

Comparison of Relative Value Unit Reimbursement and Effort in Orthopaedic Trauma and Elective Procedures at the Knee

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Purpose: Several studies have demonstrated reimbursements for orthopaedic procedures with increased operative time, complexity, and urgency lag behind reimbursements of similar procedures performed electively. The purpose of this study is to compare the work relative value unit (wRVU) and perioperative effort, as measured by preoperative, intraoperative, and postoperative variables, between 2 orthopaedic trauma procedures and a common elective orthopaedic procedure at the knee.

Methods: A retrospective chart review was performed evaluating 3 procedures performed between 2015 and 2020 at a single tertiary care institution. Primary total knee arthroplasty (TKA), open reduction and internal fixation (ORIF) of unicondylar tibial plateau fracture (uTP), and ORIF of bicondylar tibial plateau fracture (bTP) were compared. The mean wRVU was calculated per minute of operative time, number of perioperative visits, and length of stay. The number and percentage of postoperative complications were calculated and the ratio of complications between procedures was compared to the ratio of wRVU between procedures. A one-way analysis of variance was used to compare means, with post hoc analysis when $P < 0.05$. Odds ratios (ORs) with 95% confidence intervals (CIs) were used to compare wRVU and complication ratios.

Results: A total of 1731 TKAs, 81 uTPs, and 83 bTPs were included. There was higher mean reimbursement for TKA than uTP ($P < 0.001$) for wRVU per operating room minute (0.05, 95% CI: 0.04-0.05), wRVU per hospital days (9.7, 95% CI: 6.4-13.0), and wRVU per number of perioperative visits (3.7, 95% CI: 2.6-4.8). There was also higher reimbursement for TKA compared to bTP for these variables ($P < 0.001$). There were no significant differences in these variables between uTP and bTP. Despite similar mean wRVU for TKA (21.7, 95% CI: 21.6-21.8) and bTP (21.9, 95% CI: 20.8-23.0), the odds of complications including surgical site infection (OR 14.9, 95% CI: 5.2, 42.9), 90-day mortality (OR 21.3, 95% CI: 3.0, 153.4), return to emergency department (OR 4.4, 95% CI: 2.4, 8.0), and readmission (OR 9.2, 95% CI: 2.3, 36.4) were disproportionately higher for bTP.

Conclusion: The intent of the wRVU system is to provide adjusted compensation based on perioperative time, technical skill, mental effort and stress. This study demonstrates compensation is disproportionately lower for 2 common orthopaedic trauma procedures after adjusting for perioperative effort and complications. Analyses such as these could assist in adjusting the relative undercompensation of complex injury reconstruction procedures.