http://dx.doi.org/10.2106/JBJS.N.01330

Table E-1 Detailed Variable Definitions*

EXPLANATORY VARIABLES IN RISK ADJUSTMENT MODELS			
Variable Name	**ACS NSQIP Variable from which Variable was Derived***	**Brief Definition**	**Full Definition of Variables Used Within Study***
AGE	Age	Age of patient.	A continuous variable specifying the age of the patient. ACS NSQIP gives patients over the age of 89 a value of "90 +". These patients were assigned a value of 90.
ANGINA	HXANGINA	History of angina within 30 days prior to surgery.	0 = No history of angina as specified below. 1 = Yes, the patient reports pain or discomfort between the diaphragm and the mandible resulting from myocardial ischemia. "Yes," is also entered for patients on anti-anginal medications; however, only if the patient has had angina at any time within 30 days prior to surgery.
ASA CLASS	ASACLA	American Society of Anesthesiology (ASA) Physical Status Classification.	1 = ASA 1, normal healthy. 2 = ASA 2, mild systemic disease. 3 = ASA 3, severe systemic disease. 4 = ASA 4, severe systemic disease that is a constant threat to life. 5 = ASA 5, moribund patient, not expected to survive without the operation.
ASCITES	ASCITES	Presence of ascites noted on physical examination or imaging within 30 days prior to surgery.	0 = No ascites. 1 = Yes, ascites. Patient noted to have fluid accumulation in the peritoneal cavity on physical exam, abdominal ultrasound, or abdominal CT/MRI within 30 days prior to surgery. Documentation should state either active liver disease or a history of liver disease. Examples include jaundice, encephalopathy, hepatomegaly, portal hypertension, liver failure, or spider telangiectasia. Malignant ascites (exclusive of liver disease) due to cancer also qualifies.
BLEEDING DISORDER	BLEEDDIS	Bleeding disorder that puts the patient at increased risk for excessive bleeding.	0 = No bleeding disorder. 1 = Yes, bleeding disorder that places the patient at risk for bleeding requiring hospitalization due to deficiency of blood clotting elements (e.g., vitamin K deficiency, hemophilias, thrombocytopenia, chronic anticoagulation therapy that has NOT been discontinued prior to surgery). If there is no documentation of having discontinued the medication, then "yes" is entered. Patients on chronic aspirin are not included.
BMI	HEIGHT, WEIGHT	Body mass index.	A continuous variable specifying the body mass index of the patient (kilograms/meter^2) based on the patient's most recent height and weight documented in the medical record.
CARDIAC CATHETERIZATION	PRVPCI	Previous percutaneous coronary intervention (PCI).	0 = No history of PCI. 1 = Yes, patient has previously undergone a PCI at any time (including any attempted PCI). This includes either balloon dilatation or stent placement. This does not include valvuloplasty procedures.
CARDIAC SURGERY	PRVPCS	Previous cardiac surgery.	0 = No history of cardiac surgical procedures. 1 = Yes, the patient has a history of a major cardiac surgical procedure that was performed either as an "off-pump" repair or utilizing cardiopulmonary bypass. This includes, but is not limited to the following procedures: a. Coronary artery bypass graft surgery (CABG).

			b. Valve replacement or repair. c. Repair of atrial or ventricular septal defects. d. Great thoracic vessel repair. e. Cardiac transplant. f. Left ventricular aneurysmectomy. g. Insertion of left ventricular assist devices (LVAD). The definition of cardiac surgery does not include pacemaker insertions or automatic implantable cardioverter defibrillator (AICS) insertions.
CHEMOTHERAPY	CHEMO	Chemotherapy for malignancy within 30 days prior to surgery.	0 = No chemotherapy within the 30 days prior to surgery. 1 = Yes, the patient has had chemotherapy treatment for cancer in the 30 days prior to surgery. Chemotherapy may include, but is not restricted to, oral and parenteral treatment with chemotherapeutic agents for malignancies such as colon, breast, lung, head and neck, and gastrointestinal solid tumors as well as lymphatic and hematopoietic malignancies such as lymphomas, leukemia, and multiple myeloma. The patient is not included if the treatment consists solely of hormonal therapy. Chemotherapy treatment must be for malignancy.
CHF	HXCHF	Congestive heart failure (CHF) within 30 days prior to surgery.	0 = No CHF. 1 = Yes, patient has had CHF within 30 days prior to surgery. The definition is fulfilled with a new diagnosis of CHF within the previous 30 days or a diagnosis of chronic CHF with new signs or symptoms in the 30 days prior to surgery. Examples of signs and symptoms include exercise intolerance (dyspnea / fatigue), orthopnea, paroxysmal nocturnal dyspnea, increased jugular venous pressure, pulmonary rales on exam, cardiomegaly, and pulmonary vascular engorgement.
CHRONIC STEROIDS	STEROID	Steroid use for chronic condition. Includes regular administration of oral or parenteral corticosteroid within 30 days prior to surgery.	0 = No steroids. 1 = Yes, steroids. Patient has required the regular administration of oral or parenteral corticosteroids OR immunosuppressant medications within 30 days prior to surgery. This does not include a one-time pulse, limited short course, or a taper of less than 10 days. Does not include topical corticosteroids or corticosteroids administered by inhalation or rectally.
COPD	HXCOPD	History of severe chronic obstructive pulmonary disease (COPD)	0 = No COPD. 1 = Yes, patient has a history of COPD (such as emphysema and/or chronic bronchitis) resulting in any one or more of the following: a. Functional disability from COPD (e.g., dyspnea, inability to perform ADLs). b. Hospitalization in the past for treatment of COPD (e.g., dyspnea, inability to perform ACLs). c. Require chronic bronchodilator therapy with oral or inhaled agents. d. An FEV1 of <75% of predicted on pulmonary function testing. The following patients with pulmonary disease are NOT included: Asthma alone and diffuse interstitial fibrosis (e.g., sarcoidosis).
CVA NO RESIDUAL DEFICIT	CVANO	Cerebrovascular accident (CVA) / Stroke with NO	0 = No history of CVA 1 = Yes, patient has a history of CVA (embolic, thrombotic, or hemorrhagic) but no current

		residual neurologic deficit. See also variable named "CVA RESIDUAL DEFICIT."	residual neurologic dysfunction or deficit.
CVA RESIDUAL DEFICIT	CVA	Cerebrovascular accident (CVA) / Stroke with residual neurologic deficit.	0 = No history of CVA 1 = Yes, the patient has a history of CVA (embolic, thrombotic, or hemorrhagic) with persistent residual motor, sensory, or cognitive dysfunction (e.g., hemiplegia, hemiparesis, aphasia, sensory deficit, impaired memory).
DIABETES	DIABETES	Diabetes mellitus requiring oral agents or insulin.	0 = No diagnosis of diabetes OR diabetes is controlled by diet alone. 1 = Yes, the patient has diabetes mellitus that is chronic and requires long-term management (> 2 weeks) with a NON-INSULIN ANTI-DIABETIC AGENT (oral agents or other non-insulin agents). 2 = Yes, the patient has diabetes that is chronic and requires long-term management (> 2 weeks) with daily INSULIN THERPY.
DISSEMINATED CANCER	DISCANCR	Disseminated cancer at the time of surgery.	0 = No cancer at the time of surgery. 1 = Yes, patient has disseminated cancer at the time of surgery, which includes the following: a. Cancer that has spread to one or more sites in addition to the primary site, AND b. In whom the presence of multiple metastases indicates the cancer is widespread, fulminant, or near terminal. Other conditions that are reported as disseminated cancer include blood cancers and lymphomas, such as ALL, AML, and stage IV lymphoma. The following are NOT considered disseminated cancer: CLL, CML, Stage I-III lymphomas, and multiple myeloma.
DYSPNEA	DYSPNEA	Usual or typical level of dyspnea (patient baseline) within 30 days prior to surgery.	0 = No dyspnea. 1 = Dyspnea with moderate exertion (unable to climb one flight of stairs without shortness of breath). 2 = Dyspnea at rest (can't complete sentence without a pausing for a breath).
EMERGENCY CASE	EMERGNCY	Surgeon or anesthesiologist designates the operation as an emergency case in the patient record.	0 = Not an emergency case. 1 = Yes, emergency case: The case is designated as emergent if the surgeon and/or anesthesiologist report the case as emergent. It is implied that the patient's well-being and outcome is potentially threatened by unnecessary delay and the patient's status could deteriorate unpredictably or rapidly.
ESOPHAGEAL VARICES	ESOVAR	Esophageal varices present prior to surgery (within 6 months).	0 = No esophageal varices. 1 = Yes, patient is known to have esophageal varices pre-operatively and it is documented on EGD or CT scan within 6 months prior to surgery.
FUNCTIONAL STATUS	FNSTATUS1 FNSTATUS2	Functional health status prior to surgery, based on patient's abilities to perform activities of daily living (ADLs) with 30 days prior to surgery.	This variable describes the patient's ability to perform ADLs in the 30 days prior to surgery. ADLs include bathing, feeding, dressing, toileting, and mobility. 0 = Independent. Does not require assistance from another person for any ADLs. 1 = Partially dependent. The patient requires some assistance from another person for ADLs. 2 = Total dependent. The patient requires total assistance for all ADLs.
GENDER	SEX	Gender of the patient.	0 = Male.

			1 = Female.
HEMIPLEGIC	HEMI	Hemiplegia	0 = No hemiplegia. 1 = Yes, the patient has sustained acute or chronic neuromuscular injury resulting in total or partial paralysis or paresis (weakness) of one side of the body. "Yes," is also entered if there is hemiplegia or hemiparesis associated with a CVA/Stroke.
HISTORY OF MI	HXMI	History of myocardial infarction (MI) 6 months prior to surgery.	0 = No history of MI. 1 = Yes, the patient has a history of a non-Q wave or Q-wave infarct in the 6 months prior to surgery as documented in the patient's medical record.
HISTORY OF TIA	HXTIA	History of transient ischemic attacks (TIA).	0 = No history of TIA. 1 = Yes, patient has a history of TIAs or focal neurologic deficits (e.g., numbness of an arm or amaurosis fugax) of sudden onset and brief duration (typically < 30 minutes).
HYPERTENSION	HYPERMED	Hypertension requiring medications within 30 days prior to surgery.	0 = No hypertension requiring medications. 1 = Yes, patient has hypertension requiring medications. Hypertension must be documented in the patient's medical record and the condition must be severe enough to require antihypertensive medications (e.g., diuretics, beta blockers, ACE inhibitors, calcium channel blockers) within 30 days prior to surgery.
IMPAIRED SENSORIUM	IMPSENS	Patient is acutely confused and/or delirious at the time of surgery. Excludes chronic or long-standing mental status changes secondary to mental illness, etc.	0 = No acutely impaired sensorium. 1 = Yes, patient has an impaired sensorium. Patient is acutely confused and/or delirious and responds to verbal and/or mild tactile stimulation (e.g., mental status changes within the context of the current illness). Excludes chronic or long-standing mental status changes secondary to mental illness or chronic dementing illnesses.
LOW ALBUMIN	PRALBUM	Pre-operative serum albumin known to be below the normal range within 90 days of surgery (<3.4 grams/deciliter).	0 = Serum albumin was measured within 90 days of surgery; however, it was found to be >= 3.4 grams/deciliter OR serum albumin not measured. 1 = Serum albumin measured as <3.4 grams/deciliter within 90 days of surgery.
PARAPLEGIC	Para	Sustained acute or chronic neuromuscular injury resulting in total or partial paralysis or paresis (weakness) of the lower extremities.	0 = Patient does not have total or partial paralysis or paresis (weakness) of the lower extremities. 1 = Yes, patient does have sustained acute or chronic neuromuscular injury resulting in total or partial paralysis or paresis (weakness) of the lower extremities.
PERIPHERAL VASCULAR DISEASE	HXPVD	History of revascularization/amputation for peripheral vascular disease (PVD).	0 = No history of a revascularization procedure or amputation for PVD. 1 = Yes, the patient has a history of a revascularization procedure or amputation for PVD. This includes any type of angioplasty (including stent placement) or revascularization procedure for atherosclerotic PVD (e.g., aorta-femoral, femoral-femoral, femoral-popliteal) or a patient who has had any type of amputation procedure for PVD (e.g., toe amputations, transmetatarsal amputations, below the knee or above the knee amputations). Patient who have had amputation for trauma or resection of abdominal aortic aneurysms are not included.

PNEUMONIA	CPNEUMON	Current pneumonia at the time the patient is brought to the operating room.	0 = No pneumonia. 1 = Yes, the patient has a new pneumonia or recently diagnosed pneumonia and is receiving antibiotic treatment at the time the patient is brought to the operating room. Patient must meet the criteria BOTH from RADIOGRAPHIC studies (e.g., chest x-ray) and in terms of SIGNS/SYMPTOMS/LABORATORY (e.g., cultures, purulent sputum, dyspnea, etc.): RADIOGRAPHIC. The patient must have one definitive chest radiological exam (x-ray or CT) with at least ONE of the following: a. New or progressive and persistent infiltrate. b. Consolidation or opacity. c. Cavitation. SIGNS/SYMPTOMS/LABORATORY. The patient must have at least ONE of the following: a. Fever (>38 degrees Celsius) with no other recognized cause. b. Leukopenia (<4,000 white blood cells / millimeter^3) or leukocytosis (>=12,000 white blood cells / millimeter^3). c. For adults >=70 years old, altered mental status with no other recognized cause. AND at least ONE of the following: a. 5% bronchoalveolar lavage that obtained cells which contain intracellular bacteria on direct microscopic exam (e.g., gram stain). b. Positive growth in blood culture not related to another source of infection. c. Positive growth in culture of pleural fluid. d. Positive quantitative culture from minimally contaminated lower respiratory tract specimen. OR at least 2 of the following: a. New onset of purulent sputum, change in character of sputum, increased respiratory secretions, or increased suctioning requirements. b. New onset or worsening cough, dyspnea, or tachypnea. c. Rales or rhonchi on exam. d. Worsening gas exchange (e.g., oxygen desaturations, increased oxygen requirements, or increased ventilator demand).
PRE-OPERATIVE TRANSFUSION	TRANSFUS	Pre-operative transfusion of >= 1 unit of whole/packed RBCs in 72 hours prior to surgery.	0 = No transfusion given in the 72 hours prior to surgery. 1 = Yes, the patient received a transfusion of >=1 unit of whole blood or packed red cells (PRBC) in the 72 hours prior to surgery start time.
PRESENT SMOKER	SMOKE	Current smoker within the last year.	0 = The patient has not smoked cigarettes regularly within the last year prior to admission for surgery. This includes patients who have smoked in the past, but have not smoked within the past year. 1 = Yes, the patient has smoked cigarettes regularly within the last year prior to admission for surgery. Patient who smoke cigars or pipes or use chewing tobacco are not included.

QUADAPLEGIC	QUAD	Quadriplegia	0 = No quadriplegia 1 = Yes, the patient has sustained acute or chronic neuromuscular injury resulting in total or partial paralysis or paresis (weakness) of all four extremities.
RADIATION THERAPY	RADIO	Radiotherapy for malignancy within 90 days prior to surgery.	0 = No radiotherapy within the 90 days prior to surgery. 1 = Yes, the patient has had radiotherapy treatment for cancer in the 90 days prior to surgery. This includes radiation seeds that are implanted; however, the implantation must have occurred within 90 days prior to the operation.
RECENT ALCOHOL	ETOH	The patient has been drinking >2 drinks per day in the 2 weeks before admission.	0 = Not drinking >2 drinks per day in the 2 weeks before admission. 1 = Yes, the patient has been drinking >2 drinks per day in the 2 weeks before admission.
RECENT WEIGHT LOSS	WTLOSS	>10% loss of body weight in last 6 months.	0 = No weight loss. 1 = Yes, the patient has had a >10% loss in body weight in the 6 months immediately preceding surgery as manifested by serial weights in the chart, as reported by the patient, or as evidenced by change in clothing size or severe cachexia. Patients who have intentionally lost weight as a part of a weight reduction program do not qualify.
RENAL FAILURE	RENAFAIL	Acute renal failure within 24 hours prior to surgery.	0 = No renal failure. 1 = Yes, renal failure. Patient's renal function demonstrates compromise within 24 hours prior to surgery. Renal failure is defined according to the following criteria: a. Increase in BUN based on two measurements and two creatinine results above 3 milligrams/deciliter. The most recent of the measurements must be within 24 hours of the start of surgery. b. The surgeon or attending physician documented "acute renal failure" in the medical record and the patient demonstrates ONE of the following: 1.) An increase in BUN based on at least 2 measurements, the most recent within 24 hours of surgery. 2.) Two creatinine results above 3 milligrams/deciliter, the most recent within 24 hours of surgery.
REQUIRES DIALYSIS	DIALYSIS	Currently on dialysis (pre-op) within 2 weeks prior to surgery.	0 = No dialysis. 1 = Yes, patient has acute or chronic renal failure requiring treatment with peritoneal dialysis, hemodialysis, hemofiltration, hemodiafiltration, or ultrafiltration within 2 weeks prior to the principle operative procedure. The medical record must document that such a treatment was indicated.
SEPSIS	PRSEPIS	Systemic sepsis, including sepsis or septic shock (PRSEPIS = "SEPSIS" or PRSEPSIS = "SEPTIC SHOCK"). Systemic inflammatory response syndrome (SIRS) alone, without evidence of sepsis, has been coded as a separate variable (see	0 = No signs of sepsis or septic shock. 1 = Yes, signs of SEPSIS. SEPSIS: Clinical signs of SIRS (see SIRS definition) AND either "a" or "b" below. a. Positive blood culture OR clinical documentation of purulence or positive culture from any site for which there is documentation noting the site as the acute case of sepsis. b. Suspected pre-operative clinical condition of infection or bowel infarction which leads to the surgical procedure. The findings in the operation must confirm the suspected diagnosis with one or more of the following: Confirmed infarcted bowel

		variable named "SIRS").	requiring resection, purulence in the operative site, enteric contents in the operative site, or positive intra-operative cultures. 2 = Yes, signs of SEPTIC SHOCK. SEPTIC SHOCK: Patient meets criteria for sepsis and has documented organ and/or circulatory dysfunction. Examples or organ dysfunction include oliguria, acute alteration in mental status, respiratory distress. Examples of circulatory dysfunction include hypotension, requirement of inotropic or vasopressor agents.
SIRS	PRSEPIS	Evidence of Systemic Inflammatory Response Syndrome (SIRS) prior to surgery. Sepsis and septic shock have been coded in a separate variable (See variable "SEPSIS").	0 = No SIRS. 1 = Yes, the patient has evidence of SIRS prior to surgery (PRSEPIS = "SIRS"). Definition required 2 or more of the following: a. Temperature >38 degrees Celcius or <36 degrees Celcius b. Heart rate >90 beats per minute. c. Respiratory rate >20 breaths/minute or PaCO2 <32 mmHg d. WBC >12,000 cell/millimeter^3, <4,000 cell/millimeter^3, or >10% band forms. e. Anion gap acidosis.
TRANSFER PATIENT	TRANST	Variable indicates that the patient was not admitted to the hospital from home.	0 = Not transferred. Patient admitted directly from home OR patient arrived from another hospital's emergency department. 1 = Patient was transferred from one of the following facilities and was considered an inpatient there: a. Inpatient at acute care hospital. b. Nursing home, chronic care, or intermediate care facilities. c. Transfer from other facility or could not be determined.
TUMOR IN CNS	TUMORCNS	Tumor involving the central nervous system (CNS).	0 = No tumor in the CNS. 1 = Yes, the patient has a space-occupying tumor in the brain or spinal cord. Tumor may be benign. Tumor may be a primary or a secondary malignancy.
VENTILATOR DEPENDENT	VENTILAT	Requires ventilator-assisted respiration within 48 hours prior to surgery.	0 = Not ventilator dependent prior to surgery. 1 = Yes, the patient has required ventilator-assisted respiration at any time during the 48 hours preceding surgery. Does not include treatment of sleep apnea with CPAP.
WOUND CLASSIFICATION	WNDCLAS	Wound classification of principle operative procedure.	This variable indicates whether the surgeon has classified the wound as clean, clean/contaminated, contaminated, or dirty/infected based on the principle operative procedure. 0 = The surgeon classified the wound as "clean." A clean wound is an uninfected operative wound in which no inflammation is encountered. Examples of "clean" cases generally include arthroplasty (THA), total knee arthroplasty (TKA), and hip fracture repair (HFR). 1 = The surgeon did NOT classify the wound as "clean" and instead classified the wound as either "clean/contaminated", "contaminated", or "dirty/infected," as generally defined below: a. Clean/Contaminated: An operative wound in which the respiratory, alimentary, genital, or urinary tracts are entered under controlled conditions. b. Contaminated: Indicates the presence of open, fresh, or accidental wounds. It also includes operations with major breaks in sterile technique. Examples of major breaks in

			sterile technique include, but are not limited to non-sterile equipment or debris found in the operative field. c. Dirty/Infected: Old traumatic wounds with retained devitalized tissue and those that involve existing clinical infection.
WOUND INFECTION	WNDINF	Open wound /wound infection.	0 = No evidence of pre-operative wound/wound infection. 1 = Yes, the patient had a documented open wound at the time of surgery. An open wound is a breach in the integrity of the skin or separation of skin edges. It includes open surgical wounds, with or without cellulitis or purulent exudate. The following example are NOT considered an open wound/wound infection: An ostomy, a scabbed over wound, an open sore requiring only a Band-Aid, an oral sore(s), a tracheostomy, and a localized abscess. The presence of osteomyelitis is not considered an open wound/wound infection.
PRE-OPERATIVE SERUM SODIUM	PRSODM	Lab value within 90 days pre-operative (mEq/L)	Two categorical variables: Low sodium 0 = Serum sodium >=135meq/L or missing 1 = Serum sodium <135meq/L High sodium 0 = Serum sodium <145meq/L or missing 1 = Serum sodium >145meq/L
PRE-OPERATIVE BLOOD UREA NITROGEN	PRBUN	Lab value within 90 days pre-operative (mg/dL)	One categorical variable: High BUN 0 = BUN <=30mg/dL or missing 1 = BUN >30mg/dL
PRE-OPERATIVE SERUM CREATININE	PRCREAT	Lab value within 90 days pre-operative (mg/dL)	One categorical variable: High creatinine 0 = Serum creatinine <=1.3mg/dL or missing 1 = Serum creatinine >1.3mg/dL
PRE-OPERATIVE SERUM ALBUMIN	PRALBUM	Lab value within 90 days pre-operative (g/dL)	One categorical variable: Low albumin 0 = Serum albumin >=3.4g/dL or missing 1 = Serum albumin <3.4g/dL
PRE-OPERATIVE BILIRUBIN	PRBILI	Lab value within 90 days pre-operative (mg/dL)	One categorical variable: High bilirubin 0 = Bilirubin <=1.9mg/dL or missing 1 = Bilirubin >1.9mg/dL
PRE-OPERATIVE WHITE BLOOD CELL COUNT	PRWBC	Lab value within 90 days pre-operative (count/mcL)	Two categorical variables: Low WBC 0 = WBC count >=4,500/mcL or missing 1 = WBC count <4,500/mcL High WBC 0 = WBC count <=10,000/mcL or missing 1 = WBC count >10,000/mcL

http://dx.doi.org/10.2106/JBJS.N.01330

PRE-OPERATIVE HEMATOCRIT	PRHCT	Lab value within 90 days pre-operative (%)	One categorical variable: Low Hematocrit 0 = Hematocrit >=30% or missing 1 = Hematocrit <30%
PRE-OPERATIVE PLATELET COUNT	PRPLATE	Lab value within 90 days pre-operative (count/mcL)	One categorical variable Low platelets 0 = Platelet count >=150,000/mcL or missing 1 = Platelet count <150,000/mcL
PRE-OPERATIVE INTERNATIONAL NORMALIZED RATIO (INR) OF PT VALUES	PRINR	Lab value within 90 days pre-operative.	One categorical variable: High INR 0 = INR <=1.1 or missing 1 = INR >1.1
DEPENDENT VARIABLES OR OUTCOME VARIABLES (MORTALITY / ADVERSE EVENTS)			
Variable Name	**ACS NSQIP Variable from which Variable was Derived**	**Brief Definition**	**Full Definition of Variables Used Within Study**
CARDIAC ARREST REQUIRING CPR	NCDARREST CDARREST	Occurrences/Number of cardiac arrest requiring CPR within 30 days following the surgery.	The absence of cardiac rhythm or presence of chaotic cardiac rhythm, intra-operatively or within 30 days following surgery, which results in a cardiac arrest requiring the initiation of CPR, which includes chest compressions. Patients are included who are in a pulseless VT or Vfib in which defibrillation is performed and PEA arrests requiring chest compressions. Patients with automatic implantable defibrillator (AICS) that fires but the patient has no loss of consciousness are excluded.
CEREBROVASCULAR ACCIDENT (CVA)	NCNSCVA CNSCVA	Occurrences/Number of cerebrovascular accidents (stroke) events within 30 days following the surgery.	Patient develops an embolic, thrombotic, or hemorrhagic vascular accident or stroke with motor, sensory, or cognitive dysfunction (e.g., hemiplegia, hemiparesis, aphasia, sensory deficit, impaired memory) that persists for 24 or more hours. If a specific time frame for the dysfunction is not documented in the medical record, but there is a diagnosis of a stroke, assign the occurrence, unless documentation specifically states the motor, sensory, or cognitive dysfunction resolved.
COMA >24 HOURS	NCNSCOMA CNSCOMA	Occurrences/Number of coma within 30 days following the surgery.	Patient is unconscious, or postures to painful stimuli, or is unresponsive to all stimuli (exclude transient disorientation or psychosis) for greater than 24 hours within 30 days of the operation. Drug-induced coma (e.g., Propofol drips) are excluded.
DEEP VEIN THROMBOSIS	NOTHDVT OTHDVT	Occurrences/Number of post-operative deep vein thrombosis (DVT)/thrombophlebitis within 30 days following the surgery.	The identification of a new blood clot or thrombus within the venous system which may be coupled with inflammation. The clot can be described in studies as present in the superficial or deep venous systems but must require therapy to meet the definition. This diagnosis is confirmed by a duplex, venogram, or CT scan, AND the patient must be treated with anticoagulation therapy and/or placement of a vena cava filter or clipping of the vena cava.
GRAFT, PROSTHESIS, OR FLAP FAILURE	NOTHGRAFL OTHGRAFL	Occurrences/Number of graft, prosthesis, or flap failure within 30 days following the surgery.	Mechanical failure of an extra-cardiac graft or prosthesis including myocutaneous flaps and skin grafts requiring return to the operating room, interventional radiology, or balloon angioplasty within 30 days of the operation.

MORTALITY (MORT30)	DOpertoD	Patient died within 30 days following the surgery.	0 = Patient did not die at or before 30 days after the operation (DOpertoD = "-99"). 1 = Yes, patient did die at or before 30 days after the operation (DOpertoD did not equal "-99").
MYOCARDIAL INFARCTION	NCDMI CDMI	Occurrences/Number of myocardial infarctions (MI) within 30 days following the surgery.	An acute MI which occurred intra-operatively or within 30 days following the surgery as manifested by one of the following: 1. Documentation of ECG changes indicative of acute MI (one or more of the following): a. ST elevation >1 millimeter in 2 or more contiguous leads. b. New left bundle branch block. c. New Q-wave in 2 or more contiguous leads. 2. New elevation in troponin greater than 3 times the upper level of the reference range in the setting of suspected myocardial ischemia. 3. Physician diagnosis of myocardial infarction.
ON VENTILATOR >48 HOURS	NFAILWEAN FAILWEAN	Occurrences/Number of "on ventilator >48 hours" within 30 days following the surgery.	Total duration of ventilator-assisted respirations during post-operative period was greater than 48 hours. This can occur at any time during the 30 day post-operative period. The time assessment is cumulative, and does not need to be consecutive. Ventilator-assisted respirations can be via endotracheal tube, nasotracheal tube, or tracheostomy.
PERIPHERAL NERVE INJURY	NNEURODEF NEURODEF	Occurrences/Number of peripheral nerve injuries within 30 days following the surgery.	Peripheral nerve injury which results in motor deficits to the cervical plexus, brachial plexus, ulnar plexus, lumbar-sacral plexus (sciatic nerve), peroneal nerve, and/or the femoral nerve are included.
PNEUMONIA	NOUPNEUMO OUPNEUMO	Occurrences/Number of pneumonia within 30 days following the surgery.	Yes, the patient has a pneumonia according to the definition below. The patient must meet the criteria BOTH from RADIOGRAPHIC studies (e.g., chest x-ray) and in terms of SIGNS/SYMPTOMS/LABORATORY (e.g., cultures, purulent sputum, dyspnea, etc.): RADIOGRAPHIC. The patient must have one definitive chest radiological exam (x-ray or CT) with at least ONE of the following: a. New or progressive and persistent infiltrate. b. Consolidation or opacity. c. Cavitation. SIGNS/SYMPTOMS/LABORATORY. The patient must have at least ONE of the following: a. Fever (>38 degrees Celsius) with no other recognized cause. b. Leukopenia (<4,000 white blood cells / millimeter^3) or leukocytosis (>=12,000 white blood cells / millimeter^3). c. For adults >=70 years old, altered mental status with no other recognized cause. AND at least ONE of the following: a. 5% bronchoalveolar lavage that obtained cells which contain intracellular bacteria on direct microscopic exam (e.g., gram stain). b. Positive growth in blood culture not related to another source of infection. c. Positive growth in culture of pleural fluid. d. Positive quantitative culture from minimally contaminated lower respiratory tract

			specimen. OR at least 2 of the following: a. New onset of purulent sputum, change in character of sputum, increased respiratory secretions, or increased suctioning requirements. b. New onset or worsening cough, dyspnea, or tachypnea. c. Rales or rhonchi on exam. d. Worsening gas exchange (e.g., oxygen desaturations, increased oxygen requirements, or increased ventilator demand).
PULMONARY EMBOLISM	NPULEMBOL PULEMBOL	Occurrences/Number of pulmonary embolism within 30 days following the surgery.	The identification of a blood clot lodging in a pulmonary artery with subsequent obstruction of the blood supply to the lung parenchyma. "Yes" is entered if the patient has a V-Q scan interpreted as high probability of pulmonary embolism or a positive CT exam, TEE, pulmonary arteriogram, CT angiogram, or any other definitive modality.
RENAL FAILURE - ACUTE	NOPRENAFL OPRENAFL	Occurrences/Number of acute renal failure (ARF) within 30 days following the surgery.	A patient who did not require dialysis pre-operatively, has worsening of renal dysfunction post-operatively requiring hemodialysis, peritoneal dialysis, hemofiltration, hemodiafiltration, or ultrafiltration.
RENAL FAILURE - PROGRESSIVE	NRENAINSF RENAINSF	Occurrences/Number of progressive renal failure events within 30 days following the surgery.	The reduced capacity of the kidney to perform its function as evidence by a rise in creatinine of >2 milligrams / deciliter from pre-operative value, but with no requirement for dialysis within 30 days of surgery.
SEPSIS	NOTHSYSEP OTHSYSEP	Occurrences/Number of sepsis events within 30 days following the surgery.	The intent of this variable is to capture the patient whose physiology is compromised by an ongoing infectious process after surgery. Definition requires 2 or more of the following: 1. Temperature >38 degrees Celcius or <36 degrees Celcius 2. Heart rate >90 beats per minute. 3. Respiratory rate >20 breaths/minute or PaCO2 <32 mmHg 4. WBC >12,000 cell/millimeter^3, <4,000 cell/millimeter^3, or >10% band forms. 5. Anion gap acidosis. AND, either "A" or "B" below: A. Positive blood culture OR clinical documentation of purulence or positive culture from any site for which there is documentation noting the site as the acute case of sepsis. B. One of the following findings during the principal operative procedure: Confirmed infarcted bowel requiring resection, purulence in the operative site, enteric contents in the operative site, positive intra-operative cultures. Note: If the patient meets the criteria for "sepsis" AND has documented organ and/or circulatory dysfunction, then the patient meets the criteria for "septic shock" (See definition of "SEPTIC SHOCK."
SEPTIC SHOCK	NOTHESESHOCK OTHSESHOCK	Occurrences/Number of septic shock events within 30 days following the surgery.	The patient is assigned this variable if the patient has clinical signs and symptoms of SIRS or meets criteria for "SEPSIS" and has documented organ and/or circulatory dysfunction. Examples or organ dysfunction include oliguria, acute alteration in mental status, respiratory distress. Examples of circulatory dysfunction include hypotension, requirement

			of inotropic or vasopressor agents. For the patient that had sepsis pre-operatively, worsening of any of the above signs post-operatively would be reported as post-operative sepsis.
SURGICAL SITE INFECTION DEEP	NWNDINFD WNDINFD NORGSPCSSI ORGSPCSSI	Occurrences/Number of deep Incisional surgical site infection (SSI) within 30 days following the surgery OR organ/space surgical site infection (SSI) within 30 days following the surgery.	DEEP INCISIONAL SSI Deep incision SSI is an infection that occurs within 30 days after the operation and the infection appears to be related to the operation and infection involved deep soft tissues (e.g., fascial and muscle layers) of the incision and at least one of the following: 1. Purulent drainage from the deep incision, but not from the organ/space component of the surgical site. 2. A deep incision spontaneously dehisces or is deliberately opened by a surgeon when the patient has at least one of the following signs or symptoms: a. Fever (>38 degrees Celcius) b. Localized pain or tenderness, unless site is culture-negative. c. An abscess or other evidence of infection involving the deep incision is found on direct examination. d. Diagnosis of a deep incision SSI by a surgeon or attending physician. Note: Infection that involves both superficial and deep incision sites is reported as deep incisional SSI. An organ/space SSI that drains through the incision is reported as a deep incisional SSI. OR ORGAN/SPACE SSI An organ/space SSI is an infection that occurs within 30 days after the operation and the infection appears to be related to the operation and infection involved any part of the anatomy (e.g., organs or spaces), other than the incision which was opened or manipulated during an operation and at least one of the following: 1. Purulent drainage from a drain that is placed through a stab wound into the organ/space. 2. Organisms isolated from an aseptically obtained culture of fluid or tissue in the organ/space. 3. An abscess or other evidence of infection involving the organ/space that is found on direct examination, during reoperation, or by histopathologic or radiologic examination. 4. Diagnosis of an organ/space SSI by a surgeon or attending physician.
SURGICAL SITE INFECTION SUPERFICIAL	NSUPINFEC SUPINFEC	Occurrences/Number of superficial surgical site infection (SSI) within 30 days following the surgery.	A superficial SSI that occurs within 30 days after the operation and involves only skin or subcutaneous tissue of the incision and at least one of the following: 1. Purulent drainage 2. Organisms isolated from an aseptically obtained culture or fluid or tissue from the superficial incision. 3. At least one of the following signs or symptoms of infection: a. Pain or tenderness, b. Localized swelling, redness, or heat AND superficial incision is deliberately opened by

			the surgeon unless incision is culture-negative, c. Diagnosis of superficial SSI by the surgeon or attending physician. Note: The following conditions are not considered as a superficial SSI: 1.) Stitch abscess (minimal inflammation and discharge confined to the points of suture penetration), 2.) Infected burn wound, 3.) Incisional SSI that extends into the fascial and muscle layers (see deep incisional SSI).
UNPLANNED INTUBATION	NREINTUB REINTUB	Occurrences/Number of unplanned intubations within 30 days following the surgery.	Patient required placement of an endotracheal tube or other similar breathing tube (laryngeal mask airway (LMA), nasotracheal tube, etc.) and ventilator support intra-operatively or within 30 days following surgery which was NOT intended or planned. Note: Intra-operative conversion from local or MAC anesthesia to general anesthesia with placement of a breathing tube and ventilator support, secondary to the patient not tolerating local or MAC anesthesia, in the absence of emergency, would not be assigned.
URINARY TRACT INFECTION (UTI)	NURNINFEC URNINFEC	Occurrences/Number of postoperative symptomatic urinary tract infection within 30 days following the surgery.	The patient had at least one post-operative symptomatic urinary tract infection. The patient must meet one of the following TWO criteria within 30 days after the operation. ONE. a. Fever >38 degrees Celcius. b. Urgency, frequency, dysuria, suprapubic tenderness AND a urine culture of $>10^5$ colonies / milliliter of urine with no more than 2 species of organisms. TWO. a. Two of the following: Fever (>38 degrees Celsius), urgency, frequency, dysuria, suprapubic tenderness, AND b. ANY of the following: 1.) Dipstick test + of leukocyte esterase and/or nitrate, pyuria (>10 white blood cells/cubic centimeter or >3 white blood cells/high powered field of unspun urine). 2.) Organisms seen on gram stain of unspun urine. 3.) Two urine cultures with repeated isolation of the same uropathogen with $>10^2$ colonies / milliliter urine in non-voided specimen. 4.) Urine culture with $<10^5$ colonies per milliliter urine of single uropathogen in patient being treated with appropriate antimicrobial therapy. 5.) Physician's diagnosis: Physician institutes appropriate antimicrobial therapy. Note: To assign a postoperative UTI, signs and symptoms should be reported within 72 hours prior to a urine culture being sent or 24 hours after the culture was sent.
WOUND DEHISSENCE	NDEHIS DEHIS	Occurrences/Number of wound dehissence within 30 days following the surgery.	Abdominal site: This variable refers to the loss of the integrity of fascial closure (or whatever closure was performed in the absence of fascial closure). Other surgical sites require that there be a total breakdown of the surgical closure compromising the integrity of the procedure.

*Adapted from: American College of Surgeons. American College of Surgeons National Surgical Quality Improvement Program. ACS NSQIP: User guide for the 2012 ACS NSQIP Participant Use Data File. http://site.acsnsqip.org/wp-content/uploads/2013/10/ACSNSQIP.PUF_.UserGuide.2012.pdf. Accessed 2014 September 8.