

Supplemental Digital Content 1: Table of ICD-9 Codes comorbidity codes use for pre-operative conditions and cardiac surgical procedures.

Description	ICD-9-CM Code
Coronary artery bypass graft	36.10-36.16
Open valve procedures	35.1, 35.10-35.14, 35.2, 35.20-35.28
Cardiopulmonary bypass	39.61, 39.62
Left ventricular assist device	37.66
Ischemic optic neuropathy	377.41
Obesity	278.x
Smoking	V15.82, 305.1
Hypertension	401.x, 402.x
Diabetes mellitus	250.x
Peripheral vascular disease	443.9
Atherosclerosis	440.x
Coronary artery disease	414.x
Carotid artery stenosis	433.x
Stroke (post-operative, acute, embolic and thrombotic)	997.02, 434.91, 434.11, 434.01
Blood transfusion	99.00, 99.04
Diabetes type I uncomplicated	250.01, 250.03
Diabetes type II uncomplicated	250.00, 250.02
Diabetes with renal manifestations	250.4, 240.40, 250.42
Diabetes with neurological manifestations	250.6, 250.60, 250.62
Diabetes with peripheral circulatory disorders	250.7, 250.70-250.73
Diabetes with ophthalmic complications	362.0, 362.00, 362.01-362.06, 250.5, 250.50-250.53
Obstructive sleep apnea	327.23
Atrial fibrillation	427.3, 427.31
Acute kidney injury	584.x
Chronic kidney disease	585.x
Congestive heart failure (systolic and diastolic)	428.x
Cardiogenic shock	785.51
Anemia	280.x, 285.x
Hyperlipidemia	272.x
Pulmonary Hypertension	416.x
Intra-aortic Balloon Pump	376.1
Glaucoma	365.x
Cataract	366.x
Age related macular degeneration	362.5
Hypertensive Retinopathy	362.1

ICD-9-CM codes used to search for cardiac surgical procedures and patient conditions used in the univariable and multivariable analysis. An “x” at the end of ICD-9-CM code signifies that multiple suffix codes were used to search for associated conditions.

Abbreviation: ICD-9-CM= Internal Classification of Diseases, Ninth Revision, Clinical Modification