

GROUP	CATEGORY	CODES	NOTES/CODING RULES
Diagnoses	Unruptured aneurysm	437.3 (exclude 430 and 431)	<i>ICD-9 Diagnosis codes</i>
	Ruptured aneurysm	430 (subarachnoid hemorrhage) exclude ICD-9 diagnostic code 094.87 (ruptured syphilitic aneurysm-already excluded in 430) 437.4 (cerebral arteritis) 747.81 (arteriovenous malformation) 800.0-801.9, 803.0-804.9, 850.0-854.1, and 873.0-873.9 (traumatic hemorrhage) 39.53 or 92.30 (treatment diagnosis for arteriovenous malformation repair or radio surgery)	
Procedures	Coiling	39.52 (should also have a code 88.41 and no 39.51 during the same hospitalization) 39.72 39.79	<i>ICD-9 Procedure codes</i>
Independent Variables	Sex		
	Age		
	Stroke	433 434.91 434.11 434.01	<i>ICD-9 Diagnosis codes</i>
	MI	410 410.0-410.9 411 411.1 411.89 412 413 413.1	

	413.9 414 414.2 414.3 414.4 414.8 414.9	
COPD	491.0, 492.0, 494.0, 496.0 and 305.1, V15.82, 989.84	<i>ICD-9 Diagnosis codes</i>
CHF	398.91 402.11 402.91 404.11 404.13 404.91 404.93 428.0-428.9	
DM	250.00-250.33 250.40-250.73 250.90-250.93	
Coagulopathy	286.0-286.9 287.1 287.3-287.5	
CRF	403.11 403.91 404.12 404.92 585 586 V42.0 V45.1 V56.0 V56.8	
HTN	401.0-405.99	

	Hypercholesterolemia	272 272.0 272.1 272.2 272.3 272.4	
	Obesity	278.00 278.01	<i>ICD-9 Diagnosis codes</i>
	Alcohol abuse	291.1 291.2 291.5 291.8 291.9 303.90-303.93 305.00-305.03 V113	
	PVD	440.00-440.9 441.2 441.4 441.7 441.9 443.1-443.9 447.1 557.1 557.9 V43.4	
Outcomes (complications)	Death		
	Unfavorable discharge (DISPUNIFORM)		
	Stroke	997.02	<i>ICD-9 Diagnosis codes</i>
	Treated hydrocephalus	02.2 02.32 02.33 02.34 02.35	<i>ICD-9 Diagnosis codes</i>

	Cardiac complications	997.1	<i>ICD-9 Diagnosis codes</i>
	DVT	451.1 451.11 451.19 451.2 451.81 451.9 453.2 453.8 453.9	<i>ICD-9 Diagnosis codes</i>
	PE	415.0 415.1 415.11 415.13 415.19 V12.51	<i>ICD-9 Diagnosis codes</i>
	ARF	584 584.5 584.6 584.7 584.8 584.9 583	
	Length of Stay		

Model calibration

The Hosmer-Lemeshow test was calculated for the inpatient postoperative risk of death ($P=0.60$), unfavorable discharge ($P=0.12$), stroke ($P=0.26$), treated hydrocephalus ($P=0.25$), cardiac complications ($P=0.24$), DVT ($P=0.71$), PE ($P=0.09$), ARF ($P=0.81$), and prolonged length of stay (0.07), and demonstrated good calibration. In patients with ruptured aneurysms the Hosmer-Lemeshow test for death ($P=0.89$), unfavorable discharge ($P<0.001$), stroke ($P=0.43$), treated hydrocephalus ($P=0.01$), cardiac complications ($P=0.68$), DVT ($P=0.89$), PE ($P=0.21$), ARF ($P=0.29$), and prolonged length of stay (0.01) demonstrated good calibration also.