

## Disclaimer

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

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

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

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

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**Overview for Request: ocet\_mpl1r\_wp006**

**Request ID:** ocet\_mpl1r\_wp006\_nsdv\_v02

**Request Description:** In this request, we identified select complications of influenza, of increasing severity, among three separate cohorts: individuals diagnosed with influenza-like illness (ILI)<sup>1</sup>, pneumonia and influenza (P&I)<sup>2</sup>, and medically attended acute respiratory illness (MAARI)<sup>3</sup>. We identified these cohorts in the Sentinel Distributed Database (SDD) during three time periods, corresponding to three influenza seasons: July 1, 2014 - June 30, 2015; July 1, 2015 - June 30, 2016; and July 1, 2016 - June 30, 2017.

**Sentinel Routine Querying Module:** Cohort Identification and Descriptive Analysis module (CIDA), version 7.2.1

**Data Source:** We assessed the three study periods, separately, at 14 Data Partners that contribute to the SDD. The study periods were: July 1, 2014 to June 30, 2015; July 1, 2015 to June 30, 2016; and July 1, 2016 to June 30, 2017. We distributed this request on March 25, 2019. Please see Appendix A for a list of the dates of available data for each Data Partner.

**Study Design:** We identified individuals with the ILI, P&I, and MAARI cohort-defining events of interest and calculated rates of each of the endpoints within each cohort. The results are reported by influenza season and age group.

**Cohort Definitions:** The three cohorts-of interest were ILI, P&I, and MAARI. We identified these events in the following care settings: ambulatory visit, other ambulatory visit, or emergency department. We included a sensitivity analysis to define the cohorts based on diagnosis codes in the ambulatory visit and other ambulatory visit care settings only. The cohorts based on these events were not mutually exclusive; individuals could be counted in multiple cohorts (i.e., some codes are found in all three events definitions and individuals could be included in more than one analytic cohort). Please see Appendix B for a list of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) and International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) diagnosis codes used to define the cohort-defining events of interest in this request.

**Cohort Eligibility Criteria:** We required members to be enrolled in both medical and drug coverage for at least 183 days prior to the cohort-defining index (first qualifying) diagnosis date; gaps in coverage of up to 45 days were allowed and bridged. For each cohort, we assessed incidence with respect to the specific cohort-defining event of interest in the 30 days prior to the index diagnosis date. We included all episodes of ILI, P&I, and MAARI that met the incidence and other cohort entry criteria; cohort re-entry was allowed. We included individuals six months of age and older and used the following age groups: 6 months-4 years, 5-17 years, 18-49 years, 50-64 years, and 65+ years.

**Endpoints:** We assessed the occurrence of the following endpoints: 1) influenza testing in the ambulatory visit, other ambulatory visit, and emergency department care settings; 2) inpatient hospitalization; 3) biphasic positive airway pressure (BiPAP) in any care setting; 4) supplemental oxygen in any care setting; 5) mechanical ventilation in any care setting; 6) critical or observational care in any care setting defined by only Current Procedural Terminology (CPT) codes; 7) critical or observational care in any care setting defined by CPT codes or Revenue codes; or 8) extracorporeal membrane oxygenation (ECMO) in any care setting. The first occurrence of each endpoint was identified per episode. See Appendix C for a list of ICD-9CM, ICD-10-CM, International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS), Healthcare Common Procedure Coding System (HCPCS), CPT, and revenue codes used to define endpoints.

**Follow-Up Time:** We looked for the endpoints of interest within 30 days of the cohort index diagnosis. Follow-up the endpoint began on the day of index diagnosis (day 0) and continued until the first occurrence of any of the following: 1) occurrence of an endpoint of interest; 2) Data Partner end date; 3) monitoring period end date; 4) disenrollment; 5) death; or 6) end of the 30-day follow-up period. A post-index enrollment requirement was not included.

**Baseline Characteristics:** We assessed the following baseline characteristics in the 183 days prior to and through the day of index diagnosis: 1) asthma; 2) chronic obstructive pulmonary disease; 3) diabetes; 4) obesity; and 5) influenza vaccination. We assessed pneumococcal vaccination in the entire available claims history of each member through the day of index diagnosis. Baseline characteristics were assessed in any care setting. See Appendix D for a list of ICD-9-CM, ICD-10-CM, ICD-10-PCS, CPT, and HCPCS codes and Appendix E for a list of generic and brand names of medical products used to define baseline characteristics.

**Overview for Request: ocet\_mpl1r\_wp006**

**Please see Appendices F and G for the specifications of parameters used in the analyses for this request.**

**Please see Appendix H for a diagram detailing the design of this request.**

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

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

<sup>1</sup>Eick-Cost et al. Assessment of ICD-9-based Case Definitions for Influenza-like Illness Surveillance. *MSMR* **2015**; 22(9):2-7.

<sup>2</sup>Matias et al. Estimates of hospitalization attributable to influenza and RSV in the US during 1997–2009, by age and risk status. *BMC Public Health* **2017**; 17(1):271.

<sup>3</sup>Omer et al. Impact of Statins on Influenza Vaccine Effectiveness Against Medically Attended Acute Respiratory Illness. *JID* **2016**; 213(8):1216-23.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

\*all terms may not be used in this report

**Table 1a. Baseline Characteristics for Members Diagnosed with Influenza-Like Illness (ILI)<sup>1,2</sup>, in the Sentinel Distributed Database (SDD) between July 1, 2014 and June 30, 2017, by Influenza Season**

Influenza Season <sup>3</sup>	July 1, 2014 - June 30, 2015		July 1, 2015 - June 30, 2016		July 1, 2016 - June 30, 2017	
Characteristic <sup>4</sup>	Number	Percent	Number	Percent	Number	Percent
Number of episodes <sup>5</sup>	1,078,978	100%	570,290	100%	988,101	100%
Number of unique members <sup>5</sup>	1,053,238	100%	557,080	100%	965,271	100%
Demographics	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Mean Age (Years)	44.4	19.1	41.1	18.7	43.2	18.8
Age (Years)	Number	Percent	Number	Percent	Number	Percent
6 months-4 years	79,033	7.3%	45,769	8.0%	69,154	7.0%
5-17 years	283,994	26.3%	187,044	32.8%	260,181	26.3%
18-49 years	143,551	13.3%	89,764	15.7%	140,188	14.2%
50-64 years	221,766	20.6%	110,298	19.3%	218,110	22.1%
65+ years	350,634	32.5%	137,415	24.1%	300,468	30.4%
Sex						
Female	594,347	56.4%	307,306	55.2%	540,231	56.0%
Male	458,865	43.6%	249,763	44.8%	425,025	44.0%
Other	26	0.0%	11	0.0%	15	0.0%
Year						
2014 <sup>6</sup>	465,367	43.1%	--	--	--	--
2015 <sup>6</sup>	613,611	56.9%	96,621	16.9%	--	--
2016 <sup>6</sup>	--	--	473,669	83.1%	146,215	14.8%
2017 <sup>6</sup>	--	--	--	--	841,886	85.2%
Recorded History of Characteristics in the 183 Days Prior to Index:						
Asthma	116,029	10.8%	59,423	10.4%	101,810	10.3%
Chronic obstructive pulmonary disease (COPD)	101,390	9.4%	47,450	8.3%	88,119	8.9%
Diabetes	173,054	16.0%	81,735	14.3%	151,580	15.3%
Obesity	84,500	7.8%	54,222	9.5%	107,752	10.9%
Influenza vaccination	376,339	34.9%	133,224	23.4%	291,949	29.5%
Recorded History of Characteristics in the Available Enrollment History:						
Pneumococcal vaccination	243,637	22.6%	143,933	25.2%	301,267	30.5%

<sup>1</sup>Eick-Cost et al., 2015.

<sup>2</sup>ILI diagnoses were captured in the ambulatory visit, other ambulatory visit, or emergency department care settings.

<sup>3</sup>Members can contribute to multiple influenza seasons.

<sup>4</sup>All metrics are based on total number of episodes per group, except for sex which is based on total number of unique members.

<sup>5</sup>The total number of episodes and unique members met incidence criteria with respect to ILI in a 30-day washout.

<sup>6</sup>Due to varying monitoring period start and end dates, full calendar years are incomplete.

**Table 1b. Baseline Characteristics for Members Diagnosed with Pneumonia and Influenza (P&I)<sup>1,2</sup>, in the Sentinel Distributed Database (SDD) between July 1, 2014 and June 30, 2017, by Influenza Season**

Influenza Season <sup>3</sup>	July 1, 2014 - June 30, 2015		July 1, 2015 - June 30, 2016		July 1, 2016 - June 30, 2017	
Characteristic <sup>4</sup>	Number	Percent	Number	Percent	Number	Percent
Number of episodes <sup>5</sup>	3,614,409	100%	3,125,995	100%	3,608,933	100%
Number of unique members <sup>5</sup>	3,061,223	100%	2,620,897	100%	3,060,885	100%
Demographics	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Mean Age (Years)	61	18.7	62.5	18.3	61.1	18.3
Age (Years)	Number	Percent	Number	Percent	Number	Percent
6 months-4 years	148,946	4.1%	118,828	3.8%	137,006	3.8%
5-17 years	497,968	13.8%	418,017	13.4%	489,959	13.6%
18-49 years	522,352	14.5%	484,754	15.5%	546,530	15.1%
50-64 years	320,136	8.9%	216,564	6.9%	312,374	8.7%
65+ years	2,125,007	58.8%	1,887,832	60.4%	2,123,064	58.8%
Sex						
Female	1,715,590	56.0%	1,452,565	55.4%	1,701,521	55.6%
Male	1,345,542	44.0%	1,168,254	44.6%	1,359,299	44.4%
Other	91	0.0%	78	0.0%	65	0.0%
Year						
2014 <sup>6</sup>	1,647,628	45.6%	--	--	--	--
2015 <sup>6</sup>	1,966,781	54.4%	1,301,868	41.6%	--	--
2016 <sup>6</sup>	--	--	1,824,127	58.4%	1,393,314	38.6%
2017 <sup>6</sup>	--	--	--	--	2,215,619	61.4%
Recorded History of Characteristics in the 183 Days Prior to Index:						
Asthma	563,095	15.6%	495,371	15.8%	537,315	14.9%
Chronic obstructive pulmonary disease (COPD)	1,109,102	30.7%	1,056,832	33.8%	1,117,533	31.0%
Diabetes	1,078,970	29.90%	982,175	31.4%	1,077,757	29.9%
Obesity	467,727	12.9%	485,433	15.5%	601,697	16.7%
Influenza vaccination	1,160,653	32.1%	916,233	29.3%	1,113,890	30.9%
Recorded History of Characteristics in the Available Enrollment History:						
Pneumococcal vaccination	1,000,458	27.7%	1,163,863	37.2%	1,529,138	42.4%

<sup>1</sup>Matias et al., 2017.

<sup>2</sup>P&I diagnoses were captured in the ambulatory visit, other ambulatory visit, or emergency department care settings.

<sup>3</sup>Members can contribute to multiple influenza seasons.

<sup>4</sup>All metrics are based on total number of episodes per group, except for sex which is based on total number of unique members.

<sup>5</sup>The total number of episodes and unique members met incidence criteria with respect to P&I in a 30-day washout.

<sup>6</sup>Due to varying monitoring period start and end dates, full calendar years are incomplete.



**Table 1c. Baseline Characteristics for Members Diagnosed with Medically Attended Acute Respiratory Illness (MAARI)<sup>1,2</sup>, in the Sentinel Distributed Database (SDD) between July 1, 2014 and June 30, 2017, by Influenza Season**

Influenza Season <sup>3</sup>	July 1, 2014 - June 30, 2015		July 1, 2015 - June 30, 2016		July 1, 2016 - June 30, 2017	
Characteristic <sup>4</sup>	Number	Percent	Number	Percent	Number	Percent
Number of episodes <sup>5</sup>	12,727,154	100%	11,688,443	100%	12,623,014	100%
Number of unique members <sup>5</sup>	10,205,736	100%	9,476,073	100%	10,250,700	100%
Demographics	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Mean Age (Years)	41.5	19.5	41.9	19.4	42.8	19.3
Age (Years)	Number	Percent	Number	Percent	Number	Percent
6 months-4 years	1,423,311	11.2%	1,293,685	11.1%	1,291,812	10.2%
5-17 years	3,438,817	27.0%	3,202,589	27.4%	3,403,026	27.0%
18-49 years	1,757,777	13.8%	1,667,868	14.3%	1,810,810	14.3%
50-64 years	2,414,481	19.0%	2,096,764	17.9%	2,252,624	17.8%
65+ years	3,692,768	29.0%	3,427,537	29.3%	3,864,742	30.6%
Sex						
Female	6,034,887	59.1%	5,642,743	59.5%	6,099,299	59.5%
Male	4,170,580	40.9%	3,833,084	40.5%	4,151,182	40.5%
Other	269	0.0%	246	0.0%	219	0.0%
Year						
2014 <sup>6</sup>	6,016,485	47.3%	--	--	--	--
2015 <sup>6</sup>	6,710,669	52.7%	5,393,501	46.1%	--	--
2016 <sup>6</sup>	--	--	6,294,942	53.9%	5,658,551	44.8%
2017 <sup>6</sup>	--	--	--	--	6,964,463	55.2%
Recorded History of Characteristics in the 183 Days Prior to Index:						
Asthma	1,353,093	10.6%	1,232,131	10.5%	1,316,134	10.4%
Chronic obstructive pulmonary disease (COPD)	993,358	7.8%	952,544	8.1%	1,025,886	8.1%
Diabetes	1,806,859	14.2%	1,680,933	14.4%	1,849,577	14.7%
Obesity	1,008,224	7.9%	1,107,423	9.5%	1,407,513	11.2%
Influenza vaccination	3,506,591	27.6%	3,007,464	25.7%	3,416,358	27.1%
Recorded History of Characteristics in the Available Enrollment History:						
Pneumococcal vaccination	3,142,576	24.7%	3,481,972	29.8%	4,154,091	32.9%

<sup>1</sup>Omer et al., 2016.

<sup>2</sup>MAARI diagnoses were captured in the ambulatory visit, other ambulatory visit, or emergency department care settings.

<sup>3</sup>Members can contribute to multiple influenza seasons.

<sup>4</sup>All metrics are based on total number of episodes per group, except for sex which is based on total number of unique members.

<sup>5</sup>The total number of episodes and unique members met incidence criteria with respect to MAARI in a 30-day washout.

<sup>6</sup>Due to varying monitoring period start and end dates, full calendar years are incomplete.

**Table 2a. Summary of Endpoints among Members Diagnosed with Influenza-Like Illness (ILI), Pneumonia and Influenza (P&I), and Medically Attended Acute Respiratory Infections (MAARI) within 30 Days in the Sentinel Distributed Database (SDD) between July 1, 2014 and June 30, 2017, by Influenza Season**

	Exposed Members	Eligible Members <sup>1</sup>	Eligible Member-Days <sup>1</sup>	Exposed Members per 10,000 Eligible Members	Episodes	Episodes with an Endpoint	Episodes with an Endpoint per 10,000 Episodes	Total Days at Risk <sup>2</sup>
<b>Influenza Season<sup>3</sup>: July 1, 2014 - June 30, 2015</b>								
<b>Influenza-Like Illness in the Ambulatory Visit, Other Ambulatory Visit, or Emergency Department Care Settings</b>								
Outpatient influenza testing endpoint	1,053,238	67,540,200	20,537,144,084	156	1,078,978	616,246	5,711	14,129,574
Inpatient hospitalization endpoint	1,053,238	67,540,200	20,537,144,084	156	1,078,978	92,220	855	29,304,956
Biphasic positive airway pressure endpoint	1,053,238	67,540,200	20,537,144,084	156	1,078,978	2,133	20	31,505,563
Supplemental oxygen endpoint	1,053,238	67,540,200	20,537,144,084	156	1,078,978	62,355	578	29,962,398
Mechanical ventilation endpoint	1,053,238	67,540,200	20,537,144,084	156	1,078,978	8,773	81	31,364,841
Critical or observational care endpoint defined by CPT codes	1,053,238	67,540,200	20,537,144,084	156	1,078,978	109,662	1,016	28,821,231
Critical or observational care endpoint defined by CPT and revenue codes	1,053,238	67,540,200	20,537,144,084	156	1,078,978	110,258	1,022	28,805,599
Extracorporeal membrane oxygenation endpoint	1,053,238	67,540,200	20,537,144,084	156	1,078,978	27	0.3	31,536,458
<b>Influenza-Like Illness in the Ambulatory Visit or Other Ambulatory Visit Care Settings</b>								
Inpatient hospitalization endpoint	998,143	67,540,249	20,538,861,698	148	1,022,885	88,423	864	27,751,329
<b>Pneumonia and Influenza in the Ambulatory Visit, Other Ambulatory Visit, or Emergency Department Care Settings</b>								
Outpatient influenza testing endpoint	3,061,223	67,530,586	20,440,487,019	453	3,614,409	710,664	1,966	81,350,984
Inpatient hospitalization endpoint	3,061,223	67,530,586	20,440,487,019	453	3,614,409	1,057,372	2,925	76,445,561
Biphasic positive airway pressure endpoint	3,061,223	67,530,586	20,440,487,019	453	3,614,409	8,247	23	101,082,974
Supplemental oxygen endpoint	3,061,223	67,530,586	20,440,487,019	453	3,614,409	429,638	1,189	91,166,240
Mechanical ventilation endpoint	3,061,223	67,530,586	20,440,487,019	453	3,614,409	165,630	458	98,077,587
Critical or observational care endpoint defined by CPT codes	3,061,223	67,530,586	20,440,487,019	453	3,614,409	1,253,413	3,468	71,406,155
Critical or observational care endpoint defined by CPT and revenue codes	3,061,223	67,530,586	20,440,487,019	453	3,614,409	1,259,563	3,485	71,228,439
Extracorporeal membrane oxygenation endpoint	3,061,223	67,530,586	20,440,487,019	453	3,614,409	318	0.9	101,202,232
<b>Pneumonia and Influenza in the Ambulatory Visit or Other Ambulatory Visit Care Settings</b>								
Inpatient hospitalization endpoint	2,957,568	67,530,784	20,444,309,491	438	3,498,438	1,017,452	2,908	74,166,008
<b>Medically Attended Acute Respiratory Illness in the Ambulatory Visit, Other Ambulatory Visit, or Emergency Department Care Settings</b>								
Outpatient influenza testing endpoint	10,205,736	67,532,151	20,167,133,640	1,511	12,727,154	1,422,700	1,118	329,459,017
Inpatient hospitalization endpoint	10,205,736	67,532,151	20,167,133,640	1,511	12,727,154	392,626	308	360,377,321
Biphasic positive airway pressure endpoint	10,205,736	67,532,151	20,167,133,640	1,511	12,727,154	23,469	18	367,981,991
Supplemental oxygen endpoint	10,205,736	67,532,151	20,167,133,640	1,511	12,727,154	518,075	407	355,593,819

**Table 2a. Summary of Endpoints among Members Diagnosed with Influenza-Like Illness (ILI), Pneumonia and Influenza (P&I), and Medically Attended Acute Respiratory Infections (MAARI) within 30 Days in the Sentinel Distributed Database (SDD) between July 1, 2014 and June 30, 2017, by Influenza Season**

	Exposed Members	Eligible Members <sup>1</sup>	Eligible Member-Days <sup>1</sup>	Exposed Members per 10,000 Eligible Members	Episodes	Episodes with an Endpoint	Episodes with an Endpoint per 10,000 Episodes	Total Days at Risk <sup>2</sup>
Mechanical ventilation endpoint	10,205,736	67,532,151	20,167,133,640	1,511	12,727,154	31,327	25	367,793,121
Critical or observational care endpoint defined by CPT codes	10,205,736	67,532,151	20,167,133,640	1,511	12,727,154	462,944	364	358,486,000
Critical or observational care endpoint defined by CPT and revenue codes	10,205,736	67,532,151	20,167,133,640	1,511	12,727,154	467,129	367	358,402,371
Extracorporeal membrane oxygenation endpoint	10,205,736	67,532,151	20,167,133,640	1,511	12,727,154	78	0.1	368,328,404
<b>Medically Attended Acute Respiratory Illness in the Ambulatory Visit or Other Ambulatory Visit Care Settings</b>								
Inpatient hospitalization endpoint	9,876,149	67,532,650	20,182,139,634	1,462	12,267,141	371,077	303	347,528,341
<b>Influenza Season<sup>3</sup>: July 1, 2015 -June 30, 2016</b>								
<b>Influenza-Like Illness in the Ambulatory Visit, Other Ambulatory Visit, or Emergency Department Care Settings</b>								
Outpatient influenza testing endpoint	557,080	69,353,855	21,290,088,580	80	570,290	310,670	5,448	7,939,374
Inpatient hospitalization endpoint	557,080	69,353,855	21,290,088,580	80	570,290	40,600	712	15,838,543
Biphasic positive airway pressure endpoint	557,080	69,353,855	21,290,088,580	80	570,290	1,303	23	16,795,734
Supplemental oxygen endpoint	557,080	69,353,855	21,290,088,580	80	570,290	32,270	566	15,995,133
Mechanical ventilation endpoint	557,080	69,353,855	21,290,088,580	80	570,290	4,421	78	16,724,352
Critical or observational care endpoint defined by CPT codes	557,080	69,353,855	21,290,088,580	80	570,290	49,328	865	15,591,454
Critical or observational care endpoint defined by CPT and revenue codes	557,080	69,353,855	21,290,088,580	80	570,290	49,610	870	15,583,491
Extracorporeal membrane oxygenation endpoint	557,080	69,353,855	21,290,088,580	80	570,290	55	1.0	16,813,454
<b>Influenza-Like Illness in the Ambulatory Visit or Other Ambulatory Visit Care Settings</b>								
Inpatient hospitalization endpoint	525,017	69,353,868	21,291,095,661	76	537,738	38,386	714	14,931,577
<b>Pneumonia and Influenza in the Ambulatory Visit, Other Ambulatory Visit, or Emergency Department Care Settings</b>								
Outpatient influenza testing endpoint	2,620,897	69,344,461	21,192,791,289	378	3,125,995	404,556	1,294	75,917,606
Inpatient hospitalization endpoint	2,620,897	69,344,461	21,192,791,289	378	3,125,995	1,015,961	3,250	63,434,750
Biphasic positive airway pressure endpoint	2,620,897	69,344,461	21,192,791,289	378	3,125,995	8,295	27	87,149,192
Supplemental oxygen endpoint	2,620,897	69,344,461	21,192,791,289	378	3,125,995	424,244	1,357	77,348,097
Mechanical ventilation endpoint	2,620,897	69,344,461	21,192,791,289	378	3,125,995	159,267	509	84,246,461
Critical or observational care endpoint defined by CPT codes	2,620,897	69,344,461	21,192,791,289	378	3,125,995	1,192,948	3,816	58,844,843
Critical or observational care endpoint defined by CPT and revenue codes	2,620,897	69,344,461	21,192,791,289	378	3,125,995	1,198,709	3,835	58,675,941
Extracorporeal membrane oxygenation endpoint	2,620,897	69,344,461	21,192,791,289	378	3,125,995	465	1.5	87,263,994

**Table 2a. Summary of Endpoints among Members Diagnosed with Influenza-Like Illness (ILI), Pneumonia and Influenza (P&I), and Medically Attended Acute Respiratory Infections (MAARI) within 30 Days in the Sentinel Distributed Database (SDD) between July 1, 2014 and June 30, 2017, by Influenza Season**

	Exposed Members	Eligible Members <sup>1</sup>	Eligible Member-Days <sup>1</sup>	Exposed Members per 10,000 Eligible Members	Episodes	Episodes with an Endpoint	Episodes with an Endpoint per 10,000 Episodes	Total Days at Risk <sup>2</sup>
Inpatient hospitalization endpoint	2,536,552	69,344,626	21,196,026,058	366	3,030,561	977,712	3,226	61,703,105
<b>Medically Attended Acute Respiratory Illness in the Ambulatory Visit, Other Ambulatory Visit, or Emergency Department Care Settings</b>								
Outpatient influenza testing endpoint	9,476,073	69,346,288	20,936,235,143	1,366	11,688,443	903,111	773	314,074,008
<b>Infections (MAARI) with 30 Days of Follow-Up Time in the Sentinel Distributed Database (SDD) between July 1, 2014 and June 30, 2017, by Influenza Season</b>								
Inpatient hospitalization endpoint	9,476,073	69,346,288	20,936,235,143	1,366	11,688,443	330,885	283	332,212,173
Biphasic positive airway pressure endpoint	9,476,073	69,346,288	20,936,235,143	1,366	11,688,443	25,791	22	338,301,241
Supplemental oxygen endpoint	9,476,073	69,346,288	20,936,235,143	1,366	11,688,443	471,330	403	327,180,373
Mechanical ventilation endpoint	9,476,073	69,346,288	20,936,235,143	1,366	11,688,443	27,519	24	338,211,817
Critical or observational care endpoint defined by CPT codes	9,476,073	69,346,288	20,936,235,143	1,366	11,688,443	392,474	336	330,556,830
Critical or observational care endpoint defined by CPT and revenue codes	9,476,073	69,346,288	20,936,235,143	1,366	11,688,443	396,363	339	330,481,263
Extracorporeal membrane oxygenation endpoint	9,476,073	69,346,288	20,936,235,143	1,366	11,688,443	137	0.1	338,678,268
<b>Medically Attended Acute Respiratory Illness in the Ambulatory Visit or Other Ambulatory Visit Care Settings</b>								
Inpatient hospitalization endpoint	9,202,632	69,346,683	20,948,451,431	1,327	11,315,004	313,414	277	321,760,780
<b>Influenza Season<sup>3</sup>: July 1, 2016 - June 30, 2017</b>								
<b>Influenza-Like Illness in the Ambulatory Visit, Other Ambulatory Visit, or Emergency Department Care Settings</b>								
Outpatient influenza testing endpoint	965,271	71,966,665	21,827,369,709	134	988,101	609,787	6,171	11,719,831
Inpatient hospitalization endpoint	965,271	71,966,665	21,827,369,709	134	988,101	82,129	831	27,101,791
Biphasic positive airway pressure endpoint	965,271	71,966,665	21,827,369,709	134	988,101	2,724	28	29,076,731
Supplemental oxygen endpoint	965,271	71,966,665	21,827,369,709	134	988,101	61,292	620	27,551,462
Mechanical ventilation endpoint	965,271	71,966,665	21,827,369,709	134	988,101	7,838	79	28,958,146
Critical or observational care endpoint defined by CPT codes	965,271	71,966,665	21,827,369,709	134	988,101	97,647	988	26,656,911
Critical or observational care endpoint defined by CPT and revenue codes	965,271	71,966,665	21,827,369,709	134	988,101	98,223	994	26,641,365
Extracorporeal membrane oxygenation endpoint	965,271	71,966,665	21,827,369,709	134	988,101	36	0.4	29,116,324
<b>Influenza-Like Illness in the Ambulatory Visit or Other Ambulatory Visit Care Settings</b>								
Inpatient hospitalization endpoint	917,005	71,966,690	21,828,892,484	127	938,975	78,493	836	25,745,569
<b>Pneumonia and Influenza in the Ambulatory Visit, Other Ambulatory Visit, or Emergency Department Care Settings</b>								
Outpatient influenza testing endpoint	3,060,885	71,957,073	21,727,925,586	425	3,608,933	727,371	2,015	80,859,123
Inpatient hospitalization endpoint	3,060,885	71,957,073	21,727,925,586	425	3,608,933	1,090,360	3,021	75,644,916

**Table 2a. Summary of Endpoints among Members Diagnosed with Influenza-Like Illness (ILI), Pneumonia and Influenza (P&I), and Medically Attended Acute Respiratory Infections (MAARI) within 30 Days in the Sentinel Distributed Database (SDD) between July 1, 2014 and June 30, 2017, by Influenza Season**

	Exposed Members	Eligible Members <sup>1</sup>	Eligible Member-Days <sup>1</sup>	Exposed Members per 10,000 Eligible Members	Episodes	Episodes with an Endpoint	Episodes with an Endpoint per 10,000 Episodes	Total Days at Risk <sup>2</sup>
Biphasic positive airway pressure endpoint	3,060,885	71,957,073	21,727,925,586	425	3,608,933	11,385	32	101,153,924
Supplemental oxygen endpoint	3,060,885	71,957,073	21,727,925,586	425	3,608,933	479,557	1,329	90,037,311
Mechanical ventilation endpoint	3,060,885	71,957,073	21,727,925,586	425	3,608,933	170,681	473	98,078,070
Critical or observational care endpoint defined by CPT codes	3,060,885	71,957,073	21,727,925,586	425	3,608,933	1,261,878	3,497	71,185,427
Critical or observational care endpoint defined by CPT and revenue codes	3,060,885	71,957,073	21,727,925,586	425	3,608,933	1,268,321	3,514	70,996,719
Extracorporeal membrane oxygenation endpoint	3,060,885	71,957,073	21,727,925,586	425	3,608,933	572	1.6	101,315,542
<b>Pneumonia and Influenza in the Ambulatory Visit or Other Ambulatory Visit Care Settings</b>								
Inpatient hospitalization endpoint	2,961,889	71,957,277	21,731,651,085	412	3,497,804	1,049,015	2,999	73,537,691
<b>Medically Attended Acute Respiratory Illness in the Ambulatory Visit, Other Ambulatory Visit, or Emergency Department Care Settings</b>								
Outpatient influenza testing endpoint	10,250,700	71,958,290	21,458,225,085	1,425	12,623,014	1,404,105	1,112	327,118,104
Inpatient hospitalization endpoint	10,250,700	71,958,290	21,458,225,085	1,425	12,623,014	383,273	304	357,840,731
Biphasic positive airway pressure endpoint	10,250,700	71,958,290	21,458,225,085	1,425	12,623,014	34,388	27	365,020,746
Supplemental oxygen endpoint	10,250,700	71,958,290	21,458,225,085	1,425	12,623,014	535,857	425	352,396,368
Mechanical ventilation endpoint	10,250,700	71,958,290	21,458,225,085	1,425	12,623,014	32,136	25	364,965,344
Critical or observational care endpoint defined by CPT codes	10,250,700	71,958,290	21,458,225,085	1,425	12,623,014	450,325	357	355,988,255
Critical or observational care endpoint defined by CPT and revenue codes	10,250,700	71,958,290	21,458,225,085	1,425	12,623,014	454,707	360	355,900,734
Extracorporeal membrane oxygenation endpoint	10,250,700	71,958,290	21,458,225,085	1,425	12,623,014	135	0.1	365,522,422
<b>Medically Attended Acute Respiratory Illness in the Ambulatory Visit or Other Ambulatory Visit Care Settings</b>								
Inpatient hospitalization endpoint	9,968,428	71,958,716	21,470,601,913	1,385	12,241,923	363,848	297	347,236,915

<sup>1</sup>Eligible Members and Member-Days are reflective of the number of patients that met all cohort entry criteria on at least one day during the query period.

<sup>2</sup>Follow-up time begins on index diagnosis date and sums the total number of days until censoring at occurrence of: 1) death; 2) Data Partner end date; 3) monitoring period end date; 4) disenrollment; 5) death; or 6) end of the 30-day follow-up period. A post-index enrollment requirement was not included.

<sup>3</sup>Members can contribute to multiple influenza seasons.

**Table 2b. Summary of Endpoints among Members Diagnosed with Influenza-Like Illness (ILI), Pneumonia and Influenza (P&I), and Medically Attended Acute Respiratory Infections (MAARI) within 30 Days in the Sentinel Distributed Database (SDD) between July 1, 2014 and June 30, 2017, by Influenza Season and Age Group**

Age Group	Exposed Members	Eligible Members <sup>1</sup>	Eligible Member-Days <sup>1</sup>	Exposed Members per 10,000 Eligible Members	Episodes	Episodes with an Endpoint	Episodes with an Endpoint per 10,000 Episodes	Total Days at Risk <sup>2</sup>
<b>Influenza Season<sup>3</sup>: July 1, 2014 - June 30, 2015</b>								
<b>Influenza-Like Illness in the Ambulatory Visit, Other Ambulatory Visit, or Emergency Department Care Settings</b>								
<b>Outpatient influenza testing endpoint</b>								
6 months-4 years	76,792	2,435,258	597,843,299	315	79,033	59,355	7,510	643,477
5-17 years	217,597	7,406,592	2,075,418,041	294	221,766	162,700	7,337	1,906,162
18-49 years	279,682	23,227,196	6,363,280,406	120	283,994	163,102	5,743	3,713,896
50-64 years	140,383	13,094,071	3,833,175,590	107	143,551	73,391	5,113	2,133,259
65+ years	338,999	23,376,976	7,667,426,748	145	350,634	157,698	4,498	5,732,780
<b>Inpatient hospitalization endpoint</b>								
6 months-4 years	76,792	2,435,258	597,843,299	315	79,033	645	82	2,304,679
5-17 years	217,597	7,406,592	2,075,418,041	294	221,766	798	36	6,494,515
18-49 years	279,682	23,227,196	6,363,280,406	120	283,994	6,502	229	8,167,448
50-64 years	140,383	13,094,071	3,833,175,590	107	143,551	10,907	760	3,945,486
65+ years	338,999	23,376,976	7,667,426,748	145	350,634	73,368	2,092	8,392,828
<b>Biphasic positive airway pressure endpoint</b>								
6 months-4 years	76,792	2,435,258	597,843,299	315	79,033	*****	*****	2,318,821
5-17 years	217,597	7,406,592	2,075,418,041	294	221,766	*****	*****	6,511,047
18-49 years	279,682	23,227,196	6,363,280,406	120	283,994	716	25	8,298,508
50-64 years	140,383	13,094,071	3,833,175,590	107	143,551	844	59	4,192,629
65+ years	338,999	23,376,976	7,667,426,748	145	350,634	549	16	10,184,558
<b>Supplemental oxygen endpoint</b>								
6 months-4 years	76,792	2,435,258	597,843,299	315	79,033	2,954	374	2,250,003
5-17 years	217,597	7,406,592	2,075,418,041	294	221,766	4,062	183	6,406,829
18-49 years	279,682	23,227,196	6,363,280,406	120	283,994	10,178	358	8,045,419
50-64 years	140,383	13,094,071	3,833,175,590	107	143,551	10,385	723	3,939,644
65+ years	338,999	23,376,976	7,667,426,748	145	350,634	34,776	992	9,320,503
<b>Mechanical ventilation endpoint</b>								
6 months-4 years	76,792	2,435,258	597,843,299	315	79,033	32	4.1	2,318,127
5-17 years	217,597	7,406,592	2,075,418,041	294	221,766	45	2.0	6,510,317
18-49 years	279,682	23,227,196	6,363,280,406	120	283,994	529	19	8,298,093
50-64 years	140,383	13,094,071	3,833,175,590	107	143,551	1,382	96	4,176,539

**Table 2b. Summary of Endpoints among Members Diagnosed with Influenza-Like Illness (ILI), Pneumonia and Influenza (P&I), and Medically Attended Acute Respiratory Infections (MAARI) within 30 Days in the Sentinel Distributed Database (SDD) between July 1, 2014 and June 30, 2017, by Influenza Season and Age Group**

Age Group	Exposed Members	Eligible Members <sup>1</sup>	Eligible Member-Days <sup>1</sup>	Exposed Members per 10,000 Eligible Members	Episodes	Episodes with an Endpoint	Episodes with an Endpoint per 10,000 Episodes	Total Days at Risk <sup>2</sup>
65+ years	338,999	23,376,976	7,667,426,748	145	350,634	6,785	194	10,061,765
<b>Critical or observational care endpoint defined by CPT codes</b>								
6 months-4 years	76,792	2,435,258	597,843,299	315	79,033	720	91	2,302,234
5-17 years	217,597	7,406,592	2,075,418,041	294	221,766	802	36	6,493,616
18-49 years	279,682	23,227,196	6,363,280,406	120	283,994	7,539	265	8,131,799
50-64 years	140,383	13,094,071	3,833,175,590	107	143,551	13,734	957	3,867,800
65+ years	338,999	23,376,976	7,667,426,748	145	350,634	86,867	2,477	8,025,782
<b>Critical or observational care endpoint defined by CPT and Revenue codes</b>								
6 months-4 years	76,792	2,435,258	597,843,299	315	79,033	728	92	2,302,104
5-17 years	217,597	7,406,592	2,075,418,041	294	221,766	810	37	6,493,420
18-49 years	279,682	23,227,196	6,363,280,406	120	283,994	7,591	267	8,130,631
50-64 years	140,383	13,094,071	3,833,175,590	107	143,551	13,832	964	3,865,380
65+ years	338,999	23,376,976	7,667,426,748	145	350,634	87,297	2,490	8,014,064
<b>Extracorporeal membrane oxygenation endpoint</b>								
6 months-4 years	76,792	2,435,258	597,843,299	315	79,033	0	0	2,318,943
5-17 years	217,597	7,406,592	2,075,418,041	294	221,766	0	0	6,511,310
18-49 years	279,682	23,227,196	6,363,280,406	120	283,994	12	0.4	8,308,806
50-64 years	140,383	13,094,071	3,833,175,590	107	143,551	*****	*****	4,205,324
65+ years	338,999	23,376,976	7,667,426,748	145	350,634	*****	*****	10,192,075

**Table 2b. Summary of Endpoints among Members Diagnosed with Influenza-Like Illness (ILI), Pneumonia and Influenza (P&I), and Medically Attended Acute Respiratory Infections (MAARI) within 30 Days in the Sentinel Distributed Database (SDD) between July 1, 2014 and June 30, 2017, by Influenza Season and Age Group**

Age Group	Exposed Members	Eligible Members <sup>1</sup>	Eligible Member-Days <sup>1</sup>	Exposed Members per 10,000 Eligible Members	Episodes	Episodes with an Endpoint	Episodes with an Endpoint per 10,000 Episodes	Total Days at Risk <sup>2</sup>
<b>Influenza-Like Illness in the Ambulatory Visit or Other Ambulatory Visit Care Settings</b>								
<b>Inpatient hospitalization endpoint</b>								
6 months-4 years	68,956	2,435,271	598,092,179	283	70,990	460	65	2,071,189
5-17 years	204,700	7,406,606	2,075,818,308	276	208,592	612	29	6,110,394
18-49 years	259,004	23,227,218	6,363,914,150	112	263,032	5,709	217	7,571,165
50-64 years	133,872	13,094,076	3,833,377,956	102	136,951	10,147	741	3,771,443
65+ years	331,812	23,376,978	7,667,659,105	142	343,320	71,495	2,082	8,227,138
<b>Pneumonia and Influenza in the Ambulatory Visit, Other Ambulatory Visit, or Emergency Department Care Settings</b>								
<b>Outpatient influenza testing endpoint</b>								
6 months-4 years	138,546	2,435,112	595,549,544	569	148,946	67,792	4,551	2,451,141
5-17 years	307,350	7,406,444	2,072,212,168	415	320,136	169,468	5,294	4,571,316
18-49 years	459,073	23,226,562	6,355,525,313	198	497,968	177,668	3,568	9,415,860
50-64 years	439,089	13,092,462	3,818,682,607	335	522,352	88,584	1,696	12,349,283
65+ years	1,720,449	23,368,967	7,598,517,387	736	2,125,007	207,152	975	52,563,384
<b>Inpatient hospitalization endpoint</b>								
6 months-4 years	138,546	2,435,112	595,549,544	569	148,946	3,765	253	4,254,420
5-17 years	307,350	7,406,444	2,072,212,168	415	320,136	3,320	104	9,276,850
18-49 years	459,073	23,226,562	6,355,525,313	198	497,968	56,456	1,134	13,056,834
50-64 years	439,089	13,092,462	3,818,682,607	335	522,352	144,859	2,773	11,358,571
65+ years	1,720,449	23,368,967	7,598,517,387	736	2,125,007	848,972	3,995	38,498,886
<b>Biphasic positive airway pressure endpoint</b>								
6 months-4 years	138,546	2,435,112	595,549,544	569	148,946	54	3.6	4,347,222
5-17 years	307,350	7,406,444	2,072,212,168	415	320,136	140	4.4	9,353,284
18-49 years	459,073	23,226,562	6,355,525,313	198	497,968	1,539	31	14,376,355
50-64 years	439,089	13,092,462	3,818,682,607	335	522,352	3,005	58	14,773,619
65+ years	1,720,449	23,368,967	7,598,517,387	736	2,125,007	3,509	17	58,232,494



**Table 2b. Summary of Endpoints among Members Diagnosed with Influenza-Like Illness (ILI), Pneumonia and Influenza (P&I), and Medically Attended Acute Respiratory Infections (MAARI) within 30 Days in the Sentinel Distributed Database (SDD) between July 1, 2014 and June 30, 2017, by Influenza Season and Age Group**

Age Group	Exposed Members	Eligible Members <sup>1</sup>	Eligible Member-Days <sup>1</sup>	Exposed Members per 10,000 Eligible Members	Episodes	Episodes with an Endpoint	Episodes with an Endpoint per 10,000 Episodes	Total Days at Risk <sup>2</sup>
<b>Supplemental oxygen endpoint</b>								
6 months-4 years	138,546	2,435,112	595,549,544	569	148,946	16,453	1,105	3,920,377
5-17 years	307,350	7,406,444	2,072,212,168	415	320,136	18,189	568	8,872,003
18-49 years	459,073	23,226,562	6,355,525,313	198	497,968	40,061	804	13,390,896
50-64 years	439,089	13,092,462	3,818,682,607	335	522,352	70,428	1,348	13,140,692
65+ years	1,720,449	23,368,967	7,598,517,387	736	2,125,007	284,507	1,339	51,842,272
<b>Mechanical ventilation endpoint</b>								
6 months-4 years	138,546	2,435,112	595,549,544	569	148,946	269	18	4,341,890
5-17 years	307,350	7,406,444	2,072,212,168	415	320,136	272	8.5	9,349,521
18-49 years	459,073	23,226,562	6,355,525,313	198	497,968	9,624	193	14,193,190
50-64 years	439,089	13,092,462	3,818,682,607	335	522,352	29,556	566	14,210,216
65+ years	1,720,449	23,368,967	7,598,517,387	736	2,125,007	125,909	593	55,982,770
<b>Critical or observational care endpoint defined by CPT codes</b>								
6 months-4 years	138,546	2,435,112	595,549,544	569	148,946	3,857	259	4,250,879
5-17 years	307,350	7,406,444	2,072,212,168	415	320,136	3,239	101	9,277,180
18-49 years	459,073	23,226,562	6,355,525,313	198	497,968	71,934	1,445	12,620,706
50-64 years	439,089	13,092,462	3,818,682,607	335	522,352	182,897	3,501	10,342,940
65+ years	1,720,449	23,368,967	7,598,517,387	736	2,125,007	991,486	4,666	34,914,450
<b>Critical or observational care endpoint defined by CPT and Revenue codes</b>								
6 months-4 years	138,546	2,435,112	595,549,544	569	148,946	3,892	261	4,250,026
5-17 years	307,350	7,406,444	2,072,212,168	415	320,136	3,275	102	9,276,310
18-49 years	459,073	23,226,562	6,355,525,313	198	497,968	72,353	1,453	12,608,732
50-64 years	439,089	13,092,462	3,818,682,607	335	522,352	183,854	3,520	10,315,041
65+ years	1,720,449	23,368,967	7,598,517,387	736	2,125,007	996,189	4,688	34,778,330
<b>Extracorporeal membrane oxygenation endpoint</b>								
6 months-4 years	138,546	2,435,112	595,549,544	569	148,946	*****	*****	4,348,197
5-17 years	307,350	7,406,444	2,072,212,168	415	320,136	*****	*****	9,355,612
18-49 years	459,073	23,226,562	6,355,525,313	198	497,968	98	2.0	14,397,670
50-64 years	439,089	13,092,462	3,818,682,607	335	522,352	*****	*****	14,817,809
65+ years	1,720,449	23,368,967	7,598,517,387	736	2,125,007	121	0.6	58,282,944

**Table 2b. Summary of Endpoints among Members Diagnosed with Influenza-Like Illness (ILI), Pneumonia and Influenza (P&I), and Medically Attended Acute Respiratory Infections (MAARI) within 30 Days in the Sentinel Distributed Database (SDD) between July 1, 2014 and June 30, 2017, by Influenza Season and Age Group**

Age Group	Exposed Members	Eligible Members <sup>1</sup>	Eligible Member-Days <sup>1</sup>	Exposed Members per 10,000 Eligible Members	Episodes	Episodes with an Endpoint	Episodes with an Endpoint per 10,000 Episodes	Total Days at Risk <sup>2</sup>
<b>Pneumonia and Influenza in the Ambulatory Visit or Other Ambulatory Visit Care Settings</b>								
<b>Inpatient hospitalization endpoint</b>								
6 months-4 years	125,437	2,435,139	596,014,565	515	134,478	2,378	177	3,867,204
5-17 years	290,655	7,406,464	2,072,763,301	392	302,475	2,361	78	8,783,834
18-49 years	426,575	23,226,612	6,356,621,787	184	463,550	50,905	1,098	12,201,543
50-64 years	422,740	13,092,520	3,819,318,150	323	503,751	136,018	2,700	11,062,239
65+ years	1,695,326	23,369,049	7,599,591,688	725	2,094,184	825,790	3,943	38,251,188
<b>Medically Attended Acute Respiratory Illness in the Ambulatory Visit, Other Ambulatory Visit, or Emergency Department Care Settings</b>								
<b>Outpatient influenza testing endpoint</b>								
6 months-4 years	918,602	2,431,713	553,094,331	3,778	1,423,311	167,009	1,173	36,741,672
5-17 years	1,813,631	7,403,950	2,006,110,419	2,450	2,414,481	333,804	1,383	61,112,012
18-49 years	2,904,659	23,223,687	6,264,526,833	1,251	3,438,817	406,335	1,182	88,025,678
50-64 years	1,490,451	13,092,737	3,782,324,507	1,138	1,757,777	177,151	1,008	45,965,934
65+ years	3,117,344	23,375,916	7,561,077,550	1,334	3,692,768	338,401	916	97,613,721
<b>Inpatient hospitalization endpoint</b>								
6 months-4 years	918,602	2,431,713	553,094,331	3,778	1,423,311	7,724	54	40,948,672
5-17 years	1,813,631	7,403,950	2,006,110,419	2,450	2,414,481	8,285	34	70,046,962
18-49 years	2,904,659	23,223,687	6,264,526,833	1,251	3,438,817	48,508	141	98,323,939
50-64 years	1,490,451	13,092,737	3,782,324,507	1,138	1,757,777	60,655	345	49,651,652
65+ years	3,117,344	23,375,916	7,561,077,550	1,334	3,692,768	267,454	724	101,406,096

**Table 2b. Summary of Endpoints among Members Diagnosed with Influenza-Like Illness (ILI), Pneumonia and Influenza (P&I), and Medically Attended Acute Respiratory Infections (MAARI) within 30 Days in the Sentinel Distributed Database (SDD) between July 1, 2014 and June 30, 2017, by Influenza Season and Age Group**

Age Group	Exposed Members	Eligible Members <sup>1</sup>	Eligible Member-Days <sup>1</sup>	Exposed Members per 10,000 Eligible Members	Episodes	Episodes with an Endpoint	Episodes with an Endpoint per 10,000 Episodes	Total Days at Risk <sup>2</sup>
<b>Biphasic positive airway pressure endpoint</b>								
6 months-4 years	918,602	2,431,713	553,094,331	3,778	1,423,311	88	0.6	41,103,134
5-17 years	1,813,631	7,403,950	2,006,110,419	2,450	2,414,481	295	1.2	70,205,239
18-49 years	2,904,659	23,223,687	6,264,526,833	1,251	3,438,817	7,064	21	99,115,299
50-64 years	1,490,451	13,092,737	3,782,324,507	1,138	1,757,777	9,665	55	50,703,947
65+ years	3,117,344	23,375,916	7,561,077,550	1,334	3,692,768	6,357	17	106,854,372
<b>Supplemental oxygen endpoint</b>								
6 months-4 years	918,602	2,431,713	553,094,331	3,778	1,423,311	47,908	337	39,976,594
5-17 years	1,813,631	7,403,950	2,006,110,419	2,450	2,414,481	47,076	195	69,023,446
18-49 years	2,904,659	23,223,687	6,264,526,833	1,251	3,438,817	102,268	297	96,632,996
50-64 years	1,490,451	13,092,737	3,782,324,507	1,138	1,757,777	96,777	551	48,452,344
65+ years	3,117,344	23,375,916	7,561,077,550	1,334	3,692,768	224,046	607	101,508,439
<b>Mechanical ventilation endpoint</b>								
6 months-4 years	918,602	2,431,713	553,094,331	3,778	1,423,311	348	2.5	41,097,796
5-17 years	1,813,631	7,403,950	2,006,110,419	2,450	2,414,481	252	1.0	70,204,534
18-49 years	2,904,659	23,223,687	6,264,526,833	1,251	3,438,817	2,734	8.0	99,169,104
50-64 years	1,490,451	13,092,737	3,782,324,507	1,138	1,757,777	6,025	34	50,740,890
65+ years	3,117,344	23,375,916	7,561,077,550	1,334	3,692,768	21,968	59	106,580,797
<b>Critical or observational care endpoint defined by CPT codes</b>								
6 months-4 years	918,602	2,431,713	553,094,331	3,778	1,423,311	7,812	55	40,940,498
5-17 years	1,813,631	7,403,950	2,006,110,419	2,450	2,414,481	8,007	33	70,047,060
18-49 years	2,904,659	23,223,687	6,264,526,833	1,251	3,438,817	53,425	155	98,137,653
50-64 years	1,490,451	13,092,737	3,782,324,507	1,138	1,757,777	76,259	434	49,258,761
65+ years	3,117,344	23,375,916	7,561,077,550	1,334	3,692,768	317,441	860	100,102,028
<b>Critical or observational care endpoint defined by CPT and Revenue codes</b>								
6 months-4 years	918,602	2,431,713	553,094,331	3,778	1,423,311	7,888	55	40,938,985
5-17 years	1,813,631	7,403,950	2,006,110,419	2,450	2,414,481	8,082	33	70,045,652
18-49 years	2,904,659	23,223,687	6,264,526,833	1,251	3,438,817	54,020	157	98,126,279
50-64 years	1,490,451	13,092,737	3,782,324,507	1,138	1,757,777	77,084	439	49,242,898
65+ years	3,117,344	23,375,916	7,561,077,550	1,334	3,692,768	320,055	867	100,048,557

**Table 2b. Summary of Endpoints among Members Diagnosed with Influenza-Like Illness (ILI), Pneumonia and Influenza (P&I), and Medically Attended Acute Respiratory Infections (MAARI) within 30 Days in the Sentinel Distributed Database (SDD) between July 1, 2014 and June 30, 2017, by Influenza Season and Age Group**

Age Group	Exposed Members	Eligible Members <sup>1</sup>	Eligible Member-Days <sup>1</sup>	Exposed Members per 10,000 Eligible Members	Episodes	Episodes with an Endpoint	Episodes with an Endpoint per 10,000 Episodes	Total Days at Risk <sup>2</sup>
<b>Extracorporeal membrane oxygenation endpoint</b>								
6 months-4 years	918,602	2,431,713	553,094,331	3,778	1,423,311	*****	*****	41,104,517
5-17 years	1,813,631	7,403,950	2,006,110,419	2,450	2,414,481	*****	*****	70,209,733
18-49 years	2,904,659	23,223,687	6,264,526,833	1,251	3,438,817	30	0.1	99,218,440
50-64 years	1,490,451	13,092,737	3,782,324,507	1,138	1,757,777	*****	*****	50,847,585
65+ years	3,117,344	23,375,916	7,561,077,550	1,334	3,692,768	23	0.1	106,948,129
<b>Medically Attended Acute Respiratory Illness in the Ambulatory Visit or Other Ambulatory Visit Care Settings</b>								
<b>Inpatient hospitalization endpoint</b>								
6 months-4 years	879,868	2,431,930	555,740,095	3,618	1,348,107	6,042	45	38,804,207
5-17 years	1,756,286	7,404,072	2,008,954,281	2,372	2,327,342	6,940	30	67,544,292
18-49 years	2,766,061	23,223,934	6,270,186,595	1,191	3,261,205	42,885	132	93,312,444
50-64 years	1,446,178	13,092,803	3,784,093,299	1,105	1,702,534	56,321	331	48,150,776
65+ years	3,064,590	23,375,938	7,563,165,364	1,311	3,627,953	258,889	714	99,716,622
<b>Season<sup>3</sup>: July 1, 2015 - June 30, 2016</b>								
<b>Influenza-Like Illness in the Ambulatory Visit, Other Ambulatory Visit, or Emergency Department Care Settings</b>								
<b>Outpatient influenza testing endpoint</b>								
6 months-4 years	44,631	2,480,365	615,171,607	180	45,769	34,501	7,538	369,849
5-17 years	108,623	7,440,530	2,109,481,519	146	110,298	77,740	7,048	1,047,258
18-49 years	184,452	23,770,382	6,553,021,437	78	187,044	102,682	5,490	2,594,620
50-64 years	87,648	13,399,346	3,967,626,356	65	89,764	42,883	4,777	1,423,730
65+ years	131,854	24,275,197	8,044,787,661	54	137,415	52,864	3,847	2,503,917

**Table 2b. Summary of Endpoints among Members Diagnosed with Influenza-Like Illness (ILI), Pneumonia and Influenza (P&I), and Medically Attended Acute Respiratory Infections (MAARI) within 30 Days in the Sentinel Distributed Database (SDD) between July 1, 2014 and June 30, 2017, by Influenza Season and Age Group**

Age Group	Exposed Members	Eligible Members <sup>1</sup>	Eligible Member-Days <sup>1</sup>	Exposed Members per 10,000 Eligible Members	Episodes	Episodes with an Endpoint	Episodes with an Endpoint per 10,000 Episodes	Total Days at Risk <sup>2</sup>
<b>Inpatient hospitalization endpoint</b>								
6 months-4 years	44,631	2,480,365	615,171,607	180	45,769	483	106	1,344,007
5-17 years	108,623	7,440,530	2,109,481,519	146	110,298	531	48	3,264,275
18-49 years	184,452	23,770,382	6,553,021,437	78	187,044	4,998	267	5,409,503
50-64 years	87,648	13,399,346	3,967,626,356	65	89,764	8,089	901	2,452,074
65+ years	131,854	24,275,197	8,044,787,661	54	137,415	26,499	1,928	3,368,684
<b>Biphasic positive airway pressure endpoint</b>								
6 months-4 years	44,631	2,480,365	615,171,607	180	45,769	0	0	1,355,086
5-17 years	108,623	7,440,530	2,109,481,519	146	110,298	14	1.3	3,276,282
18-49 years	184,452	23,770,382	6,553,021,437	78	187,044	482	26	5,516,150
50-64 years	87,648	13,399,346	3,967,626,356	65	89,764	559	62	2,640,166
65+ years	131,854	24,275,197	8,044,787,661	54	137,415	248	18	4,008,050
<b>Supplemental oxygen endpoint</b>								
6 months-4 years	44,631	2,480,365	615,171,607	180	45,769	1,638	358	1,314,899
5-17 years	108,623	7,440,530	2,109,481,519	146	110,298	2,274	206	3,217,581
18-49 years	184,452	23,770,382	6,553,021,437	78	187,044	7,364	394	5,331,087
50-64 years	87,648	13,399,346	3,967,626,356	65	89,764	7,250	808	2,462,227
65+ years	131,854	24,275,197	8,044,787,661	54	137,415	13,744	1,000	3,669,339
<b>Mechanical ventilation endpoint</b>								
6 months-4 years	44,631	2,480,365	615,171,607	180	45,769	21	4.6	1,354,558
5-17 years	108,623	7,440,530	2,109,481,519	146	110,298	26	2.4	3,275,807
18-49 years	184,452	23,770,382	6,553,021,437	78	187,044	460	25	5,513,188
50-64 years	87,648	13,399,346	3,967,626,356	65	89,764	1,113	124	2,623,840
65+ years	131,854	24,275,197	8,044,787,661	54	137,415	2,801	204	3,956,959
<b>Critical or observational care endpoint defined by CPT codes</b>								
6 months-4 years	44,631	2,480,365	615,171,607	180	45,769	515	113	1,342,874
5-17 years	108,623	7,440,530	2,109,481,519	146	110,298	588	53	3,262,740
18-49 years	184,452	23,770,382	6,553,021,437	78	187,044	5,767	308	5,383,220
50-64 years	87,648	13,399,346	3,967,626,356	65	89,764	10,092	1,124	2,394,929
65+ years	131,854	24,275,197	8,044,787,661	54	137,415	32,366	2,355	3,207,691

**Table 2b. Summary of Endpoints among Members Diagnosed with Influenza-Like Illness (ILI), Pneumonia and Influenza (P&I), and Medically Attended Acute Respiratory Infections (MAARI) within 30 Days in the Sentinel Distributed Database (SDD) between July 1, 2014 and June 30, 2017, by Influenza Season and Age Group**

Age Group	Exposed Members	Eligible Members <sup>1</sup>	Eligible Member-Days <sup>1</sup>	Exposed Members per 10,000 Eligible Members	Episodes	Episodes with an Endpoint	Episodes with an Endpoint per 10,000 Episodes	Total Days at Risk <sup>2</sup>
<b>Critical or observational care endpoint defined by CPT and Revenue codes</b>								
6 months-4 years	44,631	2,480,365	615,171,607	180	45,769	517	113	1,342,821
5-17 years	108,623	7,440,530	2,109,481,519	146	110,298	593	54	3,262,644
18-49 years	184,452	23,770,382	6,553,021,437	78	187,044	5,806	310	5,382,212
50-64 years	87,648	13,399,346	3,967,626,356	65	89,764	10,152	1,131	2,393,185
65+ years	131,854	24,275,197	8,044,787,661	54	137,415	32,542	2,368	3,202,629
<b>Extracorporeal membrane oxygenation endpoint</b>								
6 months-4 years	44,631	2,480,365	615,171,607	180	45,769	0	0	1,355,086
5-17 years	108,623	7,440,530	2,109,481,519	146	110,298	*****	*****	3,276,418
18-49 years	184,452	23,770,382	6,553,021,437	78	187,044	29	1.6	5,522,850
50-64 years	87,648	13,399,346	3,967,626,356	65	89,764	*****	*****	2,647,863
65+ years	131,854	24,275,197	8,044,787,661	54	137,415	*****	*****	4,011,237
<b>Influenza-Like Illness in the Ambulatory Visit or Other Ambulatory Visit Care Settings</b>								
<b>Inpatient hospitalization endpoint</b>								
6 months-4 years	39,598	2,480,370	615,331,808	160	40,622	346	85	1,194,563
5-17 years	101,873	7,440,532	2,109,692,952	137	103,441	391	38	3,063,937
18-49 years	170,860	23,770,393	6,553,443,183	72	173,286	4,340	250	5,019,302
50-64 years	83,431	13,399,347	3,967,759,836	62	85,489	7,424	868	2,343,182
65+ years	129,380	24,275,199	8,044,867,882	53	134,900	25,885	1,919	3,310,593
<b>Pneumonia and Influenza in the Ambulatory Visit, Other Ambulatory Visit, or Emergency Department Care Settings</b>								
<b>Outpatient influenza testing endpoint</b>								
6 months-4 years	110,458	2,480,220	612,791,072	445	118,828	42,760	3,598	2,271,499
5-17 years	207,697	7,440,381	2,105,972,464	279	216,564	86,069	3,974	3,907,475
18-49 years	381,703	23,769,739	6,544,693,813	161	418,017	120,703	2,888	8,704,017
50-64 years	403,192	13,397,761	3,952,523,932	301	484,754	59,182	1,221	12,080,193
65+ years	1,520,775	24,267,344	7,976,810,008	627	1,887,832	95,842	508	48,954,422
<b>Inpatient hospitalization endpoint</b>								
6 months-4 years	110,458	2,480,220	612,791,072	445	118,828	3,422	288	3,389,609
5-17 years	207,697	7,440,381	2,105,972,464	279	216,564	3,021	140	6,287,977
18-49 years	381,703	23,769,739	6,544,693,813	161	418,017	58,547	1,401	10,710,450
50-64 years	403,192	13,397,761	3,952,523,932	301	484,754	153,013	3,157	10,066,340

**Table 2b. Summary of Endpoints among Members Diagnosed with Influenza-Like Illness (ILI), Pneumonia and Influenza (P&I), and Medically Attended Acute Respiratory Infections (MAARI) within 30 Days in the Sentinel Distributed Database (SDD) between July 1, 2014 and June 30, 2017, by Influenza Season and Age Group**

Age Group	Exposed Members	Eligible Members <sup>1</sup>	Eligible Member-Days <sup>1</sup>	Exposed Members per 10,000 Eligible Members	Episodes	Episodes with an Endpoint	Episodes with an Endpoint per 10,000 Episodes	Total Days at Risk <sup>2</sup>
65+ years	1,520,775	24,267,344	7,976,810,008	627	1,887,832	797,958	4,227	32,980,374
<b>Biphasic positive airway pressure endpoint</b>								
6 months-4 years	110,458	2,480,220	612,791,072	445	118,828	46	3.9	3,473,996
5-17 years	207,697	7,440,381	2,105,972,464	279	216,564	120	5.5	6,359,427
18-49 years	381,703	23,769,739	6,544,693,813	161	418,017	1,449	35	12,096,753
50-64 years	403,192	13,397,761	3,952,523,932	301	484,754	3,091	64	13,689,969
65+ years	1,520,775	24,267,344	7,976,810,008	627	1,887,832	3,589	19	51,529,047
<b>Supplemental oxygen endpoint</b>								
6 months-4 years	110,458	2,480,220	612,791,072	445	118,828	15,084	1,269	3,078,129
5-17 years	207,697	7,440,381	2,105,972,464	279	216,564	17,455	806	5,895,654
18-49 years	381,703	23,769,739	6,544,693,813	161	418,017	40,661	973	11,090,106
50-64 years	403,192	13,397,761	3,952,523,932	301	484,754	74,416	1,535	11,956,099
65+ years	1,520,775	24,267,344	7,976,810,008	627	1,887,832	276,628	1,465	45,328,109
<b>Mechanical ventilation endpoint</b>								
6 months-4 years	110,458	2,480,220	612,791,072	445	118,828	230	19	3,469,068
5-17 years	207,697	7,440,381	2,105,972,464	279	216,564	260	12	6,354,968
18-49 years	381,703	23,769,739	6,544,693,813	161	418,017	10,066	241	11,901,085
50-64 years	403,192	13,397,761	3,952,523,932	301	484,754	30,684	633	13,102,440
65+ years	1,520,775	24,267,344	7,976,810,008	627	1,887,832	118,027	625	49,418,900
<b>Critical or observational care endpoint defined by CPT codes</b>								
6 months-4 years	110,458	2,480,220	612,791,072	445	118,828	3,570	300	3,384,579
5-17 years	207,697	7,440,381	2,105,972,464	279	216,564	3,097	143	6,285,192
18-49 years	381,703	23,769,739	6,544,693,813	161	418,017	71,213	1,704	10,345,556
50-64 years	403,192	13,397,761	3,952,523,932	301	484,754	185,211	3,821	9,181,559
65+ years	1,520,775	24,267,344	7,976,810,008	627	1,887,832	929,857	4,926	29,647,957
<b>Critical or observational care endpoint defined by CPT and Revenue codes</b>								
6 months-4 years	110,458	2,480,220	612,791,072	445	118,828	3,597	303	3,383,990
5-17 years	207,697	7,440,381	2,105,972,464	279	216,564	3,129	144	6,284,326
18-49 years	381,703	23,769,739	6,544,693,813	161	418,017	71,654	1,714	10,332,911
50-64 years	403,192	13,397,761	3,952,523,932	301	484,754	186,217	3,841	9,152,750
65+ years	1,520,775	24,267,344	7,976,810,008	627	1,887,832	934,112	4,948	29,521,964

**Table 2b. Summary of Endpoints among Members Diagnosed with Influenza-Like Illness (ILI), Pneumonia and Influenza (P&I), and Medically Attended Acute Respiratory Infections (MAARI) within 30 Days in the Sentinel Distributed Database (SDD) between July 1, 2014 and June 30, 2017, by Influenza Season and Age Group**

Age Group	Exposed Members	Eligible Members <sup>1</sup>	Eligible Member-Days <sup>1</sup>	Exposed Members per 10,000 Eligible Members	Episodes	Episodes with an Endpoint	Episodes with an Endpoint per 10,000 Episodes	Total Days at Risk <sup>2</sup>
<b>Extracorporeal membrane oxygenation endpoint</b>								
6 months-4 years	110,458	2,480,220	612,791,072	445	118,828	*****	*****	3,474,567
5-17 years	207,697	7,440,381	2,105,972,464	279	216,564	*****	*****	6,361,044
18-49 years	381,703	23,769,739	6,544,693,813	161	418,017	135	3.2	12,116,064
50-64 years	403,192	13,397,761	3,952,523,932	301	484,754	144	3.0	13,732,832
65+ years	1,520,775	24,267,344	7,976,810,008	627	1,887,832	170	0.9	51,579,487
<b>Pneumonia and Influenza in the Ambulatory Visit or Other Ambulatory Visit Care Settings</b>								
<b>Inpatient hospitalization endpoint</b>								
6 months-4 years	100,077	2,480,243	613,162,107	404	107,360	2,158	201	3,087,633
5-17 years	196,605	7,440,393	2,106,351,183	264	204,789	2,134	104	5,964,318
18-49 years	354,602	23,769,798	6,545,641,471	149	389,100	52,844	1,358	10,018,825
50-64 years	388,173	13,397,797	3,953,135,507	290	467,402	143,538	3,071	9,822,150
65+ years	1,499,920	24,267,421	7,977,735,790	618	1,861,910	777,038	4,173	32,810,179
<b>Medically Attended Acute Respiratory Illness in the Ambulatory Visit, Other Ambulatory Visit, or Emergency Department Care Settings</b>								
<b>Outpatient influenza testing endpoint</b>								
6 months-4 years	860,581	2,476,791	573,855,767	3,475	1,293,685	113,651	879	34,449,305
5-17 years	1,599,361	7,438,205	2,046,472,656	2,150	2,096,764	201,982	963	55,642,963
18-49 years	2,725,284	23,767,082	6,458,373,813	1,147	3,202,589	293,088	915	84,435,660
50-64 years	1,420,956	13,398,022	3,917,731,257	1,061	1,667,868	121,308	727	44,968,829
65+ years	2,903,997	24,274,183	7,939,801,650	1,196	3,427,537	173,082	505	94,577,251
<b>Inpatient hospitalization endpoint</b>								
6 months-4 years	860,581	2,476,791	573,855,767	3,475	1,293,685	6,530	50	37,252,327
5-17 years	1,599,361	7,438,205	2,046,472,656	2,150	2,096,764	6,954	33	60,996,979
18-49 years	2,725,284	23,767,082	6,458,373,813	1,147	3,202,589	45,845	143	91,672,827
50-64 years	1,420,956	13,398,022	3,917,731,257	1,061	1,667,868	58,642	352	47,175,018
65+ years	2,903,997	24,274,183	7,939,801,650	1,196	3,427,537	212,914	621	95,115,022
<b>Biphasic positive airway pressure endpoint</b>								
6 months-4 years	860,581	2,476,791	573,855,767	3,475	1,293,685	111	0.9	37,381,965
5-17 years	1,599,361	7,438,205	2,046,472,656	2,150	2,096,764	328	1.6	61,126,494
18-49 years	2,725,284	23,767,082	6,458,373,813	1,147	3,202,589	7,881	25	92,401,365
50-64 years	1,420,956	13,398,022	3,917,731,257	1,061	1,667,868	10,650	64	48,157,147



**Table 2b. Summary of Endpoints among Members Diagnosed with Influenza-Like Illness (ILI), Pneumonia and Influenza (P&I), and Medically Attended Acute Respiratory Infections (MAARI) within 30 Days in the Sentinel Distributed Database (SDD) between July 1, 2014 and June 30, 2017, by Influenza Season and Age Group**

Age Group	Exposed Members	Eligible Members <sup>1</sup>	Eligible Member-Days <sup>1</sup>	Exposed Members per 10,000 Eligible Members	Episodes	Episodes with an Endpoint	Episodes with an Endpoint per 10,000 Episodes	Total Days at Risk <sup>2</sup>
65+ years	2,903,997	24,274,183	7,939,801,650	1,196	3,427,537	6,821	20	99,234,270
<b>Supplemental oxygen endpoint</b>								
6 months-4 years	860,581	2,476,791	573,855,767	3,475	1,293,685	41,917	324	36,408,244
5-17 years	1,599,361	7,438,205	2,046,472,656	2,150	2,096,764	38,914	186	60,161,179
18-49 years	2,725,284	23,767,082	6,458,373,813	1,147	3,202,589	96,227	300	90,096,053
50-64 years	1,420,956	13,398,022	3,917,731,257	1,061	1,667,868	94,452	566	45,989,178
65+ years	2,903,997	24,274,183	7,939,801,650	1,196	3,427,537	199,820	583	94,525,719
<b>Mechanical ventilation endpoint</b>								
6 months-4 years	860,581	2,476,791	573,855,767	3,475	1,293,685	311	2.4	37,377,514
5-17 years	1,599,361	7,438,205	2,046,472,656	2,150	2,096,764	260	1.2	61,126,040
18-49 years	2,725,284	23,767,082	6,458,373,813	1,147	3,202,589	2,734	8.5	92,466,417
50-64 years	1,420,956	13,398,022	3,917,731,257	1,061	1,667,868	6,110	37	48,204,582
65+ years	2,903,997	24,274,183	7,939,801,650	1,196	3,427,537	18,104	53	99,037,264
<b>Critical or observational care endpoint defined by CPT codes</b>								
6 months-4 years	860,581	2,476,791	573,855,767	3,475	1,293,685	6,775	52	37,242,252
5-17 years	1,599,361	7,438,205	2,046,472,656	2,150	2,096,764	6,904	33	60,992,812
18-49 years	2,725,284	23,767,082	6,458,373,813	1,147	3,202,589	49,350	154	91,519,981
50-64 years	1,420,956	13,398,022	3,917,731,257	1,061	1,667,868	72,593	435	46,812,049
65+ years	2,903,997	24,274,183	7,939,801,650	1,196	3,427,537	256,852	749	93,989,736
<b>Critical or observational care endpoint defined by CPT and Revenue codes</b>								
6 months-4 years	860,581	2,476,791	573,855,767	3,475	1,293,685	6,850	53	37,240,778
5-17 years	1,599,361	7,438,205	2,046,472,656	2,150	2,096,764	6,988	33	60,991,238
18-49 years	2,725,284	23,767,082	6,458,373,813	1,147	3,202,589	49,937	156	91,509,421
50-64 years	1,420,956	13,398,022	3,917,731,257	1,061	1,667,868	73,379	440	46,797,179
65+ years	2,903,997	24,274,183	7,939,801,650	1,196	3,427,537	259,209	756	93,942,647
<b>Extracorporeal membrane oxygenation endpoint</b>								
6 months-4 years	860,581	2,476,791	573,855,767	3,475	1,293,685	*****	*****	37,383,695
5-17 years	1,599,361	7,438,205	2,046,472,656	2,150	2,096,764	*****	*****	61,131,211
18-49 years	2,725,284	23,767,082	6,458,373,813	1,147	3,202,589	53	0.2	92,515,930
50-64 years	1,420,956	13,398,022	3,917,731,257	1,061	1,667,868	*****	*****	48,313,782
65+ years	2,903,997	24,274,183	7,939,801,650	1,196	3,427,537	45	0.1	99,333,650

**Table 2b. Summary of Endpoints among Members Diagnosed with Influenza-Like Illness (ILI), Pneumonia and Influenza (P&I), and Medically Attended Acute Respiratory Infections (MAARI) within 30 Days in the Sentinel Distributed Database (SDD) between July 1, 2014 and June 30, 2017, by Influenza Season and Age Group**

Age Group	Exposed Members	Eligible Members <sup>1</sup>	Eligible Member-Days <sup>1</sup>	Exposed Members per 10,000 Eligible Members	Episodes	Episodes with an Endpoint	Episodes with an Endpoint per 10,000 Episodes	Total Days at Risk <sup>2</sup>
<b>Medically Attended Acute Respiratory Illness in the Ambulatory Visit or Other Ambulatory Visit Care Settings</b>								
<b>Inpatient hospitalization endpoint</b>								
6 months-4 years	828,053	2,476,952	575,942,081	3,343	1,233,756	5,259	43	35,543,888
5-17 years	1,553,334	7,438,293	2,048,716,292	2,088	2,028,312	5,941	29	59,021,512
18-49 years	2,605,777	23,767,292	6,463,190,985	1,096	3,052,359	40,794	134	87,433,469
50-64 years	1,382,881	13,398,066	3,919,250,951	1,032	1,620,803	54,508	336	45,903,415
65+ years	2,865,022	24,274,206	7,941,351,122	1,180	3,379,774	206,912	612	93,858,496
<b>Season<sup>3</sup>: July 1, 2016 - June 30, 2017</b>								
<b>Influenza-Like Illness in the Ambulatory Visit, Other Ambulatory Visit, or Emergency Department Care Settings</b>								
<b>Outpatient influenza testing endpoint</b>								
6 months-4 years	67,342	2,564,471	631,144,408	263	69,154	55,295	7,996	468,694
5-17 years	214,392	7,650,858	2,143,195,923	280	218,110	170,491	7,817	1,590,840
18-49 years	256,758	24,617,900	6,717,117,792	104	260,181	158,321	6,085	3,165,273
50-64 years	137,472	13,870,250	4,047,699,693	99	140,188	79,045	5,639	1,881,705
65+ years	289,519	25,312,526	8,288,211,893	114	300,468	146,635	4,880	4,613,319
<b>Inpatient hospitalization endpoint</b>								
6 months-4 years	67,342	2,564,471	631,144,408	263	69,154	488	71	2,034,484
5-17 years	214,392	7,650,858	2,143,195,923	280	218,110	746	34	6,454,799
18-49 years	256,758	24,617,900	6,717,117,792	104	260,181	5,890	226	7,542,361
50-64 years	137,472	13,870,250	4,047,699,693	99	140,188	10,915	779	3,868,890
65+ years	289,519	25,312,526	8,288,211,893	114	300,468	64,090	2,133	7,201,257
<b>Biphasic positive airway pressure endpoint</b>								
6 months-4 years	67,342	2,564,471	631,144,408	263	69,154	*****	*****	2,045,299
5-17 years	214,392	7,650,858	2,143,195,923	280	218,110	*****	*****	6,470,080
18-49 years	256,758	24,617,900	6,717,117,792	104	260,181	853	33	7,659,101
50-64 years	137,472	13,870,250	4,047,699,693	99	140,188	1,158	83	4,116,813
65+ years	289,519	25,312,526	8,288,211,893	114	300,468	678	23	8,785,438
<b>Supplemental oxygen endpoint</b>								
6 months-4 years	67,342	2,564,471	631,144,408	263	69,154	2,066	299	1,996,226
5-17 years	214,392	7,650,858	2,143,195,923	280	218,110	3,584	164	6,378,452
18-49 years	256,758	24,617,900	6,717,117,792	104	260,181	9,359	360	7,427,823

**Table 2b. Summary of Endpoints among Members Diagnosed with Influenza-Like Illness (ILI), Pneumonia and Influenza (P&I), and Medically Attended Acute Respiratory Infections (MAARI) within 30 Days in the Sentinel Distributed Database (SDD) between July 1, 2014 and June 30, 2017, by Influenza Season and Age Group**

Age Group	Exposed Members	Eligible Members <sup>1</sup>	Eligible Member-Days <sup>1</sup>	Exposed Members per 10,000 Eligible Members	Episodes	Episodes with an Endpoint	Episodes with an Endpoint per 10,000 Episodes	Total Days at Risk <sup>2</sup>
50-64 years	137,472	13,870,250	4,047,699,693	99	140,188	11,356	810	3,840,435
65+ years	289,519	25,312,526	8,288,211,893	114	300,468	34,927	1,162	7,908,526
<b>Mechanical ventilation endpoint</b>								
6 months-4 years	67,342	2,564,471	631,144,408	263	69,154	25	3.6	2,044,740
5-17 years	214,392	7,650,858	2,143,195,923	280	218,110	40	1.8	6,469,664
18-49 years	256,758	24,617,900	6,717,117,792	104	260,181	490	19	7,661,251
50-64 years	137,472	13,870,250	4,047,699,693	99	140,188	1,356	97	4,104,247
65+ years	289,519	25,312,526	8,288,211,893	114	300,468	5,927	197	8,678,244
<b>Critical or observational care endpoint defined by CPT codes</b>								
6 months-4 years	67,342	2,564,471	631,144,408	263	69,154	565	82	2,032,209
5-17 years	214,392	7,650,858	2,143,195,923	280	218,110	801	37	6,452,493
18-49 years	256,758	24,617,900	6,717,117,792	104	260,181	6,600	254	7,515,461
50-64 years	137,472	13,870,250	4,047,699,693	99	140,188	13,305	949	3,801,030
65+ years	289,519	25,312,526	8,288,211,893	114	300,468	76,376	2,542	6,855,718
<b>Critical or observational care endpoint defined by CPT and Revenue codes</b>								
6 months-4 years	67,342	2,564,471	631,144,408	263	69,154	567	82	2,032,161
5-17 years	214,392	7,650,858	2,143,195,923	280	218,110	808	37	6,452,329
18-49 years	256,758	24,617,900	6,717,117,792	104	260,181	6,658	256	7,514,020
50-64 years	137,472	13,870,250	4,047,699,693	99	140,188	13,394	955	3,798,798
65+ years	289,519	25,312,526	8,288,211,893	114	300,468	76,796	2,556	6,844,057
<b>Extracorporeal membrane oxygenation endpoint</b>								
6 months-4 years	67,342	2,564,471	631,144,408	263	69,154	0	0	2,045,337
5-17 years	214,392	7,650,858	2,143,195,923	280	218,110	*****	*****	6,470,441
18-49 years	256,758	24,617,900	6,717,117,792	104	260,181	11	0.4	7,671,737
50-64 years	137,472	13,870,250	4,047,699,693	99	140,188	*****	*****	4,133,445
65+ years	289,519	25,312,526	8,288,211,893	114	300,468	*****	*****	8,795,364
<b>Influenza-Like Illness in the Ambulatory Visit or Other Ambulatory Visit Care Settings</b>								
<b>Inpatient hospitalization endpoint</b>								
6 months-4 years	61,321	2,564,476	631,337,368	239	62,957	366	58	1,853,837
5-17 years	202,974	7,650,863	2,143,552,805	265	206,475	583	28	6,114,359
18-49 years	238,658	24,617,910	6,717,677,588	97	241,833	5,161	213	7,020,321

**Table 2b. Summary of Endpoints among Members Diagnosed with Influenza-Like Illness (ILI), Pneumonia and Influenza (P&I), and Medically Attended Acute Respiratory Infections (MAARI) within 30 Days in the Sentinel Distributed Database (SDD) between July 1, 2014 and June 30, 2017, by Influenza Season and Age Group**

Age Group	Exposed Members	Eligible Members <sup>1</sup>	Eligible Member-Days <sup>1</sup>	Exposed Members per 10,000 Eligible Members	Episodes	Episodes with an Endpoint	Episodes with an Endpoint per 10,000 Episodes	Total Days at Risk <sup>2</sup>
50-64 years	130,960	13,870,253	4,047,904,393	94	133,577	10,078	754	3,695,996
65+ years	283,292	25,312,531	8,288,420,330	112	294,133	62,305	2,118	7,061,056
<b>Pneumonia and Influenza in the Ambulatory Visit, Other Ambulatory Visit, or Emergency Department Care Settings</b>								
<b>Outpatient influenza testing endpoint</b>								
6 months-4 years	127,766	2,564,327	628,923,429	498	137,006	63,814	4,658	2,213,797
5-17 years	300,479	7,650,733	2,140,099,816	393	312,374	178,191	5,704	4,114,077
18-49 years	451,651	24,617,262	6,708,873,861	183	489,959	177,700	3,627	9,195,711
50-64 years	460,576	13,868,550	4,032,257,613	332	546,530	99,531	1,821	12,745,660
65+ years	1,723,567	25,304,605	8,217,770,867	681	2,123,064	208,135	980	52,589,878
<b>Inpatient hospitalization endpoint</b>								
6 months-4 years	127,766	2,564,327	628,923,429	498	137,006	3,220	235	3,932,972
5-17 years	300,479	7,650,733	2,140,099,816	393	312,374	2,891	93	9,131,295
18-49 years	451,651	24,617,262	6,708,873,861	183	489,959	59,817	1,221	12,786,481
50-64 years	460,576	13,868,550	4,032,257,613	332	546,530	161,920	2,963	11,642,546
65+ years	1,723,567	25,304,605	8,217,770,867	681	2,123,064	862,512	4,063	38,151,622
<b>Biphasic positive airway pressure endpoint</b>								
6 months-4 years	127,766	2,564,327	628,923,429	498	137,006	52	3.8	4,012,008
5-17 years	300,479	7,650,733	2,140,099,816	393	312,374	138	4.4	9,197,344
18-49 years	451,651	24,617,262	6,708,873,861	183	489,959	2,017	41	14,190,974
50-64 years	460,576	13,868,550	4,032,257,613	332	546,530	4,336	79	15,469,492
65+ years	1,723,567	25,304,605	8,217,770,867	681	2,123,064	4,842	23	58,284,106
<b>Supplemental oxygen endpoint</b>								
6 months-4 years	127,766	2,564,327	628,923,429	498	137,006	14,631	1,068	3,630,626
5-17 years	300,479	7,650,733	2,140,099,816	393	312,374	17,094	547	8,744,950
18-49 years	451,651	24,617,262	6,708,873,861	183	489,959	42,813	874	13,138,196
50-64 years	460,576	13,868,550	4,032,257,613	332	546,530	83,438	1,527	13,528,863
65+ years	1,723,567	25,304,605	8,217,770,867	681	2,123,064	321,581	1,515	50,994,676
<b>Mechanical ventilation endpoint</b>								
6 months-4 years	127,766	2,564,327	628,923,429	498	137,006	201	15	4,007,858
5-17 years	300,479	7,650,733	2,140,099,816	393	312,374	283	9.1	9,192,937
18-49 years	451,651	24,617,262	6,708,873,861	183	489,959	10,529	215	13,993,204

**Table 2b. Summary of Endpoints among Members Diagnosed with Influenza-Like Illness (ILI), Pneumonia and Influenza (P&I), and Medically Attended Acute Respiratory Infections (MAARI) within 30 Days in the Sentinel Distributed Database (SDD) between July 1, 2014 and June 30, 2017, by Influenza Season and Age Group**

Age Group	Exposed Members	Eligible Members <sup>1</sup>	Eligible Member-Days <sup>1</sup>	Exposed Members per 10,000 Eligible Members	Episodes	Episodes with an Endpoint	Episodes with an Endpoint per 10,000 Episodes	Total Days at Risk <sup>2</sup>
50-64 years	460,576	13,868,550	4,032,257,613	332	546,530	32,478	594	14,859,531
65+ years	1,723,567	25,304,605	8,217,770,867	681	2,123,064	127,190	599	56,024,540
<b>Critical or observational care endpoint defined by CPT codes</b>								
6 months-4 years	127,766	2,564,327	628,923,429	498	137,006	3,392	248	3,927,240
5-17 years	300,479	7,650,733	2,140,099,816	393	312,374	3,009	96	9,126,569
18-49 years	451,651	24,617,262	6,708,873,861	183	489,959	70,265	1,434	12,477,535
50-64 years	460,576	13,868,550	4,032,257,613	332	546,530	189,999	3,476	10,864,785
65+ years	1,723,567	25,304,605	8,217,770,867	681	2,123,064	995,213	4,688	34,789,298
<b>Critical or observational care endpoint defined by CPT and Revenue codes</b>								
6 months-4 years	127,766	2,564,327	628,923,429	498	137,006	3,408	249	3,926,838
5-17 years	300,479	7,650,733	2,140,099,816	393	312,374	3,029	97	9,126,097
18-49 years	451,651	24,617,262	6,708,873,861	183	489,959	70,701	1,443	12,465,420
50-64 years	460,576	13,868,550	4,032,257,613	332	546,530	191,110	3,497	10,833,166
65+ years	1,723,567	25,304,605	8,217,770,867	681	2,123,064	1,000,073	4,711	34,645,198
<b>Extracorporeal membrane oxygenation endpoint</b>								
6 months-4 years	127,766	2,564,327	628,923,429	498	137,006	*****	*****	4,012,721
5-17 years	300,479	7,650,733	2,140,099,816	393	312,374	*****	*****	9,199,401
18-49 years	451,651	24,617,262	6,708,873,861	183	489,959	155	3.2	14,218,481
50-64 years	460,576	13,868,550	4,032,257,613	332	546,530	149	2.7	15,531,786
65+ years	1,723,567	25,304,605	8,217,770,867	681	2,123,064	255	1.2	58,353,153
<b>Pneumonia and Influenza in the Ambulatory Visit or Other Ambulatory Visit Care Settings</b>								
<b>Inpatient hospitalization endpoint</b>								
6 months-4 years	117,280	2,564,346	629,298,485	457	125,409	2,080	166	3,622,835
5-17 years	285,684	7,650,744	2,140,592,034	373	296,767	2,034	69	8,694,080
18-49 years	420,849	24,617,313	6,709,931,415	171	457,123	54,104	1,184	11,981,743
50-64 years	442,681	13,868,614	4,032,964,134	319	526,069	151,663	2,883	11,327,191
65+ years	1,698,417	25,304,695	8,218,865,017	671	2,092,436	839,134	4,010	37,911,842
<b>Medically Attended Acute Respiratory Illness in the Ambulatory Visit, Other Ambulatory Visit, or Emergency Department Care Settings</b>								
<b>Outpatient influenza testing endpoint</b>								
6 months-4 years	868,310	2,561,035	590,727,211	3,390	1,291,812	147,758	1,144	33,461,989
5-17 years	1,715,800	7,648,604	2,078,864,155	2,243	2,252,624	330,907	1,469	56,617,135

**Table 2b. Summary of Endpoints among Members Diagnosed with Influenza-Like Illness (ILI), Pneumonia and Influenza (P&I), and Medically Attended Acute Respiratory Infections (MAARI) within 30 Days in the Sentinel Distributed Database (SDD) between July 1, 2014 and June 30, 2017, by Influenza Season and Age Group**

Age Group	Exposed	Eligible Members <sup>1</sup>	Eligible Member-Days <sup>1</sup>	Exposed Members per 10,000 Eligible		Episodes with an Endpoint	Episodes with an Endpoint per 10,000 Episodes	Total Days at Risk <sup>2</sup>
	Members			Members	Episodes			
18-49 years	2,892,246	24,614,359	6,618,910,575	1,175	3,403,026	408,174	1,199	86,882,262
50-64 years	1,542,559	13,868,672	3,995,068,409	1,112	1,810,810	188,699	1,042	47,180,136
65+ years	3,266,979	25,311,111	8,174,654,735	1,291	3,864,742	328,567	850	102,976,582
<b>Inpatient hospitalization endpoint</b>								
6 months-4 years	868,310	2,561,035	590,727,211	3,390	1,291,812	6,249	48	37,181,144
5-17 years	1,715,800	7,648,604	2,078,864,155	2,243	2,252,624	6,856	30	65,535,061
18-49 years	2,892,246	24,614,359	6,618,910,575	1,175	3,403,026	47,445	139	97,268,827
50-64 years	1,542,559	13,868,672	3,995,068,409	1,112	1,810,810	63,128	349	51,138,484
65+ years	3,266,979	25,311,111	8,174,654,735	1,291	3,864,742	259,595	672	106,717,215
<b>Biphasic positive airway pressure endpoint</b>								
6 months-4 years	868,310	2,561,035	590,727,211	3,390	1,291,812	143	1.1	37,303,989
5-17 years	1,715,800	7,648,604	2,078,864,155	2,243	2,252,624	350	1.6	65,659,793
18-49 years	2,892,246	24,614,359	6,618,910,575	1,175	3,403,026	10,312	30	97,985,332
50-64 years	1,542,559	13,868,672	3,995,068,409	1,112	1,810,810	14,667	81	52,165,448
65+ years	3,266,979	25,311,111	8,174,654,735	1,291	3,864,742	8,916	23	111,906,184
<b>Supplemental oxygen endpoint</b>								
6 months-4 years	868,310	2,561,035	590,727,211	3,390	1,291,812	40,896	317	36,353,827
5-17 years	1,715,800	7,648,604	2,078,864,155	2,243	2,252,624	39,471	175	64,673,646
18-49 years	2,892,246	24,614,359	6,618,910,575	1,175	3,403,026	100,849	296	95,598,668
50-64 years	1,542,559	13,868,672	3,995,068,409	1,112	1,810,810	104,908	579	49,790,321
65+ years	3,266,979	25,311,111	8,174,654,735	1,291	3,864,742	249,733	646	105,979,906
<b>Mechanical ventilation endpoint</b>								
6 months-4 years	868,310	2,561,035	590,727,211	3,390	1,291,812	331	2.6	37,299,487
5-17 years	1,715,800	7,648,604	2,078,864,155	2,243	2,252,624	231	1.0	65,660,461
18-49 years	2,892,246	24,614,359	6,618,910,575	1,175	3,403,026	2,870	8.4	98,082,686
50-64 years	1,542,559	13,868,672	3,995,068,409	1,112	1,810,810	6,719	37	52,257,918
65+ years	3,266,979	25,311,111	8,174,654,735	1,291	3,864,742	21,985	57	111,664,792
<b>Critical or observational care endpoint defined by CPT codes</b>								
6 months-4 years	868,310	2,561,035	590,727,211	3,390	1,291,812	6,860	53	37,164,088
5-17 years	1,715,800	7,648,604	2,078,864,155	2,243	2,252,624	7,015	31	65,526,103
18-49 years	2,892,246	24,614,359	6,618,910,575	1,175	3,403,026	49,875	147	97,132,531

**Table 2b. Summary of Endpoints among Members Diagnosed with Influenza-Like Illness (ILI), Pneumonia and Influenza (P&I), and Medically Attended Acute Respiratory Infections (MAARI) within 30 Days in the Sentinel Distributed Database (SDD) between July 1, 2014 and June 30, 2017, by Influenza Season and Age Group**

Age Group	Exposed Members	Eligible Members <sup>1</sup>	Eligible Member-Days <sup>1</sup>	Exposed Members per 10,000 Eligible Members	Episodes	Episodes with an Endpoint	Episodes with an Endpoint per 10,000 Episodes	Total Days at Risk <sup>2</sup>
50-64 years	1,542,559	13,868,672	3,995,068,409	1,112	1,810,810	76,558	423	50,781,275
65+ years	3,266,979	25,311,111	8,174,654,735	1,291	3,864,742	310,017	802	105,384,258
<b>Critical or observational care endpoint defined by CPT and Revenue codes</b>								
6 months-4 years	868,310	2,561,035	590,727,211	3,390	1,291,812	6,919	54	37,163,008
5-17 years	1,715,800	7,648,604	2,078,864,155	2,243	2,252,624	7,083	31	65,524,815
18-49 years	2,892,246	24,614,359	6,618,910,575	1,175	3,403,026	50,449	148	97,121,937
50-64 years	1,542,559	13,868,672	3,995,068,409	1,112	1,810,810	77,360	427	50,765,616
65+ years	3,266,979	25,311,111	8,174,654,735	1,291	3,864,742	312,896	810	105,325,358
<b>Extracorporeal membrane oxygenation endpoint</b>								
6 months-4 years	868,310	2,561,035	590,727,211	3,390	1,291,812	*****	*****	37,306,054
5-17 years	1,715,800	7,648,604	2,078,864,155	2,243	2,252,624	*****	*****	65,665,103
18-49 years	2,892,246	24,614,359	6,618,910,575	1,175	3,403,026	30	0.1	98,135,331
50-64 years	1,542,559	13,868,672	3,995,068,409	1,112	1,810,810	42	0.2	52,379,482
65+ years	3,266,979	25,311,111	8,174,654,735	1,291	3,864,742	48	0.1	112,036,452
<b>Medically Attended Acute Respiratory Illness in the Ambulatory Visit or Other Ambulatory Visit Care Settings</b>								
<b>Inpatient hospitalization endpoint</b>								
6 months-4 years	838,314	2,561,167	592,611,157	3,273	1,237,458	4,999	40	35,636,598
5-17 years	1,670,035	7,648,692	2,081,067,139	2,183	2,184,961	5,812	27	63,586,803
18-49 years	2,773,398	24,614,598	6,623,670,164	1,127	3,253,535	42,397	130	93,067,437
50-64 years	1,500,769	13,868,741	3,996,725,098	1,082	1,759,078	58,647	333	49,741,974
65+ years	3,219,425	25,311,140	8,176,528,355	1,272	3,806,891	251,993	662	105,204,103

<sup>1</sup>Eligible Members and Member-Days are reflective of the number of patients that met all cohort entry criteria on at least one day during the query period.

<sup>2</sup>Follow-up time begins on index diagnosis date and sums the total number of days until censoring at occurrence of: 1) death; 2) Data Partner end date; 3) monitoring period end date; 4) disenrollment; 5) death; or 6) end of the 30-day follow-up period. A post-index enrollment requirement was not included.

<sup>3</sup>Members can contribute to multiple influenza seasons.

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

**Appendix A. Dates of Available Data for Each Data Partner (DP) as of Request Distribution Date (March 25, 2019)**

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

\* 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 Revision, Clinical Modification (ICD-9-CM) and International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Cohorts in this Request**

Code	Description	Code Category	Code Type
<b>Influenza-Like Illness (ILI)<sup>1</sup></b>			
487	Influenza	Diagnosis	ICD-9-CM
487.0	Influenza with pneumonia	Diagnosis	ICD-9-CM
487.1	Influenza with other respiratory manifestations	Diagnosis	ICD-9-CM
487.8	Influenza with other manifestations	Diagnosis	ICD-9-CM
488	Influenza due to certain identified influenza viruses	Diagnosis	ICD-9-CM
488.0	Influenza due to identified avian influenza virus	Diagnosis	ICD-9-CM
488.01	Influenza due to identified avian influenza virus with pneumonia	Diagnosis	ICD-9-CM
488.02	Influenza due to identified avian influenza virus with other respiratory manifestations	Diagnosis	ICD-9-CM
488.09	Influenza due to identified avian influenza virus with other manifestations	Diagnosis	ICD-9-CM
488.1	Influenza due to identified 2009 H1N1 influenza virus	Diagnosis	ICD-9-CM
488.11	Influenza due to identified 2009 H1N1 influenza virus with pneumonia	Diagnosis	ICD-9-CM
488.12	Influenza due to identified 2009 H1N1 influenza virus with other respiratory manifestations	Diagnosis	ICD-9-CM
488.19	Influenza due to identified 2009 H1N1 influenza virus with other manifestations	Diagnosis	ICD-9-CM
488.8	Influenza due to novel influenza A	Diagnosis	ICD-9-CM
488.81	Influenza due to identified novel influenza A virus with pneumonia	Diagnosis	ICD-9-CM
488.82	Influenza due to identified novel influenza A virus with other respiratory manifestations	Diagnosis	ICD-9-CM
488.89	Influenza due to identified novel influenza A virus with other manifestations	Diagnosis	ICD-9-CM
J09.X1	Influenza due to identified novel influenza A virus with pneumonia	Diagnosis	ICD-10-CM
J09.X2	Influenza due to identified novel influenza A virus with other respiratory manifestations	Diagnosis	ICD-10-CM
J09.X3	Influenza due to identified novel influenza A virus with gastrointestinal manifestations	Diagnosis	ICD-10-CM
J09.X9	Influenza due to identified novel influenza A virus with other manifestations	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
J10.1	Influenza due to other identified influenza virus with other respiratory manifestations	Diagnosis	ICD-10-CM
J10.2	Influenza due to other identified influenza virus with gastrointestinal manifestations	Diagnosis	ICD-10-CM
J10.81	Influenza due to other identified influenza virus with encephalopathy	Diagnosis	ICD-10-CM
J10.82	Influenza due to other identified influenza virus with myocarditis	Diagnosis	ICD-10-CM

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

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
J10.83	Influenza due to other identified influenza virus with otitis media	Diagnosis	ICD-10-CM
J10.89	Influenza due to other identified influenza virus with other manifestations	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
J11.1	Influenza due to unidentified influenza virus with other respiratory manifestations	Diagnosis	ICD-10-CM
J11.2	Influenza due to unidentified influenza virus with gastrointestinal manifestations	Diagnosis	ICD-10-CM
J11.81	Influenza due to unidentified influenza virus with encephalopathy	Diagnosis	ICD-10-CM
J11.82	Influenza due to unidentified influenza virus with myocarditis	Diagnosis	ICD-10-CM
J11.83	Influenza due to unidentified influenza virus with otitis media	Diagnosis	ICD-10-CM
J11.89	Influenza due to unidentified influenza virus with other manifestations	Diagnosis	ICD-10-CM
<b>Pneumonia and Influenza (P&amp;I)<sup>2</sup></b>			
480	Viral pneumonia	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
482.0	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
482.30	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
482.40	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
482.83	Pneumonia due to other gram-negative bacteria	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
483.0	Pneumonia due to Mycoplasma pneumoniae	Diagnosis	ICD-9-CM
483.1	Pneumonia due to Chlamydia	Diagnosis	ICD-9-CM

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

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
483.8	Pneumonia due to other specified organism	Diagnosis	ICD-9-CM
484	Pneumonia in infectious diseases classified elsewhere	Diagnosis	ICD-9-CM
484.3	Pneumonia in whooping cough	Diagnosis	ICD-9-CM
484.5	Pneumonia in anthrax	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	Diagnosis	ICD-9-CM
487.0	Influenza with pneumonia	Diagnosis	ICD-9-CM
487.1	Influenza with other respiratory manifestations	Diagnosis	ICD-9-CM
487.8	Influenza with other manifestations	Diagnosis	ICD-9-CM
488	Influenza due to certain identified influenza viruses	Diagnosis	ICD-9-CM
488.0	Influenza due to identified avian influenza virus	Diagnosis	ICD-9-CM
488.01	Influenza due to identified avian influenza virus with pneumonia	Diagnosis	ICD-9-CM
488.02	Influenza due to identified avian influenza virus with other respiratory manifestations	Diagnosis	ICD-9-CM
488.09	Influenza due to identified avian influenza virus with other manifestations	Diagnosis	ICD-9-CM
488.1	Influenza due to identified 2009 H1N1 influenza virus	Diagnosis	ICD-9-CM
488.11	Influenza due to identified 2009 H1N1 influenza virus with pneumonia	Diagnosis	ICD-9-CM
488.12	Influenza due to identified 2009 H1N1 influenza virus with other respiratory manifestations	Diagnosis	ICD-9-CM
488.19	Influenza due to identified 2009 H1N1 influenza virus with other manifestations	Diagnosis	ICD-9-CM
488.8	Influenza due to novel influenza A	Diagnosis	ICD-9-CM
488.81	Influenza due to identified novel influenza A virus with pneumonia	Diagnosis	ICD-9-CM
488.82	Influenza due to identified novel influenza A virus with other respiratory manifestations	Diagnosis	ICD-9-CM
488.89	Influenza due to identified novel influenza A virus with other manifestations	Diagnosis	ICD-9-CM
J09.X1	Influenza due to identified novel influenza A virus with pneumonia	Diagnosis	ICD-10-CM
J09.X2	Influenza due to identified novel influenza A virus with other respiratory manifestations	Diagnosis	ICD-10-CM
J09.X3	Influenza due to identified novel influenza A virus with gastrointestinal manifestations	Diagnosis	ICD-10-CM
J09.X9	Influenza due to identified novel influenza A virus with other manifestations	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

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

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
J10.1	Influenza due to other identified influenza virus with other respiratory manifestations	Diagnosis	ICD-10-CM
J10.2	Influenza due to other identified influenza virus with gastrointestinal manifestations	Diagnosis	ICD-10-CM
J10.81	Influenza due to other identified influenza virus with encephalopathy	Diagnosis	ICD-10-CM
J10.82	Influenza due to other identified influenza virus with myocarditis	Diagnosis	ICD-10-CM
J10.83	Influenza due to other identified influenza virus with otitis media	Diagnosis	ICD-10-CM
J10.89	Influenza due to other identified influenza virus with other manifestations	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
J11.1	Influenza due to unidentified influenza virus with other respiratory manifestations	Diagnosis	ICD-10-CM
J11.2	Influenza due to unidentified influenza virus with gastrointestinal manifestations	Diagnosis	ICD-10-CM
J11.81	Influenza due to unidentified influenza virus with encephalopathy	Diagnosis	ICD-10-CM
J11.82	Influenza due to unidentified influenza virus with myocarditis	Diagnosis	ICD-10-CM
J11.83	Influenza due to unidentified influenza virus with otitis media	Diagnosis	ICD-10-CM
J11.89	Influenza due to unidentified influenza virus with other manifestations	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
J15.4	Pneumonia due to other streptococci	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

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

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
J18.0	Bronchopneumonia, 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
<b>Medically Attended Acute Respiratory Illness (MAARI)<sup>3</sup></b>			
079.99	Unspecified viral infection, in conditions classified elsewhere and of unspecified site	Diagnosis	ICD-9-CM
079.3	Rhinovirus infection in conditions classified elsewhere and of unspecified site	Diagnosis	ICD-9-CM
460	Acute nasopharyngitis (common cold)	Diagnosis	ICD-9-CM
462	Acute pharyngitis	Diagnosis	ICD-9-CM
463	Acute tonsillitis	Diagnosis	ICD-9-CM
464.0	Acute laryngitis	Diagnosis	ICD-9-CM
464.1	Acute tracheitis	Diagnosis	ICD-9-CM
465	Acute upper respiratory infections of multiple or unspecified sites	Diagnosis	ICD-9-CM
465.9	Acute upper respiratory infections of unspecified site	Diagnosis	ICD-9-CM
478.9	Other and unspecified diseases of upper respiratory tract	Diagnosis	ICD-9-CM
487	Influenza	Diagnosis	ICD-9-CM
487.0	Influenza with pneumonia	Diagnosis	ICD-9-CM
487.1	Influenza with other respiratory manifestations	Diagnosis	ICD-9-CM
488	Influenza due to certain identified influenza viruses	Diagnosis	ICD-9-CM
488.1	Influenza due to identified 2009 H1N1 influenza virus	Diagnosis	ICD-9-CM
490	Bronchitis, not specified as acute or chronic	Diagnosis	ICD-9-CM
B97.89	Other viral agents as the cause of diseases classified elsewhere	Diagnosis	ICD-10-CM
J00	Acute nasopharyngitis [common cold]	Diagnosis	ICD-10-CM
J02.8	Acute pharyngitis due to other specified organisms	Diagnosis	ICD-10-CM
J02.9	Acute pharyngitis, unspecified	Diagnosis	ICD-10-CM
J03.80	Acute tonsillitis due to other specified organisms	Diagnosis	ICD-10-CM
J03.81	Acute recurrent tonsillitis due to other specified organisms	Diagnosis	ICD-10-CM
J03.90	Acute tonsillitis, unspecified	Diagnosis	ICD-10-CM
J03.91	Acute recurrent tonsillitis, unspecified	Diagnosis	ICD-10-CM
J06.9	Acute upper respiratory infection, unspecified	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

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

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
J10.08	Influenza due to other identified influenza virus with other specified pneumonia	Diagnosis	ICD-10-CM
J10.1	Influenza due to other identified influenza virus with other respiratory manifestations	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
J11.1	Influenza due to unidentified influenza virus with other respiratory manifestations	Diagnosis	ICD-10-CM
J12.9	Viral pneumonia, unspecified	Diagnosis	ICD-10-CM
J20.6	Acute bronchitis due to rhinovirus	Diagnosis	ICD-10-CM
J39.8	Other specified diseases of upper respiratory tract	Diagnosis	ICD-10-CM
J39.9	Disease of upper respiratory tract, unspecified	Diagnosis	ICD-10-CM
J40	Bronchitis, not specified as acute or chronic	Diagnosis	ICD-10-CM
B97.89	Other viral agents as the cause of diseases classified elsewhere	Diagnosis	ICD-10-CM

<sup>1</sup>Eick-Cost et al., 2015

<sup>2</sup>Matias et al., 2017

<sup>3</sup>Omer et al., 2016

**Appendix C. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS), Current Procedural Terminology (CPT), Healthcare Common Procedure Coding System (HCPCS), and Revenue Codes (RE) Used to Define Endpoints in this Request**

Code	Description	Code Category	Code Type
<b>Influenza Testing</b>			
87275	Infectious agent antigen detection by immunofluorescent technique; influenza B virus	Procedure	CPT-4
87276	Infectious agent antigen detection by immunofluorescent technique; influenza A virus	Procedure	CPT-4
87400	Infectious agent antigen detection by immunoassay technique, (eg, enzyme immunoassay [EIA], enzyme-linked immunosorbent assay [ELISA], immunochemiluminometric assay [IMCA]) qualitative or semiquantitative, multiple-step method; Influenza, A or B, each	Procedure	CPT-4
87501	Infectious agent detection by nucleic acid (DNA or RNA); influenza virus, includes reverse transcription, when performed, and amplified probe technique, each type or subtype	Procedure	CPT-4
87502	Infectious agent detection by nucleic acid (DNA or RNA); influenza virus, for multiple types or sub-types, includes multiplex reverse transcription, when performed, and multiplex amplified probe technique, first 2 types or sub-types	Procedure	CPT-4
87503	Infectious agent detection by nucleic acid (DNA or RNA); influenza virus, for multiple types or sub-types, includes multiplex reverse transcription, when performed, and multiplex amplified probe technique, each additional influenza virus type or sub-type beyond 2 (List separately in addition to code for primary procedure)	Procedure	CPT-4
87804	Infectious agent antigen detection by immunoassay with direct optical observation; Influenza	Procedure	CPT-4
86710	Influenza A and B antibody serology (complement fixation)	Procedure	CPT-4
<b>Biphasic Positive Airway Pressure (BiPAP)</b>			
A7027	Combination oral/nasal mask, used with continuous positive airway pressure device, each	Procedure	HCPCS
A7030	Full face mask used with positive airway pressure device, each	Procedure	HCPCS
A7034	Nasal interface (mask or cannula type) used with positive airway pressure device, with or without head strap	Procedure	HCPCS
A7044	Oral interface used with positive airway pressure device, each	Procedure	HCPCS
A7045	Exhalation port with or without swivel used with accessories for positive airway devices, replacement only	Procedure	HCPCS
A7046	Water chamber for humidifier, used with positive airway pressure device, replacement, each	Procedure	HCPCS
E0470	Respiratory assist device, bi-level pressure capability, without backup rate feature, used with noninvasive interface, e.g., nasal or facial mask (intermittent assist device with continuous positive airway pressure device)	Procedure	HCPCS
E0471	Respiratory assist device, bi-level pressure capability, with back-up rate feature, used with noninvasive interface, e.g., nasal or facial mask (intermittent assist device with continuous positive airway pressure device)	Procedure	HCPCS

**Appendix C. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS), Current Procedural Terminology (CPT), Healthcare Common Procedure Coding System (HCPCS), and Revenue Codes (RE) Used to Define Endpoints in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
E0472	Respiratory assist device, bi-level pressure capability, with backup rate feature, used with invasive interface, e.g., tracheostomy tube (intermittent assist device with continuous positive airway pressure device)	Procedure	HCPCS
E0561	Humidifier, nonheated, used with positive airway pressure device	Procedure	HCPCS
E0562	Humidifier, heated, used with positive airway pressure device	Procedure	HCPCS
<b>Supplemental Oxygen</b>			
93.96	Other oxygen enrichment	Procedure	ICD-9-CM
V46.2	Other dependence on machines, supplemental oxygen	Diagnosis	ICD-9-CM
3E0F7GC	Introduction of Other Therapeutic Substance into Respiratory Tract, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
Z99.81	Dependence on supplemental oxygen	Diagnosis	ICD-10-CM
94640	Pressurized or nonpressurized inhalation treatment for acute airway obstruction or for sputum induction for diagnostic purposes (eg, with an aerosol generator, nebulizer, metered dose inhaler or intermittent positive pressure breathing [IPPB] device)	Procedure	CPT-4
94644	Continuous inhalation treatment with aerosol medication for acute airway obstruction; first hour	Procedure	CPT-4
94645	Continuous inhalation treatment with aerosol medication for acute airway obstruction; each additional hour (List separately in addition to code for primary procedure)	Procedure	CPT-4
<b>Mechanical Ventilation</b>			
93.90	Non-invasive mechanical ventilation	Procedure	ICD-9-CM
96.03	Insertion of esophageal obturator airway	Procedure	ICD-9-CM
96.04	Insertion of endotracheal tube	Procedure	ICD-9-CM
96.05	Other intubation of respiratory tract	Procedure	ICD-9-CM
96.7	Other continuous invasive mechanical ventilation	Procedure	ICD-9-CM
96.70	Continuous invasive mechanical ventilation of unspecified duration	Procedure	ICD-9-CM
96.71	Continuous invasive mechanical ventilation for less than 96 consecutive hours	Procedure	ICD-9-CM
96.72	Continuous invasive mechanical ventilation for 96 consecutive hours or more	Procedure	ICD-9-CM
93.91	Intermittent positive pressure breathing (IPPB)	Procedure	ICD-9-CM
5A09357	Assistance with Respiratory Ventilation, Less than 24 Consecutive Hours, Continuous Positive Airway Pressure	Procedure	ICD-10-PCS
5A09457	Assistance with Respiratory Ventilation, 24-96 Consecutive Hours, Continuous Positive Airway Pressure	Procedure	ICD-10-PCS
5A09557	Assistance with Respiratory Ventilation, Greater than 96 Consecutive Hours, Continuous Positive Airway Pressure	Procedure	ICD-10-PCS
0B717DZ	Dilation of Trachea with Intraluminal Device, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
0B718DZ	Dilation of Trachea with Intraluminal Device, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
0BH072Z	Insertion of Monitoring Device into Tracheobronchial Tree, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
0BH073Z	Insertion of Infusion Device into Tracheobronchial Tree, Via Natural or Artificial Opening	Procedure	ICD-10-PCS



**Appendix C. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS), Current Procedural Terminology (CPT), Healthcare Common Procedure Coding System (HCPCS), and Revenue Codes (RE) Used to Define Endpoints in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
OBH07DZ	Insertion of Intraluminal Device into Tracheobronchial Tree, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
OBH07YZ	Insertion of Other Device into Tracheobronchial Tree, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
OBH17ZZ	Insertion of Monitoring Device into Trachea, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
OBH17EZ	Insertion of Endotracheal Airway into Trachea, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
OBH17YZ	Insertion of Other Device into Trachea, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
OBH18ZZ	Insertion of Monitoring Device into Trachea, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
OBH18EZ	Insertion of Endotracheal Airway into Trachea, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
OBH18YZ	Insertion of Other Device into Trachea, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
OBHK7ZZ	Insertion of Monitoring Device into Right Lung, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
OBHK73Z	Insertion of Infusion Device into Right Lung, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
OBHK7YZ	Insertion of Other Device into Right Lung, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
OBHK8ZZ	Insertion of Monitoring Device into Right Lung, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
OBHK83Z	Insertion of Infusion Device into Right Lung, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
OBHK8YZ	Insertion of Other Device into Right Lung, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
OBHL7ZZ	Insertion of Monitoring Device into Left Lung, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
OBHL73Z	Insertion of Infusion Device into Left Lung, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
OBHL7YZ	Insertion of Other Device into Left Lung, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
OBHL8ZZ	Insertion of Monitoring Device into Left Lung, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
OBHL83Z	Insertion of Infusion Device into Left Lung, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
OBHL8YZ	Insertion of Other Device into Left Lung, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
ODH57BZ	Insertion of Airway into Esophagus, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
ODH58BZ	Insertion of Airway into Esophagus, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
OWHQ73Z	Insertion of Infusion Device into Respiratory Tract, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
OWHQ7YZ	Insertion of Other Device into Respiratory Tract, Via Natural or Artificial Opening	Procedure	ICD-10-PCS

**Appendix C. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS), Current Procedural Terminology (CPT), Healthcare Common Procedure Coding System (HCPCS), and Revenue Codes (RE) Used to Define Endpoints in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
5A1935Z	Respiratory Ventilation, Less than 24 Consecutive Hours	Procedure	ICD-10-PCS
5A1945Z	Respiratory Ventilation, 24-96 Consecutive Hours	Procedure	ICD-10-PCS
5A1955Z	Respiratory Ventilation, Greater than 96 Consecutive Hours	Procedure	ICD-10-PCS
5A09358	Assistance with Respiratory Ventilation, Less than 24 Consecutive Hours, Intermittent Positive Airway Pressure	Procedure	ICD-10-PCS
5A0955B	Assistance with Respiratory Ventilation, Greater than 96 Consecutive Hours, Intermittent Negative Airway Pressure	Procedure	ICD-10-PCS
5A09558	Assistance with Respiratory Ventilation, Greater than 96 Consecutive Hours, Intermittent Positive Airway Pressure	Procedure	ICD-10-PCS
5A09559	Assistance with Respiratory Ventilation, Greater than 96 Consecutive Hours, Continuous Negative Airway Pressure	Procedure	ICD-10-PCS
5A09459	Assistance with Respiratory Ventilation, 24-96 Consecutive Hours, Continuous Negative Airway Pressure	Procedure	ICD-10-PCS
5A0945B	Assistance with Respiratory Ventilation, 24-96 Consecutive Hours, Intermittent Negative Airway Pressure	Procedure	ICD-10-PCS
5A09458	Assistance with Respiratory Ventilation, 24-96 Consecutive Hours, Intermittent Positive Airway Pressure	Procedure	ICD-10-PCS
5A0935B	Assistance with Respiratory Ventilation, Less than 24 Consecutive Hours, Intermittent Negative Airway Pressure	Procedure	ICD-10-PCS
5A09359	Assistance with Respiratory Ventilation, Less than 24 Consecutive Hours, Continuous Negative Airway Pressure	Procedure	ICD-10-PCS
5A0935Z	Assistance with Respiratory Ventilation, Less than 24 Consecutive Hours	Procedure	ICD-10-PCS
5A0955Z	Assistance with Respiratory Ventilation, Greater than 96 Consecutive Hours	Procedure	ICD-10-PCS
5A0945Z	Assistance with Respiratory Ventilation, 24-96 Consecutive Hours	Procedure	ICD-10-PCS
4168F	Patient receiving care in the intensive care unit (ICU) and receiving mechanical ventilation, 24 hours or less (CRIT)	Procedure	CPT-2
94662	Continuous negative pressure ventilator	Procedure	CPT-4
94656	Ventilation assist and management, initiation of pressure or volume preset ventilator for assisted or controlled breathing: first day	Procedure	CPT-4
94657	Ventilation assist and management, initiation of pressure or volume preset ventilator for assisted or controlled breathing: subsequent days	Procedure	CPT-4
94002	Ventilation assist and management, initiation of pressure or volume preset ventilators for assisted or controlled breathing; hospital inpatient/observation, initial day	Procedure	CPT-4
94003	Ventilation assist and management, initiation of pressure or volume preset ventilators for assisted or controlled breathing; hospital inpatient/observation, each subsequent day	Procedure	CPT-4

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<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
94004	Ventilation assist and management, initiation of pressure or volume preset ventilators for assisted or controlled breathing; nursing facility, per day	Procedure	CPT-4
<b>Critical or Observational Care</b>			
99220	Initial observation care, per day, for the evaluation and management of a patient, which requires these 3 key components: A comprehensive history; A comprehensive examination; and Medical decision making of high complexity. Counseling and/or coordination of care with other physicians, other qualified health care professionals, or agencies are provided consistent with the nature of the problem(s) and the patient's and/or family's needs. Usually, the problem(s) requiring admission to outpatient hospital "observation status" are of high severity. Typically, 70 minutes are spent at the bedside and on the patient's hospital floor or unit.	Procedure	CPT-4
99221	Initial hospital care, per day, for the evaluation and management of a patient, which requires these 3 key components: A detailed or comprehensive history; A detailed or comprehensive examination; and Medical decision making that is straightforward or of low complexity. Counseling and/or coordination of care with other physicians, other qualified health care professionals, or agencies are provided consistent with the nature of the problem(s) and the patient's and/or family's needs. Usually, the problem(s) requiring admission are of low severity. Typically, 30 minutes are spent at the bedside and on the patient's hospital floor or unit.	Procedure	CPT-4
99222	Initial hospital care, per day, for the evaluation and management of a patient, which requires these 3 key components: A comprehensive history; A comprehensive examination; and Medical decision making of moderate complexity. Counseling and/or coordination of care with other physicians, other qualified health care professionals, or agencies are provided consistent with the nature of the problem(s) and the patient's and/or family's needs. Usually, the problem(s) requiring admission are of moderate severity. Typically, 50 minutes are spent at the bedside and on the patient's hospital floor or unit.	Procedure	CPT-4
99223	Initial hospital care, per day, for the evaluation and management of a patient, which requires these 3 key components: A comprehensive history; A comprehensive examination; and Medical decision making of high complexity. Counseling and/or coordination of care with other physicians, other qualified health care professionals, or agencies are provided consistent with the nature of the problem(s) and the patient's and/or family's needs. Usually, the problem(s) requiring admission are of high severity. Typically, 70 minutes are spent at the bedside and on the patient's hospital floor or unit.	Procedure	CPT-4

**Appendix C. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS), Current Procedural Terminology (CPT), Healthcare Common Procedure Coding System (HCPCS), and Revenue Codes (RE) Used to Define Endpoints in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
99224	Subsequent observation care, per day, for the evaluation and management of a patient, which requires at least 2 of these 3 key components: Problem focused interval history; Problem focused examination; Medical decision making that is straightforward or of low complexity. Counseling and/or coordination of care with other physicians, other qualified health care professionals, or agencies are provided consistent with the nature of the problem(s) and the patient's and/or family's needs. Usually, the patient is stable, recovering, or improving. Typically, 15 minutes are spent at the bedside and on the patient's hospital floor or unit.	Procedure	CPT-4
99225	Subsequent observation care, per day, for the evaluation and management of a patient, which requires at least 2 of these 3 key components: An expanded problem focused interval history; An expanded problem focused examination; Medical decision making of moderate complexity. Counseling and/or coordination of care with other physicians, other qualified health care professionals, or agencies are provided consistent with the nature of the problem(s) and the patient's and/or family's needs. Usually, the patient is responding inadequately to therapy or has developed a minor complication. Typically, 25 minutes are spent at the bedside and on the patient's hospital floor or unit.	Procedure	CPT-4
99226	Subsequent observation care, per day, for the evaluation and management of a patient, which requires at least 2 of these 3 key components: A detailed interval history; A detailed examination; Medical decision making of high complexity. Counseling and/or coordination of care with other physicians, other qualified health care professionals, or agencies are provided consistent with the nature of the problem(s) and the patient's and/or family's needs. Usually, the patient is unstable or has developed a significant complication or a significant new problem. Typically, 35 minutes are spent at the bedside and on the patient's hospital floor or unit.	Procedure	CPT-4
99291	Critical care, evaluation and management of the critically ill or critically injured patient; first 30-74 minutes	Procedure	CPT-4
99292	Critical care, evaluation and management of the critically ill or critically injured patient; each additional 30 minutes (List separately in addition to code for primary service)	Procedure	CPT-4
31500	Intubation, endotracheal, emergency procedure	Procedure	CPT-4
94002	Ventilation assist and management, initiation of pressure or volume preset ventilators for assisted or controlled breathing; hospital inpatient/observation, initial day	Procedure	CPT-4
94003	Ventilation assist and management, initiation of pressure or volume preset ventilators for assisted or controlled breathing; hospital inpatient/observation, each subsequent day	Procedure	CPT-4
94004	Ventilation assist and management, initiation of pressure or volume preset ventilators for assisted or controlled breathing; nursing facility, per day	Procedure	CPT-4
94660	Continuous positive airway pressure ventilation (CPAP), initiation and management	Procedure	CPT-4
99468	Initial inpatient neonatal critical care, per day, for the evaluation and management of a critically ill neonate, 28 days of age or younger	Procedure	CPT-4

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<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
99471	Initial inpatient pediatric critical care, per day, for the evaluation and management of a critically ill infant or young child, 29 days through 24 months of age	Procedure	CPT-4
99475	Initial inpatient pediatric critical care, per day, for the evaluation and management of a critically ill infant or young child, 2 through 5 years of age	Procedure	CPT-4
99295	Critically ill neonate through 28 days of life	Procedure	CPT-4
99256	Critically ill neonate through 28 days of life	Procedure	CPT-4
99293	Critically ill infant 29 days through 24 months of age	Procedure	CPT-4
99254	Critically ill infant 29 days through 24 months of age	Procedure	CPT-4
200	ICU	Procedure	RE
201	Surgical	Procedure	RE
202	Medical	Procedure	RE
203	Pediatric	Procedure	RE
204	Psychiatric	Procedure	RE
206	Post ICU	Procedure	RE
207	Burn Care	Procedure	RE
208	Trauma	Procedure	RE
209	Other intensive care	Procedure	RE
175	Neonatal ICU	Procedure	RE
0200	ICU	Procedure	RE
0201	Surgical	Procedure	RE
0202	Medical	Procedure	RE
0203	Pediatric	Procedure	RE
0204	Psychiatric	Procedure	RE
0206	Post ICU	Procedure	RE
0207	Burn Care	Procedure	RE
0208	Trauma	Procedure	RE
0209	Other intensive care	Procedure	RE
0175	Neonatal ICU	Procedure	RE
<b>Extracorporeal membrane Oxygenation (ECMO)</b>			
39.65	Extracorporeal membrane oxygenation (ECMO)	Procedure	ICD-9-CM
5A15223	Extracorporeal Membrane Oxygenation, Continuous	Procedure	ICD-10-PCS
33988	Insertion of left heart vent by thoracic incision (eg, sternotomy, thoracotomy) for ECMO/ECLS	Procedure	CPT-4
33947	Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; initiation, veno-arterial	Procedure	CPT-4
33965	Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; removal of peripheral (arterial and/or venous) cannula(e), percutaneous, birth through 5 years of age	Procedure	CPT-4
33955	Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; insertion of central cannula(e) by sternotomy or thoracotomy, birth through 5 years of age	Procedure	CPT-4

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<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
33964	Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; reposition central cannula(e) by sternotomy or thoracotomy, 6 years and older (includes fluoroscopic guidance, when performed)	Procedure	CPT-4
33953	Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; insertion of peripheral (arterial and/or venous) cannula(e), open, birth through 5 years of age	Procedure	CPT-4
33959	Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; reposition peripheral (arterial and/or venous) cannula(e), open, birth through 5 years of age (includes fluoroscopic guidance, when performed)	Procedure	CPT-4
33984	Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; removal of peripheral (arterial and/or venous) cannula(e), open, 6 years and older	Procedure	CPT-4
33962	Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; reposition peripheral (arterial and/or venous) cannula(e), open, 6 years and older (includes fluoroscopic guidance, when performed)	Procedure	CPT-4
33958	Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; reposition peripheral (arterial and/or venous) cannula(e), percutaneous, 6 years and older (includes fluoroscopic guidance, when performed)	Procedure	CPT-4
33986	Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; removal of central cannula(e) by sternotomy or thoracotomy, 6 years and older	Procedure	CPT-4
33952	Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; insertion of peripheral (arterial and/or venous) cannula(e), percutaneous, 6 years and older (includes fluoroscopic guidance, when performed)	Procedure	CPT-4
33948	Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; daily management, each day, veno-venous	Procedure	CPT-4
33989	Removal of left heart vent by thoracic incision (eg, sternotomy, thoracotomy) for ECMO/ECLS	Procedure	CPT-4
33946	Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; initiation, veno-venous	Procedure	CPT-4
36822	Insertion of cannula(s) for prolonged extracorporeal circulation for cardiopulmonary insufficiency (ECMO) (separate procedure)	Procedure	CPT-4
33954	Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; insertion of peripheral (arterial and/or venous) cannula(e), open, 6 years and older	Procedure	CPT-4
33951	Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; insertion of peripheral (arterial and/or venous) cannula(e), percutaneous, birth through 5 years of age (includes fluoroscopic guidance, when performed)	Procedure	CPT-4

**Appendix C. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS), Current Procedural Terminology (CPT), Healthcare Common Procedure Coding System (HCPCS), and Revenue Codes (RE) Used to Define Endpoints in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
33963	Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; reposition of central cannula(e) by sternotomy or thoracotomy, birth through 5 years of age (includes fluoroscopic guidance, when performed)	Procedure	CPT-4
33969	Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; removal of peripheral (arterial and/or venous) cannula(e), open, birth through 5 years of age	Procedure	CPT-4
33966	Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; removal of peripheral (arterial and/or venous) cannula(e), percutaneous, 6 years and older	Procedure	CPT-4
33987	Arterial exposure with creation of graft conduit (eg, chimney graft) to facilitate arterial perfusion for ECMO/ECLS (List separately in addition to code for primary procedure)	Procedure	CPT-4
33957	Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; reposition peripheral (arterial and/or venous) cannula(e), percutaneous, birth through 5 years of age (includes fluoroscopic guidance, when performed)	Procedure	CPT-4
33985	Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; removal of central cannula(e) by sternotomy or thoracotomy, birth through 5 years of age	Procedure	CPT-4
33949	Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; daily management, each day, veno-arterial	Procedure	CPT-4
33956	Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; insertion of central cannula(e) by sternotomy or thoracotomy, 6 years and older	Procedure	CPT-4
33960	Prolonged extracorporeal circulation for cardiopulmonary insufficiency; initial	Procedure	CPT-4
33961	Prolonged extracorporeal circulation for cardiopulmonary insufficiency; each subsequent day	Procedure	CPT-4

**Appendix D. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS), Current Procedural Terminology (CPT), and Healthcare Common Procedure Coding System (HCPCS) Codes Used to Define Baseline Characteristics in this Request**

Code	Description	Code Category	Code Type
<b>Asthma</b>			
493	Asthma	Diagnosis	ICD-9-CM
493.0	Extrinsic asthma	Diagnosis	ICD-9-CM
493.00	Extrinsic asthma, unspecified	Diagnosis	ICD-9-CM
493.01	Extrinsic asthma with status asthmaticus	Diagnosis	ICD-9-CM
493.02	Extrinsic asthma, with (acute) exacerbation	Diagnosis	ICD-9-CM
493.1	Intrinsic asthma	Diagnosis	ICD-9-CM
493.10	Intrinsic asthma, unspecified	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
493.2	Chronic obstructive asthma	Diagnosis	ICD-9-CM
493.20	Chronic obstructive asthma, unspecified	Diagnosis	ICD-9-CM
493.21	Chronic obstructive asthma with status asthmaticus	Diagnosis	ICD-9-CM
493.22	Chronic obstructive asthma, with (acute) exacerbation	Diagnosis	ICD-9-CM
493.8	Other forms of asthma	Diagnosis	ICD-9-CM
493.81	Exercise induced bronchospasm	Diagnosis	ICD-9-CM
493.82	Cough variant asthma	Diagnosis	ICD-9-CM
493.9	Unspecified asthma	Diagnosis	ICD-9-CM
493.90	Asthma, unspecified, unspecified status	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
J45.20	Mild intermittent asthma, uncomplicated	Diagnosis	ICD-10-CM
J45.21	Mild intermittent asthma with (acute) exacerbation	Diagnosis	ICD-10-CM
J45.22	Mild intermittent asthma with status asthmaticus	Diagnosis	ICD-10-CM
J45.30	Mild persistent asthma, uncomplicated	Diagnosis	ICD-10-CM
J45.31	Mild persistent asthma with (acute) exacerbation	Diagnosis	ICD-10-CM
J45.32	Mild persistent asthma with status asthmaticus	Diagnosis	ICD-10-CM
J45.40	Moderate persistent asthma, uncomplicated	Diagnosis	ICD-10-CM
J45.41	Moderate persistent asthma with (acute) exacerbation	Diagnosis	ICD-10-CM
J45.42	Moderate persistent asthma with status asthmaticus	Diagnosis	ICD-10-CM
J45.50	Severe persistent asthma, uncomplicated	Diagnosis	ICD-10-CM
J45.51	Severe persistent asthma with (acute) exacerbation	Diagnosis	ICD-10-CM
J45.52	Severe persistent asthma with status asthmaticus	Diagnosis	ICD-10-CM
J45.901	Unspecified asthma with (acute) exacerbation	Diagnosis	ICD-10-CM
J45.902	Unspecified asthma with status asthmaticus	Diagnosis	ICD-10-CM
J45.909	Unspecified asthma, uncomplicated	Diagnosis	ICD-10-CM
J45.990	Exercise induced bronchospasm	Diagnosis	ICD-10-CM
J45.991	Cough variant asthma	Diagnosis	ICD-10-CM
J45.998	Other asthma	Diagnosis	ICD-10-CM



**Appendix D. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS), Current Procedural Terminology (CPT), and Healthcare Common Procedure Coding System (HCPCS) Codes Used to Define Baseline Characteristics in this Request**

Code	Description	Code Category	Code Type
<b>Chronic Obstructive Pulmonary Disease (COPD)</b>			
491	Chronic bronchitis	Diagnosis	ICD-9-CM
491.0	Simple chronic bronchitis	Diagnosis	ICD-9-CM
491.1	Mucopurulent chronic bronchitis	Diagnosis	ICD-9-CM
491.2	Obstructive chronic bronchitis	Diagnosis	ICD-9-CM
491.20	Obstructive chronic bronchitis, without exacerbation	Diagnosis	ICD-9-CM
491.21	Obstructive chronic bronchitis, with (acute) exacerbation	Diagnosis	ICD-9-CM
491.22	Obstructive chronic bronchitis with acute bronchitis	Diagnosis	ICD-9-CM
491.8	Other chronic bronchitis	Diagnosis	ICD-9-CM
491.9	Unspecified chronic bronchitis	Diagnosis	ICD-9-CM
492	Emphysema	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
J41.0	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
J43.0	Unilateral pulmonary emphysema [MacLeod's syndrome]	Diagnosis	ICD-10-CM
J43.1	Panlobular emphysema	Diagnosis	ICD-10-CM
J43.2	Centrilobular emphysema	Diagnosis	ICD-10-CM
J43.8	Other emphysema	Diagnosis	ICD-10-CM
J43.9	Emphysema, unspecified	Diagnosis	ICD-10-CM
J44	Other chronic obstructive pulmonary disease	Diagnosis	ICD-10-CM
J44.0	Chronic obstructive pulmonary disease with acute lower respiratory infection	Diagnosis	ICD-10-CM
J44.1	Chronic obstructive pulmonary disease with (acute) exacerbation	Diagnosis	ICD-10-CM
J44.9	Chronic obstructive pulmonary disease, unspecified	Diagnosis	ICD-10-CM
<b>Diabetes</b>			
250.01	Diabetes mellitus without mention of complication, type I [juvenile type], not stated as uncontrolled	Diagnosis	ICD-9-CM
250.03	Diabetes mellitus without mention of complication, type I [juvenile type], uncontrolled	Diagnosis	ICD-9-CM
250.11	Diabetes with ketoacidosis, type I [juvenile type], not stated as uncontrolled	Diagnosis	ICD-9-CM
250.13	Diabetes with ketoacidosis, type I [juvenile type], uncontrolled	Diagnosis	ICD-9-CM
250.21	Diabetes with hyperosmolarity, type I [juvenile type], not stated as uncontrolled	Diagnosis	ICD-9-CM
250.23	Diabetes with hyperosmolarity, type I [juvenile type], uncontrolled	Diagnosis	ICD-9-CM
250.31	Diabetes with other coma, type I [juvenile type], not stated as uncontrolled	Diagnosis	ICD-9-CM
250.33	Diabetes with other coma, type I [juvenile type], uncontrolled	Diagnosis	ICD-9-CM

**Appendix D. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS), Current Procedural Terminology (CPT), and Healthcare Common Procedure Coding System (HCPCS) Codes Used to Define Baseline Characteristics in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
250.41	Diabetes with renal manifestations, type I [juvenile type], not stated as uncontrolled	Diagnosis	ICD-9-CM
250.43	Diabetes with renal manifestations, type I [juvenile type], uncontrolled	Diagnosis	ICD-9-CM
250.51	Diabetes with ophthalmic manifestations, type I [juvenile type], not stated as uncontrolled	Diagnosis	ICD-9-CM
250.53	Diabetes with ophthalmic manifestations, type I [juvenile type], uncontrolled	Diagnosis	ICD-9-CM
250.61	Diabetes with neurological manifestations, type I [juvenile type], not stated as uncontrolled	Diagnosis	ICD-9-CM
250.63	Diabetes with neurological manifestations, type I [juvenile type], uncontrolled	Diagnosis	ICD-9-CM
250.71	Diabetes with peripheral circulatory disorders, type I [juvenile type], not stated as uncontrolled	Diagnosis	ICD-9-CM
250.73	Diabetes with peripheral circulatory disorders, type I [juvenile type], uncontrolled	Diagnosis	ICD-9-CM
250.81	Diabetes with other specified manifestations, type I [juvenile type], not stated as uncontrolled	Diagnosis	ICD-9-CM
250.83	Diabetes with other specified manifestations, type I [juvenile type], uncontrolled	Diagnosis	ICD-9-CM
250.91	Diabetes with unspecified complication, type I [juvenile type], not stated as uncontrolled	Diagnosis	ICD-9-CM
250.93	Diabetes with unspecified complication, type I [juvenile type], uncontrolled	Diagnosis	ICD-9-CM
E10.9	Type 1 diabetes mellitus without complications	Diagnosis	ICD-10-CM
E10.65	Type 1 diabetes mellitus with hyperglycemia	Diagnosis	ICD-10-CM
E10.10	Type 1 diabetes mellitus with ketoacidosis without coma	Diagnosis	ICD-10-CM
E10.69	Type 1 diabetes mellitus with other specified complication	Diagnosis	ICD-10-CM
E10.11	Type 1 diabetes mellitus with ketoacidosis with coma	Diagnosis	ICD-10-CM
E10.641	Type 1 diabetes mellitus with hypoglycemia with coma	Diagnosis	ICD-10-CM
E10.29	Type 1 diabetes mellitus with other diabetic kidney complication	Diagnosis	ICD-10-CM
E10.21	Type 1 diabetes mellitus with diabetic nephropathy	Diagnosis	ICD-10-CM
E10.311	Type 1 diabetes mellitus with unspecified diabetic retinopathy with macular edema	Diagnosis	ICD-10-CM
E10.319	Type 1 diabetes mellitus with other diabetic ophthalmic complication	Diagnosis	ICD-10-CM
E10.36	Type 1 diabetes mellitus with diabetic macular edema, resolved following treatment, unspecified eye	Diagnosis	ICD-10-CM
E10.37X1	Type 1 diabetes mellitus with diabetic macular edema, resolved following treatment, bilateral	Diagnosis	ICD-10-CM
E10.37X2	Type 1 diabetes mellitus with diabetic macular edema, resolved following treatment, left eye	Diagnosis	ICD-10-CM

**Appendix D. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS), Current Procedural Terminology (CPT), and Healthcare Common Procedure Coding System (HCPCS) Codes Used to Define Baseline Characteristics in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
E10.37X3	Type 1 diabetes mellitus with diabetic macular edema, resolved following treatment, right eye	Diagnosis	ICD-10-CM
E10.37X9	Type 1 diabetes mellitus with diabetic cataract	Diagnosis	ICD-10-CM
E10.39	Type 1 diabetes mellitus with unspecified diabetic retinopathy without macular edema	Diagnosis	ICD-10-CM
E10.40	Type 1 diabetes mellitus with diabetic neuropathy, unspecified	Diagnosis	ICD-10-CM
E10.51	Type 1 diabetes mellitus with diabetic peripheral angiopathy without gangrene	Diagnosis	ICD-10-CM
E10.618	Type 1 diabetes mellitus with other diabetic arthropathy	Diagnosis	ICD-10-CM
E10.620	Type 1 diabetes mellitus with other specified complication	Diagnosis	ICD-10-CM
E10.621	Type 1 diabetes mellitus with hyperglycemia	Diagnosis	ICD-10-CM
E10.622	Type 1 diabetes mellitus with hypoglycemia without coma	Diagnosis	ICD-10-CM
E10.628	Type 1 diabetes mellitus with other oral complications	Diagnosis	ICD-10-CM
E10.630	Type 1 diabetes mellitus with periodontal disease	Diagnosis	ICD-10-CM
E10.638	Type 1 diabetes mellitus with other skin complications	Diagnosis	ICD-10-CM
E10.649	Type 1 diabetes mellitus with other skin ulcer	Diagnosis	ICD-10-CM
E10.8	Type 1 diabetes mellitus with unspecified complications	Diagnosis	ICD-10-CM
E10.22	Type 1 diabetes mellitus with diabetic chronic kidney disease	Diagnosis	ICD-10-CM
E10.3599	Type 1 diabetes mellitus with proliferative diabetic retinopathy without macular edema, unspecified eye	Diagnosis	ICD-10-CM
E10.3593	Type 1 diabetes mellitus with proliferative diabetic retinopathy without macular edema, bilateral	Diagnosis	ICD-10-CM
E10.3592	Type 1 diabetes mellitus with proliferative diabetic retinopathy without macular edema, left eye	Diagnosis	ICD-10-CM
E10.3591	Type 1 diabetes mellitus with proliferative diabetic retinopathy without macular edema, right eye	Diagnosis	ICD-10-CM
E10.3559	Type 1 diabetes mellitus with stable proliferative diabetic retinopathy, unspecified eye	Diagnosis	ICD-10-CM
E10.3553	Type 1 diabetes mellitus with stable proliferative diabetic retinopathy, bilateral	Diagnosis	ICD-10-CM
E10.3552	Type 1 diabetes mellitus with stable proliferative diabetic retinopathy, left eye	Diagnosis	ICD-10-CM
E10.3551	Type 1 diabetes mellitus with stable proliferative diabetic retinopathy, right eye	Diagnosis	ICD-10-CM
E10.3549	Type 1 diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment, unspecified eye	Diagnosis	ICD-10-CM
E10.3543	Type 1 diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment, bilateral	Diagnosis	ICD-10-CM

**Appendix D. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS), Current Procedural Terminology (CPT), and Healthcare Common Procedure Coding System (HCPCS) Codes Used to Define Baseline Characteristics in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
E10.3542	Type 1 diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment, left eye	Diagnosis	ICD-10-CM
E10.3541	Type 1 diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment, right eye	Diagnosis	ICD-10-CM
E10.3539	Type 1 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, unspecified eye	Diagnosis	ICD-10-CM
E10.3533	Type 1 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, bilateral	Diagnosis	ICD-10-CM
E10.3532	Type 1 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, left eye	Diagnosis	ICD-10-CM
E10.3531	Type 1 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, right eye	Diagnosis	ICD-10-CM
E10.3529	Type 1 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula, unspecified eye	Diagnosis	ICD-10-CM
E10.3523	Type 1 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula, bilateral	Diagnosis	ICD-10-CM
E10.3522	Type 1 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula, left eye	Diagnosis	ICD-10-CM
E10.3521	Type 1 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula, right eye	Diagnosis	ICD-10-CM
E10.3519	Type 1 diabetes mellitus with proliferative diabetic retinopathy with macular edema, unspecified eye	Diagnosis	ICD-10-CM
E10.3513	Type 1 diabetes mellitus with proliferative diabetic retinopathy with macular edema, bilateral	Diagnosis	ICD-10-CM
E10.3512	Type 1 diabetes mellitus with proliferative diabetic retinopathy with macular edema, left eye	Diagnosis	ICD-10-CM
E10.3511	Type 1 diabetes mellitus with proliferative diabetic retinopathy with macular edema, right eye	Diagnosis	ICD-10-CM
E10.3499	Type 1 diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema, unspecified eye	Diagnosis	ICD-10-CM
E10.3493	Type 1 diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema, bilateral	Diagnosis	ICD-10-CM
E10.3492	Type 1 diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema, left eye	Diagnosis	ICD-10-CM
E10.3491	Type 1 diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema, right eye	Diagnosis	ICD-10-CM
E10.3419	Type 1 diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, unspecified eye	Diagnosis	ICD-10-CM
E10.3413	Type 1 diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, bilateral	Diagnosis	ICD-10-CM
E10.3412	Type 1 diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, left eye	Diagnosis	ICD-10-CM

**Appendix D. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS), Current Procedural Terminology (CPT), and Healthcare Common Procedure Coding System (HCPCS) Codes Used to Define Baseline Characteristics in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
E10.3411	Type 1 diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, right eye	Diagnosis	ICD-10-CM
E10.3399	Type 1 diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, unspecified eye	Diagnosis	ICD-10-CM
E10.3393	Type 1 diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, bilateral	Diagnosis	ICD-10-CM
E10.3392	Type 1 diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, left eye	Diagnosis	ICD-10-CM
E10.3391	Type 1 diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, right eye	Diagnosis	ICD-10-CM
E10.3319	Type 1 diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, unspecified eye	Diagnosis	ICD-10-CM
E10.3313	Type 1 diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, bilateral	Diagnosis	ICD-10-CM
E10.3312	Type 1 diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, left eye	Diagnosis	ICD-10-CM
E10.3311	Type 1 diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, right eye	Diagnosis	ICD-10-CM
E10.3299	Type 1 diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, unspecified eye	Diagnosis	ICD-10-CM
E10.3293	Type 1 diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, bilateral	Diagnosis	ICD-10-CM
E10.3292	Type 1 diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, left eye	Diagnosis	ICD-10-CM
E10.3291	Type 1 diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, right eye	Diagnosis	ICD-10-CM
E10.3219	Type 1 diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, unspecified eye	Diagnosis	ICD-10-CM
E10.3213	Type 1 diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, bilateral	Diagnosis	ICD-10-CM
E10.3212	Type 1 diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, left eye	Diagnosis	ICD-10-CM
E10.3211	Type 1 diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, right eye	Diagnosis	ICD-10-CM
E10.610	Type 1 diabetes mellitus with diabetic neuropathic arthropathy	Diagnosis	ICD-10-CM
E10.49	Type 1 diabetes mellitus with other diabetic neurological complication	Diagnosis	ICD-10-CM
E10.44	Type 1 diabetes mellitus with diabetic amyotrophy	Diagnosis	ICD-10-CM
E10.43	Type 1 diabetes mellitus with diabetic autonomic (poly)neuropathy	Diagnosis	ICD-10-CM
E10.42	Type 1 diabetes mellitus with diabetic polyneuropathy	Diagnosis	ICD-10-CM
E10.41	Type 1 diabetes mellitus with diabetic mononeuropathy	Diagnosis	ICD-10-CM
E10.59	Type 1 diabetes mellitus with other circulatory complications	Diagnosis	ICD-10-CM
E10.52	Type 1 diabetes mellitus with diabetic peripheral angiopathy with gangrene	Diagnosis	ICD-10-CM

**Appendix D. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS), Current Procedural Terminology (CPT), and Healthcare Common Procedure Coding System (HCPCS) Codes Used to Define Baseline Characteristics in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
250.00	Diabetes mellitus without mention of complication, type II or unspecified type, not stated as uncontrolled	Diagnosis	ICD-9-CM
250.10	Diabetes with ketoacidosis, type II or unspecified type, not stated as uncontrolled	Diagnosis	ICD-9-CM
250.20	Diabetes with hyperosmolarity, type II or unspecified type, not stated as uncontrolled	Diagnosis	ICD-9-CM
250.30	Diabetes with other coma, type II or unspecified type, not stated as uncontrolled	Diagnosis	ICD-9-CM
250.40	Diabetes with renal manifestations, type II or unspecified type, not stated as uncontrolled	Diagnosis	ICD-9-CM
250.50	Diabetes with ophthalmic manifestations, type II or unspecified type, not stated as uncontrolled	Diagnosis	ICD-9-CM
250.60	Diabetes with neurological manifestations, type II or unspecified type, not stated as uncontrolled	Diagnosis	ICD-9-CM
250.70	Diabetes with peripheral circulatory disorders, type II or unspecified type, not stated as uncontrolled	Diagnosis	ICD-9-CM
250.80	Diabetes with other specified manifestations, type II or unspecified type, not stated as uncontrolled	Diagnosis	ICD-9-CM
250.90	Diabetes with unspecified complication, type II or unspecified type, not stated as uncontrolled	Diagnosis	ICD-9-CM
250.02	Diabetes mellitus without mention of complication, type II or unspecified type, uncontrolled	Diagnosis	ICD-9-CM
250.12	Diabetes with ketoacidosis, type II or unspecified type, uncontrolled	Diagnosis	ICD-9-CM
250.22	Diabetes with hyperosmolarity, type II or unspecified type, uncontrolled	Diagnosis	ICD-9-CM
250.32	Diabetes with other coma, type II or unspecified type, uncontrolled	Diagnosis	ICD-9-CM
250.42	Diabetes with renal manifestations, type II or unspecified type, uncontrolled	Diagnosis	ICD-9-CM
250.52	Diabetes with ophthalmic manifestations, type II or unspecified type, uncontrolled	Diagnosis	ICD-9-CM
250.62	Diabetes with neurological manifestations, type II or unspecified type, uncontrolled	Diagnosis	ICD-9-CM
250.72	Diabetes with peripheral circulatory disorders, type II or unspecified type, uncontrolled	Diagnosis	ICD-9-CM
250.82	Diabetes with other specified manifestations, type II or unspecified type, uncontrolled	Diagnosis	ICD-9-CM
250.92	Diabetes with unspecified complication, type II or unspecified type, uncontrolled	Diagnosis	ICD-9-CM
E11.00	Type 2 diabetes mellitus with hyperosmolarity without nonketotic hyperglycemic-hyperosmolar coma (NKHHC)	Diagnosis	ICD-10-CM
E11.01	Type 2 diabetes mellitus with hyperosmolarity with coma	Diagnosis	ICD-10-CM
E11.10	Type 2 diabetes mellitus with ketoacidosis without coma	Diagnosis	ICD-10-CM
E11.11	Type 2 diabetes mellitus with ketoacidosis with coma	Diagnosis	ICD-10-CM
E11.21	Type 2 diabetes mellitus with diabetic nephropathy	Diagnosis	ICD-10-CM

**Appendix D. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS), Current Procedural Terminology (CPT), and Healthcare Common Procedure Coding System (HCPCS) Codes Used to Define Baseline Characteristics in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
E11.22	Type 2 diabetes mellitus with diabetic chronic kidney disease	Diagnosis	ICD-10-CM
E11.29	Type 2 diabetes mellitus with other diabetic kidney complication	Diagnosis	ICD-10-CM
E11.311	Type 2 diabetes mellitus with unspecified diabetic retinopathy with macular edema	Diagnosis	ICD-10-CM
E11.319	Type 2 diabetes mellitus with unspecified diabetic retinopathy without macular edema	Diagnosis	ICD-10-CM
E11.3211	Type 2 diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, right eye	Diagnosis	ICD-10-CM
E11.3212	Type 2 diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, left eye	Diagnosis	ICD-10-CM
E11.3213	Type 2 diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, bilateral	Diagnosis	ICD-10-CM
E11.3219	Type 2 diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, unspecified eye	Diagnosis	ICD-10-CM
E11.3291	Type 2 diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, right eye	Diagnosis	ICD-10-CM
E11.3292	Type 2 diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, left eye	Diagnosis	ICD-10-CM
E11.3293	Type 2 diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, bilateral	Diagnosis	ICD-10-CM
E11.3299	Type 2 diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, unspecified eye	Diagnosis	ICD-10-CM
E11.3311	Type 2 diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, right eye	Diagnosis	ICD-10-CM
E11.3312	Type 2 diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, left eye	Diagnosis	ICD-10-CM
E11.3313	Type 2 diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, bilateral	Diagnosis	ICD-10-CM
E11.3319	Type 2 diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, unspecified eye	Diagnosis	ICD-10-CM
E11.3391	Type 2 diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, right eye	Diagnosis	ICD-10-CM
E11.3392	Type 2 diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, left eye	Diagnosis	ICD-10-CM
E11.3393	Type 2 diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, bilateral	Diagnosis	ICD-10-CM
E11.3399	Type 2 diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, unspecified eye	Diagnosis	ICD-10-CM
E11.3411	Type 2 diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, right eye	Diagnosis	ICD-10-CM
E11.3412	Type 2 diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, left eye	Diagnosis	ICD-10-CM
E11.3413	Type 2 diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, bilateral	Diagnosis	ICD-10-CM
E11.3419	Type 2 diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, unspecified eye	Diagnosis	ICD-10-CM

**Appendix D. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS), Current Procedural Terminology (CPT), and Healthcare Common Procedure Coding System (HCPCS) Codes Used to Define Baseline Characteristics in this Request**

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



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<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
E11.3559	Type 2 diabetes mellitus with stable proliferative diabetic retinopathy, unspecified eye	Diagnosis	ICD-10-CM
E11.3591	Type 2 diabetes mellitus with proliferative diabetic retinopathy without macular edema, right eye	Diagnosis	ICD-10-CM
E11.3592	Type 2 diabetes mellitus with proliferative diabetic retinopathy without macular edema, left eye	Diagnosis	ICD-10-CM
E11.3593	Type 2 diabetes mellitus with proliferative diabetic retinopathy without macular edema, bilateral	Diagnosis	ICD-10-CM
E11.3599	Type 2 diabetes mellitus with proliferative diabetic retinopathy without macular edema, unspecified eye	Diagnosis	ICD-10-CM
E11.36	Type 2 diabetes mellitus with diabetic cataract	Diagnosis	ICD-10-CM
E11.37X1	Type 2 diabetes mellitus with diabetic macular edema, resolved following treatment, right eye	Diagnosis	ICD-10-CM
E11.37X2	Type 2 diabetes mellitus with diabetic macular edema, resolved following treatment, left eye	Diagnosis	ICD-10-CM
E11.37X3	Type 2 diabetes mellitus with diabetic macular edema, resolved following treatment, bilateral	Diagnosis	ICD-10-CM
E11.37X9	Type 2 diabetes mellitus with diabetic macular edema, resolved following treatment, unspecified eye	Diagnosis	ICD-10-CM
E11.39	Type 2 diabetes mellitus with other diabetic ophthalmic complication	Diagnosis	ICD-10-CM
E11.40	Type 2 diabetes mellitus with diabetic neuropathy, unspecified	Diagnosis	ICD-10-CM
E11.41	Type 2 diabetes mellitus with diabetic mononeuropathy	Diagnosis	ICD-10-CM
E11.42	Type 2 diabetes mellitus with diabetic polyneuropathy	Diagnosis	ICD-10-CM
E11.43	Type 2 diabetes mellitus with diabetic autonomic (poly)neuropathy	Diagnosis	ICD-10-CM
E11.44	Type 2 diabetes mellitus with diabetic amyotrophy	Diagnosis	ICD-10-CM
E11.49	Type 2 diabetes mellitus with other diabetic neurological complication	Diagnosis	ICD-10-CM
E11.51	Type 2 diabetes mellitus with diabetic peripheral angiopathy without gangrene	Diagnosis	ICD-10-CM
E11.52	Type 2 diabetes mellitus with diabetic peripheral angiopathy with gangrene	Diagnosis	ICD-10-CM
E11.59	Type 2 diabetes mellitus with other circulatory complications	Diagnosis	ICD-10-CM
E11.610	Type 2 diabetes mellitus with diabetic neuropathic arthropathy	Diagnosis	ICD-10-CM
E11.618	Type 2 diabetes mellitus with other diabetic arthropathy	Diagnosis	ICD-10-CM
E11.620	Type 2 diabetes mellitus with diabetic dermatitis	Diagnosis	ICD-10-CM
E11.621	Type 2 diabetes mellitus with foot ulcer	Diagnosis	ICD-10-CM
E11.622	Type 2 diabetes mellitus with other skin ulcer	Diagnosis	ICD-10-CM
E11.628	Type 2 diabetes mellitus with other skin complications	Diagnosis	ICD-10-CM
E11.630	Type 2 diabetes mellitus with periodontal disease	Diagnosis	ICD-10-CM

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<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
E11.638	Type 2 diabetes mellitus with other oral complications	Diagnosis	ICD-10-CM
E11.641	Type 2 diabetes mellitus with hypoglycemia with coma	Diagnosis	ICD-10-CM
E11.649	Type 2 diabetes mellitus with hypoglycemia without coma	Diagnosis	ICD-10-CM
E11.65	Type 2 diabetes mellitus with hyperglycemia	Diagnosis	ICD-10-CM
E11.69	Type 2 diabetes mellitus with other specified complication	Diagnosis	ICD-10-CM
E11.8	Type 2 diabetes mellitus with unspecified complications	Diagnosis	ICD-10-CM
E11.9	Type 2 diabetes mellitus without complications	Diagnosis	ICD-10-CM
E13.00	Other specified diabetes mellitus with hyperosmolarity without nonketotic hyperglycemic-hyperosmolar coma (NKHHC)	Diagnosis	ICD-10-CM
E13.01	Other specified diabetes mellitus with hyperosmolarity with coma	Diagnosis	ICD-10-CM
E13.10	Other specified diabetes mellitus with ketoacidosis without coma	Diagnosis	ICD-10-CM
E13.11	Other specified diabetes mellitus with ketoacidosis with coma	Diagnosis	ICD-10-CM
E13.21	Other specified diabetes mellitus with diabetic nephropathy	Diagnosis	ICD-10-CM
E13.22	Other specified diabetes mellitus with diabetic chronic kidney disease	Diagnosis	ICD-10-CM
E13.29	Other specified diabetes mellitus with other diabetic kidney complication	Diagnosis	ICD-10-CM
E13.311	Other specified diabetes mellitus with unspecified diabetic retinopathy with macular edema	Diagnosis	ICD-10-CM
E13.319	Other specified diabetes mellitus with unspecified diabetic retinopathy without macular edema	Diagnosis	ICD-10-CM
E13.3211	Other specified diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, right eye	Diagnosis	ICD-10-CM
E13.3212	Other specified diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, left eye	Diagnosis	ICD-10-CM
E13.3213	Other specified diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, bilateral	Diagnosis	ICD-10-CM
E13.3219	Other specified diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, unspecified eye	Diagnosis	ICD-10-CM
E13.3291	Other specified diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, right eye	Diagnosis	ICD-10-CM
E13.3292	Other specified diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, left eye	Diagnosis	ICD-10-CM
E13.3293	Other specified diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, bilateral	Diagnosis	ICD-10-CM
E13.3299	Other specified diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, unspecified eye	Diagnosis	ICD-10-CM

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<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
E13.3311	Other specified diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, right eye	Diagnosis	ICD-10-CM
E13.3312	Other specified diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, left eye	Diagnosis	ICD-10-CM
E13.3313	Other specified diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, bilateral	Diagnosis	ICD-10-CM
E13.3319	Other specified diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, unspecified eye	Diagnosis	ICD-10-CM
E13.3391	Other specified diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, right eye	Diagnosis	ICD-10-CM
E13.3392	Other specified diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, left eye	Diagnosis	ICD-10-CM
E13.3393	Other specified diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, bilateral	Diagnosis	ICD-10-CM
E13.3399	Other specified diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, unspecified eye	Diagnosis	ICD-10-CM
E13.3411	Other specified diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, right eye	Diagnosis	ICD-10-CM
E13.3412	Other specified diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, left eye	Diagnosis	ICD-10-CM
E13.3413	Other specified diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, bilateral	Diagnosis	ICD-10-CM
E13.3419	Other specified diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, unspecified eye	Diagnosis	ICD-10-CM
E13.3491	Other specified diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema, right eye	Diagnosis	ICD-10-CM
E13.3492	Other specified diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema, left eye	Diagnosis	ICD-10-CM
E13.3493	Other specified diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema, bilateral	Diagnosis	ICD-10-CM
E13.3499	Other specified diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema, unspecified eye	Diagnosis	ICD-10-CM
E13.3511	Other specified diabetes mellitus with proliferative diabetic retinopathy with macular edema, right eye	Diagnosis	ICD-10-CM
E13.3512	Other specified diabetes mellitus with proliferative diabetic retinopathy with macular edema, left eye	Diagnosis	ICD-10-CM
E13.3513	Other specified diabetes mellitus with proliferative diabetic retinopathy with macular edema, bilateral	Diagnosis	ICD-10-CM
E13.3519	Other specified diabetes mellitus with proliferative diabetic retinopathy with macular edema, unspecified eye	Diagnosis	ICD-10-CM
E13.3521	Other specified diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula, right eye	Diagnosis	ICD-10-CM
E13.3522	Other specified diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula, left eye	Diagnosis	ICD-10-CM
E13.3523	Other specified diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula, bilateral	Diagnosis	ICD-10-CM

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<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
E13.3529	Other specified diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula, unspecified eye	Diagnosis	ICD-10-CM
E13.3531	Other specified diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, right eye	Diagnosis	ICD-10-CM
E13.3532	Other specified diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, left eye	Diagnosis	ICD-10-CM
E13.3533	Other specified diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, bilateral	Diagnosis	ICD-10-CM
E13.3539	Other specified diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, unspecified eye	Diagnosis	ICD-10-CM
E13.3541	Other specified diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment, right eye	Diagnosis	ICD-10-CM
E13.3542	Other specified diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment, left eye	Diagnosis	ICD-10-CM
E13.3543	Other specified diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment, bilateral	Diagnosis	ICD-10-CM
E13.3549	Other specified diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment, unspecified eye	Diagnosis	ICD-10-CM
E13.3551	Other specified diabetes mellitus with stable proliferative diabetic retinopathy, right eye	Diagnosis	ICD-10-CM
E13.3552	Other specified diabetes mellitus with stable proliferative diabetic retinopathy, left eye	Diagnosis	ICD-10-CM
E13.3553	Other specified diabetes mellitus with stable proliferative diabetic retinopathy, bilateral	Diagnosis	ICD-10-CM
E13.3559	Other specified diabetes mellitus with stable proliferative diabetic retinopathy, unspecified eye	Diagnosis	ICD-10-CM
E13.3591	Other specified diabetes mellitus with proliferative diabetic retinopathy without macular edema, right eye	Diagnosis	ICD-10-CM
E13.3592	Other specified diabetes mellitus with proliferative diabetic retinopathy without macular edema, left eye	Diagnosis	ICD-10-CM
E13.3593	Other specified diabetes mellitus with proliferative diabetic retinopathy without macular edema, bilateral	Diagnosis	ICD-10-CM
E13.3599	Other specified diabetes mellitus with proliferative diabetic retinopathy without macular edema, unspecified eye	Diagnosis	ICD-10-CM
E13.36	Other specified diabetes mellitus with diabetic cataract	Diagnosis	ICD-10-CM
E13.37X1	Other specified diabetes mellitus with diabetic macular edema, resolved following treatment, right eye	Diagnosis	ICD-10-CM
E13.37X2	Other specified diabetes mellitus with diabetic macular edema, resolved following treatment, left eye	Diagnosis	ICD-10-CM

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<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
E13.37X3	Other specified diabetes mellitus with diabetic macular edema, resolved following treatment, bilateral	Diagnosis	ICD-10-CM
E13.37X9	Other specified diabetes mellitus with diabetic macular edema, resolved following treatment, unspecified eye	Diagnosis	ICD-10-CM
E13.39	Other specified diabetes mellitus with other diabetic ophthalmic complication	Diagnosis	ICD-10-CM
E13.40	Other specified diabetes mellitus with diabetic neuropathy, unspecified	Diagnosis	ICD-10-CM
E13.41	Other specified diabetes mellitus with diabetic mononeuropathy	Diagnosis	ICD-10-CM
E13.42	Other specified diabetes mellitus with diabetic polyneuropathy	Diagnosis	ICD-10-CM
E13.43	Other specified diabetes mellitus with diabetic autonomic (poly)neuropathy	Diagnosis	ICD-10-CM
E13.44	Other specified diabetes mellitus with diabetic amyotrophy	Diagnosis	ICD-10-CM
E13.49	Other specified diabetes mellitus with other diabetic neurological complication	Diagnosis	ICD-10-CM
E13.51	Other specified diabetes mellitus with diabetic peripheral angiopathy without gangrene	Diagnosis	ICD-10-CM
E13.52	Other specified diabetes mellitus with diabetic peripheral angiopathy with gangrene	Diagnosis	ICD-10-CM
E13.59	Other specified diabetes mellitus with other circulatory complications	Diagnosis	ICD-10-CM
E13.610	Other specified diabetes mellitus with diabetic neuropathic arthropathy	Diagnosis	ICD-10-CM
E13.618	Other specified diabetes mellitus with other diabetic arthropathy	Diagnosis	ICD-10-CM
E13.620	Other specified diabetes mellitus with diabetic dermatitis	Diagnosis	ICD-10-CM
E13.621	Other specified diabetes mellitus with foot ulcer	Diagnosis	ICD-10-CM
E13.622	Other specified diabetes mellitus with other skin ulcer	Diagnosis	ICD-10-CM
E13.628	Other specified diabetes mellitus with other skin complications	Diagnosis	ICD-10-CM
E13.630	Other specified diabetes mellitus with periodontal disease	Diagnosis	ICD-10-CM
E13.638	Other specified diabetes mellitus with other oral complications	Diagnosis	ICD-10-CM
E13.641	Other specified diabetes mellitus with hypoglycemia with coma	Diagnosis	ICD-10-CM
E13.649	Other specified diabetes mellitus with hypoglycemia without coma	Diagnosis	ICD-10-CM
E13.65	Other specified diabetes mellitus with hyperglycemia	Diagnosis	ICD-10-CM
E13.69	Other specified diabetes mellitus with other specified complication	Diagnosis	ICD-10-CM
E13.8	Other specified diabetes mellitus with unspecified complications	Diagnosis	ICD-10-CM
E13.9	Other specified diabetes mellitus without complications	Diagnosis	ICD-10-CM

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<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
648.0	Maternal diabetes mellitus complicating pregnancy, childbirth, or the puerperium	Diagnosis	ICD-9-CM
648.00	Maternal diabetes mellitus, complicating pregnancy, childbirth, or the puerperium, unspecified as to episode of care	Diagnosis	ICD-9-CM
648.01	Maternal diabetes mellitus with delivery	Diagnosis	ICD-9-CM
648.02	Maternal diabetes mellitus with delivery, with current postpartum complication	Diagnosis	ICD-9-CM
648.03	Maternal diabetes mellitus, antepartum	Diagnosis	ICD-9-CM
648.04	Maternal diabetes mellitus, complicating pregnancy, childbirth, or the puerperium, postpartum condition or complication	Diagnosis	ICD-9-CM
O24.319	Unspecified pre-existing diabetes mellitus in pregnancy, unspecified trimester	Diagnosis	ICD-10-CM
O24.32	Unspecified pre-existing diabetes mellitus in childbirth	Diagnosis	ICD-10-CM
O24.92	Unspecified diabetes mellitus in childbirth	Diagnosis	ICD-10-CM
O24.913	Unspecified diabetes mellitus in pregnancy, third trimester	Diagnosis	ICD-10-CM
O24.912	Unspecified diabetes mellitus in pregnancy, second trimester	Diagnosis	ICD-10-CM
O24.911	Unspecified diabetes mellitus in pregnancy, first trimester	Diagnosis	ICD-10-CM
O24.93	Unspecified diabetes mellitus in the puerperium	Diagnosis	ICD-10-CM
O24.019	Pre-existing type 1 diabetes mellitus, in pregnancy, unspecified trimester	Diagnosis	ICD-10-CM
O24.919	Unspecified diabetes mellitus in pregnancy, unspecified trimester	Diagnosis	ICD-10-CM
O24.819	Other pre-existing diabetes mellitus in pregnancy, unspecified trimester	Diagnosis	ICD-10-CM
O24.119	Pre-existing type 2 diabetes mellitus, in pregnancy, unspecified trimester	Diagnosis	ICD-10-CM
O24.011	Pre-existing type 1 diabetes mellitus, in pregnancy, first trimester	Diagnosis	ICD-10-CM
O24.82	Other pre-existing diabetes mellitus in childbirth	Diagnosis	ICD-10-CM
O24.813	Other pre-existing diabetes mellitus in pregnancy, third trimester	Diagnosis	ICD-10-CM
O24.812	Other pre-existing diabetes mellitus in pregnancy, second trimester	Diagnosis	ICD-10-CM
O24.811	Other pre-existing diabetes mellitus in pregnancy, first trimester	Diagnosis	ICD-10-CM
O24.313	Unspecified pre-existing diabetes mellitus in pregnancy, third trimester	Diagnosis	ICD-10-CM
O24.312	Unspecified pre-existing diabetes mellitus in pregnancy, second trimester	Diagnosis	ICD-10-CM
O24.311	Unspecified pre-existing diabetes mellitus in pregnancy, first trimester	Diagnosis	ICD-10-CM

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<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
O24.12	Pre-existing type 2 diabetes mellitus, in childbirth	Diagnosis	ICD-10-CM
O24.113	Pre-existing type 2 diabetes mellitus, in pregnancy, third trimester	Diagnosis	ICD-10-CM
O24.112	Pre-existing type 2 diabetes mellitus, in pregnancy, second trimester	Diagnosis	ICD-10-CM
O24.111	Pre-existing type 2 diabetes mellitus, in pregnancy, first trimester	Diagnosis	ICD-10-CM
O24.02	Pre-existing type 1 diabetes mellitus, in childbirth	Diagnosis	ICD-10-CM
O24.013	Pre-existing type 1 diabetes mellitus, in pregnancy, third trimester	Diagnosis	ICD-10-CM
O24.012	Pre-existing type 1 diabetes mellitus, in pregnancy, second trimester	Diagnosis	ICD-10-CM
O24.03	Pre-existing type 1 diabetes mellitus, in the puerperium	Diagnosis	ICD-10-CM
O24.83	Other pre-existing diabetes mellitus in the puerperium	Diagnosis	ICD-10-CM
O24.33	Unspecified pre-existing diabetes mellitus in the puerperium	Diagnosis	ICD-10-CM
O24.13	Pre-existing type 2 diabetes mellitus, in the puerperium	Diagnosis	ICD-10-CM
648.81	Abnormal maternal glucose tolerance, with delivery	Diagnosis	ICD-9-CM
648.82	Abnormal maternal glucose tolerance, with delivery, with current postpartum complication	Diagnosis	ICD-9-CM
648.83	Abnormal maternal glucose tolerance, antepartum	Diagnosis	ICD-9-CM
648.84	Abnormal maternal glucose tolerance complicating pregnancy, childbirth, or the puerperium, postpartum condition or complication	Diagnosis	ICD-9-CM
O24.414	Gestational diabetes mellitus in pregnancy, insulin controlled	Diagnosis	ICD-10-CM
O24.415	Gestational diabetes mellitus in pregnancy, controlled by oral hypoglycemic drugs	Diagnosis	ICD-10-CM
O24.419	Gestational diabetes mellitus in pregnancy, unspecified control	Diagnosis	ICD-10-CM
O24.425	Gestational diabetes mellitus in childbirth, controlled by oral hypoglycemic drugs	Diagnosis	ICD-10-CM
O24.429	Gestational diabetes mellitus in childbirth, unspecified control	Diagnosis	ICD-10-CM
O24.434	Gestational diabetes mellitus in the puerperium, insulin controlled	Diagnosis	ICD-10-CM
O24.435	Gestational diabetes mellitus in puerperium, controlled by oral hypoglycemic drugs	Diagnosis	ICD-10-CM
O24.439	Gestational diabetes mellitus in the puerperium, unspecified control	Diagnosis	ICD-10-CM
<b>Obesity</b>			
278.00	Obesity, unspecified	Diagnosis	ICD-9-CM
278.01	Morbid obesity	Diagnosis	ICD-9-CM
539.0	Complications of gastric band procedure	Diagnosis	ICD-9-CM
539.01	Infection due to gastric band procedure	Diagnosis	ICD-9-CM

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<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
539.09	Other complications of gastric band procedure	Diagnosis	ICD-9-CM
539.8	Complications of other bariatric procedure	Diagnosis	ICD-9-CM
539.81	Infection due to other bariatric procedure	Diagnosis	ICD-9-CM
539.89	Other complications of other bariatric procedure	Diagnosis	ICD-9-CM
649.1	Obesity complicating pregnancy, childbirth, or the puerperium	Diagnosis	ICD-9-CM
649.10	Obesity complicating pregnancy, childbirth, or the puerperium, unspecified as to episode of care or not applicable	Diagnosis	ICD-9-CM
649.11	Obesity complicating pregnancy, childbirth, or the puerperium, delivered, with or without mention of antepartum condition	Diagnosis	ICD-9-CM
649.12	Obesity complicating pregnancy, childbirth, or the puerperium, delivered, with mention of postpartum complication	Diagnosis	ICD-9-CM
649.13	Obesity complicating pregnancy, childbirth, or the puerperium, antepartum condition or complication	Diagnosis	ICD-9-CM
649.14	Obesity complicating pregnancy, childbirth, or the puerperium, postpartum condition or complication	Diagnosis	ICD-9-CM
649.2	Bariatric surgery status complicating pregnancy, childbirth, or the puerperium	Diagnosis	ICD-9-CM
649.20	Bariatric surgery status complicating pregnancy, childbirth, or the puerperium, unspecified as to episode of care or not applicable	Diagnosis	ICD-9-CM
649.21	Bariatric surgery status complicating pregnancy, childbirth, or the puerperium, delivered, with or without mention of antepartum condition	Diagnosis	ICD-9-CM
649.22	Bariatric surgery status complicating pregnancy, childbirth, or the puerperium, delivered, with mention of postpartum complication	Diagnosis	ICD-9-CM
649.23	Bariatric surgery status complicating pregnancy, childbirth, or the puerperium, antepartum condition or complication	Diagnosis	ICD-9-CM
649.24	Bariatric surgery status complicating pregnancy, childbirth, or the puerperium, postpartum condition or complication	Diagnosis	ICD-9-CM
V85.3	Body Mass Index between 30-39, adult	Diagnosis	ICD-9-CM
V85.30	Body Mass Index 30.0-30.9, adult	Diagnosis	ICD-9-CM
V85.31	Body Mass Index 31.0-31.9, adult	Diagnosis	ICD-9-CM
V85.32	Body Mass Index 32.0-32.9, adult	Diagnosis	ICD-9-CM
V85.33	Body Mass Index 33.0-33.9, adult	Diagnosis	ICD-9-CM
V85.34	Body Mass Index 34.0-34.9, adult	Diagnosis	ICD-9-CM
V85.35	Body Mass Index 35.0-35.9, adult	Diagnosis	ICD-9-CM
V85.36	Body Mass Index 36.0-36.9, adult	Diagnosis	ICD-9-CM
V85.37	Body Mass Index 37.0-37.9, adult	Diagnosis	ICD-9-CM
V85.38	Body Mass Index 38.0-38.9, adult	Diagnosis	ICD-9-CM



**Appendix D. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS), Current Procedural Terminology (CPT), and Healthcare Common Procedure Coding System (HCPCS) Codes Used to Define Baseline Characteristics in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
V85.39	Body Mass Index 39.0-39.9, adult	Diagnosis	ICD-9-CM
V85.4	Body Mass Index 40 and over, adult	Diagnosis	ICD-9-CM
V85.41	Body Mass Index 40.0-44.9, adult	Diagnosis	ICD-9-CM
V85.42	Body Mass Index 45.0-49.9, adult	Diagnosis	ICD-9-CM
V85.43	Body Mass Index 50.0-59.9, adult	Diagnosis	ICD-9-CM
V85.44	Body Mass Index 60.0-69.9, adult	Diagnosis	ICD-9-CM
V85.45	Body Mass Index 70 and over, adult	Diagnosis	ICD-9-CM
E66.01	Morbid (severe) obesity due to excess calories	Diagnosis	ICD-10-CM
E66.09	Other obesity due to excess calories	Diagnosis	ICD-10-CM
E66.1	Drug-induced obesity	Diagnosis	ICD-10-CM
E66.8	Other obesity	Diagnosis	ICD-10-CM
E66.9	Obesity, unspecified	Diagnosis	ICD-10-CM
K95.01	Infection due to gastric band procedure	Diagnosis	ICD-10-CM
K95.09	Other complications of gastric band procedure	Diagnosis	ICD-10-CM
K95.81	Infection due to other bariatric procedure	Diagnosis	ICD-10-CM
K95.89	Other complications of other bariatric procedure	Diagnosis	ICD-10-CM
O99.210	Obesity complicating pregnancy, unspecified trimester	Diagnosis	ICD-10-CM
O99.211	Obesity complicating pregnancy, first trimester	Diagnosis	ICD-10-CM
O99.212	Obesity complicating pregnancy, second trimester	Diagnosis	ICD-10-CM
O99.213	Obesity complicating pregnancy, third trimester	Diagnosis	ICD-10-CM
O99.214	Obesity complicating childbirth	Diagnosis	ICD-10-CM
O99.215	Obesity complicating the puerperium	Diagnosis	ICD-10-CM
O99.840	Bariatric surgery status complicating pregnancy, unspecified trimester	Diagnosis	ICD-10-CM
O99.841	Bariatric surgery status complicating pregnancy, first trimester	Diagnosis	ICD-10-CM
O99.842	Bariatric surgery status complicating pregnancy, second trimester	Diagnosis	ICD-10-CM
O99.843	Bariatric surgery status complicating pregnancy, third trimester	Diagnosis	ICD-10-CM
O99.844	Bariatric surgery status complicating childbirth	Diagnosis	ICD-10-CM
O99.845	Bariatric surgery status complicating the puerperium	Diagnosis	ICD-10-CM
Z68.30	Body mass index (BMI) 30.0-30.9, adult	Diagnosis	ICD-10-CM
Z68.31	Body mass index (BMI) 31.0-31.9, adult	Diagnosis	ICD-10-CM
Z68.32	Body mass index (BMI) 32.0-32.9, adult	Diagnosis	ICD-10-CM

**Appendix D. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS), Current Procedural Terminology (CPT), and Healthcare Common Procedure Coding System (HCPCS) Codes Used to Define Baseline Characteristics in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
Z68.33	Body mass index (BMI) 33.0-33.9, adult	Diagnosis	ICD-10-CM
Z68.34	Body mass index (BMI) 34.0-34.9, adult	Diagnosis	ICD-10-CM
Z68.35	Body mass index (BMI) 35.0-35.9, adult	Diagnosis	ICD-10-CM
Z68.36	Body mass index (BMI) 36.0-36.9, adult	Diagnosis	ICD-10-CM
Z68.37	Body mass index (BMI) 37.0-37.9, adult	Diagnosis	ICD-10-CM
Z68.38	Body mass index (BMI) 38.0-38.9, adult	Diagnosis	ICD-10-CM
Z68.39	Body mass index (BMI) 39.0-39.9, adult	Diagnosis	ICD-10-CM
Z68.41	Body mass index (BMI) 40.0-44.9, adult	Diagnosis	ICD-10-CM
Z68.42	Body mass index (BMI) 45.0-49.9, adult	Diagnosis	ICD-10-CM
Z68.43	Body mass index (BMI) 50-59.9, adult	Diagnosis	ICD-10-CM
Z68.44	Body mass index (BMI) 60.0-69.9, adult	Diagnosis	ICD-10-CM
Z68.45	Body mass index (BMI) 70 or greater, adult	Diagnosis	ICD-10-CM
278.03	Obesity hypoventilation syndrome	Diagnosis	ICD-9-CM
E66.2	Morbid (severe) obesity with alveolar hypoventilation	Diagnosis	ICD-10-CM
43644	Laparoscopy, surgical, gastric restrictive procedure; with gastric bypass and Roux-en-Y gastroenterostomy (roux limb 150 cm or less)	Procedure	CPT-3
43645	Laparoscopy, surgical, gastric restrictive procedure; with gastric bypass and small intestine reconstruction to limit absorption	Procedure	CPT-2
43770	Laparoscopy, surgical, gastric restrictive procedure; placement of adjustable gastric restrictive device (eg, gastric band and subcutaneous port components)	Procedure	CPT-1
43842	Gastric restrictive procedure, without gastric bypass, for morbid obesity; vertical-banded gastroplasty	Procedure	CPT-0
43843	Gastric restrictive procedure, without gastric bypass, for morbid obesity; other than vertical-banded gastroplasty	Procedure	CPT-1
43845	Gastric restrictive procedure with partial gastrectomy, pylorus-preserving duodenoileostomy and ileoileostomy (50 to 100 cm common channel) to limit absorption (biliopancreatic diversion with duodenal switch)	Procedure	CPT-2
43846	Gastric restrictive procedure, with gastric bypass for morbid obesity; with short limb (150 cm or less) Roux-en-Y gastroenterostomy	Procedure	CPT-3
43847	Gastric restrictive procedure, with gastric bypass for morbid obesity; with small intestine reconstruction to limit absorption	Procedure	CPT-4
43.89	Open and other partial gastrectomy	Procedure	ICD-9-CM
44.38	Laparoscopic gastroenterostomy	Procedure	ICD-9-CM
44.39	Other gastroenterostomy without gastrectomy	Procedure	ICD-9-CM

**Appendix D. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS), Current Procedural Terminology (CPT), and Healthcare Common Procedure Coding System (HCPCS) Codes Used to Define Baseline Characteristics in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
44.68	Laparoscopic gastroplasty	Procedure	ICD-9-CM
44.95	Laparoscopic gastric restrictive procedure	Procedure	ICD-9-CM
45.51	Isolation of segment of small intestine	Procedure	ICD-9-CM
45.91	Small-to-small intestinal anastomosis	Procedure	ICD-9-CM
0D16079	Bypass Stomach to Duodenum with Autologous Tissue Substitute, Open Approach	Procedure	ICD-10-PCS
0D1607A	Bypass Stomach to Jejunum with Autologous Tissue Substitute, Open Approach	Procedure	ICD-10-PCS
0D1607B	Bypass Stomach to Ileum with Autologous Tissue Substitute, Open Approach	Procedure	ICD-10-PCS
0D1607L	Bypass Stomach to Transverse Colon with Autologous Tissue Substitute, Open Approach	Procedure	ICD-10-PCS
0D160J9	Bypass Stomach to Duodenum with Synthetic Substitute, Open Approach	Procedure	ICD-10-PCS
0D160JA	Bypass Stomach to Jejunum with Synthetic Substitute, Open Approach	Procedure	ICD-10-PCS
0D160JB	Bypass Stomach to Ileum with Synthetic Substitute, Open Approach	Procedure	ICD-10-PCS
0D160JL	Bypass Stomach to Transverse Colon with Synthetic Substitute, Open Approach	Procedure	ICD-10-PCS
0D160K9	Bypass Stomach to Duodenum with Nonautologous Tissue Substitute, Open Approach	Procedure	ICD-10-PCS
0D160KA	Bypass Stomach to Jejunum with Nonautologous Tissue Substitute, Open Approach	Procedure	ICD-10-PCS
0D160KB	Bypass Stomach to Ileum with Nonautologous Tissue Substitute, Open Approach	Procedure	ICD-10-PCS
0D160KL	Bypass Stomach to Transverse Colon with Nonautologous Tissue Substitute, Open Approach	Procedure	ICD-10-PCS
0D160Z9	Bypass Stomach to Duodenum, Open Approach	Procedure	ICD-10-PCS
0D160ZA	Bypass Stomach to Jejunum, Open Approach	Procedure	ICD-10-PCS
0D160ZB	Bypass Stomach to Ileum, Open Approach	Procedure	ICD-10-PCS
0D160ZL	Bypass Stomach to Transverse Colon, Open Approach	Procedure	ICD-10-PCS
0D16479	Bypass Stomach to Duodenum with Autologous Tissue Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0D1647A	Bypass Stomach to Jejunum with Autologous Tissue Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0D1647B	Bypass Stomach to Ileum with Autologous Tissue Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0D1647L	Bypass Stomach to Transverse Colon with Autologous Tissue Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0D164J9	Bypass Stomach to Duodenum with Synthetic Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS

**Appendix D. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS), Current Procedural Terminology (CPT), and Healthcare Common Procedure Coding System (HCPCS) Codes Used to Define Baseline Characteristics in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
0D164JA	Bypass Stomach to Jejunum with Synthetic Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0D164JB	Bypass Stomach to Ileum with Synthetic Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0D164JL	Bypass Stomach to Transverse Colon with Synthetic Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0D164K9	Bypass Stomach to Duodenum with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0D164KA	Bypass Stomach to Jejunum with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0D164KB	Bypass Stomach to Ileum with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0D164KL	Bypass Stomach to Transverse Colon with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0D164Z9	Bypass Stomach to Duodenum, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0D164ZA	Bypass Stomach to Jejunum, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0D164ZB	Bypass Stomach to Ileum, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0D164ZL	Bypass Stomach to Transverse Colon, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0D16879	Bypass Stomach to Duodenum with Autologous Tissue Substitute, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
0D1687A	Bypass Stomach to Jejunum with Autologous Tissue Substitute, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
0D1687B	Bypass Stomach to Ileum with Autologous Tissue Substitute, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
0D1687L	Bypass Stomach to Transverse Colon with Autologous Tissue Substitute, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
0D168J9	Bypass Stomach to Duodenum with Synthetic Substitute, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
0D168JA	Bypass Stomach to Jejunum with Synthetic Substitute, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
0D168JB	Bypass Stomach to Ileum with Synthetic Substitute, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
0D168JL	Bypass Stomach to Transverse Colon with Synthetic Substitute, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
0D168K9	Bypass Stomach to Duodenum with Nonautologous Tissue Substitute, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
0D168KA	Bypass Stomach to Jejunum with Nonautologous Tissue Substitute, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
0D168KB	Bypass Stomach to Ileum with Nonautologous Tissue Substitute, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
0D168KL	Bypass Stomach to Transverse Colon with Nonautologous Tissue Substitute, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
0D168Z9	Bypass Stomach to Duodenum, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS

**Appendix D. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS), Current Procedural Terminology (CPT), and Healthcare Common Procedure Coding System (HCPCS) Codes Used to Define Baseline Characteristics in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
0D168ZA	Bypass Stomach to Jejunum, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
0D168ZB	Bypass Stomach to Ileum, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
0D168ZL	Bypass Stomach to Transverse Colon, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
0D19079	Bypass Duodenum to Duodenum with Autologous Tissue Substitute, Open Approach	Procedure	ICD-10-PCS
0D1907A	Bypass Duodenum to Jejunum with Autologous Tissue Substitute, Open Approach	Procedure	ICD-10-PCS
0D1907B	Bypass Duodenum to Ileum with Autologous Tissue Substitute, Open Approach	Procedure	ICD-10-PCS
0D190J9	Bypass Duodenum to Duodenum with Synthetic Substitute, Open Approach	Procedure	ICD-10-PCS
0D190JA	Bypass Duodenum to Jejunum with Synthetic Substitute, Open Approach	Procedure	ICD-10-PCS
0D190JB	Bypass Duodenum to Ileum with Synthetic Substitute, Open Approach	Procedure	ICD-10-PCS
0D190K9	Bypass Duodenum to Duodenum with Nonautologous Tissue Substitute, Open Approach	Procedure	ICD-10-PCS
0D190KA	Bypass Duodenum to Jejunum with Nonautologous Tissue Substitute, Open Approach	Procedure	ICD-10-PCS
0D190KB	Bypass Duodenum to Ileum with Nonautologous Tissue Substitute, Open Approach	Procedure	ICD-10-PCS
0D190Z9	Bypass Duodenum to Duodenum, Open Approach	Procedure	ICD-10-PCS
0D190ZA	Bypass Duodenum to Jejunum, Open Approach	Procedure	ICD-10-PCS
0D190ZB	Bypass Duodenum to Ileum, Open Approach	Procedure	ICD-10-PCS
0D19479	Bypass Duodenum to Duodenum with Autologous Tissue Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0D1947A	Bypass Duodenum to Jejunum with Autologous Tissue Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0D1947B	Bypass Duodenum to Ileum with Autologous Tissue Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0D194J9	Bypass Duodenum to Duodenum with Synthetic Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0D194JA	Bypass Duodenum to Jejunum with Synthetic Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0D194JB	Bypass Duodenum to Ileum with Synthetic Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0D194K9	Bypass Duodenum to Duodenum with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0D194KA	Bypass Duodenum to Jejunum with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0D194KB	Bypass Duodenum to Ileum with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0D194Z9	Bypass Duodenum to Duodenum, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0D194ZA	Bypass Duodenum to Jejunum, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS

**Appendix D. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS), Current Procedural Terminology (CPT), and Healthcare Common Procedure Coding System (HCPCS) Codes Used to Define Baseline Characteristics in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
0D194ZB	Bypass Duodenum to Ileum, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0D19879	Bypass Duodenum to Duodenum with Autologous Tissue Substitute, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
0D1987A	Bypass Duodenum to Jejunum with Autologous Tissue Substitute, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
0D1987B	Bypass Duodenum to Ileum with Autologous Tissue Substitute, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
0D198J9	Bypass Duodenum to Duodenum with Synthetic Substitute, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
0D198JA	Bypass Duodenum to Jejunum with Synthetic Substitute, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
0D198JB	Bypass Duodenum to Ileum with Synthetic Substitute, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
0D198K9	Bypass Duodenum to Duodenum with Nonautologous Tissue Substitute, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
0D198KA	Bypass Duodenum to Jejunum with Nonautologous Tissue Substitute, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
0D198KB	Bypass Duodenum to Ileum with Nonautologous Tissue Substitute, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
0D198Z9	Bypass Duodenum to Duodenum, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
0D198ZA	Bypass Duodenum to Jejunum, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
0D198ZB	Bypass Duodenum to Ileum, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
0D1A07A	Bypass Jejunum to Jejunum with Autologous Tissue Substitute, Open Approach	Procedure	ICD-10-PCS
0D1A07B	Bypass Jejunum to Ileum with Autologous Tissue Substitute, Open Approach	Procedure	ICD-10-PCS
0D1A0JA	Bypass Jejunum to Jejunum with Synthetic Substitute, Open Approach	Procedure	ICD-10-PCS
0D1A0JB	Bypass Jejunum to Ileum with Synthetic Substitute, Open Approach	Procedure	ICD-10-PCS
0D1A0KA	Bypass Jejunum to Jejunum with Nonautologous Tissue Substitute, Open Approach	Procedure	ICD-10-PCS
0D1A0KB	Bypass Jejunum to Ileum with Nonautologous Tissue Substitute, Open Approach	Procedure	ICD-10-PCS
0D1A0ZA	Bypass Jejunum to Jejunum, Open Approach	Procedure	ICD-10-PCS
0D1A0ZB	Bypass Jejunum to Ileum, Open Approach	Procedure	ICD-10-PCS
0D1A47A	Bypass Jejunum to Jejunum with Autologous Tissue Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0D1A47B	Bypass Jejunum to Ileum with Autologous Tissue Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0D1A4JA	Bypass Jejunum to Jejunum with Synthetic Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS

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<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
0D1A4JB	Bypass Jejunum to Ileum with Synthetic Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0D1A4KA	Bypass Jejunum to Jejunum with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0D1A4KB	Bypass Jejunum to Ileum with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0D1A4ZA	Bypass Jejunum to Jejunum, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0D1A4ZB	Bypass Jejunum to Ileum, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0D1A87A	Bypass Jejunum to Jejunum with Autologous Tissue Substitute, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
0D1A87B	Bypass Jejunum to Ileum with Autologous Tissue Substitute, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
0D1A8JA	Bypass Jejunum to Jejunum with Synthetic Substitute, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
0D1A8JB	Bypass Jejunum to Ileum with Synthetic Substitute, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
0D1A8KA	Bypass Jejunum to Jejunum with Nonautologous Tissue Substitute, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
0D1A8KB	Bypass Jejunum to Ileum with Nonautologous Tissue Substitute, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
0D1A8ZA	Bypass Jejunum to Jejunum, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
0D1A8ZB	Bypass Jejunum to Ileum, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
0D1A8ZH	Bypass Jejunum to Cecum, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
0D1B07B	Bypass Ileum to Ileum with Autologous Tissue Substitute, Open Approach	Procedure	ICD-10-PCS
0D1B0JB	Bypass Ileum to Ileum with Synthetic Substitute, Open Approach	Procedure	ICD-10-PCS
0D1B0KB	Bypass Ileum to Ileum with Nonautologous Tissue Substitute, Open Approach	Procedure	ICD-10-PCS
0D1B0ZB	Bypass Ileum to Ileum, Open Approach	Procedure	ICD-10-PCS
0D1B47B	Bypass Ileum to Ileum with Autologous Tissue Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0D1B4JB	Bypass Ileum to Ileum with Synthetic Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0D1B4KB	Bypass Ileum to Ileum with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0D1B4ZB	Bypass Ileum to Ileum, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0D1B87B	Bypass Ileum to Ileum with Autologous Tissue Substitute, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
0D1B8JB	Bypass Ileum to Ileum with Synthetic Substitute, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
0D1B8KB	Bypass Ileum to Ileum with Nonautologous Tissue Substitute, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS

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<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
0D1B8ZB	Bypass Ileum to Ileum, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
0D1B8ZH	Bypass Ileum to Cecum, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
0DB60Z3	Excision of Stomach, Open Approach, Vertical	Procedure	ICD-10-PCS
0DB60ZZ	Excision of Stomach, Open Approach	Procedure	ICD-10-PCS
0DB63Z3	Excision of Stomach, Percutaneous Approach, Vertical	Procedure	ICD-10-PCS
0DB63ZZ	Excision of Stomach, Percutaneous Approach	Procedure	ICD-10-PCS
0DB67Z3	Excision of Stomach, Via Natural or Artificial Opening, Vertical	Procedure	ICD-10-PCS
0DB67ZZ	Excision of Stomach, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
0DB68Z3	Excision of Stomach, Via Natural or Artificial Opening Endoscopic, Vertical	Procedure	ICD-10-PCS
0DB80ZZ	Excision of Small Intestine, Open Approach	Procedure	ICD-10-PCS
0DB90ZZ	Excision of Duodenum, Open Approach	Procedure	ICD-10-PCS
0DBB0ZZ	Excision of Ileum, Open Approach	Procedure	ICD-10-PCS
0DQ64ZZ	Repair Stomach, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0DV64CZ	Restriction of Stomach with Extraluminal Device, Percutaneous Endoscopic Approach	Procedure	ICD-10-PCS
0F190Z3	Bypass Common Bile Duct to Duodenum, Open Approach	Procedure	ICD-10-PCS
0TRB07Z	Replacement of Bladder with Autologous Tissue Substitute, Open Approach	Procedure	ICD-10-PCS
<b>Influenza Vaccination</b>			
90630	Influenza virus vaccine, quadrivalent (IIV4), split virus, preservative free, for intradermal use	Procedure	CPT-4
90653	Influenza vaccine, inactivated (IIV), subunit, adjuvanted, for intramuscular use	Procedure	CPT-4
90654	Influenza virus vaccine, trivalent (IIV3), split virus, preservative-free, for intradermal use	Procedure	CPT-4
90655	Influenza virus vaccine, trivalent (IIV3), split virus, preservative free, 0.25 mL dosage, for intramuscular use	Procedure	CPT-4
90656	Influenza virus vaccine, trivalent (IIV3), split virus, preservative free, 0.5 mL dosage, for intramuscular use	Procedure	CPT-4
90657	Influenza virus vaccine, trivalent (IIV3), split virus, 0.25 mL dosage, for intramuscular use	Procedure	CPT-4
90658	Influenza virus vaccine, trivalent (IIV3), split virus, 0.5 mL dosage, for intramuscular use	Procedure	CPT-4
90659	Influenza virus vaccine, whole virus, for intramuscular or jet injection use	Procedure	CPT-4
90660	Influenza virus vaccine, trivalent, live (LAIV3), for intranasal use	Procedure	CPT-4
90661	Influenza virus vaccine, trivalent (cIIV3), derived from cell cultures, subunit, preservative and antibiotic free, 0.5 mL dosage, for intramuscular use	Procedure	CPT-4



**Appendix D. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS), Current Procedural Terminology (CPT), and Healthcare Common Procedure Coding System (HCPCS) Codes Used to Define Baseline Characteristics in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
90662	Influenza virus vaccine (IIV), split virus, preservative free, enhanced immunogenicity via increased antigen content, for intramuscular use	Procedure	CPT-4
90663	Influenza virus vaccine, pandemic formulation, H1N1	Procedure	CPT-4
90664	Influenza virus vaccine, live (LAIV), pandemic formulation, for intranasal use	Procedure	CPT-4
90666	Influenza virus vaccine (IIV), pandemic formulation, split virus, preservative free, for intramuscular use	Procedure	CPT-4
90667	Influenza virus vaccine (IIV), pandemic formulation, split virus, adjuvanted, for intramuscular use	Procedure	CPT-4
90668	Influenza virus vaccine (IIV), pandemic formulation, split virus, for intramuscular use	Procedure	CPT-4
90672	Influenza virus vaccine, quadrivalent, live (LAIV4), for intranasal use	Procedure	CPT-4
90673	Influenza virus vaccine, trivalent (RIV3), derived from recombinant DNA, hemagglutinin (HA) protein only, preservative and antibiotic free, for intramuscular use	Procedure	CPT-4
90674	Influenza virus vaccine, quadrivalent (cIIV4), derived from cell cultures, subunit, preservative and antibiotic free, 0.5 mL dosage, for intramuscular use	Procedure	CPT-4
90685	Influenza virus vaccine, quadrivalent (IIV4), split virus, preservative free, 0.25 mL, for intramuscular use	Procedure	CPT-4
90686	Influenza virus vaccine, quadrivalent (IIV4), split virus, preservative free, 0.5 mL dosage, for intramuscular use	Procedure	CPT-4
90687	Influenza virus vaccine, quadrivalent (IIV4), split virus, 0.25 mL dosage, for intramuscular use	Procedure	CPT-4
90688	Influenza virus vaccine, quadrivalent (IIV4), split virus, 0.5 mL dosage, for intramuscular use	Procedure	CPT-4
90682	Influenza virus vaccine, quadrivalent (RIV4), derived from recombinant DNA, hemagglutinin (HA) protein only, preservative and antibiotic free, for intramuscular use	Procedure	CPT-4
90756	Influenza virus vaccine, quadrivalent (cIIV4), derived from cell cultures, subunit, antibiotic free, 0.5mL dosage, for intramuscular use	Procedure	CPT-4
Q2033	Influenza vaccine, recombinant hemagglutinin antigens, for intramuscular use (Flublok)	Procedure	HCPCS
Q2034	Influenza virus vaccine, split virus, for intramuscular use (Agriflu)	Procedure	HCPCS
Q2035	Influenza virus vaccine, split virus, when administered to individuals 3 years of age and older, for intramuscular use (AFLURIA)	Procedure	HCPCS
Q2036	Influenza virus vaccine, split virus, when administered to individuals 3 years of age and older, for intramuscular use (FLULAVAL)	Procedure	HCPCS
Q2037	Influenza virus vaccine, split virus, when administered to individuals 3 years of age and older, for intramuscular use (FLUVIRIN)	Procedure	HCPCS
Q2038	Influenza virus vaccine, split virus, when administered to individuals 3 years of age and older, for intramuscular use (Fluzone)	Procedure	HCPCS
4037F	Influenza immunization ordered or administered (COPD, PV, CKD, ESRD)(IBD)	Procedure	CPT-2
4274F	Influenza immunization administered or previously received (HIV) (P-ESRD)	Procedure	CPT-2
G0008	Administration of influenza virus vaccine	Procedure	HCPCS

**Appendix D. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS), Current Procedural Terminology (CPT), and Healthcare Common Procedure Coding System (HCPCS) Codes Used to Define Baseline Characteristics in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
G8482	Influenza immunization administered or previously received	Procedure	HCPCS
G8636	Influenza immunization administered or previously received	Procedure	HCPCS
G9141	Influenza A (H1N1) immunization administration (includes the physician counseling the patient/family)	Procedure	HCPCS
G9142	Influenza A (H1N1) vaccine, any route of administration	Procedure	HCPCS
Q0034	Administration of influenza vaccine to Medicare beneficiaries by participating demonstration sites	Procedure	HCPCS
Q2039	Influenza virus vaccine, not otherwise specified	Procedure	HCPCS
<b>Pneumococcal Vaccination</b>			
90669	Pneumococcal conjugate vaccine, 7 valent (PCV7), for intramuscular use	Procedure	CPT-4
90732	Pneumococcal polysaccharide vaccine, 23-valent (PPSV23), adult or immunosuppressed patient dosage, when administered to individuals 2 years	Procedure	CPT-4
90670	Pneumococcal conjugate vaccine, 13 valent (PCV13), for intramuscular use	Procedure	CPT-4
G0009	Administration of pneumococcal vaccine	Procedure	HCPCS
G8864	Pneumococcal vaccine administered or previously received	Procedure	HCPCS
4040F	Pneumococcal vaccine administered or previously received (COPD) (PV), (IBD)	Procedure	CPT-2

**Appendix E. List of Generic and Brand Medical Product Names Used to Define Baseline Characteristics in this Request**

<b>Generic Name</b>	<b>Brand Name</b>
<b>Influenza Vaccination</b>	
<b>Influenza Season July 1, 2014 - June 30, 2015</b>	
Influenza vaccine quadrivalent live 2014-2015 (2 yrs-49 yrs)	Flumist Quad 2014-2015
Influenza virus vaccine quad vs 2014-2015 (36 mos and older)	Flulaval Quad 2014-2015
Influenza virus vaccine trival 2014-15 (36 mos and older)/PF	Flulaval 2014-2015 (PF)
Influenza virus vaccine trivalent 2014-15 (36 mos and older)	Flulaval 2014-2015
Influenza virus vaccine quadrival 2014-15(36 mos, older)/PF	Flulaval Quad 2014-2015 (PF)
Influenza virus vaccine trivalent 2014-2015 (5 yr, older)/PF	Afluria 2014-2015 (PF)
Influenza virus vaccine trivalent 2014-2015 (5 yr and older)	Afluria 2014-2015
Influenza virus vaccine tv 2014-2015(18 yrs, older)recomb/PF	Flublok 2014-2015 (PF)
Influenza virus vaccine trival 2014-15 (36 mos and older)/PF	Fluzone 2014-2015 (PF)
Influenza virus vaccine trivalent 2014-15 (6 mos and older)	Fluzone 2014-2015
Influenza virus vaccine trivalent 2014-2015 (65 yr,older)/PF	Fluzone High-Dose 2014-15 (PF)
Influenza virus vaccine quadrival 2014-15(36 mos, older)/PF	Fluzone Quad 2014-2015 (PF)
Influenza virus vaccine quadrival 2014-15 (6 mos-35 mos)/PF	Fluzone Quad Pedi 2014-15 (PF)
Influenza virus vaccine quadrival 2014-2015(6 mos and older)	Fluzone Quad 2014-2015
Influenza virus vaccine trivalent 2014-15 (18 yrs-64 yrs)/PF	Fluzone Intraderm 2014-15 (PF)
Influenza virus vaccine trival 2014-15 (36 mos and older)/PF	Fluarix 2014-2015 (PF)
Influenza virus vaccine quadrival 2014-15(36 mos, older)/PF	Fluarix Quad 2014-2015 (PF)
Influenza vaccine tv split 2014-15 (18 yr,up)cell derived/PF	Flucelvax 2014-2015 (PF)
Influenza virus vaccine trivalent 2014-2015 (4 yr, older)/PF	Fluvirin 2014-2015 (PF)
Influenza virus vaccine trivalent 2014-2015 (4 yr and older)	Fluvirin 2014-2015
Influenza vaccine tv split 2014-15 (18 yr,up)cell derived/PF	Single Use EZ Flu 2014-15(PF)
<b>Influenza Season July 1, 2015 - June 30, 2016</b>	
Influenza vaccine quadrivalent live 2015-2016 (2 yrs-49 yrs)	Flumist Quad 2015-2016
Influenza virus vaccine quadrival 2015-2016 (36 mos, older)	Flulaval Quad 2015-2016
Influenza virus vaccine trivalent 2015-2016 (5 yr, older)/PF	Afluria 2015-2016 (PF)
Influenza virus vaccine trivalent 2015-2016 (5 yr and older)	Afluria 2015-2016
Influenza virus vaccine tv 2015-2016(18 yrs, older)recomb/PF	Flublok 2015-2016 (PF)
Influenza virus vaccine trivalent 2015-16 (6 mos and older)	Fluzone 2015-2016
Influenza virus vaccine trivalent split 2015-16(65 yr,up)/PF	Fluzone High-Dose 2015-16 (PF)
Influenza virus vaccine quadrival split2015-16(36 mos,up)/PF	Fluzone Quad 2015-2016 (PF)
Influenza virus vaccine quadrival 2015-16 (6 mos-35 mos)/PF	Fluzone Quad Pedi 2015-16 (PF)
Influenza virus vaccine qvalsplitted 2015-2016(6 mos and older)	Fluzone Quad 2015-2016
Influenza virus vaccine quadrivalent 2015-16(18yrs-64yrs)/PF	Fluzone Intraderm Quad 2015-16
Influenza virus vaccine quadrival split2015-16(36 mos,up)/PF	Fluarix Quad 2015-2016 (PF)
Influenza vaccine trivalent 2015-16(18 yr,up)cell derived/PF	Flucelvax 2015-2016 (PF)
Influenza vaccine tvs 2015-16 (65 yr,up)/adjuvant MF59C.1/PF	Fluad 2015-16(65yr+)(PF)
Influenza virus vaccine trivalent 2015-2016 (4 yr, older)/PF	Fluvirin 2015-2016 (PF)
Influenza virus vaccine trivalent 2015-2016 (4 yr and older)	Fluvirin 2015-2016

**Appendix E. List of Generic and Brand Medical Product Names Used to Define Baseline Characteristics in this Request**

<b>Generic Name</b>	<b>Brand Name</b>
Influenza virus vaccine trivalent 2015-2016 (4 yr, older)/PF	EZ Flu 2015-16 (Fluvirin) (PF)
Influenza vaccine trivalent 2015-16(18 yr,up)cell derived/PF	EZ Flu 2015-16(Flucelvax)(PF)
<b>Influenza Season July 1, 2016 - June 30, 2017</b>	
Influenza virus vaccine qvsplit 2016-2017(6 mos and older)	Flulaval Quad 2016-2017
Influenza virus vaccine qvsplit 2016-2017(6 mos and up)/PF	Flulaval Quad 2016-2017 (PF)
Influenza virus vaccine trivalent 2016-2017 (5 years up)/PF	Afluria 2016-2017 (PF)
Influenza virus vaccine trivalent 2016-2017 (5 yr and older)	Afluria 2016-2017
Influenza virus vaccine tv 2016-17(18 yrs and older)rcmb/PF	Flublok 2016-2017 (PF)
Influenza virus vaccine trival split 2016-2017(65 yr up)/PF	Fluzone High-Dose 2016-17 (PF)
Influenza virus vaccine quadval split 2016-17(36 mos up)/PF	Fluzone Quad 2016-2017 (PF)
Influenza virus vaccine quadrival 2016-17 (6 mos-35 mos)/PF	Fluzone Quad Pedi 2016-17 (PF)
Influenza virus vaccine qvsplit 2016-2017(6 mos and older)	Fluzone Quad 2016-2017
Influenza virus vaccine quadrivalent 2016-17(18yrs-64yrs)/PF	Fluzone Intraderm Quad 2016-17
Influenza virus vaccine quadval split 2016-17(36 mos up)/PF	Fluarix Quad 2016-2017 (PF)
Influenza vaccine tvs 2016-17 (65 yr up)/adjuvant MF59C.1/PF	Fluad 2016-2017 (65 yr up)(PF)
Influenza virus vaccine trival 2016-2017 (4yr and older)/PF	Fluvirin 2016-2017 (PF)
Influenza virus vaccine trivalent 2016-2017 (4 yr and older)	Fluvirin 2016-2017
Flu vaccine qs 2016-2017(4 years and older)cell derived/PF	Flucelvax Quad 2016-2017 (PF)
Influenza virus vaccine trival 2016-2017 (4yr and older)/PF	EZ Flu 2016-17 (Fluvirin) (PF)
Influenza virus vaccine trivalent 2016-2017 (5 years up)/PF	EZ Flu 2016-17 (Afluria) (PF)
Influenza vaccine quadrivalent live 2016-2017 (2 yrs-49 yrs)	Flumist Quad 2016-2017
Influenza virus vaccine quadrival 2016-17 (6 mos-35 mos)/PF	EZ Flu16-17(Fluzon Qd Ped)(PF)
Influenza virus vaccine quadrivalent 2016-17(18yr and up)/PF	Afluria Quad 2016-2017 (PF)
Influenza virus vaccine quadrivalent 2016-17(18 year and up)	Afluria Quad 2016-2017
<b>Pneumococcal Vaccination</b>	
Pneumococcal 7-valent conjugate vaccine (diphtheria crm)/PF	Prevnar (PF)
Pneumococcal 23-valent polysaccharide vaccine	Pneumovax 23
Pneumococcal 13-valent conjugate vaccine (Diphtheria crm)/PF	Prevnar 13 (PF)

**Appendix F. Specifications for Defining Parameters in the Request**

This request utilized the Cohort Identification and Descriptive Analysis (CIDA) module, version 7.2.1 to estimate rates of influenza-like illness (ILI), pneumonia and influenza (P&I), and medically attenuated acute respiratory illness (MAARI) and event outcomes in the Sentinel Distributed Database (SDD).

**Query periods:** July 1, 2014-June 30, 2015; July 1, 2015-June 30, 2016; and July 1, 2016-June 30, 2017  
**Enrollment gap:** 45  
**Age groups:** 6 months-4 years, 5-17 years, 18-49 years, 50-64 years, 65+ years  
**Pre-index enrollment requirement:** 183 days  
**Post-index enrollment requirement:** 0 days  
**Coverage requirement:** Medical and Drug Coverage  
**Stratifications:** Flu Season cross-stratified by age group  
**Envelope macro:** Turn off- Do NOT reclassify AV, ED, or OA encounters that occur during an IP stay an IP encounters<sup>1</sup>  
**Runs:** 3 monitoring periods x 27 scenarios = 81 scenarios in total; 3 total runs

Scenario	Exposure					Event Outcome				Baseline Characteristics	
	Index Exposure	Cohort definition	Incident exposure washout period	Incident with respect to:	Exposure episode length (ITT) <sup>2</sup> Index care setting	Censor/truncate treatment episode at evidence of:	Event	Event washout period	Event care setting	Blackout period	Baseline Characteristics
1	ILI diagnosis	All valid diagnoses	30	ILI diagnosis	30 Ambulatory visit; Other ambulatory visit; Emergency department visit	Death; Data Partner end date; Query period end date; Disenrollment; Occurrence of exposure or event	Flu testing	0	Ambulatory visit; Other ambulatory visit; Emergency department visit	0	Please see Appendix G
2	ILI diagnosis	All valid diagnoses	30	ILI diagnosis	30 Ambulatory visit; Other ambulatory visit; Emergency department visit	Death; Data Partner end date; Query period end date; Disenrollment; Occurrence of exposure or event	Inpatient hospitalization	0	Inpatient setting, any diagnosis position	0	Please see Appendix G
3	ILI diagnosis	All valid diagnoses	30	ILI diagnosis	30 Ambulatory visit; Other ambulatory visit;	Death; Data Partner end date; Query period end date; Disenrollment; Occurrence of exposure or event	Inpatient hospitalization	0	Inpatient setting, any diagnosis position	0	Please see Appendix G

**Appendix F. Specifications for Defining Parameters in the Request**

Scenario	Exposure						Event Outcome				Baseline Characteristics	
	Index Exposure	Cohort definition	Incident exposure washout period	Incident with respect to:	Exposure episode length (ITT) <sup>1</sup>	Index care setting	Censor/truncate treatment episode at evidence of:	Event	Event washout period	Event care setting	Blackout period	Baseline Characteristics
4	ILI diagnosis	All valid diagnoses	30	ILI diagnosis	30	Ambulatory visit; Other ambulatory visit; Emergency department visit	Death; Data Partner end date; Query period end date; Disenrollment; Occurrence of exposure or event	Biphasic positive airway pressure (BiPAP)	0	Any care setting	0	Please see Appendix G
5	ILI diagnosis	All valid diagnoses	30	ILI diagnosis	30	Ambulatory visit; Other ambulatory visit; Emergency department visit	Death; Data Partner end date; Query period end date; Disenrollment; Occurrence of exposure or event	Supplemental oxygen	0	Any care setting	0	Please see Appendix G
6	ILI diagnosis	All valid diagnoses	30	ILI diagnosis	30	Ambulatory visit; Other ambulatory visit; Emergency department visit	Death; Data Partner end date; Query period end date; Disenrollment; Occurrence of exposure or event	Mechanical ventilation	0	Any care setting	0	Please see Appendix G
7	ILI diagnosis	All valid diagnoses	30	ILI diagnosis	30	Ambulatory visit; Other ambulatory visit; Emergency department visit	Death; Data Partner end date; Query period end date; Disenrollment; Occurrence of exposure or event	Critical or observational care (CPT codes)	0	Any care setting	0	Please see Appendix G

**Appendix F. Specifications for Defining Parameters in the Request**

Scenario	Exposure						Event Outcome				Baseline Characteristics	
	Index Exposure	Cohort definition	Incident exposure washout period	Incident with respect to:	Exposure episode length (ITT) <sup>1</sup>	Index care setting	Censor/truncate treatment episode at evidence of:	Event	Event washout period	Event care setting	Blackout period	Baseline Characteristics
8	ILI diagnosis	All valid diagnoses	30	ILI diagnosis	30	Ambulatory visit; Other ambulatory visit; Emergency department visit	Death; Data Partner end date; Query period end date; Disenrollment; Occurrence of exposure or event	Critical or observational care (CPT and Revenue codes)	0	Any care setting	0	Please see Appendix G
9	ILI diagnosis	All valid diagnoses	30	ILI diagnosis	30	Ambulatory visit; Other ambulatory visit; Emergency department visit	Death; Data Partner end date; Query period end date; Disenrollment; Occurrence of exposure or event	Extracorporeal membrane oxygenation (ECMO)	0	Any care setting	0	Please see Appendix G
10	P&I diagnosis	All valid diagnoses	30	P&I diagnosis	30	Ambulatory visit; Other ambulatory visit; Emergency department visit	Death; Data Partner end date; Query period end date; Disenrollment; Occurrence of exposure or event	Flu testing	0	Ambulatory visit; Other ambulatory visit; Emergency department visit	0	Please see Appendix G
11	P&I diagnosis	All valid diagnoses	30	P&I diagnosis	30	Ambulatory visit; Other ambulatory visit; Emergency department visit	Death; Data Partner end date; Query period end date; Disenrollment; Occurrence of exposure or event	Inpatient hospitalization	0	Inpatient setting, any diagnosis position	0	Please see Appendix G

Appendix F. Specifications for Defining Parameters in the Request

Scenario	Exposure						Event Outcome				Baseline Characteristics	
	Index Exposure	Cohort definition	Incident exposure washout period	Incident with respect to:	Exposure episode length (ITT) <sup>1</sup>	Index care setting	Censor/truncate treatment episode at evidence of:	Event	Event washout period	Event care setting	Blackout period	Baseline Characteristics
12	P&I diagnosis	All valid diagnoses	30	P&I diagnosis	30	Ambulatory visit; Other ambulatory visit;	Death; Data Partner end date; Query period end date; Disenrollment; Occurrence of exposure or event	Inpatient hospitalization	0	Inpatient setting, any diagnosis position	0	Please see Appendix G
13	P&I diagnosis	All valid diagnoses	30	P&I diagnosis	30	Ambulatory visit; Other ambulatory visit; Emergency department visit	Death; Data Partner end date; Query period end date; Disenrollment; Occurrence of exposure or event	BiPAP	0	Any care setting	0	Please see Appendix G
14	P&I diagnosis	All valid diagnoses	30	P&I diagnosis	30	Ambulatory visit; Other ambulatory visit; Emergency department visit	Death; Data Partner end date; Query period end date; Disenrollment; Occurrence of exposure or event	Supplemental oxygen	0	Any care setting	0	Please see Appendix G
15	P&I diagnosis	All valid diagnoses	30	P&I diagnosis	30	Ambulatory visit; Other ambulatory visit; Emergency department visit	Death; Data Partner end date; Query period end date; Disenrollment; Occurrence of exposure or event	Mechanical ventilation	0	Any care setting	0	Please see Appendix G



**Appendix F. Specifications for Defining Parameters in the Request**

Scenario	Exposure						Event Outcome				Baseline Characteristics	
	Index Exposure	Cohort definition	Incident exposure washout period	Incident with respect to:	Exposure episode length (ITT) <sup>1</sup>	Index care setting	Censor/truncate treatment episode at evidence of:	Event	Event washout period	Event care setting	Blackout period	Baseline Characteristics
16	P&I diagnosis	All valid diagnoses	30	P&I diagnosis	30	Ambulatory visit; Other ambulatory visit; Emergency department visit	Death; Data Partner end date; Query period end date; Disenrollment; Occurrence of exposure or event	Critical or observational care (CPT codes)	0	Any care setting	0	Please see Appendix G
17	P&I diagnosis	All valid diagnoses	30	P&I diagnosis	30	Ambulatory visit; Other ambulatory visit; Emergency department visit	Death; Data Partner end date; Query period end date; Disenrollment; Occurrence of exposure or event	Critical or observational care (CPT and Revenue codes)	0	Any care setting	0	Please see Appendix G
20	MAARI diagnosis	All valid diagnoses	30	MAARI diagnosis	30	Ambulatory visit; Other ambulatory visit; Emergency department visit	Death; Data Partner end date; Query period end date; Disenrollment; Occurrence of exposure or event	Inpatient hospitalization	0	Inpatient setting, any diagnosis position	0	Please see Appendix G
21	MAARI diagnosis	All valid diagnoses	30	MAARI diagnosis	30	Ambulatory visit; Other ambulatory visit;	Death; Data Partner end date; Query period end date; Disenrollment; Occurrence of exposure or event	Inpatient hospitalization	0	Inpatient setting, any diagnosis position	0	Please see Appendix G

**Appendix F. Specifications for Defining Parameters in the Request**

Scenario	Exposure						Event Outcome				Baseline Characteristics	
	Index Exposure	Cohort definition	Incident exposure washout period	Incident with respect to:	Exposure episode length (ITT) <sup>1</sup>	Index care setting	Censor/truncate treatment episode at evidence of:	Event	Event washout period	Event care setting	Blackout period	Baseline Characteristics
22	MAARI diagnosis	All valid diagnoses	30	MAARI diagnosis	30	Ambulatory visit; Other ambulatory visit; Emergency department visit	Death; Data Partner end date; Query period end date; Disenrollment; Occurrence of exposure or event	BiPAP	0	Any care setting	0	Please see Appendix G
23	MAARI diagnosis	All valid diagnoses	30	MAARI diagnosis	30	Ambulatory visit; Other ambulatory visit; Emergency department visit	Death; Data Partner end date; Query period end date; Disenrollment; Occurrence of exposure or event	Supplemental oxygen	0	Any care setting	0	Please see Appendix G
26	MAARI diagnosis	All valid diagnoses	30	MAARI diagnosis	30	Ambulatory visit; Other ambulatory visit; Emergency department visit	Death; Data Partner end date; Query period end date; Disenrollment; Occurrence of exposure or event	Critical or observational care (CPT and Revenue codes)	0	Any care setting	0	Please see Appendix G
27	MAARI diagnosis	All valid diagnoses	30	MAARI diagnosis	30	Ambulatory visit; Other ambulatory visit; Emergency department visit	Death; Data Partner end date; Query period end date; Disenrollment; Occurrence of exposure or event	ECMO	0	Any care setting	0	Please see Appendix G

<sup>1</sup> AV=Ambulatory Visit; ED=Emergency Department Visit; OA=Other Ambulatory Visit

<sup>2</sup> Intent-to-treat window will serve as the fixed outcome evaluation window for this request, starting at and including the date of index diagnosis

International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM), International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-National Drug Codes (NDCs) are checked against First Data Bank's "National Drug Data File (NDDF®) Plus."

Appendix G. Specifications Defining Parameters for Baseline Characteristics in this Request					
Baseline Characteristics					
Baseline Characteristics	Season (monitoring period)	Care setting	Evaluation period start	Evaluation period end	Number of instances the characteristic should be found in evaluation period
Asthma	All	Any care setting	-183	0	1
Chronic obstructive pulmonary disease (COPD)	All	Any care setting	-183	0	1
Diabetes	All	Any care setting	-183	0	1
Obesity	All	Any care setting	-183	0	1
Influenza vaccination:					
2014-2015 season	July 1, 2014-June 30, 2015	Any care setting	-183	0	1
2015-2016 season	July 1, 2015-June 30, 2016	Any care setting	-183	0	1
2016-2017 season	July 1, 2016-June 30, 2017	Any care setting	-183	0	1
Pneumococcal vaccination	All	Any care setting	Start of enrollment	0	1

Appendix H. Diagram Detailing the Design of the Request

