

Carotid Endarterectomy and Stenting (CAS & CEA)

The Variable Dictionary contains the variable names used in this VQI-Medicare linked dataset. This specification also contains the rules for the binary variables, event variables, and days to events calculations included in the dataset. The dataset merges long term follow up (LTF) data with procedural data. Each patient/procedure is represented as a single row in the dataset with the latest LTF data included in that row (for non-event variables). For patients with multiple LTF visits, the events and days to events are calculated for the patient/procedure's FIRST event. The tabs include the CPT and ICD billing codes used to identify the events of interest in Medicare claims.

The analytic end date (AED)/ end of study period for Medicare derived variables = 12/31/2016

Data Source	Medicare Outcome	Column Name	Data Type	Values (for categorical variables only)	Variable Definition	Comments
Medicare	Index Procedure	matched	NUM	1=Matched	Was the index procedure in the VQI matched to an Index Procedure Code in Medicare? To be eligible for matching, patients must have a valid SSN, US zipcode and be enrolled in Medicare FFS at the time of matching. Canadians, patients in Medicare Advantage at the time of procedure, and those with invalid SSNs were not matched.	Refer to CA Index Proc Codes
Medicare	Index Procedure	MEDPARID			identifier in Medpar	
Medicare	Index Procedure	BENE_ID	CHAR	15	patient identifier in Medicare claims (specific to DJJA requester organization)	
Medicare	Index Procedure	CLM_ID	NUM	8	Specific Medicare claim ID number for the index procedure	
Medicare	Index Procedure	cabg_alone	NUM	1=procedure performed	CABG performed as part of index procedure. Identified by CPT Codes	CPT codes listed as subcategory on CA_Index Proc Codes
Medicare	Index Procedure	cabg_alone_cd	NUM	1=procedure performed	Corresponding CPT code for CABG procedure	
Medicare	Index Procedure	comb_cabg_valv_lsr	NUM	1=procedure performed	Combined CABG Valve with Laser performed as part of index procedure. Identified by CPT Codes	CPT codes listed as subcategory on CA_Index Proc Codes
Medicare	Index Procedure	comb_cabg_valv_lsr_cd	NUM	1=procedure performed	corresponding CPT code for combined CABG Valve with laser procedure	
Medicare	Index Procedure	maze	NUM	1=procedure performed	Maze procedure performed as part of index procedure	CPT codes listed as subcategory on CA_Index Proc Codes
Medicare	Index Procedure	maze_cd	NUM	1=procedure performed	corresponding CPT code for combined CABG Valve with laser procedure. Identified by CPT Codes	
Medicare	Index Procedure	valve_alone	NUM	1=procedure performed	Valve procedure performed as part of Index procedure. Identified by CPT Codes	CPT codes listed as subcategory on CA_Index Proc Codes
Medicare	Index Procedure	valve_alone_cd	NUM	1=procedure performed	corresponding CPT code for combined CABG Valve with laser procedure	
Medicare	Index Procedure	Other	NUM	1=procedure performed	Other CABG procedure combined with index Procedure. Identified by CPT Codes	CPT codes listed as subcategory on CA_Index Proc Codes
Medicare	Index Procedure	Other_cd	NUM	1=procedure performed	corresponding CPT code for Other CABG combined procedure	
Medicare	Index Procedure	indx_drg_cd	NUM		MEDPAR DRG code for index procedure. A discharge is assigned to a Diagnosis Related Group (DRG) based on diagnosis, surgery, patient age, discharge destination and sex.	MS-DRGs may be grouped into MDCs and further categorized into medical or surgical types.
Medicare	Index Procedure	indx_drgprice	NUM		MEDPAR DRG Price Amount for the stay. The amount (called the 'DRG price' for purposes of MEDPAR analysis) that would have been paid if no deductibles, coinsurance, primary payers, or outliers were involved (rounded to whole dollars).	
Medicare	Index Procedure	indx_pmt_amt	NUM		MEDPAR Medicare Payment Amount for the stay. Amt of payment from Medicare trust fund for srvc covered by claim for primary procedure	
Medicare	Index Procedure	indx_passthru	NUM		MEDPAR Total Pass Through Amount. The total of all claim pass through amounts (rounded to whole dollars) for the stay (i.e., capital-related costs, direct medical education costs, kidney acquisition costs, bad debts); derived by multiplying the pass thru per diem amount times the MEDPAR utilization day count.	This amount is added to the MEDPAR PMT_AMT to get the total Medicare payment amounts in the MEDPAR file.
Medicare	Index Procedure	indx_ptb_pmt	NUM		Aggregated Medicare Part B payment amount(s) associated with the index stay, i.e., this is the sum of all Part B beneficiary claims that occurred any time from the index admit date to the discharge date.	

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Medicare	Index Procedure	indx_tochrg	NUM		Total all charges for all srvcs provided to beneficiary for stay during index procedure. Derived from Medicare Part B data.	
Medicare	Index Procedure	indx_mdcr_pmt	NUM		Sum of indx_pmt_amt, index_passthru, and indx_ptb_pmt	
Medicare	Index Procedure	index_er_amt	NUM			
Medicare	Index Procedure	indx_ffs	NUM		Medicare beneficiaries' FFS during the year of the index event	
Medicare	Index Procedure	indx_hrr	NUM		Medicare beneficiaries' HRR during the year of the index event	
Medicare	Index Procedure	loscnt	NUM		The count in days of a beneficiary's stay in a hospital or SNF. This field is derived by subtracting the date of discharge (or thru date in SNF cases where beneficiary is still a patient) from the date of admission. If difference is '0,' the value becomes a '1.' This is a MEDPAR variable for index procedures that occur in an inpatient setting; for procedures matched in the carrier file, this is calculated by following the MEDPAR definition.	This is considered the gold standard and we recommend analysts use this variable instead of VQI's TOTAL_LOS; Additionally, if interested in post-op LOS, analysts should recalculate this rather than using the VQI POSTOP_LOS variable.
Medicare	Survival	medicare_death	NUM	0=alive1=Dead	Did the bene have a date of death? Derived from Medicare Date of Death field in the denominator (MBSF summary) file.	We recommend analysts use the Medicare_death value instead of the VQI Dead variable, as VQI may not capture all deaths.
Medicare	Survival	medicare_date_of_death	DATE		Date of death from Medicare MBSF file	
Medicare	Survival	dead"yy"	NUM	0= alive in reference year1=if died in the reference year	If died in the reference year, where "yy" equals last two digits of year	
Medicare	Survival	medicare_date_of_censor	DATE		Date of censoring if no death identified in Medicare; set to the AED/end of the current study period.	
Medicare	Survival	surv_dead	NUM		How many days did the patient survive after discharge from the initial procedure before dying? If the patient was censored (still alive) at the end of the survival period the survival is from discharge through AED. Patients that died in the hospital have survival of 0.1 days. Derived from Medicare data.	
Medicare	Procedural Goal	ind_stroke1...n	NUM	0=no stroke 1=stroke	Did the patient have an Nth stroke after the index procedure? Stroke is defined as any hosp admission after date of surgery with any of the ICD9 of ICD10 codes listed in any position on admission or discharge diagnosis, AND a head CT during the same encounter	Definition has been revised in 2018 to include a head CT during the same encounter of admission or discharge diagnosis with ICD9 or ICD10 code for stroke.
Medicare	Procedural Goal	stroke_diag1...n	CHAR		Primary diagnosis code for Stroke	
Medicare	Procedural Goal	Date_of_stroke_hosp1...n	DATE		Date of hospitalization for stroke	
Medicare	Procedural Goal	Date_of_censoring_if_no_hosp	DATE		Date of censoring if no stroke hospitalization	If the bene died, then the date of death is used, if there is no Medicare date of death, then the AED is used.
Medicare	Procedural Goal	inpatientstroke	NUM	0=no stroke 1=stroke	During the admision for the index procedure did the individual have a stroke?	
Medicare	Procedural Goal	inpatientstrokedays	NUM	0=no stroke 1=stroke	How many days BEFORE DISCHARGE from the index admission for index procedure did the stroke occur? For example, the patient was admitted on Jan 1, had the CEA on Jan 2, had a stroke on Jan 3 and was discharged on Jan 4. For this case, ind_stroke=1, inpatientstroke=1 and inpatientstrokedays=1, meaning one day before discharge the patient had the stroke.	

<u>Data Source</u>	<u>Medicare Outcome</u>	<u>Column Name</u>	<u>Data Type</u>	<u>Values</u> (for categorical variables only)	<u>Variable Definition</u>	<u>Comments</u>
Medicare	Procedural Goal	surv_stroke1...n	NUM		How many days after the discharge from the initial index procedure to the date of admission for a stroke. Stroke during the initial hospitalization for index are not coded here. Patients that were discharged then readmitted on the same day have a survival duration of 0.1 days. Derived from Medicare data.	Calculated as the number of days between the index discharge date and the date of admission for stroke.
Medicare	Reintervention	ind_reint1...n	NUM	0=no nth reintervention procedure 1=had nth reintervention procedure.	Did the patient have a subsequent surgical or endovascular reintervention related to the index procedure? Derived from Medicare data using CPT and ICD codes on CA_Reintervention Codes	
Medicare	Reintervention	date_of_reint1...n	DATE		Date of nth reintervention	
Medicare	Reintervention	date_of_censor_if_no_reint	DATE		Date of censoring in no reintervention	If the bene died, then the date of death is used, if there is no Medicare date of death, then the AED/end of the study period date is used.
Medicare	Reintervention	surv_reint1...n	NUM		How many days after the discharge from the initial index procedure was the patient readmitted for another surgical intervention? Derived from Medicare data.	Calculated as the number of days between the index discharge date and the date of the reintervention.
Medicare	Reintervention	reint_diag1...n	CHAR		Primary diagnosis code for reintervention. (This will happen in the hospital). Derived from Medicare data.	
Medicare	Reintervention	reint_prcd1...n	CHAR		Primary procedure code from readmission for reintervention. Derived from Medicare data.	
Medicare	Reintervention	reint_outpatient1...n	NUM	0=patient was an inpatient for the nth reintervention procedure 1=patient was an outpatient for the nth reintervention	Was the patient an inpatient or outpatient for the nth reintervention? Patients who were outpatients will not have corresponding readmission data.	
Medicare	Readmission	ind_readmin30d	NUM	0=no readmission 30d after discharge 1=readmitted within 30d after discharge	Was the patient readmitted to any hospital within 30 days after discharge from the initial index procedure? If a patient was admitted multiple times within 30d after discharge, only the first readmission is indicated here. Derived from Medicare data using Readmission Codes	Transfers are not included in readmissions.
Medicare	Readmission	date_of_readmin30d	DATE		date of first readmission that was within 30days of discharge	
Medicare	Readmission	cat_readmin30d	NUM	1=Vascular complications, 2=postoperative infection, 3=postoperative vascular complications, 4=cardiac complications, 5=urinary/renal complications, 6=GI complications, 7=respiratory complications, 8 = Other	What was the reason for readmission? Based on the primary ICD-9/10 diagnosis code for Readmission	
Medicare	Readmission	ind_readmin90d	NUM	0=no readmission 90d after discharge 1=readmitted within 90d after discharge	Was the patient readmitted to any hospital within 90 days after discharge from the initial index procedure? If a patient was admitted multiple times within 90d after discharge, only the first readmission is indicated here. Derived from Medicare data using Readmission Codes	Transfers are not included in readmissions.
Medicare	Readmission	date_of_readmin90d	DATE		date of nth readmission that was within 90days of discharge	

<u>Data Source</u>	<u>Medicare Outcome</u>	<u>Column Name</u>	<u>Data Type</u>	<u>Values</u> (for categorical variables only)	<u>Variable Definition</u>	<u>Comments</u>
Medicare	Readmission	cat_readmin90d	NUM	1=Vascular complications, 2=postoperative infection, 3=postoperative vascular complications, 4=cardiac complications, 5=urinary/renal complications, 6=GI complications, 7=respiratory complications, 8 = Other	What was the reason for readmission? Based on the primary ICD-9/10 diagnosis code for Readmission	
Medicare	Late Imaging	ind_imag1...n	NUM	0=no nth imaging study, 1=yes, nth imaging study	Did the patient have imaging (CT or ultrasound) after the index procedure? Derived from medicare data using Imaging codes	
Medicare	Late Imaging	surv_imag1...n	NUM		How many days after the discharge from the index procedure did the patient have the imaging?	Calculated as the number of days between the index discharge date and the date of the imaging procedure.
Medicare	Late Imaging	Image_cd1...n	CHAR		CPT code for late imaging	
Medicare	Late Imaging	Date_of_late_imaging1...n	DATE		Date of late imaging	
Medicare	Late Imaging	Date_of_late_imaging_censoring	DATE		Date of censoring if no late_imaging	If the bene died, then the date of death is used, if there is no Medicare date of death, then the end of the study period date is used.
Medicare	Medicare Status	dual_eligible	NUM	1=yes	Was the individual eligible for any benefits from both Medicare and Medicaid at the time of the index procedure?	
Medicare	Medicare Status	elig_ab"YY"	NUM	1=yes	Enrolled in Full part A and B in the current year, where "YY" equals last two digits of current year	
Medicare	Medicare Status	elig_mo"YY"	NUM		Number of Eligible months in the current year	
Medicare	Medicare Status	anydual"YY"	NUM	1=yes	Dual eligible for at least one month of current year, where "YY" equals last two digits of year	
Medicare	Medicare Status	FULL_Dual"YY"	NUM	1=yes	Full dual eligible. Available for 2008 and onwards, where "YY" equals last 2 digits of year.	
Medicare	Medicare Status	fulldualmos"YY"	NUM		number of months full dual eligible in the current year, where "YY" equals last 2 digits of current year	
Medicare	Medicare Status	ffs"YY"	NUM	1=yes	Binary variable for not in hmo during eligible period for the current year, where "YY" equals last 2 digits of current year"	
Medicare	Medicare Status	hmojoin"YY"	NUM	1=yes	"Binary variable for join in HMO in the current year "	
Medicare	Medicare Status	hmojoin_mos"YY"	NUM	any value 1-12	Month join in HMO in current year	
Medicare	Medicare Status	hmomos"YY"	NUM	any value 1-12	Number of months in hmo in current year	
Medicare	Medicare Status	not_dualenrolled"YY"	NUM	1=yes	Binary variable for not enrolled in dual in the current year, where "YY" equals last 2 digits of year.	
Medicare	Medicare Status	not_dualenrolled_mos"YY"	NUM	any value 1-12	First month not enrolled in dual, where "YY" equals last 2 digits of year	
Medicare	Medicare Status	not_enrolledA"YY"	NUM	1=yes	Binary variable for not enrolled in Part A in the current year, where "YY" equals last 2 digits of year	
Medicare	Medicare Status	not_enrolledA_mos"YY"	NUM	any value 1-12	"First month not enrolled in Part A "	
Medicare	Medicare Status	not_enrolledB"YY"	NUM	1=yes	Binary variable for not enrolled in Part B in the current year, where "YY" equals last 2 digits of year	
Medicare	Medicare Status	not_enrolledB_mos"YY"	NUM	any value 1-12	First month not enrolled in Part B in the current year	

<u>Data Source</u>	<u>Medicare Outcome</u>	<u>Column Name</u>	<u>Data Type</u>	<u>Values</u> (for categorical variables only)	<u>Variable Definition</u>	<u>Comments</u>
Medicare	Medicare Status	dualmos"YY"	NUM	1=yes	TDI dual definition based on monthly entitlement ENTITL=C	
Medicare	Medicare Status	part_Dual"YY"	NUM	1=yes	part dual eligible in the current year, where "YY" equals last 2 digits of year (can get information from 2008 and after)	
Medicare	Medicare Status	partdualmos"YY"	NUM	any value 1-12	number of months part dual eligible in current year, where "YY" equals last 2 digits of year	
Medicare	Medicare Status	ptamos"YY"	NUM	any value 1-12	Number of months entitled for part A in the current year, where "YY" equals last 2 digits of year	
Medicare	Medicare Status	ptbmos"YY"	NUM	any value 1-12	Number of months entitled for part B in the current year, where "YY" equals last 2 digits of year	
Medicare	Medicare Status	hrr"YY"	NUM		HRR code for current year	
Medicare	Medicare Status	hsa"YY"	NUM		HSA code for current year	

Carotid Artery Repair Index Procedure Codes

Subcategory	CPT Codes	CPT Labels	ICD9 CODES	ICD9 LABELS	VALIDATED ICD10 CODES	ICD10 CODE LABELS
NONE	35301	CEA CPT Code	3812	Endarterectomy, other vessels of head and neck	03CH0ZZ	Extirpation of Matter from Right Common Carotid Artery, Open Approach
NONE	37215	CAS CPT code	0061	Percutaneous angioplasty of extracranial vessel(s)	03CH4ZZ	Extirpation of Matter from Right Common Carotid Artery, Percutaneous Endoscopic Approach
NONE	37216	CAS CPT code	0063	Percutaneous insertion of carotid artery stent(s)	03CJ0ZZ	Extirpation of Matter from Left Common Carotid Artery, Open Approach
NONE					03CJ4ZZ	Extirpation of Matter from Left Common Carotid Artery, Percutaneous Endoscopic Approach
NONE					03CK0ZZ	Extirpation of Matter from Right Internal Carotid Artery, Open Approach
NONE					03CK4ZZ	Extirpation of Matter from Right Internal Carotid Artery, Percutaneous Endoscopic Approach
NONE					03CL0ZZ	Extirpation of Matter from Left Internal Carotid Artery, Open Approach
NONE					03CL4ZZ	Extirpation of Matter from Left Internal Carotid Artery, Percutaneous Endoscopic Approach
NONE					03CM0ZZ	Extirpation of Matter from Right External Carotid Artery, Open Approach
NONE					03CM4ZZ	Extirpation of Matter from Right External Carotid Artery, Percutaneous Endoscopic Approach
NONE					03CN0ZZ	Extirpation of Matter from Left External Carotid Artery, Open Approach
NONE					03CN4ZZ	Extirpation of Matter from Left External Carotid Artery, Percutaneous Endoscopic Approach
NONE					03CP0ZZ	Extirpation of Matter from Right Vertebral Artery, Open Approach
NONE					03CP4ZZ	Extirpation of Matter from Right Vertebral Artery, Percutaneous Endoscopic Approach
NONE					03CQ0ZZ	Extirpation of Matter from Left Vertebral Artery, Open Approach
NONE					03CQ4ZZ	Extirpation of Matter from Left Vertebral Artery, Percutaneous Endoscopic Approach
NONE					037H34Z	Dilation of Right Common Carotid Artery with Drug-eluting Intraluminal Device, Percutaneous Approach
NONE					037H3DZ	Dilation of Right Common Carotid Artery with Intraluminal Device, Percutaneous Approach
NONE					037H3ZZ	Dilation of Right Common Carotid Artery, Percutaneous Approach
NONE					037H44Z	Dilation of Right Common Carotid Artery with Drug-eluting Intraluminal Device, Percutaneous Endoscopic Approach
NONE					037H4DZ	Dilation of Right Common Carotid Artery with Intraluminal Device, Percutaneous Endoscopic Approach
NONE					037H4ZZ	Dilation of Right Common Carotid Artery, Percutaneous Endoscopic Approach
NONE					037J34Z	Dilation of Left Common Carotid Artery with Drug-eluting Intraluminal Device, Percutaneous Approach
NONE					037J3DZ	Dilation of Left Common Carotid Artery with Intraluminal Device, Percutaneous Approach
NONE					037J3ZZ	Dilation of Left Common Carotid Artery, Percutaneous Approach
NONE					037J44Z	Dilation of Left Common Carotid Artery with Drug-eluting Intraluminal Device, Percutaneous Endoscopic Approach
NONE					037J4DZ	Dilation of Left Common Carotid Artery with Intraluminal Device, Percutaneous Endoscopic Approach
NONE					037J4ZZ	Dilation of Left Common Carotid Artery, Percutaneous Endoscopic Approach
NONE					037K34Z	Dilation of Right Internal Carotid Artery with Drug-eluting Intraluminal Device, Percutaneous Approach
NONE					037K3DZ	Dilation of Right Internal Carotid Artery with Intraluminal Device, Percutaneous Approach
NONE					037K3ZZ	Dilation of Right Internal Carotid Artery, Percutaneous Approach
NONE					037K44Z	Dilation of Right Internal Carotid Artery with Drug-eluting Intraluminal Device, Percutaneous Endoscopic Approach
NONE					037K4DZ	Dilation of Right Internal Carotid Artery with Intraluminal Device, Percutaneous Endoscopic Approach
NONE					037K4ZZ	Dilation of Right Internal Carotid Artery, Percutaneous Endoscopic Approach
NONE					037L34Z	Dilation of Left Internal Carotid Artery with Drug-eluting Intraluminal Device, Percutaneous Approach
NONE					037L3DZ	Dilation of Left Internal Carotid Artery with Intraluminal Device, Percutaneous Approach
NONE					037L3ZZ	Dilation of Left Internal Carotid Artery, Percutaneous Approach
NONE					037L44Z	Dilation of Left Internal Carotid Artery with Drug-eluting Intraluminal Device, Percutaneous Endoscopic Approach
NONE					037L4DZ	Dilation of Left Internal Carotid Artery with Intraluminal Device, Percutaneous Endoscopic Approach
NONE					037L4ZZ	Dilation of Left Internal Carotid Artery, Percutaneous Endoscopic Approach
NONE					037M34Z	Dilation of Right External Carotid Artery with Drug-eluting Intraluminal Device, Percutaneous Approach
NONE					037M3DZ	Dilation of Right External Carotid Artery with Intraluminal Device, Percutaneous Approach
NONE					037M3ZZ	Dilation of Right External Carotid Artery, Percutaneous Approach
NONE					037M44Z	Dilation of Right External Carotid Artery with Drug-eluting Intraluminal Device, Percutaneous Endoscopic Approach
NONE					037M4DZ	Dilation of Right External Carotid Artery with Intraluminal Device, Percutaneous Endoscopic Approach
NONE					037M4ZZ	Dilation of Right External Carotid Artery, Percutaneous Endoscopic Approach
NONE					037N34Z	Dilation of Left External Carotid Artery with Drug-eluting Intraluminal Device, Percutaneous Approach
NONE					037N3DZ	Dilation of Left External Carotid Artery with Intraluminal Device, Percutaneous Approach
NONE					037N3ZZ	Dilation of Left External Carotid Artery, Percutaneous Approach
NONE					037N44Z	Dilation of Left External Carotid Artery with Drug-eluting Intraluminal Device, Percutaneous Endoscopic Approach
NONE					037N4DZ	Dilation of Left External Carotid Artery with Intraluminal Device, Percutaneous Endoscopic Approach
NONE					037N4ZZ	Dilation of Left External Carotid Artery, Percutaneous Endoscopic Approach

Codes that map to ICD-9 code 3812

Codes that map to ICD-9 code 0061

No codes mapped to ICD-9 code 0063

NONE		037P34Z	Dilation of Right Vertebral Artery with Drug-eluting Intraluminal Device, Percutaneous Approach
NONE		037P3DZ	Dilation of Right Vertebral Artery with Intraluminal Device, Percutaneous Approach
NONE		037P3ZZ	Dilation of Right Vertebral Artery, Percutaneous Approach
NONE		037P44Z	Dilation of Right Vertebral Artery with Drug-eluting Intraluminal Device, Percutaneous Endoscopic Approach
NONE		037P4DZ	Dilation of Right Vertebral Artery with Intraluminal Device, Percutaneous Endoscopic Approach
NONE		037P4ZZ	Dilation of Right Vertebral Artery, Percutaneous Endoscopic Approach
NONE		037Q34Z	Dilation of Left Vertebral Artery with Drug-eluting Intraluminal Device, Percutaneous Approach
NONE		037Q3DZ	Dilation of Left Vertebral Artery with Intraluminal Device, Percutaneous Approach
NONE		037Q3ZZ	Dilation of Left Vertebral Artery, Percutaneous Approach
NONE		037Q44Z	Dilation of Left Vertebral Artery with Drug-eluting Intraluminal Device, Percutaneous Endoscopic Approach
NONE		037Q4DZ	Dilation of Left Vertebral Artery with Intraluminal Device, Percutaneous Endoscopic Approach
NONE		037Q4ZZ	Dilation of Left Vertebral Artery, Percutaneous Endoscopic Approach
NONE		03CH3ZZ	Extirpation of Matter from Right Common Carotid Artery, Percutaneous Approach
NONE		03CJ3ZZ	Extirpation of Matter from Left Common Carotid Artery, Percutaneous Approach
NONE		03CK3ZZ	Extirpation of Matter from Right Internal Carotid Artery, Percutaneous Approach
NONE		03CL3ZZ	Extirpation of Matter from Left Internal Carotid Artery, Percutaneous Approach
NONE		03CM3ZZ	Extirpation of Matter from Right External Carotid Artery, Percutaneous Approach
NONE		03CN3ZZ	Extirpation of Matter from Left External Carotid Artery, Percutaneous Approach
NONE		03CP3ZZ	Extirpation of Matter from Right Vertebral Artery, Percutaneous Approach
NONE		03CQ3ZZ	Extirpation of Matter from Left Vertebral Artery, Percutaneous Approach
cabg_alone	33510	single vein	
cabg_alone	33511	two vein	
cabg_alone	33512	three vein	
cabg_alone	33513	four vein	
cabg_alone	33514	five vein	
cabg_alone	33516	six or more vein	
cabg_alone	33517	single vein and artery	
cabg_alone	33518	two vein and artery	
cabg_alone	33519	three vein and artery	
cabg_alone	33521	four vein and artery	
cabg_alone	33522	five vein and artery	
cabg_alone	33523	six or more vein and artery	
cabg_alone	33530	reop, CABG or valve procedure, more than 1 month after original operation	
cabg_alone	33533	original operation - single arterial	
cabg_alone	33534	original operation - two arterial	
cabg_alone	33535	original operation - three arterial	
cabg_alone	33536	original operation - four arterial	
cabg_alone	33572	original operation - coronary endarterectomy	
cabg_alone	33542	original operation - myocardial resection (ventricular aneurysmectomy)	
cabg_alone	33545	original operation - repair of postinfarction VSD	
cabg_alone	33548	original operation - ventricular restoration procedure (patch, Dor, etc.)	
comb_cabg_valv_isr	33140	transmyocardial laser revascularization	
comb_cabg_valv_isr	33141	transmyocardial laser revascularization	
maze	33254	MAZE-type procedures, arrhythmia ablation with CPB	
maze	33255	MAZE-type procedures, arrhythmia ablation with CPB	
maze	33256	MAZE-type procedures, arrhythmia ablation with CPB	
maze	33257	MAZE-type procedures, arrhythmia ablation with CPB	
maze	33258	MAZE-type procedures, arrhythmia ablation with CPB	
maze	33259	MAZE-type procedures, arrhythmia ablation with CPB	
maze	33261	MAZE-type procedures, arrhythmia ablation with CPB	
valve_alone	33400-33403	aortic valvuloplasty	
valve_alone	33404	aortic apical-aortic conduit	
valve_alone	33405	aortic replacement with prosthetic other than homograft or stentless valve	
valve_alone	33406	aortic allograft	
valve_alone	33410	aortic stentless tissue valve	
valve_alone	33411	aortic replacement with aortic annulus enlargement	
valve_alone	33412	aortic Konno procedure	
valve_alone	33413	aortic Ross procedure (translocation autologous pulmonary valve)	

valve_alone	33414 aortic LOVT patch enlargement
valve_alone	33415 aortic resection for subvalvular aortic stenosis
valve_alone	33416 aortic ventriculomyotomy for hypertrophic cardiomyopathy
valve_alone	33417 aortoplasty for supraaortic stenosis
valve_alone	33420 mitral valvuloplasty
valve_alone	33421 mitral valvuloplasty
valve_alone	33422 mitral valvuloplasty
valve_alone	33423 mitral valvuloplasty
valve_alone	33424 mitral valvuloplasty
valve_alone	33425 mitral valvuloplasty
valve_alone	33426 mitral valvuloplasty
valve_alone	33427 mitral valvuloplasty
valve_alone	33430 mitral replacement
valve_alone	33460 Tricuspid valvectomy
valve_alone	33463 Tricuspid valvuloplasty
valve_alone	33464 Tricuspid valvuloplasty
valve_alone	33465 Tricuspid replacement
valve_alone	33468 Tricuspid repositioning and plication for Ebstein anomaly
valve_alone	33470 Pulmonary valvotomy
valve_alone	33474 Pulmonary valvotomy
valve_alone	33475 Pulmonary replacement
valve_alone	33476 Pulmonary RV infundibular stenosis or outflow tract augmentation
valve_alone	33478 Pulmonary RV infundibular stenosis or outflow tract augmentation
valve_alone	33496 Other repair of non-structural prosthetic valve dysfunction with CPB
Other	33502 Repair of anomalous coronary origin by ligation
Other	33503 repair anomalous coronary by graft without CPB
Other	33504 repair anomalous coronary by graft with CPB
Other	33505 repair anomalous coronary by graft with CPB
Other	33506 repair anomalous coronary by graft with CPB
Other	33507 repair anomalous coronary by graft with CPB
Other	33641 septal defect - ASD closure
Other	33647 septal defect - ASD/VSD direct or with patch
Other	33681 septal defect - VSD closure
Other	33684 septal defect - VSD closure
Other	33688 septal defect - VSD closure

CPT Codes	CPT Labels	ICD9 CODES	ICD9 LABELS	VALIDATED ICD10 CODES	ICD10 CODE Labels	
70450	head CT w/o contrast	43300	OCCLUSION&STENOS BASILAR ART W/O MENTION INFARCT	G8100	Flaccid hemiplegia affecting unspecified side	mapped from history of previous stroke ICD-9 codes 342XX or 438XX
70460	head CT w/ contrast	43301	OCCLUSION&STENOS BASILAR ARTERY W/INFARCT	G8110	Spastic hemiplegia affecting unspecified side	
70470	head CT with or w/o contrast	43310	OCCLUSION&STENOS CAROTID ART W/O MENTION INFARCT	G8190	Hemiplegia, unspecified affecting unspecified side	mapped from transient ischemic attack ICD-9 codes 435XX or 781.4
		43320	OCCLUSION&STENOS VERT ART W/O MENTION INFARCT	I69928	Other speech and language deficits following unspecified cerebrovascular disease	
		43330	OCCL&STENOS MX&BILAT PRECERBRL ART W/O INFARCT	I69920	Aphasia following unspecified cerebrovascular disease	
		43331	OCCL&STENOS MX&BILAT PRECERBRL ART W/INFARCT	I69921	Dysphasia following unspecified cerebrovascular disease	
		43380	OCCL&STENOS OTH SPEC PRECERBRL ART W/O INFARCT	I69922	Dysarthria following unspecified cerebrovascular disease	
		43381	OCCL&STENOS OTH SPEC PRECERBRL ART W/INFARCT	I69923	Fluency disorder following unspecified cerebrovascular disease	
		43390	OCCL&STENOS UNS PRECERBRL ART W/O INFARCT	I69959	Hemiplegia and hemiparesis following unspecified cerebrovascular disease affecting unspecified side	
		43391	OCCLUSION&STENOS UNSPEC PRECERBRL ART W/INFARCT	I69939	Monoplegia of upper limb following unspecified cerebrovascular disease affecting unspecified side	
		4340	CEREBRAL THROMBOSIS	I69949	Monoplegia of lower limb following unspecified cerebrovascular disease affecting unspecified side	
		43400	CEREBRAL THROMBOSIS WITHOUT MENTION INFARCT	I69969	Other paralytic syndrome following unspecified cerebrovascular disease affecting unspecified side	
		43401	CEREBRAL THROMBOSIS WITH CEREBRAL INFARCTION	I69965	Other paralytic syndrome following unspecified cerebrovascular disease, bilateral	
		43410	CEREBRAL EMBOLISM WITHOUT MENTION INFARCT	I69990	Apraxia following unspecified cerebrovascular disease	
		43411	CEREBRAL EMBOLISM WITH CEREBRAL INFARCTION	I69991	Dysphagia following unspecified cerebrovascular disease	
		43490	UNSPEC CERBRL ART OCCLUSION W/O MENTION INFARCT	I69992	Facial weakness following unspecified cerebrovascular disease	
		43491	UNSPECIFIED CEREBRAL ARTERY OCCLUSION W/INFARCT	I69993	Ataxia following unspecified cerebrovascular disease	
		43410	CEREBRAL EMBOLISM WITHOUT MENTION INFARCT	G8101	Flaccid hemiplegia affecting right dominant side	
		4350	BASILAR ARTERY SYNDROME	G8102	Flaccid hemiplegia affecting left dominant side	
		4351	Vertebral artery syndrome	G8103	Flaccid hemiplegia affecting right nondominant side	
		4352	Subclavian steal syndrome	G8104	Flaccid hemiplegia affecting left nondominant side	
		4353	Vertebrobasilar artery syndrome	G8111	Spastic hemiplegia affecting right dominant side	
		4358	Other specified transient cerebral ischemias	G8112	Spastic hemiplegia affecting left dominant side	
		4359	Unspecified transient cerebral ischemia	G8113	Spastic hemiplegia affecting right nondominant side	
				G8114	Spastic hemiplegia affecting left nondominant side	
				G8191	Hemiplegia, unspecified affecting right dominant side	
				G8192	Hemiplegia, unspecified affecting left dominant side	
				G8193	Hemiplegia, unspecified affecting right nondominant side	
				G8194	Hemiplegia, unspecified affecting left nondominant side	
				H53129	Transient visual loss, unspecified eye	
				G450	Vertebro-basilar artery syndrome	
				I651	Occlusion and stenosis of basilar artery	
				I6322	Cerebral infarction due to unspecified occlusion or stenosis of basilar arteries	
				I6529	Occlusion and stenosis of unspecified carotid artery	
				I6509	Occlusion and stenosis of unspecified vertebral artery	
				I658	Occlusion and stenosis of other precerebral arteries	
				I6359	Cerebral infarction due to unspecified occlusion or stenosis of other cerebral artery	
				I659	Occlusion and stenosis of unspecified precerebral artery	
				I6320	Cerebral infarction due to unspecified occlusion or stenosis of unspecified precerebral arteries	
				I6330	Cerebral infarction due to thrombosis of unspecified cerebral artery	
				I6340	Cerebral infarction due to embolism of unspecified cerebral artery	
				I669	Occlusion and stenosis of unspecified cerebral artery	
				I6350	Cerebral infarction due to unspecified occlusion or stenosis of unspecified cerebral artery	
				I63139	Cerebral infarction due to embolism of unspecified carotid artery	
				I63239	Cerebral infarction due to unspecified occlusion or stenosis of unspecified carotid arteries	
				I63019	Cerebral infarction due to thrombosis of unspecified vertebral artery	
				I63119	Cerebral infarction due to embolism of unspecified vertebral artery	
				I63219	Cerebral infarction due to unspecified occlusion or stenosis of unspecified vertebral arteries	
				R29890	Loss of height	
				R293	Abnormal posture	
				R29891	Ocular torticollis	
				R29810	Facial weakness	
				R29818	Other symptoms and signs involving the nervous system	
				R29898	Other symptoms and signs involving the musculoskeletal system	
				R2990	Unspecified symptoms and signs involving the nervous system	
				R2991	Unspecified symptoms and signs involving the musculoskeletal system	
				R250	Abnormal head movements	
				R251	Tremor, unspecified	
				R252	Cramp and spasm	
				R253	Fasciculation	
				R259	Unspecified abnormal involuntary movements	
				H3400	Transient retinal artery occlusion, unspecified eye	
				I69951	Hemiplegia and hemiparesis following unspecified cerebrovascular disease affecting right dominant side	
				I69952	Hemiplegia and hemiparesis following unspecified cerebrovascular disease affecting left dominant side	
				I69953	Hemiplegia and hemiparesis following unspecified cerebrovascular disease affecting right non-dominant side	
				I69954	Hemiplegia and hemiparesis following unspecified cerebrovascular disease affecting left non-dominant side	

I69931	Monoplegia of upper limb following unspecified cerebrovascular disease affecting right dominant side
I69932	Monoplegia of upper limb following unspecified cerebrovascular disease affecting left dominant side
I69933	Monoplegia of upper limb following unspecified cerebrovascular disease affecting right non-dominant side
I69934	Monoplegia of upper limb following unspecified cerebrovascular disease affecting left non-dominant side
I69941	Monoplegia of lower limb following unspecified cerebrovascular disease affecting right dominant side
I69942	Monoplegia of lower limb following unspecified cerebrovascular disease affecting left dominant side
I69943	Monoplegia of lower limb following unspecified cerebrovascular disease affecting right non-dominant side
I69944	Monoplegia of lower limb following unspecified cerebrovascular disease affecting left non-dominant side
I69961	Other paralytic syndrome following unspecified cerebrovascular disease affecting right dominant side
I69962	Other paralytic syndrome following unspecified cerebrovascular disease affecting left dominant side
I69963	Other paralytic syndrome following unspecified cerebrovascular disease affecting right non-dominant side
I69964	Other paralytic syndrome following unspecified cerebrovascular disease affecting left non-dominant side
I69898	Other sequelae of other cerebrovascular disease
I69998	Other sequelae following unspecified cerebrovascular disease
I6609	Occlusion and stenosis of unspecified middle cerebral artery
I6619	Occlusion and stenosis of unspecified anterior cerebral artery
	Occlusion and stenosis of unspecified posterior cerebral artery

Carotid Artery Repair Index Procedure Codes

Subcategory	CPT Codes	CPT Labels	ICD9 CODES	ICD9 LABELS	VALIDATED ICD10 CODES	ICD10 CODE LABELS
NONE	35301	CEA CPT Code	3812	CEA Primary Procedure code	03CH0ZZ	Extirpation of Matter from Right Common Carotid Artery, Open Approach
NONE	37215	CAS CPT code	0061	CAS Primary Procedure Code	03CH4ZZ	Extirpation of Matter from Right Common Carotid Artery, Percutaneous Endoscopic Approach
NONE	37216	CAS CPT code	0063	CAS Primary Procedure Code	03CJ0ZZ	Extirpation of Matter from Left Common Carotid Artery, Open Approach
NONE					03CJ4ZZ	Extirpation of Matter from Left Common Carotid Artery, Percutaneous Endoscopic Approach
NONE					03CK0ZZ	Extirpation of Matter from Right Internal Carotid Artery, Open Approach
NONE					03CK4ZZ	Extirpation of Matter from Right Internal Carotid Artery, Percutaneous Endoscopic Approach
NONE					03CL0ZZ	Extirpation of Matter from Left Internal Carotid Artery, Open Approach
NONE					03CL4ZZ	Extirpation of Matter from Left Internal Carotid Artery, Percutaneous Endoscopic Approach
NONE					03CM0ZZ	Extirpation of Matter from Right External Carotid Artery, Open Approach
NONE					03CM4ZZ	Extirpation of Matter from Right External Carotid Artery, Percutaneous Endoscopic Approach
NONE					03CN0ZZ	Extirpation of Matter from Left External Carotid Artery, Open Approach
NONE					03CN4ZZ	Extirpation of Matter from Left External Carotid Artery, Percutaneous Endoscopic Approach
NONE					03CP0ZZ	Extirpation of Matter from Right Vertebral Artery, Open Approach
NONE					03CP4ZZ	Extirpation of Matter from Right Vertebral Artery, Percutaneous Endoscopic Approach
NONE					03CQ0ZZ	Extirpation of Matter from Left Vertebral Artery, Open Approach
NONE					03CQ4ZZ	Extirpation of Matter from Left Vertebral Artery, Percutaneous Endoscopic Approach
NONE					037H34Z	Dilation of Right Common Carotid Artery with Drug-eluting Intraluminal Device, Percutaneous Approach
NONE					037H3DZ	Dilation of Right Common Carotid Artery with Intraluminal Device, Percutaneous Approach
NONE					037H3ZZ	Dilation of Right Common Carotid Artery, Percutaneous Approach
NONE					037H44Z	Dilation of Right Common Carotid Artery with Drug-eluting Intraluminal Device, Percutaneous Endoscopic Approach
NONE					037H4DZ	Dilation of Right Common Carotid Artery with Intraluminal Device, Percutaneous Endoscopic Approach
NONE					037H4ZZ	Dilation of Right Common Carotid Artery, Percutaneous Endoscopic Approach
NONE					037J34Z	Dilation of Left Common Carotid Artery with Drug-eluting Intraluminal Device, Percutaneous Approach
NONE					037J3DZ	Dilation of Left Common Carotid Artery with Intraluminal Device, Percutaneous Approach
NONE					037J3ZZ	Dilation of Left Common Carotid Artery, Percutaneous Approach
NONE					037J44Z	Dilation of Left Common Carotid Artery with Drug-eluting Intraluminal Device, Percutaneous Endoscopic Approach
NONE					037J4DZ	Dilation of Left Common Carotid Artery with Intraluminal Device, Percutaneous Endoscopic Approach
NONE					037J4ZZ	Dilation of Left Common Carotid Artery, Percutaneous Endoscopic Approach
NONE					037K34Z	Dilation of Right Internal Carotid Artery with Drug-eluting Intraluminal Device, Percutaneous Approach
NONE					037K3DZ	Dilation of Right Internal Carotid Artery with Intraluminal Device, Percutaneous Approach
NONE					037K3ZZ	Dilation of Right Internal Carotid Artery, Percutaneous Approach
NONE					037K44Z	Dilation of Right Internal Carotid Artery with Drug-eluting Intraluminal Device, Percutaneous Endoscopic Approach
NONE					037K4DZ	Dilation of Right Internal Carotid Artery with Intraluminal Device, Percutaneous Endoscopic Approach
NONE					037K4ZZ	Dilation of Right Internal Carotid Artery, Percutaneous Endoscopic Approach
NONE					037L34Z	Dilation of Left Internal Carotid Artery with Drug-eluting Intraluminal Device, Percutaneous Approach
NONE					037L3DZ	Dilation of Left Internal Carotid Artery with Intraluminal Device, Percutaneous Approach
NONE					037L3ZZ	Dilation of Left Internal Carotid Artery, Percutaneous Approach
NONE					037L44Z	Dilation of Left Internal Carotid Artery with Drug-eluting Intraluminal Device, Percutaneous Endoscopic Approach
NONE					037L4DZ	Dilation of Left Internal Carotid Artery with Intraluminal Device, Percutaneous Endoscopic Approach
NONE					037L4ZZ	Dilation of Left Internal Carotid Artery, Percutaneous Endoscopic Approach
NONE					037M34Z	Dilation of Right External Carotid Artery with Drug-eluting Intraluminal Device, Percutaneous Approach
NONE					037M3DZ	Dilation of Right External Carotid Artery with Intraluminal Device, Percutaneous Approach
NONE					037M3ZZ	Dilation of Right External Carotid Artery, Percutaneous Approach
NONE					037M44Z	Dilation of Right External Carotid Artery with Drug-eluting Intraluminal Device, Percutaneous Endoscopic Approach
NONE					037M4DZ	Dilation of Right External Carotid Artery with Intraluminal Device, Percutaneous Endoscopic Approach
NONE					037M4ZZ	Dilation of Right External Carotid Artery, Percutaneous Endoscopic Approach
NONE					037N34Z	Dilation of Left External Carotid Artery with Drug-eluting Intraluminal Device, Percutaneous Approach
NONE					037N3DZ	Dilation of Left External Carotid Artery with Intraluminal Device, Percutaneous Approach
NONE					037N3ZZ	Dilation of Left External Carotid Artery, Percutaneous Approach
NONE					037N44Z	Dilation of Left External Carotid Artery with Drug-eluting Intraluminal Device, Percutaneous Endoscopic Approach
NONE					037N4DZ	Dilation of Left External Carotid Artery with Intraluminal Device, Percutaneous Endoscopic Approach
NONE					037N4ZZ	Dilation of Left External Carotid Artery, Percutaneous Endoscopic Approach

Codes that map to ICD-9 code 3812

Codes that map to ICD-9 code 0061

No codes mapped to ICD-9 code 0063

NONE	037P34Z	Dilation of Right Vertebral Artery with Drug-eluting Intraluminal Device, Percutaneous Approach
NONE	037P3DZ	Dilation of Right Vertebral Artery with Intraluminal Device, Percutaneous Approach
NONE	037P3ZZ	Dilation of Right Vertebral Artery, Percutaneous Approach
NONE	037P44Z	Dilation of Right Vertebral Artery with Drug-eluting Intraluminal Device, Percutaneous Endoscopic Approach
NONE	037P4DZ	Dilation of Right Vertebral Artery with Intraluminal Device, Percutaneous Endoscopic Approach
NONE	037P4ZZ	Dilation of Right Vertebral Artery, Percutaneous Endoscopic Approach
NONE	037Q34Z	Dilation of Left Vertebral Artery with Drug-eluting Intraluminal Device, Percutaneous Approach
NONE	037Q3DZ	Dilation of Left Vertebral Artery with Intraluminal Device, Percutaneous Approach
NONE	037Q3ZZ	Dilation of Left Vertebral Artery, Percutaneous Approach
NONE	037Q44Z	Dilation of Left Vertebral Artery with Drug-eluting Intraluminal Device, Percutaneous Endoscopic Approach
NONE	037Q4DZ	Dilation of Left Vertebral Artery with Intraluminal Device, Percutaneous Endoscopic Approach
NONE	037Q4ZZ	Dilation of Left Vertebral Artery, Percutaneous Endoscopic Approach
NONE	03CH3ZZ	Extirpation of Matter from Right Common Carotid Artery, Percutaneous Approach
NONE	03CJ3ZZ	Extirpation of Matter from Left Common Carotid Artery, Percutaneous Approach
NONE	03CK3ZZ	Extirpation of Matter from Right Internal Carotid Artery, Percutaneous Approach
NONE	03CL3ZZ	Extirpation of Matter from Left Internal Carotid Artery, Percutaneous Approach
NONE	03CM3ZZ	Extirpation of Matter from Right External Carotid Artery, Percutaneous Approach
NONE	03CN3ZZ	Extirpation of Matter from Left External Carotid Artery, Percutaneous Approach
NONE	03CP3ZZ	Extirpation of Matter from Right Vertebral Artery, Percutaneous Approach
NONE	03CQ3ZZ	Extirpation of Matter from Left Vertebral Artery, Percutaneous Approach

SUBCATEGORY (IF GIVEN)	ICD9 CODES	ICD9 Labels	VALIDATED ICD10 CODES	ICD10 CODE Labels
CAT_READMIN1...n = 1 (Vascular complications)	99771	VASCULAR COMPLICATIONS OF MESENTERIC ARTERY	T81710A	Complication of mesenteric artery following a procedure, not elsewhere classified, initial encounter
CAT_READMIN1...n = 1 (Vascular complications)	99772	VASCULAR COMPLICATIONS OF RENAL ARTERY	T81711A	Complication of renal artery following a procedure, not elsewhere classified, initial encounter
CAT_READMIN1...n = 1 (Vascular complications)	99779	VASCULAR COMPLICATIONS OF OTHER VESSELS	T81718A	Complication of other artery following a procedure, not elsewhere classified, initial encounter
CAT_READMIN1...n = 1 (Vascular complications)			T8172XA	Complication of vein following a procedure, not elsewhere classified, initial encounter
CAT_READMIN1...n = 2 (Infectious complications)	99851	INFECTED POSTOPERATIVE SEROMA NEC	T814XXA	Infection following a procedure, initial encounter
CAT_READMIN1...n = 2 (Infectious complications)	99859	OTHER POSTOPERATIVE INFECTION NEC	K6811	Postprocedural retroperitoneal abscess
CAT_READMIN1...n = 3 (Postoperative vascular complications)			197811	Intraoperative cerebrovascular infarction during other surgery
CAT_READMIN1...n = 3 (Postoperative vascular complications)	99702	IATROGENIC CEREBROVASCULAR INFARCT/HEMORRHAGE NE	197821	Postprocedural cerebrovascular infarction following other surgery
CAT_READMIN1...n = 3 (Postoperative vascular complications)				
CAT_READMIN1...n = 4 (Cardiac complications)	9971	CARDIAC COMPLICATIONS NEC	I471	Supraventricular tachycardia
CAT_READMIN1...n = 4 (Cardiac complications)	4280	CONGESTIVE HEART FAILURE UNSPECIFIED	I469	Cardiac arrest, cause unspecified
CAT_READMIN1...n = 4 (Cardiac complications)	4281	LEFT HEART FAILURE	I499	Cardiac arrhythmia, unspecified
CAT_READMIN1...n = 4 (Cardiac complications)	42820	UNSPECIFIED SYSTOLIC HEART FAILURE	I509	Heart failure, unspecified
CAT_READMIN1...n = 4 (Cardiac complications)	42821	ACUTE SYSTOLIC HEART FAILURE	I501	Left ventricular failure
CAT_READMIN1...n = 4 (Cardiac complications)	42822	CHRONIC SYSTOLIC HEART FAILURE	I4891	Unspecified atrial fibrillation
CAT_READMIN1...n = 4 (Cardiac complications)	42823	ACUTE ON CHRONIC SYSTOLIC HEART FAILURE	I4892	Unspecified atrial flutter
CAT_READMIN1...n = 4 (Cardiac complications)	42830	UNSPECIFIED DIASTOLIC HEART FAILURE	I4901	Ventricular fibrillation
CAT_READMIN1...n = 4 (Cardiac complications)	42831	ACUTE DIASTOLIC HEART FAILURE	I4902	Ventricular flutter
CAT_READMIN1...n = 4 (Cardiac complications)	42832	CHRONIC DIASTOLIC HEART FAILURE	I5020	Unspecified systolic (congestive) heart failure
CAT_READMIN1...n = 4 (Cardiac complications)	42833	ACUTE ON CHRONIC DIASTOLIC HEART FAILURE	I5021	Acute systolic (congestive) heart failure
CAT_READMIN1...n = 4 (Cardiac complications)	42840	UNSPEC COMBINED SYSTOLIC&DIASTOLIC HEART FAILURE	I5022	Chronic systolic (congestive) heart failure
CAT_READMIN1...n = 4 (Cardiac complications)	42841	ACUTE COMBINED SYSTOLIC&DIASTOLIC HEART FAILURE	I5023	Acute on chronic systolic (congestive) heart failure
CAT_READMIN1...n = 4 (Cardiac complications)	42842	CHRONIC COMB SYSTOLIC&DIASTOLIC HEART FAILURE	I5030	Unspecified diastolic (congestive) heart failure
CAT_READMIN1...n = 4 (Cardiac complications)	42843	ACUTE CHRONIC COMB SYSTOLIC&DIASTOLIC HEART FAIL	I5031	Acute diastolic (congestive) heart failure
CAT_READMIN1...n = 4 (Cardiac complications)	42843	ACUTE CHRONIC COMB SYSTOLIC&DIASTOLIC HEART FAIL	I5032	Chronic diastolic (congestive) heart failure
CAT_READMIN1...n = 4 (Cardiac complications)	4289	UNSPECIFIED HEART FAILURE	I5033	Acute on chronic diastolic (congestive) heart failure
CAT_READMIN1...n = 4 (Cardiac complications)	4270	PAROXYSMAL SUPRAVENTRICULAR TACHYCARDIA	I5040	Unspecified combined systolic (congestive) and diastolic (congestive) heart failure
CAT_READMIN1...n = 4 (Cardiac complications)	4273	ATRIAL FIBRILLATION AND FLUTTER	I5041	Acute combined systolic (congestive) and diastolic (congestive) heart failure
CAT_READMIN1...n = 4 (Cardiac complications)	42741	VENTRICULAR FIBRILLATION	I5042	Chronic combined systolic (congestive) and diastolic (congestive) heart failure
CAT_READMIN1...n = 4 (Cardiac complications)	42742	VENTRICULAR FLUTTER	I5043	Acute on chronic combined systolic (congestive) and diastolic (congestive) heart failure
CAT_READMIN1...n = 4 (Cardiac complications)	4275	CARDIAC ARREST	I495	Sick sinus syndrome
CAT_READMIN1...n = 4 (Cardiac complications)	4278	OTHER SPECIFIED CARDIAC DYSRHYTHMIAS	R001	Bradycardia, unspecified
CAT_READMIN1...n = 4 (Cardiac complications)	4279	UNSPECIFIED CARDIAC DYSRHYTHMIA	I498	Other specified cardiac arrhythmias
CAT_READMIN1...n = 4 (Cardiac complications)			197710	Intraoperative cardiac arrest during cardiac surgery
CAT_READMIN1...n = 4 (Cardiac complications)			197790	Other intraoperative cardiac functional disturbances during cardiac surgery
CAT_READMIN1...n = 4 (Cardiac complications)			19788	Other intraoperative complications of the circulatory system, not elsewhere classified
CAT_READMIN1...n = 4 (Cardiac complications)			19789	Other postprocedural complications and disorders of the circulatory system, not elsewhere classified
CAT_READMIN1...n = 5 (urinary/renal complications)	9975	SURG COMPLICATION URINARY TRACT	N135	Crossing vessel and stricture of ureter without hydronephrosis
CAT_READMIN1...n = 5 (urinary/renal complications)	5933	STRICTURE OR KINKING OF URETER	N289	Disorder of kidney and ureter, unspecified
CAT_READMIN1...n = 5 (urinary/renal complications)	5939	UNSPECIFIED DISORDER OF KIDNEY AND URETER	N9989	Other postprocedural complications and disorders of genitourinary system
CAT_READMIN1...n = 6 (GI complications)	9974	DIGESTIVE SYSTEM COMPLICATION NEC	K550	Acute vascular disorders of intestine
CAT_READMIN1...n = 6 (GI complications)	5609	UNSPECIFIED INTESTINAL OBSTRUCTION	K559	Vascular disorder of intestine, unspecified
CAT_READMIN1...n = 6 (GI complications)	5570	ACUTE VASCULAR INSUFFICIENCY OF INTESTINE	K5660	Unspecified intestinal obstruction
CAT_READMIN1...n = 6 (GI complications)	5579	UNSPECIFIED VASCULAR INSUFFICIENCY OF INTESTINE	K9186	Retained cholelithiasis following cholecystectomy

CAT_READMIN1...n = 6 (GI complications)			K913	Postprocedural intestinal obstruction
CAT_READMIN1...n = 6 (GI complications)			K9181	Other intraoperative complications of digestive system
CAT_READMIN1...n = 6 (GI complications)			K9189	Other postprocedural complications and disorders of digestive system
CAT_READMIN1...n = 7 (respiratory complications)	9973	RESPIRATORY COMPLICATIONS NEC	J810	Acute pulmonary edema
CAT_READMIN1...n = 7 (respiratory complications)	5184	UNSPECIFIED ACUTE EDEMA OF LUNG	J95851	Ventilator associated pneumonia
CAT_READMIN1...n = 7 (respiratory complications)	5185	PULMONARY INSUFFICIENCY FOLLOWING TRAUMA&SURGERY	J95821	Acute postprocedural respiratory failure
CAT_READMIN1...n = 7 (respiratory complications)			J9600	Acute respiratory failure, unspecified whether with hypoxia or hypercapnia
CAT_READMIN1...n = 7 (respiratory complications)			J95822	Acute and chronic postprocedural respiratory failure
CAT_READMIN1...n = 7 (respiratory complications)			J9620	Acute and chronic respiratory failure, unspecified whether with hypoxia or hypercapnia
CAT_READMIN1...n = 7 (respiratory complications)			J951	Acute pulmonary insufficiency following thoracic surgery
CAT_READMIN1...n = 7 (respiratory complications)			J952	Acute pulmonary insufficiency following nonthoracic surgery
CAT_READMIN1...n = 7 (respiratory complications)			J953	Chronic pulmonary insufficiency following surgery
CAT_READMIN1...n = 7 (respiratory complications)			J95859	Other complication of respirator [ventilator]
CAT_READMIN1...n = 7 (respiratory complications)			J9588	Other intraoperative complications of respiratory system, not elsewhere classified
CAT_READMIN1...n = 7 (respiratory complications)			J9589	Other postprocedural complications and disorders of respiratory system, not elsewhere classified

CPT Procedure Codes	CPT Labels
70491	CTA neck, with or without contrast
70498	CTA neck, with or without contrast
70547	MRI neck/head,
70548	MRI neck/head,
70549	MRI neck/head,
93880	carotid duplex ultrasound
93882	carotid duplex ultrasound
75676	carotid angiography
75680	carotid angiography
70491	CTA neck, with or without contrast
70498	CTA neck, with or without contrast
70547	MRI neck/head, w/o contrast
70548	MRI neck/head, w/ contrast
70549	MRI neck w w/o contrast
93880	carotid duplex ultrasound
93882	carotid duplex ultrasound
75676	carotid angiography
75680	carotid angiography
70450	head CT w/o contrast
70460	head CT w/ contrast
70470	head CT with or w/o contrast
70490	CT neck w/o contrast
70545	MRA head w/ contrast
70546	MRA head w w/o contrast
70551	MRI brain w/o contrast
70553	MRI brain w w/o contrast