Sentinel

Disclaimer

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

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

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

The following report contains a description of the request, request specifications, and results from the modular program run(s).
If you are using a web page screen reader and are unable to access this document, please contact the Sentinel Operations Center for assistance at info@sentinelsystem.org.

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Overview for Request: cder_mpl1r_wp056

Request ID: cder_mpl1r_wp056

Request Description: The first goal of this request was to obtain counts of new users of apixaban and warfarin among patients in the Sentinel Distributed Database (SDD). The second goal of this request was to examine incidence rates of ischemic stroke, intracranial hemorrhage, and gastrointestinal hemorrhage among new users of apixaban compared to new users of warfarin with non-valvular atrial fibrillation in the SDD.

Sentinel Modular Program Tool Used: Cohort Identification and Descriptive Analysis (CIDA) tool, version 5.1.1

Data Source: Data from February 1, 2013 to August 31, 2017 from 17 Data Partners (DPs) contributing to the SDD were included in this report. This request was distributed to DPs on February 1, 2018. See Appendix A for a list of dates of available data for each DP.

Study Design: This request was designed to identify new users of apixaban and warfarin among patients in the SDD. We then compared new users of apixaban to new users of warfarin in the SDD with respect to rates of ischemic stroke, intracranial hemorrhage, and gastrointestinal hemorrhage. The number of qualifying patients with the exposures of interest was calculated overall and stratified by age, sex, and year.

Exposures of Interest: The exposures of interest were apixaban and warfarin, which were defined using National Drug Codes (NDCs). Please see Appendix B for a list of generic and brand drug names used to define exposures in this request.

Outcomes of Interest: The outcomes of interest were gastrointestinal hemorrhage, intracranial hemorrhage, and ischemic stroke, which were defined using International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) diagnosis codes. All outcomes were ascertained in the inpatient care setting in the primary diagnosis position. Intracranial hemorrhage was additionally defined using a diagnosis code in the inpatient care setting in either a primary or secondary diagnosis position. Please see Appendix C for a list of codes used to define outcomes in this request.

Cohort Eligibility Criteria: Three query periods were evaluated in this request: February 1, 2013 to August 31, 2017; February 1, 2013 to September 30, 2015; and October 1, 2015 to August 31, 2017. Individuals included in each cohort were required to be continuously enrolled in health plans with medical and drug coverage for at least 183 days prior to their first qualifying (index) non-valvular atrial fibrillation diagnosis during which gaps in coverage of up to 45 days were allowed. The following age groups were included in the cohort: 21-64, 65-74, 75-84, and 85-99 years. Only the first valid diagnosis during the query period was considered; no cohort re-entry was allowed. Members were also required to be new users of apixaban or warfarin for cohort entry. New use of apixaban or warfarin was defined as no use of any anticoagulant (apixaban, dabigatran, rivaroxaban, edoxaban, or warfarin) in the 183 days prior to index non-valvular atrial fibrillation diagnosis. Members were ineligible if they had evidence of the following conditions/procedures in the 183 days prior to and including date of drug initiation: dialysis (outpatient codes), kidney replacement, deep vein thrombosis, pulmonary embolism, joint replacement, mitral stenosis, valve replacement, or valve repair. Inclusion and exclusion criteria were defined using ICD-9-CM, ICD-10-CM, International Classification of Diseases, Tenth Revision, Procedure Coding System codes (ICD-10-PCS), and Current Procedural Terminology, Fourth Edition (CPT-4) codes. See Appendices D and E for a list of codes used to define inclusion and exclusion criteria in this request.

Follow-Up Time: Follow-up time was determined by the length of the exposure episodes. Exposure episode lengths were defined using inpatient pharmacy dispensing days' supply to create a sequence of continuous exposure. Exposure episodes were considered continuous if gaps in days' supply were 7 days or less. The end date of each exposure episode was extended by 7 additional days. Follow-up began on the day of the first exposure of interest and continued until the first occurrence of any of the following: 1) disenrollment; 2) the end date of the data provided by each DP (see Appendix A); 3) query end date; 4) cessation of study drug use (defined as when the days’ supply was exhausted for longer than seven days without a subsequent dispensing plus an extension of seven days); 5) a dispensing of a different anti-coagulant; or 6) occurrence of the outcome. Exposure episodes were excluded if the event of interest occurred on the same day as the first eligible dispensing.

Overview for Request: cder_mpl1r_wp056, continued
Baseline Characteristics: The following characteristics were assessed in the 183 days prior to and including the index date of non-valvular atrial fibrillation diagnosis: age, year, sex, Charlson/Elixhauser combined comorbidity score[1], health service utilization, gastrointestinal hemorrhage, intracranial hemorrhage (primary position only), intracranial hemorrhage (primary and secondary position), kidney disease, and ischemic stroke. Gastrointestinal hemorrhage, intracranial hemorrhage, and ischemic stroke were identified by a diagnosis code within any non-ambulatory care setting. Kidney disease was identified by a diagnosis code within any care setting. ICD-9-CM and ICD-10-CM diagnosis codes were used to define kidney disease, gastrointestinal hemorrhage, intracranial hemorrhage, and ischemic stroke. Please refer to Appendix F for a list of codes used to define characteristics in this request.
Limitations: Algorithms used to define exposures and inclusion criteria are imperfect; thus, it is possible that there may be misclassification. Therefore, data should be interpreted with this limitation in mind.
Please see Appendix G for the specifications of parameters used in the analyses in this request.
Notes: Please contact the Sentinel Operations Center Query Fulfillment Team (qf@sentinelsystem.org) for questions and to provide comments/suggestions for future enhancements to this document.

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

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

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

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

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

> **Ambulatory Visit (AV) -** includes visits at outpatient clinics, same-day surgeries, urgent care visits, and other same-day ambulatory hospital encounters, but excludes emergency department encounters.
>
> **Emergency Department (ED) -** includes ED encounters that become inpatient stays (in which case inpatient stays would be a separate encounter). Excludes urgent care visits.
>
> **Inpatient Hospital Stay (IP) -** includes all inpatient stays, same-day hospital discharges, hospital transfers, and acute hospital care where the discharge is after the admission date.
>
> **Non-Acute Institutional Stay (IS) -** includes hospice, skilled nursing facility (SNF), rehab center, nursing home, residential, overnight non-hospital dialysis and other non-hospital stays.
>
> **Other Ambulatory Visit (OA) -** includes other non overnight AV encounters such as hospice visits, home health visits, skilled nursing facility visits, other non-hospital visits, as well as telemedicine, telephone and email consultations.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

All terms listed above may not be used in this report.

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Table 1a. Baseline Characteristics for Apixaban and Warfarin Users at Risk for Gastrointestinal Hemorrhage in the Sentinel Distributed Database (SDD) between February 1, 2013 and September 30, 2015

	Apixaban		Warfarin		Covariate Balance	
Characteristic	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**	**Absolute Difference**	**Standardized Difference**
Number of unique patients	150,809	100.0%	320,280	100.0%	---	---
Patient Characteristics	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**	**Absolute Difference**	**Standardized Difference**
Mean age (years)	75.9	9.1	76.1	9.5	-0.20	-0.02
Age (years)	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**	**Absolute Difference**	**Standardized Difference**
21-64	15,569	10.3%	34,506	10.8%	-0.50	-0.02
65-74	52,354	34.7%	103,397	32.3%	2.40	0.05
75-84	55,674	36.9%	122,277	38.2%	-1.30	-0.03
85-99	27,212	18.0%	60,100	18.8%	-0.80	-0.02
Sex						
Female	75,555	50.1%	152,461	47.6%	2.50	0.05
Male	75,253	49.9%	167,811	52.4%	-2.50	-0.05
Other	1	0.0%	8	0.0%	0.00	---
Year						
2013	16,816	11.2%	126,838	39.6%	-28.40	-0.69
2014	58,984	39.1%	117,361	36.6%	2.50	0.05
2015	75,009	49.7%	76,081	23.8%	25.90	0.56
Recorded History of:	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**	**Absolute Difference**	**Standardized Difference**
Charlson/Elixhauser combined comorbidity score[1]	2.8	2.6	3.3	2.9	-0.5	-0.18
	Number of Patients	**Percent**	**Number of Patients**	**Percent**	**Absolute Difference**	**Standardized Difference**
Gastrointestinal hemorrhage, inpatient (primary)	571	0.4%	1,985	0.6%	-0.20	-0.03
Intracranial hemorrhage, inpatient (primary)	164	0.1%	469	0.1%	0.00	0.00
Intracranial hemorrhage, inpatient (primary or secondary)	520	0.3%	1,607	0.5%	-0.20	-0.03
Kidney disease, any care setting	28,383	18.8%	75,078	23.4%	-4.60	-0.11
Ischemic stroke, inpatient (primary)	6,090	4.0%	16,964	5.3%	-1.30	-0.06
Health Service Utilization Intensity:	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**	**Absolute Difference**	**Standardized Difference**
Mean number of ambulatory encounters	12.1	8.3	12.0	8.8	0.10	0.01
Mean number of emergency room encounters	0.5	0.9	0.5	1.0	0.00	0.00
Mean number of inpatient hospital encounters	0.6	0.8	0.7	0.9	-0.10	-0.12
Mean number of non-acute institutional encounters	0.1	0.5	0.2	0.6	-0.10	-0.18
Mean number of other ambulatory encounters	4.8	7.6	6.6	10.0	-1.80	-0.20
Mean number of filled prescriptions	23.3	17.5	22.6	17.3	0.70	0.04
Mean number of generics	10.3	5.1	10.2	5.1	0.10	0.02
Mean number of drug classes	9.7	4.5	9.6	4.5	0.10	0.02

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

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Table 1b. Baseline Characteristics for Apixaban and Warfarin Users at Risk for Gastrointestinal Hemorrhage in the Sentinel Distributed Database (SDD) between October 1, 2015 and August 31, 2017

	Apixaban		Warfarin		Covariate Balance	
Characteristic	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**	**Absolute Difference**	**Standardized Difference**
Number of unique patients	82,316	100.0%	57,812	100.0%	---	---
Patient Characteristics	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**	**Absolute Difference**	**Standardized Difference**
Mean age (years)	73	10.4	74.6	10.1	-1.60	-0.16
Age (years)	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**	**Absolute Difference**	**Standardized Difference**
21-64	18,702	22.7%	9,803	17.0%	5.70	0.14
65-74	26,139	31.8%	18,318	31.7%	0.10	0.00
75-84	25,352	30.8%	20,253	35.0%	-4.20	-0.09
85-99	12,123	14.7%	9,438	16.3%	-1.60	-0.04
Sex						
Female	37,297	45.3%	25,034	43.3%	2.00	0.04
Male	45,018	54.7%	32,777	56.7%	-2.00	-0.04
Other	1	0.0%	1	0.0%	0.00	---
Year						
2015	30,701	37.3%	24,484	42.4%	-5.10	-0.10
2016	35,106	42.6%	24,281	42.0%	0.60	0.01
2017	16,509	20.1%	9,047	15.6%	4.50	0.12
Recorded History of:	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**	**Absolute Difference**	**Standardized Difference**
Charlson/Elixhauser combined comorbidity score[1]	3.1	2.7	3.5	2.9	-0.4	-0.14
	Number of Patients	**Percent**	**Number of Patients**	**Percent**	**Absolute Difference**	**Standardized Difference**
Gastrointestinal hemorrhage, inpatient (primary)	383	0.5%	392	0.7%	-0.20	-0.03
Intracranial hemorrhage, inpatient (primary)	92	0.1%	107	0.2%	-0.10	-0.03
Intracranial hemorrhage, inpatient (primary or secondary)	286	0.3%	341	0.6%	-0.30	-0.04
Kidney disease, any care setting	16,059	19.5%	15,238	26.4%	-6.90	-0.16
Ischemic stroke, inpatient (primary)	3,514	4.3%	2,678	4.6%	-0.30	-0.01
Health Service Utilization Intensity:	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**	**Absolute Difference**	**Standardized Difference**
Mean number of ambulatory encounters	11.7	9.1	11.5	9.4	0.20	0.02
Mean number of emergency room encounters	0.6	1.0	0.6	1.1	0.00	0.00
Mean number of inpatient hospital encounters	0.6	0.8	0.6	0.9	0.00	0.00
Mean number of non-acute institutional encounters	0.2	0.8	0.2	0.8	0.00	0.00
Mean number of other ambulatory encounters	3.8	6.6	5.9	8.7	-2.10	-0.27
Mean number of filled prescriptions	21.3	16.0	19.9	14.8	1.40	0.09
Mean number of generics	9.9	5.0	9.7	4.9	0.20	0.04
Mean number of drug classes	9.3	4.5	9.2	4.4	0.10	0.02

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

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Table 1c. Baseline Characteristics for Apixaban and Warfarin Users at Risk for Gastrointestinal Hemorrhage in the Sentinel Distributed Database (SDD) between February 1, 2013 and August 31, 2017

	Apixaban		Warfarin		Covariate Balance	
Characteristic	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**	**Absolute Difference**	**Standardized Difference**
Number of unique patients	231,092	100.0%	373,798	100.0%	---	---
Patient Characteristics	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**	**Absolute Difference**	**Standardized Difference**
Mean age (years)	74.9	9.5	75.9	9.6	-1.00	-0.10
Age (years)	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**	**Absolute Difference**	**Standardized Difference**
21-64	33,787	14.6%	43,687	11.7%	2.90	0.09
65-74	77,844	33.7%	120,590	32.3%	1.40	0.03
75-84	80,354	34.8%	140,839	37.7%	-2.90	-0.06
85-99	39,107	16.9%	68,682	18.4%	-1.50	-0.04
Sex						
Female	112,029	48.5%	175,795	47.0%	1.50	0.03
Male	119,061	51.5%	197,994	53.0%	-1.50	-0.03
Other	2	0.0%	9	0.0%	0.00	---
Year						
2013	16,816	7.3%	126,838	33.9%	-26.60	-0.70
2014	58,984	25.5%	117,361	31.4%	-5.90	-0.13
2015	105,284	45.6%	98,959	26.5%	19.10	0.41
2016	33,995	14.7%	22,236	5.9%	8.80	0.29
2017	16,013	6.9%	8,404	2.2%	4.70	0.23
Recorded History of:	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**	**Absolute Difference**	**Standardized Difference**
Charlson/Elixhauser combined comorbidity score[1]	2.9	2.7	3.3	2.9	-0.40	-0.14
	Number of Patients	**Percent**	**Number of Patients**	**Percent**	**Absolute Difference**	**Standardized Difference**
Gastrointestinal hemorrhage, inpatient (primary)	945	0.4%	2,353	0.6%	-0.20	-0.03
Intracranial hemorrhage, inpatient (primary)	255	0.1%	569	0.2%	-0.10	-0.03
Intracranial hemorrhage, inpatient (primary or secondary)	804	0.3%	1,941	0.5%	-0.20	-0.03
Kidney disease, any care setting	44,005	19.0%	89,228	23.9%	-4.90	-0.12
Ischemic stroke, inpatient (primary)	9,575	4.1%	19,593	5.2%	-1.10	-0.05
Health Service Utilization Intensity:	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**	**Absolute Difference**	**Standardized Difference**
Mean number of ambulatory encounters	11.9	8.6	12.0	8.9	-0.10	-0.01
Mean number of emergency room encounters	0.5	0.9	0.5	1.0	0.00	0.00
Mean number of inpatient hospital encounters	0.6	0.8	0.6	0.9	0.00	0.00
Mean number of non-acute institutional encounters	0.2	0.6	0.2	0.7	0.00	0.00
Mean number of other ambulatory encounters	4.5	7.3	6.5	9.8	-2.00	-0.23
Mean number of filled prescriptions	22.6	17.0	22.2	17.0	0.40	0.02
Mean number of generics	10.2	5.1	10.1	5.1	0.10	0.02
Mean number of drug classes	9.6	4.5	9.5	4.5	0.10	0.02

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

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Table 1d. Baseline Characteristics for Apixaban and Warfarin Users at Risk for Intracranial Hemorrhage Diagnosed in the Inpatient Primary Position and Inpatient Secondary Position in the Sentinel Distributed Database (SDD) between February 1, 2013 and September 30, 2015

	Apixaban		Warfarin		Covariate Balance	
Characteristic	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**	**Absolute Difference**	**Standardized Difference**
Number of unique patients	150,810	100.0%	320,290	100.0%	---	---
Patient Characteristics	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**	**Absolute Difference**	**Standardized Difference**
Mean age (years)	75.9	9.1	76.1	9.5	-0.20	-0.02
Age (years)	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**	**Absolute Difference**	**Standardized Difference**
21-64	15,568	10.3%	34,506	10.8%	-0.50	-0.02
65-74	52,356	34.7%	103,400	32.3%	2.40	0.05
75-84	55,675	36.9%	122,282	38.2%	-1.30	-0.03
85-99	27,211	18.0%	60,102	18.8%	-0.80	-0.02
Sex						
Female	75,557	50.1%	152,465	47.6%	2.50	0.05
Male	75,252	49.9%	167,817	52.4%	-2.50	-0.05
Other	1	0.0%	8	0.0%	0.00	---
Year						
2013	16,817	11.2%	126,845	39.6%	-28.40	-0.69
2014	58,982	39.1%	117,361	36.6%	2.50	0.05
2015	75,011	49.7%	76,084	23.8%	25.90	0.56
Recorded History of:	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**	**Absolute Difference**	**Standardized Difference**
Charlson/Elixhauser combined comorbidity score[1]	2.8	2.6	3.3	2.9	-0.5	-0.18
	Number of Patients	**Percent**	**Number of Patients**	**Percent**	**Absolute Difference**	**Standardized Difference**
Gastrointestinal hemorrhage, inpatient (primary)	575	0.4%	1,999	0.6%	-0.20	-0.03
Intracranial hemorrhage, inpatient (primary)	163	0.1%	468	0.1%	0.00	0.00
Intracranial hemorrhage, inpatient (primary or secondary)	517	0.3%	1,603	0.5%	-0.20	-0.03
Kidney disease, any care setting	28,382	18.8%	75,085	23.4%	-4.60	-0.11
Ischemic stroke, inpatient (primary)	6,088	4.0%	16,963	5.3%	-1.30	-0.06
Health Service Utilization Intensity:	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**	**Absolute Difference**	**Standardized Difference**
Mean number of ambulatory encounters	12.1	8.3	12.1	8.8	0.00	0.00
Mean number of emergency room encounters	0.5	0.9	0.5	1.0	0.00	0.00
Mean number of inpatient hospital encounters	0.6	0.8	0.7	0.9	-0.10	-0.12
Mean number of non-acute institutional encounters	0.1	0.5	0.2	0.6	-0.10	-0.18
Mean number of other ambulatory encounters	4.8	7.6	6.6	10.0	-1.80	-0.20
Mean number of filled prescriptions	23.3	17.5	22.6	17.3	0.70	0.04
Mean number of generics	10.3	5.1	10.2	5.1	0.10	0.02
Mean number of drug classes	9.7	4.5	9.6	4.5	0.10	0.02

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

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Table 1e. Baseline Characteristics for Apixaban and Warfarin Users at Risk for Intracranial Hemorrhage Diagnosed in the Inpatient Primary Position and Inpatient Secondary Position in the Sentinel Distributed Database (SDD) between October 1, 2015 and August 31, 2017

	Apixaban		Warfarin		Covariate Balance	
Characteristic	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**	**Absolute Difference**	**Standardized Difference**
Number of unique patients	82,319	100.0%	57,813	100.0%	---	---
Patient Characteristics	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**	**Absolute Difference**	**Standardized Difference**
Mean age (years)	73	10.4	74.6	10.1	-1.60	-0.16
Age (years)	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**	**Absolute Difference**	**Standardized Difference**
21-64	18,702	22.7%	9,803	17.0%	5.70	0.14
65-74	26,140	31.8%	18,318	31.7%	0.10	0.00
75-84	25,353	30.8%	20,254	35.0%	-4.20	-0.09
85-99	12,124	14.7%	9,438	16.3%	-1.60	-0.04
Sex						
Female	37,299	45.3%	25,036	43.3%	2.00	0.04
Male	45,019	54.7%	32,776	56.7%	-2.00	-0.04
Other	1	0.0%	1	0.0%	0.00	---
Year						
2015	30,702	37.3%	24,486	42.4%	-5.10	-0.10
2016	35,108	42.6%	24,280	42.0%	0.60	0.01
2017	16,509	20.1%	9,047	15.6%	4.50	0.12
Recorded History of:	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**	**Absolute Difference**	**Standardized Difference**
Charlson/Elixhauser combined comorbidity score[1]	3.1	2.7	3.5	2.9	-0.4	-0.14
	Number of Patients	**Percent**	**Number of Patients**	**Percent**	**Absolute Difference**	**Standardized Difference**
Gastrointestinal hemorrhage, inpatient (primary)	387	0.5%	394	0.7%	-0.20	-0.03
Intracranial hemorrhage, inpatient (primary)	91	0.1%	107	0.2%	-0.10	-0.03
Intracranial hemorrhage, inpatient (primary or secondary)	285	0.3%	340	0.6%	-0.30	-0.04
Kidney disease, any care setting	16,060	19.5%	15,239	26.4%	-6.90	-0.16
Ischemic stroke, inpatient (primary)	3,513	4.3%	2,677	4.6%	-0.30	-0.01
Health Service Utilization Intensity:	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**	**Absolute Difference**	**Standardized Difference**
Mean number of ambulatory encounters	11.7	9.1	11.5	9.4	0.20	0.02
Mean number of emergency room encounters	0.6	1.0	0.6	1.1	0.00	0.00
Mean number of inpatient hospital encounters	0.6	0.8	0.6	0.9	0.00	0.00
Mean number of non-acute institutional encounters	0.2	0.8	0.2	0.8	0.00	0.00
Mean number of other ambulatory encounters	3.8	6.6	5.9	8.7	-2.10	-0.27
Mean number of filled prescriptions	21.3	16.0	19.9	14.8	1.40	0.09
Mean number of generics	9.9	5.0	9.7	4.9	0.20	0.04
Mean number of drug classes	9.3	4.5	9.2	4.4	0.10	0.02

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

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Table 1f. Baseline Characteristics for Apixaban and Warfarin Users at Risk for Intracranial Hemorrhage Diagnosed in the Inpatient Primary Position and Inpatient Secondary Position in the Sentinel Distributed Database (SDD) between February 1, 2013 and August 31, 2017

	Apixaban		Warfarin		Covariate Balance	
Characteristic	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**	**Absolute Difference**	**Standardized Difference**
Number of unique patients	231,096	100.0%	373,809	100.0%	---	---
Patient Characteristics	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**	**Absolute Difference**	**Standardized Difference**
Mean age (years)	74.9	9.5	75.9	9.6	-1.00	-0.10
Age (years)	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**	**Absolute Difference**	**Standardized Difference**
21-64	33,786	14.6%	43,687	11.7%	2.90	0.09
65-74	77,847	33.7%	120,593	32.3%	1.40	0.03
75-84	80,356	34.8%	140,845	37.7%	-2.90	-0.06
85-99	39,107	16.9%	68,684	18.4%	-1.50	-0.04
Sex						
Female	112,033	48.5%	175,801	47.0%	1.50	0.03
Male	119,061	51.5%	197,999	53.0%	-1.50	-0.03
Other	2	0.0%	9	0.0%	0.00	---
Year						
2013	16,817	7.3%	126,845	33.9%	-26.60	-0.70
2014	58,982	25.5%	117,361	31.4%	-5.90	-0.13
2015	105,287	45.6%	98,964	26.5%	19.10	0.41
2016	33,997	14.7%	22,235	5.9%	8.80	0.29
2017	16,013	6.9%	8,404	2.2%	4.70	0.23
Recorded History of:	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**	**Absolute Difference**	**Standardized Difference**
Charlson/Elixhauser combined comorbidity score[1]	2.9	2.7	3.3	2.9	-0.40	-0.14
	Number of Patients	**Percent**	**Number of Patients**	**Percent**	**Absolute Difference**	**Standardized Difference**
Gastrointestinal hemorrhage, inpatient (primary)	953	0.4%	2,369	0.6%	-0.20	-0.03
Intracranial hemorrhage, inpatient (primary)	253	0.1%	568	0.2%	-0.10	-0.03
Intracranial hemorrhage, inpatient (primary or secondary)	800	0.3%	1,936	0.5%	-0.20	-0.03
Kidney disease, any care setting	44,005	19.0%	89,236	23.9%	-4.90	-0.12
Ischemic stroke, inpatient (primary)	9,572	4.1%	19,591	5.2%	-1.10	-0.05
Health Service Utilization Intensity:	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**	**Absolute Difference**	**Standardized Difference**
Mean number of ambulatory encounters	11.9	8.6	12.0	8.9	-0.10	-0.01
Mean number of emergency room encounters	0.5	0.9	0.5	1.0	0.00	0.00
Mean number of inpatient hospital encounters	0.6	0.8	0.6	0.9	0.00	0.00
Mean number of non-acute institutional encounters	0.2	0.6	0.2	0.7	0.00	0.00
Mean number of other ambulatory encounters	4.5	7.3	6.5	9.8	-2.00	-0.23
Mean number of filled prescriptions	22.6	17.0	22.2	17.0	0.40	0.02
Mean number of generics	10.2	5.1	10.1	5.1	0.10	0.02
Mean number of drug classes	9.6	4.5	9.5	4.5	0.10	0.02

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

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Table 1g. Baseline Characteristics for Apixaban and Warfarin Users at Risk for Intracranial Hemorrhage Diagnosed in the Inpatient Primary Position in the Sentinel Distributed Database (SDD) between February 1, 2013 and September 30, 2015

	Apixaban		Warfarin		Covariate Balance	
Characteristic	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**	**Absolute Difference**	**Standardized Difference**
Number of unique patients	150,812	100.0%	320,293	100.0%	---	---
Patient Characteristics	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**	**Absolute Difference**	**Standardized Difference**
Mean age (years)	75.9	9.1	76.1	9.5	-0.20	-0.02
Age (years)	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**	**Absolute Difference**	**Standardized Difference**
21-64	15,569	10.3%	34,506	10.8%	-0.50	-0.02
65-74	52,356	34.7%	103,402	32.3%	2.40	0.05
75-84	55,675	36.9%	122,282	38.2%	-1.30	-0.03
85-99	27,212	18.0%	60,103	18.8%	-0.80	-0.02
Sex						
Female	75,557	50.1%	152,465	47.6%	2.50	0.05
Male	75,254	49.9%	167,820	52.4%	-2.50	-0.05
Other	1	0.0%	8	0.0%	0.00	---
Year						
2013	16,817	11.2%	126,845	39.6%	-28.40	-0.69
2014	58,984	39.1%	117,364	36.6%	2.50	0.05
2015	75,011	49.7%	76,084	23.8%	25.90	0.56
Recorded History of:	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**	**Absolute Difference**	**Standardized Difference**
Charlson/Elixhauser combined comorbidity score[1]	2.8	2.6	3.3	2.9	-0.5	-0.18
	Number of Patients	**Percent**	**Number of Patients**	**Percent**	**Absolute Difference**	**Standardized Difference**
Gastrointestinal hemorrhage, inpatient (primary)	575	0.4%	1,999	0.6%	-0.20	-0.03
Intracranial hemorrhage, inpatient (primary)	163	0.1%	468	0.1%	0.00	0.00
Intracranial hemorrhage, inpatient (primary or secondary)	519	0.3%	1,606	0.5%	-0.20	-0.03
Kidney disease, any care setting	28,383	18.8%	75,086	23.4%	-4.60	-0.11
Ischemic stroke, inpatient (primary)	6,090	4.0%	16,965	5.3%	-1.30	-0.06
Health Service Utilization Intensity:	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**	**Absolute Difference**	**Standardized Difference**
Mean number of ambulatory encounters	12.1	8.3	12.0	8.8	0.10	0.01
Mean number of emergency room encounters	0.5	0.9	0.5	1.0	0.00	0.00
Mean number of inpatient hospital encounters	0.6	0.8	0.7	0.9	-0.10	-0.12
Mean number of non-acute institutional encounters	0.1	0.5	0.2	0.6	-0.10	-0.18
Mean number of other ambulatory encounters	4.8	7.6	6.6	10.0	-1.80	-0.20
Mean number of filled prescriptions	23.3	17.5	22.6	17.3	0.70	0.04
Mean number of generics	10.3	5.1	10.2	5.1	0.10	0.02
Mean number of drug classes	9.7	4.5	9.6	4.5	0.10	0.02

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

Table 1h. Baseline Characteristics for Apixaban and Warfarin Users at Risk for Intracranial Hemorrhage Diagnosed in the Inpatient Primary Position in the Sentinel Distributed Database (SDD) between October 1, 2015 and August 31, 2017

	Apixaban		Warfarin		Covariate Balance	
Characteristic	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**	**Absolute Difference**	**Standardized Difference**
Number of unique patients	82,320	100.0%	57,814	100.0%	---	---
Patient Characteristics	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**	**Absolute Difference**	**Standardized Difference**
Mean age (years)	73	10.4	74.6	10.1	-1.60	-0.16
Age (years)	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**	**Absolute Difference**	**Standardized Difference**
21-64	18,702	22.7%	9,803	17.0%	5.70	0.14
65-74	26,140	31.8%	18,318	31.7%	0.10	0.00
75-84	25,353	30.8%	20,255	35.0%	-4.20	-0.09
85-99	12,125	14.7%	9,438	16.3%	-1.60	-0.04
Sex						
Female	37,300	45.3%	25,036	43.3%	2.00	0.04
Male	45,019	54.7%	32,777	56.7%	-2.00	-0.04
Other	1	0.0%	1	0.0%	0.00	---
Year						
2015	30,702	37.3%	24,486	42.4%	-5.10	-0.10
2016	35,109	42.6%	24,281	42.0%	0.60	0.01
2017	16,509	20.1%	9,047	15.6%	4.50	0.12
Recorded History of:	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**	**Absolute Difference**	**Standardized Difference**
Charlson/Elixhauser combined comorbidity score[1]	3.1	2.7	3.5	2.9	-0.4	-0.14
	Number of Patients	**Percent**	**Number of Patients**	**Percent**	**Absolute Difference**	**Standardized Difference**
Gastrointestinal hemorrhage, inpatient (primary)	387	0.5%	394	0.7%	-0.20	-0.03
Intracranial hemorrhage, inpatient (primary)	92	0.1%	107	0.2%	-0.10	-0.03
Intracranial hemorrhage, inpatient (primary or secondary)	286	0.3%	341	0.6%	-0.30	-0.04
Kidney disease, any care setting	16,060	19.5%	15,240	26.4%	-6.90	-0.16
Ischemic stroke, inpatient (primary)	3,514	4.3%	2,678	4.6%	-0.30	-0.01
Health Service Utilization Intensity:	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**	**Absolute Difference**	**Standardized Difference**
Mean number of ambulatory encounters	11.7	9.1	11.5	9.4	0.20	0.02
Mean number of emergency room encounters	0.6	1.0	0.6	1.1	0.00	0.00
Mean number of inpatient hospital encounters	0.6	0.8	0.6	0.9	0.00	0.00
Mean number of non-acute institutional encounters	0.2	0.8	0.2	0.8	0.00	0.00
Mean number of other ambulatory encounters	3.8	6.6	5.9	8.7	-2.10	-0.27
Mean number of filled prescriptions	21.3	16.0	19.9	14.8	1.40	0.09
Mean number of generics	9.9	5.0	9.7	4.9	0.20	0.04
Mean number of drug classes	9.3	4.5	9.2	4.4	0.10	0.02

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

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Table 1i. Baseline Characteristics for Apixaban and Warfarin Users at Risk for Intracranial Hemorrhage Diagnosed in the Inpatient Primary Position in the Sentinel Distributed Database (SDD) between February 1, 2013 and August 31, 2017

	Apixaban		Warfarin		Covariate Balance	
Characteristic	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**	**Absolute Difference**	**Standardized Difference**
Number of unique patients	231,099	100.0%	373,813	100.0%	---	---
Patient Characteristics	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**	**Absolute Difference**	**Standardized Difference**
Mean age (years)	74.9	9.5	75.9	9.6	-1.00	-0.10
Age (years)	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**	**Absolute Difference**	**Standardized Difference**
21-64	33,787	14.6%	43,687	11.7%	2.90	0.09
65-74	77,847	33.7%	120,595	32.3%	1.40	0.03
75-84	80,356	34.8%	140,846	37.7%	-2.90	-0.06
85-99	39,109	16.9%	68,685	18.4%	-1.50	-0.04
Sex						
Female	112,034	48.5%	175,801	47.0%	1.50	0.03
Male	119,063	51.5%	198,003	53.0%	-1.50	-0.03
Other	2	0.0%	9	0.0%	0.00	---
Year						
2013	16,817	7.3%	126,845	33.9%	-26.60	-0.70
2014	58,984	25.5%	117,364	31.4%	-5.90	-0.13
2015	105,287	45.6%	98,964	26.5%	19.10	0.41
2016	33,998	14.7%	22,236	5.9%	8.80	0.29
2017	16,013	6.9%	8,404	2.2%	4.70	0.23
Recorded History of:	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**	**Absolute Difference**	**Standardized Difference**
Charlson/Elixhauser combined comorbidity score[1]	2.9	2.7	3.3	2.9	-0.40	-0.14
	Number of Patients	**Percent**	**Number of Patients**	**Percent**	**Absolute Difference**	**Standardized Difference**
Gastrointestinal hemorrhage, inpatient (primary)	953	0.4%	2,369	0.6%	-0.20	-0.03
Intracranial hemorrhage, inpatient (primary)	254	0.1%	568	0.2%	-0.10	-0.03
Intracranial hemorrhage, inpatient (primary or secondary)	803	0.3%	1,940	0.5%	-0.20	-0.03
Kidney disease, any care setting	44,006	19.0%	89,238	23.9%	-4.90	-0.12
Ischemic stroke, inpatient (primary)	9,575	4.1%	19,594	5.2%	-1.10	-0.05
Health Service Utilization Intensity:	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**	**Absolute Difference**	**Standardized Difference**
Mean number of ambulatory encounters	11.9	8.6	12	8.9	-0.10	-0.01
Mean number of emergency room encounters	0.5	0.9	0.5	1.0	0.00	0.00
Mean number of inpatient hospital encounters	0.6	0.8	0.6	0.9	0.00	0.00
Mean number of non-acute institutional encounters	0.2	0.6	0.2	0.7	0.00	0.00
Mean number of other ambulatory encounters	4.5	7.3	6.5	9.8	-2.00	-0.23
Mean number of filled prescriptions	22.6	17.0	22.2	17.0	0.40	0.02
Mean number of generics	10.2	5.1	10.1	5.1	0.10	0.02
Mean number of drug classes	9.6	4.5	9.5	4.5	0.10	0.02

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

Table 1j. Baseline Characteristics for Apixaban and Warfarin Users at Risk for Ischemic Stroke in the Sentinel Distributed Database (SDD) between February 1, 2013 and September 30, 2015

	Apixaban		Warfarin		Covariate Balance	
Characteristic	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**	**Absolute Difference**	**Standardized Difference**
Number of unique patients	150,788	100.0%	320,248	100.0%	---	---
Patient Characteristics	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**	**Absolute Difference**	**Standardized Difference**
Mean age (years)	75.9	9.1	76.1	9.5	-0.20	-0.02
Age (years)	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**	**Absolute Difference**	**Standardized Difference**
21-64	15,566	10.3%	34,504	10.8%	-0.50	-0.02
65-74	52,351	34.7%	103,390	32.3%	2.40	0.05
75-84	55,665	36.9%	122,264	38.2%	-1.30	-0.03
85-99	27,206	18.0%	60,090	18.8%	-0.80	-0.02
Sex						
Female	75,541	50.1%	152,443	47.6%	2.50	0.05
Male	75,246	49.9%	167,797	52.4%	-2.50	-0.05
Other	1	0.0%	8	0.0%	0.00	---
Year						
2013	16,816	11.2%	126,830	39.6%	-28.40	-0.69
2014	58,974	39.1%	117,345	36.6%	2.50	0.05
2015	74,998	49.7%	76,073	23.8%	25.90	0.56
Recorded History of:	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**	**Absolute Difference**	**Standardized Difference**
Charlson/Elixhauser combined comorbidity score[1]	2.8	2.6	3.3	2.9	-0.5	-0.18
	Number of Patients	**Percent**	**Number of Patients**	**Percent**	**Absolute Difference**	**Standardized Difference**
Gastrointestinal hemorrhage, inpatient (primary)	575	0.4%	1,999	0.6%	-0.20	-0.03
Intracranial hemorrhage, inpatient (primary)	164	0.1%	469	0.1%	0.00	0.00
Intracranial hemorrhage, inpatient (primary or secondary)	518	0.3%	1,606	0.5%	-0.20	-0.03
Kidney disease, any care setting	28,375	18.8%	75,076	23.4%	-4.60	-0.11
Ischemic stroke, inpatient (primary)	6,064	4.0%	16,919	5.3%	-1.30	-0.06
Health Service Utilization Intensity:	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**	**Absolute Difference**	**Standardized Difference**
Mean number of ambulatory encounters	12.1	8.3	12.0	8.8	0.10	0.01
Mean number of emergency room encounters	0.5	0.9	0.5	1.0	0.00	0.00
Mean number of inpatient hospital encounters	0.6	0.8	0.7	0.9	-0.10	-0.12
Mean number of non-acute institutional encounters	0.1	0.5	0.2	0.6	-0.10	-0.18
Mean number of other ambulatory encounters	4.8	7.6	6.6	10.0	-1.80	-0.20
Mean number of filled prescriptions	23.3	17.5	22.6	17.3	0.70	0.04
Mean number of generics	10.3	5.1	10.2	5.1	0.10	0.02
Mean number of drug classes	9.7	4.5	9.6	4.5	0.10	0.02

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

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Table 1k. Baseline Characteristics for Apixaban and Warfarin Users at Risk for Ischemic Stroke in the Sentinel Distributed Database (SDD) between October 1, 2015 and August 31, 2017

	Apixaban		Warfarin		Covariate Balance	
Characteristic	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**	**Absolute Difference**	**Standardized Difference**
Number of unique patients	82,312	100.0%	57,802	100.0%	---	---
Patient Characteristics	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**	**Absolute Difference**	**Standardized Difference**
Mean age (years)	73	10.4	74.6	10.1	-1.60	-0.16
Age (years)	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**	**Absolute Difference**	**Standardized Difference**
21-64	18,702	22.7%	9,801	17.0%	5.70	0.14
65-74	26,137	31.8%	18,315	31.7%	0.10	0.00
75-84	25,349	30.8%	20,251	35.0%	-4.20	-0.09
85-99	12,124	14.7%	9,435	16.3%	-1.60	-0.04
Sex						
Female	37,294	45.3%	25,031	43.3%	2.00	0.04
Male	45,017	54.7%	32,770	56.7%	-2.00	-0.04
Other	1	0.0%	1	0.0%	0.00	---
Year						
2015	30,699	37.3%	24,482	42.4%	-5.10	-0.10
2016	35,104	42.6%	24,274	42.0%	0.60	0.01
2017	16,509	20.1%	9,046	15.6%	4.50	0.12
Recorded History of:	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**	**Absolute Difference**	**Standardized Difference**
Charlson/Elixhauser combined comorbidity score[1]	3.1	2.7	3.5	2.9	-0.4	-0.14
	Number of Patients	**Percent**	**Number of Patients**	**Percent**	**Absolute Difference**	**Standardized Difference**
Gastrointestinal hemorrhage, inpatient (primary)	387	0.5%	394	0.7%	-0.20	-0.03
Intracranial hemorrhage, inpatient (primary)	91	0.1%	107	0.2%	-0.10	-0.03
Intracranial hemorrhage, inpatient (primary or secondary)	285	0.3%	339	0.6%	-0.30	-0.04
Kidney disease, any care setting	16,059	19.5%	15,234	26.4%	-6.90	-0.16
Ischemic stroke, inpatient (primary)	3,506	4.3%	2,666	4.6%	-0.30	-0.01
Health Service Utilization Intensity:	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**	**Absolute Difference**	**Standardized Difference**
Mean number of ambulatory encounters	11.7	9.1	11.5	9.4	0.20	0.02
Mean number of emergency room encounters	0.6	1.0	0.6	1.1	0.00	0.00
Mean number of inpatient hospital encounters	0.6	0.8	0.6	0.9	0.00	0.00
Mean number of non-acute institutional encounters	0.2	0.8	0.2	0.8	0.00	0.00
Mean number of other ambulatory encounters	3.8	6.6	5.9	8.7	-2.10	-0.27
Mean number of filled prescriptions	21.3	16.0	19.9	14.8	1.40	0.09
Mean number of generics	9.9	5.0	9.7	4.9	0.20	0.04
Mean number of drug classes	9.3	4.5	9.2	4.4	0.10	0.02

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

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Table 1l. Baseline Characteristics for Apixaban and Warfarin Users at Risk for Ischemic Stroke in the Sentinel Distributed Database (SDD) between February 1, 2013 and August 31, 2017

	Apixaban		Warfarin		Covariate Balance	
Characteristic	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**	**Absolute Difference**	**Standardized Difference**
Number of unique patients	231,067	100.0%	373,756	100.0%	---	---
Patient Characteristics	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**	**Absolute Difference**	**Standardized Difference**
Mean age (years)	74.9	9.5	75.9	9.6	-1.00	-0.10
Age (years)	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**	**Absolute Difference**	**Standardized Difference**
21-64	33,784	14.6%	43,683	11.7%	2.90	0.09
65-74	77,839	33.7%	120,580	32.3%	1.40	0.03
75-84	80,342	34.8%	140,824	37.7%	-2.90	-0.06
85-99	39,102	16.9%	68,669	18.4%	-1.50	-0.04
Sex						
Female	112,012	48.5%	175,774	47.0%	1.50	0.03
Male	119,053	51.5%	197,973	53.0%	-1.50	-0.03
Other	2	0.0%	9	0.0%	0.00	---
Year						
2013	16,816	7.3%	126,830	33.9%	-26.60	-0.70
2014	58,974	25.5%	117,345	31.4%	-5.90	-0.13
2015	105,271	45.6%	98,949	26.5%	19.10	0.41
2016	33,993	14.7%	22,229	5.9%	8.80	0.29
2017	16,013	6.9%	8,403	2.2%	4.70	0.23
Recorded History of:	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**	**Absolute Difference**	**Standardized Difference**
Charlson/Elixhauser combined comorbidity score[1]	2.9	2.7	3.3	2.9	-0.40	-0.14
	Number of Patients	**Percent**	**Number of Patients**	**Percent**	**Absolute Difference**	**Standardized Difference**
Gastrointestinal hemorrhage, inpatient (primary)	953	0.4%	2,369	0.6%	-0.20	-0.03
Intracranial hemorrhage, inpatient (primary)	254	0.1%	569	0.2%	-0.10	-0.03
Intracranial hemorrhage, inpatient (primary or secondary)	801	0.3%	1,938	0.5%	-0.20	-0.03
Kidney disease, any care setting	43,997	19.0%	89,222	23.9%	-4.90	-0.12
Ischemic stroke, inpatient (primary)	9,541	4.1%	19,536	5.2%	-1.10	-0.05
Health Service Utilization Intensity:	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**	**Absolute Difference**	**Standardized Difference**
Mean number of ambulatory encounters	11.9	8.6	12.0	8.9	-0.10	-0.01
Mean number of emergency room encounters	0.5	0.9	0.5	1.0	0.00	0.00
Mean number of inpatient hospital encounters	0.6	0.8	0.6	0.9	0.00	0.00
Mean number of non-acute institutional encounters	0.2	0.6	0.2	0.7	0.00	0.00
Mean number of other ambulatory encounters	4.5	7.3	6.5	9.8	-2.00	-0.23
Mean number of filled prescriptions	22.6	17.0	22.2	17.0	0.40	0.02
Mean number of generics	10.2	5.1	10.1	5.1	0.10	0.02
Mean number of drug classes	9.6	4.5	9.5	4.5	0.10	0.02

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

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Table 2. Summary of Incident Apixaban and Warfarin Users at Risk for Gastrointestinal Hemorrhage, Intracranial Hemorrhage, and Ischemic Stroke in the Sentinel Distributed Database between February 1, 2013 and August 31, 2017, by Exposure, Outcome, and Monitoring Period

	New Users	Person-Years at Risk	Average Person-Years at Risk	Total Number of Events
February 1, 2013 - August 31, 2017				
Gastrointestinal Hemorrhage (inpatient, primary)				
Apixaban	231,092	93,497.8	0.40	7,617
Warfarin	373,798	184,423.9	0.49	
Intracranial Hemorrhage (inpatient, primary or secondary)				
Apixaban	231,096	93,713.4	0.41	3,069
Warfarin	373,809	185,667.4	0.50	
Intracranial Hemorrhage (inpatient, primary)				
Apixaban	231,099	93,733.9	0.41	2,327
Warfarin	373,813	185,818.2	0.50	
Ischemic Stroke (inpatient, primary)				
Apixaban	231,067	93,578.3	0.40	3,566
Warfarin	373,756	185,155.8	0.50	
February 1, 2013 - September 30, 2015				
Gastrointestinal Hemorrhage (inpatient, primary)				
Apixaban	150,809	54,811.0	0.36	6,002
Warfarin	320,280	143,741.4	0.45	
Intracranial Hemorrhage (inpatient, primary or secondary)				
Apixaban	150,810	54,926.7	0.36	2,347
Warfarin	320,290	144,658.3	0.45	
Intracranial Hemorrhage (inpatient, primary)				
Apixaban	150,812	54,939.5	0.36	1,768
Warfarin	320,293	144,758.4	0.45	
Ischemic Stroke (inpatient, primary)				
Apixaban	150,788	54,861.2	0.36	2,807
Warfarin	320,248	144,264.8	0.45	
October 1, 2015 - August 31, 2017				
Gastrointestinal Hemorrhage (inpatient, primary)				
Apixaban	82,316	22,155.9	0.27	958
Warfarin	57,812	16,671.3	0.29	
Intracranial Hemorrhage (inpatient, primary or secondary)				
Apixaban	82,319	22,196.9	0.27	372
Warfarin	57,813	16,740.6	0.29	
Intracranial Hemorrhage (inpatient, primary)				
Apixaban	82,320	22,199.7	0.27	263
Warfarin	57,814	16,748.6	0.29	
Ischemic Stroke (inpatient, primary)				
Apixaban	82,312	22,168.9	0.27	456
Warfarin	57,802	16,725.6	0.29	

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Appendix A. Dates of Available Data for Each Data Partner (DP) as of Request Distribution Date (February 1, 2018)

DP ID	DP Start Date*	DP End Date*
DP01	02/01/2013	08/31/2017
DP02	02/01/2013	08/25/2017
DP03	02/01/2013	07/31/2017
DP04	02/01/2013	07/31/2017
DP05	02/01/2013	07/31/2017
DP06	02/01/2013	07/31/2017
DP07	02/01/2013	07/31/2017
DP08	02/01/2013	06/30/2017
DP09	02/01/2013	06/30/2017
DP10	02/01/2013	04/30/2017
DP11	02/01/2013	03/31/2017
DP12	02/01/2013	01/31/2017
DP13	02/01/2013	12/31/2016
DP14	02/01/2013	06/30/2016
DP15	02/01/2013	05/31/2015
DP16	02/01/2013	10/31/2014
DP17	02/01/2013	12/31/2015

*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 Generic and Brand Drug Names Used to Define Exposures and Incidence Criteria in this Request

Generic Name	Brand Name
APIXABAN	Eliquis
DABIGATRAN ETEXILATE MESYLATE	Pradaxa
EDOXABAN TOSYLATE	Savaysa
RIVAROXABAN	Xarelto
WARFARIN SODIUM	Coumadin
WARFARIN SODIUM	Warfarin
WARFARIN SODIUM	Jantoven

Appendix C. 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 Outcomes in this Request

Code	Description	Code Type
	Gastrointestinal Hemorrhage	
455.2	Internal hemorrhoids with other complication	ICD-9-CM
455.5	External hemorrhoids with other complication	ICD-9-CM
456.0	Esophageal varices with bleeding	ICD-9-CM
456.20	Esophageal varices with bleeding in diseases classified elsewhere	ICD-9-CM
530.7	Gastroesophageal laceration-hemorrhage syndrome	ICD-9-CM
530.82	Esophageal hemorrhage	ICD-9-CM
531.0	Acute gastric ulcer with hemorrhage	ICD-9-CM
531.00	Acute gastric ulcer with hemorrhage, without mention of obstruction	ICD-9-CM
531.01	Acute gastric ulcer with hemorrhage and obstruction	ICD-9-CM
531.1	Acute gastric ulcer with perforation	ICD-9-CM
531.10	Acute gastric ulcer with perforation, without mention of obstruction	ICD-9-CM
531.11	Acute gastric ulcer with perforation and obstruction	ICD-9-CM
531.2	Acute gastric ulcer with hemorrhage and perforation	ICD-9-CM
531.20	Acute gastric ulcer with hemorrhage and perforation, without mention of obstruction	ICD-9-CM
531.21	Acute gastric ulcer with hemorrhage, perforation, and obstruction	ICD-9-CM
531.3	Acute gastric ulcer without mention of hemorrhage or perforation	ICD-9-CM
531.30	Acute gastric ulcer without mention of hemorrhage, perforation, or obstruction	ICD-9-CM
531.31	Acute gastric ulcer without mention of hemorrhage or perforation, with obstruction	ICD-9-CM
531.4	Chronic or unspecified gastric ulcer with hemorrhage	ICD-9-CM
531.40	Chronic or unspecified gastric ulcer with hemorrhage, without mention of obstruction	ICD-9-CM
531.41	Chronic or unspecified gastric ulcer with hemorrhage and obstruction	ICD-9-CM
531.5	Chronic or unspecified gastric ulcer with perforation	ICD-9-CM
531.50	Chronic or unspecified gastric ulcer with perforation, without mention of obstruction	ICD-9-CM
531.51	Chronic or unspecified gastric ulcer with perforation and obstruction	ICD-9-CM
531.6	Chronic or unspecified gastric ulcer with hemorrhage and perforation	ICD-9-CM
531.60	Chronic or unspecified gastric ulcer with hemorrhage and perforation, without mention of obstruction	ICD-9-CM
531.61	Chronic or unspecified gastric ulcer with hemorrhage, perforation, and obstruction	ICD-9-CM
532.0	Acute duodenal ulcer with hemorrhage	ICD-9-CM
532.00	Acute duodenal ulcer with hemorrhage, without mention of obstruction	ICD-9-CM
532.01	Acute duodenal ulcer with hemorrhage and obstruction	ICD-9-CM
532.1	Acute duodenal ulcer with perforation	ICD-9-CM
532.10	Acute duodenal ulcer with perforation, without mention of obstruction	ICD-9-CM
532.11	Acute duodenal ulcer with perforation and obstruction	ICD-9-CM
532.2	Acute duodenal ulcer with hemorrhage and perforation	ICD-9-CM
532.20	Acute duodenal ulcer with hemorrhage and perforation, without mention of obstruction	ICD-9-CM
532.21	Acute duodenal ulcer with hemorrhage, perforation, and obstruction	ICD-9-CM
532.3	Acute duodenal ulcer without mention of hemorrhage or perforation	ICD-9-CM
532.30	Acute duodenal ulcer without mention of hemorrhage, perforation, or obstruction	ICD-9-CM
532.31	Acute duodenal ulcer without mention of hemorrhage or perforation, with obstruction	ICD-9-CM
532.4	Chronic or unspecified duodenal ulcer with hemorrhage	ICD-9-CM
532.40	Duodenal ulcer, chronic or unspecified, with hemorrhage, without mention of obstruction	ICD-9-CM
532.41	Chronic or unspecified duodenal ulcer with hemorrhage and obstruction	ICD-9-CM

Appendix C. 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 Outcomes in this Request

Code	Description	Code Type
532.5	Chronic or unspecified duodenal ulcer with perforation	ICD-9-CM
532.50	Chronic or unspecified duodenal ulcer with perforation, without mention of obstruction	ICD-9-CM
532.51	Chronic or unspecified duodenal ulcer with perforation and obstruction	ICD-9-CM
532.6	Chronic or unspecified duodenal ulcer with hemorrhage and perforation	ICD-9-CM
532.60	Chronic or unspecified duodenal ulcer with hemorrhage and perforation, without mention of obstruction	ICD-9-CM
532.61	Chronic or unspecified duodenal ulcer with hemorrhage, perforation, and obstruction	ICD-9-CM
533.0	Acute peptic ulcer, unspecified site, with hemorrhage	ICD-9-CM
533.00	Acute peptic ulcer, unspecified site, with hemorrhage, without mention of obstruction	ICD-9-CM
533.01	Acute peptic ulcer, unspecified site, with hemorrhage and obstruction	ICD-9-CM
533.1	Acute peptic ulcer, unspecified site, with perforation	ICD-9-CM
533.10	Acute peptic ulcer, unspecified site, with perforation, without mention of obstruction	ICD-9-CM
533.11	Acute peptic ulcer, unspecified site, with perforation and obstruction	ICD-9-CM
533.2	Acute peptic ulcer, unspecified site, with hemorrhage and perforation	ICD-9-CM
533.20	Acute peptic ulcer, unspecified site, with hemorrhage and perforation, without mention of obstruction	ICD-9-CM
533.21	Acute peptic ulcer, unspecified site, with hemorrhage, perforation, and obstruction	ICD-9-CM
533.3	Acute peptic ulcer, unspecified site, without mention of hemorrhage and perforation	ICD-9-CM
533.30	Acute peptic ulcer, unspecified site, without mention of hemorrhage, perforation, or obstruction	ICD-9-CM
533.31	Acute peptic ulcer, unspecified site, without mention of hemorrhage and perforation, with obstruction	ICD-9-CM
533.4	Chronic or unspecified peptic ulcer, unspecified site, with hemorrhage	ICD-9-CM
533.40	Chronic or unspecified peptic ulcer, unspecified site, with hemorrhage, without mention of obstruction	ICD-9-CM
533.41	Chronic or unspecified peptic ulcer, unspecified site, with hemorrhage and obstruction	ICD-9-CM
533.5	Chronic or unspecified peptic ulcer, unspecified site, with perforation	ICD-9-CM
533.50	Chronic or unspecified peptic ulcer, unspecified site, with perforation, without mention of obstruction	ICD-9-CM
533.51	Chronic or unspecified peptic ulcer, unspecified site, with perforation and obstruction	ICD-9-CM
533.6	Chronic or unspecified peptic ulcer, unspecified site, with hemorrhage and perforation	ICD-9-CM
533.60	Chronic or unspecified peptic ulcer, unspecified site, with hemorrhage and perforation, without mention of obstruction	ICD-9-CM
533.61	Chronic or unspecified peptic ulcer, unspecified site, with hemorrhage, perforation, and obstruction	ICD-9-CM
534.0	Acute gastrojejunal ulcer with hemorrhage	ICD-9-CM
534.00	Acute gastrojejunal ulcer with hemorrhage, without mention of obstruction	ICD-9-CM
534.01	Acute gastrojejunal ulcer, with hemorrhage and obstruction	ICD-9-CM
534.1	Acute gastrojejunal ulcer with perforation	ICD-9-CM
534.10	Acute gastrojejunal ulcer with perforation, without mention of obstruction	ICD-9-CM
534.11	Acute gastrojejunal ulcer with perforation and obstruction	ICD-9-CM
534.2	Acute gastrojejunal ulcer with hemorrhage and perforation	ICD-9-CM
534.20	Acute gastrojejunal ulcer with hemorrhage and perforation, without mention of obstruction	ICD-9-CM
534.21	Acute gastrojejunal ulcer with hemorrhage, perforation, and obstruction	ICD-9-CM
534.3	Acute gastrojejunal ulcer without mention of hemorrhage or perforation	ICD-9-CM
534.30	Acute gastrojejunal ulcer without mention of hemorrhage, perforation, or obstruction	ICD-9-CM
534.31	Acute gastrojejunal ulcer without mention of hemorrhage or perforation, with obstruction	ICD-9-CM
534.4	Chronic or unspecified gastrojejunal ulcer with hemorrhage	ICD-9-CM
534.40	Chronic or unspecified gastrojejunal ulcer with hemorrhage, without mention of obstruction	ICD-9-CM
534.41	Chronic or unspecified gastrojejunal ulcer, with hemorrhage and obstruction	ICD-9-CM

Appendix C. 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 Outcomes in this Request

Code	Description	Code Type
534.5	Chronic or unspecified gastrojejunal ulcer with perforation	ICD-9-CM
534.50	Chronic or unspecified gastrojejunal ulcer with perforation, without mention of obstruction	ICD-9-CM
534.51	Chronic or unspecified gastrojejunal ulcer with perforation and obstruction	ICD-9-CM
534.6	Chronic or unspecified gastrojejunal ulcer with hemorrhage and perforation	ICD-9-CM
534.60	Chronic or unspecified gastrojejunal ulcer with hemorrhage and perforation, without mention of	ICD-9-CM
534.61	Chronic or unspecified gastrojejunal ulcer with hemorrhage, perforation, and obstruction	ICD-9-CM
535.01	Acute gastritis with hemorrhage	ICD-9-CM
535.11	Atrophic gastritis with hemorrhage	ICD-9-CM
535.21	Gastric mucosal hypertrophy with hemorrhage	ICD-9-CM
535.31	Alcoholic gastritis with hemorrhage	ICD-9-CM
535.41	Other specified gastritis with hemorrhage	ICD-9-CM
535.51	Unspecified gastritis and gastroduodenitis with hemorrhage	ICD-9-CM
535.61	Duodenitis with hemorrhage	ICD-9-CM
537.83	Angiodysplasia of stomach and duodenum with hemorrhage	ICD-9-CM
562.02	Diverticulosis of small intestine with hemorrhage	ICD-9-CM
562.03	Diverticulitis of small intestine with hemorrhage	ICD-9-CM
562.12	Diverticulosis of colon with hemorrhage	ICD-9-CM
562.13	Diverticulitis of colon with hemorrhage	ICD-9-CM
568.81	Hemoperitoneum (nontraumatic)	ICD-9-CM
569.3	Hemorrhage of rectum and anus	ICD-9-CM
569.85	Angiodysplasia of intestine with hemorrhage	ICD-9-CM
578.0	Hematemesis	ICD-9-CM
578.1	Blood in stool	ICD-9-CM
578.9	Hemorrhage of gastrointestinal tract, unspecified	ICD-9-CM
I85.01	Esophageal varices with bleeding	ICD-10-CM
I85.11	Secondary esophageal varices with bleeding	ICD-10-CM
K22.6	Gastro-esophageal laceration-hemorrhage syndrome	ICD-10-CM
K22.8	Other specified diseases of esophagus	ICD-10-CM
K25.0	Acute gastric ulcer with hemorrhage	ICD-10-CM
K25.1	Acute gastric ulcer with perforation	ICD-10-CM
K25.2	Acute gastric ulcer with both hemorrhage and perforation	ICD-10-CM
K25.3	Acute gastric ulcer without hemorrhage or perforation	ICD-10-CM
K25.4	Chronic or unspecified gastric ulcer with hemorrhage	ICD-10-CM
K25.5	Chronic or unspecified gastric ulcer with perforation	ICD-10-CM
K25.6	Chronic or unspecified gastric ulcer with both hemorrhage and perforation	ICD-10-CM
K26.0	Acute duodenal ulcer with hemorrhage	ICD-10-CM
K26.1	Acute duodenal ulcer with perforation	ICD-10-CM
K26.2	Acute duodenal ulcer with both hemorrhage and perforation	ICD-10-CM
K26.3	Acute duodenal ulcer without hemorrhage or perforation	ICD-10-CM
K26.4	Chronic or unspecified duodenal ulcer with hemorrhage	ICD-10-CM
K26.5	Chronic or unspecified duodenal ulcer with perforation	ICD-10-CM
K26.6	Chronic or unspecified duodenal ulcer with both hemorrhage and perforation	ICD-10-CM
K27.0	Acute peptic ulcer, site unspecified, with hemorrhage	ICD-10-CM

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Appendix C. 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 Outcomes in this Request

Code	Description	Code Type
K27.1	Acute peptic ulcer, site unspecified, with perforation	ICD-10-CM
K27.2	Acute peptic ulcer, site unspecified, with both hemorrhage and perforation	ICD-10-CM
K27.3	Acute peptic ulcer, site unspecified, without hemorrhage or perforation	ICD-10-CM
K27.4	Chronic or unspecified peptic ulcer, site unspecified, with hemorrhage	ICD-10-CM
K27.5	Chronic or unspecified peptic ulcer, site unspecified, with perforation	ICD-10-CM
K27.6	Chronic or unspecified peptic ulcer, site unspecified, with both hemorrhage and perforation	ICD-10-CM
K28.0	Acute gastrojejunal ulcer with hemorrhage	ICD-10-CM
K28.1	Acute gastrojejunal ulcer with perforation	ICD-10-CM
K28.2	Acute gastrojejunal ulcer with both hemorrhage and perforation	ICD-10-CM
K28.3	Acute gastrojejunal ulcer without hemorrhage or perforation	ICD-10-CM
K28.4	Chronic or unspecified gastrojejunal ulcer with hemorrhage	ICD-10-CM
K28.5	Chronic or unspecified gastrojejunal ulcer with perforation	ICD-10-CM
K28.6	Chronic or unspecified gastrojejunal ulcer with both hemorrhage and perforation	ICD-10-CM
K29.01	Acute gastritis with bleeding	ICD-10-CM
K29.21	Alcoholic gastritis with bleeding	ICD-10-CM
K29.31	Chronic superficial gastritis with bleeding	ICD-10-CM
K29.41	Chronic atrophic gastritis with bleeding	ICD-10-CM
K29.51	Unspecified chronic gastritis with bleeding	ICD-10-CM
K29.61	Other gastritis with bleeding	ICD-10-CM
K29.71	Gastritis, unspecified, with bleeding	ICD-10-CM
K29.81	Duodenitis with bleeding	ICD-10-CM
K29.91	Gastroduodenitis, unspecified, with bleeding	ICD-10-CM
K31.811	Angiodysplasia of stomach and duodenum with bleeding	ICD-10-CM
K55.21	Angiodysplasia of colon with hemorrhage	ICD-10-CM
K56.60	Unspecified intestinal obstruction	ICD-10-CM
K57.01	Diverticulitis of small intestine with perforation and abscess with bleeding	ICD-10-CM
K57.11	Diverticulosis of small intestine without perforation or abscess with bleeding	ICD-10-CM
K57.13	Diverticulitis of small intestine without perforation or abscess with bleeding	ICD-10-CM
K57.21	Diverticulitis of large intestine with perforation and abscess with bleeding	ICD-10-CM
K57.31	Diverticulosis of large intestine without perforation or abscess with bleeding	ICD-10-CM
K57.33	Diverticulitis of large intestine without perforation or abscess with bleeding	ICD-10-CM
K57.41	Diverticulitis of both small and large intestine with perforation and abscess with bleeding	ICD-10-CM
K57.51	Diverticulosis of both small and large intestine without perforation or abscess with bleeding	ICD-10-CM
K57.53	Diverticulitis of both small and large intestine without perforation or abscess with bleeding	ICD-10-CM
K57.81	Diverticulitis of intestine, part unspecified, with perforation and abscess with bleeding	ICD-10-CM
K57.91	Diverticulosis of intestine, part unspecified, without perforation or abscess with bleeding	ICD-10-CM
K57.93	Diverticulitis of intestine, part unspecified, without perforation or abscess with bleeding	ICD-10-CM
K62.5	Hemorrhage of anus and rectum	ICD-10-CM
K66.1	Hemoperitoneum	ICD-10-CM
K92.0	Hematemesis	ICD-10-CM
K92.1	Melena	ICD-10-CM
K92.2	Gastrointestinal hemorrhage, unspecified	ICD-10-CM

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Appendix C. 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 Outcomes in this Request

Code	Description	Code Type
	Intracranial Hemorrhage	
430	Subarachnoid hemorrhage	ICD-9-CM
431	Intracerebral hemorrhage	ICD-9-CM
432	Other and unspecified intracranial hemorrhage	ICD-9-CM
432.0	Nontraumatic extradural hemorrhage	ICD-9-CM
432.1	Subdural hemorrhage	ICD-9-CM
432.9	Unspecified intracranial hemorrhage	ICD-9-CM
852.0	Subarachnoid hemorrhage following injury without mention of open intracranial wound	ICD-9-CM
852.00	Subarachnoid hemorrhage following injury, without mention of open intracranial wound, unspecified state of consciousness	ICD-9-CM
852.01	Subarachnoid hemorrhage following injury, without mention of open intracranial wound, no loss of consciousness	ICD-9-CM
852.02	Subarachnoid hemorrhage following injury, without mention of open intracranial wound, brief (less than 1 hour) loss of consciousness	ICD-9-CM
852.03	Subarachnoid hemorrhage following injury, without mention of open intracranial wound, moderate (1-24 hours) loss of consciousness	ICD-9-CM
852.04	Subarachnoid hemorrhage following injury, without mention of open intracranial wound, prolonged (more than 24 hours) loss of consciousness and return to pre-existing conscious level	ICD-9-CM
852.05	Subarachnoid hemorrhage following injury, without mention of open intracranial wound, prolonged (more than 24 hours) loss of consciousness, without return to pre-existing conscious level	ICD-9-CM
852.06	Subarachnoid hemorrhage following injury, without mention of open intracranial wound, loss of consciousness of unspecified duration	ICD-9-CM
852.09	Subarachnoid hemorrhage following injury, without mention of open intracranial wound, unspecified concussion	ICD-9-CM
852.2	Subdural hemorrhage following injury without mention of open intracranial wound	ICD-9-CM
852.20	Subdural hemorrhage following injury, without mention of open intracranial wound, unspecified state of consciousness	ICD-9-CM
852.21	Subdural hemorrhage following injury, without mention of open intracranial wound, no loss of consciousness	ICD-9-CM
852.22	Subdural hemorrhage following injury, without mention of open intracranial wound, brief (less than one hour) loss of consciousness	ICD-9-CM
852.23	Subdural hemorrhage following injury, without mention of open intracranial wound, moderate (1-24 hours) loss of consciousness	ICD-9-CM
852.24	Subdural hemorrhage following injury, without mention of open intracranial wound, prolonged (more than 24 hours) loss of consciousness and return to pre-existing conscious level	ICD-9-CM
852.25	Subdural hemorrhage following injury, without mention of open intracranial wound, prolonged (more than 24 hours) loss of consciousness, without return to pre-existing conscious level	ICD-9-CM
852.26	Subdural hemorrhage following injury, without mention of open intracranial wound, loss of consciousness of unspecified duration	ICD-9-CM
852.29	Subdural hemorrhage following injury, without mention of open intracranial wound, unspecified concussion	ICD-9-CM
852.4	Extradural hemorrhage following injury without mention of open intracranial wound	ICD-9-CM

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Appendix C. 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 Outcomes in this Request

Code	Description	Code Type
852.40	Extradural hemorrhage following injury, without mention of open intracranial wound, unspecified state of consciousness	ICD-9-CM
852.41	Extradural hemorrhage following injury, without mention of open intracranial wound, no loss of consciousness	ICD-9-CM
852.42	Extradural hemorrhage following injury, without mention of open intracranial wound, brief (less than 1 hour) loss of consciousness	ICD-9-CM
852.43	Extradural hemorrhage following injury, without mention of open intracranial wound, moderate (1-24 hours) loss of consciousness	ICD-9-CM
852.44	Extradural hemorrhage following injury, without mention of open intracranial wound, prolonged (more than 24 hours) loss of consciousness and return to pre-existing conscious level	ICD-9-CM
852.45	Extradural hemorrhage following injury, without mention of open intracranial wound, prolonged (more than 24 hours) loss of consciousness, without return to pre-existing conscious level	ICD-9-CM
852.46	Extradural hemorrhage following injury, without mention of open intracranial wound, loss of consciousness of unspecified duration	ICD-9-CM
852.49	Extradural hemorrhage following injury, without mention of open intracranial wound, unspecified concussion	ICD-9-CM
853.0	Other and unspecified intracranial hemorrhage following injury, without mention of open intracranial wound	ICD-9-CM
853.00	Other and unspecified intracranial hemorrhage following injury, without mention of open intracranial wound, unspecified state of consciousness	ICD-9-CM
853.01	Other and unspecified intracranial hemorrhage following injury, without mention of open intracranial wound, no loss of consciousness	ICD-9-CM
853.02	Other and unspecified intracranial hemorrhage following injury, without mention of open intracranial wound, brief (less than 1 hour) loss of consciousness	ICD-9-CM
853.03	Other and unspecified intracranial hemorrhage following injury, without mention of open intracranial wound, moderate (1-24 hours) loss of consciousness	ICD-9-CM
853.04	Other and unspecified intracranial hemorrhage following injury, without mention of open intracranial wound, prolonged (more than 24 hours) loss of consciousness and return to preexisting conscious level	ICD-9-CM
853.05	Other and unspecified intracranial hemorrhage following injury. Without mention of open intracranial wound, prolonged (more than 24 hours) loss of consciousness, without return to pre-existing conscious level	ICD-9-CM
853.06	Other and unspecified intracranial hemorrhage following injury, without mention of open intracranial wound, loss of consciousness of unspecified duration	ICD-9-CM
853.09	Other and unspecified intracranial hemorrhage following injury, without mention of open intracranial wound, unspecified concussion	ICD-9-CM
I60.00	Nontraumatic subarachnoid hemorrhage from unspecified carotid siphon and bifurcation	ICD-10-CM
I60.01	Nontraumatic subarachnoid hemorrhage from right carotid siphon and bifurcation	ICD-10-CM
I60.02	Nontraumatic subarachnoid hemorrhage from left carotid siphon and bifurcation	ICD-10-CM
I60.10	Nontraumatic subarachnoid hemorrhage from unspecified middle cerebral artery	ICD-10-CM
I60.11	Nontraumatic subarachnoid hemorrhage from right middle cerebral artery	ICD-10-CM
I60.12	Nontraumatic subarachnoid hemorrhage from left middle cerebral artery	ICD-10-CM
I60.2	Nontraumatic subarachnoid hemorrhage from anterior communicating artery	ICD-10-CM

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Appendix C. 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 Outcomes in this Request

Code	Description	Code Type
I60.30	Nontraumatic subarachnoid hemorrhage from unspecified posterior communicating artery	ICD-10-CM
I60.31	Nontraumatic subarachnoid hemorrhage from right posterior communicating artery	ICD-10-CM
I60.32	Nontraumatic subarachnoid hemorrhage from left posterior communicating artery	ICD-10-CM
I60.4	Nontraumatic subarachnoid hemorrhage from basilar artery	ICD-10-CM
I60.50	Nontraumatic subarachnoid hemorrhage from unspecified vertebral artery	ICD-10-CM
I60.51	Nontraumatic subarachnoid hemorrhage from right vertebral artery	ICD-10-CM
I60.52	Nontraumatic subarachnoid hemorrhage from left vertebral artery	ICD-10-CM
I60.6	Nontraumatic subarachnoid hemorrhage from other intracranial arteries	ICD-10-CM
I60.7	Nontraumatic subarachnoid hemorrhage from unspecified intracranial artery	ICD-10-CM
I60.8	Other nontraumatic subarachnoid hemorrhage	ICD-10-CM
I60.9	Nontraumatic subarachnoid hemorrhage, unspecified	ICD-10-CM
I61.0	Nontraumatic intracerebral hemorrhage in hemisphere, subcortical	ICD-10-CM
I61.1	Nontraumatic intracerebral hemorrhage in hemisphere, cortical	ICD-10-CM
I61.2	Nontraumatic intracerebral hemorrhage in hemisphere, unspecified	ICD-10-CM
I61.3	Nontraumatic intracerebral hemorrhage in brain stem	ICD-10-CM
I61.4	Nontraumatic intracerebral hemorrhage in cerebellum	ICD-10-CM
I61.5	Nontraumatic intracerebral hemorrhage, intraventricular	ICD-10-CM
I61.6	Nontraumatic intracerebral hemorrhage, multiple localized	ICD-10-CM
I61.8	Other nontraumatic intracerebral hemorrhage	ICD-10-CM
I61.9	Nontraumatic intracerebral hemorrhage, unspecified	ICD-10-CM
I62.00	Nontraumatic subdural hemorrhage, unspecified	ICD-10-CM
I62.01	Nontraumatic acute subdural hemorrhage	ICD-10-CM
I62.02	Nontraumatic subacute subdural hemorrhage	ICD-10-CM
I62.03	Nontraumatic chronic subdural hemorrhage	ICD-10-CM
I62.1	Nontraumatic extradural hemorrhage	ICD-10-CM
I62.9	Nontraumatic intracranial hemorrhage, unspecified	ICD-10-CM
S06.340A	Traumatic hemorrhage of right cerebrum without loss of consciousness, initial encounter	ICD-10-CM
S06.341A	Traumatic hemorrhage of right cerebrum with loss of consciousness of 30 minutes or less, initial encounter	ICD-10-CM
S06.342A	Traumatic hemorrhage of right cerebrum with loss of consciousness of 31 minutes to 59 minutes, initial encounter	ICD-10-CM
S06.343A	Traumatic hemorrhage of right cerebrum with loss of consciousness of 1 hours to 5 hours 59 minutes, initial encounter	ICD-10-CM
S06.344A	Traumatic hemorrhage of right cerebrum with loss of consciousness of 6 hours to 24 hours, initial encounter	ICD-10-CM
S06.345A	Traumatic hemorrhage of right cerebrum with loss of consciousness greater than 24 hours with return to pre-existing conscious level, initial encounter	ICD-10-CM
S06.346A	Traumatic hemorrhage of right cerebrum with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, initial encounter	ICD-10-CM
S06.347A	Traumatic hemorrhage of right cerebrum with loss of consciousness of any duration with death due to brain injury prior to regaining consciousness, initial encounter	ICD-10-CM
S06.348A	Traumatic hemorrhage of right cerebrum with loss of consciousness of any duration with death due to other cause prior to regaining consciousness, initial encounter	ICD-10-CM

Appendix C. 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 Outcomes in this Request

Code	Description	Code Type
S06.349A	Traumatic hemorrhage of right cerebrum with loss of consciousness of unspecified duration, initial encounter	ICD-10-CM
S06.350A	Traumatic hemorrhage of left cerebrum without loss of consciousness, initial encounter	ICD-10-CM
S06.351A	Traumatic hemorrhage of left cerebrum with loss of consciousness of 30 minutes or less, initial encounter	ICD-10-CM
S06.352A	Traumatic hemorrhage of left cerebrum with loss of consciousness of 31 minutes to 59 minutes, initial encounter	ICD-10-CM
S06.353A	Traumatic hemorrhage of left cerebrum with loss of consciousness of 1 hours to 5 hours 59 minutes, initial encounter	ICD-10-CM
S06.354A	Traumatic hemorrhage of left cerebrum with loss of consciousness of 6 hours to 24 hours, initial encounter	ICD-10-CM
S06.355A	Traumatic hemorrhage of left cerebrum with loss of consciousness greater than 24 hours with return to pre-existing conscious level, initial encounter	ICD-10-CM
S06.356A	Traumatic hemorrhage of left cerebrum with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, initial encounter	ICD-10-CM
S06.357A	Traumatic hemorrhage of left cerebrum with loss of consciousness of any duration with death due to brain injury prior to regaining consciousness, initial encounter	ICD-10-CM
S06.358A	Traumatic hemorrhage of left cerebrum with loss of consciousness of any duration with death due to other cause prior to regaining consciousness, initial encounter	ICD-10-CM
S06.359A	Traumatic hemorrhage of left cerebrum with loss of consciousness of unspecified duration, initial encounter	ICD-10-CM
S06.360A	Traumatic hemorrhage of cerebrum, unspecified, without loss of consciousness, initial encounter	ICD-10-CM
S06.361A	Traumatic hemorrhage of cerebrum, unspecified, with loss of consciousness of 30 minutes or less, initial encounter	ICD-10-CM
S06.362A	Traumatic hemorrhage of cerebrum, unspecified, with loss of consciousness of 31 minutes to 59 minutes, initial encounter	ICD-10-CM
S06.363A	Traumatic hemorrhage of cerebrum, unspecified, with loss of consciousness of 1 hours to 5 hours 59 minutes, initial encounter	ICD-10-CM
S06.364A	Traumatic hemorrhage of cerebrum, unspecified, with loss of consciousness of 6 hours to 24 hours, initial encounter	ICD-10-CM
S06.365A	Traumatic hemorrhage of cerebrum, unspecified, with loss of consciousness greater than 24 hours with return to pre-existing conscious level, initial encounter	ICD-10-CM
S06.366A	Traumatic hemorrhage of cerebrum, unspecified, with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, initial encounter	ICD-10-CM
S06.367A	Traumatic hemorrhage of cerebrum, unspecified, with loss of consciousness of any duration with death due to brain injury prior to regaining consciousness, initial encounter	ICD-10-CM
S06.368A	Traumatic hemorrhage of cerebrum, unspecified, with loss of consciousness of any duration with death due to other cause prior to regaining consciousness, initial encounter	ICD-10-CM
S06.369A	Traumatic hemorrhage of cerebrum, unspecified, with loss of consciousness of unspecified duration, initial encounter	ICD-10-CM
S06.4X0A	Epidural hemorrhage without loss of consciousness, initial encounter	ICD-10-CM
S06.4X1A	Epidural hemorrhage with loss of consciousness of 30 minutes or less, initial encounter	ICD-10-CM
S06.4X2A	Epidural hemorrhage with loss of consciousness of 31 minutes to 59 minutes, initial encounter	ICD-10-CM
S06.4X3A	Epidural hemorrhage with loss of consciousness of 1 hour to 5 hours 59 minutes, initial encounter	ICD-10-CM
S06.4X4A	Epidural hemorrhage with loss of consciousness of 6 hours to 24 hours, initial encounter	ICD-10-CM

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Appendix C. 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 Outcomes in this Request

Code	Description	Code Type
S06.4X5A	Epidural hemorrhage with loss of consciousness greater than 24 hours with return to pre-existing conscious level, initial encounter	ICD-10-CM
S06.4X6A	Epidural hemorrhage with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, initial encounter	ICD-10-CM
S06.4X7A	Epidural hemorrhage with loss of consciousness of any duration with death due to brain injury prior to regaining consciousness, initial encounter	ICD-10-CM
S06.4X8A	Epidural hemorrhage with loss of consciousness of any duration with death due to other causes prior to regaining consciousness, initial encounter	ICD-10-CM
S06.4X9A	Epidural hemorrhage with loss of consciousness of unspecified duration, initial encounter	ICD-10-CM
S06.5X0A	Traumatic subdural hemorrhage without loss of consciousness, initial encounter	ICD-10-CM
S06.5X1A	Traumatic subdural hemorrhage with loss of consciousness of 30 minutes or less, initial encounter	ICD-10-CM
S06.5X2A	Traumatic subdural hemorrhage with loss of consciousness of 31 minutes to 59 minutes, initial encounter	ICD-10-CM
S06.5X3A	Traumatic subdural hemorrhage with loss of consciousness of 1 hour to 5 hours 59 minutes, initial	ICD-10-CM
S06.5X4A	Traumatic subdural hemorrhage with loss of consciousness of 6 hours to 24 hours, initial encounter	ICD-10-CM
S06.5X5A	Traumatic subdural hemorrhage with loss of consciousness greater than 24 hours with return to pre-existing conscious level, initial encounter	ICD-10-CM
S06.5X6A	Traumatic subdural hemorrhage with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, initial encounter	ICD-10-CM
S06.5X7A	Traumatic subdural hemorrhage with loss of consciousness of any duration with death due to brain injury before regaining consciousness, initial encounter	ICD-10-CM
S06.5X8A	Traumatic subdural hemorrhage with loss of consciousness of any duration with death due to other cause before regaining consciousness, initial encounter	ICD-10-CM
S06.5X9A	Traumatic subdural hemorrhage with loss of consciousness of unspecified duration, initial encounter	ICD-10-CM
S06.6X0A	Traumatic subarachnoid hemorrhage without loss of consciousness, initial encounter	ICD-10-CM
S06.6X1A	Traumatic subarachnoid hemorrhage with loss of consciousness of 30 minutes or less, initial encounter	ICD-10-CM
S06.6X2A	Traumatic subarachnoid hemorrhage with loss of consciousness of 31 minutes to 59 minutes, initial	ICD-10-CM
S06.6X3A	Traumatic subarachnoid hemorrhage with loss of consciousness of 1 hour to 5 hours 59 minutes, initial encounter	ICD-10-CM
S06.6X4A	Traumatic subarachnoid hemorrhage with loss of consciousness of 6 hours to 24 hours, initial encounter	ICD-10-CM
S06.6X5A	Traumatic subarachnoid hemorrhage with loss of consciousness greater than 24 hours with return to pre-existing conscious level, initial encounter	ICD-10-CM
S06.6X6A	Traumatic subarachnoid hemorrhage with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, initial encounter	ICD-10-CM
S06.6X7A	Traumatic subarachnoid hemorrhage with loss of consciousness of any duration with death due to brain injury prior to regaining consciousness, initial encounter	ICD-10-CM
S06.6X8A	Traumatic subarachnoid hemorrhage with loss of consciousness of any duration with death due to other cause prior to regaining consciousness, initial encounter	ICD-10-CM
S06.6X9A	Traumatic subarachnoid hemorrhage with loss of consciousness of unspecified duration, initial encounter	ICD-10-CM
	Ischemic Stroke	
433.01	Occlusion and stenosis of basilar artery with cerebral infarction	ICD-9-CM
433.11	Occlusion and stenosis of carotid artery with cerebral infarction	ICD-9-CM
433.21	Occlusion and stenosis of vertebral artery with cerebral infarction	ICD-9-CM
433.31	Occlusion and stenosis of multiple and bilateral precerebral arteries with cerebral infarction	ICD-9-CM

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Appendix C. 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 Outcomes in this Request

Code	Description	Code Type
433.81	Occlusion and stenosis of other specified precerebral artery with cerebral infarction	ICD-9-CM
433.91	Occlusion and stenosis of unspecified precerebral artery with cerebral infarction	ICD-9-CM
434.01	Cerebral thrombosis with cerebral infarction	ICD-9-CM
434.11	Cerebral embolism with cerebral infarction	ICD-9-CM
434.91	Unspecified cerebral artery occlusion with cerebral infarction	ICD-9-CM
436	Acute, but ill-defined, cerebrovascular disease	ICD-9-CM
I63.22	Cerebral infarction due to unspecified occlusion or stenosis of basilar arteries	ICD-10-CM
I63.139	Cerebral infarction due to embolism of unspecified carotid artery	ICD-10-CM
I63.239	Cerebral infarction due to unspecified occlusion or stenosis of unspecified carotid arteries	ICD-10-CM
I63.019	Cerebral infarction due to thrombosis of unspecified vertebral artery	ICD-10-CM
I63.119	Cerebral infarction due to embolism of unspecified vertebral artery	ICD-10-CM
I63.219	Cerebral infarction due to unspecified occlusion or stenosis of unspecified vertebral arteries	ICD-10-CM
I63.59	Cerebral infarction due to unspecified occlusion or stenosis of other cerebral artery	ICD-10-CM
I63.20	Cerebral infarction due to unspecified occlusion or stenosis of unspecified precerebral arteries	ICD-10-CM
I63.30	Cerebral infarction due to thrombosis of unspecified cerebral artery	ICD-10-CM
I63.40	Cerebral infarction due to embolism of unspecified cerebral artery	ICD-10-CM
I63.50	Cerebral infarction due to unspecified occlusion or stenosis of unspecified cerebral artery	ICD-10-CM
I67.89	Other cerebrovascular disease	ICD-10-CM
I63.00	Cerebral infarction due to thrombosis of unspecified precerebral artery	ICD-10-CM
I63.011	Cerebral infarction due to thrombosis of right vertebral artery	ICD-10-CM
I63.012	Cerebral infarction due to thrombosis of left vertebral artery	ICD-10-CM
I63.013	Cerebral infarction due to thrombosis of bilateral vertebral arteries	ICD-10-CM
I63.02	Cerebral infarction due to thrombosis of basilar artery	ICD-10-CM
I63.031	Cerebral infarction due to thrombosis of right carotid artery	ICD-10-CM
I63.032	Cerebral infarction due to thrombosis of left carotid artery	ICD-10-CM
I63.033	Cerebral infarction due to thrombosis of bilateral carotid arteries	ICD-10-CM
I63.039	Cerebral infarction due to thrombosis of unspecified carotid artery	ICD-10-CM
I63.09	Cerebral infarction due to thrombosis of other precerebral artery	ICD-10-CM
I63.10	Cerebral infarction due to embolism of unspecified precerebral artery	ICD-10-CM
I63.111	Cerebral infarction due to embolism of right vertebral artery	ICD-10-CM
I63.112	Cerebral infarction due to embolism of left vertebral artery	ICD-10-CM
I63.113	Cerebral infarction due to embolism of bilateral vertebral arteries	ICD-10-CM
I63.12	Cerebral infarction due to embolism of basilar artery	ICD-10-CM
I63.131	Cerebral infarction due to embolism of right carotid artery	ICD-10-CM
I63.132	Cerebral infarction due to embolism of left carotid artery	ICD-10-CM
I63.133	Cerebral infarction due to embolism of bilateral carotid arteries	ICD-10-CM
I63.19	Cerebral infarction due to embolism of other precerebral artery	ICD-10-CM
I63.211	Cerebral infarction due to unspecified occlusion or stenosis of right vertebral arteries	ICD-10-CM
I63.212	Cerebral infarction due to unspecified occlusion or stenosis of left vertebral arteries	ICD-10-CM
I63.213	Cerebral infarction due to unspecified occlusion or stenosis of bilateral vertebral arteries	ICD-10-CM
I63.231	Cerebral infarction due to unspecified occlusion or stenosis of right carotid arteries	ICD-10-CM
I63.232	Cerebral infarction due to unspecified occlusion or stenosis of left carotid arteries	ICD-10-CM
I63.233	Cerebral infarction due to unspecified occlusion or stenosis of bilateral carotid arteries	ICD-10-CM

Appendix C. 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 Outcomes in this Request

Code	Description	Code Type
I63.29	Cerebral infarction due to unspecified occlusion or stenosis of other precerebral arteries	ICD-10-CM
I63.311	Cerebral infarction due to thrombosis of right middle cerebral artery	ICD-10-CM
I63.312	Cerebral infarction due to thrombosis of left middle cerebral artery	ICD-10-CM
I63.313	Cerebral infarction due to thrombosis of bilateral middle cerebral arteries	ICD-10-CM
I63.319	Cerebral infarction due to thrombosis of unspecified middle cerebral artery	ICD-10-CM
I63.321	Cerebral infarction due to thrombosis of right anterior cerebral artery	ICD-10-CM
I63.322	Cerebral infarction due to thrombosis of left anterior cerebral artery	ICD-10-CM
I63.323	Cerebral infarction due to thrombosis of bilateral anterior arteries	ICD-10-CM
I63.329	Cerebral infarction due to thrombosis of unspecified anterior cerebral artery	ICD-10-CM
I63.331	Cerebral infarction due to thrombosis of right posterior cerebral artery	ICD-10-CM
I63.332	Cerebral infarction due to thrombosis of left posterior cerebral artery	ICD-10-CM
I63.333	Cerebral infarction to thrombosis of bilateral posterior arteries	ICD-10-CM
I63.339	Cerebral infarction due to thrombosis of unspecified posterior cerebral artery	ICD-10-CM
I63.341	Cerebral infarction due to thrombosis of right cerebellar artery	ICD-10-CM
I63.342	Cerebral infarction due to thrombosis of left cerebellar artery	ICD-10-CM
I63.343	Cerebral infarction to thrombosis of bilateral cerebellar arteries	ICD-10-CM
I63.349	Cerebral infarction due to thrombosis of unspecified cerebellar artery	ICD-10-CM
I63.39	Cerebral infarction due to thrombosis of other cerebral artery	ICD-10-CM
I63.411	Cerebral infarction due to embolism of right middle cerebral artery	ICD-10-CM
I63.412	Cerebral infarction due to embolism of left middle cerebral artery	ICD-10-CM
I63.413	Cerebral infarction due to embolism of bilateral middle cerebral arteries	ICD-10-CM
I63.419	Cerebral infarction due to embolism of unspecified middle cerebral artery	ICD-10-CM
I63.421	Cerebral infarction due to embolism of right anterior cerebral artery	ICD-10-CM
I63.422	Cerebral infarction due to embolism of left anterior cerebral artery	ICD-10-CM
I63.423	Cerebral infarction due to embolism of bilateral anterior cerebral arteries	ICD-10-CM
I63.429	Cerebral infarction due to embolism of unspecified anterior cerebral artery	ICD-10-CM
I63.431	Cerebral infarction due to embolism of right posterior cerebral artery	ICD-10-CM
I63.432	Cerebral infarction due to embolism of left posterior cerebral artery	ICD-10-CM
I63.433	Cerebral infarction due to embolism of bilateral posterior cerebral arteries	ICD-10-CM
I63.439	Cerebral infarction due to embolism of unspecified posterior cerebral artery	ICD-10-CM
I63.441	Cerebral infarction due to embolism of right cerebellar artery	ICD-10-CM
I63.442	Cerebral infarction due to embolism of left cerebellar artery	ICD-10-CM
I63.443	Cerebral infarction due to embolism of bilateral cerebellar arteries	ICD-10-CM
I63.449	Cerebral infarction due to embolism of unspecified cerebellar artery	ICD-10-CM
I63.49	Cerebral infarction due to embolism of other cerebral artery	ICD-10-CM
I63.511	Cerebral infarction due to unspecified occlusion or stenosis of right middle cerebral artery	ICD-10-CM
I63.512	Cerebral infarction due to unspecified occlusion or stenosis of left middle cerebral artery	ICD-10-CM
I63.513	Cerebral infarction due to unspecified occlusion or stenosis of bilateral middle arteries	ICD-10-CM
I63.519	Cerebral infarction due to unspecified occlusion or stenosis of unspecified middle cerebral artery	ICD-10-CM
I63.521	Cerebral infarction due to unspecified occlusion or stenosis of right anterior cerebral artery	ICD-10-CM
I63.522	Cerebral infarction due to unspecified occlusion or stenosis of left anterior cerebral artery	ICD-10-CM
I63.523	Cerebral infarction due to unspecified occlusion or stenosis of bilateral anterior arteries	ICD-10-CM
I63.529	Cerebral infarction due to unspecified occlusion or stenosis of unspecified anterior cerebral artery	ICD-10-CM

Appendix C. 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 Outcomes in this Request

Code	Description	Code Type
I63.531	Cerebral infarction due to unspecified occlusion or stenosis of right posterior cerebral artery	ICD-10-CM
I63.532	Cerebral infarction due to unspecified occlusion or stenosis of left posterior cerebral artery	ICD-10-CM
I63.533	Cerebral infarction due to unspecified occlusion or stenosis of bilateral posterior arteries	ICD-10-CM
I63.539	Cerebral infarction due to unspecified occlusion or stenosis of unspecified posterior cerebral artery	ICD-10-CM
I63.541	Cerebral infarction due to unspecified occlusion or stenosis of right cerebellar artery	ICD-10-CM
I63.542	Cerebral infarction due to unspecified occlusion or stenosis of left cerebellar artery	ICD-10-CM
I63.543	Cerebral infarction due to unspecified occlusion or stenosis of bilateral cerebellar arteries	ICD-10-CM
I63.549	Cerebral infarction due to unspecified occlusion or stenosis of unspecified cerebellar artery	ICD-10-CM
I63.6	Cerebral infarction due to cerebral venous thrombosis, nonpyogenic	ICD-10-CM
I63.8	Other cerebral infarction	ICD-10-CM
I63.9	Cerebral infarction, unspecified	ICD-10-CM

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

Code	Description	Code Type
427.31	Atrial fibrillation	ICD-9-CM
427.32	Atrial flutter	ICD-9-CM
I48.0	Paroxysmal atrial fibrillation	ICD-10-CM
I48.1	Persistent atrial fibrillation	ICD-10-CM
I48.2	Chronic atrial fibrillation	ICD-10-CM
I48.3	Typical atrial flutter	ICD-10-CM
I48.4	Atypical atrial flutter	ICD-10-CM
I48.91	Unspecified atrial fibrillation	ICD-10-CM
I48.92	Unspecified atrial flutter	ICD-10-CM

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

Code	Description	Code Type
	Deep Vein Thrombosis	
4534	Acute venous embolism and thrombosis of deep vessels of lower extremity	ICD-9-CM
45340	Acute venous embolism and thrombosis of unspecified deep vessels of lower extremity	ICD-9-CM
45341	Acute venous embolism and thrombosis of deep vessels of proximal lower extremity	ICD-9-CM
45342	Acute venous embolism and thrombosis of deep vessels of distal lower extremity	ICD-9-CM
4511	Phlebitis and thrombophlebitis of deep veins of lower extremities	ICD-9-CM
45111	Phlebitis and thrombophlebitis of femoral vein (deep) (superficial)	ICD-9-CM
45119	Phlebitis and thrombophlebitis of deep veins of lower extremities, other	ICD-9-CM
4512	Phlebitis and thrombophlebitis of lower extremities, unspecified	ICD-9-CM
45181	Phlebitis and thrombophlebitis of iliac vein	ICD-9-CM
45183	Phlebitis and thrombophlebitis of deep veins of upper extremities	ICD-9-CM
45384	Phlebitis and thrombophlebitis of upper extremities, unspecified	ICD-9-CM
I80.10	Phlebitis and thrombophlebitis of unspecified femoral vein	ICD-10-CM
I80.11	Phlebitis and thrombophlebitis of right femoral vein	ICD-10-CM
I80.12	Phlebitis and thrombophlebitis of left femoral vein	ICD-10-CM
I80.13	Phlebitis and thrombophlebitis of femoral vein, bilateral	ICD-10-CM
I80.201	Phlebitis and thrombophlebitis of unspecified deep vessels of right lower extremity	ICD-10-CM
I80.202	Phlebitis and thrombophlebitis of unspecified deep vessels of left lower extremity	ICD-10-CM
I80.203	Phlebitis and thrombophlebitis of unspecified deep vessels of lower extremities, bilateral	ICD-10-CM
I80.209	Phlebitis and thrombophlebitis of unspecified deep vessels of unspecified lower extremity	ICD-10-CM
I80.211	Phlebitis and thrombophlebitis of right iliac vein	ICD-10-CM
I80.212	Phlebitis and thrombophlebitis of left iliac vein	ICD-10-CM
I80.213	Phlebitis and thrombophlebitis of iliac vein, bilateral	ICD-10-CM
I80.219	Phlebitis and thrombophlebitis of unspecified iliac vein	ICD-10-CM
I80.221	Phlebitis and thrombophlebitis of right popliteal vein	ICD-10-CM
I80.222	Phlebitis and thrombophlebitis of left popliteal vein	ICD-10-CM
I80.223	Phlebitis and thrombophlebitis of popliteal vein, bilateral	ICD-10-CM
I80.229	Phlebitis and thrombophlebitis of unspecified popliteal vein	ICD-10-CM
I80.231	Phlebitis and thrombophlebitis of right tibial vein	ICD-10-CM
I80.232	Phlebitis and thrombophlebitis of left tibial vein	ICD-10-CM
I80.233	Phlebitis and thrombophlebitis of tibial vein, bilateral	ICD-10-CM
I80.239	Phlebitis and thrombophlebitis of unspecified tibial vein	ICD-10-CM
I80.291	Phlebitis and thrombophlebitis of other deep vessels of right lower extremity	ICD-10-CM
I80.292	Phlebitis and thrombophlebitis of other deep vessels of left lower extremity	ICD-10-CM
I80.293	Phlebitis and thrombophlebitis of other deep vessels of lower extremity, bilateral	ICD-10-CM
I80.299	Phlebitis and thrombophlebitis of other deep vessels of unspecified lower extremity	ICD-10-CM
I80.3	Phlebitis and thrombophlebitis of lower extremities, unspecified	ICD-10-CM
I80.8	Phlebitis and thrombophlebitis of other sites	ICD-10-CM
I82.401	Acute embolism and thrombosis of unspecified deep veins of right lower extremity	ICD-10-CM
I82.402	Acute embolism and thrombosis of unspecified deep veins of left lower extremity	ICD-10-CM
I82.403	Acute embolism and thrombosis of unspecified deep veins of lower extremity, bilateral	ICD-10-CM
I82.409	Acute embolism and thrombosis of unspecified deep veins of unspecified lower extremity	ICD-10-CM

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Code	Description	Code Type
I82.411	Acute embolism and thrombosis of right femoral vein	ICD-10-CM
I82.412	Acute embolism and thrombosis of left femoral vein	ICD-10-CM
I82.413	Acute embolism and thrombosis of femoral vein, bilateral	ICD-10-CM
I82.419	Acute embolism and thrombosis of unspecified femoral vein	ICD-10-CM
I82.421	Acute embolism and thrombosis of right iliac vein	ICD-10-CM
I82.422	Acute embolism and thrombosis of left iliac vein	ICD-10-CM
I82.423	Acute embolism and thrombosis of iliac vein, bilateral	ICD-10-CM
I82.429	Acute embolism and thrombosis of unspecified iliac vein	ICD-10-CM
I82.431	Acute embolism and thrombosis of right popliteal vein	ICD-10-CM
I82.432	Acute embolism and thrombosis of left popliteal vein	ICD-10-CM
I82.433	Acute embolism and thrombosis of popliteal vein, bilateral	ICD-10-CM
I82.439	Acute embolism and thrombosis of unspecified popliteal vein	ICD-10-CM
I82.441	Acute embolism and thrombosis of right tibial vein	ICD-10-CM
I82.442	Acute embolism and thrombosis of left tibial vein	ICD-10-CM
I82.443	Acute embolism and thrombosis of tibial vein, bilateral	ICD-10-CM
I82.449	Acute embolism and thrombosis of unspecified tibial vein	ICD-10-CM
I82.491	Acute embolism and thrombosis of other specified deep vein of right lower extremity	ICD-10-CM
I82.492	Acute embolism and thrombosis of other specified deep vein of left lower extremity	ICD-10-CM
I82.493	Acute embolism and thrombosis of other specified deep vein of lower extremity, bilateral	ICD-10-CM
I82.499	Acute embolism and thrombosis of other specified deep vein of unspecified lower extremity	ICD-10-CM
I82.4Y1	Acute embolism and thrombosis of unspecified deep veins of right proximal lower extremity	ICD-10-CM
I82.4Y2	Acute embolism and thrombosis of unspecified deep veins of left proximal lower extremity	ICD-10-CM
I82.4Y3	Acute embolism and thrombosis of unspecified deep veins of proximal lower extremity, bilateral	ICD-10-CM
I82.4Y9	Acute embolism and thrombosis of unspecified deep veins of unspecified proximal lower extremity	ICD-10-CM
I82.4Z1	Acute embolism and thrombosis of unspecified deep veins of right distal lower extremity	ICD-10-CM
I82.4Z2	Acute embolism and thrombosis of unspecified deep veins of left distal lower extremity	ICD-10-CM
I82.4Z3	Acute embolism and thrombosis of unspecified deep veins of distal lower extremity, bilateral	ICD-10-CM
I82.4Z9	Acute embolism and thrombosis of unspecified deep veins of unspecified distal lower extremity	ICD-10-CM
I82.A11	Acute embolism and thrombosis of right axillary vein	ICD-10-CM
I82.A12	Acute embolism and thrombosis of left axillary vein	ICD-10-CM
I82.A13	Acute embolism and thrombosis of axillary vein, bilateral	ICD-10-CM
I82.A19	Acute embolism and thrombosis of unspecified axillary vein	ICD-10-CM
	Dialysis	
792.5	Cloudy (hemodialysis) (peritoneal) dialysis affluent	ICD-9-CM
V45.1	Renal dialysis status	ICD-9-CM
V45.11	Renal dialysis status	ICD-9-CM
V45.12	Noncompliance with renal dialysis	ICD-9-CM
V56.0	Encounter for extracorporeal dialysis	ICD-9-CM
V56.1	Fitting and adjustment of extracorporeal dialysis catheter	ICD-9-CM
V56.2	Fitting and adjustment of peritoneal dialysis catheter	ICD-9-CM
V56.3	Encounter for adequacy testing for dialysis	ICD-9-CM
V56.31	Encounter for adequacy testing for hemodialysis	ICD-9-CM

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Code	Description	Code Type
V56.32	Encounter for adequacy testing for peritoneal dialysis	ICD-9-CM
V56.8	Encounter other dialysis	ICD-9-CM
R88.0	Cloudy (hemodialysis) (peritoneal) dialysis effluent	ICD-10-CM
Z49.01	Encounter for fitting and adjustment of extracorporeal dialysis catheter	ICD-10-CM
Z49.02	Encounter for fitting and adjustment of peritoneal dialysis catheter	ICD-10-CM
Z49.31	Encounter for adequacy testing for hemodialysis	ICD-10-CM
Z49.32	Encounter for adequacy testing for peritoneal dialysis	ICD-10-CM
Z91.15	Patient's noncompliance with renal dialysis	ICD-10-CM
Z99.2	Dependence on renal dialysis	ICD-10-CM
90935	Hemodialysis procedure with single evaluation by a physician or other qualified health care professional	CPT-4
90937	Hemodialysis procedure requiring repeated evaluation(s) with or without substantial revision of dialysis prescription	CPT-4
90939	Hemodialysis access flow study to determine blood flow in grafts and arteriovenous fistulae by an indicator dilution method, hook-up; transcutaneous measurement and disconnection	CPT-4
90940	Hemodialysis access flow study to determine blood flow in grafts and arteriovenous fistulae by an indicator method	CPT-4
90941	Hemodialysis, For Acute Renal Failure And Or Intoxication,	CPT-4
90942	Hemodialysis, For Acute Renal Failure And Or Intoxication,	CPT-4
90943	Hemodialysis, For Acute Renal Failure And Or Intoxication,	CPT-4
90944	Hemodialysis, For Acute Renal Failure And Or Intoxication,	CPT-4
90945	Dialysis procedure other than hemodialysis (eg, peritoneal dialysis, hemofiltration, or other continuous renal replacement therapies), with single evaluation by a physician or other qualified health care professional	CPT-4
90947	Dialysis procedure other than hemodialysis (eg, peritoneal dialysis, hemofiltration, or other continuous renal replacement therapies) requiring repeated evaluations by a physician or other qualified health care professional, with or without substantial revision of dialysis prescription	CPT-4
90951	End-stage renal disease (ESRD) related services monthly, for patients younger than 2 years of age to include monitoring for the adequacy of nutrition, assessment of growth and development, and counseling of parents; with 4 or more face-to-face visits by a physician or other qualified health care professional per month	CPT-4
90952	End-stage renal disease (ESRD) related services monthly, for patients younger than 2 years of age to include monitoring for the adequacy of nutrition, assessment of growth and development, and counseling of parents; with 2-3 face-to-face visits by a physician or other qualified health care professional per month	CPT-4
90953	End-stage renal disease (ESRD) related services monthly, for patients younger than 2 years of age to include monitoring for the adequacy of nutrition, assessment of growth and development, and counseling of parents; with 1 face-to-face visit by a physician or other qualified health care professional per month	CPT-4
90954	End-stage renal disease (ESRD) related services monthly, for patients 2-11 years of age to include monitoring for the adequacy of nutrition, assessment of growth and development, and counseling of parents; with 4 or more face-to-face visits by a physician or other qualified health care professional per month	CPT-4

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

Code	Description	Code Type
90955	End-stage renal disease (ESRD) related services monthly, for patients 2-11 years of age to include monitoring for the adequacy of nutrition, assessment of growth and development, and counseling of parents; with 2-3 face-to-face visits by a physician or other qualified health care professional per month	CPT-4
90956	End-stage renal disease (ESRD) related services monthly, for patients 2-11 years of age to include monitoring for the adequacy of nutrition, assessment of growth and development, and counseling of parents; with 1 face-to-face visit by a physician or other qualified health care professional per month	CPT-4
90957	End-stage renal disease (ESRD) related services monthly, for patients 12-19 years of age to include monitoring for the adequacy of nutrition, assessment of growth and development, and counseling of parents; with 4 or more face-to-face visits by a physician or other qualified health care professional per month	CPT-4
90958	End-stage renal disease (ESRD) related services monthly, for patients 12-19 years of age to include monitoring for the adequacy of nutrition, assessment of growth and development, and counseling of parents; with 2-3 face-to-face visits by a physician or other qualified health care professional per month	CPT-4
90959	End-stage renal disease (ESRD) related services monthly, for patients 12-19 years of age to include monitoring for the adequacy of nutrition, assessment of growth and development, and counseling of parents; with 1 face-to-face visit by a physician or other qualified health care professional per month	CPT-4
90960	End-stage renal disease (ESRD) related services monthly, for patients 20 years of age and older; with 4 or more face-to-face visits by a physician or other qualified health care professional per month	CPT-4
90961	End-stage renal disease (ESRD) related services monthly, for patients 20 years of age and older; with 2-3 face-to-face visits by a physician or other qualified health care professional per month	CPT-4
90962	End-stage renal disease (ESRD) related services monthly, for patients 20 years of age and older; with 1 face-to-face visit by a physician or other qualified health care professional per month	CPT-4
90963	End-stage renal disease (ESRD) related services for home dialysis per full month, for patients younger than 2 years of age to include monitoring for the adequacy of nutrition, assessment of growth and development, and counseling of parents	CPT-4
90964	End-stage renal disease (ESRD) related services for home dialysis per full month, for patients 2-11 years of age to include monitoring for the adequacy of nutrition, assessment of growth and development, and counseling of parents	CPT-4
90965	End-stage renal disease (ESRD) related services for home dialysis per full month, for patients 12-19 years of age to include monitoring for the adequacy of nutrition, assessment of growth and development, and counseling of parents	CPT-4
90966	End-stage renal disease (ESRD) related services for home dialysis per full month, for patients 20 years of age and older	CPT-4
90967	End-stage renal disease (ESRD) related services for dialysis less than a full month of service, per day; for patients younger than 2 years of age	CPT-4
90968	End-stage renal disease (ESRD) related services for dialysis less than a full month of service, per day; for patients 2-11 years of age	CPT-4
90969	End-stage renal disease (ESRD) related services for dialysis less than a full month of service, per day; for patients 12-19 years of age	CPT-4
90970	End-stage renal disease (ESRD) related services for dialysis less than a full month of service, per day; for patients 20 years of age and older	CPT-4

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Code	Description	Code Type
90976	Peritoneal Dialysis For End-stage Renal Disease (esrd),	CPT-4
90977	Peritoneal Dialysis For End-stage Renal Disease (esrd),	CPT-4
90978	Peritoneal Dialysis For End-stage Renal Disease (esrd),	CPT-4
90979	Peritoneal Dialysis For End-stage Renal Disease (esrd),	CPT-4
90982	Peritoneal Dialysis For End-stage Renal Disease (esrd),	CPT-4
90983	Peritoneal Dialysis For End-stage Renal Disease (esrd),	CPT-4
90984	Peritoneal Dialysis For End-stage Renal Disease (esrd),	CPT-4
90985	Peritoneal Dialysis For End-stage Renal Disease (esrd),	CPT-4
90988	Supervision Of Hemodialysis In Hospital Or Other Facility (excluding Home Dialysis), On Monthly Basis	CPT-4
90989	Dialysis training, patient, including helper where applicable, any mode, completed course	CPT-4
90990	Hemodialysis Training And/or Counseling	CPT-4
90991	Home Hemodialysis Care, Outpatient, For Those Services Either Provided By The Physician Primarily Responsible	CPT-4
90992	Peritoneal Dialysis Training And/or Counseling	CPT-4
90993	Dialysis training, patient, including helper where applicable, any mode, course not completed, per training session	CPT-4
90994	Supervision Of Chronic Ambulatory Peritoneal Dialysis (capd), Home Or Out-patient (monthly)	CPT-4
90995	End Stage Renal Disease (esrd) Related Services, Per Full Month	CPT-4
90996	Continuous Arteriovenous Hemofiltration (cavh) (per Day)	CPT-4
90997	Hemoperfusion (eg, with activated charcoal or resin)	CPT-4
90998	End Stage Renal Disease (esrd) Related Services (less Than Full Month), Per Day	CPT-4
90999	Unlisted dialysis procedure, inpatient or outpatient	CPT-4
	Joint Replacement	
V436	Joint replaced by other means	ICD-9-CM
V4360	Unspecified joint replacement	ICD-9-CM
V4361	Shoulder joint replacement	ICD-9-CM
V4362	Elbow joint replacement	ICD-9-CM
V4363	Wrist joint replacement	ICD-9-CM
V4364	Hip joint replacement	ICD-9-CM
V4365	Knee joint replacement	ICD-9-CM
V4366	Ankle joint replacement	ICD-9-CM
V4369	Other joint replacement	ICD-9-CM
815	JOINT REPLACEMENT LOWER EXTREMITY	ICD-9-CM
8151	TOTAL HIP REPLACEMENT	ICD-9-CM
8152	PARTIAL HIP REPLACEMENT	ICD-9-CM
8153	REVISION OF HIP REPLACEMENT NOS	ICD-9-CM
8154	TOTAL KNEE REPLACEMENT	ICD-9-CM
8155	REVISION OF KNEE REPLACEMENT NOS	ICD-9-CM
8156	TOTAL ANKLE REPLACEMENT	ICD-9-CM
8157	REPLACEMENT OF JOINT OF FOOT&TOE	ICD-9-CM
8159	REV JOINT REPLCMT LOWER EXTREM NEC	ICD-9-CM
818	ARTHROPLASTY&REPAIR SHOULDER&ELBOW	ICD-9-CM

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Code	Description	Code Type
8180	OTHER TOTAL SHOULDER REPLACEMENT	ICD-9-CM
8181	PARTIAL SHOULDER REPLACEMENT	ICD-9-CM
8182	REPAIR RECURRENT DISLOC SHOULDER	ICD-9-CM
8183	OTHER REPAIR OF SHOULDER	ICD-9-CM
8184	TOTAL ELBOW REPLACEMENT	ICD-9-CM
8185	OTHER REPAIR OF ELBOW	ICD-9-CM
24363	REPLACE ELBOW JOINT	CPT-4
27130	TOTAL HIP ARTHROPLASTY	CPT-4
27132	TOTAL HIP ARTHROPLASTY	CPT-4
27134	REVISE HIP JOINT REPLACEMENT	CPT-4
27137	REVISE HIP JOINT REPLACEMENT	CPT-4
27138	REVISE HIP JOINT REPLACEMENT	CPT-4
27447	TOTAL KNEE ARTHROPLASTY	CPT-4
Z96.60	Presence of unspecified orthopedic joint implant	ICD-10-CM
Z96.611	Presence of right artificial shoulder joint	ICD-10-CM
Z96.612	Presence of left artificial shoulder joint	ICD-10-CM
Z96.619	Presence of unspecified artificial shoulder joint	ICD-10-CM
Z96.621	Presence of right artificial elbow joint	ICD-10-CM
Z96.622	Presence of left artificial elbow joint	ICD-10-CM
Z96.629	Presence of unspecified artificial elbow joint	ICD-10-CM
Z96.631	Presence of right artificial wrist joint	ICD-10-CM
Z96.632	Presence of left artificial wrist joint	ICD-10-CM
Z96.639	Presence of unspecified artificial wrist joint	ICD-10-CM
Z96.641	Presence of right artificial hip joint	ICD-10-CM
Z96.642	Presence of left artificial hip joint	ICD-10-CM
Z96.643	Presence of artificial hip joint, bilateral	ICD-10-CM
Z96.649	Presence of unspecified artificial hip joint	ICD-10-CM
Z96.651	Presence of right artificial knee joint	ICD-10-CM
Z96.652	Presence of left artificial knee joint	ICD-10-CM
Z96.653	Presence of artificial knee joint, bilateral	ICD-10-CM
Z96.659	Presence of unspecified artificial knee joint	ICD-10-CM
Z96.661	Presence of right artificial ankle joint	ICD-10-CM
Z96.662	Presence of left artificial ankle joint	ICD-10-CM
Z96.669	Presence of unspecified artificial ankle joint	ICD-10-CM
Z96.691	Finger-joint replacement of right hand	ICD-10-CM
Z96.692	Finger-joint replacement of left hand	ICD-10-CM
Z96.693	Finger-joint replacement, bilateral	ICD-10-CM
Z96.698	Presence of other orthopedic joint implants	ICD-10-CM
Z96.7	Presence of other bone and tendon implants	ICD-10-CM
0RQE0ZZ	Repair Right Sternoclavicular Joint, Open Approach	ICD-10-PCS
0RQE3ZZ	Repair Right Sternoclavicular Joint, Percutaneous Approach	ICD-10-PCS
0RQE4ZZ	Repair Right Sternoclavicular Joint, Percutaneous Endoscopic Approach	ICD-10-PCS

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Code	Description	Code Type
0RQEXZZ	Repair Right Sternoclavicular Joint, External Approach	ICD-10-PCS
0RQF0ZZ	Repair Left Sternoclavicular Joint, Open Approach	ICD-10-PCS
0RQF3ZZ	Repair Left Sternoclavicular Joint, Percutaneous Approach	ICD-10-PCS
0RQF4ZZ	Repair Left Sternoclavicular Joint, Percutaneous Endoscopic Approach	ICD-10-PCS
0RQFXZZ	Repair Left Sternoclavicular Joint, External Approach	ICD-10-PCS
0RQG0ZZ	Repair Right Acromioclavicular Joint, Open Approach	ICD-10-PCS
0RQG3ZZ	Repair Right Acromioclavicular Joint, Percutaneous Approach	ICD-10-PCS
0RQG4ZZ	Repair Right Acromioclavicular Joint, Percutaneous Endoscopic Approach	ICD-10-PCS
0RQGXZZ	Repair Right Acromioclavicular Joint, External Approach	ICD-10-PCS
0RQH0ZZ	Repair Left Acromioclavicular Joint, Open Approach	ICD-10-PCS
0RQH3ZZ	Repair Left Acromioclavicular Joint, Percutaneous Approach	ICD-10-PCS
0RQH4ZZ	Repair Left Acromioclavicular Joint, Percutaneous Endoscopic Approach	ICD-10-PCS
0RQHXZZ	Repair Left Acromioclavicular Joint, External Approach	ICD-10-PCS
0RQJ0ZZ	Repair Right Shoulder Joint, Open Approach	ICD-10-PCS
0RQJ3ZZ	Repair Right Shoulder Joint, Percutaneous Approach	ICD-10-PCS
0RQJ4ZZ	Repair Right Shoulder Joint, Percutaneous Endoscopic Approach	ICD-10-PCS
0RQJXZZ	Repair Right Shoulder Joint, External Approach	ICD-10-PCS
0RQK0ZZ	Repair Left Shoulder Joint, Open Approach	ICD-10-PCS
0RQK3ZZ	Repair Left Shoulder Joint, Percutaneous Approach	ICD-10-PCS
0RQK4ZZ	Repair Left Shoulder Joint, Percutaneous Endoscopic Approach	ICD-10-PCS
0RQKXZZ	Repair Left Shoulder Joint, External Approach	ICD-10-PCS
0RQL0ZZ	Repair Right Elbow Joint, Open Approach	ICD-10-PCS
0RQL3ZZ	Repair Right Elbow Joint, Percutaneous Approach	ICD-10-PCS
0RQL4ZZ	Repair Right Elbow Joint, Percutaneous Endoscopic Approach	ICD-10-PCS
0RQLXZZ	Repair Right Elbow Joint, External Approach	ICD-10-PCS
0RQM0ZZ	Repair Left Elbow Joint, Open Approach	ICD-10-PCS
0RQM3ZZ	Repair Left Elbow Joint, Percutaneous Approach	ICD-10-PCS
0RQM4ZZ	Repair Left Elbow Joint, Percutaneous Endoscopic Approach	ICD-10-PCS
0RQMXZZ	Repair Left Elbow Joint, External Approach	ICD-10-PCS
0RRE07Z	Replacement of Right Sternoclavicular Joint with Autologous Tissue Substitute, Open Approach	ICD-10-PCS
0RRE0JZ	Replacement of Right Sternoclavicular Joint with Synthetic Substitute, Open Approach	ICD-10-PCS
0RRE0KZ	Replacement of Right Sternoclavicular Joint with Nonautologous Tissue Substitute, Open Approach	ICD-10-PCS
0RRF07Z	Replacement of Left Sternoclavicular Joint with Autologous Tissue Substitute, Open Approach	ICD-10-PCS
0RRF0JZ	Replacement of Left Sternoclavicular Joint with Synthetic Substitute, Open Approach	ICD-10-PCS
0RRF0KZ	Replacement of Left Sternoclavicular Joint with Nonautologous Tissue Substitute, Open Approach	ICD-10-PCS
0RRG07Z	Replacement of Right Acromioclavicular Joint with Autologous Tissue Substitute, Open Approach	ICD-10-PCS
0RRG0JZ	Replacement of Right Acromioclavicular Joint with Synthetic Substitute, Open Approach	ICD-10-PCS
0RRG0KZ	Replacement of Right Acromioclavicular Joint with Nonautologous Tissue Substitute, Open Approach	ICD-10-PCS
0RRH07Z	Replacement of Left Acromioclavicular Joint with Autologous Tissue Substitute, Open Approach	ICD-10-PCS
0RRH0JZ	Replacement of Left Acromioclavicular Joint with Synthetic Substitute, Open Approach	ICD-10-PCS
0RRH0KZ	Replacement of Left Acromioclavicular Joint with Nonautologous Tissue Substitute, Open Approach	ICD-10-PCS
0RRJ07Z	Replacement of Right Shoulder Joint with Autologous Tissue Substitute, Open Approach	ICD-10-PCS

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Code	Description	Code Type
0RRJ0J6	Replacement of Right Shoulder Joint with Synthetic Substitute, Humeral Surface, Open Approach	ICD-10-PCS
0RRJ0J7	Replacement of Right Shoulder Joint with Synthetic Substitute, Glenoid Surface, Open Approach	ICD-10-PCS
0RRJ0JZ	Replacement of Right Shoulder Joint with Synthetic Substitute, Open Approach	ICD-10-PCS
0RRJ0KZ	Replacement of Right Shoulder Joint with Nonautologous Tissue Substitute, Open Approach	ICD-10-PCS
0RRK07Z	Replacement of Left Shoulder Joint with Autologous Tissue Substitute, Open Approach	ICD-10-PCS
0RRK0J6	Replacement of Left Shoulder Joint with Synthetic Substitute, Humeral Surface, Open Approach	ICD-10-PCS
0RRK0J7	Replacement of Left Shoulder Joint with Synthetic Substitute, Glenoid Surface, Open Approach	ICD-10-PCS
0RRK0JZ	Replacement of Left Shoulder Joint with Synthetic Substitute, Open Approach	ICD-10-PCS
0RRK0KZ	Replacement of Left Shoulder Joint with Nonautologous Tissue Substitute, Open Approach	ICD-10-PCS
0RRL07Z	Replacement of Right Elbow Joint with Autologous Tissue Substitute, Open Approach	ICD-10-PCS
0RRL0JZ	Replacement of Right Elbow Joint with Synthetic Substitute, Open Approach	ICD-10-PCS
0RRL0KZ	Replacement of Right Elbow Joint with Nonautologous Tissue Substitute, Open Approach	ICD-10-PCS
0RRM07Z	Replacement of Left Elbow Joint with Autologous Tissue Substitute, Open Approach	ICD-10-PCS
0RRM0JZ	Replacement of Left Elbow Joint with Synthetic Substitute, Open Approach	ICD-10-PCS
0RRM0KZ	Replacement of Left Elbow Joint with Nonautologous Tissue Substitute, Open Approach	ICD-10-PCS
0RSE04Z	Reposition Right Sternoclavicular Joint with Internal Fixation Device, Open Approach	ICD-10-PCS
0RSE0ZZ	Reposition Right Sternoclavicular Joint, Open Approach	ICD-10-PCS
0RSF04Z	Reposition Left Sternoclavicular Joint with Internal Fixation Device, Open Approach	ICD-10-PCS
0RSF0ZZ	Reposition Left Sternoclavicular Joint, Open Approach	ICD-10-PCS
0RSG04Z	Reposition Right Acromioclavicular Joint with Internal Fixation Device, Open Approach	ICD-10-PCS
0RSG0ZZ	Reposition Right Acromioclavicular Joint, Open Approach	ICD-10-PCS
0RSH04Z	Reposition Left Acromioclavicular Joint with Internal Fixation Device, Open Approach	ICD-10-PCS
0RSH0ZZ	Reposition Left Acromioclavicular Joint, Open Approach	ICD-10-PCS
0RSJ04Z	Reposition Right Shoulder Joint with Internal Fixation Device, Open Approach	ICD-10-PCS
0RSJ0ZZ	Reposition Right Shoulder Joint, Open Approach	ICD-10-PCS
0RSK04Z	Reposition Left Shoulder Joint with Internal Fixation Device, Open Approach	ICD-10-PCS
0RSK0ZZ	Reposition Left Shoulder Joint, Open Approach	ICD-10-PCS
0RUE07Z	Supplement Right Sternoclavicular Joint with Autologous Tissue Substitute, Open Approach	ICD-10-PCS
0RUE0JZ	Supplement Right Sternoclavicular Joint with Synthetic Substitute, Open Approach	ICD-10-PCS
0RUE0KZ	Supplement Right Sternoclavicular Joint with Nonautologous Tissue Substitute, Open Approach	ICD-10-PCS
0RUE37Z	Supplement Right Sternoclavicular Joint with Autologous Tissue Substitute, Percutaneous Approach	ICD-10-PCS
0RUE3JZ	Supplement Right Sternoclavicular Joint with Synthetic Substitute, Percutaneous Approach	ICD-10-PCS
0RUE3KZ	Supplement Right Sternoclavicular Joint with Nonautologous Tissue Substitute, Percutaneous Approach	ICD-10-PCS
0RUE47Z	Supplement Right Sternoclavicular Joint with Autologous Tissue Substitute, Percutaneous Endoscopic Approach	ICD-10-PCS
0RUE4JZ	Supplement Right Sternoclavicular Joint with Synthetic Substitute, Percutaneous Endoscopic Approach	ICD-10-PCS
0RUE4KZ	Supplement Right Sternoclavicular Joint with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	ICD-10-PCS
0RUF07Z	Supplement Left Sternoclavicular Joint with Autologous Tissue Substitute, Open Approach	ICD-10-PCS
0RUF0JZ	Supplement Left Sternoclavicular Joint with Synthetic Substitute, Open Approach	ICD-10-PCS
0RUF0KZ	Supplement Left Sternoclavicular Joint with Nonautologous Tissue Substitute, Open Approach	ICD-10-PCS
0RUF37Z	Supplement Left Sternoclavicular Joint with Autologous Tissue Substitute, Percutaneous Approach	ICD-10-PCS

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

Code	Description	Code Type
0RUF3JZ	Supplement Left Sternoclavicular Joint with Synthetic Substitute, Percutaneous Approach	ICD-10-PCS
0RUF3KZ	Supplement Left Sternoclavicular Joint with Nonautologous Tissue Substitute, Percutaneous Approach	ICD-10-PCS
0RUF47Z	Supplement Left Sternoclavicular Joint with Autologous Tissue Substitute, Percutaneous Endoscopic Approach	ICD-10-PCS
0RUF4JZ	Supplement Left Sternoclavicular Joint with Synthetic Substitute, Percutaneous Endoscopic Approach	ICD-10-PCS
0RUF4KZ	Supplement Left Sternoclavicular Joint with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	ICD-10-PCS
0RUG07Z	Supplement Right Acromioclavicular Joint with Autologous Tissue Substitute, Open Approach	ICD-10-PCS
0RUG0JZ	Supplement Right Acromioclavicular Joint with Synthetic Substitute, Open Approach	ICD-10-PCS
0RUG0KZ	Supplement Right Acromioclavicular Joint with Nonautologous Tissue Substitute, Open Approach	ICD-10-PCS
0RUG37Z	Supplement Right Acromioclavicular Joint with Autologous Tissue Substitute, Percutaneous Approach	ICD-10-PCS
0RUG3JZ	Supplement Right Acromioclavicular Joint with Synthetic Substitute, Percutaneous Approach	ICD-10-PCS
0RUG3KZ	Supplement Right Acromioclavicular Joint with Nonautologous Tissue Substitute, Percutaneous Approach	ICD-10-PCS
0RUG47Z	Supplement Right Acromioclavicular Joint with Autologous Tissue Substitute, Percutaneous Endoscopic Approach	ICD-10-PCS
0RUG4JZ	Supplement Right Acromioclavicular Joint with Synthetic Substitute, Percutaneous Endoscopic Approach	ICD-10-PCS
0RUG4KZ	Supplement Right Acromioclavicular Joint with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	ICD-10-PCS
0RUH07Z	Supplement Left Acromioclavicular Joint with Autologous Tissue Substitute, Open Approach	ICD-10-PCS
0RUH0JZ	Supplement Left Acromioclavicular Joint with Synthetic Substitute, Open Approach	ICD-10-PCS
0RUH0KZ	Supplement Left Acromioclavicular Joint with Nonautologous Tissue Substitute, Open Approach	ICD-10-PCS
0RUH37Z	Supplement Left Acromioclavicular Joint with Autologous Tissue Substitute, Percutaneous Approach	ICD-10-PCS
0RUH3JZ	Supplement Left Acromioclavicular Joint with Synthetic Substitute, Percutaneous Approach	ICD-10-PCS
0RUH3KZ	Supplement Left Acromioclavicular Joint with Nonautologous Tissue Substitute, Percutaneous Approach	ICD-10-PCS
0RUH47Z	Supplement Left Acromioclavicular Joint with Autologous Tissue Substitute, Percutaneous Endoscopic Approach	ICD-10-PCS
0RUH4JZ	Supplement Left Acromioclavicular Joint with Synthetic Substitute, Percutaneous Endoscopic Approach	ICD-10-PCS
0RUH4KZ	Supplement Left Acromioclavicular Joint with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	ICD-10-PCS
0RUJ07Z	Supplement Right Shoulder Joint with Autologous Tissue Substitute, Open Approach	ICD-10-PCS
0RUJ0JZ	Supplement Right Shoulder Joint with Synthetic Substitute, Open Approach	ICD-10-PCS
0RUJ0KZ	Supplement Right Shoulder Joint with Nonautologous Tissue Substitute, Open Approach	ICD-10-PCS
0RUJ37Z	Supplement Right Shoulder Joint with Autologous Tissue Substitute, Percutaneous Approach	ICD-10-PCS
0RUJ3JZ	Supplement Right Shoulder Joint with Synthetic Substitute, Percutaneous Approach	ICD-10-PCS
0RUJ3KZ	Supplement Right Shoulder Joint with Nonautologous Tissue Substitute, Percutaneous Approach	ICD-10-PCS
0RUJ47Z	Supplement Right Shoulder Joint with Autologous Tissue Substitute, Percutaneous Endoscopic Approach	ICD-10-PCS
0RUJ4JZ	Supplement Right Shoulder Joint with Synthetic Substitute, Percutaneous Endoscopic Approach	ICD-10-PCS
0RUJ4KZ	Supplement Right Shoulder Joint with Nonautologous Tissue Substitute, Percutaneous Endoscopic	ICD-10-PCS
0RUK07Z	Supplement Left Shoulder Joint with Autologous Tissue Substitute, Open Approach	ICD-10-PCS
0RUK0JZ	Supplement Left Shoulder Joint with Synthetic Substitute, Open Approach	ICD-10-PCS
0RUK0KZ	Supplement Left Shoulder Joint with Nonautologous Tissue Substitute, Open Approach	ICD-10-PCS
0RUK37Z	Supplement Left Shoulder Joint with Autologous Tissue Substitute, Percutaneous Approach	ICD-10-PCS

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

Code	Description	Code Type
0RUK3JZ	Supplement Left Shoulder Joint with Synthetic Substitute, Percutaneous Approach	ICD-10-PCS
0RUK3KZ	Supplement Left Shoulder Joint with Nonautologous Tissue Substitute, Percutaneous Approach	ICD-10-PCS
0RUK47Z	Supplement Left Shoulder Joint with Autologous Tissue Substitute, Percutaneous Endoscopic Approach	ICD-10-PCS
0RUK4JZ	Supplement Left Shoulder Joint with Synthetic Substitute, Percutaneous Endoscopic Approach	ICD-10-PCS
0RUK4KZ	Supplement Left Shoulder Joint with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	ICD-10-PCS
0RUL07Z	Supplement Right Elbow Joint with Autologous Tissue Substitute, Open Approach	ICD-10-PCS
0RUL0JZ	Supplement Right Elbow Joint with Synthetic Substitute, Open Approach	ICD-10-PCS
0RUL0KZ	Supplement Right Elbow Joint with Nonautologous Tissue Substitute, Open Approach	ICD-10-PCS
0RUL37Z	Supplement Right Elbow Joint with Autologous Tissue Substitute, Percutaneous Approach	ICD-10-PCS
0RUL3JZ	Supplement Right Elbow Joint with Synthetic Substitute, Percutaneous Approach	ICD-10-PCS
0RUL3KZ	Supplement Right Elbow Joint with Nonautologous Tissue Substitute, Percutaneous Approach	ICD-10-PCS
0RUL47Z	Supplement Right Elbow Joint with Autologous Tissue Substitute, Percutaneous Endoscopic Approach	ICD-10-PCS
0RUL4JZ	Supplement Right Elbow Joint with Synthetic Substitute, Percutaneous Endoscopic Approach	ICD-10-PCS
0RUL4KZ	Supplement Right Elbow Joint with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	ICD-10-PCS
0RUM07Z	Supplement Left Elbow Joint with Autologous Tissue Substitute, Open Approach	ICD-10-PCS
0RUM0JZ	Supplement Left Elbow Joint with Synthetic Substitute, Open Approach	ICD-10-PCS
0RUM0KZ	Supplement Left Elbow Joint with Nonautologous Tissue Substitute, Open Approach	ICD-10-PCS
0RUM37Z	Supplement Left Elbow Joint with Autologous Tissue Substitute, Percutaneous Approach	ICD-10-PCS
0RUM3JZ	Supplement Left Elbow Joint with Synthetic Substitute, Percutaneous Approach	ICD-10-PCS
0RUM3KZ	Supplement Left Elbow Joint with Nonautologous Tissue Substitute, Percutaneous Approach	ICD-10-PCS
0RUM47Z	Supplement Left Elbow Joint with Autologous Tissue Substitute, Percutaneous Endoscopic Approach	ICD-10-PCS
0RUM4JZ	Supplement Left Elbow Joint with Synthetic Substitute, Percutaneous Endoscopic Approach	ICD-10-PCS
0RUM4KZ	Supplement Left Elbow Joint with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	ICD-10-PCS
0SR9019	Replacement of Right Hip Joint with Metal Synthetic Substitute, Cemented, Open Approach	ICD-10-PCS
0SR901A	Replacement of Right Hip Joint with Metal Synthetic Substitute, Uncemented, Open Approach	ICD-10-PCS
0SR901Z	Replacement of Right Hip Joint with Metal Synthetic Substitute, Open Approach	ICD-10-PCS
0SR9029	Replacement of Right Hip Joint with Metal on Polyethylene Synthetic Substitute, Cemented, Open	ICD-10-PCS
0SR902A	Replacement of Right Hip Joint with Metal on Polyethylene Synthetic Substitute, Uncemented, Open	ICD-10-PCS
0SR902Z	Replacement of Right Hip Joint with Metal on Polyethylene Synthetic Substitute, Open Approach	ICD-10-PCS
0SR9039	Replacement of Right Hip Joint with Ceramic Synthetic Substitute, Cemented, Open Approach	ICD-10-PCS
0SR903A	Replacement of Right Hip Joint with Ceramic Synthetic Substitute, Uncemented, Open Approach	ICD-10-PCS
0SR903Z	Replacement of Right Hip Joint with Ceramic Synthetic Substitute, Open Approach	ICD-10-PCS
0SR9049	Replacement of Right Hip Joint with Ceramic on Polyethylene Synthetic Substitute, Cemented, Open	ICD-10-PCS
0SR904A	Replacement of Right Hip Joint with Ceramic on Polyethylene Synthetic Substitute, Uncemented, Open Approach	ICD-10-PCS
0SR904Z	Replacement of Right Hip Joint with Ceramic on Polyethylene Synthetic Substitute, Open Approach	ICD-10-PCS
0SR907Z	Replacement of Right Hip Joint with Autologous Tissue Substitute, Open Approach	ICD-10-PCS
0SR90J9	Replacement of Right Hip Joint with Synthetic Substitute, Cemented, Open Approach	ICD-10-PCS
0SR90JA	Replacement of Right Hip Joint with Synthetic Substitute, Uncemented, Open Approach	ICD-10-PCS
0SR90JZ	Replacement of Right Hip Joint with Synthetic Substitute, Open Approach	ICD-10-PCS
0SR90KZ	Replacement of Right Hip Joint with Nonautologous Tissue Substitute, Open Approach	ICD-10-PCS

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

Code	Description	Code Type
0SRA009	Replacement of Right Hip Joint, Acetabular Surface with Polyethylene Synthetic Substitute, Cemented, Open Approach	ICD-10-PCS
0SRA00A	Replacement of Right Hip Joint, Acetabular Surface with Polyethylene Synthetic Substitute, Uncemented, Open Approach	ICD-10-PCS
0SRA00Z	Replacement of Right Hip Joint, Acetabular Surface with Polyethylene Synthetic Substitute, Open Approach	ICD-10-PCS
0SRA019	Replacement of Right Hip Joint, Acetabular Surface with Metal Synthetic Substitute, Cemented, Open Approach	ICD-10-PCS
0SRA01A	Replacement of Right Hip Joint, Acetabular Surface with Metal Synthetic Substitute, Uncemented, Open Approach	ICD-10-PCS
0SRA01Z	Replacement of Right Hip Joint, Acetabular Surface with Metal Synthetic Substitute, Open Approach	ICD-10-PCS
0SRA039	Replacement of Right Hip Joint, Acetabular Surface with Ceramic Synthetic Substitute, Cemented, Open Approach	ICD-10-PCS
0SRA03A	Replacement of Right Hip Joint, Acetabular Surface with Ceramic Synthetic Substitute, Uncemented, Open Approach	ICD-10-PCS
0SRA03Z	Replacement of Right Hip Joint, Acetabular Surface with Ceramic Synthetic Substitute, Open Approach	ICD-10-PCS
0SRA07Z	Replacement of Right Hip Joint, Acetabular Surface with Autologous Tissue Substitute, Open Approach	ICD-10-PCS
0SRA0J9	Replacement of Right Hip Joint, Acetabular Surface with Synthetic Substitute, Cemented, Open Approach	ICD-10-PCS
0SRA0JA	Replacement of Right Hip Joint, Acetabular Surface with Synthetic Substitute, Uncemented, Open Approach	ICD-10-PCS
0SRA0JZ	Replacement of Right Hip Joint, Acetabular Surface with Synthetic Substitute, Open Approach	ICD-10-PCS
0SRA0KZ	Replacement of Right Hip Joint, Acetabular Surface with Nonautologous Tissue Substitute, Open Approach	ICD-10-PCS
0SRB019	Replacement of Left Hip Joint with Metal Synthetic Substitute, Cemented, Open Approach	ICD-10-PCS
0SRB01A	Replacement of Left Hip Joint with Metal Synthetic Substitute, Uncemented, Open Approach	ICD-10-PCS
0SRB01Z	Replacement of Left Hip Joint with Metal Synthetic Substitute, Open Approach	ICD-10-PCS
0SRB029	Replacement of Left Hip Joint with Metal on Polyethylene Synthetic Substitute, Cemented, Open Approach	ICD-10-PCS
0SRB02A	Replacement of Left Hip Joint with Metal on Polyethylene Synthetic Substitute, Uncemented, Open	ICD-10-PCS
0SRB02Z	Replacement of Left Hip Joint with Metal on Polyethylene Synthetic Substitute, Open Approach	ICD-10-PCS
0SRB039	Replacement of Left Hip Joint with Ceramic Synthetic Substitute, Cemented, Open Approach	ICD-10-PCS
0SRB03A	Replacement of Left Hip Joint with Ceramic Synthetic Substitute, Uncemented, Open Approach	ICD-10-PCS
0SRB03Z	Replacement of Left Hip Joint with Ceramic Synthetic Substitute, Open Approach	ICD-10-PCS
0SRB049	Replacement of Left Hip Joint with Ceramic on Polyethylene Synthetic Substitute, Cemented, Open	ICD-10-PCS
0SRB04A	Replacement of Left Hip Joint with Ceramic on Polyethylene Synthetic Substitute, Uncemented, Open Approach	ICD-10-PCS
0SRB04Z	Replacement of Left Hip Joint with Ceramic on Polyethylene Synthetic Substitute, Open Approach	ICD-10-PCS
0SRB07Z	Replacement of Left Hip Joint with Autologous Tissue Substitute, Open Approach	ICD-10-PCS
0SRB0J9	Replacement of Left Hip Joint with Synthetic Substitute, Cemented, Open Approach	ICD-10-PCS
0SRB0JA	Replacement of Left Hip Joint with Synthetic Substitute, Uncemented, Open Approach	ICD-10-PCS
0SRB0JZ	Replacement of Left Hip Joint with Synthetic Substitute, Open Approach	ICD-10-PCS
0SRB0KZ	Replacement of Left Hip Joint with Nonautologous Tissue Substitute, Open Approach	ICD-10-PCS
0SRC07Z	Replacement of Right Knee Joint with Autologous Tissue Substitute, Open Approach	ICD-10-PCS
0SRC0J9	Replacement of Right Knee Joint with Synthetic Substitute, Cemented, Open Approach	ICD-10-PCS
0SRC0JA	Replacement of Right Knee Joint with Synthetic Substitute, Uncemented, Open Approach	ICD-10-PCS

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

Code	Description	Code Type
0SRC0JZ	Replacement of Right Knee Joint with Synthetic Substitute, Open Approach	ICD-10-PCS
0SRC0KZ	Replacement of Right Knee Joint with Nonautologous Tissue Substitute, Open Approach	ICD-10-PCS
0SRC0L9	Replacement of Right Knee Joint with Unicondylar Synthetic Substitute, Cemented, Open Approach	ICD-10-PCS
0SRC0LA	Replacement of Right Knee Joint with Unicondylar Synthetic Substitute, Uncemented, Open Approach	ICD-10-PCS
0SRC0LZ	Replacement of Right Knee Joint with Unicondylar Synthetic Substitute, Open Approach	ICD-10-PCS
0SRD07Z	Replacement of Left Knee Joint with Autologous Tissue Substitute, Open Approach	ICD-10-PCS
0SRD0J9	Replacement of Left Knee Joint with Synthetic Substitute, Cemented, Open Approach	ICD-10-PCS
0SRD0JA	Replacement of Left Knee Joint with Synthetic Substitute, Uncemented, Open Approach	ICD-10-PCS
0SRD0JZ	Replacement of Left Knee Joint with Synthetic Substitute, Open Approach	ICD-10-PCS
0SRD0KZ	Replacement of Left Knee Joint with Nonautologous Tissue Substitute, Open Approach	ICD-10-PCS
0SRD0L9	Replacement of Left Knee Joint with Unicondylar Synthetic Substitute, Cemented, Open Approach	ICD-10-PCS
0SRD0LA	Replacement of Left Knee Joint with Unicondylar Synthetic Substitute, Uncemented, Open Approach	ICD-10-PCS
0SRD0LZ	Replacement of Left Knee Joint with Unicondylar Synthetic Substitute, Open Approach	ICD-10-PCS
0SRE009	Replacement of Left Hip Joint, Acetabular Surface with Polyethylene Synthetic Substitute, Cemented, Open Approach	ICD-10-PCS
0SRE00A	Replacement of Left Hip Joint, Acetabular Surface with Polyethylene Synthetic Substitute, Uncemented, Open Approach	ICD-10-PCS
0SRE00Z	Replacement of Left Hip Joint, Acetabular Surface with Polyethylene Synthetic Substitute, Open Approach	ICD-10-PCS
0SRE019	Replacement of Left Hip Joint, Acetabular Surface with Metal Synthetic Substitute, Cemented, Open	ICD-10-PCS
0SRE01A	Replacement of Left Hip Joint, Acetabular Surface with Metal Synthetic Substitute, Uncemented, Open Approach	ICD-10-PCS
0SRE01Z	Replacement of Left Hip Joint, Acetabular Surface with Metal Synthetic Substitute, Open Approach	ICD-10-PCS
0SRE039	Replacement of Left Hip Joint, Acetabular Surface with Ceramic Synthetic Substitute, Cemented, Open Approach	ICD-10-PCS
0SRE03A	Replacement of Left Hip Joint, Acetabular Surface with Ceramic Synthetic Substitute, Uncemented, Open Approach	ICD-10-PCS
0SRE03Z	Replacement of Left Hip Joint, Acetabular Surface with Ceramic Synthetic Substitute, Open Approach	ICD-10-PCS
0SRE07Z	Replacement of Left Hip Joint, Acetabular Surface with Autologous Tissue Substitute, Open Approach	ICD-10-PCS
0SRE0J9	Replacement of Left Hip Joint, Acetabular Surface with Synthetic Substitute, Cemented, Open Approach	ICD-10-PCS
0SRE0JA	Replacement of Left Hip Joint, Acetabular Surface with Synthetic Substitute, Uncemented, Open Approach	ICD-10-PCS
0SRE0JZ	Replacement of Left Hip Joint, Acetabular Surface with Synthetic Substitute, Open Approach	ICD-10-PCS
0SRE0KZ	Replacement of Left Hip Joint, Acetabular Surface with Nonautologous Tissue Substitute, Open Approach	ICD-10-PCS
0SRF07Z	Replacement of Right Ankle Joint with Autologous Tissue Substitute, Open Approach	ICD-10-PCS
0SRF0J9	Replacement of Right Ankle Joint with Synthetic Substitute, Cemented, Open Approach	ICD-10-PCS
0SRF0JA	Replacement of Right Ankle Joint with Synthetic Substitute, Uncemented, Open Approach	ICD-10-PCS
0SRF0JZ	Replacement of Right Ankle Joint with Synthetic Substitute, Open Approach	ICD-10-PCS
0SRF0KZ	Replacement of Right Ankle Joint with Nonautologous Tissue Substitute, Open Approach	ICD-10-PCS
0SRG07Z	Replacement of Left Ankle Joint with Autologous Tissue Substitute, Open Approach	ICD-10-PCS
0SRG0J9	Replacement of Left Ankle Joint with Synthetic Substitute, Cemented, Open Approach	ICD-10-PCS
0SRG0JA	Replacement of Left Ankle Joint with Synthetic Substitute, Uncemented, Open Approach	ICD-10-PCS
0SRG0JZ	Replacement of Left Ankle Joint with Synthetic Substitute, Open Approach	ICD-10-PCS
0SRG0KZ	Replacement of Left Ankle Joint with Nonautologous Tissue Substitute, Open Approach	ICD-10-PCS

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

Code	Description	Code Type
0SRH07Z	Replacement of Right Tarsal Joint with Autologous Tissue Substitute, Open Approach	ICD-10-PCS
0SRH0JZ	Replacement of Right Tarsal Joint with Synthetic Substitute, Open Approach	ICD-10-PCS
0SRH0KZ	Replacement of Right Tarsal Joint with Nonautologous Tissue Substitute, Open Approach	ICD-10-PCS
0SRJ07Z	Replacement of Left Tarsal Joint with Autologous Tissue Substitute, Open Approach	ICD-10-PCS
0SRJ0JZ	Replacement of Left Tarsal Joint with Synthetic Substitute, Open Approach	ICD-10-PCS
0SRJ0KZ	Replacement of Left Tarsal Joint with Nonautologous Tissue Substitute, Open Approach	ICD-10-PCS
0SRK07Z	Replacement of Right Metatarsal-Tarsal Joint with Autologous Tissue Substitute, Open Approach	ICD-10-PCS
0SRK0JZ	Replacement of Right Metatarsal-Tarsal Joint with Synthetic Substitute, Open Approach	ICD-10-PCS
0SRK0KZ	Replacement of Right Metatarsal-Tarsal Joint with Nonautologous Tissue Substitute, Open Approach	ICD-10-PCS
0SRL07Z	Replacement of Left Metatarsal-Tarsal Joint with Autologous Tissue Substitute, Open Approach	ICD-10-PCS
0SRL0JZ	Replacement of Left Metatarsal-Tarsal Joint with Synthetic Substitute, Open Approach	ICD-10-PCS
0SRL0KZ	Replacement of Left Metatarsal-Tarsal Joint with Nonautologous Tissue Substitute, Open Approach	ICD-10-PCS
0SRM07Z	Replacement of Right Metatarsal-Phalangeal Joint with Autologous Tissue Substitute, Open Approach	ICD-10-PCS
0SRM0JZ	Replacement of Right Metatarsal-Phalangeal Joint with Synthetic Substitute, Open Approach	ICD-10-PCS
0SRM0KZ	Replacement of Right Metatarsal-Phalangeal Joint with Nonautologous Tissue Substitute, Open Approach	ICD-10-PCS
0SRN07Z	Replacement of Left Metatarsal-Phalangeal Joint with Autologous Tissue Substitute, Open Approach	ICD-10-PCS
0SRN0JZ	Replacement of Left Metatarsal-Phalangeal Joint with Synthetic Substitute, Open Approach	ICD-10-PCS
0SRN0KZ	Replacement of Left Metatarsal-Phalangeal Joint with Nonautologous Tissue Substitute, Open Approach	ICD-10-PCS
0SRP07Z	Replacement of Right Toe Phalangeal Joint with Autologous Tissue Substitute, Open Approach	ICD-10-PCS
0SRP0JZ	Replacement of Right Toe Phalangeal Joint with Synthetic Substitute, Open Approach	ICD-10-PCS
0SRP0KZ	Replacement of Right Toe Phalangeal Joint with Nonautologous Tissue Substitute, Open Approach	ICD-10-PCS
0SRQ07Z	Replacement of Left Toe Phalangeal Joint with Autologous Tissue Substitute, Open Approach	ICD-10-PCS
0SRQ0JZ	Replacement of Left Toe Phalangeal Joint with Synthetic Substitute, Open Approach	ICD-10-PCS
0SRQ0KZ	Replacement of Left Toe Phalangeal Joint with Nonautologous Tissue Substitute, Open Approach	ICD-10-PCS
0SRR019	Replacement of Right Hip Joint, Femoral Surface with Metal Synthetic Substitute, Cemented, Open	ICD-10-PCS
0SRR01A	Replacement of Right Hip Joint, Femoral Surface with Metal Synthetic Substitute, Uncemented, Open Approach	ICD-10-PCS
0SRR01Z	Replacement of Right Hip Joint, Femoral Surface with Metal Synthetic Substitute, Open Approach	ICD-10-PCS
0SRR039	Replacement of Right Hip Joint, Femoral Surface with Ceramic Synthetic Substitute, Cemented, Open Approach	ICD-10-PCS
0SRR03A	Replacement of Right Hip Joint, Femoral Surface with Ceramic Synthetic Substitute, Uncemented, Open Approach	ICD-10-PCS
0SRR03Z	Replacement of Right Hip Joint, Femoral Surface with Ceramic Synthetic Substitute, Open Approach	ICD-10-PCS
0SRR07Z	Replacement of Right Hip Joint, Femoral Surface with Autologous Tissue Substitute, Open Approach	ICD-10-PCS
0SRR0J9	Replacement of Right Hip Joint, Femoral Surface with Synthetic Substitute, Cemented, Open Approach	ICD-10-PCS
0SRR0JA	Replacement of Right Hip Joint, Femoral Surface with Synthetic Substitute, Uncemented, Open Approach	ICD-10-PCS
0SRR0JZ	Replacement of Right Hip Joint, Femoral Surface with Synthetic Substitute, Open Approach	ICD-10-PCS
0SRR0KZ	Replacement of Right Hip Joint, Femoral Surface with Nonautologous Tissue Substitute, Open Approach	ICD-10-PCS
0SRS019	Replacement of Left Hip Joint, Femoral Surface with Metal Synthetic Substitute, Cemented, Open Approach	ICD-10-PCS
0SRS01A	Replacement of Left Hip Joint, Femoral Surface with Metal Synthetic Substitute, Uncemented, Open	ICD-10-PCS
0SRS01Z	Replacement of Left Hip Joint, Femoral Surface with Metal Synthetic Substitute, Open Approach	ICD-10-PCS
0SRS039	Replacement of Left Hip Joint, Femoral Surface with Ceramic Synthetic Substitute, Cemented, Open	ICD-10-PCS

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

Code	Description	Code Type
0SRS03A	Replacement of Left Hip Joint, Femoral Surface with Ceramic Synthetic Substitute, Uncemented, Open Approach	ICD-10-PCS
0SRS03Z	Replacement of Left Hip Joint, Femoral Surface with Ceramic Synthetic Substitute, Open Approach	ICD-10-PCS
0SRS07Z	Replacement of Left Hip Joint, Femoral Surface with Autologous Tissue Substitute, Open Approach	ICD-10-PCS
0SRS0J9	Replacement of Left Hip Joint, Femoral Surface with Synthetic Substitute, Cemented, Open Approach	ICD-10-PCS
0SRS0JA	Replacement of Left Hip Joint, Femoral Surface with Synthetic Substitute, Uncemented, Open Approach	ICD-10-PCS
0SRS0JZ	Replacement of Left Hip Joint, Femoral Surface with Synthetic Substitute, Open Approach	ICD-10-PCS
0SRS0KZ	Replacement of Left Hip Joint, Femoral Surface with Nonautologous Tissue Substitute, Open Approach	ICD-10-PCS
0SRT07Z	Replacement of Right Knee Joint, Femoral Surface with Autologous Tissue Substitute, Open Approach	ICD-10-PCS
0SRT0J9	Replacement of Right Knee Joint, Femoral Surface with Synthetic Substitute, Cemented, Open Approach	ICD-10-PCS
0SRT0JA	Replacement of Right Knee Joint, Femoral Surface with Synthetic Substitute, Uncemented, Open Approach	ICD-10-PCS
0SRT0JZ	Replacement of Right Knee Joint, Femoral Surface with Synthetic Substitute, Open Approach	ICD-10-PCS
0SRT0KZ	Replacement of Right Knee Joint, Femoral Surface with Nonautologous Tissue Substitute, Open Approach	ICD-10-PCS
0SRU07Z	Replacement of Left Knee Joint, Femoral Surface with Autologous Tissue Substitute, Open Approach	ICD-10-PCS
0SRU0J9	Replacement of Left Knee Joint, Femoral Surface with Synthetic Substitute, Cemented, Open Approach	ICD-10-PCS
0SRU0JA	Replacement of Left Knee Joint, Femoral Surface with Synthetic Substitute, Uncemented, Open Approach	ICD-10-PCS
0SRU0JZ	Replacement of Left Knee Joint, Femoral Surface with Synthetic Substitute, Open Approach	ICD-10-PCS
0SRU0KZ	Replacement of Left Knee Joint, Femoral Surface with Nonautologous Tissue Substitute, Open Approach	ICD-10-PCS
0SRV07Z	Replacement of Right Knee Joint, Tibial Surface with Autologous Tissue Substitute, Open Approach	ICD-10-PCS
0SRV0J9	Replacement of Right Knee Joint, Tibial Surface with Synthetic Substitute, Cemented, Open Approach	ICD-10-PCS
0SRV0JA	Replacement of Right Knee Joint, Tibial Surface with Synthetic Substitute, Uncemented, Open Approach	ICD-10-PCS
0SRV0JZ	Replacement of Right Knee Joint, Tibial Surface with Synthetic Substitute, Open Approach	ICD-10-PCS
0SRV0KZ	Replacement of Right Knee Joint, Tibial Surface with Nonautologous Tissue Substitute, Open Approach	ICD-10-PCS
0SRW07Z	Replacement of Left Knee Joint, Tibial Surface with Autologous Tissue Substitute, Open Approach	ICD-10-PCS
0SRW0J9	Replacement of Left Knee Joint, Tibial Surface with Synthetic Substitute, Cemented, Open Approach	ICD-10-PCS
0SRW0JA	Replacement of Left Knee Joint, Tibial Surface with Synthetic Substitute, Uncemented, Open Approach	ICD-10-PCS
0SRW0JZ	Replacement of Left Knee Joint, Tibial Surface with Synthetic Substitute, Open Approach	ICD-10-PCS
0SRW0KZ	Replacement of Left Knee Joint, Tibial Surface with Nonautologous Tissue Substitute, Open Approach	ICD-10-PCS
0SW90JZ	Revision of Synthetic Substitute in Right Hip Joint, Open Approach	ICD-10-PCS
0SW93JZ	Revision of Synthetic Substitute in Right Hip Joint, Percutaneous Approach	ICD-10-PCS
0SW94JZ	Revision of Synthetic Substitute in Right Hip Joint, Percutaneous Endoscopic Approach	ICD-10-PCS
0SWA0JZ	Revision of Synthetic Substitute in Right Hip Joint, Acetabular Surface, Open Approach	ICD-10-PCS
0SWA3JZ	Revision of Synthetic Substitute in Right Hip Joint, Acetabular Surface, Percutaneous Approach	ICD-10-PCS
0SWA4JZ	Revision of Synthetic Substitute in Right Hip Joint, Acetabular Surface, Percutaneous Endoscopic Approach	ICD-10-PCS
0SWB0JZ	Revision of Synthetic Substitute in Left Hip Joint, Open Approach	ICD-10-PCS
0SWB3JZ	Revision of Synthetic Substitute in Left Hip Joint, Percutaneous Approach	ICD-10-PCS
0SWB4JZ	Revision of Synthetic Substitute in Left Hip Joint, Percutaneous Endoscopic Approach	ICD-10-PCS
0SWC0JC	Revision of Synthetic Substitute in Right Knee Joint, Patellar Surface, Open Approach	ICD-10-PCS
0SWC0JZ	Revision of Synthetic Substitute in Right Knee Joint, Open Approach	ICD-10-PCS
0SWC3JC	Revision of Synthetic Substitute in Right Knee Joint, Patellar Surface, Percutaneous Approach	ICD-10-PCS
0SWC3JZ	Revision of Synthetic Substitute in Right Knee Joint, Percutaneous Approach	ICD-10-PCS
0SWC4JC	Revision of Synthetic Substitute in Right Knee Joint, Patellar Surface, Percutaneous Endoscopic Approach	ICD-10-PCS

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

Code	Description	Code Type
0SWC4JZ	Revision of Synthetic Substitute in Right Knee Joint, Percutaneous Endoscopic Approach	ICD-10-PCS
0SWD0JC	Revision of Synthetic Substitute in Left Knee Joint, Patellar Surface, Open Approach	ICD-10-PCS
0SWD0JZ	Revision of Synthetic Substitute in Left Knee Joint, Open Approach	ICD-10-PCS
0SWD3JC	Revision of Synthetic Substitute in Left Knee Joint, Patellar Surface, Percutaneous Approach	ICD-10-PCS
0SWD3JZ	Revision of Synthetic Substitute in Left Knee Joint, Percutaneous Approach	ICD-10-PCS
0SWD4JC	Revision of Synthetic Substitute in Left Knee Joint, Patellar Surface, Percutaneous Endoscopic Approach	ICD-10-PCS
0SWD4JZ	Revision of Synthetic Substitute in Left Knee Joint, Percutaneous Endoscopic Approach	ICD-10-PCS
0SWE0JZ	Revision of Synthetic Substitute in Left Hip Joint, Acetabular Surface, Open Approach	ICD-10-PCS
0SWE3JZ	Revision of Synthetic Substitute in Left Hip Joint, Acetabular Surface, Percutaneous Approach	ICD-10-PCS
0SWE4JZ	Revision of Synthetic Substitute in Left Hip Joint, Acetabular Surface, Percutaneous Endoscopic Approach	ICD-10-PCS
0SWF0JZ	Revision of Synthetic Substitute in Right Ankle Joint, Open Approach	ICD-10-PCS
0SWF3JZ	Revision of Synthetic Substitute in Right Ankle Joint, Percutaneous Approach	ICD-10-PCS
0SWF4JZ	Revision of Synthetic Substitute in Right Ankle Joint, Percutaneous Endoscopic Approach	ICD-10-PCS
0SWG0JZ	Revision of Synthetic Substitute in Left Ankle Joint, Open Approach	ICD-10-PCS
0SWG3JZ	Revision of Synthetic Substitute in Left Ankle Joint, Percutaneous Approach	ICD-10-PCS
0SWG4JZ	Revision of Synthetic Substitute in Left Ankle Joint, Percutaneous Endoscopic Approach	ICD-10-PCS
0SWH0JZ	Revision of Synthetic Substitute in Right Tarsal Joint, Open Approach	ICD-10-PCS
0SWH3JZ	Revision of Synthetic Substitute in Right Tarsal Joint, Percutaneous Approach	ICD-10-PCS
0SWH4JZ	Revision of Synthetic Substitute in Right Tarsal Joint, Percutaneous Endoscopic Approach	ICD-10-PCS
0SWJ0JZ	Revision of Synthetic Substitute in Left Tarsal Joint, Open Approach	ICD-10-PCS
0SWJ3JZ	Revision of Synthetic Substitute in Left Tarsal Joint, Percutaneous Approach	ICD-10-PCS
0SWJ4JZ	Revision of Synthetic Substitute in Left Tarsal Joint, Percutaneous Endoscopic Approach	ICD-10-PCS
0SWK0JZ	Revision of Synthetic Substitute in Right Metatarsal-Tarsal Joint, Open Approach	ICD-10-PCS
0SWK3JZ	Revision of Synthetic Substitute in Right Metatarsal-Tarsal Joint, Percutaneous Approach	ICD-10-PCS
0SWK4JZ	Revision of Synthetic Substitute in Right Metatarsal-Tarsal Joint, Percutaneous Endoscopic Approach	ICD-10-PCS
0SWL0JZ	Revision of Synthetic Substitute in Left Metatarsal-Tarsal Joint, Open Approach	ICD-10-PCS
0SWL3JZ	Revision of Synthetic Substitute in Left Metatarsal-Tarsal Joint, Percutaneous Approach	ICD-10-PCS
0SWL4JZ	Revision of Synthetic Substitute in Left Metatarsal-Tarsal Joint, Percutaneous Endoscopic Approach	ICD-10-PCS
0SWM0JZ	Revision of Synthetic Substitute in Right Metatarsal-Phalangeal Joint, Open Approach	ICD-10-PCS
0SWM3JZ	Revision of Synthetic Substitute in Right Metatarsal-Phalangeal Joint, Percutaneous Approach	ICD-10-PCS
0SWM4JZ	Revision of Synthetic Substitute in Right Metatarsal-Phalangeal Joint, Percutaneous Endoscopic Approach	ICD-10-PCS
0SWN0JZ	Revision of Synthetic Substitute in Left Metatarsal-Phalangeal Joint, Open Approach	ICD-10-PCS
0SWN3JZ	Revision of Synthetic Substitute in Left Metatarsal-Phalangeal Joint, Percutaneous Approach	ICD-10-PCS
0SWN4JZ	Revision of Synthetic Substitute in Left Metatarsal-Phalangeal Joint, Percutaneous Endoscopic Approach	ICD-10-PCS
0SWP0JZ	Revision of Synthetic Substitute in Right Toe Phalangeal Joint, Open Approach	ICD-10-PCS
0SWP3JZ	Revision of Synthetic Substitute in Right Toe Phalangeal Joint, Percutaneous Approach	ICD-10-PCS
0SWP4JZ	Revision of Synthetic Substitute in Right Toe Phalangeal Joint, Percutaneous Endoscopic Approach	ICD-10-PCS
0SWQ0JZ	Revision of Synthetic Substitute in Left Toe Phalangeal Joint, Open Approach	ICD-10-PCS
0SWQ3JZ	Revision of Synthetic Substitute in Left Toe Phalangeal Joint, Percutaneous Approach	ICD-10-PCS
0SWQ4JZ	Revision of Synthetic Substitute in Left Toe Phalangeal Joint, Percutaneous Endoscopic Approach	ICD-10-PCS
0SWR0JZ	Revision of Synthetic Substitute in Right Hip Joint, Femoral Surface, Open Approach	ICD-10-PCS
0SWR3JZ	Revision of Synthetic Substitute in Right Hip Joint, Femoral Surface, Percutaneous Approach	ICD-10-PCS

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

Code	Description	Code Type
0SWR4JZ	Revision of Synthetic Substitute in Right Hip Joint, Femoral Surface, Percutaneous Endoscopic Approach	ICD-10-PCS
0SWS0JZ	Revision of Synthetic Substitute in Left Hip Joint, Femoral Surface, Open Approach	ICD-10-PCS
0SWS3JZ	Revision of Synthetic Substitute in Left Hip Joint, Femoral Surface, Percutaneous Approach	ICD-10-PCS
0SWS4JZ	Revision of Synthetic Substitute in Left Hip Joint, Femoral Surface, Percutaneous Endoscopic Approach	ICD-10-PCS
0SWT0JZ	Revision of Synthetic Substitute in Right Knee Joint, Femoral Surface, Open Approach	ICD-10-PCS
0SWT3JZ	Revision of Synthetic Substitute in Right Knee Joint, Femoral Surface, Percutaneous Approach	ICD-10-PCS
0SWT4JZ	Revision of Synthetic Substitute in Right Knee Joint, Femoral Surface, Percutaneous Endoscopic Approach	ICD-10-PCS
0SWU0JZ	Revision of Synthetic Substitute in Left Knee Joint, Femoral Surface, Open Approach	ICD-10-PCS
0SWU3JZ	Revision of Synthetic Substitute in Left Knee Joint, Femoral Surface, Percutaneous Approach	ICD-10-PCS
0SWU4JZ	Revision of Synthetic Substitute in Left Knee Joint, Femoral Surface, Percutaneous Endoscopic Approach	ICD-10-PCS
0SWV0JZ	Revision of Synthetic Substitute in Right Knee Joint, Tibial Surface, Open Approach	ICD-10-PCS
0SWV3JZ	Revision of Synthetic Substitute in Right Knee Joint, Tibial Surface, Percutaneous Approach	ICD-10-PCS
0SWV4JZ	Revision of Synthetic Substitute in Right Knee Joint, Tibial Surface, Percutaneous Endoscopic Approach	ICD-10-PCS
0SWW0JZ	Revision of Synthetic Substitute in Left Knee Joint, Tibial Surface, Open Approach	ICD-10-PCS
0SWW3JZ	Revision of Synthetic Substitute in Left Knee Joint, Tibial Surface, Percutaneous Approach	ICD-10-PCS
0SWW4JZ	Revision of Synthetic Substitute in Left Knee Joint, Tibial Surface, Percutaneous Endoscopic Approach	ICD-10-PCS
	Kidney Replacement	
556	Transplant of kidney	ICD-9-CM
5561	Renal autotransplantation	ICD-9-CM
5569	Other kidney transplantation	ICD-9-CM
99681	Complications of transplanted kidney	ICD-9-CM
V420	Kidney replaced by transplant	ICD-9-CM
T86.10	Unspecified complication of kidney transplant	ICD-10-CM
T86.11	Kidney transplant rejection	ICD-10-CM
T86.12	Kidney transplant failure	ICD-10-CM
T86.13	Kidney transplant infection	ICD-10-CM
T86.19	Other complication of kidney transplant	ICD-10-CM
Z48.22	Encounter for aftercare following kidney transplant	ICD-10-CM
Z94.0	Kidney transplant status	ICD-10-CM
0TS00ZZ	Reposition Right Kidney, Open Approach	ICD-10-PCS
0TS10ZZ	Reposition Left Kidney, Open Approach	ICD-10-PCS
0TY00Z0	Transplantation of Right Kidney, Allogeneic, Open Approach	ICD-10-PCS
0TY00Z1	Transplantation of Right Kidney, Syngeneic, Open Approach	ICD-10-PCS
0TY00Z2	Transplantation of Right Kidney, Zooplastic, Open Approach	ICD-10-PCS
0TY10Z0	Transplantation of Left Kidney, Allogeneic, Open Approach	ICD-10-PCS
0TY10Z1	Transplantation of Left Kidney, Syngeneic, Open Approach	ICD-10-PCS
0TY10Z2	Transplantation of Left Kidney, Zooplastic, Open Approach	ICD-10-PCS
	Mitral Stenosis	
394.0	Mitral stenosis	ICD-9-CM
394.1	Rheumatic mitral insufficiency	ICD-9-CM
394.2	Mitral stenosis with insufficiency	ICD-9-CM
396.0	Mitral valve stenosis and aortic valve stenosis	ICD-9-CM

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

Code	Description	Code Type
396.1	Mitral valve stenosis and aortic valve insufficiency	ICD-9-CM
396.2	Mitral valve insufficiency and aortic valve stenosis	ICD-9-CM
396.3	Mitral valve insufficiency and aortic valve insufficiency	ICD-9-CM
746.5	Congenital mitral stenosis	ICD-9-CM
746.6	Congenital mitral insufficiency	ICD-9-CM
I05.0	Rheumatic mitral stenosis	ICD-10-CM
I05.1	Rheumatic mitral insufficiency	ICD-10-CM
I05.2	Rheumatic mitral stenosis with insufficiency	ICD-10-CM
I08.0	Rheumatic disorders of both mitral and aortic valves	ICD-10-CM
I08.3	Combined rheumatic disorders of mitral, aortic and tricuspid valves	ICD-10-CM
I34.2	Nonrheumatic mitral stenosis	ICD-10-CM
Q23.2	Congenital mitral stenosis	ICD-10-CM
Q23.3	Congenital mitral insufficiency	ICD-10-CM
027G04Z	Dilation of Mitral Valve with Drug-eluting Intraluminal Device, Open Approach	ICD-10-PCS
027G0DZ	Dilation of Mitral Valve with Intraluminal Device, Open Approach	ICD-10-PCS
027G0ZZ	Dilation of Mitral Valve, Open Approach	ICD-10-PCS
02NG0ZZ	Release Mitral Valve, Open Approach	ICD-10-PCS
02QG0ZZ	Repair Mitral Valve, Open Approach	ICD-10-PCS
02VG0ZZ	Restriction of Mitral Valve, Open Approach	ICD-10-PCS
	Pulmonary Embolism	
4151	Pulmonary embolism and infarction	ICD-9-CM
41511	Iatrogenic pulmonary embolism and infarction	ICD-9-CM
41512	Septic pulmonary embolism	ICD-9-CM
41519	Other pulmonary embolism and infarction	ICD-9-CM
I26.01	Septic pulmonary embolism with acute cor pulmonale	ICD-10-CM
I26.09	Other pulmonary embolism with acute cor pulmonale	ICD-10-CM
I26.90	Septic pulmonary embolism without acute cor pulmonale	ICD-10-CM
I26.99	Other pulmonary embolism without acute cor pulmonale	ICD-10-CM
T80.0XXA	Air embolism following infusion, transfusion and therapeutic injection, initial encounter	ICD-10-CM
T81.718A	Complication of other artery following a procedure, not elsewhere classified, initial encounter	ICD-10-CM
T81.72XA	Complication of vein following a procedure, not elsewhere classified, initial encounter	ICD-10-CM
T82.817A	Embolism due to cardiac prosthetic devices, implants and grafts, initial encounter	ICD-10-CM
T82.818A	Embolism due to vascular prosthetic devices, implants and grafts, initial encounter	ICD-10-CM
	Valve Repair	
33400	REPAIR OF AORTIC VALVE	CPT-4
33401	VALVULOPLASTY OPEN	CPT-4
33403	VALVULOPLASTY W/CP BYPASS	CPT-4
33420	REVISION OF MITRAL VALVE	CPT-4
33422	REVISION OF MITRAL VALVE	CPT-4
33425	REPAIR OF MITRAL VALVE	CPT-4
33426	REPAIR OF MITRAL VALVE	CPT-4
33427	REPAIR OF MITRAL VALVE	CPT-4

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

Code	Description	Code Type
33463	VALVULOPLASTY TRICUSPID	CPT-4
33464	VALVULOPLASTY TRICUSPID	CPT-4
33465	REPLACE TRICUSPID VALVE	CPT-4
33470	REVISION OF PULMONARY VALVE	CPT-4
33471	VALVOTOMY PULMONARY VALVE	CPT-4
33472	REVISION OF PULMONARY VALVE	CPT-4
33474	REVISION OF PULMONARY VALVE	CPT-4
92986	REVISION OF AORTIC VALVE	CPT-4
92987	REVISION OF MITRAL VALVE	CPT-4
92990	REVISION OF PULMONARY VALVE	CPT-4
	Valve Replacement	
V422	Heart valve replaced by transplant	ICD-9-CM
V433	Heart valve replaced by other means	ICD-9-CM
352	OPEN & OTHR REPLACEMENT HEART VALVE	ICD-9-CM
3520	OPEN & OTHER REPL UNS HEART VALVE	ICD-9-CM
3521	OPEN OTH REPL AORTIC VALVE TISS GFT	ICD-9-CM
3522	OPEN & OTHR REPLACEMNT AORTIC VALVE	ICD-9-CM
3523	OPN OTH REPL MITRL VALVE TISS GRAFT	ICD-9-CM
3524	OPEN & OTHER REPLCEMNT MITRAL VALVE	ICD-9-CM
3525	OPEN OTH REPL PULM VALVE TISS GRAFT	ICD-9-CM
3526	OPEN & OTHER REPL PULMONARY VALVE	ICD-9-CM
3527	OPEN & OTH REPL TV W/TISSUE GRAFT	ICD-9-CM
3528	OPEN & OTHER REPL TRICUSPD VALVE	ICD-9-CM
33405	REPLACEMENT OF AORTIC VALVE	CPT-4
33406	REPLACEMENT OF AORTIC VALVE	CPT-4
33410	REPLACEMENT OF AORTIC VALVE	CPT-4
33411	REPLACEMENT OF AORTIC VALVE	CPT-4
33412	REPLACEMENT OF AORTIC VALVE	CPT-4
33413	REPLACEMENT OF AORTIC VALVE	CPT-4
33430	REPLACEMENT OF MITRAL VALVE	CPT-4
33465	REPLACE TRICUSPID VALVE	CPT-4
33475	REPLACEMENT PULMONARY VALVE	CPT-4
33496	REPAIR PROSTH VALVE CLOT	CPT-4
Z95.2	Presence of prosthetic heart valve	ICD-10-CM
Z95.3	Presence of xenogenic heart valve	ICD-10-CM
Z95.4	Presence of other heart-valve replacement	ICD-10-CM
02RF07Z	Replacement of Aortic Valve with Autologous Tissue Substitute, Open Approach	ICD-10-PCS
02RF08Z	Replacement of Aortic Valve with Zooplastic Tissue, Open Approach	ICD-10-PCS
02RF0JZ	Replacement of Aortic Valve with Synthetic Substitute, Open Approach	ICD-10-PCS
02RF0KZ	Replacement of Aortic Valve with Nonautologous Tissue Substitute, Open Approach	ICD-10-PCS
02RF47Z	Replacement of Aortic Valve with Autologous Tissue Substitute, Percutaneous Endoscopic Approach	ICD-10-PCS
02RF48Z	Replacement of Aortic Valve with Zooplastic Tissue, Percutaneous Endoscopic Approach	ICD-10-PCS

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

Code	Description	Code Type
02RF4JZ	Replacement of Aortic Valve with Synthetic Substitute, Percutaneous Endoscopic Approach	ICD-10-PCS
02RF4KZ	Replacement of Aortic Valve with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	ICD-10-PCS
02RG07Z	Replacement of Mitral Valve with Autologous Tissue Substitute, Open Approach	ICD-10-PCS
02RG08Z	Replacement of Mitral Valve with Zooplastic Tissue, Open Approach	ICD-10-PCS
02RG0JZ	Replacement of Mitral Valve with Synthetic Substitute, Open Approach	ICD-10-PCS
02RG0KZ	Replacement of Mitral Valve with Nonautologous Tissue Substitute, Open Approach	ICD-10-PCS
02RG37Z	Replacement of Mitral Valve with Autologous Tissue Substitute, Percutaneous Approach	ICD-10-PCS
02RG38Z	Replacement of Mitral Valve with Zooplastic Tissue, Percutaneous Approach	ICD-10-PCS
02RG3JZ	Replacement of Mitral Valve with Synthetic Substitute, Percutaneous Approach	ICD-10-PCS
02RG3KZ	Replacement of Mitral Valve with Nonautologous Tissue Substitute, Percutaneous Approach	ICD-10-PCS
02RG47Z	Replacement of Mitral Valve with Autologous Tissue Substitute, Percutaneous Endoscopic Approach	ICD-10-PCS
02RG48Z	Replacement of Mitral Valve with Zooplastic Tissue, Percutaneous Endoscopic Approach	ICD-10-PCS
02RG4JZ	Replacement of Mitral Valve with Synthetic Substitute, Percutaneous Endoscopic Approach	ICD-10-PCS
02RG4KZ	Replacement of Mitral Valve with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	ICD-10-PCS
02RH07Z	Replacement of Pulmonary Valve with Autologous Tissue Substitute, Open Approach	ICD-10-PCS
02RH08Z	Replacement of Pulmonary Valve with Zooplastic Tissue, Open Approach	ICD-10-PCS
02RH0JZ	Replacement of Pulmonary Valve with Synthetic Substitute, Open Approach	ICD-10-PCS
02RH0KZ	Replacement of Pulmonary Valve with Nonautologous Tissue Substitute, Open Approach	ICD-10-PCS
02RH47Z	Replacement of Pulmonary Valve with Autologous Tissue Substitute, Percutaneous Endoscopic Approach	ICD-10-PCS
02RH48Z	Replacement of Pulmonary Valve with Zooplastic Tissue, Percutaneous Endoscopic Approach	ICD-10-PCS
02RH4JZ	Replacement of Pulmonary Valve with Synthetic Substitute, Percutaneous Endoscopic Approach	ICD-10-PCS
02RH4KZ	Replacement of Pulmonary Valve with Nonautologous Tissue Substitute, Percutaneous Endoscopic	ICD-10-PCS
02RJ07Z	Replacement of Tricuspid Valve with Autologous Tissue Substitute, Open Approach	ICD-10-PCS
02RJ08Z	Replacement of Tricuspid Valve with Zooplastic Tissue, Open Approach	ICD-10-PCS
02RJ0JZ	Replacement of Tricuspid Valve with Synthetic Substitute, Open Approach	ICD-10-PCS
02RJ0KZ	Replacement of Tricuspid Valve with Nonautologous Tissue Substitute, Open Approach	ICD-10-PCS
02RJ47Z	Replacement of Tricuspid Valve with Autologous Tissue Substitute, Percutaneous Endoscopic Approach	ICD-10-PCS
02RJ48Z	Replacement of Tricuspid Valve with Zooplastic Tissue, Percutaneous Endoscopic Approach	ICD-10-PCS
02RJ4JZ	Replacement of Tricuspid Valve with Synthetic Substitute, Percutaneous Endoscopic Approach	ICD-10-PCS
02RJ4KZ	Replacement of Tricuspid Valve with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	ICD-10-PCS
X2RF032	Replacement of Aortic Valve using Zooplastic Tissue, Rapid Deployment Technique, Open Approach, New Technology Group 2	ICD-10-PCS
X2RF432	Replacement of Aortic Valve using Zooplastic Tissue, Rapid Deployment Technique, Percutaneous Endoscopic Approach, New Technology Group 2	ICD-10-PCS

Appendix F. 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 Characteristics in this Request

Code	Description	Code Type
	Gastrointestinal Hemorrhage (inpatient care setting in primary diagnosis position)	
455.2	Internal hemorrhoids with other complication	ICD-9-CM
455.5	External hemorrhoids with other complication	ICD-9-CM
456.0	Esophageal varices with bleeding	ICD-9-CM
456.20	Esophageal varices with bleeding in diseases classified elsewhere	ICD-9-CM
530.7	Gastroesophageal laceration-hemorrhage syndrome	ICD-9-CM
530.82	Esophageal hemorrhage	ICD-9-CM
531.0	Acute gastric ulcer with hemorrhage	ICD-9-CM
531.00	Acute gastric ulcer with hemorrhage, without mention of obstruction	ICD-9-CM
531.01	Acute gastric ulcer with hemorrhage and obstruction	ICD-9-CM
531.1	Acute gastric ulcer with perforation	ICD-9-CM
531.10	Acute gastric ulcer with perforation, without mention of obstruction	ICD-9-CM
531.11	Acute gastric ulcer with perforation and obstruction	ICD-9-CM
531.2	Acute gastric ulcer with hemorrhage and perforation	ICD-9-CM
531.20	Acute gastric ulcer with hemorrhage and perforation, without mention of obstruction	ICD-9-CM
531.21	Acute gastric ulcer with hemorrhage, perforation, and obstruction	ICD-9-CM
531.3	Acute gastric ulcer without mention of hemorrhage or perforation	ICD-9-CM
531.30	Acute gastric ulcer without mention of hemorrhage, perforation, or obstruction	ICD-9-CM
531.31	Acute gastric ulcer without mention of hemorrhage or perforation, with obstruction	ICD-9-CM
531.4	Chronic or unspecified gastric ulcer with hemorrhage	ICD-9-CM
531.40	Chronic or unspecified gastric ulcer with hemorrhage, without mention of obstruction	ICD-9-CM
531.41	Chronic or unspecified gastric ulcer with hemorrhage and obstruction	ICD-9-CM
531.5	Chronic or unspecified gastric ulcer with perforation	ICD-9-CM
531.50	Chronic or unspecified gastric ulcer with perforation, without mention of obstruction	ICD-9-CM
531.51	Chronic or unspecified gastric ulcer with perforation and obstruction	ICD-9-CM
531.6	Chronic or unspecified gastric ulcer with hemorrhage and perforation	ICD-9-CM
531.60	Chronic or unspecified gastric ulcer with hemorrhage and perforation, without mention of obstruction	ICD-9-CM
531.61	Chronic or unspecified gastric ulcer with hemorrhage, perforation, and obstruction	ICD-9-CM
532.0	Acute duodenal ulcer with hemorrhage	ICD-9-CM
532.00	Acute duodenal ulcer with hemorrhage, without mention of obstruction	ICD-9-CM
532.01	Acute duodenal ulcer with hemorrhage and obstruction	ICD-9-CM
532.1	Acute duodenal ulcer with perforation	ICD-9-CM
532.10	Acute duodenal ulcer with perforation, without mention of obstruction	ICD-9-CM
532.11	Acute duodenal ulcer with perforation and obstruction	ICD-9-CM
532.2	Acute duodenal ulcer with hemorrhage and perforation	ICD-9-CM
532.20	Acute duodenal ulcer with hemorrhage and perforation, without mention of obstruction	ICD-9-CM
532.21	Acute duodenal ulcer with hemorrhage, perforation, and obstruction	ICD-9-CM
532.3	Acute duodenal ulcer without mention of hemorrhage or perforation	ICD-9-CM
532.30	Acute duodenal ulcer without mention of hemorrhage, perforation, or obstruction	ICD-9-CM
532.31	Acute duodenal ulcer without mention of hemorrhage or perforation, with obstruction	ICD-9-CM
532.4	Chronic or unspecified duodenal ulcer with hemorrhage	ICD-9-CM
532.40	Duodenal ulcer, chronic or unspecified, with hemorrhage, without mention of obstruction	ICD-9-CM
532.41	Chronic or unspecified duodenal ulcer with hemorrhage and obstruction	ICD-9-CM

Appendix F. 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 Characteristics in this Request

Code	Description	Code Type
532.5	Chronic or unspecified duodenal ulcer with perforation	ICD-9-CM
532.50	Chronic or unspecified duodenal ulcer with perforation, without mention of obstruction	ICD-9-CM
532.51	Chronic or unspecified duodenal ulcer with perforation and obstruction	ICD-9-CM
532.6	Chronic or unspecified duodenal ulcer with hemorrhage and perforation	ICD-9-CM
532.60	Chronic or unspecified duodenal ulcer with hemorrhage and perforation, without mention of obstruction	ICD-9-CM
532.61	Chronic or unspecified duodenal ulcer with hemorrhage, perforation, and obstruction	ICD-9-CM
533.0	Acute peptic ulcer, unspecified site, with hemorrhage	ICD-9-CM
533.00	Acute peptic ulcer, unspecified site, with hemorrhage, without mention of obstruction	ICD-9-CM
533.01	Acute peptic ulcer, unspecified site, with hemorrhage and obstruction	ICD-9-CM
533.1	Acute peptic ulcer, unspecified site, with perforation	ICD-9-CM
533.10	Acute peptic ulcer, unspecified site, with perforation, without mention of obstruction	ICD-9-CM
533.11	Acute peptic ulcer, unspecified site, with perforation and obstruction	ICD-9-CM
533.2	Acute peptic ulcer, unspecified site, with hemorrhage and perforation	ICD-9-CM
533.20	Acute peptic ulcer, unspecified site, with hemorrhage and perforation, without mention of obstruction	ICD-9-CM
533.21	Acute peptic ulcer, unspecified site, with hemorrhage, perforation, and obstruction	ICD-9-CM
533.3	Acute peptic ulcer, unspecified site, without mention of hemorrhage and perforation	ICD-9-CM
533.30	Acute peptic ulcer, unspecified site, without mention of hemorrhage, perforation, or obstruction	ICD-9-CM
533.31	Acute peptic ulcer, unspecified site, without mention of hemorrhage and perforation, with obstruction	ICD-9-CM
533.4	Chronic or unspecified peptic ulcer, unspecified site, with hemorrhage	ICD-9-CM
533.40	Chronic or unspecified peptic ulcer, unspecified site, with hemorrhage, without mention of obstruction	ICD-9-CM
533.41	Chronic or unspecified peptic ulcer, unspecified site, with hemorrhage and obstruction	ICD-9-CM
533.5	Chronic or unspecified peptic ulcer, unspecified site, with perforation	ICD-9-CM
533.50	Chronic or unspecified peptic ulcer, unspecified site, with perforation, without mention of obstruction	ICD-9-CM
533.51	Chronic or unspecified peptic ulcer, unspecified site, with perforation and obstruction	ICD-9-CM
533.6	Chronic or unspecified peptic ulcer, unspecified site, with hemorrhage and perforation	ICD-9-CM
533.60	Chronic or unspecified peptic ulcer, unspecified site, with hemorrhage and perforation, without mention of obstruction	ICD-9-CM
533.61	Chronic or unspecified peptic ulcer, unspecified site, with hemorrhage, perforation, and obstruction	ICD-9-CM
534.0	Acute gastrojejunal ulcer with hemorrhage	ICD-9-CM
534.00	Acute gastrojejunal ulcer with hemorrhage, without mention of obstruction	ICD-9-CM
534.01	Acute gastrojejunal ulcer, with hemorrhage and obstruction	ICD-9-CM
534.1	Acute gastrojejunal ulcer with perforation	ICD-9-CM
534.10	Acute gastrojejunal ulcer with perforation, without mention of obstruction	ICD-9-CM
534.11	Acute gastrojejunal ulcer with perforation and obstruction	ICD-9-CM
534.2	Acute gastrojejunal ulcer with hemorrhage and perforation	ICD-9-CM
534.20	Acute gastrojejunal ulcer with hemorrhage and perforation, without mention of obstruction	ICD-9-CM
534.21	Acute gastrojejunal ulcer with hemorrhage, perforation, and obstruction	ICD-9-CM
534.3	Acute gastrojejunal ulcer without mention of hemorrhage or perforation	ICD-9-CM
534.30	Acute gastrojejunal ulcer without mention of hemorrhage, perforation, or obstruction	ICD-9-CM
534.31	Acute gastrojejunal ulcer without mention of hemorrhage or perforation, with obstruction	ICD-9-CM
534.4	Chronic or unspecified gastrojejunal ulcer with hemorrhage	ICD-9-CM
534.40	Chronic or unspecified gastrojejunal ulcer with hemorrhage, without mention of obstruction	ICD-9-CM
534.41	Chronic or unspecified gastrojejunal ulcer, with hemorrhage and obstruction	ICD-9-CM

Appendix F. 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 Characteristics in this Request

Code	Description	Code Type
534.5	Chronic or unspecified gastrojejunal ulcer with perforation	ICD-9-CM
534.50	Chronic or unspecified gastrojejunal ulcer with perforation, without mention of obstruction	ICD-9-CM
534.51	Chronic or unspecified gastrojejunal ulcer with perforation and obstruction	ICD-9-CM
534.6	Chronic or unspecified gastrojejunal ulcer with hemorrhage and perforation	ICD-9-CM
534.60	Chronic or unspecified gastrojejunal ulcer with hemorrhage and perforation, without mention of	ICD-9-CM
534.61	Chronic or unspecified gastrojejunal ulcer with hemorrhage, perforation, and obstruction	ICD-9-CM
535.01	Acute gastritis with hemorrhage	ICD-9-CM
535.11	Atrophic gastritis with hemorrhage	ICD-9-CM
535.21	Gastric mucosal hypertrophy with hemorrhage	ICD-9-CM
535.31	Alcoholic gastritis with hemorrhage	ICD-9-CM
535.41	Other specified gastritis with hemorrhage	ICD-9-CM
535.51	Unspecified gastritis and gastroduodenitis with hemorrhage	ICD-9-CM
535.61	Duodenitis with hemorrhage	ICD-9-CM
537.83	Angiodysplasia of stomach and duodenum with hemorrhage	ICD-9-CM
562.02	Diverticulosis of small intestine with hemorrhage	ICD-9-CM
562.03	Diverticulitis of small intestine with hemorrhage	ICD-9-CM
562.12	Diverticulosis of colon with hemorrhage	ICD-9-CM
562.13	Diverticulitis of colon with hemorrhage	ICD-9-CM
568.81	Hemoperitoneum (nontraumatic)	ICD-9-CM
569.3	Hemorrhage of rectum and anus	ICD-9-CM
569.85	Angiodysplasia of intestine with hemorrhage	ICD-9-CM
578.0	Hematemesis	ICD-9-CM
578.1	Blood in stool	ICD-9-CM
578.9	Hemorrhage of gastrointestinal tract, unspecified	ICD-9-CM
I85.01	Esophageal varices with bleeding	ICD-10-CM
I85.11	Secondary esophageal varices with bleeding	ICD-10-CM
K22.6	Gastro-esophageal laceration-hemorrhage syndrome	ICD-10-CM
K22.8	Other specified diseases of esophagus	ICD-10-CM
K25.0	Acute gastric ulcer with hemorrhage	ICD-10-CM
K25.1	Acute gastric ulcer with perforation	ICD-10-CM
K25.2	Acute gastric ulcer with both hemorrhage and perforation	ICD-10-CM
K25.3	Acute gastric ulcer without hemorrhage or perforation	ICD-10-CM
K25.4	Chronic or unspecified gastric ulcer with hemorrhage	ICD-10-CM
K25.5	Chronic or unspecified gastric ulcer with perforation	ICD-10-CM
K25.6	Chronic or unspecified gastric ulcer with both hemorrhage and perforation	ICD-10-CM
K26.0	Acute duodenal ulcer with hemorrhage	ICD-10-CM
K26.1	Acute duodenal ulcer with perforation	ICD-10-CM
K26.2	Acute duodenal ulcer with both hemorrhage and perforation	ICD-10-CM
K26.3	Acute duodenal ulcer without hemorrhage or perforation	ICD-10-CM
K26.4	Chronic or unspecified duodenal ulcer with hemorrhage	ICD-10-CM
K26.5	Chronic or unspecified duodenal ulcer with perforation	ICD-10-CM
K26.6	Chronic or unspecified duodenal ulcer with both hemorrhage and perforation	ICD-10-CM
K27.0	Acute peptic ulcer, site unspecified, with hemorrhage	ICD-10-CM

Appendix F. 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 Characteristics in this Request

Code	Description	Code Type
K27.1	Acute peptic ulcer, site unspecified, with perforation	ICD-10-CM
K27.2	Acute peptic ulcer, site unspecified, with both hemorrhage and perforation	ICD-10-CM
K27.3	Acute peptic ulcer, site unspecified, without hemorrhage or perforation	ICD-10-CM
K27.4	Chronic or unspecified peptic ulcer, site unspecified, with hemorrhage	ICD-10-CM
K27.5	Chronic or unspecified peptic ulcer, site unspecified, with perforation	ICD-10-CM
K27.6	Chronic or unspecified peptic ulcer, site unspecified, with both hemorrhage and perforation	ICD-10-CM
K28.0	Acute gastrojejunal ulcer with hemorrhage	ICD-10-CM
K28.1	Acute gastrojejunal ulcer with perforation	ICD-10-CM
K28.2	Acute gastrojejunal ulcer with both hemorrhage and perforation	ICD-10-CM
K28.3	Acute gastrojejunal ulcer without hemorrhage or perforation	ICD-10-CM
K28.4	Chronic or unspecified gastrojejunal ulcer with hemorrhage	ICD-10-CM
K28.5	Chronic or unspecified gastrojejunal ulcer with perforation	ICD-10-CM
K28.6	Chronic or unspecified gastrojejunal ulcer with both hemorrhage and perforation	ICD-10-CM
K29.01	Acute gastritis with bleeding	ICD-10-CM
K29.21	Alcoholic gastritis with bleeding	ICD-10-CM
K29.31	Chronic superficial gastritis with bleeding	ICD-10-CM
K29.41	Chronic atrophic gastritis with bleeding	ICD-10-CM
K29.51	Unspecified chronic gastritis with bleeding	ICD-10-CM
K29.61	Other gastritis with bleeding	ICD-10-CM
K29.71	Gastritis, unspecified, with bleeding	ICD-10-CM
K29.81	Duodenitis with bleeding	ICD-10-CM
K29.91	Gastroduodenitis, unspecified, with bleeding	ICD-10-CM
K31.811	Angiodysplasia of stomach and duodenum with bleeding	ICD-10-CM
K55.21	Angiodysplasia of colon with hemorrhage	ICD-10-CM
K56.60	Unspecified intestinal obstruction	ICD-10-CM
K57.01	Diverticulitis of small intestine with perforation and abscess with bleeding	ICD-10-CM
K57.11	Diverticulosis of small intestine without perforation or abscess with bleeding	ICD-10-CM
K57.13	Diverticulitis of small intestine without perforation or abscess with bleeding	ICD-10-CM
K57.21	Diverticulitis of large intestine with perforation and abscess with bleeding	ICD-10-CM
K57.31	Diverticulosis of large intestine without perforation or abscess with bleeding	ICD-10-CM
K57.33	Diverticulitis of large intestine without perforation or abscess with bleeding	ICD-10-CM
K57.41	Diverticulitis of both small and large intestine with perforation and abscess with bleeding	ICD-10-CM
K57.51	Diverticulosis of both small and large intestine without perforation or abscess with bleeding	ICD-10-CM
K57.53	Diverticulitis of both small and large intestine without perforation or abscess with bleeding	ICD-10-CM
K57.81	Diverticulitis of intestine, part unspecified, with perforation and abscess with bleeding	ICD-10-CM
K57.91	Diverticulosis of intestine, part unspecified, without perforation or abscess with bleeding	ICD-10-CM
K57.93	Diverticulitis of intestine, part unspecified, without perforation or abscess with bleeding	ICD-10-CM
K62.5	Hemorrhage of anus and rectum	ICD-10-CM
K66.1	Hemoperitoneum	ICD-10-CM
K92.0	Hematemesis	ICD-10-CM
K92.1	Melena	ICD-10-CM
K92.2	Gastrointestinal hemorrhage, unspecified	ICD-10-CM

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Appendix F. 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 Characteristics in this Request

Code	Description	Code Type
	Intracranial Hemorrhage (inpatient care setting in primary or secondary diagnosis position)	
430	Subarachnoid hemorrhage	ICD-9-CM
431	Intracerebral hemorrhage	ICD-9-CM
432	Other and unspecified intracranial hemorrhage	ICD-9-CM
432.0	Nontraumatic extradural hemorrhage	ICD-9-CM
432.1	Subdural hemorrhage	ICD-9-CM
432.9	Unspecified intracranial hemorrhage	ICD-9-CM
852.0	Subarachnoid hemorrhage following injury without mention of open intracranial wound	ICD-9-CM
852.00	Subarachnoid hemorrhage following injury, without mention of open intracranial wound, unspecified state of consciousness	ICD-9-CM
852.01	Subarachnoid hemorrhage following injury, without mention of open intracranial wound, no loss of consciousness	ICD-9-CM
852.02	Subarachnoid hemorrhage following injury, without mention of open intracranial wound, brief (less than 1 hour) loss of consciousness	ICD-9-CM
852.03	Subarachnoid hemorrhage following injury, without mention of open intracranial wound, moderate (1-24 hours) loss of consciousness	ICD-9-CM
852.04	Subarachnoid hemorrhage following injury, without mention of open intracranial wound, prolonged (more than 24 hours) loss of consciousness and return to pre-existing conscious level	ICD-9-CM
852.05	Subarachnoid hemorrhage following injury, without mention of open intracranial wound, prolonged (more than 24 hours) loss of consciousness, without return to pre-existing conscious level	ICD-9-CM
852.06	Subarachnoid hemorrhage following injury, without mention of open intracranial wound, loss of consciousness of unspecified duration	ICD-9-CM
852.09	Subarachnoid hemorrhage following injury, without mention of open intracranial wound, unspecified concussion	ICD-9-CM
852.2	Subdural hemorrhage following injury without mention of open intracranial wound	ICD-9-CM
852.20	Subdural hemorrhage following injury, without mention of open intracranial wound, unspecified state of consciousness	ICD-9-CM
852.21	Subdural hemorrhage following injury, without mention of open intracranial wound, no loss of consciousness	ICD-9-CM
852.22	Subdural hemorrhage following injury, without mention of open intracranial wound, brief (less than one hour) loss of consciousness	ICD-9-CM
852.23	Subdural hemorrhage following injury, without mention of open intracranial wound, moderate (1-24 hours) loss of consciousness	ICD-9-CM
852.24	Subdural hemorrhage following injury, without mention of open intracranial wound, prolonged (more than 24 hours) loss of consciousness and return to pre-existing conscious level	ICD-9-CM
852.25	Subdural hemorrhage following injury, without mention of open intracranial wound, prolonged (more than 24 hours) loss of consciousness, without return to pre-existing conscious level	ICD-9-CM
852.26	Subdural hemorrhage following injury, without mention of open intracranial wound, loss of consciousness of unspecified duration	ICD-9-CM
852.29	Subdural hemorrhage following injury, without mention of open intracranial wound, unspecified concussion	ICD-9-CM
852.4	Extradural hemorrhage following injury without mention of open intracranial wound	ICD-9-CM

Appendix F. 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 Characteristics in this Request

Code	Description	Code Type
852.40	Extradural hemorrhage following injury, without mention of open intracranial wound, unspecified state of consciousness	ICD-9-CM
852.41	Extradural hemorrhage following injury, without mention of open intracranial wound, no loss of consciousness	ICD-9-CM
852.42	Extradural hemorrhage following injury, without mention of open intracranial wound, brief (less than 1 hour) loss of consciousness	ICD-9-CM
852.43	Extradural hemorrhage following injury, without mention of open intracranial wound, moderate (1-24 hours) loss of consciousness	ICD-9-CM
852.44	Extradural hemorrhage following injury, without mention of open intracranial wound, prolonged (more than 24 hours) loss of consciousness and return to pre-existing conscious level	ICD-9-CM
852.45	Extradural hemorrhage following injury, without mention of open intracranial wound, prolonged (more than 24 hours) loss of consciousness, without return to pre-existing conscious level	ICD-9-CM
852.46	Extradural hemorrhage following injury, without mention of open intracranial wound, loss of consciousness of unspecified duration	ICD-9-CM
852.49	Extradural hemorrhage following injury, without mention of open intracranial wound, unspecified concussion	ICD-9-CM
853.0	Other and unspecified intracranial hemorrhage following injury, without mention of open intracranial wound	ICD-9-CM
853.00	Other and unspecified intracranial hemorrhage following injury, without mention of open intracranial wound, unspecified state of consciousness	ICD-9-CM
853.01	Other and unspecified intracranial hemorrhage following injury, without mention of open intracranial wound, no loss of consciousness	ICD-9-CM
853.02	Other and unspecified intracranial hemorrhage following injury, without mention of open intracranial wound, brief (less than 1 hour) loss of consciousness	ICD-9-CM
853.03	Other and unspecified intracranial hemorrhage following injury, without mention of open intracranial wound, moderate (1-24 hours) loss of consciousness	ICD-9-CM
853.04	Other and unspecified intracranial hemorrhage following injury, without mention of open intracranial wound, prolonged (more than 24 hours) loss of consciousness and return to preexisting conscious level	ICD-9-CM
853.05	Other and unspecified intracranial hemorrhage following injury. Without mention of open intracranial wound, prolonged (more than 24 hours) loss of consciousness, without return to pre-existing conscious level	ICD-9-CM
853.06	Other and unspecified intracranial hemorrhage following injury, without mention of open intracranial wound, loss of consciousness of unspecified duration	ICD-9-CM
853.09	Other and unspecified intracranial hemorrhage following injury, without mention of open intracranial wound, unspecified concussion	ICD-9-CM
I60.00	Nontraumatic subarachnoid hemorrhage from unspecified carotid siphon and bifurcation	ICD-10-CM
I60.01	Nontraumatic subarachnoid hemorrhage from right carotid siphon and bifurcation	ICD-10-CM
I60.02	Nontraumatic subarachnoid hemorrhage from left carotid siphon and bifurcation	ICD-10-CM
I60.10	Nontraumatic subarachnoid hemorrhage from unspecified middle cerebral artery	ICD-10-CM
I60.11	Nontraumatic subarachnoid hemorrhage from right middle cerebral artery	ICD-10-CM
I60.12	Nontraumatic subarachnoid hemorrhage from left middle cerebral artery	ICD-10-CM
I60.2	Nontraumatic subarachnoid hemorrhage from anterior communicating artery	ICD-10-CM

Appendix F. 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 Characteristics in this Request

Code	Description	Code Type
I60.30	Nontraumatic subarachnoid hemorrhage from unspecified posterior communicating artery	ICD-10-CM
I60.31	Nontraumatic subarachnoid hemorrhage from right posterior communicating artery	ICD-10-CM
I60.32	Nontraumatic subarachnoid hemorrhage from left posterior communicating artery	ICD-10-CM
I60.4	Nontraumatic subarachnoid hemorrhage from basilar artery	ICD-10-CM
I60.50	Nontraumatic subarachnoid hemorrhage from unspecified vertebral artery	ICD-10-CM
I60.51	Nontraumatic subarachnoid hemorrhage from right vertebral artery	ICD-10-CM
I60.52	Nontraumatic subarachnoid hemorrhage from left vertebral artery	ICD-10-CM
I60.6	Nontraumatic subarachnoid hemorrhage from other intracranial arteries	ICD-10-CM
I60.7	Nontraumatic subarachnoid hemorrhage from unspecified intracranial artery	ICD-10-CM
I60.8	Other nontraumatic subarachnoid hemorrhage	ICD-10-CM
I60.9	Nontraumatic subarachnoid hemorrhage, unspecified	ICD-10-CM
I61.0	Nontraumatic intracerebral hemorrhage in hemisphere, subcortical	ICD-10-CM
I61.1	Nontraumatic intracerebral hemorrhage in hemisphere, cortical	ICD-10-CM
I61.2	Nontraumatic intracerebral hemorrhage in hemisphere, unspecified	ICD-10-CM
I61.3	Nontraumatic intracerebral hemorrhage in brain stem	ICD-10-CM
I61.4	Nontraumatic intracerebral hemorrhage in cerebellum	ICD-10-CM
I61.5	Nontraumatic intracerebral hemorrhage, intraventricular	ICD-10-CM
I61.6	Nontraumatic intracerebral hemorrhage, multiple localized	ICD-10-CM
I61.8	Other nontraumatic intracerebral hemorrhage	ICD-10-CM
I61.9	Nontraumatic intracerebral hemorrhage, unspecified	ICD-10-CM
I62.00	Nontraumatic subdural hemorrhage, unspecified	ICD-10-CM
I62.01	Nontraumatic acute subdural hemorrhage	ICD-10-CM
I62.02	Nontraumatic subacute subdural hemorrhage	ICD-10-CM
I62.03	Nontraumatic chronic subdural hemorrhage	ICD-10-CM
I62.1	Nontraumatic extradural hemorrhage	ICD-10-CM
I62.9	Nontraumatic intracranial hemorrhage, unspecified	ICD-10-CM
S06.340A	Traumatic hemorrhage of right cerebrum without loss of consciousness, initial encounter	ICD-10-CM
S06.341A	Traumatic hemorrhage of right cerebrum with loss of consciousness of 30 minutes or less, initial encounter	ICD-10-CM
S06.342A	Traumatic hemorrhage of right cerebrum with loss of consciousness of 31 minutes to 59 minutes, initial encounter	ICD-10-CM
S06.343A	Traumatic hemorrhage of right cerebrum with loss of consciousness of 1 hours to 5 hours 59 minutes, initial encounter	ICD-10-CM
S06.344A	Traumatic hemorrhage of right cerebrum with loss of consciousness of 6 hours to 24 hours, initial	ICD-10-CM
S06.345A	Traumatic hemorrhage of right cerebrum with loss of consciousness greater than 24 hours with return to pre-existing conscious level, initial encounter	ICD-10-CM
S06.346A	Traumatic hemorrhage of right cerebrum with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, initial encounter	ICD-10-CM
S06.347A	Traumatic hemorrhage of right cerebrum with loss of consciousness of any duration with death due to brain injury prior to regaining consciousness, initial encounter	ICD-10-CM
S06.348A	Traumatic hemorrhage of right cerebrum with loss of consciousness of any duration with death due to other cause prior to regaining consciousness, initial encounter	ICD-10-CM
S06.349A	Traumatic hemorrhage of right cerebrum with loss of consciousness of unspecified duration, initial encounter	ICD-10-CM

Appendix F. 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 Characteristics in this Request

Code	Description	Code Type
S06.350A	Traumatic hemorrhage of left cerebrum without loss of consciousness, initial encounter	ICD-10-CM
S06.351A	Traumatic hemorrhage of left cerebrum with loss of consciousness of 30 minutes or less, initial encounter	ICD-10-CM
S06.352A	Traumatic hemorrhage of left cerebrum with loss of consciousness of 31 minutes to 59 minutes, initial encounter	ICD-10-CM
S06.353A	Traumatic hemorrhage of left cerebrum with loss of consciousness of 1 hours to 5 hours 59 minutes, initial encounter	ICD-10-CM
S06.354A	Traumatic hemorrhage of left cerebrum with loss of consciousness of 6 hours to 24 hours, initial encounter	ICD-10-CM
S06.355A	Traumatic hemorrhage of left cerebrum with loss of consciousness greater than 24 hours with return to pre-existing conscious level, initial encounter	ICD-10-CM
S06.356A	Traumatic hemorrhage of left cerebrum with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, initial encounter	ICD-10-CM
S06.357A	Traumatic hemorrhage of left cerebrum with loss of consciousness of any duration with death due to brain injury prior to regaining consciousness, initial encounter	ICD-10-CM
S06.358A	Traumatic hemorrhage of left cerebrum with loss of consciousness of any duration with death due to other cause prior to regaining consciousness, initial encounter	ICD-10-CM
S06.359A	Traumatic hemorrhage of left cerebrum with loss of consciousness of unspecified duration, initial	ICD-10-CM
S06.360A	Traumatic hemorrhage of cerebrum, unspecified, without loss of consciousness, initial encounter	ICD-10-CM
S06.361A	Traumatic hemorrhage of cerebrum, unspecified, with loss of consciousness of 30 minutes or less, initial encounter	ICD-10-CM
S06.362A	Traumatic hemorrhage of cerebrum, unspecified, with loss of consciousness of 31 minutes to 59 minutes, initial encounter	ICD-10-CM
S06.363A	Traumatic hemorrhage of cerebrum, unspecified, with loss of consciousness of 1 hours to 5 hours 59 minutes, initial encounter	ICD-10-CM
S06.364A	Traumatic hemorrhage of cerebrum, unspecified, with loss of consciousness of 6 hours to 24 hours, initial encounter	ICD-10-CM
S06.365A	Traumatic hemorrhage of cerebrum, unspecified, with loss of consciousness greater than 24 hours with return to pre-existing conscious level, initial encounter	ICD-10-CM
S06.366A	Traumatic hemorrhage of cerebrum, unspecified, with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, initial encounter	ICD-10-CM
S06.367A	Traumatic hemorrhage of cerebrum, unspecified, with loss of consciousness of any duration with death due to brain injury prior to regaining consciousness, initial encounter	ICD-10-CM
S06.368A	Traumatic hemorrhage of cerebrum, unspecified, with loss of consciousness of any duration with death due to other cause prior to regaining consciousness, initial encounter	ICD-10-CM
S06.369A	Traumatic hemorrhage of cerebrum, unspecified, with loss of consciousness of unspecified duration, initial encounter	ICD-10-CM
S06.4X0A	Epidural hemorrhage without loss of consciousness, initial encounter	ICD-10-CM
S06.4X1A	Epidural hemorrhage with loss of consciousness of 30 minutes or less, initial encounter	ICD-10-CM
S06.4X2A	Epidural hemorrhage with loss of consciousness of 31 minutes to 59 minutes, initial encounter	ICD-10-CM
S06.4X3A	Epidural hemorrhage with loss of consciousness of 1 hour to 5 hours 59 minutes, initial encounter	ICD-10-CM
S06.4X4A	Epidural hemorrhage with loss of consciousness of 6 hours to 24 hours, initial encounter	ICD-10-CM
S06.4X5A	Epidural hemorrhage with loss of consciousness greater than 24 hours with return to pre-existing conscious level, initial encounter	ICD-10-CM

Appendix F. 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 Characteristics in this Request

Code	Description	Code Type
S06.4X6A	Epidural hemorrhage with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, initial encounter	ICD-10-CM
S06.4X7A	Epidural hemorrhage with loss of consciousness of any duration with death due to brain injury prior to regaining consciousness, initial encounter	ICD-10-CM
S06.4X8A	Epidural hemorrhage with loss of consciousness of any duration with death due to other causes prior to regaining consciousness, initial encounter	ICD-10-CM
S06.4X9A	Epidural hemorrhage with loss of consciousness of unspecified duration, initial encounter	ICD-10-CM
S06.5X0A	Traumatic subdural hemorrhage without loss of consciousness, initial encounter	ICD-10-CM
S06.5X1A	Traumatic subdural hemorrhage with loss of consciousness of 30 minutes or less, initial encounter	ICD-10-CM
S06.5X2A	Traumatic subdural hemorrhage with loss of consciousness of 31 minutes to 59 minutes, initial encounter	ICD-10-CM
S06.5X3A	Traumatic subdural hemorrhage with loss of consciousness of 1 hour to 5 hours 59 minutes, initial	ICD-10-CM
S06.5X4A	Traumatic subdural hemorrhage with loss of consciousness of 6 hours to 24 hours, initial encounter	ICD-10-CM
S06.5X5A	Traumatic subdural hemorrhage with loss of consciousness greater than 24 hours with return to pre-existing conscious level, initial encounter	ICD-10-CM
S06.5X6A	Traumatic subdural hemorrhage with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, initial encounter	ICD-10-CM
S06.5X7A	Traumatic subdural hemorrhage with loss of consciousness of any duration with death due to brain injury before regaining consciousness, initial encounter	ICD-10-CM
S06.5X8A	Traumatic subdural hemorrhage with loss of consciousness of any duration with death due to other cause before regaining consciousness, initial encounter	ICD-10-CM
S06.5X9A	Traumatic subdural hemorrhage with loss of consciousness of unspecified duration, initial encounter	ICD-10-CM
S06.6X0A	Traumatic subarachnoid hemorrhage without loss of consciousness, initial encounter	ICD-10-CM
S06.6X1A	Traumatic subarachnoid hemorrhage with loss of consciousness of 30 minutes or less, initial encounter	ICD-10-CM
S06.6X2A	Traumatic subarachnoid hemorrhage with loss of consciousness of 31 minutes to 59 minutes, initial	ICD-10-CM
S06.6X3A	Traumatic subarachnoid hemorrhage with loss of consciousness of 1 hour to 5 hours 59 minutes, initial encounter	ICD-10-CM
S06.6X4A	Traumatic subarachnoid hemorrhage with loss of consciousness of 6 hours to 24 hours, initial encounter	ICD-10-CM
S06.6X5A	Traumatic subarachnoid hemorrhage with loss of consciousness greater than 24 hours with return to pre-existing conscious level, initial encounter	ICD-10-CM
S06.6X6A	Traumatic subarachnoid hemorrhage with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, initial encounter	ICD-10-CM
S06.6X7A	Traumatic subarachnoid hemorrhage with loss of consciousness of any duration with death due to brain injury prior to regaining consciousness, initial encounter	ICD-10-CM
S06.6X8A	Traumatic subarachnoid hemorrhage with loss of consciousness of any duration with death due to other cause prior to regaining consciousness, initial encounter	ICD-10-CM
S06.6X9A	Traumatic subarachnoid hemorrhage with loss of consciousness of unspecified duration, initial encounter	ICD-10-CM
	Kidney Disease (any care setting)	
40311	Hypertensive chronic kidney disease, benign, with chronic kidney disease stage V or end stage renal disease	ICD-9-CM
40391	Hypertensive chronic kidney disease, unspecified, with chronic kidney disease stage V or end stage renal disease	ICD-9-CM
40412	Hypertensive heart and chronic kidney disease, benign, without heart failure and with chronic kidney disease stage V or end stage renal disease	ICD-9-CM

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Appendix F. 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 Characteristics in this Request

Code	Description	Code Type
40492	Hypertensive heart and chronic kidney disease, unspecified, without heart failure and with chronic kidney disease stage V or end stage renal disease	ICD-9-CM
585	Chronic kidney disease	ICD-9-CM
5851	Chronic kidney disease, Stage I	ICD-9-CM
5852	Chronic kidney disease, Stage II (mild)	ICD-9-CM
5853	Chronic kidney disease, Stage III (moderate)	ICD-9-CM
5854	Chronic kidney disease, Stage IV (severe)	ICD-9-CM
5855	Chronic kidney disease, Stage V	ICD-9-CM
5856	End stage renal disease	ICD-9-CM
5859	Chronic kidney disease, unspecified	ICD-9-CM
586	Renal failure, unspecified	ICD-9-CM
V420	Kidney replaced by transplant	ICD-9-CM
V560	Encounter for extracorporeal dialysis	ICD-9-CM
V568	Encounter for other dialysis	ICD-9-CM
V451	Postsurgical renal dialysis status	ICD-9-CM
V4511	Renal dialysis status	ICD-9-CM
V4512	Noncompliance with renal dialysis	ICD-9-CM
I12.0	Hypertensive chronic kidney disease with stage 5 chronic kidney disease or end stage renal disease	ICD-10-CM
I13.11	Hypertensive heart and chronic kidney disease without heart failure, with stage 5 chronic kidney disease, or end stage renal disease	ICD-10-CM
N18.1	Chronic kidney disease, stage 1	ICD-10-CM
N18.2	Chronic kidney disease, stage 2 (mild)	ICD-10-CM
N18.3	Chronic kidney disease, stage 3 (moderate)	ICD-10-CM
N18.4	Chronic kidney disease, stage 4 (severe)	ICD-10-CM
N18.5	Chronic kidney disease, stage 5	ICD-10-CM
N18.6	End stage renal disease	ICD-10-CM
N18.9	Chronic kidney disease, unspecified	ICD-10-CM
N19	Unspecified kidney failure	ICD-10-CM
Z48.22	Encounter for aftercare following kidney transplant	ICD-10-CM
Z49.31	Encounter for adequacy testing for hemodialysis	ICD-10-CM
Z49.32	Encounter for adequacy testing for peritoneal dialysis	ICD-10-CM
Z91.15	Patient's noncompliance with renal dialysis	ICD-10-CM
Z94.0	Kidney transplant status	ICD-10-CM
Z99.2	Dependence on renal dialysis	ICD-10-CM
Ischemic Stroke (inpatient care setting in primary diagnosis position)		
433.01	Occlusion and stenosis of basilar artery with cerebral infarction	ICD-9-CM
433.11	Occlusion and stenosis of carotid artery with cerebral infarction	ICD-9-CM
433.21	Occlusion and stenosis of vertebral artery with cerebral infarction	ICD-9-CM
433.31	Occlusion and stenosis of multiple and bilateral precerebral arteries with cerebral infarction	ICD-9-CM
433.81	Occlusion and stenosis of other specified precerebral artery with cerebral infarction	ICD-9-CM
433.91	Occlusion and stenosis of unspecified precerebral artery with cerebral infarction	ICD-9-CM
434.01	Cerebral thrombosis with cerebral infarction	ICD-9-CM
434.11	Cerebral embolism with cerebral infarction	ICD-9-CM

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Appendix F. 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 Characteristics in this Request

Code	Description	Code Type
434.91	Unspecified cerebral artery occlusion with cerebral infarction	ICD-9-CM
436	Acute, but ill-defined, cerebrovascular disease	ICD-9-CM
I63.22	Cerebral infarction due to unspecified occlusion or stenosis of basilar arteries	ICD-10-CM
I63.139	Cerebral infarction due to embolism of unspecified carotid artery	ICD-10-CM
I63.239	Cerebral infarction due to unspecified occlusion or stenosis of unspecified carotid arteries	ICD-10-CM
I63.019	Cerebral infarction due to thrombosis of unspecified vertebral artery	ICD-10-CM
I63.119	Cerebral infarction due to embolism of unspecified vertebral artery	ICD-10-CM
I63.219	Cerebral infarction due to unspecified occlusion or stenosis of unspecified vertebral arteries	ICD-10-CM
I63.59	Cerebral infarction due to unspecified occlusion or stenosis of other cerebral artery	ICD-10-CM
I63.20	Cerebral infarction due to unspecified occlusion or stenosis of unspecified precerebral arteries	ICD-10-CM
I63.30	Cerebral infarction due to thrombosis of unspecified cerebral artery	ICD-10-CM
I63.40	Cerebral infarction due to embolism of unspecified cerebral artery	ICD-10-CM
I63.50	Cerebral infarction due to unspecified occlusion or stenosis of unspecified cerebral artery	ICD-10-CM
I67.89	Other cerebrovascular disease	ICD-10-CM
I63.00	Cerebral infarction due to thrombosis of unspecified precerebral artery	ICD-10-CM
I63.011	Cerebral infarction due to thrombosis of right vertebral artery	ICD-10-CM
I63.012	Cerebral infarction due to thrombosis of left vertebral artery	ICD-10-CM
I63.013	Cerebral infarction due to thrombosis of bilateral vertebral arteries	ICD-10-CM
I63.02	Cerebral infarction due to thrombosis of basilar artery	ICD-10-CM
I63.031	Cerebral infarction due to thrombosis of right carotid artery	ICD-10-CM
I63.032	Cerebral infarction due to thrombosis of left carotid artery	ICD-10-CM
I63.033	Cerebral infarction due to thrombosis of bilateral carotid arteries	ICD-10-CM
I63.039	Cerebral infarction due to thrombosis of unspecified carotid artery	ICD-10-CM
I63.09	Cerebral infarction due to thrombosis of other precerebral artery	ICD-10-CM
I63.10	Cerebral infarction due to embolism of unspecified precerebral artery	ICD-10-CM
I63.111	Cerebral infarction due to embolism of right vertebral artery	ICD-10-CM
I63.112	Cerebral infarction due to embolism of left vertebral artery	ICD-10-CM
I63.113	Cerebral infarction due to embolism of bilateral vertebral arteries	ICD-10-CM
I63.12	Cerebral infarction due to embolism of basilar artery	ICD-10-CM
I63.131	Cerebral infarction due to embolism of right carotid artery	ICD-10-CM
I63.132	Cerebral infarction due to embolism of left carotid artery	ICD-10-CM
I63.133	Cerebral infarction due to embolism of bilateral carotid arteries	ICD-10-CM
I63.19	Cerebral infarction due to embolism of other precerebral artery	ICD-10-CM
I63.211	Cerebral infarction due to unspecified occlusion or stenosis of right vertebral arteries	ICD-10-CM
I63.212	Cerebral infarction due to unspecified occlusion or stenosis of left vertebral arteries	ICD-10-CM
I63.213	Cerebral infarction due to unspecified occlusion or stenosis of bilateral vertebral arteries	ICD-10-CM
I63.231	Cerebral infarction due to unspecified occlusion or stenosis of right carotid arteries	ICD-10-CM
I63.232	Cerebral infarction due to unspecified occlusion or stenosis of left carotid arteries	ICD-10-CM
I63.233	Cerebral infarction due to unspecified occlusion or stenosis of bilateral carotid arteries	ICD-10-CM
I63.29	Cerebral infarction due to unspecified occlusion or stenosis of other precerebral arteries	ICD-10-CM
I63.311	Cerebral infarction due to thrombosis of right middle cerebral artery	ICD-10-CM
I63.312	Cerebral infarction due to thrombosis of left middle cerebral artery	ICD-10-CM
I63.313	Cerebral infarction due to thrombosis of bilateral middle cerebral arteries	ICD-10-CM

Appendix F. 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 Characteristics in this Request

Code	Description	Code Type
I63.319	Cerebral infarction due to thrombosis of unspecified middle cerebral artery	ICD-10-CM
I63.321	Cerebral infarction due to thrombosis of right anterior cerebral artery	ICD-10-CM
I63.322	Cerebral infarction due to thrombosis of left anterior cerebral artery	ICD-10-CM
I63.323	Cerebral infarction due to thrombosis of bilateral anterior arteries	ICD-10-CM
I63.329	Cerebral infarction due to thrombosis of unspecified anterior cerebral artery	ICD-10-CM
I63.331	Cerebral infarction due to thrombosis of right posterior cerebral artery	ICD-10-CM
I63.332	Cerebral infarction due to thrombosis of left posterior cerebral artery	ICD-10-CM
I63.333	Cerebral infarction to thrombosis of bilateral posterior arteries	ICD-10-CM
I63.339	Cerebral infarction due to thrombosis of unspecified posterior cerebral artery	ICD-10-CM
I63.341	Cerebral infarction due to thrombosis of right cerebellar artery	ICD-10-CM
I63.342	Cerebral infarction due to thrombosis of left cerebellar artery	ICD-10-CM
I63.343	Cerebral infarction to thrombosis of bilateral cerebellar arteries	ICD-10-CM
I63.349	Cerebral infarction due to thrombosis of unspecified cerebellar artery	ICD-10-CM
I63.39	Cerebral infarction due to thrombosis of other cerebral artery	ICD-10-CM
I63.411	Cerebral infarction due to embolism of right middle cerebral artery	ICD-10-CM
I63.412	Cerebral infarction due to embolism of left middle cerebral artery	ICD-10-CM
I63.413	Cerebral infarction due to embolism of bilateral middle cerebral arteries	ICD-10-CM
I63.419	Cerebral infarction due to embolism of unspecified middle cerebral artery	ICD-10-CM
I63.421	Cerebral infarction due to embolism of right anterior cerebral artery	ICD-10-CM
I63.422	Cerebral infarction due to embolism of left anterior cerebral artery	ICD-10-CM
I63.423	Cerebral infarction due to embolism of bilateral anterior cerebral arteries	ICD-10-CM
I63.429	Cerebral infarction due to embolism of unspecified anterior cerebral artery	ICD-10-CM
I63.431	Cerebral infarction due to embolism of right posterior cerebral artery	ICD-10-CM
I63.432	Cerebral infarction due to embolism of left posterior cerebral artery	ICD-10-CM
I63.433	Cerebral infarction due to embolism of bilateral posterior cerebral arteries	ICD-10-CM
I63.439	Cerebral infarction due to embolism of unspecified posterior cerebral artery	ICD-10-CM
I63.441	Cerebral infarction due to embolism of right cerebellar artery	ICD-10-CM
I63.442	Cerebral infarction due to embolism of left cerebellar artery	ICD-10-CM
I63.443	Cerebral infarction due to embolism of bilateral cerebellar arteries	ICD-10-CM
I63.449	Cerebral infarction due to embolism of unspecified cerebellar artery	ICD-10-CM
I63.49	Cerebral infarction due to embolism of other cerebral artery	ICD-10-CM
I63.511	Cerebral infarction due to unspecified occlusion or stenosis of right middle cerebral artery	ICD-10-CM
I63.512	Cerebral infarction due to unspecified occlusion or stenosis of left middle cerebral artery	ICD-10-CM
I63.513	Cerebral infarction due to unspecified occlusion or stenosis of bilateral middle arteries	ICD-10-CM
I63.519	Cerebral infarction due to unspecified occlusion or stenosis of unspecified middle cerebral artery	ICD-10-CM
I63.521	Cerebral infarction due to unspecified occlusion or stenosis of right anterior cerebral artery	ICD-10-CM
I63.522	Cerebral infarction due to unspecified occlusion or stenosis of left anterior cerebral artery	ICD-10-CM
I63.523	Cerebral infarction due to unspecified occlusion or stenosis of bilateral anterior arteries	ICD-10-CM
I63.529	Cerebral infarction due to unspecified occlusion or stenosis of unspecified anterior cerebral artery	ICD-10-CM
I63.531	Cerebral infarction due to unspecified occlusion or stenosis of right posterior cerebral artery	ICD-10-CM
I63.532	Cerebral infarction due to unspecified occlusion or stenosis of left posterior cerebral artery	ICD-10-CM
I63.533	Cerebral infarction due to unspecified occlusion or stenosis of bilateral posterior arteries	ICD-10-CM
I63.539	Cerebral infarction due to unspecified occlusion or stenosis of unspecified posterior cerebral artery	ICD-10-CM

Appendix F. 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 Characteristics in this Request

Code	Description	Code Type
I63.541	Cerebral infarction due to unspecified occlusion or stenosis of right cerebellar artery	ICD-10-CM
I63.542	Cerebral infarction due to unspecified occlusion or stenosis of left cerebellar artery	ICD-10-CM
I63.543	Cerebral infarction due to unspecified occlusion or stenosis of bilateral cerebellar arteries	ICD-10-CM
I63.549	Cerebral infarction due to unspecified occlusion or stenosis of unspecified cerebellar artery	ICD-10-CM
I63.6	Cerebral infarction due to cerebral venous thrombosis, nonpyogenic	ICD-10-CM
I63.8	Other cerebral infarction	ICD-10-CM
I63.9	Cerebral infarction, unspecified	ICD-10-CM

Appendix G. Specifications Defining Exposure Parameters in this Request

This request used the Cohort Identification and Descriptive Analysis (CIDA) tool, version 5.1.1 to obtain counts of new users of apixaban and warfarin among patients in the Sentinel Distributed Database (SDD). We also examined incidence rates of gastrointestinal hemorrhage, intracranial hemorrhage, and ischemic stroke among patients diagnosed with non-valvular atrial fibrillation in the SDD who were dispensed apixaban compared to warfarin.

Query Periods: February 1, 2013 to August 21, 2017
February 1, 2013 to September 30, 2015
October 1, 2015 to August 21, 2017
Coverage Requirement: Drug and Medical Coverage
Enrollment Requirement: 183 days
Enrollment Gap: 45 days
Age Groups: 21-64, 65-74, 75-84, 85-99 years

	Exposure							
Scenario	**Incident Exposure**	**Incidence Criteria**	**Truncation Criteria**	**Washout Period (days)**	**Cohort Definition**	**Episode Gap (days)**	**Episode Extension Period (days)**	**Censor at Death**
1	Apixaban	Apixaban, dabigatran, rivaroxaban, edoxaban, warfarin	Dabigatran, rivaroxaban, edoxaban, warfarin	183	Retain first valid incident exposure episode only	7	7	No
2	Warfarin	Apixaban, dabigatran, rivaroxaban, edoxaban, warfarin	Apixaban, dabigatran, rivaroxaban, edoxaban	183	Retain first valid incident exposure episode only	7	7	No
3	Apixaban	Apixaban, dabigatran, rivaroxaban, edoxaban, warfarin	Dabigatran, rivaroxaban, edoxaban, warfarin	183	Retain first valid incident exposure episode only	7	7	No
4	Warfarin	Apixaban, dabigatran, rivaroxaban, edoxaban, warfarin	Apixaban, dabigatran, rivaroxaban, edoxaban	183	Retain first valid incident exposure episode only	7	7	No
5	Apixaban	Apixaban, dabigatran, rivaroxaban, edoxaban, warfarin	Dabigatran, rivaroxaban, edoxaban, warfarin	183	Retain first valid incident exposure episode only	7	7	No
6	Warfarin	Apixaban, dabigatran, rivaroxaban, edoxaban, warfarin	Apixaban, dabigatran, rivaroxaban, edoxaban	183	Retain first valid incident exposure episode only	7	7	No
7	Apixaban	Apixaban, dabigatran, rivaroxaban, edoxaban, warfarin	Dabigatran, rivaroxaban, edoxaban, warfarin	183	Retain first valid incident exposure episode only	7	7	No
8	Warfarin	Apixaban, dabigatran, rivaroxaban, edoxaban, warfarin	Apixaban, dabigatran, rivaroxaban, edoxaban	183	Retain first valid incident exposure episode only	7	7	No

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

National Drug Codes (NDCs) are checked against First Data Bank's “National Drug Data File (NDDF®) Plus.”

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Appendix G.1. Specifications Defining Inclusion Criteria, Exclusion Criteria, Event Outcome, and Baseline Characteristic Parameters in this Request

This request used the Cohort Identification and Descriptive Analysis (CIDA) tool, version 5.1.1 to obtain counts of new users of apixaban and warfarin among patients in the Sentinel Distributed Database (SDD). Additionally, this request examined incidence rates of gastrointestinal hemorrhage, intracranial hemorrhage, and ischemic stroke among patients diagnosed with non-valvular atrial fibrillation in the SDD who were dispensed apixaban compared to warfarin.

Query Periods: February 1, 2013 to August 21, 2017
February 1, 2013 to September 30, 2015
October 1, 2015 to August 21, 2017

Coverage Requirement: Drug and Medical Coverage

Enrollment Requirement: 183 days

Enrollment Gap: 45 days

Age Groups: 21-64, 65-74, 75-84, 85-99 years

	Inclusion Criteria				Exclusion Criteria				Outcome				Baseline Characteristics	
Scenario	Pre-Existing Condition	Care Setting	Include/ Exclude	Lookback Period (days)	Pre-Existing Condition	Care Setting	Include/ Exclude	Lookback Period (days)	Outcome	Care Setting	Washout (days)	Blackout Period (days)	Characteristics	Evaluation Window (days)
1	Atrial fibrillation	Any	Include	-183, 0	Dialysis, kidney replacement, deep vein thrombosis, pulmonary embolism, joint replacement, mitral stenosis, valve replacement or valve repair	Any, except AV/OA[1] for dialysis	Exclude	-183, 0	Gastrointestinal hemorrhage	IPP	0	1	See Appendix F	-183, 0
2	Atrial fibrillation	Any	Include	-183, 0	Dialysis, kidney replacement, deep vein thrombosis, pulmonary embolism, joint replacement, mitral stenosis, valve replacement or valve repair	Any, except AV/OA for dialysis	Exclude	-183, 0	Gastrointestinal hemorrhage	IPP	0	1	See Appendix F	-183, 0
3	Atrial fibrillation	Any	Include	-183, 0	Dialysis, kidney replacement, deep vein thrombosis, pulmonary embolism, joint replacement, mitral stenosis, valve replacement or valve repair	Any, except AV/OA for dialysis	Exclude	-183, 0	Intracranial hemorrhage	IPP, IPS	0	1	See Appendix F	-183, 0
4	Atrial fibrillation	Any	Include	-183, 0	Dialysis, kidney replacement, deep vein thrombosis, pulmonary embolism, joint replacement, mitral stenosis, valve replacement or valve repair	Any, except AV/OA for dialysis	Exclude	-183, 0	Intracranial hemorrhage	IPP, IPS	0	1	See Appendix F	-183, 0

Scenario	Inclusion Criteria				Exclusion Criteria				Outcome				Baseline Characteristics	
	Pre-Existing Condition	Care Setting	Include/ Exclude	Lookback Period (days)	Pre-Existing Condition	Care Setting	Include/ Exclude	Lookback Period (days)	Outcome	Care Setting	Washout (days)	Blackout Period (days)	Characteristics	Evaluation Window (days)
5	Atrial fibrillation	Any	Include	-183, 0	Dialysis, kidney replacement, deep vein thrombosis, pulmonary embolism, joint replacement, mitral stenosis, valve replacement or valve repair	Any, except AV/OA for dialysis	Exclude	-183, 0	Intracranial hemorrhage	IPP	0	1	See Appendix F	-183, 0
6	Atrial fibrillation	Any	Include	-183, 0	Dialysis, kidney replacement, deep vein thrombosis, pulmonary embolism, joint replacement, mitral stenosis, valve replacement or valve repair	Any, except AV/OA for dialysis	Exclude	-183, 0	Intracranial hemorrhage	IPP	0	1	See Appendix F	-183, 0
7	Atrial fibrillation	Any	Include	-183, 0	Dialysis, kidney replacement, deep vein thrombosis, pulmonary embolism, joint replacement, mitral stenosis, valve replacement or valve repair	Any, except AV/OA for dialysis	Exclude	-183, 0	Stroke	IPP	0	1	See Appendix F	-183, 0
8	Atrial fibrillation	Any	Include	-183, 0	Dialysis, kidney replacement, deep vein thrombosis, pulmonary embolism, joint replacement, mitral stenosis, valve replacement or valve repair	Any, except AV/OA for dialysis	Exclude	-183, 0	Stroke	IPP	0	1	See Appendix F	-183, 0

[1]Possible care settings include: Inpatient Hospital Stay in the Primary position (IPP), Inpatient Hospital Stay in the Secondary position (IPS), Non-Acute Institutional Stay (IS), Emergency Department (ED), Ambulatory Visit (AV), and Other Ambulatory Visit (OA).

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

National Drug Codes (NDCs) are checked against First Data Bank's “National Drug Data File (NDDF®) Plus.”