.42%	2,206	73.80%	1,637	54.77%	8,454	2.83	3.83	4.82	3,894,097	1302.81	21.71
42-<48	2010	2,629	741	28.19%	1,868	71.05%	1,314	49.98%	7,006	2.66	3.75	4.91	3,433,020	1305.83	20.41
42-<48	2011	28,670	18,526	64.62%	22,595	78.81%	17,296	60.33%	91,219	3.18	4.04	4.97	37,464,479	1306.75	24.35
42-<48	2012	14,898	9,471	63.57%	11,445	76.82%	8,721	58.54%	45,315	3.04	3.96	4.88	19,453,597	1305.79	23.29
42-<48	2013	14,239	8,371	58.79%	10,826	76.03%	8,099	56.88%	41,866	2.94	3.87	4.83	18,612,559	1307.15	22.49
42-<48	2014	19,474	8,746	44.91%	14,764	75.81%	10,847	55.70%	54,474	2.80	3.69	4.66	25,497,069	1309.29	21.36
42-<48	2015	18,586	7,523	40.48%	13,870	74.63%	10,083	54.25%	50,013	2.69	3.61	4.58	24,445,997	1315.29	20.46
42-<48	2016	89,312	2,179	2.44%	62,992	70.53%	43,660	48.88%	208,403	2.33	3.31	4.33	116,738,022	1307.08	17.85
48+	2008	35,562	12,594	35.41%	30,682	86.28%	26,257	73.83%	200,468	5.64	6.53	7.47	99,723,894	2804.23	20.10
48+	2009	29,378	7,488	25.49%	24,197	82.36%	20,063	68.29%	146,657	4.99	6.06	7.10	79,262,601	2698.03	18.50
48+	2010	24,360	*****	*****	19,873	81.58%	16,281	66.83%	113,016	4.64	5.69	6.72	63,599,109	2610.80	17.77
48+	2011	312,096	122,432	39.23%	270,682	86.73%	230,486	73.85%	1,671,476	5.36	6.18	7.08	789,936,758	2531.07	21.16
48+	2012	179,271	51,865	28.93%	149,876	83.60%	123,663	68.98%	826,532	4.61	5.51	6.47	420,712,185	2346.79	19.65
48+	2013	164,709	34,048	20.67%	133,733	81.19%	107,415	65.22%	661,172	4.01	4.94	5.91	350,651,657	2128.92	18.86
48+	2014	174,472	22,847	13.09%	137,655	78.90%	107,359	61.53%	611,731	3.51	4.44	5.42	329,707,659	1889.75	18.55
48+	2015	155,838	7,412	4.76%	116,231	74.58%	85,355	54.77%	443,336	2.84	3.81	4.83	249,149,842	1598.77	17.79
48+	2016	14,796	*****	*****	10,737	72.57%	7,631	51.57%	37,818	2.56	3.52	4.55	20,933,708	1414.82	18.07
Any	2008	79,773	28,245	35.41%	53,205	66.70%	39,462	49.47%	261,567	3.28	4.92	6.28	125,177,109	1569.17	20.90
Any	2009	71,845	17,205	23.95%	43,612	60.70%	31,037	43.20%	196,433	2.73	4.50	5.92	102,856,941	1431.65	19.10
Any	2010	57,584	13,906	24.15%	34,715	60.29%	24,423	42.41%	151,051	2.62	4.35	5.76	82,302,828	1429.27	18.35
Any	2011	585,579	303,968	51.91%	429,078	73.27%	329,365	56.25%	2,126,402	3.63	4.96	6.15	967,179,626	1651.66	21.99
Any	2012	343,799	148,579	43.22%	239,114	69.55%	177,315	51.58%	1,071,143	3.12	4.48	5.69	522,793,027	1520.64	20.49
Any	2013	313,662	117,750	37.54%	212,443	67.73%	154,188	49.16%	873,560	2.79	4.11	5.29	442,619,423	1411.13	19.74
Any	2014	357,208	114,936	32.18%	235,913	66.04%	165,801	46.42%	874,719	2.45	3.71	4.85	447,418,947	1252.54	19.55
Any	2015	321,971	84,713	26.31%	204,120	63.40%	136,831	42.50%	674,918	2.10	3.31	4.44	356,820,924	1108.24	18.91
Any	2016	333,160	68,989	20.71%	200,192	60.09%	126,483	37.96%	580,395	1.74	2.90	4.01	306,318,200	919.43	18.95
Any	2017	314,424	47,986	15.26%	168,198	53.49%	95,051	30.23%	404,651	1.29	2.41	3.49	221,921,777	705.80	18.23
Any	2018	309,249	29,413	9.51%	135,085	43.68%	62,467	20.20%	258,446	0.84	1.91	2.97	143,484,348	463.98	18.01
Any	2019	287,937	*****	*****	62,620	21.75%	*****	*****	87,347	0.30	1.39	2.44	51,478,116	178.78	16.97
Any	2020	8,549	*****	*****	389	4.55%	*****	*****	398	0.05	1.02	2.00	239,080	27.97	16.65

**Table 19. Summary of Moderate COPD Exacerbations (Definition 2) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Sex**

Follow-up Time (months)	Sex	Number	Number of	Percentage	Number	Percentage	Number	Percentage	Total	Mean	Mean	Mean	Total Number	Mean	Incident
		of Patients with Index Diagnosis	Patients Censored due to Death	of Patients Censored due to Death	of Patients with 1+ Outcome	of Patients with 1+ Outcome	of Patients with 2+ Outcomes	of Patients with 2+ Outcomes	Number of Outcomes	Number of Outcomes per Patient with Index Diagnosis	Number of Outcomes per Patient with 1+ Outcomes	Number of Outcomes per Patient with 2+ Outcomes	of Patient-Days At-Risk	Number of Days At-Risk per Patient	Event Rate per 10,000 Person-Days At-Risk
<6	Female	194,516	67,218	34.56%	26,737	13.75%	3,937	2.02%	31,313	0.16	1.17	2.16	14,448,250	74.28	21.67
<6	Male	165,221	59,328	35.91%	21,086	12.76%	3,154	1.91%	24,725	0.15	1.17	2.15	12,292,273	74.40	20.11
6-<12	Female	209,960	61,387	29.24%	73,683	35.09%	25,403	12.10%	111,633	0.53	1.52	2.49	50,717,168	241.56	22.01
6-<12	Male	175,725	53,118	30.23%	56,893	32.38%	19,146	10.90%	85,654	0.49	1.51	2.50	42,549,900	242.14	20.13
12-<18	Female	181,282	56,048	30.92%	88,852	49.01%	42,690	23.55%	169,665	0.94	1.91	2.89	75,151,659	414.56	22.58
12-<18	Male	149,591	47,745	31.92%	67,656	45.23%	31,099	20.79%	126,101	0.84	1.86	2.88	62,136,406	415.38	20.29
18-<24	Female	167,286	50,985	30.48%	96,638	57.77%	54,334	32.48%	220,937	1.32	2.29	3.29	99,711,401	596.05	22.16
18-<24	Male	137,247	42,999	31.33%	73,237	53.36%	39,277	28.62%	160,606	1.17	2.19	3.22	82,068,530	597.96	19.57
24-<30	Female	145,905	46,140	31.62%	93,198	63.88%	58,495	40.09%	248,112	1.70	2.66	3.65	112,161,351	768.73	22.12
24-<30	Male	117,082	37,912	32.38%	70,447	60.17%	42,203	36.05%	178,953	1.53	2.54	3.57	90,235,439	770.70	19.83
30-<36	Female	134,173	40,990	30.55%	91,409	68.13%	61,084	45.53%	274,045	2.04	3.00	3.99	127,601,138	951.02	21.48
30-<36	Male	107,751	33,513	31.10%	69,684	64.67%	44,625	41.41%	198,017	1.84	2.84	3.88	102,828,698	954.32	19.26
36-<42	Female	119,660	36,373	30.40%	86,918	72.64%	61,433	51.34%	293,060	2.45	3.37	4.36	134,416,702	1123.32	21.80
36-<42	Male	94,499	29,583	31.31%	65,286	69.09%	44,482	47.07%	208,448	2.21	3.19	4.22	106,450,149	1126.47	19.58
42-<48	Female	109,069	32,498	29.80%	82,058	75.23%	60,364	55.34%	304,807	2.79	3.71	4.69	142,419,983	1305.78	21.40
42-<48	Male	85,291	25,521	29.92%	61,236	71.80%	43,309	50.78%	212,748	2.49	3.47	4.50	111,743,886	1310.15	19.04
48+	Female	629,472	149,912	23.82%	522,897	83.07%	429,818	68.28%	2,851,815	4.53	5.45	6.42	1,390,773,574	2209.43	20.51
48+	Male	461,010	114,537	24.84%	370,769	80.43%	294,692	63.92%	1,860,391	4.04	5.02	6.05	1,012,903,839	2197.14	18.37
Any	Female	1,891,323	541,551	28.63%	1,162,390	61.46%	797,558	42.17%	4,505,387	2.38	3.88	5.19	2,147,401,226	1135.40	20.98
Any	Male	1,493,417	444,256	29.75%	856,294	57.34%	561,987	37.63%	3,055,643	2.05	3.57	4.91	1,623,209,120	1086.91	18.82

**Table 20. Summary of Moderate COPD Exacerbations (Definition 2) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Age Group**

Follow-up Time (months)	Age	Number of Patients with Index Diagnosis	Number of Patients Censored due to Death	Percentage of Patients Censored due to Death	Number of Patients with 1+ Outcome	Percentage of Patients with 1+ Outcome	Number of Patients with 2+ Outcomes	Percentage of Patients with 2+ Outcomes	Total Number of Outcomes	Mean	Mean	Mean	Total Number of Patient-Days At-Risk	Mean	Incident Event Rate per 10,000 Person-Days At-Risk
										Number of Outcomes per Patient with Index Diagnosis	Number of Outcomes per Patient with 1+ Outcomes	Number of Outcomes per Patient with 2+ Outcomes		Number of Days At-Risk per Patient	
<6	40-64	98,538	16,124	16.36%	11,844	12.02%	1,665	1.69%	13,761	0.14	1.16	2.15	7,330,597	74.39	18.77
<6	65+	261,199	110,422	42.28%	35,979	13.77%	5,426	2.08%	42,277	0.16	1.18	2.16	19,409,926	74.31	21.78
6-<12	40-64	106,284	14,725	13.85%	33,484	31.50%	11,135	10.48%	50,320	0.47	1.50	2.51	25,499,264	239.92	19.73
6-<12	65+	279,401	99,780	35.71%	97,092	34.75%	33,414	11.96%	146,967	0.53	1.51	2.49	67,767,804	242.55	21.69
12-<18	40-64	89,778	13,631	15.18%	40,168	44.74%	18,736	20.87%	75,899	0.85	1.89	2.91	37,123,320	413.50	20.45
12-<18	65+	241,095	90,162	37.40%	116,340	48.25%	55,053	22.83%	219,867	0.91	1.89	2.88	100,164,745	415.46	21.95
18-<24	40-64	80,532	12,538	15.57%	42,958	53.34%	23,431	29.10%	96,739	1.20	2.25	3.30	47,921,407	595.06	20.19
18-<24	65+	224,001	81,446	36.36%	126,917	56.66%	70,180	31.33%	284,804	1.27	2.24	3.25	133,858,524	597.58	21.28
24-<30	40-64	69,235	11,338	16.38%	41,522	59.97%	25,420	36.72%	109,636	1.58	2.64	3.68	53,218,646	768.67	20.60
24-<30	65+	193,752	72,714	37.53%	122,123	63.03%	75,278	38.85%	317,429	1.64	2.60	3.59	149,178,144	769.94	21.28
30-<36	40-64	62,414	10,350	16.58%	40,261	64.51%	26,326	42.18%	119,659	1.92	2.97	4.02	59,308,085	950.24	20.18
30-<36	65+	179,510	64,153	35.74%	120,832	67.31%	79,383	44.22%	352,403	1.96	2.92	3.92	171,121,751	953.27	20.59
36-<42	40-64	55,680	9,176	16.48%	38,612	69.35%	26,658	47.88%	129,226	2.32	3.35	4.40	62,592,577	1124.15	20.65
36-<42	65+	158,479	56,780	35.83%	113,592	71.68%	79,257	50.01%	372,282	2.35	3.28	4.26	178,274,274	1124.91	20.88
42-<48	40-64	50,051	8,352	16.69%	36,090	72.11%	26,145	52.24%	134,299	2.68	3.72	4.76	65,342,595	1305.52	20.55
42-<48	65+	144,309	49,667	34.42%	107,204	74.29%	77,528	53.72%	383,256	2.66	3.58	4.56	188,821,274	1308.45	20.30
48+	40-64	302,745	40,804	13.48%	245,668	81.15%	199,756	65.98%	1,368,232	4.52	5.57	6.62	675,683,881	2231.86	20.25
48+	65+	787,737	223,645	28.39%	647,998	82.26%	524,754	66.62%	3,343,974	4.25	5.16	6.14	1,727,993,532	2193.62	19.35
Any	40-64	915,257	137,038	14.97%	530,607	57.97%	359,272	39.25%	2,097,771	2.29	3.95	5.36	1,034,020,372	1129.76	20.29
Any	65+	2,469,483	848,769	34.37%	1,488,077	60.26%	1,000,273	40.51%	5,463,259	2.21	3.67	4.97	2,736,589,974	1108.16	19.96

**Table 21. Summary of Moderate COPD Exacerbations (Definition 2) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Sex and Age Group**

Follow-up Time (months)	Sex & Age	Number of Patients with Index Diagnosis	Number of Patients Censored due to Death	Percentage of Patients Censored due to Death	Number of Patients with 1+ Outcome	Percentage of Patients with 1+ Outcome	Number of Patients with 2+ Outcomes	Percentage of Patients with 2+ Outcomes	Total Number of Outcomes	Mean Number of Outcomes per Patient with Index Diagnosis	Mean			Mean Number of Days At-Risk per Patient	Incident Event Rate per 10,000 Person-Days At-Risk
											Number of Outcomes per Patient with 1+ Outcomes	Mean Number of Outcomes per Patient with 2+ Outcomes	Total Number of Patient-Days At-Risk		
<6	Female & 40-64	52,328	7,389	14.12%	6,778	12.95%	974	1.86%	7,901	0.15	1.17	2.15	3,886,635	74.27	20.33
<6	Female & 65+	142,188	59,829	42.08%	19,959	14.04%	2,963	2.08%	23,412	0.16	1.17	2.17	10,561,615	74.28	22.17
<6	Male & 40-64	46,210	8,735	18.90%	5,066	10.96%	691	1.50%	5,860	0.13	1.16	2.15	3,443,962	74.53	17.02
<6	Male & 65+	119,011	50,593	42.51%	16,020	13.46%	2,463	2.07%	18,865	0.16	1.18	2.16	8,848,311	74.35	21.32
6-<12	Female & 40-64	56,905	7,007	12.31%	19,290	33.90%	6,714	11.80%	29,489	0.52	1.53	2.52	13,605,846	239.10	21.67
6-<12	Female & 65+	153,055	54,380	35.53%	54,393	35.54%	18,689	12.21%	82,144	0.54	1.51	2.48	37,111,322	242.47	22.13
6-<12	Male & 40-64	49,379	7,718	15.63%	14,194	28.75%	4,421	8.95%	20,831	0.42	1.47	2.50	11,893,418	240.86	17.51
6-<12	Male & 65+	126,346	45,400	35.93%	42,699	33.80%	14,725	11.65%	64,823	0.51	1.52	2.50	30,656,482	242.64	21.14
12-<18	Female & 40-64	47,994	6,502	13.55%	23,127	48.19%	11,171	23.28%	44,819	0.93	1.94	2.94	19,790,323	412.35	22.65
12-<18	Female & 65+	133,288	49,546	37.17%	65,725	49.31%	31,519	23.65%	124,846	0.94	1.90	2.88	55,361,336	415.35	22.55
12-<18	Male & 40-64	41,784	7,129	17.06%	17,041	40.78%	7,565	18.11%	31,080	0.74	1.82	2.86	17,332,997	414.82	17.93
12-<18	Male & 65+	107,807	40,616	37.67%	50,615	46.95%	23,534	21.83%	95,021	0.88	1.88	2.89	44,803,409	415.59	21.21
18-<24	Female & 40-64	43,242	6,042	13.97%	24,751	57.24%	14,171	32.77%	58,247	1.35	2.35	3.36	25,640,846	592.96	22.72
18-<24	Female & 65+	124,044	44,943	36.23%	71,887	57.95%	40,163	32.38%	162,690	1.31	2.26	3.26	74,070,555	597.13	21.96
18-<24	Male & 40-64	37,290	6,496	17.42%	18,207	48.83%	9,260	24.83%	38,492	1.03	2.11	3.19	22,280,561	597.49	17.28
18-<24	Male & 65+	99,957	36,503	36.52%	55,030	55.05%	30,017	30.03%	122,114	1.22	2.22	3.23	59,787,969	598.14	20.42
24-<30	Female & 40-64	37,421	5,596	14.95%	23,687	63.30%	15,037	40.18%	65,165	1.74	2.75	3.76	28,682,466	766.48	22.72
24-<30	Female & 65+	108,484	40,544	37.37%	69,511	64.07%	43,458	40.06%	182,947	1.69	2.63	3.61	83,478,885	769.50	21.92
24-<30	Male & 40-64	31,814	5,742	18.05%	17,835	56.06%	10,383	32.64%	44,471	1.40	2.49	3.57	24,536,180	771.24	18.12
24-<30	Male & 65+	85,268	32,170	37.73%	52,612	61.70%	31,820	37.32%	134,482	1.58	2.56	3.57	65,699,259	770.50	20.47
30-<36	Female & 40-64	33,615	5,138	15.28%	22,865	68.02%	15,478	46.04%	71,344	2.12	3.12	4.13	31,830,131	946.90	22.41
30-<36	Female & 65+	100,558	35,852	35.65%	68,544	68.16%	45,606	45.35%	202,701	2.02	2.96	3.94	95,771,007	952.40	21.17
30-<36	Male & 40-64	28,799	5,212	18.10%	17,396	60.40%	10,848	37.67%	48,315	1.68	2.78	3.85	27,477,954	954.13	17.58
30-<36	Male & 65+	78,952	28,301	35.85%	52,288	66.23%	33,777	42.78%	149,702	1.90	2.86	3.88	75,350,744	954.39	19.87
36-<42	Female & 40-64	30,467	4,635	15.21%	22,148	72.70%	15,811	51.90%	77,796	2.55	3.51	4.52	34,152,711	1120.97	22.78
36-<42	Female & 65+	89,193	31,738	35.58%	64,770	72.62%	45,622	51.15%	215,264	2.41	3.32	4.30	100,263,991	1124.12	21.47
36-<42	Male & 40-64	25,213	4,541	18.01%	16,464	65.30%	10,847	43.02%	51,430	2.04	3.12	4.22	28,439,866	1127.98	18.08
36-<42	Male & 65+	69,286	25,042	36.14%	48,822	70.46%	33,635	48.55%	157,018	2.27	3.22	4.22	78,010,283	1125.92	20.13
42-<48	Female & 40-64	27,324	4,129	15.11%	20,620	75.46%	15,415	56.42%	81,208	2.97	3.94	4.93	35,553,839	1301.19	22.84
42-<48	Female & 65+	81,745	28,369	34.70%	61,438	75.16%	44,949	54.99%	223,599	2.74	3.64	4.61	106,866,144	1307.31	20.92
42-<48	Male & 40-64	22,727	4,223	18.58%	15,470	68.07%	10,730	47.21%	53,091	2.34	3.43	4.51	29,788,756	1310.72	17.82
42-<48	Male & 65+	62,564	21,298	34.04%	45,766	73.15%	32,579	52.07%	159,657	2.55	3.49	4.50	81,955,130	1309.94	19.48
48+	Female & 40-64	169,298	21,287	12.57%	141,914	83.82%	118,825	70.19%	851,248	5.03	6.00	6.97	377,643,656	2230.64	22.54
48+	Female & 65+	460,174	128,625	27.95%	380,983	82.79%	310,993	67.58%	2,000,567	4.35	5.25	6.21	1,013,129,918	2201.62	19.75
48+	Male & 40-64	133,447	19,517	14.63%	103,754	77.75%	80,931	60.65%	516,984	3.87	4.98	6.11	298,040,225	2233.40	17.35
48+	Male & 65+	327,563	95,020	29.01%	267,015	81.52%	213,761	65.26%	1,343,407	4.10	5.03	6.04	714,863,614	2182.37	18.79
Any	Female & 40-64	498,594	67,725	13.58%	305,180	61.21%	213,596	42.84%	1,287,217	2.58	4.22	5.60	570,786,453	1144.79	22.55
Any	Female & 65+	1,392,729	473,826	34.02%	857,210	61.55%	583,962	41.93%	3,218,170	2.31	3.75	5.04	1,576,614,773	1132.03	20.41
Any	Male & 40-64	416,663	69,313	16.64%	225,427	54.10%	145,676	34.96%	810,554	1.95	3.60	5.02	463,233,919	1111.77	17.50
Any	Male & 65+	1,076,754	374,943	34.82%	630,867	58.59%	416,311	38.66%	2,245,089	2.09	3.56	4.88	1,159,975,201	1077.29	19.35



**Table 22. Summary of Severe Asthma Exacerbations in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, Overall**

Follow-up Time (months)	Number of Patients with Index Diagnosis	Number of Patients Censored due to Death	Percentage of Patients Censored due to Death	Number of Patients with 1+ Outcome	Percentage of Patients with 1+ Outcome	Number of Patients with 2+ Outcomes	Percentage of Patients with 2+ Outcomes	Total Number of Outcomes	Mean Number of Outcomes per Patient with Index Diagnosis	Mean Number of Outcomes per Patient with 1+ Outcomes	Mean Number of Outcomes per Patient with 2+ Outcomes	Total Number of Patient-Days At-Risk	Mean Number of Days At-Risk per Patient	Incident Event Rate per 10,000 Person-Days At-Risk
<6	302,048	16,848	5.58%	2,785	0.92%	189	0.06%	3,003	0.01	1.08	2.15	22,764,755	75.37	1.32
6-<12	336,806	16,524	4.91%	5,909	1.75%	768	0.23%	6,946	0.02	1.18	2.35	82,709,022	245.57	0.84
12-<18	276,924	16,257	5.87%	7,530	2.72%	1,318	0.48%	9,504	0.03	1.26	2.50	116,987,481	422.45	0.81
18-<24	251,915	15,847	6.29%	8,631	3.43%	1,734	0.69%	11,432	0.05	1.32	2.62	153,817,903	610.59	0.74
24-<30	215,465	15,270	7.09%	9,156	4.25%	2,060	0.96%	12,594	0.06	1.38	2.67	169,722,441	787.70	0.74
30-<36	198,915	14,451	7.26%	9,738	4.90%	2,336	1.17%	13,903	0.07	1.43	2.78	194,204,745	976.32	0.72
36-<42	171,069	13,667	7.99%	9,880	5.78%	2,474	1.45%	14,389	0.08	1.46	2.82	197,180,821	1152.64	0.73
42-<48	158,360	13,142	8.30%	9,966	6.29%	2,725	1.72%	15,432	0.10	1.55	3.01	212,463,829	1341.65	0.73
48+	1,190,940	79,846	6.70%	112,950	9.48%	35,854	3.01%	193,589	0.16	1.71	3.25	2,925,248,553	2456.25	0.66
Any	3,102,442	201,852	6.51%	176,545	5.69%	49,458	1.59%	280,792	0.09	1.59	3.11	4,075,099,550	1313.51	0.69
<12	638,854	33,372	5.22%	8,694	1.36%	957	0.15%	9,949	0.02	1.14	2.31	105,473,777	165.10	0.94
<24	1,167,693	65,476	5.61%	24,855	2.13%	4,009	0.34%	30,885	0.03	1.24	2.50	376,279,161	322.24	0.82
24+	1,934,749	136,376	7.05%	151,690	7.84%	45,449	2.35%	249,907	0.13	1.65	3.16	3,698,820,389	1911.78	0.68

**Table 23. Summary of Severe Asthma Exacerbations in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Year**

Follow-up Time (months)	Year	Number of Patients with Index Diagnosis	Number of Patients Censored due to Death	Percentage of Patients Censored due to Death	Number of Patients with 1+ Outcome	Percentage of Patients with 1+ Outcome	Number of Patients with 2+ Outcomes	Percentage of Patients with 2+ Outcomes	Total Number of Outcomes	Mean Number of Outcomes per Patient with Index Diagnosis	Mean Number of Outcomes per Patient with 1+ Outcomes	Mean Number of Outcomes per Patient with 2+ Outcomes	Total Number of Patient-Days At-Risk	Mean Number of Days At-Risk per Patient	Incident Event Rate per 10,000 Person-Days At-Risk
															Person-Days At-Risk
<6	2008	15,192	589	3.88%	131	0.86%	*****	*****	142	0.01	1.08	2.00	1,173,641	77.25	1.21
<6	2009	18,964	346	1.82%	113	0.60%	*****	*****	117	0.01	1.04	5.00	1,433,652	75.60	0.82
<6	2010	14,716	*****	*****	85	0.58%	*****	*****	90	0.01	1.06	2.00	1,105,116	75.10	0.81
<6	2011	19,457	3,064	15.75%	380	1.95%	31	0.16%	419	0.02	1.10	2.26	1,480,002	76.07	2.83
<6	2012	15,791	2,153	13.63%	224	1.42%	12	0.08%	238	0.02	1.06	2.17	1,189,237	75.31	2.00
<6	2013	15,043	1,874	12.46%	201	1.34%	18	0.12%	223	0.01	1.11	2.22	1,130,688	75.16	1.97
<6	2014	18,686	2,025	10.84%	263	1.41%	17	0.09%	282	0.02	1.07	2.12	1,415,422	75.75	1.99
<6	2015	17,705	1,743	9.84%	205	1.16%	12	0.07%	218	0.01	1.06	2.08	1,359,364	76.78	1.60
<6	2016	17,572	1,386	7.89%	210	1.20%	16	0.09%	228	0.01	1.09	2.13	1,339,050	76.20	1.70
<6	2017	19,770	1,351	6.83%	199	1.01%	19	0.10%	220	0.01	1.11	2.11	1,500,253	75.89	1.47
<6	2018	21,060	1,119	5.31%	186	0.88%	15	0.07%	202	0.01	1.09	2.07	1,664,488	79.04	1.21
<6	2019	96,594	887	0.92%	563	0.58%	32	0.03%	599	0.01	1.06	2.13	7,690,644	79.62	0.78
<6	2020	11,498	*****	*****	25	0.22%	0	0.00%	25	0.00	1.00	.	2,83,198	24.63	0.88
6-<12	2008	17,261	585	3.39%	288	1.67%	29	0.17%	334	0.02	1.16	2.59	4,255,992	246.57	0.78
6-<12	2009	22,651	348	1.54%	320	1.41%	24	0.11%	349	0.02	1.09	2.21	5,607,171	247.55	0.62
6-<12	2010	16,090	281	1.75%	167	1.04%	20	0.12%	191	0.01	1.14	2.20	3,960,043	246.12	0.48
6-<12	2011	22,797	3,121	13.69%	708	3.11%	114	0.50%	862	0.04	1.22	2.35	5,669,688	248.70	1.52
6-<12	2012	17,280	2,060	11.92%	491	2.84%	81	0.47%	595	0.03	1.21	2.28	4,258,052	246.42	1.40
6-<12	2013	17,472	1,873	10.72%	443	2.54%	74	0.42%	548	0.03	1.24	2.42	4,291,371	245.61	1.28
6-<12	2014	20,962	2,096	10.00%	520	2.48%	77	0.37%	622	0.03	1.20	2.32	5,182,604	247.24	1.20
6-<12	2015	19,962	1,736	8.70%	429	2.15%	54	0.27%	500	0.03	1.17	2.31	4,935,118	247.23	1.01
6-<12	2016	20,038	1,460	7.29%	356	1.78%	44	0.22%	411	0.02	1.15	2.25	4,945,506	246.81	0.83
6-<12	2017	23,251	1,349	5.80%	417	1.79%	55	0.24%	489	0.02	1.17	2.31	5,744,479	247.06	0.85
6-<12	2018	32,753	1,261	3.85%	468	1.43%	65	0.20%	550	0.02	1.18	2.26	8,234,899	251.42	0.67
6-<12	2019	106,289	354	0.33%	1,302	1.22%	131	0.12%	1,495	0.01	1.15	2.47	25,624,099	241.08	0.58
12-<18	2008	14,149	516	3.65%	343	2.42%	67	0.47%	432	0.03	1.26	2.33	5,979,487	422.61	0.72
12-<18	2009	17,527	317	1.81%	370	2.11%	54	0.31%	442	0.03	1.19	2.33	7,332,056	418.33	0.60
12-<18	2010	12,249	*****	*****	223	1.82%	34	0.28%	289	0.02	1.30	2.94	5,157,927	421.09	0.56
12-<18	2011	18,788	3,301	17.57%	941	5.01%	201	1.07%	1,224	0.07	1.30	2.41	7,962,164	423.79	1.54
12-<18	2012	15,114	2,149	14.22%	618	4.09%	125	0.83%	802	0.05	1.30	2.47	6,425,322	425.12	1.25
12-<18	2013	15,492	1,944	12.55%	615	3.97%	130	0.84%	837	0.05	1.36	2.71	6,560,797	423.50	1.28
12-<18	2014	17,393	2,191	12.60%	665	3.82%	138	0.79%	871	0.05	1.31	2.49	7,349,984	422.58	1.19
12-<18	2015	17,040	1,841	10.80%	541	3.17%	98	0.58%	682	0.04	1.26	2.44	7,230,125	424.30	0.94
12-<18	2016	17,472	1,394	7.98%	465	2.66%	83	0.48%	594	0.03	1.28	2.55	7,409,873	424.10	0.80
12-<18	2017	19,875	1,292	6.50%	527	2.65%	88	0.44%	663	0.03	1.26	2.55	8,462,088	425.77	0.78
12-<18	2018	87,858	1,059	1.21%	1,805	2.05%	251	0.29%	2,172	0.02	1.20	2.46	38,437,667	437.50	0.57
12-<18	2019	23,967	*****	*****	417	1.74%	49	0.20%	496	0.02	1.19	2.61	8,679,991	362.16	0.57

**Table 23. Summary of Severe Asthma Exacerbations in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Year**

Follow-up Time (months)	Year	Number of Patients with Index Diagnosis	Number of Patients Censored due to Death	Percentage of Patients Censored due to Death	Number of Patients with 1+ Outcome	Percentage of Patients with 1+ Outcome	Number of Patients with 2+ Outcomes	Percentage of Patients with 2+ Outcomes	Total Number of Outcomes	Mean Number of Outcomes per Patient with Index Diagnosis	Mean Number of Outcomes per Patient with 1+ Outcomes	Mean Number of Outcomes per Patient with 2+ Outcomes	Total Number of Days At-Risk	Mean Number of Days At-Risk per Patient	Incident Event Rate
															per 10,000 Person-Days At-Risk
18-<24	2008	13,095	573	4.38%	392	2.99%	70	0.53%	494	0.04	1.26	2.46	7,996,817	610.68	0.62
18-<24	2009	15,287	326	2.13%	380	2.49%	68	0.44%	500	0.03	1.32	2.76	9,343,894	611.23	0.54
18-<24	2010	11,153	286	2.56%	272	2.44%	59	0.53%	364	0.03	1.34	2.56	6,827,364	612.15	0.53
18-<24	2011	17,639	3,467	19.66%	1,201	6.81%	311	1.76%	1,693	0.10	1.41	2.58	10,844,318	614.79	1.56
18-<24	2012	14,444	2,121	14.68%	781	5.41%	182	1.26%	1,103	0.08	1.41	2.77	8,845,157	612.38	1.25
18-<24	2013	13,536	2,002	14.79%	685	5.06%	170	1.26%	966	0.07	1.41	2.65	8,266,325	610.69	1.17
18-<24	2014	15,715	2,068	13.16%	670	4.26%	144	0.92%	912	0.06	1.36	2.68	9,620,987	612.22	0.95
18-<24	2015	16,313	1,777	10.89%	667	4.09%	156	0.96%	916	0.06	1.37	2.60	9,994,849	612.69	0.92
18-<24	2016	16,850	1,461	8.67%	592	3.51%	125	0.74%	778	0.05	1.31	2.49	10,311,666	611.97	0.75
18-<24	2017	26,529	1,407	5.30%	663	2.50%	117	0.44%	853	0.03	1.29	2.62	16,390,998	617.85	0.52
18-<24	2018	91,354	359	0.39%	2,328	2.55%	332	0.36%	2,853	0.03	1.23	2.58	55,375,528	606.16	0.52
24-<30	2008	10,783	607	5.63%	373	3.46%	85	0.79%	509	0.05	1.36	2.60	8,472,107	785.69	0.60
24-<30	2009	11,430	323	2.83%	344	3.01%	63	0.55%	438	0.04	1.27	2.49	8,954,207	783.40	0.49
24-<30	2010	8,143	****	****	223	2.74%	40	0.49%	292	0.04	1.31	2.73	6,401,468	786.13	0.46
24-<30	2011	15,933	3,504	21.99%	1,261	7.91%	360	2.26%	1,873	0.12	1.49	2.70	12,590,256	790.20	1.49
24-<30	2012	13,061	2,198	16.83%	921	7.05%	238	1.82%	1,390	0.11	1.51	2.97	10,324,206	790.46	1.35
24-<30	2013	11,242	1,979	17.60%	683	6.08%	176	1.57%	1,027	0.09	1.50	2.95	8,869,530	788.96	1.16
24-<30	2014	14,780	2,116	14.32%	809	5.47%	193	1.31%	1,125	0.08	1.39	2.64	11,690,661	790.98	0.96
24-<30	2015	14,694	1,852	12.60%	767	5.22%	200	1.36%	1,090	0.07	1.42	2.62	11,617,480	790.63	0.94
24-<30	2016	15,308	1,405	9.18%	612	4.00%	120	0.78%	789	0.05	1.29	2.48	12,137,679	792.90	0.65
24-<30	2017	78,642	1,038	1.32%	2,534	3.22%	459	0.58%	3,257	0.04	1.29	2.58	63,078,971	802.10	0.52
24-<30	2018	21,449	****	****	629	2.93%	126	0.59%	804	0.04	1.28	2.39	15,585,876	726.65	0.52
30-<36	2008	9,646	575	5.96%	406	4.21%	98	1.02%	568	0.06	1.40	2.65	9,411,095	975.65	0.60
30-<36	2009	10,381	313	3.02%	311	3.00%	62	0.60%	424	0.04	1.36	2.82	10,143,705	977.14	0.42
30-<36	2010	7,098	265	3.73%	226	3.18%	50	0.70%	295	0.04	1.31	2.38	6,931,004	976.47	0.43
30-<36	2011	16,020	3,518	21.96%	1,444	9.01%	427	2.67%	2,206	0.14	1.53	2.78	15,699,720	980.01	1.41
30-<36	2012	11,676	2,137	18.30%	886	7.59%	241	2.06%	1,344	0.12	1.52	2.90	11,389,081	975.43	1.18
30-<36	2013	10,092	1,943	19.25%	697	6.91%	195	1.93%	1,071	0.11	1.54	2.92	9,853,322	976.35	1.09
30-<36	2014	15,583	2,093	13.43%	974	6.25%	233	1.50%	1,417	0.09	1.45	2.90	15,280,367	980.58	0.93
30-<36	2015	14,715	1,799	12.23%	778	5.29%	190	1.29%	1,148	0.08	1.48	2.95	14,392,848	978.11	0.80
30-<36	2016	21,286	1,399	6.57%	776	3.65%	169	0.79%	1,094	0.05	1.41	2.88	20,948,009	984.12	0.52
30-<36	2017	82,418	409	0.50%	3,240	3.93%	671	0.81%	4,336	0.05	1.34	2.63	80,155,594	972.55	0.54
36-<42	2008	8,435	561	6.65%	403	4.78%	89	1.06%	578	0.07	1.43	2.97	9,725,284	1152.97	0.59
36-<42	2009	7,761	294	3.79%	321	4.14%	77	0.99%	447	0.06	1.39	2.64	8,915,520	1148.76	0.50
36-<42	2010	6,063	****	****	230	3.79%	57	0.94%	321	0.05	1.40	2.60	7,007,875	1155.84	0.46
36-<42	2011	15,504	3,534	22.79%	1,668	10.76%	515	3.32%	2,714	0.18	1.63	3.03	17,932,992	1156.67	1.51
36-<42	2012	9,881	2,212	22.39%	875	8.86%	264	2.67%	1,345	0.14	1.54	2.78	11,403,590	1154.09	1.18

**Table 23. Summary of Severe Asthma Exacerbations in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Year**

Follow-up Time (months)	Year	Number of Patients with Index Diagnosis	Number of Patients Censored due to Death	Percentage of Patients Censored due to Death	Number	Percentage	Number	Percentage	Total Number of Outcomes	Mean	Mean	Mean	Total Number of Days At-Risk	Mean	Incident Event Rate per 10,000 Person-Days At-Risk
					of Patients with 1+ Outcome	of Patients with 1+ Outcome	of Patients with 2+ Outcomes	of Patients with 2+ Outcomes		Number of Patient with Index Diagnosis	Number of Outcomes per Patient with 1+ Outcomes	Number of Outcomes per Patient with 2+ Outcomes		Number of Days At-Risk per Patient	
36-<42	2013	9,367	1,991	21.26%	782	8.35%	212	2.26%	1,197	0.13	1.53	2.96	10,831,585	1156.36	1.11
36-<42	2014	13,887	2,027	14.60%	1,011	7.28%	264	1.90%	1,507	0.11	1.49	2.88	15,993,275	1151.67	0.94
36-<42	2015	13,431	1,695	12.62%	819	6.10%	200	1.49%	1,141	0.08	1.39	2.61	15,572,617	1159.45	0.73
36-<42	2016	67,887	1,095	1.61%	2,988	4.40%	647	0.95%	4,092	0.06	1.37	2.71	79,252,228	1167.41	0.52
36-<42	2017	18,853	*****	*****	783	4.15%	149	0.79%	1,047	0.06	1.34	2.77	20,545,855	1089.79	0.51
42-<48	2008	8,057	557	6.91%	418	5.19%	116	1.44%	629	0.08	1.50	2.82	10,806,861	1341.30	0.58
42-<48	2009	6,374	285	4.47%	293	4.60%	83	1.30%	484	0.08	1.65	3.30	8,553,818	1341.99	0.57
42-<48	2010	5,660	234	4.13%	204	3.60%	56	0.99%	311	0.05	1.52	2.91	7,595,206	1341.91	0.41
42-<48	2011	14,686	3,744	25.49%	1,713	11.66%	594	4.04%	2,952	0.20	1.72	3.09	19,725,874	1343.18	1.50
42-<48	2012	9,083	2,152	23.69%	813	8.95%	261	2.87%	1,374	0.15	1.69	3.15	12,191,968	1342.28	1.13
42-<48	2013	9,079	1,994	21.96%	689	7.59%	223	2.46%	1,176	0.13	1.71	3.18	12,191,846	1342.86	0.96
42-<48	2014	13,584	2,014	14.83%	1,062	7.82%	293	2.16%	1,609	0.12	1.52	2.87	18,254,954	1343.86	0.88
42-<48	2015	19,476	1,711	8.79%	960	4.93%	269	1.38%	1,478	0.08	1.54	2.93	26,304,714	1350.62	0.56
42-<48	2016	72,361	451	0.62%	3,814	5.27%	830	1.15%	5,419	0.07	1.42	2.93	96,838,588	1338.27	0.56
48+	2008	120,986	8,565	7.08%	10,234	8.46%	3,189	2.64%	17,530	0.14	1.71	3.29	399,256,519	3300.02	0.44
48+	2009	85,494	3,654	4.27%	5,621	6.57%	1,625	1.90%	9,031	0.11	1.61	3.10	255,667,581	2990.47	0.35
48+	2010	65,477	2,536	3.87%	3,550	5.42%	955	1.46%	5,504	0.08	1.55	3.05	183,467,245	2802.01	0.30
48+	2011	261,447	33,010	12.63%	37,212	14.23%	13,173	5.04%	68,709	0.26	1.85	3.39	728,988,142	2788.28	0.94
48+	2012	161,330	14,780	9.16%	18,083	11.21%	6,084	3.77%	31,785	0.20	1.76	3.25	402,422,787	2494.41	0.79
48+	2013	152,285	9,355	6.14%	14,416	9.47%	4,508	2.96%	24,308	0.16	1.69	3.19	337,835,610	2218.44	0.72
48+	2014	179,119	6,060	3.38%	13,583	7.58%	3,756	2.10%	21,517	0.12	1.58	3.11	349,622,485	1951.90	0.62
48+	2015	149,971	*****	*****	9,400	6.27%	2,371	1.58%	13,982	0.09	1.49	2.93	246,421,738	1643.13	0.57
48+	2016	14,831	*****	*****	851	5.74%	193	1.30%	1,223	0.08	1.44	2.93	21,566,446	1454.15	0.57
Any	2008	217,604	13,128	6.03%	12,988	5.97%	3,754	1.73%	21,216	0.10	1.63	3.19	457,077,803	2100.50	0.46
Any	2009	195,869	6,206	3.17%	8,073	4.12%	2,057	1.05%	12,232	0.06	1.52	3.02	315,951,604	1613.08	0.39
Any	2010	146,649	4,661	3.18%	5,180	3.53%	1,276	0.87%	7,657	0.05	1.48	2.94	228,453,248	1557.82	0.34
Any	2011	402,271	60,263	14.98%	46,528	11.57%	15,726	3.91%	82,652	0.21	1.78	3.30	820,893,156	2040.65	1.01
Any	2012	267,660	31,962	11.94%	23,692	8.85%	7,488	2.80%	39,976	0.15	1.69	3.17	468,449,400	1750.17	0.85
Any	2013	253,608	24,955	9.84%	19,211	7.58%	5,706	2.25%	31,353	0.12	1.63	3.13	399,831,074	1576.57	0.78
Any	2014	309,709	22,690	7.33%	19,557	6.31%	5,115	1.65%	29,862	0.10	1.53	3.01	434,410,739	1402.64	0.69
Any	2015	283,307	16,039	5.66%	14,566	5.14%	3,550	1.25%	21,155	0.07	1.45	2.86	337,828,853	1192.45	0.63
Any	2016	263,605	10,052	3.81%	10,664	4.05%	2,227	0.84%	14,628	0.06	1.37	2.78	254,749,045	966.40	0.57
Any	2017	269,338	6,849	2.54%	8,363	3.11%	1,558	0.58%	10,865	0.04	1.30	2.61	195,878,238	727.26	0.55
Any	2018	254,474	3,801	1.49%	5,416	2.13%	789	0.31%	6,581	0.03	1.22	2.48	119,298,458	468.80	0.55
Any	2019	226,850	*****	*****	2,282	1.01%	212	0.09%	2,590	0.01	1.13	2.45	41,994,734	185.12	0.62
Any	2020	11,498	*****	*****	25	0.22%	0	0.00%	25	0.00	1.00	.	283,198	24.63	0.88

**Table 24. Summary of Severe Asthma Exacerbations in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Sex**

Follow-up Time (months)	Sex	Number of Patients with Index Diagnosis	Number of Patients		Percentage of Patients		Number of Patients with 1+ Outcomes	Percentage of Patients with 2+ Outcomes	Total Number of Outcomes	Mean Number of Outcomes per Patient with Index Diagnosis	Mean Number of Outcomes per Patient with 1+ Outcomes	Mean Number of Outcomes per Patient with 2+ Outcomes	Total Number of Patient-Days At-Risk	Mean Number of Days At-Risk per Patient	Incident Event Rate per 10,000 Person-Days At-Risk
			Censored due to Death	Percentage Censored due to Death	Percentage of Patients with 1+ Outcomes	Percentage of Patients with 2+ Outcomes									
<6	F	201,315	11,434	5.68%	2,070	1.03%	149	0.07%	2,237	0.01	1.08	2.12	15,179,021	75.40	1.47
<6	M	100,733	5,414	5.37%	715	0.71%	40	0.04%	766	0.01	1.07	2.28	7,585,734	75.31	1.01
6-<12	F	225,253	11,280	5.01%	4,511	2.00%	593	0.26%	5,313	0.02	1.18	2.35	55,284,444	245.43	0.96
6-<12	M	111,553	5,244	4.70%	1,398	1.25%	175	0.16%	1,633	0.01	1.17	2.34	27,424,578	245.84	0.60
12-<18	F	184,950	11,127	6.02%	5,688	3.08%	982	0.53%	7,162	0.04	1.26	2.50	78,164,701	422.63	0.92
12-<18	M	91,974	5,130	5.58%	1,842	2.00%	336	0.37%	2,342	0.03	1.27	2.49	38,822,780	422.11	0.60
18-<24	F	169,768	10,904	6.42%	6,622	3.90%	1,359	0.80%	8,765	0.05	1.32	2.58	103,681,537	610.72	0.85
18-<24	M	82,147	4,943	6.02%	2,009	2.45%	375	0.46%	2,667	0.03	1.33	2.75	50,136,366	610.32	0.53
24-<30	F	145,694	10,594	7.27%	7,042	4.83%	1,647	1.13%	9,778	0.07	1.39	2.66	114,787,807	787.87	0.85
24-<30	M	69,771	4,676	6.70%	2,114	3.03%	413	0.59%	2,816	0.04	1.33	2.70	54,934,634	787.36	0.51
30-<36	F	134,976	10,010	7.42%	7,438	5.51%	1,825	1.35%	10,691	0.08	1.44	2.78	131,784,579	976.36	0.81
30-<36	M	63,939	4,441	6.95%	2,300	3.60%	511	0.80%	3,212	0.05	1.40	2.78	62,420,166	976.25	0.51
36-<42	F	116,641	9,578	8.21%	7,616	6.53%	1,969	1.69%	11,231	0.10	1.47	2.84	134,444,349	1152.63	0.84
36-<42	M	54,428	4,089	7.51%	2,264	4.16%	505	0.93%	3,158	0.06	1.39	2.77	62,736,472	1152.65	0.50
42-<48	F	108,495	9,180	8.46%	7,709	7.11%	2,167	2.00%	12,075	0.11	1.57	3.01	145,566,327	1341.69	0.83
42-<48	M	49,865	3,962	7.95%	2,257	4.53%	558	1.12%	3,357	0.07	1.49	2.97	66,897,502	1341.57	0.50
48+	F	832,898	56,073	6.73%	88,464	10.62%	28,899	3.47%	153,565	0.18	1.74	3.25	2,049,234,731	2460.37	0.75
48+	M	358,042	23,773	6.64%	24,486	6.84%	6,955	1.94%	40,024	0.11	1.63	3.23	876,013,822	2446.68	0.46
Any	F	2,119,990	140,180	6.61%	137,160	6.47%	39,590	1.87%	220,817	0.10	1.61	3.11	2,828,127,496	1334.03	0.78
Any	M	982,452	61,672	6.28%	39,385	4.01%	9,868	1.00%	59,975	0.06	1.52	3.09	1,246,972,054	1269.24	0.48

**Table 25. Summary of Severe Asthma Exacerbations in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Age Group**

Follow-up Time (months)	Age	Number of Patients			Percentage of Patients		Number of Patients		Total Number of Outcomes	Mean Number of Outcomes per Patient with Index	Mean Number of Outcomes per Patient with 1+	Mean Number of Outcomes per Patient with 2+	Total Number of Patient-Days At-Risk	Mean Number of Days At-Risk per Patient	Incident Event Rate per 10,000 Person-Days At-Risk
		with Index	Patients Censored	due to Death	of Patients Censored	of Patients with 1+	of Patients with 1+	of Patients with 2+		of Patients with 2+	Diagnosis	Outcomes		Outcomes	Outcomes
<6	18-39	85,706	525	0.61%	409	0.48%	31	0.04%	445	0.01	1.09	2.16	6,437,936	75.12	0.69
<6	40-64	126,142	3,253	2.58%	867	0.69%	52	0.04%	930	0.01	1.07	2.21	9,507,036	75.37	0.98
<6	65+	90,200	13,070	14.49%	1,509	1.67%	106	0.12%	1,628	0.02	1.08	2.12	6,819,783	75.61	2.39
6-<12	18-39	89,277	490	0.55%	895	1.00%	135	0.15%	1,111	0.01	1.24	2.60	21,756,563	243.70	0.51
6-<12	40-64	141,523	3,135	2.22%	2,009	1.42%	233	0.16%	2,320	0.02	1.15	2.33	34,785,434	245.79	0.67
6-<12	65+	106,006	12,899	12.17%	3,005	2.83%	400	0.38%	3,515	0.03	1.17	2.28	26,167,025	246.84	1.34
12-<18	18-39	69,381	421	0.61%	1,040	1.50%	201	0.29%	1,387	0.02	1.33	2.73	29,249,271	421.57	0.47
12-<18	40-64	114,742	3,034	2.64%	2,599	2.27%	433	0.38%	3,262	0.03	1.26	2.53	48,354,424	421.42	0.67
12-<18	65+	92,801	12,802	13.80%	3,891	4.19%	684	0.74%	4,855	0.05	1.25	2.41	39,383,786	424.39	1.23
18-<24	18-39	58,794	423	0.72%	1,108	1.88%	246	0.42%	1,566	0.03	1.41	2.86	35,783,751	608.63	0.44
18-<24	40-64	101,979	2,878	2.82%	2,962	2.90%	610	0.60%	3,973	0.04	1.34	2.66	62,236,025	610.28	0.64
18-<24	65+	91,142	12,546	13.77%	4,561	5.00%	878	0.96%	5,893	0.06	1.29	2.52	55,798,127	612.21	1.06
24-<30	18-39	47,386	397	0.84%	1,092	2.30%	275	0.58%	1,661	0.04	1.52	3.07	37,333,221	787.85	0.44
24-<30	40-64	85,579	2,739	3.20%	3,026	3.54%	715	0.84%	4,322	0.05	1.43	2.81	67,312,885	786.56	0.64
24-<30	65+	82,500	12,134	14.71%	5,038	6.11%	1,070	1.30%	6,611	0.08	1.31	2.47	65,076,335	788.80	1.02
30-<36	18-39	40,956	373	0.91%	1,110	2.71%	307	0.75%	1,826	0.04	1.65	3.33	39,891,232	974.00	0.46
30-<36	40-64	76,651	2,564	3.35%	3,139	4.10%	775	1.01%	4,600	0.06	1.47	2.89	74,795,397	975.79	0.62
30-<36	65+	81,308	11,514	14.16%	5,489	6.75%	1,254	1.54%	7,477	0.09	1.36	2.59	79,518,116	977.99	0.94
36-<42	18-39	33,414	316	0.95%	1,017	3.04%	287	0.86%	1,696	0.05	1.67	3.37	38,523,789	1152.92	0.44
36-<42	40-64	66,135	2,397	3.62%	3,225	4.88%	813	1.23%	4,840	0.07	1.50	2.99	76,175,264	1151.81	0.64
36-<42	65+	71,520	10,954	15.32%	5,638	7.88%	1,374	1.92%	7,853	0.11	1.39	2.61	82,481,768	1153.27	0.95
42-<48	18-39	28,676	310	1.08%	996	3.47%	291	1.01%	1,733	0.06	1.74	3.53	38,392,403	1338.83	0.45
42-<48	40-64	59,251	2,269	3.83%	3,107	5.24%	899	1.52%	5,120	0.09	1.65	3.24	79,444,237	1340.81	0.64
42-<48	65+	70,433	10,563	15.00%	5,863	8.32%	1,535	2.18%	8,579	0.12	1.46	2.77	94,627,189	1343.51	0.91
48+	18-39	185,153	1,615	0.87%	9,992	5.40%	3,619	1.95%	21,387	0.12	2.14	4.15	449,709,442	2428.85	0.48
48+	40-64	456,485	13,814	3.03%	36,930	8.09%	12,363	2.71%	68,176	0.15	1.85	3.53	1,154,568,531	2529.26	0.59
48+	65+	549,302	64,417	11.73%	66,028	12.02%	19,872	3.62%	104,026	0.19	1.58	2.91	1,320,970,580	2404.82	0.79
Any	18-39	638,743	4,870	0.76%	17,659	2.76%	5,392	0.84%	32,812	0.05	1.86	3.81	697,077,608	1091.33	0.47
Any	40-64	1,228,487	36,083	2.94%	57,864	4.71%	16,893	1.38%	97,543	0.08	1.69	3.35	1,607,179,233	1308.26	0.61
Any	65+	1,235,212	160,899	13.03%	101,022	8.18%	27,173	2.20%	150,437	0.12	1.49	2.82	1,770,842,709	1433.63	0.85

**Table 26. Summary of Severe Asthma Exacerbations in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Sex and Age Group**

Follow-up Time (months)	Sex & Age	Number	Number of	Percentage	Number	Percentage	Number	Percentage	Total Number of Outcomes	Mean	Mean	Mean	Total Number of Patient-Days At-Risk	Mean	Incident
		of Patients with Index Diagnosis	Patients Censored due to Death	of Patients Censored due to Death	of Patients with 1+ Outcome	of Patients with 1+ Outcome	of Patients with 2+ Outcomes	of Patients with 2+ Outcomes		Number of Outcomes per Patient with Index Diagnosis	Number of Outcomes per Patient with 1+ Outcomes	Number of Outcomes per Patient with 2+ Outcomes		Number of Days At-Risk per Patient	Event Rate per 10,000 Person-Days At-Risk
<6	Female & 18-39	53,341	287	0.54%	277	0.52%	23	0.04%	303	0.01	1.09	2.13	4,023,132	75.42	0.75
<6	Female & 40-64	84,700	2,037	2.40%	623	0.74%	38	0.04%	665	0.01	1.07	2.11	6,372,719	75.24	1.04
<6	Female & 65+	63,274	9,110	14.40%	1,170	1.85%	88	0.14%	1,269	0.02	1.08	2.13	4,783,170	75.59	2.65
<6	Male & 18-39	32,365	238	0.74%	132	0.41%	*****	*****	142	0.00	1.08	2.25	2,414,804	74.61	0.59
<6	Male & 40-64	41,442	1,216	2.93%	244	0.59%	*****	*****	265	0.01	1.09	2.50	3,134,317	75.63	0.85
<6	Male & 65+	26,926	3,960	14.71%	339	1.26%	18	0.07%	359	0.01	1.06	2.11	2,036,613	75.64	1.76
6-<12	Female & 18-39	55,703	287	0.52%	651	1.17%	95	0.17%	799	0.01	1.23	2.56	13,564,971	243.52	0.59
6-<12	Female & 40-64	95,230	1,975	2.07%	1,489	1.56%	172	0.18%	1,723	0.02	1.16	2.36	23,387,377	245.59	0.74
6-<12	Female & 65+	74,320	9,018	12.13%	2,371	3.19%	326	0.44%	2,791	0.04	1.18	2.29	18,332,096	246.66	1.52
6-<12	Male & 18-39	33,574	203	0.60%	244	0.73%	40	0.12%	312	0.01	1.28	2.70	8,191,592	243.99	0.38
6-<12	Male & 40-64	46,293	1,160	2.51%	520	1.12%	61	0.13%	597	0.01	1.15	2.26	11,398,057	246.22	0.52
6-<12	Male & 65+	31,686	3,881	12.25%	634	2.00%	74	0.23%	724	0.02	1.14	2.22	7,834,929	247.27	0.92
12-<18	Female & 18-39	43,174	243	0.56%	762	1.76%	138	0.32%	1,009	0.02	1.32	2.79	18,193,975	421.41	0.55
12-<18	Female & 40-64	76,725	1,910	2.49%	1,905	2.48%	305	0.40%	2,369	0.03	1.24	2.52	32,344,118	421.56	0.73
12-<18	Female & 65+	65,051	8,974	13.80%	3,021	4.64%	539	0.83%	3,784	0.06	1.25	2.42	27,626,608	424.69	1.37
12-<18	Male & 18-39	26,207	178	0.68%	278	1.06%	63	0.24%	378	0.01	1.36	2.59	11,055,296	421.85	0.34
12-<18	Male & 40-64	38,017	1,124	2.96%	694	1.83%	128	0.34%	893	0.02	1.29	2.55	16,010,306	421.14	0.56
12-<18	Male & 65+	27,750	3,828	13.79%	870	3.14%	145	0.52%	1,071	0.04	1.23	2.39	11,757,178	423.68	0.91
18-<24	Female & 18-39	36,704	252	0.69%	784	2.14%	185	0.50%	1,103	0.03	1.41	2.72	22,336,162	608.55	0.49
18-<24	Female & 40-64	68,751	1,786	2.60%	2,211	3.22%	461	0.67%	2,960	0.04	1.34	2.62	41,972,036	610.49	0.71
18-<24	Female & 65+	64,313	8,866	13.79%	3,627	5.64%	713	1.11%	4,702	0.07	1.30	2.51	39,373,339	612.21	1.19
18-<24	Male & 18-39	22,090	171	0.77%	324	1.47%	61	0.28%	463	0.02	1.43	3.28	13,447,589	608.76	0.34
18-<24	Male & 40-64	33,228	1,092	3.29%	751	2.26%	149	0.45%	1,013	0.03	1.35	2.76	20,263,989	609.85	0.50
18-<24	Male & 65+	26,829	3,680	13.72%	934	3.48%	165	0.62%	1,191	0.04	1.28	2.56	16,424,788	612.20	0.73
24-<30	Female & 18-39	29,717	232	0.78%	775	2.61%	201	0.68%	1,177	0.04	1.52	3.00	23,412,284	787.84	0.50
24-<30	Female & 40-64	57,646	1,753	3.04%	2,328	4.04%	579	1.00%	3,382	0.06	1.45	2.82	45,344,400	786.60	0.75
24-<30	Female & 65+	58,331	8,609	14.76%	3,939	6.75%	867	1.49%	5,219	0.09	1.32	2.48	46,031,123	789.14	1.13
24-<30	Male & 18-39	17,669	165	0.93%	317	1.79%	74	0.42%	484	0.03	1.53	3.26	13,920,937	787.87	0.35
24-<30	Male & 40-64	27,933	986	3.53%	698	2.50%	136	0.49%	940	0.03	1.35	2.78	21,968,485	786.47	0.43
24-<30	Male & 65+	24,169	3,525	14.58%	1,099	4.55%	203	0.84%	1,392	0.06	1.27	2.44	19,045,212	788.00	0.73
30-<36	Female & 18-39	25,644	227	0.89%	793	3.09%	218	0.85%	1,302	0.05	1.64	3.33	24,988,154	974.42	0.52
30-<36	Female & 40-64	51,888	1,643	3.17%	2,338	4.51%	583	1.12%	3,464	0.07	1.48	2.93	50,623,747	975.63	0.68
30-<36	Female & 65+	57,444	8,140	14.17%	4,307	7.50%	1,024	1.78%	5,925	0.10	1.38	2.58	56,172,678	977.87	1.05
30-<36	Male & 18-39	15,312	146	0.95%	317	2.07%	89	0.58%	524	0.03	1.65	3.33	14,903,078	973.29	0.35
30-<36	Male & 40-64	24,763	921	3.72%	801	3.23%	192	0.78%	1,136	0.05	1.42	2.74	24,171,650	976.12	0.47
30-<36	Male & 65+	23,864	3,374	14.14%	1,182	4.95%	230	0.96%	1,552	0.07	1.31	2.61	23,345,438	978.27	0.66
36-<42	Female & 18-39	20,934	198	0.95%	702	3.35%	204	0.97%	1,215	0.06	1.73	3.51	24,129,079	1152.63	0.50

**Table 26. Summary of Severe Asthma Exacerbations in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Sex and Age Group**

Follow-up Time (months)	Sex & Age	Number	Number of	Percentage	Number	Percentage	Number	Percentage	Total	Mean	Mean	Mean	Total Number	Mean	Incident
		of Patients with Index Diagnosis	Patients Censored due to Death	of Patients Censored due to Death	of Patients with 1+ Outcome	of Patients with 1+ Outcome	of Patients with 2+ Outcomes	of Patients with 2+ Outcomes	Number of Outcomes	Number of Outcomes per Patient with Index Diagnosis	Number of Outcomes per Patient with 1+ Outcomes	Number of Outcomes per Patient with 2+ Outcomes	of Patient-Days At-Risk	Number of Days At-Risk per Patient	Event Rate per 10,000 Person-Days At-Risk
36-<42	Female & 40-64	44,857	1,573	3.51%	2,461	5.49%	638	1.42%	3,743	0.08	1.52	3.01	51,669,768	1151.88	0.72
36-<42	Female & 65+	50,850	7,807	15.35%	4,453	8.76%	1,127	2.22%	6,273	0.12	1.41	2.61	58,645,502	1153.30	1.07
36-<42	Male & 18-39	12,480	118	0.95%	315	2.52%	83	0.67%	481	0.04	1.53	3.00	14,394,710	1153.42	0.33
36-<42	Male & 40-64	21,278	824	3.87%	764	3.59%	175	0.82%	1,097	0.05	1.44	2.90	24,505,496	1151.68	0.45
36-<42	Male & 65+	20,670	3,147	15.22%	1,185	5.73%	247	1.19%	1,580	0.08	1.33	2.60	23,836,266	1153.18	0.66
42-<48	Female & 18-39	18,031	193	1.07%	720	3.99%	223	1.24%	1,295	0.07	1.80	3.58	24,142,772	1338.96	0.54
42-<48	Female & 40-64	40,361	1,481	3.67%	2,376	5.89%	698	1.73%	3,979	0.10	1.67	3.30	54,113,719	1340.74	0.74
42-<48	Female & 65+	50,103	7,506	14.98%	4,613	9.21%	1,246	2.49%	6,801	0.14	1.47	2.76	67,309,836	1343.43	1.01
42-<48	Male & 18-39	10,645	117	1.10%	276	2.59%	68	0.64%	438	0.04	1.59	3.38	14,249,631	1338.62	0.31
42-<48	Male & 40-64	18,890	788	4.17%	731	3.87%	201	1.06%	1,141	0.06	1.56	3.04	25,330,518	1340.95	0.45
42-<48	Male & 65+	20,330	3,057	15.04%	1,250	6.15%	289	1.42%	1,778	0.09	1.42	2.83	27,317,353	1343.70	0.65
48+	Female & 18-39	118,325	991	0.84%	7,348	6.21%	2,742	2.32%	16,017	0.14	2.18	4.16	288,590,645	2438.97	0.56
48+	Female & 40-64	316,164	9,113	2.88%	28,576	9.04%	9,795	3.10%	53,306	0.17	1.87	3.52	800,558,294	2532.10	0.67
48+	Female & 65+	398,409	45,969	11.54%	52,540	13.19%	16,362	4.11%	84,242	0.21	1.60	2.94	960,085,792	2409.80	0.88
48+	Male & 18-39	66,828	624	0.93%	2,644	3.96%	877	1.31%	5,370	0.08	2.03	4.11	161,118,797	2410.95	0.33
48+	Male & 40-64	140,321	4,701	3.35%	8,354	5.95%	2,568	1.83%	14,870	0.11	1.78	3.54	354,010,237	2522.86	0.42
48+	Male & 65+	150,893	18,448	12.23%	13,488	8.94%	3,510	2.33%	19,784	0.13	1.47	2.79	360,884,788	2391.66	0.55
Any	Female & 18-39	401,573	2,910	0.72%	12,812	3.19%	4,029	1.00%	24,220	0.06	1.89	3.83	443,381,174	1104.11	0.55
Any	Female & 40-64	836,322	23,271	2.78%	44,307	5.30%	13,269	1.59%	75,591	0.09	1.71	3.36	1,106,386,178	1322.92	0.68
Any	Female & 65+	882,095	113,999	12.92%	80,041	9.07%	22,292	2.53%	121,006	0.14	1.51	2.84	1,278,360,144	1449.23	0.95
Any	Male & 18-39	237,170	1,960	0.83%	4,847	2.04%	1,363	0.57%	8,592	0.04	1.77	3.75	253,696,434	1069.68	0.34
Any	Male & 40-64	392,165	12,812	3.27%	13,557	3.46%	3,624	0.92%	21,952	0.06	1.62	3.32	500,793,055	1277.00	0.44
Any	Male & 65+	353,117	46,900	13.28%	20,981	5.94%	4,881	1.38%	29,431	0.08	1.40	2.73	492,482,565	1394.67	0.60



**Table 27. Summary of Moderate Asthma Exacerbations (Definition 1) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, Overall**

Follow-up Time (months)	Number of Patients with Index Diagnosis	Number of Patients Censored due to Death	Percentage of Patients Censored due to Death	Number of Patients with 1+ Outcome	Percentage of Patients with 1+ Outcome	Number of Patients with 2+ Outcomes	Percentage of Patients with 2+ Outcomes	Total Number of Outcomes	Mean Number	Mean Number	Mean Number	Total Number of Patient-Days At-Risk	Mean	Incident
									of Outcomes per Patient with Index Diagnosis	of Outcomes per Patient with 1+ Outcomes	of Outcomes per Patient with 2+ Outcomes		Number of Days At-Risk per Patient	Event Rate per 10,000 Person-Days At-Risk
<6	302,048	16,848	5.58%	7,990	2.65%	730	0.24%	8,862	0.03	1.11	2.19	22,750,436	75.32	3.90
6-<12	336,806	16,524	4.91%	23,386	6.94%	4,304	1.28%	29,325	0.09	1.25	2.38	82,592,772	245.22	3.55
12-<18	276,924	16,257	5.87%	30,197	10.90%	7,584	2.74%	42,322	0.15	1.40	2.60	116,804,873	421.79	3.62
18-<24	251,915	15,847	6.29%	33,991	13.49%	9,981	3.96%	51,596	0.20	1.52	2.76	153,590,778	609.69	3.36
24-<30	215,465	15,270	7.09%	36,085	16.75%	12,192	5.66%	59,356	0.28	1.64	2.91	169,452,087	786.45	3.50
30-<36	198,915	14,451	7.26%	36,993	18.60%	13,554	6.81%	64,970	0.33	1.76	3.06	193,909,958	974.84	3.35
36-<42	171,069	13,667	7.99%	36,029	21.06%	14,128	8.26%	67,229	0.39	1.87	3.21	196,875,001	1150.85	3.41
42-<48	158,360	13,142	8.30%	35,905	22.67%	14,931	9.43%	69,954	0.44	1.95	3.28	212,149,691	1339.67	3.30
48+	1,190,940	79,846	6.70%	358,196	30.08%	175,642	14.75%	870,224	0.73	2.43	3.92	2,921,305,213	2452.94	2.98
Any	3,102,442	201,852	6.51%	598,772	19.30%	253,046	8.16%	1,263,838	0.41	2.11	3.63	4,069,430,809	1311.69	3.11
<12	638,854	33,372	5.22%	31,376	4.91%	5,034	0.79%	38,187	0.06	1.22	2.35	105,343,208	164.89	3.63
<24	1,167,693	65,476	5.61%	95,564	8.18%	22,599	1.94%	132,105	0.11	1.38	2.62	375,738,859	321.78	3.52
24+	1,934,749	136,376	7.05%	503,208	26.01%	230,447	11.91%	1,131,733	0.58	2.25	3.73	3,693,691,950	1909.13	3.06

**Table 28. Summary of Moderate Asthma Exacerbations (Definition 1) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Year**

Follow-up Time (months)	Year	Number of Patients with Index Diagnosis	Number of Patients Censored due to Death	Percentage of Patients Censored due to Death	Number of Patients with 1+ Outcome	Percentage of Patients with 1+ Outcome	Number of Patients with 2+ Outcomes	Percentage of Patients with 2+ Outcomes	Total Number of Outcomes	Mean	Mean	Mean	Total Number of Patient-Days At-Risk	Mean	Incident
										Number of Outcomes per Patient with Index Diagnosis	Number of Outcomes per Patient with 1+ Outcomes	Number of Outcomes per Patient with 2+ Outcomes		Number of Days At-Risk per Patient	Event Rate per 10,000 Person-Days At-Risk
<6	2008	15,192	589	3.88%	328	2.16%	22	0.14%	354	0.02	1.08	2.18	1,172,830	77.20	3.02
<6	2009	18,964	346	1.82%	381	2.01%	23	0.12%	408	0.02	1.07	2.17	1,432,322	75.53	2.85
<6	2010	14,716	*****	*****	288	1.96%	*****	*****	307	0.02	1.07	2.06	1,104,086	75.03	2.78
<6	2011	19,457	3,064	15.75%	466	2.40%	40	0.21%	517	0.03	1.11	2.28	1,483,761	76.26	3.48
<6	2012	15,791	2,153	13.63%	320	2.03%	29	0.18%	356	0.02	1.11	2.24	1,190,818	75.41	2.99
<6	2013	15,043	1,874	12.46%	346	2.30%	34	0.23%	383	0.03	1.11	2.09	1,132,120	75.26	3.38
<6	2014	18,686	2,025	10.84%	442	2.37%	37	0.20%	487	0.03	1.10	2.22	1,416,215	75.79	3.44
<6	2015	17,705	1,743	9.84%	474	2.68%	53	0.30%	539	0.03	1.14	2.23	1,359,364	76.78	3.97
<6	2016	17,572	1,386	7.89%	536	3.05%	59	0.34%	617	0.04	1.15	2.37	1,338,129	76.15	4.61
<6	2017	19,770	1,351	6.83%	627	3.17%	58	0.29%	698	0.04	1.11	2.22	1,498,860	75.81	4.66
<6	2018	21,060	1,119	5.31%	640	3.04%	62	0.29%	711	0.03	1.11	2.15	1,662,513	78.94	4.28
<6	2019	96,594	887	0.92%	2,957	3.06%	292	0.30%	3,296	0.03	1.11	2.16	7,677,094	79.48	4.29
<6	2020	11,498	*****	*****	185	1.61%	*****	*****	189	0.02	1.02	2.33	282,324	24.55	6.69
6-<12	2008	17,261	585	3.39%	976	5.65%	156	0.90%	1,186	0.07	1.22	2.35	4,250,856	246.27	2.79
6-<12	2009	22,651	348	1.54%	1,234	5.45%	209	0.92%	1,514	0.07	1.23	2.34	5,600,147	247.24	2.70
6-<12	2010	16,090	281	1.75%	800	4.97%	116	0.72%	957	0.06	1.20	2.35	3,955,338	245.83	2.42
6-<12	2011	22,797	3,121	13.69%	1,369	6.01%	262	1.15%	1,728	0.08	1.26	2.37	5,669,350	248.69	3.05
6-<12	2012	17,280	2,060	11.92%	1,034	5.98%	198	1.15%	1,309	0.08	1.27	2.39	4,256,709	246.34	3.08
6-<12	2013	17,472	1,873	10.72%	1,005	5.75%	169	0.97%	1,227	0.07	1.22	2.31	4,289,974	245.53	2.86
6-<12	2014	20,962	2,096	10.00%	1,346	6.42%	261	1.25%	1,738	0.08	1.29	2.50	5,178,493	247.04	3.36
6-<12	2015	19,962	1,736	8.70%	1,514	7.58%	263	1.32%	1,888	0.09	1.25	2.42	4,928,423	246.89	3.83
6-<12	2016	20,038	1,460	7.29%	1,605	8.01%	304	1.52%	2,009	0.10	1.25	2.33	4,937,008	246.38	4.07
6-<12	2017	23,251	1,349	5.80%	1,978	8.51%	369	1.59%	2,512	0.11	1.27	2.45	5,733,044	246.57	4.38
6-<12	2018	32,753	1,261	3.85%	2,420	7.39%	460	1.40%	3,052	0.09	1.26	2.37	8,220,293	250.98	3.71
6-<12	2019	106,289	354	0.33%	8,105	7.63%	1,537	1.45%	10,205	0.10	1.26	2.37	25,573,137	240.60	3.99
12-<18	2008	14,149	516	3.65%	1,222	8.64%	289	2.04%	1,672	0.12	1.37	2.56	5,972,216	422.09	2.80
12-<18	2009	17,527	317	1.81%	1,489	8.50%	329	1.88%	1,936	0.11	1.30	2.36	7,322,571	417.79	2.64
12-<18	2010	12,249	249	2.03%	964	7.87%	199	1.62%	1,277	0.10	1.32	2.57	5,151,689	420.58	2.48
12-<18	2011	18,788	3,301	17.57%	1,785	9.50%	435	2.32%	2,548	0.14	1.43	2.75	7,959,909	423.67	3.20
12-<18	2012	15,114	2,149	14.22%	1,433	9.48%	352	2.33%	2,011	0.13	1.40	2.64	6,421,438	424.87	3.13
12-<18	2013	15,492	1,944	12.55%	1,450	9.36%	354	2.29%	2,053	0.13	1.42	2.70	6,556,510	423.22	3.13
12-<18	2014	17,393	2,191	12.60%	1,779	10.23%	431	2.48%	2,498	0.14	1.40	2.67	7,343,383	422.20	3.40
12-<18	2015	17,040	1,841	10.80%	2,006	11.77%	538	3.16%	2,849	0.17	1.42	2.57	7,218,830	423.64	3.95
12-<18	2016	17,472	1,394	7.98%	2,235	12.79%	589	3.37%	3,143	0.18	1.41	2.54	7,394,960	423.25	4.25
12-<18	2017	19,875	1,292	6.50%	2,499	12.57%	635	3.19%	3,525	0.18	1.41	2.62	8,445,151	424.91	4.17
12-<18	2018	87,858	1,059	1.21%	10,451	11.90%	2,749	3.13%	14,871	0.17	1.42	2.61	38,360,141	436.62	3.88
12-<18	2019	23,967	*****	*****	2,884	12.03%	684	2.85%	3,939	0.16	1.37	2.54	8,658,075	361.25	4.55

**Table 28. Summary of Moderate Asthma Exacerbations (Definition 1) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Year**

Follow-up Time (months)	Year	Number of Patients with Index Diagnosis	Number of Patients Censored due to Death	Percentage of Patients Censored due to Death	Number of Patients with 1+ Outcome	Percentage of Patients with 1+ Outcome	Number of Patients with 2+ Outcomes	Percentage of Patients with 2+ Outcomes	Total Number of Outcomes	Mean	Mean	Mean	Total Number of Patient-Days At-Risk	Mean	Incident
										Number of Outcomes per Patient with Index Diagnosis	Number of Outcomes per Patient with 1+ Outcomes	Number of Outcomes per Patient with 2+ Outcomes		Number of Days At-Risk per Patient	Event Rate per 10,000 Person-Days At-Risk
18-<24	2008	13,095	573	4.38%	1,471	11.23%	388	2.96%	2,107	0.16	1.43	2.64	7,986,546	609.89	2.64
18-<24	2009	15,287	326	2.13%	1,676	10.96%	433	2.83%	2,393	0.16	1.43	2.66	9,331,930	610.45	2.56
18-<24	2010	11,153	286	2.56%	1,124	10.08%	279	2.50%	1,590	0.14	1.41	2.67	6,819,528	611.45	2.33
18-<24	2011	17,639	3,467	19.66%	2,114	11.98%	614	3.48%	3,229	0.18	1.53	2.82	10,842,726	614.70	2.98
18-<24	2012	14,444	2,121	14.68%	1,742	12.06%	498	3.45%	2,633	0.18	1.51	2.79	8,839,817	612.01	2.98
18-<24	2013	13,536	2,002	14.79%	1,585	11.71%	427	3.15%	2,358	0.17	1.49	2.81	8,261,571	610.34	2.85
18-<24	2014	15,715	2,068	13.16%	1,980	12.60%	571	3.63%	2,991	0.19	1.51	2.77	9,611,217	611.60	3.11
18-<24	2015	16,313	1,777	10.89%	2,512	15.40%	804	4.93%	3,944	0.24	1.57	2.78	9,978,363	611.68	3.95
18-<24	2016	16,850	1,461	8.67%	2,726	16.18%	833	4.94%	4,255	0.25	1.56	2.84	10,290,901	610.74	4.13
18-<24	2017	26,529	1,407	5.30%	3,732	14.07%	1,093	4.12%	5,607	0.21	1.50	2.72	16,361,634	616.75	3.43
18-<24	2018	91,354	359	0.39%	13,329	14.59%	4,041	4.42%	20,489	0.22	1.54	2.77	55,266,545	604.97	3.71
24-<30	2008	10,783	607	5.63%	1,439	13.35%	434	4.02%	2,270	0.21	1.58	2.91	8,460,789	784.64	2.68
24-<30	2009	11,430	323	2.83%	1,483	12.97%	482	4.22%	2,299	0.20	1.55	2.69	8,941,904	782.32	2.57
24-<30	2010	8,143	*****	*****	980	12.03%	281	3.45%	1,435	0.18	1.46	2.62	6,394,097	785.23	2.24
24-<30	2011	15,933	3,504	21.99%	2,335	14.66%	840	5.27%	4,053	0.25	1.74	3.05	12,584,658	789.85	3.22
24-<30	2012	13,061	2,198	16.83%	1,870	14.32%	579	4.43%	3,060	0.23	1.64	3.06	10,319,538	790.10	2.97
24-<30	2013	11,242	1,979	17.60%	1,626	14.46%	545	4.85%	2,745	0.24	1.69	3.05	8,862,169	788.31	3.10
24-<30	2014	14,780	2,116	14.32%	2,458	16.63%	852	5.76%	4,189	0.28	1.70	3.03	11,674,649	789.90	3.59
24-<30	2015	14,694	1,852	12.60%	2,651	18.04%	953	6.49%	4,542	0.31	1.71	2.98	11,598,586	789.34	3.92
24-<30	2016	15,308	1,405	9.18%	2,915	19.04%	1,000	6.53%	4,816	0.31	1.65	2.90	12,112,822	791.27	3.98
24-<30	2017	78,642	1,038	1.32%	14,220	18.08%	4,810	6.12%	23,215	0.30	1.63	2.87	62,954,936	800.53	3.69
24-<30	2018	21,449	*****	*****	4,108	19.15%	1,416	6.60%	6,732	0.31	1.64	2.85	15,547,939	724.88	4.33
30-<36	2008	9,646	575	5.96%	1,569	16.27%	596	6.18%	2,720	0.28	1.73	2.93	9,397,143	974.20	2.89
30-<36	2009	10,381	313	3.02%	1,567	15.09%	489	4.71%	2,471	0.24	1.58	2.85	10,130,162	975.84	2.44
30-<36	2010	7,098	265	3.73%	960	13.52%	290	4.09%	1,494	0.21	1.56	2.84	6,923,200	975.37	2.16
30-<36	2011	16,020	3,518	21.96%	2,647	16.52%	965	6.02%	4,784	0.30	1.81	3.21	15,692,545	979.56	3.05
30-<36	2012	11,676	2,137	18.30%	1,878	16.08%	638	5.46%	3,306	0.28	1.76	3.24	11,381,502	974.78	2.90
30-<36	2013	10,092	1,943	19.25%	1,693	16.78%	601	5.96%	2,988	0.30	1.76	3.15	9,845,129	975.54	3.04
30-<36	2014	15,583	2,093	13.43%	2,889	18.54%	1,069	6.86%	5,172	0.33	1.79	3.14	15,261,069	979.34	3.39
30-<36	2015	14,715	1,799	12.23%	2,998	20.37%	1,142	7.76%	5,534	0.38	1.85	3.22	14,367,473	976.38	3.85
30-<36	2016	21,286	1,399	6.57%	3,974	18.67%	1,407	6.61%	6,833	0.32	1.72	3.03	20,913,207	982.49	3.27
30-<36	2017	82,418	409	0.50%	16,818	20.41%	6,357	7.71%	29,668	0.36	1.76	3.02	79,998,528	970.64	3.71
36-<42	2008	8,435	561	6.65%	1,440	17.07%	522	6.19%	2,583	0.31	1.79	3.19	9,712,346	1151.43	2.66
36-<42	2009	7,761	294	3.79%	1,286	16.57%	425	5.48%	2,157	0.28	1.68	3.05	8,904,287	1147.31	2.42
36-<42	2010	6,063	*****	*****	961	15.85%	335	5.53%	1,664	0.27	1.73	3.10	6,998,964	1154.37	2.38
36-<42	2011	15,504	3,534	22.79%	2,965	19.12%	1,166	7.52%	5,613	0.36	1.89	3.27	17,926,070	1156.22	3.13
36-<42	2012	9,881	2,212	22.39%	1,763	17.84%	716	7.25%	3,360	0.34	1.91	3.23	11,396,264	1153.35	2.95

**Table 28. Summary of Moderate Asthma Exacerbations (Definition 1) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Year**

Follow-up Time (months)	Year	Number of Patients with Index Diagnosis	Number of Patients Censored due to Death	Percentage of Patients Censored due to Death	Number of Patients with 1+ Outcome	Percentage of Patients with 1+ Outcome	Number of Patients with 2+ Outcomes	Percentage of Patients with 2+ Outcomes	Total Number of Outcomes	Mean	Mean	Mean	Total Number of Patient-Days At-Risk	Mean	Incident
										Number of Outcomes per Patient with Index Diagnosis	Number of Outcomes per Patient with 1+ Outcomes	Number of Outcomes per Patient with 2+ Outcomes		Number of Days At-Risk per Patient	Event Rate per 10,000 Person-Days At-Risk
36-<42	2013	9,367	1,991	21.26%	1,820	19.43%	670	7.15%	3,341	0.36	1.84	3.27	10,822,414	1155.38	3.09
36-<42	2014	13,887	2,027	14.60%	3,054	21.99%	1,191	8.58%	5,686	0.41	1.86	3.21	15,970,343	1150.02	3.56
36-<42	2015	13,431	1,695	12.62%	3,012	22.43%	1,209	9.00%	5,775	0.43	1.92	3.29	15,545,455	1157.43	3.71
36-<42	2016	67,887	1,095	1.61%	15,046	22.16%	5,979	8.81%	28,139	0.41	1.87	3.19	79,103,620	1165.22	3.56
36-<42	2017	18,853	*****	*****	4,682	24.83%	1,915	10.16%	8,911	0.47	1.90	3.21	20,495,238	1087.11	4.35
42-<48	2008	8,057	557	6.91%	1,507	18.70%	564	7.00%	2,644	0.33	1.75	3.02	10,793,517	1339.64	2.45
42-<48	2009	6,374	285	4.47%	1,175	18.43%	449	7.04%	2,132	0.33	1.81	3.13	8,543,058	1340.30	2.50
42-<48	2010	5,660	234	4.13%	938	16.57%	339	5.99%	1,635	0.29	1.74	3.06	7,586,394	1340.35	2.16
42-<48	2011	14,686	3,744	25.49%	2,934	19.98%	1,223	8.33%	5,966	0.41	2.03	3.48	19,718,822	1342.70	3.03
42-<48	2012	9,083	2,152	23.69%	1,771	19.50%	693	7.63%	3,504	0.39	1.98	3.50	12,183,288	1341.33	2.88
42-<48	2013	9,079	1,994	21.96%	1,885	20.76%	759	8.36%	3,797	0.42	2.01	3.52	12,179,596	1341.51	3.12
42-<48	2014	13,584	2,014	14.83%	3,205	23.59%	1,356	9.98%	6,373	0.47	1.99	3.34	18,228,640	1341.92	3.50
42-<48	2015	19,476	1,711	8.79%	4,270	21.92%	1,807	9.28%	8,438	0.43	1.98	3.31	26,262,698	1348.46	3.21
42-<48	2016	72,361	451	0.62%	18,220	25.18%	7,741	10.70%	35,465	0.49	1.95	3.23	96,653,678	1335.72	3.67
48+	2008	120,986	8,565	7.08%	39,014	32.25%	20,014	16.54%	100,405	0.83	2.57	4.07	398,708,565	3295.49	2.52
48+	2009	85,494	3,654	4.27%	24,076	28.16%	11,488	13.44%	56,021	0.66	2.33	3.78	255,357,776	2986.85	2.19
48+	2010	65,477	2,536	3.87%	17,217	26.29%	7,720	11.79%	38,018	0.58	2.21	3.69	183,250,737	2798.70	2.07
48+	2011	261,447	33,010	12.63%	88,284	33.77%	46,530	17.80%	240,687	0.92	2.73	4.28	728,100,671	2784.89	3.31
48+	2012	161,330	14,780	9.16%	49,119	30.45%	24,102	14.94%	120,835	0.75	2.46	3.98	401,941,576	2491.42	3.01
48+	2013	152,285	9,355	6.14%	44,331	29.11%	21,414	14.06%	103,872	0.68	2.34	3.78	337,388,639	2215.51	3.08
48+	2014	179,119	6,060	3.38%	51,378	28.68%	24,273	13.55%	115,473	0.64	2.25	3.64	349,059,778	1948.76	3.31
48+	2015	149,971	*****	*****	40,425	26.96%	18,034	12.02%	85,595	0.57	2.12	3.50	245,982,661	1640.20	3.48
48+	2016	14,831	*****	*****	4,352	29.34%	2,067	13.94%	9,318	0.63	2.14	3.40	21,514,810	1450.66	4.33
Any	2008	217,604	13,128	6.03%	48,966	22.50%	22,985	10.56%	115,941	0.53	2.37	3.91	456,454,808	2097.64	2.54
Any	2009	195,869	6,206	3.17%	34,367	17.55%	14,327	7.31%	71,331	0.36	2.08	3.58	315,564,157	1611.10	2.26
Any	2010	146,649	4,661	3.18%	24,232	16.52%	9,577	6.53%	48,377	0.33	2.00	3.52	228,184,033	1555.99	2.12
Any	2011	402,271	60,263	14.98%	104,899	26.08%	52,075	12.95%	269,125	0.67	2.57	4.15	819,978,512	2038.37	3.28
Any	2012	267,660	31,962	11.94%	60,930	22.76%	27,805	10.39%	140,374	0.52	2.30	3.86	467,930,950	1748.23	3.00
Any	2013	253,608	24,955	9.84%	55,741	21.98%	24,973	9.85%	122,764	0.48	2.20	3.68	399,338,122	1574.63	3.07
Any	2014	309,709	22,690	7.33%	68,531	22.13%	30,041	9.70%	144,607	0.47	2.11	3.53	433,743,787	1400.49	3.33
Any	2015	283,307	16,039	5.66%	59,862	21.13%	24,803	8.75%	119,104	0.42	1.99	3.39	337,241,853	1190.38	3.53
Any	2016	263,605	10,052	3.81%	51,609	19.58%	19,979	7.58%	94,595	0.36	1.83	3.15	254,259,135	964.55	3.72
Any	2017	269,338	6,849	2.54%	44,556	16.54%	15,237	5.66%	74,136	0.28	1.66	2.94	195,487,391	725.81	3.79
Any	2018	254,474	3,801	1.49%	30,948	12.16%	8,728	3.43%	45,855	0.18	1.48	2.71	119,057,431	467.86	3.85
Any	2019	226,850	*****	*****	13,946	6.15%	*****	*****	17,440	0.08	1.25	2.39	41,908,306	184.74	4.16
Any	2020	11,498	*****	*****	185	1.61%	*****	*****	189	0.02	1.02	2.33	282,324	24.55	6.69

**Table 29. Summary of Moderate Asthma Exacerbations (Definition 1) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Sex**

Follow-up Time (months)	Sex	Number of Patients with Index Diagnosis	Number of Patients Censored due to Death	Percentage of Patients Censored due to Death	Number of Patients with 1+ Outcome	Percentage of Patients with 1+ Outcome	Number of Patients with 2+ Outcomes	Percentage of Patients with 2+ Outcomes	Total Number of Outcomes	Mean	Mean	Mean Number of Outcomes per Patient with 2+ Outcomes	Total Number of Patient-Days At-Risk	Mean	Incident
										Number of Outcomes per Patient with Index Diagnosis	Number of Outcomes per Patient with 1+ Outcomes			Number of Days At-Risk per Patient	Event Rate per 10,000 Person-Days At-Risk
<6	Female	201,315	11,434	5.68%	5,843	2.90%	528	0.26%	6,466	0.03	1.11	2.18	15,169,747	75.35	4.26
<6	Male	100,733	5,414	5.37%	2,147	2.13%	202	0.20%	2,396	0.02	1.12	2.23	7,580,689	75.26	3.16
6-<12	Female	225,253	11,280	5.01%	17,003	7.55%	3,115	1.38%	21,284	0.09	1.25	2.37	55,203,848	245.07	3.86
6-<12	Male	111,553	5,244	4.70%	6,383	5.72%	1,189	1.07%	8,041	0.07	1.26	2.39	27,388,924	245.52	2.94
12-<18	Female	184,950	11,127	6.02%	22,041	11.92%	5,558	3.01%	30,790	0.17	1.40	2.57	78,035,727	421.93	3.95
12-<18	Male	91,974	5,130	5.58%	8,156	8.87%	2,026	2.20%	11,532	0.13	1.41	2.67	38,769,146	421.52	2.97
18-<24	Female	169,768	10,904	6.42%	24,859	14.64%	7,339	4.32%	37,718	0.22	1.52	2.75	103,521,035	609.78	3.64
18-<24	Male	82,147	4,943	6.02%	9,132	11.12%	2,642	3.22%	13,878	0.17	1.52	2.80	50,069,743	609.51	2.77
24-<30	Female	145,694	10,594	7.27%	26,322	18.07%	9,060	6.22%	43,291	0.30	1.64	2.87	114,597,972	786.57	3.78
24-<30	Male	69,771	4,676	6.70%	9,763	13.99%	3,132	4.49%	16,065	0.23	1.65	3.01	54,854,115	786.20	2.93
30-<36	Female	134,976	10,010	7.42%	27,190	20.14%	10,085	7.47%	47,833	0.35	1.76	3.05	131,573,979	974.80	3.64
30-<36	Male	63,939	4,441	6.95%	9,803	15.33%	3,469	5.43%	17,137	0.27	1.75	3.11	62,335,979	974.93	2.75
36-<42	Female	116,641	9,578	8.21%	26,601	22.81%	10,502	9.00%	49,679	0.43	1.87	3.20	134,226,306	1150.76	3.70
36-<42	Male	54,428	4,089	7.51%	9,428	17.32%	3,626	6.66%	17,550	0.32	1.86	3.24	62,648,695	1151.04	2.80
42-<48	Female	108,495	9,180	8.46%	26,568	24.49%	11,220	10.34%	52,033	0.48	1.96	3.27	145,340,498	1339.61	3.58
42-<48	Male	49,865	3,962	7.95%	9,337	18.72%	3,711	7.44%	17,921	0.36	1.92	3.31	66,809,193	1339.80	2.68
48+	Female	832,898	56,073	6.73%	269,331	32.34%	134,606	16.16%	662,814	0.80	2.46	3.92	2,046,310,811	2456.86	3.24
48+	Male	358,042	23,773	6.64%	88,865	24.82%	41,036	11.46%	207,410	0.58	2.33	3.89	874,994,402	2443.83	2.37
Any	Female	2,119,990	140,180	6.61%	445,758	21.03%	192,013	9.06%	951,908	0.45	2.14	3.64	2,823,979,923	1332.07	3.37
Any	Male	982,452	61,672	6.28%	153,014	15.57%	61,033	6.21%	311,930	0.32	2.04	3.60	1,245,450,886	1267.70	2.50

**Table 30. Summary of Moderate Asthma Exacerbations (Definition 1) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Age Group**

Follow-up Time (months)	Age	Number of Patients			Number of Patients			Total Number of Outcomes	Mean Number of Outcomes per Patient with Index Diagnosis	Mean Number of Outcomes per Patient with 1+ Outcomes	Mean Number of Outcomes per Patient with 2+ Outcomes	Total Number of Patient-Days At-Risk	Mean Number of Days At-Risk per Patient	Incident Event Rate per 10,000 Person-Days At-Risk	
		with Index Diagnosis	Censored due to Death	Percentage of Patients Censored due to Death	with 1+ Outcome	Percentage of Patients with 1+ Outcome	with 2+ Outcomes								Percentage of Patients with 2+ Outcomes
<6	18-39	85,706	525	0.61%	2,377	2.77%	225	0.26%	2,663	0.03	1.12	2.27	6,425,481	74.97	4.14
<6	40-64	126,142	3,253	2.58%	3,357	2.66%	308	0.24%	3,715	0.03	1.11	2.16	9,495,278	75.27	3.91
<6	65+	90,200	13,070	14.49%	2,256	2.50%	197	0.22%	2,484	0.03	1.10	2.16	6,829,677	75.72	3.64
6-<12	18-39	89,277	490	0.55%	6,227	6.97%	1,108	1.24%	7,798	0.09	1.25	2.42	21,714,237	243.22	3.59
6-<12	40-64	141,523	3,135	2.22%	9,995	7.06%	1,854	1.31%	12,577	0.09	1.26	2.39	34,724,867	245.37	3.62
6-<12	65+	106,006	12,899	12.17%	7,164	6.76%	1,342	1.27%	8,950	0.08	1.25	2.33	26,153,668	246.72	3.42
12-<18	18-39	69,381	421	0.61%	7,614	10.97%	1,912	2.76%	10,749	0.15	1.41	2.64	29,188,244	420.70	3.68
12-<18	40-64	114,742	3,034	2.64%	12,612	10.99%	3,208	2.80%	17,775	0.15	1.41	2.61	48,266,169	420.65	3.68
12-<18	65+	92,801	12,802	13.80%	9,971	10.74%	2,464	2.66%	13,798	0.15	1.38	2.55	39,350,460	424.03	3.51
18-<24	18-39	58,794	423	0.72%	8,008	13.62%	2,249	3.83%	12,092	0.21	1.51	2.82	35,714,965	607.46	3.39
18-<24	40-64	101,979	2,878	2.82%	13,926	13.66%	4,230	4.15%	21,317	0.21	1.53	2.75	62,130,745	609.25	3.43
18-<24	65+	91,142	12,546	13.77%	12,057	13.23%	3,502	3.84%	18,187	0.20	1.51	2.75	55,745,068	611.63	3.26
24-<30	18-39	47,386	397	0.84%	7,946	16.77%	2,587	5.46%	13,146	0.28	1.65	3.01	37,257,641	786.26	3.53
24-<30	40-64	85,579	2,739	3.20%	14,405	16.83%	4,926	5.76%	24,074	0.28	1.67	2.96	67,191,181	785.14	3.58
24-<30	65+	82,500	12,134	14.71%	13,734	16.65%	4,679	5.67%	22,136	0.27	1.61	2.80	65,003,265	787.92	3.41
30-<36	18-39	40,956	373	0.91%	7,480	18.26%	2,689	6.57%	13,458	0.33	1.80	3.22	39,815,143	972.14	3.38
30-<36	40-64	76,651	2,564	3.35%	14,460	18.86%	5,360	6.99%	25,850	0.34	1.79	3.13	74,664,298	974.08	3.46
30-<36	65+	81,308	11,514	14.16%	15,053	18.51%	5,505	6.77%	25,662	0.32	1.70	2.93	79,430,517	976.91	3.23
36-<42	18-39	33,414	316	0.95%	7,151	21.40%	2,711	8.11%	13,526	0.40	1.89	3.35	38,446,676	1150.62	3.52
36-<42	40-64	66,135	2,397	3.62%	13,847	20.94%	5,475	8.28%	26,111	0.39	1.89	3.24	76,044,498	1149.84	3.43
36-<42	65+	71,520	10,954	15.32%	15,031	21.02%	5,942	8.31%	27,592	0.39	1.84	3.11	82,383,827	1151.90	3.35
42-<48	18-39	28,676	310	1.08%	6,397	22.31%	2,587	9.02%	12,883	0.45	2.01	3.51	38,320,240	1336.32	3.36
42-<48	40-64	59,251	2,269	3.83%	13,451	22.70%	5,629	9.50%	26,600	0.45	1.98	3.34	79,313,254	1338.60	3.35
42-<48	65+	70,433	10,563	15.00%	16,057	22.80%	6,715	9.53%	30,471	0.43	1.90	3.15	94,516,197	1341.93	3.22
48+	18-39	185,153	1,615	0.87%	55,288	29.86%	26,976	14.57%	142,614	0.77	2.58	4.24	448,931,765	2424.65	3.18
48+	40-64	456,485	13,814	3.03%	138,718	30.39%	68,498	15.01%	345,252	0.76	2.49	4.02	1,152,882,240	2525.56	2.99
48+	65+	549,302	64,417	11.73%	164,190	29.89%	80,168	14.59%	382,358	0.70	2.33	3.72	1,319,491,208	2402.12	2.90
Any	18-39	638,743	4,870	0.76%	108,488	16.98%	43,044	6.74%	228,929	0.36	2.11	3.80	695,814,392	1089.35	3.29
Any	40-64	1,228,487	36,083	2.94%	234,771	19.11%	99,488	8.10%	503,271	0.41	2.14	3.70	1,604,712,530	1306.25	3.14
Any	65+	1,235,212	160,899	13.03%	255,513	20.69%	110,514	8.95%	531,638	0.43	2.08	3.50	1,768,903,887	1432.07	3.01

**Table 31. Summary of Moderate Asthma Exacerbations (Definition 1) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Sex and Age Group**

Follow-up Time (months)	Sex & Age	Number of Patients with Index Diagnosis	Number of Patients Censored due to Death	Percentage of Patients Censored due to Death	Number of Patients with 1+ Outcome	Percentage of Patients with 1+ Outcome	Number of Patients with 2+ Outcomes	Percentage of Patients with 2+ Outcomes	Total Number of Outcomes	Mean Number of Outcomes per Patient with Index Diagnosis	Mean Number of Outcomes per Patient with 1+ Outcomes	Mean Number of Outcomes per Patient with 2+ Outcomes	Total Number of Patient-Days At-Risk	Mean Number of Days At-Risk per Patient	Incident Event Rate per 10,000 Person-Days At-Risk
<6	Female & 18-39	53,341	287	0.54%	1,627	3.05%	163	0.31%	1,834	0.03	1.13	2.27	4,014,539	75.26	4.57
<6	Female & 40-64	84,700	2,037	2.40%	2,482	2.93%	219	0.26%	2,733	0.03	1.10	2.15	6,363,831	75.13	4.29
<6	Female & 65+	63,274	9,110	14.40%	1,734	2.74%	146	0.23%	1,899	0.03	1.10	2.13	4,791,377	75.72	3.96
<6	Male & 18-39	32,365	238	0.74%	750	2.32%	62	0.19%	829	0.03	1.11	2.27	2,410,942	74.49	3.44
<6	Male & 40-64	41,442	1,216	2.93%	875	2.11%	89	0.21%	982	0.02	1.12	2.20	3,131,447	75.56	3.14
<6	Male & 65+	26,926	3,960	14.71%	522	1.94%	51	0.19%	585	0.02	1.12	2.24	2,038,300	75.70	2.87
6-<12	Female & 18-39	55,703	287	0.52%	4,242	7.62%	746	1.34%	5,290	0.09	1.25	2.40	13,536,681	243.02	3.91
6-<12	Female & 40-64	95,230	1,975	2.07%	7,357	7.73%	1,358	1.43%	9,232	0.10	1.25	2.38	23,343,312	245.13	3.95
6-<12	Female & 65+	74,320	9,018	12.13%	5,404	7.27%	1,011	1.36%	6,762	0.09	1.25	2.34	18,323,855	246.55	3.69
6-<12	Male & 18-39	33,574	203	0.60%	1,985	5.91%	362	1.08%	2,508	0.07	1.26	2.44	8,177,556	243.57	3.07
6-<12	Male & 40-64	46,293	1,160	2.51%	2,638	5.70%	496	1.07%	3,345	0.07	1.27	2.43	11,381,555	245.86	2.94
6-<12	Male & 65+	31,686	3,881	12.25%	1,760	5.55%	331	1.04%	2,188	0.07	1.24	2.29	7,829,813	247.11	2.79
12-<18	Female & 18-39	43,174	243	0.56%	5,261	12.19%	1,368	3.17%	7,431	0.17	1.41	2.59	18,152,159	420.44	4.09
12-<18	Female & 40-64	76,725	1,910	2.49%	9,310	12.13%	2,340	3.05%	13,012	0.17	1.40	2.58	32,279,423	420.72	4.03
12-<18	Female & 65+	65,051	8,974	13.80%	7,470	11.48%	1,850	2.84%	10,347	0.16	1.39	2.56	27,604,145	424.35	3.75
12-<18	Male & 18-39	26,207	178	0.68%	2,353	8.98%	544	2.08%	3,318	0.13	1.41	2.77	11,036,085	421.11	3.01
12-<18	Male & 40-64	38,017	1,124	2.96%	3,302	8.69%	868	2.28%	4,763	0.13	1.44	2.68	15,986,746	420.52	2.98
12-<18	Male & 65+	27,750	3,828	13.79%	2,501	9.01%	614	2.21%	3,451	0.12	1.38	2.55	11,746,315	423.29	2.94
18-<24	Female & 18-39	36,704	252	0.69%	5,498	14.98%	1,563	4.26%	8,326	0.23	1.51	2.81	22,288,933	607.26	3.74
18-<24	Female & 40-64	68,751	1,786	2.60%	10,236	14.89%	3,120	4.54%	15,603	0.23	1.52	2.72	41,895,223	609.38	3.72
18-<24	Female & 65+	64,313	8,866	13.79%	9,125	14.19%	2,656	4.13%	13,789	0.21	1.51	2.76	39,336,879	611.65	3.51
18-<24	Male & 18-39	22,090	171	0.77%	2,510	11.36%	686	3.11%	3,766	0.17	1.50	2.83	13,426,032	607.79	2.80
18-<24	Male & 40-64	33,228	1,092	3.29%	3,690	11.11%	1,110	3.34%	5,714	0.17	1.55	2.82	20,235,522	608.99	2.82
18-<24	Male & 65+	26,829	3,680	13.72%	2,932	10.93%	846	3.15%	4,398	0.16	1.50	2.73	16,408,189	611.58	2.68
24-<30	Female & 18-39	29,717	232	0.78%	5,514	18.56%	1,811	6.09%	9,135	0.31	1.66	3.00	23,359,878	786.08	3.91
24-<30	Female & 40-64	57,646	1,753	3.04%	10,575	18.34%	3,670	6.37%	17,561	0.30	1.66	2.90	45,257,928	785.10	3.88
24-<30	Female & 65+	58,331	8,609	14.76%	10,233	17.54%	3,579	6.14%	16,595	0.28	1.62	2.78	45,980,166	788.26	3.61
24-<30	Male & 18-39	17,669	165	0.93%	2,432	13.76%	776	4.39%	4,011	0.23	1.65	3.03	13,897,763	786.56	2.89
24-<30	Male & 40-64	27,933	986	3.53%	3,830	13.71%	1,256	4.50%	6,513	0.23	1.70	3.14	21,933,253	785.21	2.97
24-<30	Male & 65+	24,169	3,525	14.58%	3,501	14.49%	1,100	4.55%	5,541	0.23	1.58	2.85	19,023,099	787.09	2.91
30-<36	Female & 18-39	25,644	227	0.89%	5,200	20.28%	1,903	7.42%	9,400	0.37	1.81	3.21	24,935,211	972.36	3.77
30-<36	Female & 40-64	51,888	1,643	3.17%	10,668	20.56%	3,977	7.66%	18,985	0.37	1.78	3.09	50,528,718	973.80	3.76
30-<36	Female & 65+	57,444	8,140	14.17%	11,322	19.71%	4,205	7.32%	19,448	0.34	1.72	2.93	56,110,050	976.78	3.47
30-<36	Male & 18-39	15,312	146	0.95%	2,280	14.89%	786	5.13%	4,058	0.27	1.78	3.26	14,879,932	971.78	2.73
30-<36	Male & 40-64	24,763	921	3.72%	3,792	15.31%	1,383	5.58%	6,865	0.28	1.81	3.22	24,135,580	974.66	2.84
30-<36	Male & 65+	23,864	3,374	14.14%	3,731	15.63%	1,300	5.45%	6,214	0.26	1.67	2.91	23,320,467	977.22	2.66
36-<42	Female & 18-39	20,934	198	0.95%	4,992	23.85%	1,937	9.25%	9,565	0.46	1.92	3.36	24,075,010	1150.04	3.97

**Table 31. Summary of Moderate Asthma Exacerbations (Definition 1) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Sex and Age Group**

Follow-up Time (months)	Sex & Age	Number of Patients with Index Diagnosis	Number of Patients Censored due to Death	Percentage of Patients Censored due to Death	Number of Patients with 1+ Outcome	Percentage of Patients with 1+ Outcome	Number of Patients with 2+ Outcomes	Percentage of Patients with 2+ Outcomes	Total Number of Outcomes	Mean	Mean	Mean	Total Number of Patient-Days At-Risk	Mean	Incident
										Number of Outcomes per Patient with Index Diagnosis	Number of Outcomes per Patient with 1+ Outcomes	Number of Outcomes per Patient with 2+ Outcomes		Number of Days At-Risk per Patient	Event Rate per 10,000 Person-Days At-Risk
36-<42	Female & 40-64	44,857	1,573	3.51%	10,201	22.74%	4,025	8.97%	19,198	0.43	1.88	3.24	51,575,667	1149.78	3.72
36-<42	Female & 65+	50,850	7,807	15.35%	11,408	22.43%	4,540	8.93%	20,916	0.41	1.83	3.09	58,575,629	1151.93	3.57
36-<42	Male & 18-39	12,480	118	0.95%	2,159	17.30%	774	6.20%	3,961	0.32	1.83	3.33	14,371,666	1151.58	2.76
36-<42	Male & 40-64	21,278	824		3,646		1,450		6,913	0.32	1.90	3.25	24,468,831	1149.96	2.83
36-<42	Male & 65+	20,670	3,147		3,623		1,402		6,676	0.32	1.84	3.18	23,808,198	1151.82	2.80
42-<48	Female & 18-39	18,031	193		4,456		1,850		9,116	0.51	2.05	3.52	24,092,382	1336.16	3.78
42-<48	Female & 40-64	40,361	1,481		10,005		4,254		19,813	0.49	1.98	3.31	54,018,214	1338.38	3.67
42-<48	Female & 65+	50,103	7,506		12,107		5,116		23,104	0.46	1.91	3.15	67,229,902	1341.83	3.44
42-<48	Male & 18-39	10,645	117		1,941		737		3,767	0.35	1.94	3.48	14,227,858	1336.58	2.65
42-<48	Male & 40-64	18,890	788		3,446		1,375		6,787	0.36	1.97	3.43	25,295,040	1339.07	2.68
42-<48	Male & 65+	20,330	3,057		3,950		1,599		7,367	0.36	1.87	3.14	27,286,295	1342.17	2.70
48+	Female & 18-39	118,325	991		39,153		19,698		103,568	0.88	2.65	4.27	288,030,353	2434.23	3.60
48+	Female & 40-64	316,164	9,113		104,354		52,518		262,517	0.83	2.52	4.01	799,295,003	2528.10	3.28
48+	Female & 65+	398,409	45,969		125,824		62,390		296,729	0.74	2.36	3.74	958,985,455	2407.04	3.09
48+	Male & 18-39	66,828	624		16,135		7,278		39,046	0.58	2.42	4.15	160,901,412	2407.69	2.43
48+	Male & 40-64	140,321	4,701		34,364		15,980		82,735	0.59	2.41	4.03	353,587,237	2519.85	2.34
48+	Male & 65+	150,893	18,448		38,366		17,778		85,629	0.57	2.23	3.66	360,505,753	2389.15	2.38
Any	Female & 18-39	401,573	2,910		75,943		31,039		163,665	0.41	2.16	3.83	442,485,146	1101.88	3.70
Any	Female & 40-64	836,322	23,271		175,188		75,481		378,654	0.45	2.16	3.70	1,104,557,319	1320.73	3.43
Any	Female & 65+	882,095	113,999		194,627		85,493		409,589	0.46	2.10	3.51	1,276,937,458	1447.62	3.21
Any	Male & 18-39	237,170	1,960		32,545		12,005		65,264	0.28	2.01	3.73	253,329,246	1068.13	2.58
Any	Male & 40-64	392,165	12,812		59,583		24,007		124,617	0.32	2.09	3.71	500,155,211	1275.37	2.49
Any	Male & 65+	353,117	46,900		60,886		25,021		122,049	0.35	2.00	3.44	491,966,429	1393.21	2.48



**Table 32. Summary of Moderate Asthma Exacerbations (Definition 2) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, Overall**

Follow-up Time (months)	Number of Patients with Index Diagnosis	Number of Patients Censored due to Death	Percentage of Patients Censored due to Death	Number of Patients with 1+ Outcome	Percentage of Patients with 1+ Outcome	Number of Patients with 2+ Outcomes	Percentage of Patients with 2+ Outcomes	Total Number of Outcomes	Mean Number	Mean Number	Mean Number	Total Number of Patient-Days At-Risk	Mean	Incident
									of Outcomes per Patient with Index Diagnosis	of Outcomes per Patient with 1+ Outcomes	of Outcomes per Patient with 2+ Outcomes		Number of Days At-Risk per Patient	Event Rate per 10,000 Person-Days At-Risk
<6	302,048	16,848	5.58%	13,771	4.56%	1,240	0.41%	15,216	0.05	1.10	2.17	22,707,164	75.18	6.70
6-<12	336,806	16,524	4.91%	41,777	12.40%	8,480	2.52%	53,412	0.16	1.28	2.37	82,424,994	244.73	6.48
12-<18	276,924	16,257	5.87%	52,934	19.11%	15,058	5.44%	76,960	0.28	1.45	2.60	116,562,780	420.92	6.60
18-<24	251,915	15,847	6.29%	60,157	23.88%	20,535	8.15%	96,734	0.38	1.61	2.78	153,274,915	608.44	6.31
24-<30	215,465	15,270	7.09%	61,827	28.69%	24,007	11.14%	109,500	0.51	1.77	2.99	169,101,121	784.82	6.48
30-<36	198,915	14,451	7.26%	64,276	32.31%	27,212	13.68%	122,192	0.61	1.90	3.13	193,509,186	972.82	6.31
36-<42	171,069	13,667	7.99%	60,902	35.60%	27,847	16.28%	125,707	0.73	2.06	3.33	196,465,294	1148.46	6.40
42-<48	158,360	13,142	8.30%	61,032	38.54%	29,578	18.68%	133,819	0.85	2.19	3.46	211,702,313	1336.84	6.32
48+	1,190,940	79,846	6.70%	599,465	50.34%	357,375	30.01%	1,824,402	1.53	3.04	4.43	2,914,617,693	2447.33	6.26
Any	3,102,442	201,852	6.51%	1,016,141	32.75%	511,332	16.48%	2,557,942	0.82	2.52	4.02	4,060,365,460	1308.76	6.30
<12	638,854	33,372	5.22%	55,548	8.69%	9,720	1.52%	68,628	0.11	1.24	2.35	105,132,158	164.56	6.53
<24	1,167,693	65,476	5.61%	168,639	14.44%	45,313	3.88%	242,322	0.21	1.44	2.63	374,969,853	321.12	6.46
24+	1,934,749	136,376	7.05%	847,502	43.80%	466,019	24.09%	2,315,620	1.20	2.73	4.15	3,685,395,607	1904.84	6.28

**Table 33. Summary of Moderate Asthma Exacerbations (Definition 2) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Year**

Follow-up Time (months)	Year	Number of Patients with Index Diagnosis	Number of Patients Censored due to Death	Percentage of Patients Censored due to Death	Number of Patients with 1+ Outcome	Percentage of Patients with 1+ Outcome	Number of Patients with 2+ Outcomes	Percentage of Patients with 2+ Outcomes	Total Number of Outcomes	Mean	Mean	Mean Number of Outcomes per Patient with 2+ Outcomes	Total Number of Patient-Days At-Risk	Mean	Incident
										Number of Outcomes per Patient with Index Diagnosis	Number of Outcomes per Patient with 1+ Outcomes			Number of Days At-Risk per Patient	Event Rate per 10,000 Person-Days At-Risk
<6	2008	15,192	589	3.88%	691	4.55%	67	0.44%	766	0.05	1.11	2.12	1,169,978	77.01	6.55
<6	2009	18,964	346	1.82%	834	4.40%	80	0.42%	923	0.05	1.11	2.11	1,428,861	75.35	6.46
<6	2010	14,716	*****	*****	603	4.10%	*****	*****	663	0.05	1.10	2.09	1,101,635	74.86	6.02
<6	2011	19,457	3,064	15.75%	1,030	5.29%	100	0.51%	1,150	0.06	1.12	2.20	1,479,465	76.04	7.77
<6	2012	15,791	2,153	13.63%	720	4.56%	64	0.41%	793	0.05	1.10	2.14	1,187,869	75.22	6.68
<6	2013	15,043	1,874	12.46%	734	4.88%	70	0.47%	824	0.05	1.12	2.29	1,129,180	75.06	7.30
<6	2014	18,686	2,025	10.84%	924	4.94%	77	0.41%	1,015	0.05	1.10	2.18	1,412,602	75.60	7.19
<6	2015	17,705	1,743	9.84%	780	4.41%	73	0.41%	871	0.05	1.12	2.25	1,357,153	76.65	6.42
<6	2016	17,572	1,386	7.89%	802	4.56%	73	0.42%	890	0.05	1.11	2.21	1,336,291	76.05	6.66
<6	2017	19,770	1,351	6.83%	930	4.70%	87	0.44%	1,030	0.05	1.11	2.15	1,496,602	75.70	6.88
<6	2018	21,060	1,119	5.31%	956	4.54%	85	0.40%	1,057	0.05	1.11	2.19	1,660,088	78.83	6.37
<6	2019	96,594	887	0.92%	4,561	4.72%	406	0.42%	5,025	0.05	1.10	2.14	7,665,234	79.36	6.56
<6	2020	11,498	*****	*****	206	1.79%	*****	*****	209	0.02	1.01	2.00	282,206	24.54	7.41
6-<12	2008	17,261	585	3.39%	2,053	11.89%	399	2.31%	2,607	0.15	1.27	2.39	4,241,004	245.70	6.15
6-<12	2009	22,651	348	1.54%	2,755	12.16%	529	2.34%	3,492	0.15	1.27	2.39	5,586,469	246.63	6.25
6-<12	2010	16,090	281	1.75%	1,812	11.26%	337	2.09%	2,260	0.14	1.25	2.33	3,946,315	245.27	5.73
6-<12	2011	22,797	3,121	13.69%	2,970	13.03%	670	2.94%	3,917	0.17	1.32	2.41	5,654,126	248.02	6.93
6-<12	2012	17,280	2,060	11.92%	2,251	13.03%	470	2.72%	2,907	0.17	1.29	2.40	4,245,536	245.69	6.85
6-<12	2013	17,472	1,873	10.72%	2,204	12.61%	501	2.87%	2,921	0.17	1.33	2.43	4,278,248	244.86	6.83
6-<12	2014	20,962	2,096	10.00%	2,876	13.72%	622	2.97%	3,778	0.18	1.31	2.45	5,164,214	246.36	7.32
6-<12	2015	19,962	1,736	8.70%	2,548	12.76%	526	2.64%	3,259	0.16	1.28	2.35	4,918,905	246.41	6.63
6-<12	2016	20,038	1,460	7.29%	2,486	12.41%	513	2.56%	3,160	0.16	1.27	2.31	4,928,999	245.98	6.41
6-<12	2017	23,251	1,349	5.80%	2,957	12.72%	559	2.40%	3,701	0.16	1.25	2.33	5,724,744	246.21	6.46
6-<12	2018	32,753	1,261	3.85%	3,685	11.25%	694	2.12%	4,605	0.14	1.25	2.33	8,209,433	250.65	5.61
6-<12	2019	106,289	354	0.33%	13,180	12.40%	2,660	2.50%	16,805	0.16	1.28	2.36	25,527,001	240.17	6.58
12-<18	2008	14,149	516	3.65%	2,737	19.34%	775	5.48%	4,030	0.28	1.47	2.67	5,955,804	420.93	6.77
12-<18	2009	17,527	317	1.81%	3,362	19.18%	900	5.13%	4,750	0.27	1.41	2.54	7,302,923	416.67	6.50
12-<18	2010	12,249	249	2.03%	2,128	17.37%	555	4.53%	3,000	0.24	1.41	2.57	5,139,651	419.60	5.84
12-<18	2011	18,788	3,301	17.57%	3,763	20.03%	1,177	6.26%	5,708	0.30	1.52	2.65	7,937,935	422.50	7.19
12-<18	2012	15,114	2,149	14.22%	2,947	19.50%	861	5.70%	4,347	0.29	1.48	2.63	6,405,131	423.79	6.79
12-<18	2013	15,492	1,944	12.55%	3,011	19.44%	935	6.04%	4,592	0.30	1.53	2.69	6,538,852	422.08	7.02
12-<18	2014	17,393	2,191	12.60%	3,660	21.04%	1,112	6.39%	5,462	0.31	1.49	2.62	7,322,779	421.02	7.46
12-<18	2015	17,040	1,841	10.80%	3,169	18.60%	935	5.49%	4,593	0.27	1.45	2.52	7,206,478	422.92	6.37
12-<18	2016	17,472	1,394	7.98%	3,287	18.81%	956	5.47%	4,805	0.28	1.46	2.59	7,383,246	422.58	6.51
12-<18	2017	19,875	1,292	6.50%	3,858	19.41%	1,074	5.40%	5,572	0.28	1.44	2.60	8,430,767	424.19	6.61
12-<18	2018	87,858	1,059	1.21%	16,644	18.94%	4,664	5.31%	24,040	0.27	1.44	2.59	38,295,980	435.88	6.28

**Table 33. Summary of Moderate Asthma Exacerbations (Definition 2) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Year**

Follow-up Time (months)	Year	Number of Patients with Index Diagnosis	Number of Patients Censored due to Death	Percentage of Patients Censored due to Death	Number of Patients with 1+ Outcome	Percentage of Patients with 1+ Outcome	Number of Patients with 2+ Outcomes	Percentage of Patients with 2+ Outcomes	Total Number of Outcomes	Mean	Mean	Mean Number of Outcomes per Patient with 2+ Outcomes	Total Number of Patient-Days At-Risk	Mean	Incident
										Number of Outcomes per Patient with Index Diagnosis	Number of Outcomes per Patient with 1+ Outcomes			Number of Days At-Risk per Patient	Event Rate per 10,000 Person-Days At-Risk
12-<18	2019	23,967	*****	*****	4,368	18.23%	1,114	4.65%	6,061	0.25	1.39	2.52	8,643,234	360.63	7.01
18-<24	2008	13,095	573	4.38%	3,087	23.57%	1,071	8.18%	5,018	0.38	1.63	2.80	7,966,286	608.35	6.30
18-<24	2009	15,287	326	2.13%	3,556	23.26%	1,155	7.56%	5,536	0.36	1.56	2.71	9,309,985	609.01	5.95
18-<24	2010	11,153	286	2.56%	2,395	21.47%	750	6.72%	3,791	0.34	1.58	2.86	6,804,153	610.07	5.57
18-<24	2011	17,639	3,467	19.66%	4,642	26.32%	1,688	9.57%	7,892	0.45	1.70	2.93	10,810,148	612.85	7.30
18-<24	2012	14,444	2,121	14.68%	3,497	24.21%	1,232	8.53%	5,789	0.40	1.66	2.86	8,817,742	610.48	6.57
18-<24	2013	13,536	2,002	14.79%	3,252	24.02%	1,124	8.30%	5,279	0.39	1.62	2.80	8,241,138	608.83	6.41
18-<24	2014	15,715	2,068	13.16%	3,920	24.94%	1,420	9.04%	6,452	0.41	1.65	2.78	9,587,056	610.06	6.73
18-<24	2015	16,313	1,777	10.89%	3,937	24.13%	1,360	8.34%	6,394	0.39	1.62	2.81	9,961,237	610.63	6.42
18-<24	2016	16,850	1,461	8.67%	4,099	24.33%	1,364	8.09%	6,472	0.38	1.58	2.74	10,275,295	609.81	6.30
18-<24	2017	26,529	1,407	5.30%	5,768	21.74%	1,840	6.94%	8,856	0.33	1.54	2.68	16,338,918	615.89	5.42
18-<24	2018	91,354	359	0.39%	22,004	24.09%	7,531	8.24%	35,255	0.39	1.60	2.76	55,162,957	603.84	6.39
24-<30	2008	10,783	607	5.63%	3,135	29.07%	1,221	11.32%	5,549	0.51	1.77	2.98	8,437,910	782.52	6.58
24-<30	2009	11,430	323	2.83%	3,158	27.63%	1,193	10.44%	5,482	0.48	1.74	2.95	8,919,681	780.37	6.15
24-<30	2010	8,143	*****	*****	2,108	25.89%	771	9.47%	3,523	0.43	1.67	2.84	6,379,503	783.43	5.52
24-<30	2011	15,933	3,504	21.99%	4,992	31.33%	2,096	13.16%	9,503	0.60	1.90	3.15	12,546,713	787.47	7.57
24-<30	2012	13,061	2,198	16.83%	3,847	29.45%	1,481	11.34%	7,065	0.54	1.84	3.17	10,291,515	787.96	6.86
24-<30	2013	11,242	1,979	17.60%	3,267	29.06%	1,288	11.46%	5,920	0.53	1.81	3.06	8,839,935	786.33	6.70
24-<30	2014	14,780	2,116	14.32%	4,403	29.79%	1,773	12.00%	7,897	0.53	1.79	2.97	11,648,737	788.14	6.78
24-<30	2015	14,694	1,852	12.60%	4,256	28.96%	1,654	11.26%	7,511	0.51	1.76	2.97	11,577,776	787.93	6.49
24-<30	2016	15,308	1,405	9.18%	4,301	28.10%	1,626	10.62%	7,446	0.49	1.73	2.93	12,094,363	790.07	6.16
24-<30	2017	78,642	1,038	1.32%	22,179	28.20%	8,515	10.83%	38,811	0.49	1.75	2.95	62,845,520	799.13	6.18
24-<30	2018	21,449	*****	*****	6,181	28.82%	2,389	11.14%	10,793	0.50	1.75	2.93	15,519,468	723.55	6.95
30-<36	2008	9,646	575	5.96%	3,172	32.88%	1,406	14.58%	6,403	0.66	2.02	3.30	9,371,468	971.54	6.83
30-<36	2009	10,381	313	3.02%	3,193	30.76%	1,287	12.40%	5,826	0.56	1.82	3.05	10,106,632	973.57	5.76
30-<36	2010	7,098	265	3.73%	1,941	27.35%	783	11.03%	3,498	0.49	1.80	2.99	6,909,221	973.40	5.06
30-<36	2011	16,020	3,518	21.96%	5,422	33.85%	2,505	15.64%	11,227	0.70	2.07	3.32	15,647,512	976.75	7.17
30-<36	2012	11,676	2,137	18.30%	3,812	32.65%	1,679	14.38%	7,493	0.64	1.97	3.19	11,352,182	972.27	6.60
30-<36	2013	10,092	1,943	19.25%	3,252	32.22%	1,400	13.87%	6,310	0.63	1.94	3.18	9,821,885	973.23	6.42
30-<36	2014	15,583	2,093	13.43%	5,306	34.05%	2,307	14.80%	10,198	0.65	1.92	3.12	15,225,866	977.08	6.70
30-<36	2015	14,715	1,799	12.23%	4,798	32.61%	1,981	13.46%	9,042	0.61	1.88	3.14	14,342,871	974.71	6.30
30-<36	2016	21,286	1,399	6.57%	6,284	29.52%	2,438	11.45%	11,204	0.53	1.78	3.02	20,882,510	981.04	5.37
30-<36	2017	82,418	409	0.50%	27,096	32.88%	11,426	13.86%	50,991	0.62	1.88	3.09	79,849,039	968.83	6.39
36-<42	2008	8,435	561	6.65%	3,033	35.96%	1,384	16.41%	6,272	0.74	2.07	3.34	9,686,655	1148.39	6.47
36-<42	2009	7,761	294	3.79%	2,562	33.01%	1,103	14.21%	5,100	0.66	1.99	3.30	8,883,696	1144.66	5.74
36-<42	2010	6,063	*****	*****	1,911	31.52%	814	13.43%	3,675	0.61	1.92	3.17	6,984,913	1152.06	5.26

**Table 33. Summary of Moderate Asthma Exacerbations (Definition 2) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Year**

Follow-up Time (months)	Year	Number of Patients with Index Diagnosis	Number of Patients Censored due to Death	Percentage of Patients Censored due to Death	Number of Patients with 1+ Outcome	Percentage of Patients with 1+ Outcome	Number of Patients with 2+ Outcomes	Percentage of Patients with 2+ Outcomes	Total Number of Outcomes	Mean	Mean	Mean Number of Outcomes per Patient with 2+ Outcomes	Total Number of Patient-Days At-Risk	Mean	Incident
										Number of Outcomes per Patient with Index Diagnosis	Number of Outcomes per Patient with 1+ Outcomes			Number of Days At-Risk per Patient	Event Rate per 10,000 Person-Days At-Risk
36-<42	2011	15,504	3,534	22.79%	5,855	37.76%	2,866	18.49%	13,343	0.86	2.28	3.61	17,872,047	1152.74	7.47
36-<42	2012	9,881	2,212	22.39%	3,569	36.12%	1,656	16.76%	7,637	0.77	2.14	3.46	11,366,301	1150.32	6.72
36-<42	2013	9,367	1,991	21.26%	3,263	34.84%	1,520	16.23%	6,829	0.73	2.09	3.35	10,797,970	1152.77	6.32
36-<42	2014	13,887	2,027	14.60%	5,151	37.09%	2,416	17.40%	10,872	0.78	2.11	3.37	15,933,965	1147.40	6.82
36-<42	2015	13,431	1,695	12.62%	4,637	34.52%	2,026	15.08%	9,233	0.69	1.99	3.27	15,521,127	1155.62	5.95
36-<42	2016	67,887	1,095	1.61%	23,975	35.32%	10,857	15.99%	48,473	0.71	2.02	3.26	78,960,979	1163.12	6.14
36-<42	2017	18,853	*****	*****	6,946	36.84%	3,205	17.00%	14,273	0.76	2.05	3.29	20,457,641	1085.11	6.98
42-<48	2008	8,057	557	6.91%	3,158	39.20%	1,585	19.67%	7,008	0.87	2.22	3.43	10,763,085	1335.87	6.51
42-<48	2009	6,374	285	4.47%	2,267	35.57%	1,070	16.79%	4,897	0.77	2.16	3.46	8,523,692	1337.26	5.75
42-<48	2010	5,660	234	4.13%	1,892	33.43%	825	14.58%	3,802	0.67	2.01	3.32	7,571,261	1337.68	5.02
42-<48	2011	14,686	3,744	25.49%	5,989	40.78%	3,069	20.90%	14,653	1.00	2.45	3.82	19,658,161	1338.56	7.45
42-<48	2012	9,083	2,152	23.69%	3,387	37.29%	1,640	18.06%	7,830	0.86	2.31	3.71	12,152,917	1337.98	6.44
42-<48	2013	9,079	1,994	21.96%	3,454	38.04%	1,701	18.74%	7,567	0.83	2.19	3.42	12,153,225	1338.61	6.23
42-<48	2014	13,584	2,014	14.83%	5,433	40.00%	2,578	18.98%	11,843	0.87	2.18	3.49	18,190,290	1339.10	6.51
42-<48	2015	19,476	1,711	8.79%	6,813	34.98%	3,071	15.77%	14,012	0.72	2.06	3.34	26,223,558	1346.46	5.34
42-<48	2016	72,361	451	0.62%	28,639	39.58%	14,039	19.40%	62,207	0.86	2.17	3.39	96,466,124	1333.12	6.45
48+	2008	120,986	8,565	7.08%	67,869	56.10%	43,519	35.97%	235,922	1.95	3.48	4.86	397,759,404	3287.65	5.93
48+	2009	85,494	3,654	4.27%	42,565	49.79%	25,050	29.30%	125,759	1.47	2.95	4.32	254,868,816	2981.13	4.93
48+	2010	65,477	2,536	3.87%	29,975	45.78%	16,891	25.80%	82,453	1.26	2.75	4.11	182,939,438	2793.95	4.51
48+	2011	261,447	33,010	12.63%	148,367	56.75%	96,015	36.72%	525,489	2.01	3.54	4.93	726,105,174	2777.26	7.24
48+	2012	161,330	14,780	9.16%	82,725	51.28%	49,910	30.94%	253,832	1.57	3.07	4.43	401,009,302	2485.65	6.33
48+	2013	152,285	9,355	6.14%	74,198	48.72%	42,845	28.13%	210,810	1.38	2.84	4.19	336,638,864	2210.58	6.26
48+	2014	179,119	6,060	3.38%	83,419	46.57%	46,481	25.95%	221,243	1.24	2.65	3.97	348,318,171	1944.62	6.35
48+	2015	149,971	*****	*****	63,919	42.62%	33,342	22.23%	153,884	1.03	2.41	3.70	245,503,712	1637.01	6.27
48+	2016	14,831	*****	*****	6,428	43.34%	3,322	22.40%	15,010	1.01	2.34	3.58	21,474,812	1447.97	6.99
Any	2008	217,604	13,128	6.03%	88,935	40.87%	51,427	23.63%	273,575	1.26	3.08	4.59	455,351,594	2092.57	6.01
Any	2009	195,869	6,206	3.17%	64,252	32.80%	32,367	16.52%	161,765	0.83	2.52	4.01	314,930,755	1607.86	5.14
Any	2010	146,649	4,661	3.18%	44,765	30.53%	21,781	14.85%	106,665	0.73	2.38	3.84	227,776,090	1553.21	4.68
Any	2011	402,271	60,263	14.98%	183,030	45.50%	110,186	27.39%	592,882	1.47	3.24	4.72	817,711,281	2032.74	7.25
Any	2012	267,660	31,962	11.94%	106,755	39.88%	58,993	22.04%	297,693	1.11	2.79	4.24	466,828,495	1744.11	6.38
Any	2013	253,608	24,955	9.84%	96,635	38.10%	51,384	20.26%	251,052	0.99	2.60	4.01	398,439,297	1571.08	6.30
Any	2014	309,709	22,690	7.33%	115,092	37.16%	58,786	18.98%	278,760	0.90	2.42	3.78	432,803,680	1397.45	6.44
Any	2015	283,307	16,039	5.66%	94,857	33.48%	44,968	15.87%	208,799	0.74	2.20	3.53	336,612,817	1188.16	6.20
Any	2016	263,605	10,052	3.81%	80,301	30.46%	35,188	13.35%	159,667	0.61	1.99	3.26	253,802,619	962.81	6.29
Any	2017	269,338	6,849	2.54%	69,734	25.89%	26,706	9.92%	123,234	0.46	1.77	3.00	195,143,231	724.53	6.32
Any	2018	254,474	3,801	1.49%	49,470	19.44%	15,363	6.04%	75,750	0.30	1.53	2.71	118,847,926	467.03	6.37

**Table 33. Summary of Moderate Asthma Exacerbations (Definition 2) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Year**

Follow-up Time (months)	Year	Number of Patients with Index Diagnosis	Number of Patients Censored due to Death	Percentage of Patients Censored due to Death	Number of Patients with 1+ Outcome	Percentage of Patients with 1+ Outcome	Number of Patients with 2+ Outcomes	Percentage of Patients with 2+ Outcomes	Total Number of Outcomes	Mean	Mean	Mean Number of Outcomes per Patient with 2+ Outcomes	Total Number of Patient-Days At-Risk	Mean	Incident
										Number of Outcomes per Patient with Index Diagnosis	Number of Outcomes per Patient with 1+ Outcomes			Number of Days At-Risk per Patient	Event Rate per 10,000 Person-Days At-Risk
Any	2019	226,850	*****	*****	22,109	9.75%	*****	*****	27,891	0.12	1.26	2.38	41,835,469	184.42	6.67
Any	2020	11,498	*****	*****	206	1.79%	*****	*****	209	0.02	1.01	2.00	282,206	24.54	7.41

**Table 34. Summary of Moderate Asthma Exacerbations (Definition 2) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Sex**

Follow-up Time (months)	Sex	Number of Patients with Index Diagnosis	Number of Patients Censored due to Death	Percentage of Patients Censored due to Death	Number of Patients with 1+ Outcome	Percentage of Patients with 1+ Outcome	Number of Patients with 2+ Outcomes	Percentage of Patients with 2+ Outcomes	Total Number of Outcomes	Mean	Mean	Mean Number of Outcomes per Patient with 2+ Outcomes	Total Number of Patient-Days At-Risk	Mean	Incident
										Number of Outcomes per Patient with Index Diagnosis	Number of Outcomes per Patient with 1+ Outcomes			Number of Days At-Risk per Patient	Event Rate per 10,000 Person-Days At-Risk
<6	Female	201,315	11,434	5.68%	9,931	4.93%	897	0.45%	10,962	0.05	1.10	2.15	15,139,163	75.20	7.24
<6	Male	100,733	5,414	5.37%	3,840	3.81%	343	0.34%	4,254	0.04	1.11	2.21	7,568,001	75.13	5.62
6-<12	Female	225,253	11,280	5.01%	30,109	13.37%	6,239	2.77%	38,633	0.17	1.28	2.37	55,083,007	244.54	7.01
6-<12	Male	111,553	5,244	4.70%	11,668	10.46%	2,241	2.01%	14,779	0.13	1.27	2.39	27,341,987	245.10	5.41
12-<18	Female	184,950	11,127	6.02%	37,878	20.48%	11,030	5.96%	55,485	0.30	1.46	2.60	77,863,053	421.00	7.13
12-<18	Male	91,974	5,130	5.58%	15,056	16.37%	4,028	4.38%	21,475	0.23	1.43	2.59	38,699,727	420.77	5.55
18-<24	Female	169,768	10,904	6.42%	43,455	25.60%	15,067	8.88%	70,246	0.41	1.62	2.78	103,293,330	608.44	6.80
18-<24	Male	82,147	4,943	6.02%	16,702	20.33%	5,468	6.66%	26,488	0.32	1.59	2.79	49,981,585	608.44	5.30
24-<30	Female	145,694	10,594	7.27%	44,543	30.57%	17,678	12.13%	79,511	0.55	1.79	2.98	114,344,297	784.83	6.95
24-<30	Male	69,771	4,676	6.70%	17,284	24.77%	6,329	9.07%	29,989	0.43	1.74	3.01	54,756,824	784.81	5.48
30-<36	Female	134,976	10,010	7.42%	46,542	34.48%	20,116	14.90%	89,275	0.66	1.92	3.12	131,283,596	972.64	6.80
30-<36	Male	63,939	4,441	6.95%	17,734	27.74%	7,096	11.10%	32,917	0.51	1.86	3.14	62,225,590	973.20	5.29
36-<42	Female	116,641	9,578	8.21%	44,241	37.93%	20,685	17.73%	92,481	0.79	2.09	3.33	133,926,346	1148.19	6.91
36-<42	Male	54,428	4,089	7.51%	16,661	30.61%	7,162	13.16%	33,226	0.61	1.99	3.31	62,538,948	1149.02	5.31
42-<48	Female	108,495	9,180	8.46%	44,341	40.87%	21,974	20.25%	98,899	0.91	2.23	3.48	145,012,076	1336.58	6.82
42-<48	Male	49,865	3,962	7.95%	16,691	33.47%	7,604	15.25%	34,920	0.70	2.09	3.40	66,690,237	1337.42	5.24
48+	Female	832,898	56,073	6.73%	441,113	52.96%	268,644	32.25%	1,372,097	1.65	3.11	4.47	2,041,338,386	2450.89	6.72
48+	Male	358,042	23,773	6.64%	158,352	44.23%	88,731	24.78%	452,305	1.26	2.86	4.31	873,279,307	2439.04	5.18
Any	Female	2,119,990	140,180	6.61%	742,153	35.01%	382,330	18.03%	1,907,589	0.90	2.57	4.05	2,817,283,254	1328.91	6.77
Any	Male	982,452	61,672	6.28%	273,988	27.89%	129,002	13.13%	650,353	0.66	2.37	3.92	1,243,082,206	1265.29	5.23

**Table 35. Summary of Moderate Asthma Exacerbations (Definition 2) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Age Group**

Follow-up Time (months)	Age	Number of Patients with Index Diagnosis	Number of Patients Censored due to Death	Percentage of Patients Censored due to Death	Number of Patients with 1+ Outcome	Percentage of Patients with 1+ Outcome	Number of Patients with 2+ Outcomes	Percentage of Patients with 2+ Outcomes	Total Number of Outcomes	Mean	Mean	Mean	Total Number of Patient-Days At-Risk	Mean	Incident
										Number of Outcomes per Patient with Index Diagnosis	Number of Outcomes per Patient with 1+ Outcomes	Number of Outcomes per Patient with 2+ Outcomes		Number of Days At-Risk per Patient	Event Rate per 10,000 Person-Days At-Risk
<6	18-39	85,706	525	0.61%	3,359	3.92%	272	0.32%	3,678	0.04	1.09	2.17	6,418,622	74.89	5.73
<6	40-64	126,142	3,253	2.58%	5,976	4.74%	561	0.44%	6,610	0.05	1.11	2.13	9,475,618	75.12	6.98
<6	65+	90,200	13,070	14.49%	4,436	4.92%	407	0.45%	4,928	0.05	1.11	2.21	6,812,924	75.53	7.23
6-<12	18-39	89,277	490	0.55%	9,376	10.50%	1,653	1.85%	11,621	0.13	1.24	2.36	21,687,743	242.93	5.36
6-<12	40-64	141,523	3,135	2.22%	18,220	12.87%	3,692	2.61%	23,325	0.16	1.28	2.38	34,649,891	244.84	6.73
6-<12	65+	106,006	12,899	12.17%	14,181	13.38%	3,135	2.96%	18,466	0.17	1.30	2.37	26,087,360	246.09	7.08
12-<18	18-39	69,381	421	0.61%	11,285	16.27%	2,888	4.16%	15,824	0.23	1.40	2.57	29,152,594	420.18	5.43
12-<18	40-64	114,742	3,034	2.64%	22,548	19.65%	6,523	5.68%	33,113	0.29	1.47	2.62	48,159,058	419.72	6.88
12-<18	65+	92,801	12,802	13.80%	19,101	20.58%	5,647	6.09%	28,023	0.30	1.47	2.58	39,251,128	422.96	7.14
18-<24	18-39	58,794	423	0.72%	11,906	20.25%	3,554	6.04%	18,030	0.31	1.51	2.72	35,673,310	606.75	5.05
18-<24	40-64	101,979	2,878	2.82%	25,022	24.54%	8,653	8.49%	40,621	0.40	1.62	2.80	61,995,645	607.93	6.55
18-<24	65+	91,142	12,546	13.77%	23,229	25.49%	8,328	9.14%	38,083	0.42	1.64	2.78	55,605,960	610.10	6.85
24-<30	18-39	47,386	397	0.84%	11,516	24.30%	3,971	8.38%	19,237	0.41	1.67	2.94	37,214,925	785.36	5.17
24-<30	40-64	85,579	2,739	3.20%	25,120	29.35%	9,820	11.47%	44,956	0.53	1.79	3.02	67,045,046	783.43	6.71
24-<30	65+	82,500	12,134	14.71%	25,191	30.53%	10,216	12.38%	45,307	0.55	1.80	2.97	64,841,150	785.95	6.99
30-<36	18-39	40,956	373	0.91%	11,244	27.45%	4,292	10.48%	20,067	0.49	1.78	3.06	39,768,694	971.01	5.05
30-<36	40-64	76,651	2,564	3.35%	25,178	32.85%	10,788	14.07%	48,634	0.63	1.93	3.17	74,504,641	972.00	6.53
30-<36	65+	81,308	11,514	14.16%	27,854	34.26%	12,132	14.92%	53,491	0.66	1.92	3.11	79,235,851	974.51	6.75
36-<42	18-39	33,414	316	0.95%	10,136	30.33%	4,238	12.68%	19,632	0.59	1.94	3.24	38,403,862	1149.33	5.11
36-<42	40-64	66,135	2,397	3.62%	23,789	35.97%	10,815	16.35%	49,568	0.75	2.08	3.38	75,880,097	1147.35	6.53
36-<42	65+	71,520	10,954	15.32%	26,977	37.72%	12,794	17.89%	56,507	0.79	2.09	3.31	82,181,335	1149.07	6.88
42-<48	18-39	28,676	310	1.08%	9,427	32.87%	4,068	14.19%	19,127	0.67	2.03	3.38	38,276,360	1334.79	5.00
42-<48	40-64	59,251	2,269	3.83%	23,025	38.86%	11,216	18.93%	51,008	0.86	2.22	3.49	79,142,240	1335.71	6.45
42-<48	65+	70,433	10,563	15.00%	28,580	40.58%	14,294	20.29%	63,684	0.90	2.23	3.46	94,283,713	1338.63	6.75
48+	18-39	185,153	1,615	0.87%	81,356	43.94%	44,693	24.14%	230,791	1.25	2.84	4.34	448,312,482	2421.31	5.15
48+	40-64	456,485	13,814	3.03%	230,473	50.49%	137,625	30.15%	713,520	1.56	3.10	4.51	1,150,300,471	2519.91	6.20
48+	65+	549,302	64,417	11.73%	287,636	52.36%	175,057	31.87%	880,091	1.60	3.06	4.38	1,316,004,740	2395.78	6.69
Any	18-39	638,743	4,870	0.76%	159,605	24.99%	69,629	10.90%	358,007	0.56	2.24	3.85	694,908,592	1087.93	5.15
Any	40-64	1,228,487	36,083	2.94%	399,351	32.51%	199,693	16.26%	1,011,355	0.82	2.53	4.06	1,601,152,707	1303.35	6.32
Any	65+	1,235,212	160,899	13.03%	457,185	37.01%	242,010	19.59%	1,188,580	0.96	2.60	4.02	1,764,304,161	1428.34	6.74

**Table 36. Summary of Moderate Asthma Exacerbations (Definition 2) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Sex and Age Group**

Follow-up Time (months)	Sex & Age	Number of Patients with Index Diagnosis	Number of Patients Censored due to Death	Percentage of Patients Censored due to Death	Number of Patients with 1+ Outcome	Percentage of Patients with 1+ Outcome	Number of Patients with 2+ Outcomes	Percentage of Patients with 2+ Outcomes	Total Number of Outcomes	Mean Number of Outcomes per Patient with Index Diagnosis	Mean Number of Outcomes per Patient with 1+ Outcomes	Mean Number of Outcomes per Patient with 2+ Outcomes	Total Number of Patient-Days At-Risk	Mean Number of Days At-Risk per Patient	Incident Event Rate per 10,000 Person-Days At-Risk
<6	Female & 18-39	53,341	287	0.54%	2,308	4.33%	186	0.35%	2,519	0.05	1.09	2.13	4,009,908	75.17	6.28
<6	Female & 40-64	84,700	2,037	2.40%	4,397	5.19%	418	0.49%	4,865	0.06	1.11	2.12	6,349,380	74.96	7.66
<6	Female & 65+	63,274	9,110	14.40%	3,226	5.10%	293	0.46%	3,578	0.06	1.11	2.20	4,779,875	75.54	7.49
<6	Male & 18-39	32,365	238	0.74%	1,051	3.25%	86	0.27%	1,159	0.04	1.10	2.26	2,408,714	74.42	4.81
<6	Male & 40-64	41,442	1,216	2.93%	1,579	3.81%	143	0.35%	1,745	0.04	1.11	2.16	3,126,238	75.44	5.58
<6	Male & 65+	26,926	3,960	14.71%	1,210	4.49%	114	0.42%	1,350	0.05	1.12	2.23	2,033,049	75.51	6.64
6-<12	Female & 18-39	55,703	287	0.52%	6,437	11.56%	1,154	2.07%	7,976	0.14	1.24	2.33	13,518,033	242.68	5.90
6-<12	Female & 40-64	95,230	1,975	2.07%	13,256	13.92%	2,734	2.87%	17,022	0.18	1.28	2.38	23,289,025	244.56	7.31
6-<12	Female & 65+	74,320	9,018	12.13%	10,416	14.02%	2,351	3.16%	13,635	0.18	1.31	2.37	18,275,949	245.91	7.46
6-<12	Male & 18-39	33,574	203	0.60%	2,939	8.75%	499	1.49%	3,645	0.11	1.24	2.41	8,169,710	243.33	4.46
6-<12	Male & 40-64	46,293	1,160	2.51%	4,964	10.72%	958	2.07%	6,303	0.14	1.27	2.40	11,360,866	245.41	5.55
6-<12	Male & 65+	31,686	3,881	12.25%	3,765	11.88%	784	2.47%	4,831	0.15	1.28	2.36	7,811,411	246.53	6.18
12-<18	Female & 18-39	43,174	243	0.56%	7,712	17.86%	2,071	4.80%	10,980	0.25	1.42	2.58	18,127,197	419.86	6.06
12-<18	Female & 40-64	76,725	1,910	2.49%	16,220	21.14%	4,817	6.28%	23,961	0.31	1.48	2.61	32,202,921	419.72	7.44
12-<18	Female & 65+	65,051	8,974	13.80%	13,946	21.44%	4,142	6.37%	20,544	0.32	1.47	2.59	27,532,935	423.25	7.46
12-<18	Male & 18-39	26,207	178	0.68%	3,573	13.63%	817	3.12%	4,844	0.18	1.36	2.56	11,025,397	420.70	4.39
12-<18	Male & 40-64	38,017	1,124	2.96%	6,328	16.65%	1,706	4.49%	9,152	0.24	1.45	2.66	15,956,137	419.71	5.74
12-<18	Male & 65+	27,750	3,828	13.79%	5,155	18.58%	1,505	5.42%	7,479	0.27	1.45	2.54	11,718,193	422.28	6.38
18-<24	Female & 18-39	36,704	252	0.69%	8,247	22.47%	2,561	6.98%	12,670	0.35	1.54	2.73	22,258,436	606.43	5.69
18-<24	Female & 40-64	68,751	1,786	2.60%	18,122	26.36%	6,354	9.24%	29,491	0.43	1.63	2.79	41,798,023	607.96	7.06
18-<24	Female & 65+	64,313	8,866	13.79%	17,086	26.57%	6,152	9.57%	28,085	0.44	1.64	2.79	39,236,871	610.09	7.16
18-<24	Male & 18-39	22,090	171	0.77%	3,659	16.56%	993	4.50%	5,360	0.24	1.46	2.71	13,414,874	607.28	4.00
18-<24	Male & 40-64	33,228	1,092	3.29%	6,900	20.77%	2,299	6.92%	11,130	0.33	1.61	2.84	20,197,622	607.85	5.51
18-<24	Male & 65+	26,829	3,680	13.72%	6,143	22.90%	2,176	8.11%	9,998	0.37	1.63	2.77	16,369,089	610.13	6.11
24-<30	Female & 18-39	29,717	232	0.78%	7,855	26.43%	2,824	9.50%	13,382	0.45	1.70	2.96	23,330,034	785.07	5.74
24-<30	Female & 40-64	57,646	1,753	3.04%	18,152	31.49%	7,221	12.53%	32,600	0.57	1.80	3.00	45,152,668	783.27	7.22
24-<30	Female & 65+	58,331	8,609	14.76%	18,536	31.78%	7,633	13.09%	33,529	0.57	1.81	2.96	45,861,595	786.23	7.31
24-<30	Male & 18-39	17,669	165	0.93%	3,661	20.72%	1,147	6.49%	5,855	0.33	1.60	2.91	13,884,891	785.83	4.22
24-<30	Male & 40-64	27,933	986	3.53%	6,968	24.95%	2,599	9.30%	12,356	0.44	1.77	3.07	21,892,378	783.75	5.64
24-<30	Male & 65+	24,169	3,525	14.58%	6,655	27.54%	2,583	10.69%	11,778	0.49	1.77	2.98	18,979,555	785.29	6.21
30-<36	Female & 18-39	25,644	227	0.89%	7,751	30.23%	3,064	11.95%	14,076	0.55	1.82	3.06	24,902,303	971.08	5.65
30-<36	Female & 40-64	51,888	1,643	3.17%	18,329	35.32%	7,974	15.37%	35,581	0.69	1.94	3.16	50,412,390	971.56	7.06
30-<36	Female & 65+	57,444	8,140	14.17%	20,462	35.62%	9,078	15.80%	39,618	0.69	1.94	3.11	55,968,903	974.32	7.08
30-<36	Male & 18-39	15,312	146	0.95%	3,493	22.81%	1,228	8.02%	5,991	0.39	1.72	3.03	14,866,391	970.90	4.03
30-<36	Male & 40-64	24,763	921	3.72%	6,849	27.66%	2,814	11.36%	13,053	0.53	1.91	3.20	24,092,251	972.91	5.42
30-<36	Male & 65+	23,864	3,374	14.14%	7,392	30.98%	3,054	12.80%	13,873	0.58	1.88	3.12	23,266,948	974.98	5.96
36-<42	Female & 18-39	20,934	198	0.95%	7,016	33.51%	3,065	14.64%	14,083	0.67	2.01	3.31	24,043,363	1148.53	5.86
36-<42	Female & 40-64	44,857	1,573	3.51%	17,194	38.33%	7,975	17.78%	36,189	0.81	2.10	3.38	51,456,552	1147.12	7.03
36-<42	Female & 65+	50,850	7,807	15.35%	20,031	39.39%	9,645	18.97%	42,209	0.83	2.11	3.30	58,426,431	1149.00	7.22



**Table 36. Summary of Moderate Asthma Exacerbations (Definition 2) in the Sentinel Distributed Database between January 1, 2008 and February 29, 2020, by Sex and Age Group**

Follow-up Time (months)	Sex & Age	Number of Patients with Index Diagnosis	Number of Patients Censored due to Death	Percentage of Patients Censored due to Death	Number of Patients with 1+ Outcome	Percentage of Patients with 1+ Outcome	Number of Patients with 2+ Outcomes	Percentage of Patients with 2+ Outcomes	Total Number of Outcomes	Mean Number of Outcomes per Patient with Index Diagnosis	Mean Number of Outcomes per Patient with 1+ Outcomes	Mean Number of Outcomes per Patient with 2+ Outcomes	Total Number of Patient-Days At-Risk	Mean Number of Days At-Risk per Patient	Incident Event Rate per 10,000 Person-Days At-Risk
36-<42	Male & 18-39	12,480	118	0.95%	3,120	25.00%	1,173	9.40%	5,549	0.44	1.78	3.07	14,360,499	1150.68	3.86
36-<42	Male & 40-64	21,278	824		6,595		2,840		13,379	0.63	2.03	3.39	24,423,545	1147.83	5.48
36-<42	Male & 65+	20,670	3,147		6,946		3,149		14,298	0.69	2.06	3.33	23,754,904	1149.25	6.02
42-<48	Female & 18-39	18,031	193		6,495		2,938		13,566	0.75	2.09	3.41	24,061,127	1334.43	5.64
42-<48	Female & 40-64	40,361	1,481		16,729		8,328		37,575	0.93	2.25	3.50	53,893,706	1335.29	6.97
42-<48	Female & 65+	50,103	7,506		21,117		10,708		47,758	0.95	2.26	3.49	67,057,243	1338.39	7.12
42-<48	Male & 18-39	10,645	117		2,932		1,130		5,561	0.52	1.90	3.33	14,215,233	1335.39	3.91
42-<48	Male & 40-64	18,890	788		6,296		2,888		13,433	0.71	2.13	3.47	25,248,534	1336.61	5.32
42-<48	Male & 65+	20,330	3,057		7,463		3,586		15,926	0.78	2.13	3.36	27,226,470	1339.23	5.85
48+	Female & 18-39	118,325	991		56,814		32,487		168,682	1.43	2.97	4.44	287,573,089	2430.37	5.87
48+	Female & 40-64	316,164	9,113		169,378		103,746		537,964	1.70	3.18	4.55	797,363,354	2521.99	6.75
48+	Female & 65+	398,409	45,969		214,921		132,411		665,451	1.67	3.10	4.40	956,401,943	2400.55	6.96
48+	Male & 18-39	66,828	624		24,542		12,206		62,109	0.93	2.53	4.08	160,739,393	2405.27	3.86
48+	Male & 40-64	140,321	4,701		61,095		33,879		175,556	1.25	2.87	4.38	352,937,117	2515.21	4.97
48+	Male & 65+	150,893	18,448		72,715		42,646		214,640	1.42	2.95	4.33	359,602,797	2383.16	5.97
Any	Female & 18-39	401,573	2,910		110,635		50,350		257,934	0.64	2.33	3.93	441,823,490	1100.23	5.84
Any	Female & 40-64	836,322	23,271		291,777		149,567		755,248	0.90	2.59	4.10	1,101,918,019	1317.58	6.85
Any	Female & 65+	882,095	113,999		339,741		182,413		894,407	1.01	2.63	4.04	1,273,541,745	1443.77	7.02
Any	Male & 18-39	237,170	1,960		48,970		19,279		100,073	0.42	2.04	3.65	253,085,102	1067.10	3.95
Any	Male & 40-64	392,165	12,812		107,574		50,126		256,107	0.65	2.38	3.96	499,234,688	1273.02	5.13
Any	Male & 65+	353,117	46,900		117,444		59,597		294,173	0.83	2.50	3.97	490,762,416	1389.80	5.99

**Appendix A. Dates of Available Data for Each Data Partner (DP) up to Request End Date (March 30, 2020) as of Query Distribution Date**

DP ID	Start Date <sup>1</sup>	End Date <sup>1</sup>
DP01	1/1/2000	7/31/2019
DP02	6/1/2007	10/31/2019
DP03	1/1/2000	3/31/2016
DP04	1/1/2000	2/28/2019
DP05	1/1/2000	1/31/2019
DP06	1/1/2004	8/31/2019
DP07	1/1/2008	2/29/2020
DP08	1/1/2000	6/30/2019
DP09	1/1/2005	7/31/2018
DP10	1/1/2000	4/30/2019
DP11	1/1/2006	1/31/2020
DP12	1/1/2000	3/31/2019
DP13	1/1/2000	12/31/2017
DP14	1/1/2000	4/30/2018
DP15	1/1/2010	12/31/2019

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

**Appendix B. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) Diagnosis Codes to Define Exposures in this Request**

Code	Description	Code Category	Code Type
<b>Chronic Obstructive Pulmonary Disease (COPD) Exacerbation Codes</b>			
491.21	Obstructive chronic bronchitis, with (acute) exacerbation	Diagnosis	ICD-9-CM
491.22	Obstructive chronic bronchitis with acute bronchitis	Diagnosis	ICD-9-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
<b>COPD Diagnosis Codes</b>			
491.0	Simple chronic bronchitis	Diagnosis	ICD-9-CM
491.1	Mucopurulent chronic 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
496	Chronic airway obstruction, not elsewhere classified	Diagnosis	ICD-9-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
J44.9	Chronic obstructive pulmonary disease, unspecified	Diagnosis	ICD-10-CM
<b>Asthma Exacerbation Codes</b>			
493.01	Extrinsic asthma with status asthmaticus	Diagnosis	ICD-9-CM
493.02	Extrinsic asthma, with (acute) exacerbation	Diagnosis	ICD-9-CM
493.11	Intrinsic asthma with status asthmaticus	Diagnosis	ICD-9-CM
493.12	Intrinsic asthma, with (acute) exacerbation	Diagnosis	ICD-9-CM
493.91	Asthma, unspecified with status asthmaticus	Diagnosis	ICD-9-CM
493.92	Asthma, unspecified, with (acute) exacerbation	Diagnosis	ICD-9-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
J45.31	Mild persistent asthma with (acute) exacerbation	Diagnosis	ICD-10-CM
J45.32	Mild persistent asthma with status asthmaticus	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
J45.51	Severe persistent asthma with (acute) exacerbation	Diagnosis	ICD-10-CM
J45.52	Severe persistent asthma with status asthmaticus	Diagnosis	ICD-10-CM
J45.901	Unspecified asthma with (acute) exacerbation	Diagnosis	ICD-10-CM
J45.902	Unspecified asthma with status asthmaticus	Diagnosis	ICD-10-CM
<b>Asthma Diagnosis Codes</b>			
493.00	Extrinsic asthma, unspecified	Diagnosis	ICD-9-CM
493.10	Intrinsic asthma, unspecified	Diagnosis	ICD-9-CM
493.20	Chronic obstructive asthma, unspecified ICD-9-CM	Diagnosis	ICD-9-CM
493.21	Chronic obstructive asthma with status asthmaticus ICD-9-CM	Diagnosis	ICD-9-CM
493.22	Chronic obstructive asthma, with (acute) exacerbation ICD-9-CM	Diagnosis	ICD-9-CM
493.82	Cough variant asthma	Diagnosis	ICD-9-CM
493.90	Asthma, unspecified, unspecified status	Diagnosis	ICD-9-CM
J45	Asthma	Diagnosis	ICD-10-CM
J45.2	Mild intermittent asthma	Diagnosis	ICD-10-CM

**Appendix B. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) Diagnosis Codes to Define Exposures in this Request**

J45.20	Mild intermittent asthma, uncomplicated	Diagnosis	ICD-10-CM
J45.3	Mild persistent asthma	Diagnosis	ICD-10-CM
J45.30	Mild persistent asthma, uncomplicated	Diagnosis	ICD-10-CM
J45.4	Moderate persistent asthma	Diagnosis	ICD-10-CM
J45.40	Moderate persistent asthma, uncomplicated	Diagnosis	ICD-10-CM
J45.5	Severe persistent asthma	Diagnosis	ICD-10-CM
J45.50	Severe persistent asthma, uncomplicated	Diagnosis	ICD-10-CM
J45.9	Other and unspecified asthma	Diagnosis	ICD-10-CM
J45.90	Unspecified asthma	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

**Appendix C. List of Generic and Brand Drug Names Used to Define Outcomes in this Request**

<b>Generic Name</b>	<b>Brand Name</b>
<b>Oral Corticosteroid (OCS)</b>	
betamethasone	Celestone
cortisone acetate	cortisone
<i>CORTISONE ACETATE</i>	<i>Cortisone aceticum</i>
deflazacort	Emflaza
dexamethasone	Dexamethasone Intensol
dexamethasone	dexamethasone
dexamethasone	DexPak 10 day
dexamethasone	DexPak 13 Day
dexamethasone	DexPak 6 Day
dexamethasone	Baycadron
dexamethasone	Decadron
dexamethasone	Dxevo
dexamethasone	HiDex
dexamethasone	LoCort
dexamethasone	TaperDex
dexamethasone	Zema-Pak
dexamethasone	ZoDex
dexamethasone	ZonaCort
<i>Dexamethasone</i>	<i>Dexamethsone</i>
<i>dexamethasone</i>	<i>HiDex 6-day</i>
<i>DEXAMETHASONE</i>	<i>TaperDex 12-day</i>
<i>DEXAMETHASONE</i>	<i>TaperDex 6-day</i>
<i>dexamethasone</i>	<i>TaperDex 7-day</i>
<i>Dexamethasone 1.5 mg</i>	<i>Dexamethasone</i>
<i>Dexamethasone 1.5 mg</i>	<i>Dxevo</i>
dexamethasone/saliva collection device	Cushings Syndrome Diagnostic
hydrocortisone	Cortef
hydrocortisone	hydrocortisone
<i>Hydrocortisone</i>	<i>CORTISOL</i>
<i>Hydrocortisone</i>	<i>Cortisol Phenolic</i>
methylprednisolone	Medrol
methylprednisolone	Medrol (Pak)
methylprednisolone	methylprednisolone
methylprednisolone	Meprolone Unipak
methylprednisolone	Methylpred
methylprednisolone	Methylpred DP
prednisolone	prednisolone
prednisolone	Millipred
prednisolone	Millipred DP
prednisolone	Prelone
prednisolone acetate	Flo-Pred
prednisolone sodium phosphate	prednisolone sodium phosphate
prednisolone sodium phosphate	Millipred
prednisolone sodium phosphate	Orapred
prednisolone sodium phosphate	Orapred ODT
prednisolone sodium phosphate	Pediapred
prednisolone sodium phosphate	Veripred 20
<i>Prednisolone Sodium Phosphate</i>	<i>Prednisolone Sodium Phosphate Oral Solution</i>
Prednisolone Sodium Phosphate/Peak Flow Meter	Asmalpred
Prednisolone Sodium Phosphate/Peak Flow Meter	Asmalpred Plus
prednisone	prednisone
prednisone	Prednisone Intensol

**Appendix C. List of Generic and Brand Drug Names Used to Define Outcomes in this Request**

<b>Generic Name</b>	<b>Brand Name</b>
prednisone	Deltasone
prednisone	Rayos
prednisone	Sterapred
prednisone	Sterapred DS
<b>Antibiotics</b>	
<i>Amoxicillan and clavulanate potassium</i>	<i>Amoxicillan and clavulanate potassium</i>
amoxicillin	Amoxil
amoxicillin	amoxicillin
amoxicillin	DisperMox
amoxicillin	Moxatag
amoxicillin	Trimox
amoxicillin	Trimox 250
<i>Amoxicillin and Clavulanate Potassium</i>	<i>Amoxicillin and Clavulanate Potassium</i>
<i>amoxicillin and clavulanate potassium</i>	<i>AUGMENTIN ES-600</i>
<i>amoxicillin and clavulanate potassium</i>	<i>AUGMENTIN</i>
<i>AMOXICILLIN CLAV/POT</i>	<i>AMOXICILLIN CLAV/POT</i>
<i>AMOXICILLIN/CLAV POT</i>	<i>AMOXICILLIN/CLAV POT</i>
amoxicillin/potassium clavulanate	Augmentin
amoxicillin/potassium clavulanate	Augmentin ES-600
amoxicillin/potassium clavulanate	Augmentin XR
amoxicillin/potassium clavulanate	amoxicillin-pot clavulanate
ampicillin trihydrate	ampicillin
ampicillin trihydrate	Principen
azithromycin	Zithromax
azithromycin	Zithromax Z-Pak
azithromycin	Zithromax TRI-PAK
azithromycin	Zmax Pediatric
azithromycin	Zmax
azithromycin	azithromycin
<i>azithromycin</i>	<i>Azithromycin Dihydrate</i>
<i>AZITHROMYCIN ANHYDROUS</i>	<i>Azithromycin</i>
<i>azithromycin dihydrate</i>	<i>azithromycin dihydrate</i>
<i>azithromycin dihydrate</i>	<i>Zithromax</i>
<i>azithromycin monohydrate</i>	<i>azithromycin monohydrate</i>
<i>AZITHROMYCIN MONOHYDRATE</i>	<i>azithromycin</i>
bismuth subsalicylate/metronidazole/tetracycline HCl	Helidac
cefaclor	cefaclor
cefaclor	Raniclor
cefaclor	Ceclor
cefadroxil	cefadroxil
cefadroxil	Duricef
cefdinir	Omnicef
cefdinir	cefdinir
cefditoren pivoxil	Spectracef
cefditoren pivoxil	cefditoren pivoxil
cefixime	cefixime
cefixime	Suprax
cefpodoxime proxetil	Vantin
cefpodoxime proxetil	cefpodoxime
cefprozil	Cefzil
cefprozil	cefprozil
ceftibuten	ceftibuten
ceftibuten	Cedax

**Appendix C. List of Generic and Brand Drug Names Used to Define Outcomes in this Request**

<b>Generic Name</b>	<b>Brand Name</b>
cefuroxime axetil	cefuroxime axetil
cefuroxime axetil	Ceftin
cephalexin	cephalexin
cephalexin	Keflex
cephalexin	Daxbia
cephalexin	Panixine DisperDose
ciprofloxacin	Cipro
ciprofloxacin	ciprofloxacin
ciprofloxacin HCl	Cipro
ciprofloxacin HCl	ciprofloxacin HCl
ciprofloxacin HCl	ProQuin XR
ciprofloxacin/ciprofloxacin HCl	Cipro XR
ciprofloxacin/ciprofloxacin HCl	ciprofloxacin (mixture)
clarithromycin	clarithromycin
clarithromycin	Biaxin
clarithromycin	Biaxin XL
clarithromycin	Biaxin XL Pak
<i>CLARITHROMYCIN</i>	<i>Clarithromycin Extended-Release</i>
colloidal bismuth subcitrate/metronidazole/tetracycline HCl	Pylera
demeclocycline HCl	demeclocycline
demeclocycline HCl	Declomycin
dicloxacillin sodium	dicloxacillin
<i>Doxycycline</i>	<i>Doxycycline</i>
<i>DOXYCYCLINE</i>	<i>ORACEA</i>
<i>Doxycycline</i>	<i>Doxycycline Monohydrate</i>
<i>doxycycline</i>	<i>Adoxa</i>
<i>doxycycline</i>	<i>Monodox</i>
<i>Doxycycline</i>	<i>Doxycycline Hyclate</i>
<i>doxycycline</i>	<i>Okebo</i>
<i>Doxycycline</i>	<i>Mondoxyne</i>
<i>Doxycycline</i>	<i>Mondoxyne NL 100mg</i>
<i>Doxycycline</i>	<i>Mondoxyne NL</i>
doxycycline calcium	Vibramycin
<i>doxycycline calcium</i>	<i>Vibramycin Calcium</i>
doxycycline hyclate	Vibramycin
doxycycline hyclate	Vibra-Tabs
doxycycline hyclate	doxycycline hyclate
<i>Doxycycline hyclate</i>	<i>Doxycycline</i>
doxycycline hyclate	Periostat
doxycycline hyclate	Doryx
<i>doxycycline hyclate</i>	<i>Acticlate</i>
<i>doxycycline hyclate</i>	<i>Morgidox</i>
<i>Doxycycline Hyclate</i>	<i>DORYX MPC</i>
<i>Doxycycline Hyclate</i>	<i>Ocudox</i>
<i>Doxycycline Hyclate</i>	<i>Doxycycline Hyclate Capsules</i>
<i>doxycycline hyclate</i>	<i>TARGADOX</i>
<i>Doxycycline Hyclate</i>	<i>Doxycyclate Hyclate</i>
doxycycline hyclate	Oraxyl
doxycycline hyclate	Soloxide
doxycycline monohydrate	Vibramycin
doxycycline monohydrate	doxycycline monohydrate
doxycycline monohydrate	Oracea
doxycycline monohydrate	Adoxa

**Appendix C. List of Generic and Brand Drug Names Used to Define Outcomes in this Request**

<b>Generic Name</b>	<b>Brand Name</b>
doxycycline monohydrate	Adoxa Pak
doxycycline monohydrate	Monodox
doxycycline monohydrate	Avidoxy
doxycycline monohydrate	Okebo
doxycycline monohydrate	Mondoxyne NL
doxycycline monohydrate/omega-3 combination no.1/Eye Mask	Nutridox
doxycycline monohydrate/skin cleanser combination no.9	Adoxa TT
doxycycline monohydrate/skin cleanser combination no.9	Adoxa CK
erythromycin base	PCE
erythromycin base	erythromycin
erythromycin base	Ery-Tab
erythromycin base	Eryc
erythromycin base	E-Mycin
erythromycin ethylsuccinate	erythromycin ethylsuccinate
erythromycin ethylsuccinate	E.E.S. 400
erythromycin ethylsuccinate	EryPed 200
erythromycin ethylsuccinate	EryPed
erythromycin ethylsuccinate	EryPed 400
erythromycin ethylsuccinate	E.E.S. 200
erythromycin ethylsuccinate	E.E.S. Granules
erythromycin ethylsuccinate/sulfisoxazole acetyl	erythromycin-sulfisoxazole
erythromycin ethylsuccinate/sulfisoxazole acetyl	Pediazole
erythromycin stearate	Erythrocin (as stearate)
erythromycin stearate	erythromycin stearate
gemifloxacin mesylate	Factive
lansoprazole/amoxicillin trihydrate/clarithromycin	amoxicil-clarithromy-lansopraz
lansoprazole/amoxicillin trihydrate/clarithromycin	Prevpac
levofloxacin	Levaquin
levofloxacin	Levaquin Leva-Pak
levofloxacin	levofloxacin
linezolid	Zyvox
linezolid	linezolid
minocycline HCl	Minocin
minocycline HCl	minocycline
minocycline HCl	Ximino
minocycline HCl	Dynacin
minocycline HCl	Solodyn
minocycline HCl	CoreMino
minocycline HCl	Minolira ER
<i>Moxifloxacin</i>	<i>Moxifloxacin</i>
moxifloxacin HCl	Avelox
moxifloxacin HCl	Avelox ABC Pack
moxifloxacin HCl	moxifloxacin
<i>moxifloxacin hydrochloride</i>	<i>Avelox</i>
<i>moxifloxacin hydrochloride</i>	<i>moxifloxacin hydrochloride</i>
<i>moxifloxacin hydrochloride</i>	<i>Moxifloxacin</i>
<i>Moxifloxacin Hydrochloride Tablets, 400 mg</i>	<i>Moxifloxacin Hydrochloride Tablets, 400 mg</i>
ofloxacin	ofloxacin
ofloxacin	Floxin
omeprazole/clarithromycin/amoxicillin trihydrate	Omeclamox-Pak
penicillin G benzathine	Bicillin L-A
penicillin G benzathine/penicillin G procaine	Bicillin C-R
penicillin V potassium	penicillin V potassium



**Appendix C. List of Generic and Brand Drug Names Used to Define Outcomes in this Request**

---

<b>Generic Name</b>	<b>Brand Name</b>
penicillin V potassium	Veetids
<i>Sulfamethoxazole and Trimethoprim</i>	<i>Sulfamethoxazole and Trimethoprim</i>
<i>Sulfamethoxazole and Trimethoprim</i>	SULFATRIM
<i>sulfamethoxazole and Trimethoprim</i>	Bactrim
<i>sulfamethoxazole and Trimethoprim</i>	Bactrim DS
<i>Sulfamethoxazole and Trimethoprim DS</i>	<i>Sulfamethoxazole and Trimethoprim DS</i>
<i>SULFAMETHOXAZOLE, TRIMETHOPRIM</i>	<i>Sulfamethox-TMP DS</i>
sulfamethoxazole/trimethoprim	sulfamethoxazole-trimethoprim
sulfamethoxazole/trimethoprim	Sulfatrim
sulfamethoxazole/trimethoprim	Bactrim DS
sulfamethoxazole/trimethoprim	Bactrim
sulfamethoxazole/trimethoprim	Septra
sulfamethoxazole/trimethoprim	SMZ-TMP DS
sulfamethoxazole/trimethoprim	Sultrex
sulfamethoxazole/trimethoprim	Septra DS
tedizolid phosphate	Sivextro
tetracycline HCl	tetracycline
tetracycline HCl	Sumycin
<i>Tobramycin</i>	<i>Tobramycin</i>
tobramycin in 0.225 % sodium chloride	Tobi
tobramycin in 0.225 % sodium chloride	tobramycin in 0.225 % NaCl

**Appendix D. List of Healthcare Common Procedure Coding System (HCPCS) Codes to Define Outcomes in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Type</b>	<b>Code Category</b>
<b>Oral Corticosteroid (OCS)</b>			
J8540	DEXAMETHASONE ORAL 0.25 MG	HC	Procedure
J0702	INJ BETAMETHASONE AC & PHOS 3 MG	HC	Procedure
J1094	INJECTION DEXAMETHASONE ACTAT 1 MG	HC	Procedure
J1020	Injection, methylprednisolone acetate, 20 mg	HC	Procedure
J1030	Injection, methylprednisolone acetate, 40 mg	HC	Procedure
J1040	Injection, methylprednisolone acetate, 80 mg	HC	Procedure
J2650	Injection, prednisolone acetate, up to 1 ml	HC	Procedure
J3302	Injection, triamcinolone diacetate, per 5 mg	HC	Procedure
J3301	Injection, triamcinolone acetonide, not otherwise specified, 10 mg	HC	Procedure

**Appendix E. List of Generic and Brand Drug Names used to Define Inclusion/Exclusion Criteria in this Request**

<b>Generic Name</b>	<b>Brand Name</b>
<b>Inhaled Corticosteroids (ICS) Mono-Product</b>	
budesonide	budesonide
budesonide	Pulmicort
budesonide	Pulmicort Flexhaler
fluticasone furoate	Arnuity Ellipta
fluticasone propionate	Flovent HFA
fluticasone propionate	Flovent Diskus
mometasone furoate	Asmanex Twisthaler
mometasone furoate	Asmanex HFA
beclomethasone dipropionate	Qvar
beclomethasone dipropionate	Qvar RediHaler
budesonide	Pulmicort Turbuhaler
ciclesonide	Alvesco
fluticasone propionate	ArmonAir RespiClick
<b>ICS and Long-Acting Beta Agonist (LABA) Combination Product</b>	
mometasone furoate/formoterol fumarate	Dulera
fluticasone propionate/salmeterol xinafoate	fluticasone propion-salmeterol
fluticasone propionate/salmeterol xinafoate	Advair Diskus
fluticasone propionate/salmeterol xinafoate	Advair HFA
fluticasone furoate/vilanterol trifenate	Breo Ellipta
budesonide/formoterol fumarate	Symbicort
fluticasone propionate/salmeterol xinafoate	Wixela Inhub
fluticasone propionate/salmeterol xinafoate	AirDuo RespiClick
<b>LABA Mono-Product</b>	
indacaterol maleate	Arcapta Neohaler
olodaterol HCl	Striverdi Respimat
salmeterol xinafoate	Serevent Diskus
arformoterol tartrate	Brovana
formoterol fumarate	Foradil Aerolizer
formoterol fumarate	Perforomist
<b>Long-Acting Muscarinic Antagonist (LAMA) Mono-Product</b>	
umeclidinium bromide	Incruse Ellipta
tiotropium bromide	Spiriva with HandiHaler
tiotropium bromide	Spiriva Respimat
glycopyrrolate	Seebri Neohaler
aclidinium bromide	Tudorza Pressair
revefenacin	Yupelri
glycopyrrolate/nebulizer and accessories	Lonhala Magnair Starter
glycopyrrolate/nebulizer accessories	Lonhala Magnair Refill
<b>LABA and LAMA Combination Product</b>	
glycopyrrolate/formoterol fumarate	Bevespi Aerosphere
indacaterol maleate/glycopyrrolate	Utibron Neohaler
tiotropium bromide/olodaterol HCl	Stiolto Respimat
umeclidinium bromide/vilanterol trifenate	Anoro Ellipta
<b>ICS, LABA and LAMA Combination Product</b>	
fluticasone furoate/umeclidinium bromide/vilanterol trifenate	Trelegy Ellipta

**Appendix F. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) diagnosis codes to define inclusion/exclusion criteria in this request**

Code	Description	Code Category	Code Type
<b>Chronic Obstructive Pulmonary Disease (COPD) Exacerbation Codes</b>			
491.21	Obstructive chronic bronchitis, with (acute) exacerbation	Diagnosis	ICD-9-CM
491.22	Obstructive chronic bronchitis with acute bronchitis	Diagnosis	ICD-9-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
<b>COPD Diagnosis Codes</b>			
491.20	Obstructive chronic bronchitis without exacerbation	Diagnosis	ICD-9-CM
491.0	Simple chronic bronchitis	Diagnosis	ICD-9-CM
491.1	Mucopurulent chronic 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
496	Chronic airway obstruction, not elsewhere classified	Diagnosis	ICD-9-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
J44.9	Chronic obstructive pulmonary disease, unspecified	Diagnosis	ICD-10-CM
<b>Asthma Exacerbation Codes</b>			
493.01	Extrinsic asthma with status asthmaticus	Diagnosis	ICD-9-CM
493.02	Extrinsic asthma, with (acute) exacerbation	Diagnosis	ICD-9-CM
493.11	Intrinsic asthma with status asthmaticus	Diagnosis	ICD-9-CM
493.12	Intrinsic asthma, with (acute) exacerbation	Diagnosis	ICD-9-CM
493.91	Asthma, unspecified with status asthmaticus	Diagnosis	ICD-9-CM
493.92	Asthma, unspecified, with (acute) exacerbation	Diagnosis	ICD-9-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
J45.31	Mild persistent asthma with (acute) exacerbation	Diagnosis	ICD-10-CM
J45.32	Mild persistent asthma with status asthmaticus	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
J45.51	Severe persistent asthma with (acute) exacerbation	Diagnosis	ICD-10-CM
J45.52	Severe persistent asthma with status asthmaticus	Diagnosis	ICD-10-CM
J45.901	Unspecified asthma with (acute) exacerbation	Diagnosis	ICD-10-CM
J45.902	Unspecified asthma with status asthmaticus	Diagnosis	ICD-10-CM
<b>Asthma Diagnosis Codes</b>			
493.00	Extrinsic asthma, unspecified	Diagnosis	ICD-9-CM
493.10	Intrinsic asthma, unspecified	Diagnosis	ICD-9-CM
493.20	Chronic obstructive asthma, unspecified ICD-9-CM	Diagnosis	ICD-9-CM

**Appendix F. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) diagnosis codes to define inclusion/exclusion criteria in this request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
493.21	Chronic obstructive asthma with status asthmaticus ICD-9-CM	Diagnosis	ICD-9-CM
493.22	Chronic obstructive asthma, with (acute) exacerbation ICD-9-CM	Diagnosis	ICD-9-CM
493.82	Cough variant asthma	Diagnosis	ICD-9-CM
493.90	Asthma, unspecified, unspecified status	Diagnosis	ICD-9-CM
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
J45.3	Mild persistent asthma	Diagnosis	ICD-10-CM
J45.30	Mild persistent asthma, uncomplicated	Diagnosis	ICD-10-CM
J45.4	Moderate persistent asthma	Diagnosis	ICD-10-CM
J45.40	Moderate persistent asthma, uncomplicated	Diagnosis	ICD-10-CM
J45.5	Severe persistent asthma	Diagnosis	ICD-10-CM
J45.50	Severe persistent asthma, uncomplicated	Diagnosis	ICD-10-CM
J45.9	Other and unspecified asthma	Diagnosis	ICD-10-CM
J45.90	Unspecified asthma	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
<b>Alpha-1-Antitrypsin Deficiency</b>			
273.4	Alpha-1-antitrypsin deficiency	Diagnosis	ICD-9-CM
E88.01	Alpha-1-antitrypsin deficiency	Diagnosis	ICD-10-CM
<b>Bronchiectasis</b>			
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
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

**Appendix F. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) diagnosis codes to define inclusion/exclusion criteria in this request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
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
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

**Appendix F. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) diagnosis codes to define inclusion/exclusion criteria in this request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
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

**Appendix F. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) diagnosis codes to define inclusion/exclusion criteria in this request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
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
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
<b>Cystic Fibrosis</b>			
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
<b>Sarcoidosis</b>			
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



**Appendix F. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) diagnosis codes to define inclusion/exclusion criteria in this request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
D8685	Sarcoid myocarditis	Diagnosis	ICD-10-CM
D8686	Sarcoid arthropathy	Diagnosis	ICD-10-CM
D8687	Sarcoid myositis	Diagnosis	ICD-10-CM
D8689	Sarcoidosis of other sites	Diagnosis	ICD-10-CM
D869	Sarcoidosis, unspecified	Diagnosis	ICD-10-CM
135	Sarcoidosis	Diagnosis	ICD-9-CM
<b>Interstitial Lung Disease (ILD), Pneumoconiosis and Miscellaneous Lung Diseases</b>			
J84	Other interstitial pulmonary diseases	Diagnosis	ICD-10-CM
J84.0	Alveolar and parieto-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	Idiopathic interstitial pneumonia, 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
J84.115	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	Other interstitial pulmonary diseases with fibrosis 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
J84.84	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
J84.848	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

**Appendix F. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) diagnosis codes to define inclusion/exclusion criteria in this request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
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
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 glycogenesis	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
502	Pneumoconiosis due to other silica or silicates	Diagnosis	ICD-9-CM
503	Pneumoconiosis due to other inorganic dust	Diagnosis	ICD-9-CM
<b>Other Lung Diseases</b>			
011	Pulmonary tuberculosis	Diagnosis	ICD-9-CM
012	Other respiratory tuberculosis	Diagnosis	ICD-9-CM
495	Extrinsic allergic alveolitis	Diagnosis	ICD-9-CM
510.0	Empyema with fistula	Diagnosis	ICD-9-CM
510.9	Empyema without mention of fistula	Diagnosis	ICD-9-CM
511.0	Pleurisy without mention of effusion or current tuberculosis	Diagnosis	ICD-9-CM

**Appendix F. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) diagnosis codes to define inclusion/exclusion criteria in this request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
511.1	Pleurisy with effusion, with mention of bacterial cause other than tuberculosis	Diagnosis	ICD-9-CM
511.8	Other specified forms of pleural effusion, except tuberculous	Diagnosis	ICD-9-CM
511.81	Malignant pleural effusion	Diagnosis	ICD-9-CM
511.89	Other specified forms of effusion, except tuberculous	Diagnosis	ICD-9-CM
511.9	Unspecified pleural effusion	Diagnosis	ICD-9-CM
512.0	Spontaneous tension pneumothorax	Diagnosis	ICD-9-CM
512.1	Iatrogenic pneumothorax	Diagnosis	ICD-9-CM
512.2	Postoperative air leak	Diagnosis	ICD-9-CM
512.8	Other pneumothorax and air leak	Diagnosis	ICD-9-CM
512.81	Primary spontaneous pneumothorax	Diagnosis	ICD-9-CM
512.82	Secondary spontaneous pneumothorax	Diagnosis	ICD-9-CM
512.83	Chronic pneumothorax	Diagnosis	ICD-9-CM
512.84	Other air leak	Diagnosis	ICD-9-CM
512.89	Other pneumothorax	Diagnosis	ICD-9-CM
513.0	Abscess of lung	Diagnosis	ICD-9-CM
513.1	Abscess of mediastinum	Diagnosis	ICD-9-CM
516.3	Idiopathic interstitial pneumonia	Diagnosis	ICD-9-CM
516.6	Interstitial lung diseases of childhood	Diagnosis	ICD-9-CM
517.1	Rheumatic pneumonia	Diagnosis	ICD-9-CM
517.2	Lung involvement in systemic sclerosis	Diagnosis	ICD-9-CM
517.3	Acute chest syndrome	Diagnosis	ICD-9-CM
517.8	Lung involvement in other diseases classified elsewhere	Diagnosis	ICD-9-CM
518.0	Pulmonary collapse	Diagnosis	ICD-9-CM
518.1	Interstitial emphysema	Diagnosis	ICD-9-CM
518.2	Compensatory emphysema	Diagnosis	ICD-9-CM
518.3	Pulmonary eosinophilia	Diagnosis	ICD-9-CM
518.4	Unspecified acute edema of lung	Diagnosis	ICD-9-CM
518.5	Pulmonary insufficiency following trauma and surgery	Diagnosis	ICD-9-CM
518.51	Acute respiratory failure following trauma and surgery	Diagnosis	ICD-9-CM
518.52	Other pulmonary insufficiency, not elsewhere classified, following trauma and surgery	Diagnosis	ICD-9-CM
518.53	Acute and chronic respiratory failure following trauma and surgery	Diagnosis	ICD-9-CM
518.6	Allergic bronchopulmonary aspergillosis	Diagnosis	ICD-9-CM
518.7	Transfusion related acute lung injury [TRALI]	Diagnosis	ICD-9-CM
518.8	Other diseases of lung	Diagnosis	ICD-9-CM
518.81	Acute respiratory failure	Diagnosis	ICD-9-CM
518.82	Other pulmonary insufficiency, not elsewhere classified	Diagnosis	ICD-9-CM
518.83	Chronic respiratory failure	Diagnosis	ICD-9-CM
518.84	Acute and chronic respiratory failure	Diagnosis	ICD-9-CM
518.89	Other diseases of lung, not elsewhere classified	Diagnosis	ICD-9-CM
519.0	Tracheostomy complications	Diagnosis	ICD-9-CM
519.00	Unspecified tracheostomy complication	Diagnosis	ICD-9-CM
519.01	Infection of tracheostomy	Diagnosis	ICD-9-CM
519.02	Mechanical complication of tracheostomy	Diagnosis	ICD-9-CM
519.09	Other tracheostomy complications	Diagnosis	ICD-9-CM

**Appendix F. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) diagnosis codes to define inclusion/exclusion criteria in this request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
519.1	Other diseases of trachea and bronchus, not elsewhere classified	Diagnosis	ICD-9-CM
519.11	Acute bronchospasm	Diagnosis	ICD-9-CM
519.19	Other diseases of trachea and bronchus	Diagnosis	ICD-9-CM
519.2	Mediastinitis	Diagnosis	ICD-9-CM
519.3	Other diseases of mediastinum, not elsewhere classified	Diagnosis	ICD-9-CM
519.4	Disorders of diaphragm	Diagnosis	ICD-9-CM
519.8	Other diseases of respiratory system, not elsewhere classified	Diagnosis	ICD-9-CM
519.9	Unspecified disease of respiratory system	Diagnosis	ICD-9-CM
J18.2	Hypostatic pneumonia, unspecified organism	Diagnosis	ICD-10-CM
J81.1	Chronic pulmonary edema	Diagnosis	ICD-10-CM
J84.10	Pulmonary fibrosis, unspecified	Diagnosis	ICD-10-CM
B44.81	Allergic bronchopulmonary aspergillosis	Diagnosis	ICD-10-CM
D57.01	Hb-SS disease with acute chest syndrome	Diagnosis	ICD-10-CM
D57.211	Sickle-cell/Hb-C disease with acute chest syndrome	Diagnosis	ICD-10-CM
D57.411	Sickle-cell thalassemia with acute chest syndrome	Diagnosis	ICD-10-CM
D57.811	Other sickle-cell disorders with acute chest syndrome	Diagnosis	ICD-10-CM
J17	Pneumonia in diseases classified elsewhere	Diagnosis	ICD-10-CM
J22	Unspecified acute lower respiratory infection	Diagnosis	ICD-10-CM
J39.8	Other specified diseases of upper respiratory tract	Diagnosis	ICD-10-CM
J80	Acute respiratory distress syndrome	Diagnosis	ICD-10-CM
J81.0	Acute pulmonary edema	Diagnosis	ICD-10-CM
J82	Pulmonary eosinophilia, not elsewhere classified	Diagnosis	ICD-10-CM
J85.0	Gangrene and necrosis of lung	Diagnosis	ICD-10-CM
J85.1	Abscess of lung with pneumonia	Diagnosis	ICD-10-CM
J85.2	Abscess of lung without pneumonia	Diagnosis	ICD-10-CM
J85.3	Abscess of mediastinum	Diagnosis	ICD-10-CM
J86.0	Pyothorax with fistula	Diagnosis	ICD-10-CM
J86.9	Pyothorax without fistula	Diagnosis	ICD-10-CM
J90	Pleural effusion, not elsewhere classified	Diagnosis	ICD-10-CM
J91.0	Malignant pleural effusion	Diagnosis	ICD-10-CM
J91.8	Pleural effusion in other conditions classified elsewhere	Diagnosis	ICD-10-CM
J92.0	Pleural plaque with presence of asbestos	Diagnosis	ICD-10-CM
J92.9	Pleural plaque without asbestos	Diagnosis	ICD-10-CM
J93.0	Spontaneous tension pneumothorax	Diagnosis	ICD-10-CM
J93.11	Primary spontaneous pneumothorax	Diagnosis	ICD-10-CM
J93.12	Secondary spontaneous pneumothorax	Diagnosis	ICD-10-CM
J93.81	Chronic pneumothorax	Diagnosis	ICD-10-CM
J93.82	Other air leak	Diagnosis	ICD-10-CM
J93.83	Other pneumothorax	Diagnosis	ICD-10-CM
J93.9	Pneumothorax, unspecified	Diagnosis	ICD-10-CM
J94.0	Chylous effusion	Diagnosis	ICD-10-CM
J94.1	Fibrothorax	Diagnosis	ICD-10-CM
J94.2	Hemothorax	Diagnosis	ICD-10-CM
J94.8	Other specified pleural conditions	Diagnosis	ICD-10-CM
J94.9	Pleural condition, unspecified	Diagnosis	ICD-10-CM
J95.00	Unspecified tracheostomy complication	Diagnosis	ICD-10-CM

**Appendix F. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) diagnosis codes to define inclusion/exclusion criteria in this request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
J95.01	Hemorrhage from tracheostomy stoma	Diagnosis	ICD-10-CM
J95.02	Infection of tracheostomy stoma	Diagnosis	ICD-10-CM
J95.03	Malfunction of tracheostomy stoma	Diagnosis	ICD-10-CM
J95.04	Tracheo-esophageal fistula following tracheostomy	Diagnosis	ICD-10-CM
J95.09	Other tracheostomy complication	Diagnosis	ICD-10-CM
J95.1	Acute pulmonary insufficiency following thoracic surgery	Diagnosis	ICD-10-CM
J95.2	Acute pulmonary insufficiency following nonthoracic surgery	Diagnosis	ICD-10-CM
J95.3	Chronic pulmonary insufficiency following surgery	Diagnosis	ICD-10-CM
J95.811	Postprocedural pneumothorax	Diagnosis	ICD-10-CM
J95.812	Postprocedural air leak	Diagnosis	ICD-10-CM
J95.821	Acute postprocedural respiratory failure	Diagnosis	ICD-10-CM
J95.822	Acute and chronic postprocedural respiratory failure	Diagnosis	ICD-10-CM
J95.84	Transfusion-related acute lung injury (TRALI)	Diagnosis	ICD-10-CM
J96.00	Acute respiratory failure, unspecified whether with hypoxia or hypercapnia	Diagnosis	ICD-10-CM
J96.01	Acute respiratory failure with hypoxia	Diagnosis	ICD-10-CM
J96.02	Acute respiratory failure with hypercapnia	Diagnosis	ICD-10-CM
J96.10	Chronic respiratory failure, unspecified whether with hypoxia or hypercapnia	Diagnosis	ICD-10-CM
J96.11	Chronic respiratory failure with hypoxia	Diagnosis	ICD-10-CM
J96.12	Chronic respiratory failure with hypercapnia	Diagnosis	ICD-10-CM
J96.20	Acute and chronic respiratory failure, unspecified whether with hypoxia or hypercapnia	Diagnosis	ICD-10-CM
J96.21	Acute and chronic respiratory failure with hypoxia	Diagnosis	ICD-10-CM
J96.22	Acute and chronic respiratory failure with hypercapnia	Diagnosis	ICD-10-CM
J96.90	Respiratory failure, unspecified, unspecified whether with hypoxia or hypercapnia	Diagnosis	ICD-10-CM
J96.91	Respiratory failure, unspecified with hypoxia	Diagnosis	ICD-10-CM
J96.92	Respiratory failure, unspecified with hypercapnia	Diagnosis	ICD-10-CM
J98.01	Acute bronchospasm	Diagnosis	ICD-10-CM
J98.09	Other diseases of bronchus, not elsewhere classified	Diagnosis	ICD-10-CM
J98.11	Atelectasis	Diagnosis	ICD-10-CM
J98.19	Other pulmonary collapse	Diagnosis	ICD-10-CM
J98.2	Interstitial emphysema	Diagnosis	ICD-10-CM
J98.3	Compensatory emphysema	Diagnosis	ICD-10-CM
J98.4	Other disorders of lung	Diagnosis	ICD-10-CM
J98.51	Mediastinitis	Diagnosis	ICD-10-CM
J98.59	Other diseases of mediastinum, not elsewhere classified	Diagnosis	ICD-10-CM
J98.6	Disorders of diaphragm	Diagnosis	ICD-10-CM
J98.8	Other specified respiratory disorders	Diagnosis	ICD-10-CM
J98.9	Respiratory disorder, unspecified	Diagnosis	ICD-10-CM
J99	Respiratory disorders in diseases classified elsewhere	Diagnosis	ICD-10-CM
M32.13	Lung involvement in systemic lupus erythematosus	Diagnosis	ICD-10-CM
M33.01	Juvenile dermatomyositis with respiratory involvement	Diagnosis	ICD-10-CM
M33.11	Other dermatomyositis with respiratory involvement	Diagnosis	ICD-10-CM
M33.21	Polymyositis with respiratory involvement	Diagnosis	ICD-10-CM
M33.91	Dermatopolymyositis, unspecified with respiratory involvement	Diagnosis	ICD-10-CM
M34.81	Systemic sclerosis with lung involvement	Diagnosis	ICD-10-CM

**Appendix F. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) diagnosis codes to define inclusion/exclusion criteria in this request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
M35.02	Sicca syndrome with lung involvement	Diagnosis	ICD-10-CM
R06.03	Acute respiratory distress	Diagnosis	ICD-10-CM
R09.1	Pleurisy	Diagnosis	ICD-10-CM
<b>Heart Failure</b>			
402.01	Malignant hypertensive heart disease with heart failure	Diagnosis	ICD-9-CM
402.11	Benign hypertensive heart disease with heart failure	Diagnosis	ICD-9-CM
402.91	Hypertensive heart disease, unspecified, with heart failure	Diagnosis	ICD-9-CM
404.01	Hypertensive heart and chronic kidney disease, malignant, with heart failure and with chronic kidney disease stage I through stage IV, or unspecified	Diagnosis	ICD-9-CM
404.03	Hypertensive heart and chronic kidney disease, malignant, with heart failure and with chronic kidney disease stage V or end stage renal disease	Diagnosis	ICD-9-CM
404.11	Hypertensive heart and chronic kidney disease, benign, with heart failure and with chronic kidney disease stage I through stage IV, or unspecified	Diagnosis	ICD-9-CM
404.13	Hypertensive heart and chronic kidney disease, benign, with heart failure and chronic kidney disease stage V or end stage renal disease	Diagnosis	ICD-9-CM
404.91	Hypertensive heart and chronic kidney disease, unspecified, with heart failure and with chronic kidney disease stage I through stage IV, or unspecified	Diagnosis	ICD-9-CM
404.93	Hypertensive heart and chronic kidney disease, unspecified, with heart failure and chronic kidney disease stage V or end stage renal disease	Diagnosis	ICD-9-CM
428	Heart failure	Diagnosis	ICD-9-CM
428	Congestive heart failure, unspecified	Diagnosis	ICD-9-CM
428.1	Left heart failure	Diagnosis	ICD-9-CM
428.2	Systolic heart failure	Diagnosis	ICD-9-CM
428.2	Unspecified systolic heart failure	Diagnosis	ICD-9-CM
428.21	Acute systolic heart failure	Diagnosis	ICD-9-CM
428.22	Chronic systolic heart failure	Diagnosis	ICD-9-CM
428.23	Acute on chronic systolic heart failure	Diagnosis	ICD-9-CM
428.3	Diastolic heart failure	Diagnosis	ICD-9-CM
428.3	Unspecified diastolic heart failure	Diagnosis	ICD-9-CM
428.31	Acute diastolic heart failure	Diagnosis	ICD-9-CM
428.32	Chronic diastolic heart failure	Diagnosis	ICD-9-CM
428.33	Acute on chronic diastolic heart failure	Diagnosis	ICD-9-CM
428.4	Combined systolic and diastolic heart failure	Diagnosis	ICD-9-CM
428.4	Unspecified combined systolic and diastolic heart failure	Diagnosis	ICD-9-CM
428.41	Acute combined systolic and diastolic heart failure	Diagnosis	ICD-9-CM
428.42	Chronic combined systolic and diastolic heart failure	Diagnosis	ICD-9-CM
428.43	Acute on chronic combined systolic and diastolic heart failure	Diagnosis	ICD-9-CM
428.9	Unspecified heart failure	Diagnosis	ICD-9-CM
I11.0	Hypertensive heart disease with heart failure	Diagnosis	ICD-10-CM
I13.0	Hypertensive heart and chronic kidney disease with heart failure and stage 1 through stage 4 chronic kidney disease, or unspecified chronic kidney disease	Diagnosis	ICD-10-CM
I13.2	Hypertensive heart and chronic kidney disease with heart failure and with stage 5 chronic kidney disease, or end stage renal disease	Diagnosis	ICD-10-CM
I50.1	Left ventricular failure, unspecified	Diagnosis	ICD-10-CM
I50.20	Unspecified systolic (congestive) heart failure	Diagnosis	ICD-10-CM

**Appendix F. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) diagnosis codes to define inclusion/exclusion criteria in this request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
I50.21	Acute systolic (congestive) heart failure	Diagnosis	ICD-10-CM
I50.22	Chronic systolic (congestive) heart failure	Diagnosis	ICD-10-CM
I50.23	Acute on chronic systolic (congestive) heart failure	Diagnosis	ICD-10-CM
I50.30	Unspecified diastolic (congestive) heart failure	Diagnosis	ICD-10-CM
I50.31	Acute diastolic (congestive) heart failure	Diagnosis	ICD-10-CM
I50.32	Chronic diastolic (congestive) heart failure	Diagnosis	ICD-10-CM
I50.33	Acute on chronic diastolic (congestive) heart failure	Diagnosis	ICD-10-CM
I50.40	Unspecified combined systolic (congestive) and diastolic (congestive) heart failure	Diagnosis	ICD-10-CM
I50.41	Acute combined systolic (congestive) and diastolic (congestive) heart failure	Diagnosis	ICD-10-CM
I50.42	Chronic combined systolic (congestive) and diastolic (congestive) heart failure	Diagnosis	ICD-10-CM
I50.43	Acute on chronic combined systolic (congestive) and diastolic (congestive) heart failure	Diagnosis	ICD-10-CM
I50.810	Right heart failure, unspecified	Diagnosis	ICD-10-CM
I50.811	Acute right heart failure	Diagnosis	ICD-10-CM
I50.812	Chronic right heart failure	Diagnosis	ICD-10-CM
I50.813	Acute on chronic right heart failure	Diagnosis	ICD-10-CM
I50.814	Right heart failure due to left heart failure	Diagnosis	ICD-10-CM
I50.82	Biventricular heart failure	Diagnosis	ICD-10-CM
I50.83	High output heart failure	Diagnosis	ICD-10-CM
I50.84	End stage heart failure	Diagnosis	ICD-10-CM
I50.89	Other heart failure	Diagnosis	ICD-10-CM
I50.9	Heart failure, unspecified	Diagnosis	ICD-10-CM
<b>Cardiac Arrhythmia</b>			
426.0	Atrioventricular block	Diagnosis	ICD-9-CM
426.1	Atrioventricular block other and unspecified	Diagnosis	ICD-9-CM
426.1	Atrioventricular block, unspecified	Diagnosis	ICD-9-CM
426.11	First degree atrioventricular block	Diagnosis	ICD-9-CM
426.12	Mobitz (type) II atrioventricular block	Diagnosis	ICD-9-CM
426.13	Other second degree atrioventricular block	Diagnosis	ICD-9-CM
426.6	Other heart block	Diagnosis	ICD-9-CM
426.7	Anomalous atrioventricular excitation	Diagnosis	ICD-9-CM
426.81	Lown-Ganong-Levine syndrome	Diagnosis	ICD-9-CM
426.82	Long QT syndrome	Diagnosis	ICD-9-CM
427	Cardiac dysrhythmias	Diagnosis	ICD-9-CM
427.0	Paroxysmal supraventricular tachycardia	Diagnosis	ICD-9-CM
427.1	Paroxysmal ventricular tachycardia	Diagnosis	ICD-9-CM
427.2	Paroxysmal tachycardia, unspecified	Diagnosis	ICD-9-CM
427.3	Atrial fibrillation and flutter	Diagnosis	ICD-9-CM
427.31	Atrial fibrillation	Diagnosis	ICD-9-CM
427.32	Atrial flutter	Diagnosis	ICD-9-CM
427.4	Ventricular fibrillation and flutter	Diagnosis	ICD-9-CM
427.41	Ventricular fibrillation	Diagnosis	ICD-9-CM
427.42	Ventricular flutter	Diagnosis	ICD-9-CM
427.5	Cardiac arrest	Diagnosis	ICD-9-CM

**Appendix F. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) diagnosis codes to define inclusion/exclusion criteria in this request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
427.81	Sinoatrial node dysfunction	Diagnosis	ICD-9-CM
785.0	Tachycardia, unspecified	Diagnosis	ICD-9-CM
I44.2	ATRIOVENTRICULAR BLOCK COMPLETE	Diagnosis	ICD-10-CM
I44.30	UNSPECIFIED ATRIOVENTRICULAR BLOCK	Diagnosis	ICD-10-CM
I44.0	ATRIOVENTRICULAR BLOCK FIRST DEGREE	Diagnosis	ICD-10-CM
I44.1	ATRIOVENTRICULAR BLOCK SECOND DEG	Diagnosis	ICD-10-CM
I45.5	OTHER SPECIFIED HEART BLOCK	Diagnosis	ICD-10-CM
I45.6	PRE-EXCITATION SYNDROME	Diagnosis	ICD-10-CM
I45.81	LONG QT SYNDROME	Diagnosis	ICD-10-CM
I47.1	SUPRAVENTRICULAR TACHYCARDIA	Diagnosis	ICD-10-CM
I47.2	VENTRICULAR TACHYCARDIA	Diagnosis	ICD-10-CM
I47.9	PAROXYSMAL TACHYCARDIA UNSPECIFIED	Diagnosis	ICD-10-CM
I48.91	UNSPECIFIED ATRIAL FIBRILLATION	Diagnosis	ICD-10-CM
I48.92	UNSPECIFIED ATRIAL FLUTTER	Diagnosis	ICD-10-CM
I49.01	VENTRICULAR FIBRILLATION	Diagnosis	ICD-10-CM
I49.02	VENTRICULAR FLUTTER	Diagnosis	ICD-10-CM
I46.9	CARDIAC ARREST CAUSE UNSPECIFIED	Diagnosis	ICD-10-CM
I49.5	SICK SINUS SYNDROME	Diagnosis	ICD-10-CM
R00.1	BRADYCARDIA UNSPECIFIED	Diagnosis	ICD-10-CM
R00.0	TACHYCARDIA UNSPECIFIED	Diagnosis	ICD-10-CM
I48	Atrial fibrillation and flutter	Diagnosis	ICD-10-CM
I49.0	Ventricular fibrillation and flutter	Diagnosis	ICD-10-CM
I44.3	Other and unspecified atrioventricular block	Diagnosis	ICD-10-CM
<b>Acute Myocardial Infarction and Angina</b>			
410.7	Acute myocardial infarction, subendocardial infarction, episode of care	Diagnosis	ICD-9-CM
410.71	Acute myocardial infarction, subendocardial infarction, initial episode of care	Diagnosis	ICD-9-CM
410.8	Acute myocardial infarction of other specified sites, episode of care	Diagnosis	ICD-9-CM
410.81	Acute myocardial infarction of other specified sites, initial episode of care	Diagnosis	ICD-9-CM
410.9	Acute myocardial infarction, unspecified site, episode of care unspecified	Diagnosis	ICD-9-CM
410.91	Acute myocardial infarction, unspecified site, initial episode of care	Diagnosis	ICD-9-CM
I21.01	ST elevation (STEMI) myocardial infarction involving left main coronary artery	Diagnosis	ICD-10-CM
I21.02	ST elevation (STEMI) myocardial infarction involving left anterior descending	Diagnosis	ICD-10-CM
I21.09	ST elevation (STEMI) myocardial infarction involving other coronary artery of	Diagnosis	ICD-10-CM
I21.11	ST elevation (STEMI) myocardial infarction involving right coronary artery	Diagnosis	ICD-10-CM
I21.19	ST elevation (STEMI) myocardial infarction involving other coronary artery of	Diagnosis	ICD-10-CM
I21.21	ST elevation (STEMI) myocardial infarction involving left circumflex coronary	Diagnosis	ICD-10-CM
I21.29	ST elevation (STEMI) myocardial infarction involving other sites	Diagnosis	ICD-10-CM
I21.3	ST elevation (STEMI) myocardial infarction of unspecified site	Diagnosis	ICD-10-CM
I21.4	Non-ST elevation (NSTEMI) myocardial infarction	Diagnosis	ICD-10-CM
I21.9	Acute myocardial infarction, unspecified	Diagnosis	ICD-10-CM
I21.A1	Myocardial infarction type 2	Diagnosis	ICD-10-CM
I21.A9	Other myocardial infarction type	Diagnosis	ICD-10-CM
I22.0	Subsequent ST elevation (STEMI) myocardial infarction of anterior wall	Diagnosis	ICD-10-CM
I22.1	Subsequent ST elevation (STEMI) myocardial infarction of inferior wall	Diagnosis	ICD-10-CM
I22.2	Subsequent non-ST elevation (NSTEMI) myocardial infarction	Diagnosis	ICD-10-CM
I22.8	Subsequent ST elevation (STEMI) myocardial infarction of other sites	Diagnosis	ICD-10-CM



**Appendix F. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) diagnosis codes to define inclusion/exclusion criteria in this request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
I22.9	Subsequent ST elevation (STEMI) myocardial infarction of unspecified site	Diagnosis	ICD-10-CM
I20	Angina pectoris	Diagnosis	ICD-10-CM
I20.0	Unstable angina	Diagnosis	ICD-10-CM
I20.1	Angina pectoris with documented spasm	Diagnosis	ICD-10-CM
I20.8	Other forms of angina pectoris	Diagnosis	ICD-10-CM
I20.9	Angina pectoris, unspecified	Diagnosis	ICD-10-CM
411.1	INTERMEDIATE CORONARY SYNDROME	Diagnosis	ICD-9-CM
413	Angina decubitus	Diagnosis	ICD-9-CM
413.1	PRINZMETAL ANGINA	Diagnosis	ICD-9-CM
413.9	OTHER&UNSPECIFIED ANGINA PECTORIS	Diagnosis	ICD-9-CM
413	Angina pectoris	Diagnosis	ICD-9-CM
<b>Pneumonia</b>			
480	Viral pneumonia	Diagnosis	ICD-9-CM
480	Pneumonia due to adenovirus	Diagnosis	ICD-9-CM
480.1	Pneumonia due to respiratory syncytial virus	Diagnosis	ICD-9-CM
480.2	Pneumonia due to parainfluenza virus	Diagnosis	ICD-9-CM
480.3	Pneumonia due to SARS-associated coronavirus	Diagnosis	ICD-9-CM
480.8	Pneumonia due to other virus not elsewhere classified	Diagnosis	ICD-9-CM
480.9	Unspecified viral pneumonia	Diagnosis	ICD-9-CM
481	Pneumococcal pneumonia (streptococcus pneumoniae pneumonia)	Diagnosis	ICD-9-CM
482	Other bacterial pneumonia	Diagnosis	ICD-9-CM
482	Pneumonia due to Klebsiella pneumoniae	Diagnosis	ICD-9-CM
482.1	Pneumonia due to Pseudomonas	Diagnosis	ICD-9-CM
482.2	Pneumonia due to Hemophilus influenzae (H. influenzae)	Diagnosis	ICD-9-CM
482.3	Pneumonia due to Streptococcus	Diagnosis	ICD-9-CM
482.3	Pneumonia due to unspecified Streptococcus	Diagnosis	ICD-9-CM
482.31	Pneumonia due to Streptococcus, group A	Diagnosis	ICD-9-CM
482.32	Pneumonia due to Streptococcus, group B	Diagnosis	ICD-9-CM
482.39	Pneumonia due to other Streptococcus	Diagnosis	ICD-9-CM
482.4	Pneumonia due to Staphylococcus	Diagnosis	ICD-9-CM
482.4	Pneumonia due to Staphylococcus, unspecified	Diagnosis	ICD-9-CM
482.41	Methicillin susceptible pneumonia due to Staphylococcus aureus	Diagnosis	ICD-9-CM
482.42	Methicillin resistant pneumonia due to Staphylococcus aureus	Diagnosis	ICD-9-CM
482.49	Other Staphylococcus pneumonia	Diagnosis	ICD-9-CM
482.8	Pneumonia due to other specified bacteria	Diagnosis	ICD-9-CM
482.81	Pneumonia due to anaerobes	Diagnosis	ICD-9-CM
482.82	Pneumonia due to Escherichia coli (E. coli)	Diagnosis	ICD-9-CM
482.83	Pneumonia due to other gram-negative bacteria	Diagnosis	ICD-9-CM
482.84	Legionnaires' disease	Diagnosis	ICD-9-CM
482.89	Pneumonia due to other specified bacteria	Diagnosis	ICD-9-CM
482.9	Unspecified bacterial pneumonia	Diagnosis	ICD-9-CM
483	Pneumonia due to other specified organism	Diagnosis	ICD-9-CM
483	Pneumonia due to Mycoplasma pneumoniae	Diagnosis	ICD-9-CM
483.1	Pneumonia due to Chlamydia	Diagnosis	ICD-9-CM
483.8	Pneumonia due to other specified organism	Diagnosis	ICD-9-CM
484	Pneumonia in infectious diseases classified elsewhere	Diagnosis	ICD-9-CM
484.1	Pneumonia in cytomegalic inclusion disease	Diagnosis	ICD-9-CM

**Appendix F. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) diagnosis codes to define inclusion/exclusion criteria in this request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
484.3	Pneumonia in whooping cough	Diagnosis	ICD-9-CM
484.5	Pneumonia in anthrax	Diagnosis	ICD-9-CM
484.6	Pneumonia in aspergillosis	Diagnosis	ICD-9-CM
484.7	Pneumonia in other systemic mycoses	Diagnosis	ICD-9-CM
484.8	Pneumonia in other infectious diseases classified elsewhere	Diagnosis	ICD-9-CM
485	Bronchopneumonia, organism unspecified	Diagnosis	ICD-9-CM
486	Pneumonia, organism unspecified	Diagnosis	ICD-9-CM
487	Influenza with pneumonia	Diagnosis	ICD-9-CM
488.01	Influenza due to identified avian influenza virus with pneumonia	Diagnosis	ICD-9-CM
488.11	Influenza due to identified 2009 H1N1 influenza virus with pneumonia	Diagnosis	ICD-9-CM
488.81	Influenza due to identified novel influenza A virus with pneumonia	Diagnosis	ICD-9-CM
A22.1	Pulmonary anthrax	Diagnosis	ICD-10-CM
A37.01	Whooping cough due to Bordetella pertussis with pneumonia	Diagnosis	ICD-10-CM
A37.11	Whooping cough due to Bordetella parapertussis with pneumonia	Diagnosis	ICD-10-CM
A37.81	Whooping cough due to other Bordetella species with pneumonia	Diagnosis	ICD-10-CM
A37.91	Whooping cough, unspecified species with pneumonia	Diagnosis	ICD-10-CM
A48.1	Legionnaires' disease	Diagnosis	ICD-10-CM
B25.0	Cytomegaloviral pneumonitis	Diagnosis	ICD-10-CM
B44.0	Invasive pulmonary aspergillosis	Diagnosis	ICD-10-CM
B77.81	Ascariasis pneumonia	Diagnosis	ICD-10-CM
J09.X1	Influenza due to identified novel influenza A virus with pneumonia	Diagnosis	ICD-10-CM
J10.00	Influenza due to other identified influenza virus with unspecified type of pneumonia	Diagnosis	ICD-10-CM
J10.01	Influenza due to other identified influenza virus with the same other identified influenza virus pneumonia	Diagnosis	ICD-10-CM
J10.08	Influenza due to other identified influenza virus with other specified pneumonia	Diagnosis	ICD-10-CM
J11.00	Influenza due to unidentified influenza virus with unspecified type of pneumonia	Diagnosis	ICD-10-CM
J11.08	Influenza due to unidentified influenza virus with specified pneumonia	Diagnosis	ICD-10-CM
J12.0	Adenoviral pneumonia	Diagnosis	ICD-10-CM
J12.1	Respiratory syncytial virus pneumonia	Diagnosis	ICD-10-CM
J12.2	Parainfluenza virus pneumonia	Diagnosis	ICD-10-CM
J12.3	Human metapneumovirus pneumonia	Diagnosis	ICD-10-CM
J12.81	Pneumonia due to SARS-associated coronavirus	Diagnosis	ICD-10-CM
J12.89	Other viral pneumonia	Diagnosis	ICD-10-CM
J12.9	Viral pneumonia, unspecified	Diagnosis	ICD-10-CM
J13	Pneumonia due to Streptococcus pneumoniae	Diagnosis	ICD-10-CM
J14	Pneumonia due to Hemophilus influenzae	Diagnosis	ICD-10-CM
J15.0	Pneumonia due to Klebsiella pneumoniae	Diagnosis	ICD-10-CM
J15.1	Pneumonia due to Pseudomonas	Diagnosis	ICD-10-CM
J15.20	Pneumonia due to staphylococcus, unspecified	Diagnosis	ICD-10-CM
J15.211	Pneumonia due to Methicillin susceptible Staphylococcus aureus	Diagnosis	ICD-10-CM
J15.212	Pneumonia due to Methicillin resistant Staphylococcus aureus	Diagnosis	ICD-10-CM
J15.29	Pneumonia due to other staphylococcus	Diagnosis	ICD-10-CM
J15.3	Pneumonia due to streptococcus, group B	Diagnosis	ICD-10-CM

**Appendix F. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) diagnosis codes to define inclusion/exclusion criteria in this request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
J15.4	Pneumonia due to other streptococci	Diagnosis	ICD-10-CM
J15.5	Pneumonia due to Escherichia coli	Diagnosis	ICD-10-CM
J15.6	Pneumonia due to other Gram-negative bacteria	Diagnosis	ICD-10-CM
J15.7	Pneumonia due to Mycoplasma pneumoniae	Diagnosis	ICD-10-CM
J15.8	Pneumonia due to other specified bacteria	Diagnosis	ICD-10-CM
J15.9	Unspecified bacterial pneumonia	Diagnosis	ICD-10-CM
J16.0	Chlamydial pneumonia	Diagnosis	ICD-10-CM
J16.8	Pneumonia due to other specified infectious organisms	Diagnosis	ICD-10-CM
J17	Pneumonia in diseases classified elsewhere	Diagnosis	ICD-10-CM
J18.0	Bronchopneumonia, unspecified organism	Diagnosis	ICD-10-CM
J18.2	Hypostatic pneumonia, unspecified organism	Diagnosis	ICD-10-CM
J18.1	Lobar pneumonia, unspecified organism	Diagnosis	ICD-10-CM
J18.8	Other pneumonia, unspecified organism	Diagnosis	ICD-10-CM
J18.9	Pneumonia, unspecified organism	Diagnosis	ICD-10-CM
J85.1	Abscess of lung with pneumonia	Diagnosis	ICD-10-CM
<b>Pneumothorax</b>			
J93	Pneumothorax and air leak	Diagnosis	ICD-10-CM
J93.0	Spontaneous tension pneumothorax	Diagnosis	ICD-10-CM
J93.1	Other spontaneous pneumothorax	Diagnosis	ICD-10-CM
J93.11	Primary spontaneous pneumothorax	Diagnosis	ICD-10-CM
J93.12	Secondary spontaneous pneumothorax	Diagnosis	ICD-10-CM
J93.8	Other pneumothorax and air leak	Diagnosis	ICD-10-CM
J93.81	Chronic pneumothorax	Diagnosis	ICD-10-CM
J93.82	Other air leak	Diagnosis	ICD-10-CM
J93.83	Other pneumothorax	Diagnosis	ICD-10-CM
J93.9	Pneumothorax, unspecified	Diagnosis	ICD-10-CM
J95.811	Postprocedural pneumothorax	Diagnosis	ICD-10-CM
J95.812	Postprocedural air leak	Diagnosis	ICD-10-CM
512	Spontaneous tension pneumothorax	Diagnosis	ICD-9-CM
512.1	Iatrogenic pneumothorax	Diagnosis	ICD-9-CM
512.2	Postoperative air leak	Diagnosis	ICD-9-CM
512.8	Other pneumothorax and air leak	Diagnosis	ICD-9-CM
512.81	Primary spontaneous pneumothorax	Diagnosis	ICD-9-CM
512.82	Secondary spontaneous pneumothorax	Diagnosis	ICD-9-CM
512.83	Chronic pneumothorax	Diagnosis	ICD-9-CM
512.84	Other air leak	Diagnosis	ICD-9-CM
512.89	Other pneumothorax	Diagnosis	ICD-9-CM
<b>Pulmonary Embolism</b>			
415.1	Pulmonary embolism and infarction	Diagnosis	ICD-9-CM
415.11	Iatrogenic pulmonary embolism and infarction	Diagnosis	ICD-9-CM
415.12	Septic pulmonary embolism	Diagnosis	ICD-9-CM
415.19	Other pulmonary embolism and infarction	Diagnosis	ICD-9-CM
I26.01	Septic pulmonary embolism with acute cor pulmonale	Diagnosis	ICD-10-CM
I26.02	Saddle embolus of pulmonary artery with acute cor pulmonale	Diagnosis	ICD-10-CM
I26.09	Other pulmonary embolism with acute cor pulmonale	Diagnosis	ICD-10-CM
I26.90	Septic pulmonary embolism without acute cor pulmonale	Diagnosis	ICD-10-CM
I26.92	Saddle embolus of pulmonary artery without acute cor pulmonale	Diagnosis	ICD-10-CM

**Appendix F. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) diagnosis codes to define inclusion/exclusion criteria in this request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
I26.93	Single subsegmental pulmonary embolism without acute cor pulmonale	Diagnosis	ICD-10-CM
I26.94	Multiple subsegmental pulmonary emboli without acute cor pulmonale	Diagnosis	ICD-10-CM
I26.99	Other pulmonary embolism without acute cor pulmonale	Diagnosis	ICD-10-CM
415.13	SADDLE EMBOLUS OF PULMONARY ARTERY	Diagnosis	ICD-9-CM
<b>Acute Respiratory Failure</b>			
518.81	Acute respiratory failure	Diagnosis	ICD-9-CM
518.82	Other pulmonary insufficiency, not elsewhere classified	Diagnosis	ICD-9-CM
518.84	Acute and chronic respiratory failure	Diagnosis	ICD-9-CM
799.1	Respiratory Arrest	Diagnosis	ICD-9-CM
J80	Acute respiratory distress syndrome	Diagnosis	ICD-10-CM
J96.0	Acute respiratory failure	Diagnosis	ICD-10-CM
J96.00	Acute respiratory failure, unspecified whether with hypoxia or hypercapnia	Diagnosis	ICD-10-CM
J96.01	Acute respiratory failure with hypoxia	Diagnosis	ICD-10-CM
J96.02	Acute respiratory failure with hypercapnia	Diagnosis	ICD-10-CM
J96.20	Acute and chronic respiratory failure, unspecified whether with hypoxia or hypercapnia	Diagnosis	ICD-10-CM
J96.21	Acute and chronic respiratory failure with hypoxia	Diagnosis	ICD-10-CM
J96.22	Acute and chronic respiratory failure with hypercapnia	Diagnosis	ICD-10-CM
J96.90	Respiratory failure, unspecified, unspecified whether with hypoxia or hypercapnia	Diagnosis	ICD-10-CM
J96.91	Respiratory failure, unspecified with hypoxia	Diagnosis	ICD-10-CM
J96.92	Respiratory failure, unspecified with hypercapnia	Diagnosis	ICD-10-CM
R09.2	Respiratory Arrest	Diagnosis	ICD-10-CM

**Appendix G. List of Generic and Brand Drug Names used to Define Baseline Characteristics in this Request**

Generic Name	Brand Name
<b>Oral Corticosteroid (OCS)</b>	
betamethasone	Celestone
cortisone acetate	cortisone
<i>CORTISONE ACETATE</i>	<i>Cortisone aceticum</i>
deflazacort	Emflaza
dexamethasone	Dexamethasone Intensol
dexamethasone	dexamethasone
dexamethasone	DexPak 10 day
dexamethasone	DexPak 13 Day
dexamethasone	DexPak 6 Day
dexamethasone	Baycadron
dexamethasone	Decadron
dexamethasone	Dxevo
dexamethasone	HiDex
dexamethasone	LoCort
dexamethasone	TaperDex
dexamethasone	Zema-Pak
dexamethasone	ZoDex
dexamethasone	ZonaCort
<i>Dexamethasone</i>	<i>Dexamethasone</i>
<i>dexamethasone</i>	<i>HiDex 6-day</i>
<i>DEXAMETHASONE</i>	<i>TaperDex 12-day</i>
<i>DEXAMETHASONE</i>	<i>TaperDex 6-day</i>
<i>dexamethasone</i>	<i>TaperDex 7-day</i>
<i>Dexamethasone 1.5 mg</i>	<i>Dexamethasone</i>
<i>Dexamethasone 1.5 mg</i>	<i>Dxevo</i>
dexamethasone/saliva collection device	Cushings Syndrome Diagnostic
hydrocortisone	Cortef
hydrocortisone	hydrocortisone
<i>Hydrocortisone</i>	<i>CORTISOL</i>
<i>Hydrocortisone</i>	<i>Cortisol Phenolic</i>
methylprednisolone	Medrol
methylprednisolone	Medrol (Pak)
methylprednisolone	methylprednisolone
methylprednisolone	Meprolone Unipak
methylprednisolone	Methylpred
methylprednisolone	Methylpred DP
prednisolone	prednisolone
prednisolone	Millipred
prednisolone	Millipred DP
prednisolone	Prelone
prednisolone acetate	Flo-Pred
prednisolone sodium phosphate	prednisolone sodium phosphate
prednisolone sodium phosphate	Millipred
prednisolone sodium phosphate	Orapred
prednisolone sodium phosphate	Orapred ODT
prednisolone sodium phosphate	Pediapred
prednisolone sodium phosphate	Veripred 20
<i>Prednisolone Sodium Phosphate</i>	<i>Prednisolone Sodium Phosphate Oral Solution</i>
Prednisolone Sodium Phosphate/Peak Flow Meter	Asmalpred
Prednisolone Sodium Phosphate/Peak Flow Meter	Asmalpred Plus
prednisone	prednisone
prednisone	Prednisone Intensol
prednisone	Deltasone
prednisone	Rayos
prednisone	Sterapred

**Appendix G. List of Generic and Brand Drug Names used to Define Baseline Characteristics in this Request**

<b>Generic Name</b>	<b>Brand Name</b>
prednisone	Sterapred DS
<b>Antibiotics</b>	
<i>Amoxicillin and clavulanate potassium</i>	<i>Amoxicillin and clavulanate potassium</i>
amoxicillin	Amoxil
amoxicillin	amoxicillin
amoxicillin	DisperMox
amoxicillin	Moxatag
amoxicillin	Trimox
amoxicillin	Trimox 250
<i>Amoxicillin and Clavulanate Potassium</i>	<i>Amoxicillin and Clavulanate Potassium</i>
<i>amoxicillin and clavulanate potassium</i>	<i>AUGMENTIN ES-600</i>
<i>amoxicillin and clavulanate potassium</i>	<i>AUGMENTIN</i>
<i>AMOXICILLIN CLAV/POT</i>	<i>AMOXICILLIN CLAV/POT</i>
<i>AMOXICILLIN/CLAV POT</i>	<i>AMOXICILLIN/CLAV POT</i>
amoxicillin/potassium clavulanate	Augmentin
amoxicillin/potassium clavulanate	Augmentin ES-600
amoxicillin/potassium clavulanate	Augmentin XR
amoxicillin/potassium clavulanate	amoxicillin-pot clavulanate
ampicillin trihydrate	ampicillin
ampicillin trihydrate	Principen
azithromycin	Zithromax
azithromycin	Zithromax Z-Pak
azithromycin	Zithromax TRI-PAK
azithromycin	Zmax Pediatric
azithromycin	Zmax
azithromycin	azithromycin
<i>azithromycin</i>	<i>Azithromycin Dihydrate</i>
<i>AZITHROMYCIN ANHYDROUS</i>	<i>Azithromycin</i>
<i>azithromycin dihydrate</i>	<i>azithromycin dihydrate</i>
<i>azithromycin dihydrate</i>	<i>Zithromax</i>
<i>azithromycin monohydrate</i>	<i>azithromycin monohydrate</i>
<i>AZITHROMYCIN MONOHYDRATE</i>	<i>azithromycin</i>
bismuth subsalicylate/metronidazole/tetracycline HCl	Helidac
cefaclor	cefaclor
cefaclor	Raniclor
cefaclor	Ceclor
cefadroxil	cefadroxil
cefadroxil	Duricef
cefdinir	Omnicef
cefdinir	cefdinir
cefditoren pivoxil	Spectracef
cefditoren pivoxil	cefditoren pivoxil
cefixime	cefixime
cefixime	Suprax
cefpodoxime proxetil	Vantin
cefpodoxime proxetil	cefpodoxime
cefprozil	Cefzil
cefprozil	cefprozil
ceftibuten	ceftibuten
ceftibuten	Cedax
cefuroxime axetil	cefuroxime axetil
cefuroxime axetil	Ceftin
cephalexin	cephalexin
cephalexin	Keflex
cephalexin	Daxbia
cephalexin	Panixine DisperDose

**Appendix G. List of Generic and Brand Drug Names used to Define Baseline Characteristics in this Request**

<b>Generic Name</b>	<b>Brand Name</b>
ciprofloxacin	Cipro
ciprofloxacin	ciprofloxacin
ciprofloxacin HCl	Cipro
ciprofloxacin HCl	ciprofloxacin HCl
ciprofloxacin HCl	ProQuin XR
ciprofloxacin/ciprofloxacin HCl	Cipro XR
ciprofloxacin/ciprofloxacin HCl	ciprofloxacin (mixture)
clarithromycin	clarithromycin
clarithromycin	Biaxin
clarithromycin	Biaxin XL
clarithromycin	Biaxin XL Pak
<i>CLARITHROMYCIN</i>	<i>Clarithromycin Extended-Release</i>
colloidal bismuth subcitrate/metronidazole/tetracycline HCl	Pylera
demeclocycline HCl	demeclocycline
demeclocycline HCl	Declomycin
dicloxacillin sodium	dicloxacillin
<i>Doxycycline</i>	<i>Doxycycline</i>
<i>DOXYCYCLINE</i>	<i>ORACEA</i>
<i>Doxycycline</i>	<i>Doxycycline Monohydrate</i>
<i>doxycycline</i>	<i>Adoxa</i>
<i>doxycycline</i>	<i>Monodox</i>
<i>Doxycycline</i>	<i>Doxycycline Hyclate</i>
<i>doxycycline</i>	<i>Okebo</i>
<i>Doxycycline</i>	<i>Mondoxyne</i>
<i>Doxycycline</i>	<i>Mondoxyne NL 100mg</i>
<i>Doxycycline</i>	<i>Mondoxyne NL</i>
doxycycline calcium	Vibramycin
<i>doxycycline calcium</i>	<i>Vibramycin Calcium</i>
doxycycline hyclate	Vibramycin
doxycycline hyclate	Vibra-Tabs
doxycycline hyclate	doxycycline hyclate
<i>Doxycycline hyclate</i>	<i>Doxycycline</i>
doxycycline hyclate	Periostat
doxycycline hyclate	Doryx
<i>doxycycline hyclate</i>	<i>Acticlate</i>
<i>doxycycline hyclate</i>	<i>Morgidox</i>
<i>Doxycycline Hyclate</i>	<i>DORYX MPC</i>
<i>Doxycycline Hyclate</i>	<i>Ocudox</i>
<i>Doxycycline Hyclate</i>	<i>Doxycycline Hyclate Capsules</i>
<i>doxycycline hyclate</i>	<i>TARGADOX</i>
<i>Doxycycline Hyclate</i>	<i>Doxycyclate Hyclate</i>
doxycycline hyclate	Oraxyl
doxycycline hyclate	Soloxide
doxycycline monohydrate	Vibramycin
doxycycline monohydrate	doxycycline monohydrate
doxycycline monohydrate	Oracea
doxycycline monohydrate	Adoxa
doxycycline monohydrate	Adoxa Pak
doxycycline monohydrate	Monodox
doxycycline monohydrate	Avidoxy
doxycycline monohydrate	Okebo
doxycycline monohydrate	Mondoxyne NL
doxycycline monohydrate/omega-3 combination no.1/Eye Mask	Nutridox
doxycycline monohydrate/skin cleanser combination no.9	Adoxa TT
doxycycline monohydrate/skin cleanser combination no.9	Adoxa CK
erythromycin base	PCE

**Appendix G. List of Generic and Brand Drug Names used to Define Baseline Characteristics in this Request**

<b>Generic Name</b>	<b>Brand Name</b>
erythromycin base	erythromycin
erythromycin base	Ery-Tab
erythromycin base	Eryc
erythromycin base	E-Mycin
erythromycin ethylsuccinate	erythromycin ethylsuccinate
erythromycin ethylsuccinate	E.E.S. 400
erythromycin ethylsuccinate	EryPed 200
erythromycin ethylsuccinate	EryPed
erythromycin ethylsuccinate	EryPed 400
erythromycin ethylsuccinate	E.E.S. 200
erythromycin ethylsuccinate	E.E.S. Granules
erythromycin ethylsuccinate/sulfisoxazole acetyl	erythromycin-sulfisoxazole
erythromycin ethylsuccinate/sulfisoxazole acetyl	Pediazole
erythromycin stearate	Erythrocin (as stearate)
erythromycin stearate	erythromycin stearate
gemifloxacin mesylate	Factive
lansoprazole/amoxicillin trihydrate/clarithromycin	amoxicil-clarithromy-lansopraz
lansoprazole/amoxicillin trihydrate/clarithromycin	Prevpac
levofloxacin	Levaquin
levofloxacin	Levaquin Leva-Pak
levofloxacin	levofloxacin
linezolid	Zyvox
linezolid	linezolid
minocycline HCl	Minocin
minocycline HCl	minocycline
minocycline HCl	Ximino
minocycline HCl	Dynacin
minocycline HCl	Solodyn
minocycline HCl	CoreMino
minocycline HCl	Minolira ER
<i>Moxifloxacin</i>	<i>Moxifloxacin</i>
moxifloxacin HCl	Avelox
moxifloxacin HCl	Avelox ABC Pack
moxifloxacin HCl	moxifloxacin
<i>moxifloxacin hydrochloride</i>	<i>Avelox</i>
<i>moxifloxacin hydrochloride</i>	<i>moxifloxacin hydrochloride</i>
<i>moxifloxacin hydrochloride</i>	<i>Moxifloxacin</i>
<i>Moxifloxacin Hydrochloride Tablets, 400 mg</i>	<i>Moxifloxacin Hydrochloride Tablets, 400 mg</i>
ofloxacin	ofloxacin
ofloxacin	Floxin
omeprazole/clarithromycin/amoxicillin trihydrate	Omeclamox-Pak
penicillin G benzathine	Bicillin L-A
penicillin G benzathine/penicillin G procaine	Bicillin C-R
penicillin V potassium	penicillin V potassium
penicillin V potassium	Veetids
<i>Sulfamethoxazole and Trimethoprim</i>	<i>Sulfamethoxazole and Trimethoprim</i>
<i>Sulfamethoxazole and Trimethoprim</i>	<i>SULFATRIM</i>
<i>sulfamethoxazole and Trimethoprim</i>	<i>Bactrim</i>
<i>sulfamethoxazole and Trimethoprim</i>	<i>Bactrim DS</i>
<i>Sulfamethoxazole and Trimethoprim DS</i>	<i>Sulfamethoxazole and Trimethoprim DS</i>
<i>SULFAMETHOXAZOLE, TRIMETHOPRIM</i>	<i>Sulfamethox-TMP DS</i>
sulfamethoxazole/trimethoprim	sulfamethoxazole-trimethoprim
sulfamethoxazole/trimethoprim	Sulfatrim
sulfamethoxazole/trimethoprim	Bactrim DS
sulfamethoxazole/trimethoprim	Bactrim
sulfamethoxazole/trimethoprim	Septra



**Appendix G. List of Generic and Brand Drug Names used to Define Baseline Characteristics in this Request**

---

<b>Generic Name</b>	<b>Brand Name</b>
sulfamethoxazole/trimethoprim	SMZ-TMP DS
sulfamethoxazole/trimethoprim	Sultrex
sulfamethoxazole/trimethoprim	Septra DS
tedizolid phosphate	Sivextro
tetracycline HCl	tetracycline
tetracycline HCl	Sumycin
<i>Tobramycin</i>	<i>Tobramycin</i>
tobramycin in 0.225 % sodium chloride	Tobi
tobramycin in 0.225 % sodium chloride	tobramycin in 0.225 % NaCl

---

**Appendix H. List of Healthcare Common Procedure Coding System (HCPCS) Codes to Define Exposures and Baseline Characteristics in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
<b>Oral Corticosteroid (OCS)</b>			
J8540	DEXAMETHASONE ORAL 0.25 MG	Procedure	HC
J0702	INJ BETAMETHASONE AC & PHOS 3 MG	Procedure	HC
J1094	INJECTION DEXAMETHASONE ACTAT 1 MG	Procedure	HC
J1020	Injection, methylprednisolone acetate, 20 mg	Procedure	HC
J1030	Injection, methylprednisolone acetate, 40 mg	Procedure	HC
J1040	Injection, methylprednisolone acetate, 80 mg	Procedure	HC
J2650	Injection, prednisolone acetate, up to 1 ml	Procedure	HC
J3302	Injection, triamcinolone diacetate, per 5 mg	Procedure	HC
J3301	Injection, triamcinolone acetonide, not otherwise specified, 10 mg	Procedure	HC

**Appendix I. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) Diagnosis Codes to Define Baseline Characteristics in this Request**

Code	Description	Code Category	Code Type
<b>Chronic Obstructive Pulmonary Disease (COPD) Exacerbation Codes</b>			
491.21	Obstructive chronic bronchitis, with (acute) exacerbation	Diagnosis	ICD-9-CM
491.22	Obstructive chronic bronchitis with acute bronchitis	Diagnosis	ICD-9-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
<b>COPD Diagnosis Codes</b>			
491.20	Obstructive chronic bronchitis without exacerbation	Diagnosis	ICD-9-CM
491.0	Simple chronic bronchitis	Diagnosis	ICD-9-CM
491.1	Mucopurulent chronic 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
496	Chronic airway obstruction, not elsewhere classified	Diagnosis	ICD-9-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
J44.9	Chronic obstructive pulmonary disease, unspecified	Diagnosis	ICD-10-CM
<b>Asthma Exacerbation Codes</b>			
493.01	Extrinsic asthma with status asthmaticus	Diagnosis	ICD-9-CM
493.02	Extrinsic asthma, with (acute) exacerbation	Diagnosis	ICD-9-CM
493.11	Intrinsic asthma with status asthmaticus	Diagnosis	ICD-9-CM
493.12	Intrinsic asthma, with (acute) exacerbation	Diagnosis	ICD-9-CM
493.91	Asthma, unspecified with status asthmaticus	Diagnosis	ICD-9-CM
493.92	Asthma, unspecified, with (acute) exacerbation	Diagnosis	ICD-9-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
J45.31	Mild persistent asthma with (acute) exacerbation	Diagnosis	ICD-10-CM
J45.32	Mild persistent asthma with status asthmaticus	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
J45.51	Severe persistent asthma with (acute) exacerbation	Diagnosis	ICD-10-CM
J45.52	Severe persistent asthma with status asthmaticus	Diagnosis	ICD-10-CM
J45.901	Unspecified asthma with (acute) exacerbation	Diagnosis	ICD-10-CM
J45.902	Unspecified asthma with status asthmaticus	Diagnosis	ICD-10-CM
<b>Asthma Diagnosis Codes</b>			
493.00	Extrinsic asthma, unspecified	Diagnosis	ICD-9-CM
493.10	Intrinsic asthma, unspecified	Diagnosis	ICD-9-CM
493.20	Chronic obstructive asthma, unspecified ICD-9-CM	Diagnosis	ICD-9-CM
493.21	Chronic obstructive asthma with status asthmaticus ICD-9-CM	Diagnosis	ICD-9-CM
493.22	Chronic obstructive asthma, with (acute) exacerbation ICD-9-CM	Diagnosis	ICD-9-CM
493.82	Cough variant asthma	Diagnosis	ICD-9-CM
493.90	Asthma, unspecified, unspecified status	Diagnosis	ICD-9-CM
J45	Asthma	Diagnosis	ICD-10-CM

**Appendix I. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) Diagnosis Codes to Define Baseline Characteristics in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
J45.2	Mild intermittent asthma	Diagnosis	ICD-10-CM
J45.20	Mild intermittent asthma, uncomplicated	Diagnosis	ICD-10-CM
J45.3	Mild persistent asthma	Diagnosis	ICD-10-CM
J45.30	Mild persistent asthma, uncomplicated	Diagnosis	ICD-10-CM
J45.4	Moderate persistent asthma	Diagnosis	ICD-10-CM
J45.40	Moderate persistent asthma, uncomplicated	Diagnosis	ICD-10-CM
J45.5	Severe persistent asthma	Diagnosis	ICD-10-CM
J45.50	Severe persistent asthma, uncomplicated	Diagnosis	ICD-10-CM
J45.9	Other and unspecified asthma	Diagnosis	ICD-10-CM
J45.90	Unspecified asthma	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
<b>Alpha-1-Antitrypsin Deficiency</b>			
273.4	Alpha-1-antitrypsin deficiency	Diagnosis	ICD-9-CM
E88.01	Alpha-1-antitrypsin deficiency	Diagnosis	ICD-10-CM
<b>Bronchiectasis</b>			
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
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

**Appendix I. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) Diagnosis Codes to Define Baseline Characteristics in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
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
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

**Appendix I. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) Diagnosis Codes to Define Baseline Characteristics in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
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
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

**Appendix I. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) Diagnosis Codes to Define Baseline Characteristics in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
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
<b>Cystic Fibrosis</b>			
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
<b>Sarcoidosis</b>			
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
D8689	Sarcoidosis of other sites	Diagnosis	ICD-10-CM
D869	Sarcoidosis, unspecified	Diagnosis	ICD-10-CM
135	Sarcoidosis	Diagnosis	ICD-9-CM
<b>Interstitial Lung Disease (ILD), Pneumoconiosis and Miscellaneous Lung Diseases</b>			
J84	Other interstitial pulmonary diseases	Diagnosis	ICD-10-CM
J84.0	Alveolar and parieto-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

**Appendix I. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) Diagnosis Codes to Define Baseline Characteristics in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
J84.1	Other interstitial pulmonary diseases with fibrosis	Diagnosis	ICD-10-CM
J84.11	Idiopathic interstitial pneumonia	Diagnosis	ICD-10-CM
J84.111	Idiopathic interstitial pneumonia, 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
J84.115	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	Other interstitial pulmonary diseases with fibrosis 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
J84.84	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
J84.848	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
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



**Appendix I. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) Diagnosis Codes to Define Baseline Characteristics in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
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
502	Pneumoconiosis due to other silica or silicates	Diagnosis	ICD-9-CM
503	Pneumoconiosis due to other inorganic dust	Diagnosis	ICD-9-CM
<b>Other Lung Diseases</b>			
011	Pulmonary tuberculosis	Diagnosis	ICD-9-CM
012	Other respiratory tuberculosis	Diagnosis	ICD-9-CM
495	Extrinsic allergic alveolitis	Diagnosis	ICD-9-CM
510.0	Empyema with fistula	Diagnosis	ICD-9-CM
510.9	Empyema without mention of fistula	Diagnosis	ICD-9-CM
511.0	Pleurisy without mention of effusion or current tuberculosis	Diagnosis	ICD-9-CM
511.1	Pleurisy with effusion, with mention of bacterial cause other than tuberculosis	Diagnosis	ICD-9-CM
511.8	Other specified forms of pleural effusion, except tuberculous	Diagnosis	ICD-9-CM
511.81	Malignant pleural effusion	Diagnosis	ICD-9-CM
511.89	Other specified forms of effusion, except tuberculous	Diagnosis	ICD-9-CM
511.9	Unspecified pleural effusion	Diagnosis	ICD-9-CM
512.0	Spontaneous tension pneumothorax	Diagnosis	ICD-9-CM
512.1	Iatrogenic pneumothorax	Diagnosis	ICD-9-CM
512.2	Postoperative air leak	Diagnosis	ICD-9-CM
512.8	Other pneumothorax and air leak	Diagnosis	ICD-9-CM
512.81	Primary spontaneous pneumothorax	Diagnosis	ICD-9-CM
512.82	Secondary spontaneous pneumothorax	Diagnosis	ICD-9-CM
512.83	Chronic pneumothorax	Diagnosis	ICD-9-CM
512.84	Other air leak	Diagnosis	ICD-9-CM
512.89	Other pneumothorax	Diagnosis	ICD-9-CM
513.0	Abscess of lung	Diagnosis	ICD-9-CM
513.1	Abscess of mediastinum	Diagnosis	ICD-9-CM
516.3	Idiopathic interstitial pneumonia	Diagnosis	ICD-9-CM
516.6	Interstitial lung diseases of childhood	Diagnosis	ICD-9-CM
517.1	Rheumatic pneumonia	Diagnosis	ICD-9-CM
517.2	Lung involvement in systemic sclerosis	Diagnosis	ICD-9-CM

**Appendix I. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) Diagnosis Codes to Define Baseline Characteristics in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
517.3	Acute chest syndrome	Diagnosis	ICD-9-CM
517.8	Lung involvement in other diseases classified elsewhere	Diagnosis	ICD-9-CM
518.0	Pulmonary collapse	Diagnosis	ICD-9-CM
518.1	Interstitial emphysema	Diagnosis	ICD-9-CM
518.2	Compensatory emphysema	Diagnosis	ICD-9-CM
518.3	Pulmonary eosinophilia	Diagnosis	ICD-9-CM
518.4	Unspecified acute edema of lung	Diagnosis	ICD-9-CM
518.5	Pulmonary insufficiency following trauma and surgery	Diagnosis	ICD-9-CM
518.51	Acute respiratory failure following trauma and surgery	Diagnosis	ICD-9-CM
518.52	Other pulmonary insufficiency, not elsewhere classified, following trauma and surgery	Diagnosis	ICD-9-CM
518.53	Acute and chronic respiratory failure following trauma and surgery	Diagnosis	ICD-9-CM
518.6	Allergic bronchopulmonary aspergillosis	Diagnosis	ICD-9-CM
518.7	Transfusion related acute lung injury [TRALI]	Diagnosis	ICD-9-CM
518.8	Other diseases of lung	Diagnosis	ICD-9-CM
518.81	Acute respiratory failure	Diagnosis	ICD-9-CM
518.82	Other pulmonary insufficiency, not elsewhere classified	Diagnosis	ICD-9-CM
518.83	Chronic respiratory failure	Diagnosis	ICD-9-CM
518.84	Acute and chronic respiratory failure	Diagnosis	ICD-9-CM
518.89	Other diseases of lung, not elsewhere classified	Diagnosis	ICD-9-CM
519.0	Tracheostomy complications	Diagnosis	ICD-9-CM
519.00	Unspecified tracheostomy complication	Diagnosis	ICD-9-CM
519.01	Infection of tracheostomy	Diagnosis	ICD-9-CM
519.02	Mechanical complication of tracheostomy	Diagnosis	ICD-9-CM
519.09	Other tracheostomy complications	Diagnosis	ICD-9-CM
519.1	Other diseases of trachea and bronchus, not elsewhere classified	Diagnosis	ICD-9-CM
519.11	Acute bronchospasm	Diagnosis	ICD-9-CM
519.19	Other diseases of trachea and bronchus	Diagnosis	ICD-9-CM
519.2	Mediastinitis	Diagnosis	ICD-9-CM
519.3	Other diseases of mediastinum, not elsewhere classified	Diagnosis	ICD-9-CM
519.4	Disorders of diaphragm	Diagnosis	ICD-9-CM
519.8	Other diseases of respiratory system, not elsewhere classified	Diagnosis	ICD-9-CM
519.9	Unspecified disease of respiratory system	Diagnosis	ICD-9-CM
J18.2	Hypostatic pneumonia, unspecified organism	Diagnosis	ICD-10-CM
J81.1	Chronic pulmonary edema	Diagnosis	ICD-10-CM
J84.10	Pulmonary fibrosis, unspecified	Diagnosis	ICD-10-CM
B44.81	Allergic bronchopulmonary aspergillosis	Diagnosis	ICD-10-CM
D57.01	Hb-SS disease with acute chest syndrome	Diagnosis	ICD-10-CM
D57.211	Sickle-cell/Hb-C disease with acute chest syndrome	Diagnosis	ICD-10-CM
D57.411	Sickle-cell thalassemia with acute chest syndrome	Diagnosis	ICD-10-CM
D57.811	Other sickle-cell disorders with acute chest syndrome	Diagnosis	ICD-10-CM
J17	Pneumonia in diseases classified elsewhere	Diagnosis	ICD-10-CM
J22	Unspecified acute lower respiratory infection	Diagnosis	ICD-10-CM
J39.8	Other specified diseases of upper respiratory tract	Diagnosis	ICD-10-CM
J80	Acute respiratory distress syndrome	Diagnosis	ICD-10-CM
J81.0	Acute pulmonary edema	Diagnosis	ICD-10-CM
J82	Pulmonary eosinophilia, not elsewhere classified	Diagnosis	ICD-10-CM
J85.0	Gangrene and necrosis of lung	Diagnosis	ICD-10-CM
J85.1	Abscess of lung with pneumonia	Diagnosis	ICD-10-CM
J85.2	Abscess of lung without pneumonia	Diagnosis	ICD-10-CM
J85.3	Abscess of mediastinum	Diagnosis	ICD-10-CM

**Appendix I. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) Diagnosis Codes to Define Baseline Characteristics in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
J86.0	Pyothorax with fistula	Diagnosis	ICD-10-CM
J86.9	Pyothorax without fistula	Diagnosis	ICD-10-CM
J90	Pleural effusion, not elsewhere classified	Diagnosis	ICD-10-CM
J91.0	Malignant pleural effusion	Diagnosis	ICD-10-CM
J91.8	Pleural effusion in other conditions classified elsewhere	Diagnosis	ICD-10-CM
J92.0	Pleural plaque with presence of asbestos	Diagnosis	ICD-10-CM
J92.9	Pleural plaque without asbestos	Diagnosis	ICD-10-CM
J93.0	Spontaneous tension pneumothorax	Diagnosis	ICD-10-CM
J93.11	Primary spontaneous pneumothorax	Diagnosis	ICD-10-CM
J93.12	Secondary spontaneous pneumothorax	Diagnosis	ICD-10-CM
J93.81	Chronic pneumothorax	Diagnosis	ICD-10-CM
J93.82	Other air leak	Diagnosis	ICD-10-CM
J93.83	Other pneumothorax	Diagnosis	ICD-10-CM
J93.9	Pneumothorax, unspecified	Diagnosis	ICD-10-CM
J94.0	Chylous effusion	Diagnosis	ICD-10-CM
J94.1	Fibrothorax	Diagnosis	ICD-10-CM
J94.2	Hemothorax	Diagnosis	ICD-10-CM
J94.8	Other specified pleural conditions	Diagnosis	ICD-10-CM
J94.9	Pleural condition, unspecified	Diagnosis	ICD-10-CM
J95.00	Unspecified tracheostomy complication	Diagnosis	ICD-10-CM
J95.01	Hemorrhage from tracheostomy stoma	Diagnosis	ICD-10-CM
J95.02	Infection of tracheostomy stoma	Diagnosis	ICD-10-CM
J95.03	Malfunction of tracheostomy stoma	Diagnosis	ICD-10-CM
J95.04	Tracheo-esophageal fistula following tracheostomy	Diagnosis	ICD-10-CM
J95.09	Other tracheostomy complication	Diagnosis	ICD-10-CM
J95.1	Acute pulmonary insufficiency following thoracic surgery	Diagnosis	ICD-10-CM
J95.2	Acute pulmonary insufficiency following nonthoracic surgery	Diagnosis	ICD-10-CM
J95.3	Chronic pulmonary insufficiency following surgery	Diagnosis	ICD-10-CM
J95.811	Postprocedural pneumothorax	Diagnosis	ICD-10-CM
J95.812	Postprocedural air leak	Diagnosis	ICD-10-CM
J95.821	Acute postprocedural respiratory failure	Diagnosis	ICD-10-CM
J95.822	Acute and chronic postprocedural respiratory failure	Diagnosis	ICD-10-CM
J95.84	Transfusion-related acute lung injury (TRALI)	Diagnosis	ICD-10-CM
J96.00	Acute respiratory failure, unspecified whether with hypoxia or hypercapnia	Diagnosis	ICD-10-CM
J96.01	Acute respiratory failure with hypoxia	Diagnosis	ICD-10-CM
J96.02	Acute respiratory failure with hypercapnia	Diagnosis	ICD-10-CM
J96.10	Chronic respiratory failure, unspecified whether with hypoxia or hypercapnia	Diagnosis	ICD-10-CM
J96.11	Chronic respiratory failure with hypoxia	Diagnosis	ICD-10-CM
J96.12	Chronic respiratory failure with hypercapnia	Diagnosis	ICD-10-CM
J96.20	Acute and chronic respiratory failure, unspecified whether with hypoxia or hypercapnia	Diagnosis	ICD-10-CM
J96.21	Acute and chronic respiratory failure with hypoxia	Diagnosis	ICD-10-CM
J96.22	Acute and chronic respiratory failure with hypercapnia	Diagnosis	ICD-10-CM
J96.90	Respiratory failure, unspecified, unspecified whether with hypoxia or hypercapnia	Diagnosis	ICD-10-CM
J96.91	Respiratory failure, unspecified with hypoxia	Diagnosis	ICD-10-CM
J96.92	Respiratory failure, unspecified with hypercapnia	Diagnosis	ICD-10-CM
J98.01	Acute bronchospasm	Diagnosis	ICD-10-CM
J98.09	Other diseases of bronchus, not elsewhere classified	Diagnosis	ICD-10-CM
J98.11	Atelectasis	Diagnosis	ICD-10-CM
J98.19	Other pulmonary collapse	Diagnosis	ICD-10-CM

**Appendix I. List of International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) Diagnosis Codes to Define Baseline Characteristics in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
J98.2	Interstitial emphysema	Diagnosis	ICD-10-CM
J98.3	Compensatory emphysema	Diagnosis	ICD-10-CM
J98.4	Other disorders of lung	Diagnosis	ICD-10-CM
J98.51	Mediastinitis	Diagnosis	ICD-10-CM
J98.59	Other diseases of mediastinum, not elsewhere classified	Diagnosis	ICD-10-CM
J98.6	Disorders of diaphragm	Diagnosis	ICD-10-CM
J98.8	Other specified respiratory disorders	Diagnosis	ICD-10-CM
J98.9	Respiratory disorder, unspecified	Diagnosis	ICD-10-CM
J99	Respiratory disorders in diseases classified elsewhere	Diagnosis	ICD-10-CM
M32.13	Lung involvement in systemic lupus erythematosus	Diagnosis	ICD-10-CM
M33.01	Juvenile dermatomyositis with respiratory involvement	Diagnosis	ICD-10-CM
M33.11	Other dermatomyositis with respiratory involvement	Diagnosis	ICD-10-CM
M33.21	Polymyositis with respiratory involvement	Diagnosis	ICD-10-CM
M33.91	Dermatopolymyositis, unspecified with respiratory involvement	Diagnosis	ICD-10-CM
M34.81	Systemic sclerosis with lung involvement	Diagnosis	ICD-10-CM
M35.02	Sicca syndrome with lung involvement	Diagnosis	ICD-10-CM
R06.03	Acute respiratory distress	Diagnosis	ICD-10-CM
R09.1	Pleurisy	Diagnosis	ICD-10-CM

**Appendix J. Specifications Defining Parameters for this Request**

The Center for Drug Evaluation and Research (CDER) has requested execution of the Cohort Identification and Descriptive Analysis (CIDA) tool, version 9.5.0 with additional programming, to evaluate various definitions of severe and moderate COPD and asthma exacerbations, estimate the proportion of patients that have multiple severe or moderate exacerbations during their follow-up, and assess incidence of exacerbations in the Sentinel Distributed Database (SDD).

**Query period:** January 1, 2008 - February 29, 2020  
**Coverage requirement:** Medical and Drug  
**Pre-index enrollment requirement:** 365 days  
**Post-index enrollment requirement:** 0 days  
**Enrollment gap:** 45 days  
**Age groups:** Scenario-specific, see below  
**Stratifications:** Overall, year, sex, age group, sex & age  
**Envelope macro:** (2) Turn off envelope. No reclassification of encounter types.  
**Data source:** 15 Sentinel Data Partners  
**Distribution of index-defining codes:** Not requested  
**Freeze data:** Not requested  
**Restrictions:** N/A  
**Censor treatment episode at evidence of:** Death; Disenrollment; Query End Date; Data Partner End Date

**Exposure**

Scenario	Index exposure	Age groups	Cohort definition	Incident exposure washout period	Incident w/ respect to:	Exclude evidence of days supply if exposure washout includes dispensings	Care setting
1	Any COPD diagnosis	40-64, 65+	First valid index date during query period (01)	None	NA	NA	Any
2	Any asthma diagnosis	18-39, 40-64, 65+	First valid index date during query period (01)	None	NA	NA	Any

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."

\*Custom outcome definitions are simplified in this specifications summary. Please refer to the detailed programming specifications for detailed information.

**Appendix J. Specifications Defining Parameters for this Request**

The Center for Drug Evaluation and Research (CDER) has requested execution of the Cohort Identification and Descriptive Analysis (CIDA) tool, version 9.5.0 with additional programming, to evaluate various definitions of severe and moderate COPD and asthma exacerbations, estimate the proportion of patients that have multiple severe or moderate exacerbations during their follow-up, and assess incidence of exacerbations in the Sentinel Distributed Database (SDD).

<b>Inclusion / Exclusion</b>							
<b>Scenario</b>	<b>Condition(s)</b>	<b>Include or Exclude</b>	<b>Evaluation period start</b>	<b>Evaluation period end</b>	<b>Inclusion/ Exclusion care setting</b>	<b>Inclusion/ Exclusion evaluation should search for evidence of:</b>	<b>Number of instances the criterion should be found in evaluation period</b>
1	<b>[ICS-containing or LABA-containing or LAMA-containing]</b>	Include	-365	-1	Any	Date of dispensing	1
	Asthma or Alpha-1-Antitrypsin deficiency or Sarcoidosis or Cystic Fibrosis or Bronchiectasis or ILD or pneumoconiosis or other lung disease	Exclude	-365	0	Any	Date of diagnosis	1
2	<b>[ICS-containing or LABA-containing]</b>	Include	-365	-1	Any	Date of dispensing	1
	COPD; or Alpha-1-Antitrypsin deficiency or Sarcoidosis or Cystic Fibrosis or Bronchiectasis or ILD, pneumoconiosis and miscellaneous, or other lung disease	Exclude	-365	0	Any	Date of diagnosis	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."

\*Custom outcome definitions are simplified in this specifications summary. Please refer to the detailed programming specifications for detailed information.

<b>Appendix J. Specifications Defining Parameters for this Request</b>	
The Center for Drug Evaluation and Research (CDER) has requested execution of the Cohort Identification and Descriptive Analysis (CIDA) tool, version 9.5.0 with additional programming, to evaluate various definitions of severe and moderate COPD and asthma exacerbations, estimate the proportion of patients that have multiple severe or moderate exacerbations during their follow-up, and assess incidence of exacerbations in the Sentinel Distributed Database (SDD).	
<b>Outcome (achieved by ad hoc programming)*</b>	
<b>Scenario</b>	<b>Original name of the "scenario" (custom) Outcome*</b>
1	Scenario 1 COPD ExacCodes in any position or COPD diagnosis in the primary position or acute respiratory failure diagnosis in the primary position + COPD diagnosis in the secondary position
	Scenario 2 (COPD ExacCodes in any position or COPD diagnosis in the primary position or acute respiratory failure diagnosis in the primary position + COPD diagnosis in the secondary position) and (no concurrent diagnosis of heart failure, cardiac arrhythmia, acute myocardial infarction, pneumonia, pneumothorax, or pulmonary embolism)
	Scenario 3 COPD ExacCodes and OCS (+/- 7 days) or Abx (+/- 7 days)
	Scenario 4 COPD diagnosis codes and OCS (+/- 7 days) or Abx (+/- 7 days)
2	Scenario 5 Asthma ExacCodes in any position or asthma diagnosis in the primary position or acute respiratory failure diagnosis in the primary position and asthma diagnosis in the secondary position
	Scenario 6 Asthma ExacCodes and OCS (+/- 7 days)
	Scenario 7 Asthma Diagnosis Codes and OCS (+/- 7 days)

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."  
 \*Custom outcome definitions are simplified in this specifications summary. Please refer to the detailed programming specifications for detailed information.

**Appendix J. Specifications Defining Parameters for this Request**

The Center for Drug Evaluation and Research (CDER) has requested execution of the Cohort Identification and Descriptive Analysis (CIDA) tool, version 9.5.0 with additional programming, to evaluate various definitions of severe and moderate COPD and asthma exacerbations, estimate the proportion of patients that have multiple severe or moderate exacerbations during their follow-up, and assess incidence of exacerbations in the Sentinel Distributed Database (SDD).

**Outcome (achieved by ad hoc programming)\***

Scenario	Incident w/ respect to:*	Care Setting	Washout period w/ respect to outcome event:*	Blackout days w/ respect to index event:*
1	COPD ExacCodes in any position or COPD diagnosis in the primary position or acute respiratory failure diagnosis in the primary position + COPD diagnosis in the secondary position	IP*	-14, -1	1
	(COPD ExacCodes in any position or COPD diagnosis in the primary position or acute respiratory failure diagnosis in the primary position + COPD diagnosis in the secondary position) and (no concurrent diagnosis of heart failure, cardiac arrhythmia, acute myocardial infarction, pneumonia, pneumothorax, or pulmonary embolism)	IP*	-14, -1	1
	COPD ExacCodes and OCS (+/- 7 days) or Abx (+/- 7 days)	ED/AV/OA	-14, -1	1
	COPD diagnosis codes and OCS (+/- 7 days) or Abx (+/- 7 days)	ED/AV/OA	-14, -1	1
2	Asthma ExacCodes in any position or asthma diagnosis in the primary position or acute respiratory failure diagnosis in the primary position + Asthma diagnosis in the secondary position	IP*	-7, -1	1
	Asthma ExacCodes and OCS (+/- 7 days)	ED/AV/OA	-7, -1	1
	Asthma diagnosis codes and OCS (+/- 7 days)	ED/AV/OA	-7, -1	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."

\*Custom outcome definitions are simplified in this specifications summary. Please refer to the detailed programming specifications for detailed information.



**Appendix J.1. Specifications Defining Baseline Characteristics**

**Baseline Characteristics**

<b>Baseline characteristic [evaluation start, evaluation end]</b>	<b>Care setting</b>	<b>Evaluation period start</b>	<b>Evaluation period end</b>	<b>Exclude evidence of days supply if characteristic includes dispensings</b>	<b>Number of instances the characteristic should be found in evaluation period</b>
Evidence of antibiotics/OCS [-7, -1]	Any	-7	-1	Evaluation period should search for only evidence of a dispensing date	At least 1
Evidence of antibiotics/OCS [-14, -1]	Any	-14	-1	Evaluation period should search for only evidence of a dispensing date	At least 1
Evidence of OCS [-7, -1]	Any	-7	-1	Evaluation period should search for only evidence of a dispensing date	At least 1
Evidence of OCS [-14, -1]	Any	-14	-1	Evaluation period should search for only evidence of a dispensing date	At least 1