

Appendix A. Patient-level variables included in models

Demographics	Gender, Age, Race (White, Black or African American, Asian, Native Hawaiian or other Pacific Islander, Unknown), Hispanic ethnicity
Comorbidities, included in Elixhauser	Hypertension, Congestive Heart Failure, Cardiac Arrhythmia, Valvular Disease, Pulmonary Circulation Disorders, Peripheral Vascular Disorders, Paralysis, Other Neurological Disorders, Chronic Pulmonary Disease, Diabetes Uncomplicated, Diabetes Complicated, Hypothyroidism, Renal Failure, Liver Disease, Peptic Ulcer Disease excluding bleeding, AIDS/HIV, Lymphoma, Metastatic Cancer, Solid Tumor without Metastasis, Rheumatoid Arthritis/Collagen, Coagulopathy, Obesity, Weight Loss, Fluid and Electrolyte Disorders, Blood Loss Anemia, Deficiency Anemia, Alcohol Abuse, Drug Abuse, Psychoses, Depression
Diagnoses, HCUP CCS single-level and multi-level	<p>Top 20 most frequent single-level CCS diagnoses: Congestive Heart Failure (non-hypertensive), Non-specific Chest Pain, Coronary Atherosclerosis and Other Heart Disease, Cardiac Dysrhythmias, Alcohol-related Disorders, Septicemia (except in labor), Chronic Obstructive Pulmonary Disease and Bronchiectasis, Pneumonia, Skin and Subcutaneous Tissue Infections, Osteoarthritis, Complication of Device (implant or graft), Complications of Surgical Procedures or Medical Care, Diabetes Mellitus with Complications, Respiratory Failure, Urinary Tract Infections, Renal Failure, Spondylosis, Acute Myocardial Infarction, Fluid and Electrolyte Disorders, Gastrointestinal Hemorrhage</p> <p>18 level 1 multi-level CCS categories: Infectious and Parasitic Diseases, Neoplasms, Endocrine Disorders, Anemia, Mental Illness, Diseases of the Nervous System, Diseases of the Circulatory System, Diseases of the Respiratory System, Diseases of the Digestive System, Diseases of the Genitourinary System, Complications of Pregnancy or Childbirth, Skin Disease, Diseases of the Musculoskeletal System, Congenital Anomalies, Perinatal Conditions, Injury and Poisoning, Other Health Status Conditions, Other Residual Codes</p>
Laboratory values	Albumin, Bilirubin, Blood Urea Nitrogen, Creatinine, Glucose, Hematocrit, Partial pressure of oxygen score, pH score, Sodium, White Blood Cell