

### **Comparing Relative Value Units between Computer-Assisted Total Hip Arthroplasty (THA) and Traditional THA: A National Analysis from 2011 to 2016**

**Introduction:** Computer-assisted surgery has garnered increased interest in recent years in the field of adult reconstruction in terms of preoperative planning optimization and surgical precision. In total hip arthroplasty (THA), cost-related data pertaining to the value of these procedures is sparse.

**Methods:** The NSQIP database was utilized to identify all patients from 2011 to 2016 who underwent computer-assisted THA (caTHA, including computer-navigated and robotic-assisted) and traditional THA. Univariate analysis compared operative time, length of stay (LOS), relative value unit (RVU) per minute, reimbursement rate, revenue per case, revenue per day, and average annualized cost difference between caTHA and traditional THA cohorts.

**Results:** 122,401 patient who underwent traditional THA and 1,879 patients who underwent caTHA were identified. Those in the traditional THA group had a longer LOS than patients who underwent caTHA (2.7 vs. 2.2 days;  $p < 0.001$ ). Comparing the relative value between procedures, caTHA had longer mean operative times than traditional THA (99.1 vs. 92.5 minutes;  $p < 0.001$ ). The mean RVU per minute (0.263 vs. 0.258), and reimbursement rate (\$9.3/min vs. \$9.0/min) were higher for traditional THA procedures (all,  $p < 0.001$ ). However, revenue per case (\$889 vs. \$857) and revenue per day (\$5,337/day vs. \$5,143/day) were all significantly higher for caTHA than traditional THA procedures (all,  $p < 0.001$ ).

**Discussion:** This study found that patients who underwent traditional THA had shorter operative times but longer LOS than caTHA patients. Moreover, traditional THA procedures had higher reimbursement rates but generated lower revenue per case and per day than caTHA, corresponding to an average annualized difference in revenue of \$31,065 per year in favor of caTHA. These findings may help orthopaedic surgeons better understand how their operative time is valued when determining their operative schedules.