Validation of Orthopaedic Hip Fracture Data From the National Surgical Quality Improvement Program Database

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Purpose: The use of clinical registry data is integral to patient care and predicting outcomes, but is dependent on the accuracy of the data. This study examined the validity of the National Surgical Quality Improvement Program (NSQIP) database collected on all adult hip fracture patients at a single Level I trauma institution.

Methods: A retrospective study of adult patients who underwent surgery for hip fracture at a single Level I trauma center between April 2016 and April 2018 was performed. CPT coding and 30-day complications reported in the NSQIP database were validated for accuracy against the medical records.

Results: 156 patients were identified in the NSQIP database who underwent surgery for femoral neck fractures, including hemiarthroplasty, plate/screw type implants, and intramedullary implants. 29.5% of these procedures were incorrectly coded (Table 1). Additionally, 31 (19.9%) of NSQIP cases had missing complications. In total, there were 36 missing complications—9 bleeding complications requiring transfusions, 14 renal complications, 7 urinary tract infections, 3 infections, 2 respiratory complications, and 1 death.

Conclusion: Validation of the NSQIP database for adult hip fractures at a single institution detected improper coding for 29.5% of cases and missing complications for 19.9% of cases. These discrepancies suggest a need to improve NSQIP data reporting and account for erroneous information when utilizing the database.

Table 1. Accuracy of NSQIP CPT coding for hip fracture surgeries

Initial CPT Code	Description	Number of cases	Number of incorrectly coded cases	Correct CPT code
27125	Hemiarthroplasty, hip	28	26 (92.9%)	27236
27236	Open treatment of femoral fracture, proximal end, neck, internal fixation or prosthetic replacement	29	4 (13.8%)	27235 27244 27245
27244	Treatment of intertrochanteric, peritrochanteric, or subtrochanteric femoral fracture; with plate/screw type implant	13	10 (76.9%)	27245 27235
27245	Treatment of intertrochanteric, peritrochanteric, or subtrochanteric femoral fracture; with intramedullary implant	86	6 (6.98%)	27236 27235 27495
27235	Percutaneous skeletal fixation of femoral fracture, proximal end, neck	0	N/A	N/A
27495	Prophylactic treatment (nailing, pinning, plating, or wiring) with or without methylmethacrylate, femur	0	N/A	N/A