

Supplementary tables:

Table 1: Modified condition category constituents

Modified condition category name and number	Constituent CMS condition category codes	Additional ICD-9 CM diagnostic codes
1. Heart failure	80	
2. Acute myocardial infarction	81	
3. Unstable angina and other ischemic heart disease	82	
4. Chronic angina and coronary heart disease	83, 84	
5. Valvular/ Rheumatic heart disease	86	
6. Other cardiac disease including congenital heart disease and hypertensive disease	85, 87 – 91, 94	
7. Arrhythmias and conduction disorders	92, 93	
8. Chest pain	N/A (Constituent ICD-9-CM codes on the right)	786.50, 786.59
9. Syncope	N/A (Constituent ICD-9-CM codes on the right)	780.2
10. Acute stroke (ischemic or unspecified stroke)	96	
11. Precerebral arterial occlusion or transient cerebral ischemia	97	
12. Pulmonary embolism/Deep venous thrombosis	N/A (Constituent ICD-9-CM codes on the right)	415.1, 415.11, 415.19, 453.4, 453.40, 453.41, 453.42, 453.8, 453.8(1-7,9), 453.9
13. Other peripheral vascular disease	104 – 106 (Excluded ICD-9-CM codes on the right)	Exclude: 415.1, 415.11, 415.19, 453.4, 453.40, 453.41, 453.42, 453.8, 453.8(1-7,9), 453.9, 458.0, 458.1, 458.21, 458.29, 458.8, 458.9
14. Cardio-respiratory failure	77 – 79	
15. COPD/Asthma - Fibrosis of lungs and other lung disorders	108 – 110	
16. Pneumonia including aspiration pneumonitis	111 – 113	
17. Septicemia/shock	2	
18. UTI and urinary system complaint	135	
19. Cellulitis, local skin infections	152	
20. Surgical site infection and wound disruption	N/A (Constituent ICD-9-CM codes on the right)	998.5, 998.51, 998.59, 998.3, 998.30, 998.31, 99.32
21. Central nervous system infections	3	
22. Clostridium difficile-associated	N/A (Constituent ICD-9-CM	8.45

infections	codes on the right)	
23. Renal disorder including renal failure and fluid, electrolyte, and acid base abnormalities	23, 131	
24. Cerebral Hemorrhage	95	
25. Hemorrhage (including GI hmg, GU hmg, hemorrhagic anemia and other anticoagulation related hemorrhage, excluding cerebral hmg)	N/A (Constituent ICD-9-CM codes on the right)	285.1, 286.5, 286.7, 286.9, 531.0, 531.00, 531.01, 531.2, 531.20, 531.21, 531.4, 531.40, 531.41, 531.6, 531.60, 531.61, 532.0, 532.00, 532.01, 532.2, 532.20, 532.21, 532.4, 532.40, 532.41, 532.6, 532.60, 532.61, 533.0, 533.00, 533.01, 533.2, 533.20, 533.21, 533.4, 533.40, 533.41, 533.6, 533.60, 533.61, 534.0, 534.00, 534.01, 534.2, 534.20, 534.21, 534.4, 534.40, 534.41, 534.6, 534.60, 534.61, 535.01, 535.11, 535.41, 535.51, 535.61, 562.02, 562.12, 569.3, 578, 578.0, 578.1, 578.9, 596.7
26. Diabetes and its complications	15, 16, 17, 18, 19, 20	
27. Complications of care	163, 164, 165	
28. Migraine and other headache syndromes	N/A (Constituent ICD-9-CM codes on the right)	346, 346.(0-9), 339, 339.0, 339.0(1-5), 339.09, 339.1, 339.1(0-2), 339.3, 339.4, 339.4(1-4), 339.8, 339.8(1-5,9), 349.0, 784.0
29. Disorders of peripheral nervous system		351, 351.0, 351.8, 351.9, 352.3, 352.5
30. Other admitting diagnosis	See supplementary table 2	

Table 2: Other admitting diagnosis

Modified condition category name and number	Constituent CMS condition category codes	Additional ICD-9 CM diagnostic codes
1. Other infections	1, 4, 5, 6	
2. Cancer	7 -14	
3. Endocrine/Metabolic	21, 22, 24	
4. Liver and gall bladder diseases	25 – 30	
5. Digestive (Gastrointestinal)	31 -36 (Excluding ICD-9-CM codes on the right)	Exclude: 531.0, 531.00, 531.01, 531.2, 531.20, 531.21, 531.4, 531.40, 531.41, 531.6, 531.60, 531.61, 532.0, 532.00, 532.01, 532.2, 532.20, 532.21, 532.4, 532.40, 532.41, 532.6, 532.60, 532.61, 533.0, 533.00, 533.01, 533.2, 533.20, 533.21, 533.4, 533.40, 533.41, 533.6, 533.60, 533.61, 534.0, 534.00, 534.01, 534.2, 534.20, 534.21, 534.4, 534.40, 534.41,

		534.6, 534.60, 534.61, 535.01, 535.11, 535.41, 535.51, 535.61, 562.02, 562.12, 569.3, 578, 578.0, 578.1, 578.9
6. Musculoskeletal	37 – 43	
7. Other hematologic	44 – 46	
8. Cognitive	48 – 50	
9. Substance abuse	51 – 53	
10. Psychiatric	54 – 60	
11. Development disorder	61 – 66	
12. Spinal cord	67 – 69	
13. Neuromuscular	70 – 76	
14. Non-acute cerebrovascular disease	98 -103	
15. Other pulmonary	107	
16. Pleural effusion/pneumothorax	114	
17. Ophthalmologic	116 – 124	
18. Ear, nose and throat	125 – 127	
19. Other renal	128 – 130, 132	
20. Genitourinary	133, 134, 136 – 140	
21. Obstetric	141 – 147	
22. Skin ulcer including decubitus ulcer	148, 149	
23. Other dermatological	150, 151, 153	
24. Injury including hip fracture	154 – 162	
25. Symptoms (major and minor) excluding respiratory	166, 167 (Excluding ICD-9-CM codes on the right)	Exclude: 786.50, 786.59, 780.2
26. Neonatal	168 – 172	
27. Organ transplant	173 – 175	
28. Miscellaneous surgical and non-surgical procedures	176 – 182	
29. Durable medical equipment	185 – 189	
30. Other	183, 184	
31. Hypotension		458.0, 458.1, 458.21, 458.29, 458.8, 458.9

Table 3 Baseline characteristics of the propensity-matched cohort

	CAS (N=32119) N (%)	CEA (N=32119) N (%)	Standardized Difference (%)
<i>Demographics</i>			
Aged 65 (Age > 65, Continuous)	11.19 (6.59)	11.2 (6.42)	-0.21
Male gender	17413 (54.21)	17697 (55.1)	-1.79
Caucasian race	29152 (90.76)	29054 (90.46)	1.03
<i>Vascular Comorbidity</i>			
Symptomatic Carotid Stenosis	4409 (13.73)	4449 (13.85)	-0.35
Diabetes or DM complications	13279 (41.34)	13509 (42.06)	-1.46

Diabetes with Neurologic or Peripheral Circulatory Manifestation	2205 (6.87)	2263 (7.05)	-0.71
Precerebral Arterial Occlusion and Transient Cerebral Ischemia	23740 (73.91)	23947 (74.56)	-1.49
Cerebral Atherosclerosis and Aneurysm	5345 (16.64)	5072 (15.79)	2.31
Cerebrovascular Disease, Unspecified	1230 (3.83)	1277 (3.98)	-0.77
Cerebrovascular Disease Late Effects, Unspecified	1609 (5.01)	1595 (4.97)	0.18
Vascular Disease with Complications	2011 (6.26)	2129 (6.63)	-1.51
Vascular Disease	14423 (44.9)	14871 (46.3)	-2.81
<i>Other Comorbidity</i>			
History of infection	6230 (19.4)	6221 (19.37)	0.08
Metastatic cancer or acute leukemia	549 (1.71)	596 (1.86)	-1.13
Cancer	6934 (21.59)	7089 (22.07)	-1.16
Benign neoplasms of skin, breast and eye	4031 (12.55)	4008 (12.48)	0.21
Protein-calorie malnutrition	1068 (3.33)	1051 (3.27)	0.34
Disorders of fluid, electrolyte, acid-base	6695 (20.84)	6734 (20.97)	-0.32
Other Endocrine/Metabolic/Nutritional Disorders	26681 (83.07)	26906 (83.77)	-1.88
Pancreatic Disease	468 (1.46)	501 (1.56)	-0.82
Peptic Ulcer, Hemorrhage, Other Specified Gastrointestinal Disorders	2543 (7.92)	2596 (8.08)	-0.59
Severe hematological disorders	471 (1.47)	514 (1.6)	-1.06
Dementia or other specified brain disorders	4759 (14.82)	4751 (14.79)	0.08
Hemiplegia, paraplegia, paralysis, functional disability	2921 (9.09)	2943 (9.16)	-0.24
Congestive heart failure	7687 (23.93)	8057 (25.08)	-2.67
Acute coronary syndrome	3305 (10.29)	3458 (10.77)	-1.56
Coronary atherosclerosis or angina	20297 (63.19)	20920 (65.13)	-4.05
Hypertensive Heart and Renal Disease or Encephalopathy	4911 (15.29)	5131 (15.97)	-1.87
Hypertensive heart disease	2226 (6.93)	2295 (7.15)	-0.86
Hypertension	27627 (86.01)	27663 (86.13)	-0.35
Specified arrhythmias	11075 (34.48)	11213 (34.91)	-0.90
Ischemic or Unspecified Stroke	7570 (23.57)	7624 (23.74)	-0.40
COPD	9467 (29.47)	9649 (30.04)	-1.25
Pneumonia	4142 (12.9)	4282 (13.33)	-1.27
Other Lung Disorders	8183 (25.48)	8214 (25.57)	-0.21
End stage renal disease or dialysis	388 (1.21)	405 (1.26)	-0.45
Renal failure	6127 (19.08)	6404 (19.94)	-2.17
Chronic Ulcer of Skin, Except Decubitus	1282 (3.99)	1350 (4.2)	-1.06
Cellulitis, local skin infection	2860 (8.9)	2912 (9.07)	-0.59
Other injuries	7292 (22.7)	7382 (22.98)	-0.67