

TABLE E-1 ICD-9-CM Codes Used for Inclusion Criteria and Complications

	ICD-9-CM Codes
Diagnosis	
Femoral neck fracture	820.0, 820.00, 820.01, 820.02, 820.03, 820.09, 820.1, 820.10, 820.11, 820.12, 820.13, 820.19, 820.8, 820.9
Intertrochanteric/pertrochanteric fracture	820.2, 820.20, 820.21, 820.22, 820.3, 820.30, 820.31, 820.32
Complications	
Acute myocardial infarction	410.x1
Congestive heart failure	398.91, 428
Cerebrovascular ischemia/stroke	434.01, 434.11, 434.91, 997.02, 997.1
Pulmonary embolism/deep venous thrombosis	453.2, 453.3, 453.4x, 453.8, 453.9, 451.1, 451.2, 451.8, 451.9
Intracranial injury	415.1x
Burns	850-854
Retained foreign object	940-949
Air embolism	998.4, 998.7
Blood incompatibility	999.1
Major bleeding	999.6
Sepsis/septicemia/shock	286.5, 719.10, 719.16, 719.17, 998.1x
Pressure ulcer	038, 785.52, 785.59, 790.7, 995.91, 995.92, 998.0
Catheter-associated urinary tract infection	707.23, 707.24
Vascular catheter-associated Infection	599.0, 996.64
Ileus	999.31
Pneumonia	560.1, 997.4
Surgical site infection (deep wound and periprosthetic)	480.x, 481, 482.x, 483.x, 485, 486, 487.0, 507.0
Hip dislocation	996.60, 996.66, 996.67, 996.69, 998.3x, 998.5x, 998.6, 998.83
Hip fracture	835, 718.2, 718.3
Mechanical complication	733.15, 733.8, 733.9, 808, 821.0, 821.11, 820, 996.44

TABLE E-2 Frequency of Surgical Delay and Postoperative Complications, Reoperations, Readmissions, and Mortality (N = 197,290)

Outcomes	No. (%)
Time from admission to surgery >2 days	39,747 (20.2%)
Readmission in 90 days	54,692 (27.7%)
Complications in 90 days	52,553 (26.6%)
Acute myocardial infarction	4,226 (2.1%)
Congestive heart failure	14,863 (7.5%)
Cerebrovascular ischemia/stroke	5,477 (2.8%)
Pulmonary embolism/deep venous thrombosis	5,158 (2.6%)
Intracranial injury	271 (0.1%)
Burns	35 (0.0%)
Retained foreign object	10 (0.0%)
Air embolism	1 (0.0%)
Blood incompatibility	2 (0.0%)
Major bleeding	2,727 (1.4%)
Sepsis/septicemia/shock	7,385 (3.7%)
Pressure ulcer	648 (0.3%)
Catheter-associated urinary tract infection	19,240 (9.8%)
Vascular catheter-associated infection	20 (0.0%)
Ileus	2,157 (1.1%)
Pneumonia	14,046 (7.1%)
Surgical site infection (deep wound and periprosthetic)	3,079 (1.6%)
Hip dislocation	313 (0.2%)
Hip fracture	2,145 (1.1%)
Mechanical complication	2,520 (1.3%)
Reoperation within 1 yr*	10,495 (5.3%)
Total hip arthroplasty	1,491 (0.8%)
Revision total hip arthroplasty	432 (0.2%)
Hemiarthroplasty	961 (0.5%)
Removal of implant	3,996 (2.0%)
Closed reduction of dislocated hip prosthesis	111 (0.1%)
Irrigation and debridement	3,783 (1.9%)
Femoral shaft open reduction and internal fixation	1,711 (0.9%)
Proximal femoral osteotomy	27 (0.0%)
Other hip repair	10 (0.0%)
In-hospital mortality	
Index admission only	5,763 (2.9%)
Within 1 yr, including index admission	14,089 (7.1%)

\*Excluding removal of implant without any other procedure.

TABLE E-3 Patient Characteristics Associated with Hip Fracture Outcomes (N = 197,290)

	OR* (95% CI)			HR* (95% CI)	
	Time from Admission to Surgery >2 Days	90-Day Readmission	90-Day Complications	Reoperation Within 1 Yr (Excluding Implant Removal)	1-Yr In-Hospital Mortality
Age group					
65-75 vs. <65 yr	1.26 (1.19, 1.33)†	1.08 (1.03, 1.14)‡	1.36 (1.29, 1.43)†	0.86 (0.79, 0.93)†	1.87 (1.71, 2.04)†
76-85 vs. <65 yr	1.36 (1.29, 1.43)†	1.23 (1.17, 1.28)†	1.71 (1.63, 1.80)†	0.75 (0.69, 0.81)†	2.43 (2.23, 2.64)†
>85 vs. <65 yr	1.37 (1.31, 1.45)†	1.36 (1.30, 1.43)†	2.18 (2.07, 2.29)†	0.59 (0.54, 0.64)†	3.50 (3.22, 3.80)†
Sex (female vs. male)	0.85 (0.83, 0.87)†	0.76 (0.74, 0.79)†	0.78 (0.76, 0.79)†	0.87 (0.83, 0.91)†	0.60 (0.58, 0.62)†
Race					
Black vs. white	1.49 (1.42, 1.57)†	1.17 (1.11, 1.22)†	1.03 (0.98, 1.08)	1.21 (1.11, 1.32)†	1.13 (1.07, 1.21)†
Asian vs. white	1.26 (1.16, 1.37)†	0.86 (0.79, 0.94)†	0.93 (0.85, 1.01)	0.72 (0.60, 0.87)†	0.89 (0.79, 1.00)
Other vs. white	1.31 (1.25, 1.38)†	0.96 (0.91, 1.00)	1.01 (0.96, 1.06)	0.87 (0.78, 0.96)‡	1.01 (0.94, 1.08)
Deyo comorbidity index					
1 vs. 0	1.46 (1.42, 1.50)†	1.29 (1.26, 1.33)†	1.43 (1.39, 1.46)†	1.20 (1.14, 1.26)†	1.51 (1.46, 1.56)†
2 vs. 0	1.99 (1.92, 2.06)†	1.76 (1.71, 1.82)†	1.95 (1.89, 2.02)†	1.43 (1.34, 1.52)†	2.17 (2.08, 2.26)†
3 vs. 0	2.28 (2.17, 2.40)†	2.30 (2.19, 2.41)†	2.54 (2.42, 2.66)†	1.87 (1.71, 2.04)†	2.83 (2.68, 2.99)†
≥4 vs. 0	2.26 (2.16, 2.36)†	2.40 (2.31, 2.50)†	2.40 (2.31, 2.50)†	1.55 (1.42, 1.68)†	3.19 (3.04, 3.34)†
Insurance type					
Medicaid vs. Medicare	1.17 (1.10, 1.24)†	0.97 (0.91, 1.03)	0.90 (0.84, 0.95)†	0.87 (0.77, 0.97)§	0.93 (0.84, 1.02)
Private vs. Medicare	0.77 (0.74, 0.81)†	0.77 (0.74, 0.81)†	0.80 (0.77, 0.84)†	0.92 (0.85, 1.00)§	0.80 (0.75, 0.85)†
Workers' Compensation vs. Medicare	0.52 (0.44, 0.61)†	0.52 (0.46, 0.60)†	0.63 (0.55, 0.72)†	0.76 (0.61, 0.94)§	0.27 (0.18, 0.39)†
No-fault vs. Medicare	0.86 (0.78, 0.95)‡	0.91 (0.83, 0.99)§	1.16 (1.06, 1.26)‡	0.97 (0.83, 1.14)	0.70 (0.59, 0.82)†
Other vs. Medicare	0.91 (0.83, 1.00)§	0.66 (0.61, 0.73)†	0.73 (0.66, 0.80)†	0.67 (0.56, 0.81)†	0.79 (0.69, 0.91)†

\*Multivariable logistic regression model adjusted for characteristics shown and type of surgery, osteoporosis diagnosis present on admission, number of hospitals in hospital service area, number of beds at treating hospital, urban or rural type of treating hospital, teaching status of treating hospital, annual hospital volume of hip fracture surgery in preceding 12 months, annual volume of hip fracture surgery of individual surgeons, and Area Deprivation Index. †P < 0.001. ‡P < 0.01. §P < 0.05.