**Supplemental Table 2a. Definition of *International Classification of Diseases, Ninth Revision, Clinical Modification* (ICD-9-CM) codes for any complication.**

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| General surgical complications |
| Category  | **Condition**  | **ICD-9-CM code** |
| Cardiovascular  |  |  |
| *Supraventricular Arrhythmia*  |  |  |
|  | Atrial fibrillation and flutter  | 427.3x |
|  | Atrial fibrillation | 427.31 |
|  | Atrial flutter | 427.32 |
|  | Paroxysmal supraventricular tachycardia | 427.0x |
| *Myocardial Infarction*  |  |  |
|  | Acute myocardial infarction  | 410.xx |
|  | Acute coronary occlusion without myocardial infarction  | 411.81 |
|  | Angina pectoris  | 413.xx |
| *Postoperative Stroke* |  |  |
|  | Iatrogenic cerebrovascular infarction or hemorrhage  | 997.02 |
|  | Subarachnoid hemorrhage  | 430.xx |
|  | Intracerebral hemorrhage  | 431.xx |
|  | Other and unspecified intracranial hemorrhage  | 432.xx |
|  | Occlusion and stenosis of precerebral arteries  | 433.xx |
|  | Occlusion of cerebral arteries  | 434.xx |
|  | Transient cerebral ischemia  | 435.xx |
|  | Transient ischemic attach (TIA), and cerebral infarction without residual deficits | V12.54 |
|  | Stroke (cerebrovascular) | V17.1x |
| *Deep venous thrombosis*  |  |  |
|  | Of deep vessels of lower extremities  | 451.1x |
|  | Of lower extremities, unspecified | 451.2x |
|  | Iliac vein | 451.81 |
|  | Of unspecified site | 451.9x |
|  | Of vena cava | 453.2x |
|  | Of other specified veins  | 453.8 |
|  | Of unspecified site  | 453.9x |
|  | Venous embolism and thrombosis of unspecified deep vessels of lower extremity  | 453.40 |
|  | Venous embolism and thrombosis of deep vessels of proximal lower extremity  | 453.41 |
|  | Venous embolism and thrombosis of deep vessels of distal lower extremity  | 453.42 |
| *Pulmonary Embolism* |  |  |
|  | Pulmonary embolism and infarction | 415.1x |
|  | Iatrogenic pulmonary embolism and infarction | 415.11 |
|  | Septic pulmonary embolism | 415.12 |
|  | Other | 415.19 |
| Pulmonary |  |  |
| *Pneumonia*  |  |  |
|  | Pneumonia, organism unspecified | 486.xx |
|  | Pneumococcal pneumonia [Streptococcus pneumoniae pneumonia] | 481.xx |
|  | Pneumonia due to other specified bacteria  | 482.8x |
|  | Pneumonia due to Streptococcus | 482.3x |
|  | Bacterial pneumonia unspecified | 482.9x |
|  | Pneumonia due to Klebsiella pneumoniae  | 482.0x |
|  | Pneumonia due to Pseudomonas | 482.1x |
|  | Pneumonia due to Hemophilus influenzae [H. influenzae] | 482.2x |
|  | Methicillin susceptible pneumonia due to Staphylococcus aureus  | 482.41 |
|  | Other Staphylococcus pneumonia  | 482.49 |
|  | Other gram-negative pneumonia | 482.83 |
|  | Ventilator associated pneumonia | 997.31 |
| *Postoperative Acute Pneumothorax*  |  |
|  | Iatrogenic pneumothorax  | 512.1x |
| *Postoperative Pulmonary Edema* |  |
|  | Acute edema of lung, unspecified | 518.4x |
| *Pulmonary Collapse* |  |  |
|  | Pulmonary collapse  | 518.0x |
| *NPOA Empyema With and Without Fistula*  |  |
|  | With fistula  | 510.0x |
|  | Without mention of fistula | 510.9x |
| *Mechanical Ventilation*  |  |  |
|  | Continuous invasive mechanical ventilation of unspecified duration  | 96.70 |
|  | Continuous invasive mechanical ventilation for less than 96 consecutive hours  | 96.71 |
|  | Continuous invasive mechanical ventilation for 96 consecutive hours or more  | 96.72 |
| *Noninvasive Ventilation* |  |  |
|  | Non-invasive mechanical ventilation  | 93.90 |
| *Tracheostomy* |  |  |
|  | Temporary tracheostomy  | 31.1x |
|  | Other permanent tracheostomy | 31.29 |
|  | Permanent tracheostomy  | 31.2x |
| Infectious  |  |  |
| *Sepsis/Shock* |  |  |
|  | Septicemia  | 038.xx |
|  | Sepsis | 995.91 |
|  | Severe sepsis | 995.92 |
|  | Other infection  | 999.3x |
|  | Postoperative shock | 998.0x |
| *Urinary Tract Infection* |  |
|  | Urinary tract infection, site not specified | 599.0x |
|  | Infection of kidney, unspecified | 590.9x |
| *Wound infection* |  |  |
|  | Infected postoperative seroma | 998.51 |
|  | Other postoperative infection  | 998.59 |
| *Gastrointestinal*  |  |  |
|  | Digestive system complications | 997.4x |
| Intraoperative Complications |  |
| *Accidental Puncture or Laceration, Complicating Surgery* |  |
|  | Accidental puncture of laceration during a procedure | 998.2x |
| *Bleeding Complication Procedure* |  |
|  | Hemorrhage complicating a procedure | 998.11 |