

# **SUPPLEMENTAL MATERIAL**

**Data S1.**

Patient safety indicators (PSI), based on ICD-9-CM codes and Medicare severity Diagnosis-Related Groups, were established by the Agency for Healthcare Research and Quality to monitor preventable adverse events during hospitalization and each PSI has specific inclusion and exclusion criteria. PSI individual measure technical specifications, Version 5.0, March 2015 was used to identify & define preventable complications.

**Table S1. International Classification of Diseases, Clinical Modification (ICD-9-CM) codes used in the study.**

<b>Procedures</b>	
Endovascular TAVR	35.05
SAVR	35.21, 35.22
Others	
Aortic insufficiency	395.1, 746.4, and 396.3
Aortic stenosis	395.0, 395.2, 396.0, 396.2, 424.1 and 746.3
Mitral value surgery	35.23, 35.24
Pulmonary value surgery	35.25, 35.26
Tricuspid value surgery	35.27,35.28
Atrium or ventricular septum defect closure	35.5,35.6, and 35.7
CAGB	36.10
<b>Comorbidities</b>	
Stroke/TIA	V12.54, 430, 431, 432.0-432.9, 434.01, 434.11, 434.91, 435.0-435.9
Smoking	V15.82, 305.1
Chronic Obstructive Pulmonary Disease	491, 492, 494, 496
Oxygen dependent	V462
<b>In-Hospital Morbidity</b>	
Procedural	
Post-op hemorrhage	998.11, 998.12, 285.1
Bleeding requiring transfusion	99.0x
Stroke	997.01, 997.02
Cardiovascular	
Acute Myocardial Infarction	410.01, 410.11, 410.21, 410.31, 410.41, 410.51, 410.61,410.71,410.81,410.91, 411.1
Pulmonary Embolism	PSI
Deep Vein Thrombosis	PSI
Pulmonary	
Pneumonia	480, 481, 482, 483, 484, 485, 486, 997.31, 997.32
Noninvasive Ventilation	93.90
Acute respiratory failure	518.81, 518.82, 518.84, 799.1, 786.09, 518.4, 518.51
Re-intubation	96.03, 96.04, 96.05
Tracheostomy	31.1, 31.21, 31.29
Infectious	
Sepsis	PSI
Renal complication	
Acute kidney injury	584.5, 584.6, 584.7,584.8 584.9

**Table S2. Variables Used for Propensity Score Matching.**

Age  
Race  
Sex  
Hypertension  
Diabetes mellitus  
Congestive heart failure  
Peripheral vascular disease  
Pulmonary hypertension  
Hypercoagulable state  
Obesity  
Coronary artery disease  
Valvulopathy  
Chronic liver disease  
Electrolyte abnormalities  
Blood loss anemia  
Iron deficiency anemia  
Paralysis  
Neurologic disorders  
Chronic lung disease  
Depression  
Hypothyroidism  
Lymphoma  
Metastatic disease  
Solid tumors without metastasis  
Collagen vascular disease  
Weight loss  
Alcoholism  
Depression  
Drug abuse  
Smoking  
Psychosis  
Hospital teaching status  
Acquired immunodeficiency syndrome.  
Hospital region  
Expected Primary payer  
Hospital bed size  
Median Household income  
Oxygen dependent