

Supplementary material

Supplementary Table 1 International Classification of Diseases (ICD) codes

Disease/Procedure	ICD-10-CM codes
Non-variceal upper gastrointestinal bleeding	K20.81 Other esophagitis with bleeding K20.91 Esophagitis, unspecified with bleeding K21.01 Gastro-esophageal reflux disease with esophagitis, with bleeding K22.11 Ulcer of esophagus with bleeding K25.0 Acute gastric ulcer with hemorrhage K25.2 Acute gastric ulcer with both hemorrhage and perforation K25.4 Chronic or unspecified gastric ulcer with hemorrhage K25.6 Chronic or unspecified gastric ulcer with both hemorrhage and perforation K26.0 Acute duodenal ulcer with hemorrhage K26.2 Acute duodenal ulcer with both hemorrhage and perforation K26.4 Chronic or unspecified duodenal ulcer with hemorrhage K26.6 Chronic or unspecified duodenal ulcer with both hemorrhage and perforation K27.0 Acute peptic ulcer, site unspecified, with hemorrhage K27.2 Acute peptic ulcer, site unspecified, with both hemorrhage and perforation K27.4 Chronic or unspecified peptic ulcer, site unspecified, with hemorrhage K27.6 Chronic or unspecified peptic ulcer, site unspecified, with both hemorrhage and perforation K28.0 Acute gastrojejunal ulcer with hemorrhage K28.2 Acute gastrojejunal ulcer with both hemorrhage and perforation K28.4 Chronic or unspecified gastrojejunal ulcer with hemorrhage K28.6 Chronic or unspecified gastrojejunal ulcer with both hemorrhage and perforation K29.01 Acute gastritis with bleeding K29.21 Alcoholic gastritis with bleeding K29.31 Chronic superficial gastritis with bleeding K29.41 Chronic atrophic gastritis with bleeding K29.51 Unspecified chronic gastritis with bleeding K29.61 Other gastritis with bleeding K29.71 Gastritis, unspecified, with bleeding K29.81 Duodenitis with bleeding K29.91 Gastroduodenitis, unspecified, with bleeding K31.811 Angiodysplasia of stomach and duodenum with bleeding K31.82 Dieulafoy lesion (hemorrhagic) of stomach and duodenum
Variceal upper gastrointestinal bleeding	I85.01 Esophageal varices with bleeding I85.11 Secondary esophageal varices with bleeding
Cirrhosis	K74 Fibrosis and cirrhosis of liver K71.7 Toxic liver disease with fibrosis and cirrhosis of liver K70.3 Alcoholic cirrhosis of liver K70.2 Alcoholic fibrosis and sclerosis of liver
Ascites	R18.8 Other ascites K70.31 Alcoholic cirrhosis of liver with ascites K70.11 Alcoholic hepatitis with ascites K71.51 Toxic liver disease with chronic active hepatitis with ascites
Hepatic encephalopathy	K72.91 Hepatic failure, unspecified with coma
Spontaneous bacterial peritonitis	K65.2 Spontaneous bacterial peritonitis
<i>Clostridioides difficile</i> infection	A04.71 Enterocolitis due to <i>Clostridioides difficile</i> , recurrent A04.72 Enterocolitis due to <i>Clostridioides difficile</i> , not specified as recurrent
Malnutrition	E44.1 Mild protein-calorie malnutrition E44.0 Moderate protein-calorie malnutrition E46 Unspecified protein-calorie malnutrition
Acute kidney injury	N17.0 Acute kidney failure with tubular necrosis N17.1 Acute kidney failure with acute cortical necrosis N17.2 Acute kidney failure with medullary necrosis N17.8 Other acute kidney failure N17.9 Acute kidney failure, unspecified

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Supplementary Table 1 (Continued)

Disease/Procedure	ICD-10-CM codes
Renal dialysis	5A1D60Z, 5A1D00Z, 3E1M39Z
Vasopressors	3E043XZ, 3E040XZ, 3E033XZ, 3E030XZ
Endotracheal intubation	0BH18EZ, 0BH17EZ
Blood transfusion	30233N1, 30233P1, 30243N1, 30243P1, 30243H1, 30233H1
Abnormal INR	R79.1 Abnormal coagulation profile
Thrombocytopenia	D69.6 Thrombocytopenia, unspecified D69.59 Other secondary thrombocytopenia
Hyponatremia	E87.1 Hypo-osmolality and hyponatremia
Hepatorenal syndrome	K76.7 Hepatorenal syndrome
Hepatopulmonary syndrome	K76.81 Hepatopulmonary syndrome
Pneumonia	J13 Pneumonia due to Streptococcus pneumonia J14 Pneumonia due to Hemophilus influenza J15 Bacterial pneumonia, not elsewhere classified J16 Pneumonia due to other infectious organisms, not elsewhere classified
Heart failure	I50 Heart failure
Anticoagulant use	Z79.01 Long term (current) use of anticoagulants
Antiplatelet use	Z79.02 Long term (current) use of antiplatelets
Chronic kidney disease	N18 Chronic kidney disease
Cerebrovascular accident	I63 Cerebral infarction
Gastrointestinal endoscopy - inspection	0DJ08ZZ, 0DJ68ZZ, 0DB18ZX, 0DB18ZZ, 0DB28ZX, 0DB28ZZ, 0DB38ZX, 0DB38ZZ, 0DB48ZX, 0DB48ZZ, 0DB58ZX, 0DB58ZZ, 0DB68ZX, 0DB68ZZ, 0DB78ZX, 0DB78ZZ, 0DB88ZX, 0DB88ZZ, 0DB98ZX, 0DB98ZZ
Gastrointestinal endoscopy - intervention	0D518ZZ, 0D528ZZ, 0D538ZZ, 0D548ZZ, 0D558ZZ, 0D568ZZ, 0D578ZZ, 0D598ZZ, 0DQ18ZZ, 0DQ28ZZ, 0DQ38ZZ, 0DQ48ZZ, 0DQ58ZZ, 0DQ68ZZ, 0DQ78ZZ, 0DQ98ZZ, 0W3P8ZZ, 3E0G8TZ, 06L38CZ
Arterial embolization	04L13DZ, 04L23DZ, 04L43DZ, 04L53DZ
Hypovolemic shock	R57.1 Hypovolemic shock

INR, international normalized ratio

Supplementary Table 2 Missing data

Variables	Data Missing (%)
Age (y)	0.004
Sex	0.01
Race	2.73
Charlson comorbidity index	0.00
Elective admission	0.19
Weekend admission	0.00
Median income in patient's zip code	2.57
Hospital region	0.00
Hospital size	0.00
Hospital location/teaching status	0.00
Insurance	0.15