

The Clinical and Economic Impact of High-Value Cephalomedullary Nail Utilization at a Level-II Trauma Center

Taylor Gurnea BS; Austin Witt BS; Alastair Moody BS; Kyle Lybrand MD

Reno Orthopedic Clinic, Reno, NV, United States

Purpose: In the current climate of cost containment and fiscal responsibility, high-value implant alternatives represent a substantial opportunity for savings in the treatment of orthopaedic trauma patients. As patents have expired on many commonly used trauma implants, high-value alternatives have become available. The purpose of this study was to examine the clinical and economic impact of a cost containment program using “high value,” single lag screw, cephalomedullary hip nail implants for the treatment of intertrochanteric femur fractures.

Methods: In November 2013, our institution implemented the use of high-value single lag screw cephalomedullary nail constructs. After IRB approval, the trauma database at a Level-II trauma center was queried to identify patients with Intertrochanteric femur fractures treated with intramedullary nailing. These patients were compared to patients treated with conventional implants during the same study period. Chart review was undertaken to obtain basic demographic variables such as age, sex, smoking, and diabetic history. Injury radiographs were reviewed to determine fracture type and OTA classification. Operative records were reviewed to determine operative time and any adverse intraoperative events. Hospital charts and clinic charts were reviewed to document any postoperative complications. All clinic charts were reviewed by blinded authors to minimize bias. Hospital financial records were appraised to determine implant costs.

Results: During the 5-year study period from November 2013 to November 2018, 443 patients were treated with value-based implants while 442 patients were treated with conventional cephalomedullary implants. There were no significant differences in age, sex, presence of diabetes, smoking, or fracture type between the high value and conventional groups. No difference in intraoperative complications or estimated blood loss was observed. Operative time was significantly less in the value-based implant group ($P = 0.003$). No increase in postoperative infection rate, implant complications, malunion or nonunion, mortality, or length of stay was observed. Average savings per case was \$1158 and the hospital realized a total savings of \$512,994 in implant costs during the study period.

Conclusion: Implant costs decreased significantly without any increase in complication rate or change in radiographic outcome. These implant savings were vital to our success in the Bundled Payments for Care Improvement initiative. Savings can be reinvested in the hospital trauma program to support OTA/AAOS (American Academy of Orthopaedic Surgeons) position statement guidelines and assist in gainsharing and comanagement efforts.