Supplemental Table 1: Definitions for postoperative complications, American College of Surgeons-National Surgical Quality Improvement Program, 2012-13.

Complication	ACS NSQIP Outcome	Definition
Acute Kidney Injury	**Progressive Renal Insufficiency**	The reduced capacity of the kidney to perform its function as evidenced by a rise in creatinine of >2 mg/dl from preoperative value, but with no requirement for dialysis within 30 days of the operation.
	Acute Renal Failure	A patient who did not require dialysis preoperatively, worsening of renal dysfunction postoperatively requiring hemodialysis, peritoneal dialysis, hemofiltration, hemodiafiltration, or ultrafiltration. - If the patient refuses a recommendation for dialysis, you would answer 'Yes' to this variable because the patient required dialysis - Hemodialysis, peritoneal dialysis, hemofiltration, hemodiafiltration, or ultrafiltration all qualify. Placement of a dialysis catheter is indicative of the need for dialysis, if used within 48 hours of placement.
Acute Respiratory Failure	**Mechanical Ventilation**	Total duration of ventilator-assisted respirations during postoperative hospitalization was greater than 48 hours. This can occur at any time during the 30-day period postoperatively. This time assessment is CUMULATIVE, not necessarily consecutive. Ventilator-assisted respirations can be via endotracheal tube, nasotracheal tube, or tracheostomy tube.
	Unplanned Intubation	Patient required placement of an endotracheal tube or other similar breathing tube [Laryngeal Mask Airway (LMA), nasotracheal tube, etc] and ventilator support intraoperatively or within 30 days following surgery which was not intended or planned. •The variable intent is to capture all cause unplanned intubations, including but not limited to unplanned intubations for refractory hypotension, cardiac arrest, inability to protect airway. •Accidental self extubations requiring reintubation would be assigned. •Emergency tracheostomy would be assigned. Patients with a chronic/long-term tracheostomy who are on and off the ventilator would not be assigned, unless the tracheostomy tube itself is removed and the patient requires reintubation (endotracheal or a new tracheostomy tube) or an emergency tracheostomy. •Patients undergoing time off the ventilator during weaning trials and who fail the trail and are placed back on the ventilator would not be assigned. •Intubations for an unplanned return to the OR would not be assigned, as the intubation is planned, it is the return to the OR which is unplanned. •In patients who were intubated for a return to the OR for a surgical procedure unplanned intubation occurs after they have been extubated after surgery. In patients who were not intubated for a return to the OR, intubation at any time after their surgery is complete is considered unplanned. •Intraoperative conversion from local or MAC anesthesia to general anesthesia, during the Principal Operative Procedure, with placement of a breathing tube and ventilator support, secondary to the patient not tolerating local or MAC anesthesia, in the absence of an emergency, would not be assigned.
Deep Vein Thrombosis/Pulmonary Embolus	**Deep Vein Thrombosis**	New diagnosis of blood clot or thrombus within the venous system (superficial or deep) which may be coupled with inflammation and requires treatment. Must be noted within 30 days after the principal operative procedure AND one of the following A or B below: A.New Diagnosis of a [new] venous thrombosis (superficial or deep), confirmed by a duplex, venogram, CT scan, or any other definitive imaging modality (including direct pathology examination such as autopsy) AND the patient must be treated with anticoagulation therapy and/or placement of a vena cava filter or clipping of the vena cava, or the record indicates that treatment was warranted but there was no additional appropriate treatment option available. B. As per (A) above, but the patient or decisionmaker has refused treatment. There must be documentation in the medical record of the [patient's] refusal of treatment.
	Pulmonary Embolus	Lodging of a blood clot in the pulmonary artery with subsequent obstruction of blood supply to the lung parenchyma. The blood clots usually originate from the deep leg veins or the pelvic venous system. The identification of a new blood clot in a pulmonary artery causing obstruction (complete or partial) of the blood supply to the lungs. However, since there are not always preoperative studies proving that a clot or thrombus was not present preoperatively, the technical specification of the variable requires only a "new diagnosis"- in other words the clot or thrombus was not previously known. A pulmonary embolism must be noted within 30 days after the principal operative procedure AND the following criteria, A AND B below: A. New diagnosis of a new blood clot in a pulmonary artery AND B. 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 imaging modality (including direct pathology examination such as autopsy.
Myocardial Infarction	**Myocardial Infarction**	An acute myocardial infarction which occurred intraoperatively or within 30 days following surgery as manifested by one of the following: *Documentation of ECG changes indicative of acute MI (one or more of the following): - ST elevation > 1 mm in two or more contiguous leads - New left bundle branch - New q-wave in two of more contiguous leads * New elevation in troponin greater than 3 times upper level of the reference range in the setting of suspected myocardial ischemia * Physician diagnosis of myocardial infarction
Sepsis/Septic Shock	**Sepsis**	Sepsis is a vast clinical entity that takes a variety of forms. The spectrum of disorders spans from relatively mild physiologic abnormalities to septic shock. The intent is to capture the patient whose physiology is compromised by an ongoing infectious process after surgery. Present at the time of surgery (PATOS) modifiers prevent patients from being counted as having complications if there is significant evidence that the sepsis or septic shock outcome was under way prior to the surgery performed. Please report the most significant level using the criteria below. 1.Sepsis: Sepsis is the systemic response to infection. Report this variable if the patient has two of the following clinical signs and symptoms of SIRS: *Temp >38 °C (100.4 °F) or < 36 °C (96.8 °F) *HR >90 bpm *RR >20 breaths/min or PaCO2 <32 mmHg(<4.3 kPa) *WBC >12,000 cell/mm3, <4000 cells/mm3, or >10% immature (band) forms *Anion gap acidosis: this is defined by either: [Na + K] – [Cl + HCO3 (or serum CO2)]. If this number is greater than 16, then an anion gap acidosis is present. Na – [Cl + HCO3 (or serum CO2)]. If this number is greater than 12, then an anion gap acidosis is present. *If anion gap lab values are performed at your facilities lab, ascertain which formula is utilized and follow guideline criteria. And either A or B below: A. One of the following: *positive blood culture *clinical documentation of purulence or positive culture from any site for which there is documentation noting the site as the acute cause of sepsis B. The patient must meet SIRS criteria within 48 hours after the Principal Operative Procedure AND 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, or *Positive intra-operative cultures Guidance: if the patient meets criteria to assign preop sepsis, assign the risk factor; if the patient meets the criteria to assign postop sepsis, assign the occurrence and then assess for PATOS and assign if appropriate. 2. Septic Shock: Sepsis is considered severe when it is associated with organ and/or circulatory dysfunction. Report this variable if the patient has sepsis AND documented organ and/or circulatory dysfunction. Examples of organ dysfunction include: oliguria, acute alteration in mental status, acute respiratory distress. Examples of circulatory dysfunction include: hypotension, requirement of inotropic or vasopressor agents. Septic Shock is assigned when it appears to be related to Sepsis and not a Cardiogenic or Hypovolemic etiology. Guidance: if the patient meets criteria to assign preop septic shock assign the risk factor; if the patient meets the criteria to assign postop septic shock assign the occurrence and then assess for PATOS and assign if appropriate.
	Septic Shock	For Sepsis and Septic Shock within 30 days of the operation, please report the most significant level using the criteria that follow. Severe Sepsis/Septic Shock: Sepsis is considered severe when it is associated with organ and/or circulatory dysfunction. Report this variable if the patient has the clinical signs and symptoms of SIRS or sepsis **AND** documented organ and/or circulatory dysfunction. Examples of organ dysfunction include: oliguria, acute alteration in mental status, acute respiratory distress. Examples of circulatory dysfunction include: hypotension, requirement of inotropic or vasopressor agents. For the patient that had sepsis preoperatively, worsening of any of the above signs postoperatively would be reported as a postoperative sepsis.
Stroke	**Stroke**	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 that the motor, sensory, or cognitive dysfunction resolved.
Transfusion	**Bleeding Transfusions**	At least 1 unit of packed or whole red blood cells given from the surgical start time up to and including 72 hours postoperatively. If the patient receives shed blood, autologous blood, cell saver blood or pleurovac postoperatively, count this blood in terms of equivalent units. For a cell saver, every 500 ml's of fluid will equal 1 unit of packed cells. If there are less than 250 ml of cell saver, round down and report as 0 units. If there are 250 cc, or more of cell saver, round up to 1 unit. The blood may be given for any reason. If greater than 200 units, enter 200 units. Record the number of units given. Record the date the blood was initially started (intra-operatively or postoperatively). Note: Intra-operative blood to prime the by-pass pump for CABG is not shed blood and should not be included as cell-saver blood.

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