Supplementary Table 1. ICD-9-CM diagnosis codes for congenital heart disease.

Diagnosis Codes: 7450-7459, 7460-7469, 7470-7479, 74500-74599, 74600-74599, 74700-74749

Supplementary Table 2. ICD-9-CM diagnosis codes for charlson comorbidities.

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| Comorbidities | ICD-9-CM |
| Myocardial infarction | 410.x, 412.x |
| Congestive heart failure | 398.91, 402.01, 402.11, 402.91, 404.01, 404.03, 404.11, 404.13, 404.91, 404.93, 425.4-425.9, 428.x |
| Peripheral vascular disease | 093.0, 437.3, 440.x, 441.x, 443.1-443.9, 447.1, 557.1, 557.9, V43.4 |
| Cerebrovascular disease | 362.34, 430.x-438.x |
| Dementia | 290.x, 294.1, 331.2 |
| Chronic pulmonary disease | 416.8, 416.9, 490.x-505.x, 506.4, 508.1, 508.8 |
| Rheumatic disease | 446.5, 710.0-710.4, 714.0-714.2, 714.8, 725.x |
| Peptic ulcer disease | 531.x-534.x |
| Mild liver disease | 070.22, 070.23, 070.32, 070.33, 070.44, 070.54, 070.6, 070.9, 570.x, 571.x, 573.3, 573.4, 573.8, 573.9, V42.7 |
| Diabetes without chronic complication | 250.0-250.3, 250.8, 250.9 |
| Diabetes with chronic complication | 250.4-250.7 |
| Hemiplegia or paraplegia | 334.1, 342.x, 343.x, 344.0-344.6, 344.9 |
| Renal disease | 403.01, 403.11, 403.91, 404.02, 404.03, 404.12, 404.13, 404.92, 404.93, 582.x, 583.0-583.7, 585.x, 586.x, 588.0, V42.0, V45.1, V56.x |
| Any malignancy, including lymphoma and leukemia, except malignant neoplasm of skin | 403.01, 403.11, 403.91, 404.02, 404.03, 404.12, 404.13, 404.92, 404.93, 582.x, 583.0-583.7, 585.x, 586.x, 588.0, V42.0, V45.1, V56.x |
| Moderate or severe disease liver | 456.0-456.2, 572.2-572.8 |
| Metastatic solid tumor | 196.x-199.x |
| AIDS/HIV | 042.x-044.x |

Supplementary Table 3. ICD-9-CM diagnosis codes for complications.

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| **Cardiac** |

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| Myocardial infarction | |
| 410 | Acute myocardial infarction |
| Heart failure | |
| 428.21 | Acute systolic heart failure |
| 428.23 | Acute on chronic systolic heart failure |
| 428.31 | Acute diastolic heart failure |
| 428.33 | Acute on chronic diastolic heart failure |
| 428.41 | Acute combined systolic and diastolic heart failure |
| 428.43 | Acute on chronic combined systolic and diastolic heart failure |
| 785.51 | Cardiogenic shock |
| Arrhythmia |  |
| 427 | Cardiac dysrhythmias |

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| **Pulmonary** |

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| *Pneumonia* | | |
| 481 | Pneumococcal pneumonia (Streptococcus pneumoniae pneumonia) | |
| 482 | Other bacterial pneumonia | |
| 482.1 | Pneumonia due to pseudomonas | |
| 482.2 | Pneumonia due to Haemophilus influenzae (H. influenzae) | |
| 482.3 | Pneumonia due to streptococcus | |
| 482.31 | Pneumonia due to streptococcus, group A | |
| 482.32 | Pneumonia due to streptococcus, group B | |
| 482.39 | Pneumonia due to other streptococcus | |
| 482.4 | Pneumonia due to staphylococcus | |
| 482.41 | Methicillin susceptible pneumonia due to Staphylococcus aureus | |
| 482.49 | Other Staphylococcus pneumonia | |
| 482.81 | Pneumonia due to anaerobes | |
| 482.82 | Pneumonia due to Escherichia coli (E. coli) | |
| 482.83 | Pneumonia due to other gram-negative bacteria | |
| 482.84 | Pneumonia due to Legionnaires' disease | |
| 482.89 | Pneumonia due to other specified bacteria | |
| 482.9 | Bacterial pneumonia, unspecified | |
| 485 | Bronchopneumonia, organism unspecified | |
| 486 | Pneumonia, organism unspecified | |
| *Respiratory failure* | |  |
| 518.81 | Acute respiratory failure | |
| 518.84 | Acute and chronic respiratory failure | |
| 799.1 | Respiratory arrest | |

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| **Renal** |

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| *Acute kidney injury* | |
| 584.5 | Acute kidney failure with lesion of tubular necrosis |
| 584.6 | Acute kidney failure with lesion of renal cortical necrosis |
| 584.7 | Acute kidney failure with lesion of renal medullary (papillary) necrosis |
| 584.8 | Acute kidney failure with other specified pathological lesion in kidney |
| 584.9 | Acute kidney failure, unspecified |
| 997.5 | Urinary complication of surgical care (includes acute renal failure due to procedure, acute renal insufficiency specified as due to procedure, acute tubular necrosis due to procedure) |
| *Urinary tract infection* | |
| 590.8 | Pyelonephritis |
| 599 | Urinary tract infection |
| 996.64 | Infection and inflammatory reaction due to indwelling urinary catheter |

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| **Neurological** |

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| *Paraplegia* |  |
| 344.1 | Paraplegia |
| 344.3 | Monoplegia of lower limb |
| Spinal cord ischemia | |
| 336.1 | Vascular myelopathies applies to acute infarction of spinal cord |
| *Stroke* |  |
| 431 | Intracerebral hemorrhage |
| 433.01 | Occlusion and stenosis of basilar artery with cerebral infarction |
| 433.21 | Occlusion and stenosis of vertebral artery with cerebral infarction |
| 433.11 | Occlusion and stenosis of carotid artery with cerebral infarction |
| 433.31 | Occlusion and stenosis of multiple and bilateral precerebral arteries with cerebral infarction |
| 433.81 | Occlusion and stenosis of other specified precerebral artery with cerebral infarction |
| 433.91 | Occlusion and stenosis of unspecified precerebral artery with cerebral infarction |
| 434.01 | Cerebral thrombosis with cerebral infarction |
| 434.11 | Cerebral embolism with cerebral infarction |
| 434.91 | Cerebral artery occlusion, unspecified with cerebral infarction |
| 437.1 | Other generalized ischemic cerebrovascular disease |
| 997.02 | Iatrogenic cerebrovascular infarction or hemorrhage |

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| **Gastrointestinal** |

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| *Bowel ischemia* | |
| 557 | Acute vascular insufficiency of intestine |
| *Ileus* |  |
| 537.2 | Chronic duodenal ileus |
| 560.1 | Paralytic ileus |

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| **Wound** |

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| *Wound complications* | |
| 998.13 | Seroma complicating a procedure |
| 998.3 | Disruption of operation wound |
| 998.3 | Disruption of wound, unspecified |
| 998.31 | Disruption of internal operation (surgical) wound |
| 998.32 | Disruption of external operation (surgical) wound |
| 998.51 | Infected postoperative seroma |
| 998.83 | Nonhealing surgical wound |

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| **Sepsis** |

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| 38 | Septicemia |
| 995.91 | Sepsis |
| 995.92 | Severe sepsis |

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| **Hemorrhage/transfusion** |

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| 285.1 | Acute posthemorrhagic anemia |
| 99.04 | Transfusion of packed cells |
| 998.1 | Hemorrhage or hematoma complicating a procedure not elsewhere classified |
| 99.06 | Transfusion of coagulation factors |
| 998.11 | Hemorrhage complicating a procedure |
| 998.12 | Hematoma complicating a procedure |
| 39.41 | Control of hemorrhage following vascular surgery |
| 39.98 | Control of hemorrhage, not otherwise specified |