

Risk vs. Reward In Total Joint Arthroplasty: Hospitals are Incentivized More than Surgeons to Care for Riskier Arthroplasty Patients

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INTRODUCTION: Currently there is an increasing focus on quality of care delivered in the United States, especially with how it relates to payment structure. Recent payment reform has introduced important risk-adjustment for hospital payment within total joint arthroplasty (TJA) based upon patient complexity. However, such risk-adjustment does not exist for surgeon fees, and literature evaluating relationships between patient complexity and surgeon reimbursement in arthroplasty is limited. As such, the purpose of this study was to assess the relationship between patient risk and reimbursement for both surgeon reimbursement and hospital reimbursement among primary TJA patients with differing risk profiles.

METHODS: The publicly available “2021 Medicare Physician and Other Provider” and “2021 Medicare Inpatient Hospitals” files were utilized. Patient comorbidity profiles were collected for the patient panels of all orthopaedic surgeons, and all inpatient hospitals. This included mean age of patients, as well as the comorbidity rate including the rate of atrial fibrillation (AF), Alzheimer’s, congestive heart failure (CHF), chronic kidney disease (CKD), depression, diabetes, hypertension, and ischemic heart disease (IHD) among patients. Additionally, the mean patient hierarchical condition category (HCC) risk score was collected, which is a standardized metric accounting for patient comorbidities which is normalized to 1.0 for a typical patient. For surgeon data, data was linked to all primary hip and knee arthroplasty procedures (both inpatient and outpatient) billed to Medicare in 2021 by filtering for CPT codes 27130 for primary hip, and 27447 for primary knee, while hospital data was linked to all inpatient episodes of care for total joint arthroplasty by filtering for DRG code 470. Outpatient data is not currently available and was not included. The Medicare surgeon reimbursement and hospital reimbursement were collected for all included episodes. Descriptive statistics were performed for all data. All procedure episodes were then split into two cohorts; a “sicker cohort” with those with an HCC risk score of 1.5 or greater, and a “healthier cohort” with patient HCC risk scores less than 1.5. Variables were averaged for each cohort and compared utilizing Student T-tests, and Chi-squared analysis to compare rates of comorbidities. All analysis and data recording was performed. All data is publicly available, deidentified data and it was determined that IRB approval was not required for this study.

RESULTS: In 2021, 386,355 primary total hip and knee arthroplasty procedures were billed to Medicare by 8,021 orthopaedic surgeons. All episodes were included in the surgeon-specific analysis. The mean reimbursement per procedure to surgeons across all such procedures was \$1,045.35. The mean payment among the sicker cohort was \$1,021.91, which was less than the mean payment among the healthier cohort of \$1,060.13 ($p < 0.001$). Meanwhile, for the inpatient hospital analysis, 112,012 Medicare patients were admitted for total hip and knee in 2021, and all were included. The mean reimbursement to hospitals per inpatient episode of care was significantly greater for the sicker cohort at \$13,950.66, compared to the mean episodic hospital reimbursement for the healthier cohort of \$8,430.46. For both the surgeon and hospital analysis, the sicker patient cohorts had a significantly higher rate of AF, Alzheimer’s, CHF, CKD, depression, diabetes, and IHD compared to the healthier cohort ($p < 0.001$ for all variables, Table 1).

DISCUSSION AND CONCLUSION: This study demonstrates that mean surgeon reimbursement was lower for primary total joint arthroplasty among sicker patients in comparison to their healthier counterparts, while hospital reimbursement was higher for sicker patients. This represents a current policy disconnect in how the care of complex patients is incentivized, as hospitals seem to be properly remunerated for taking on extra risk with more complex patients, while surgeons get paid less on average for performing total joint replacement on sicker patients within Medicare. As surgeon reimbursement in general continues to decline for total joint arthroplasty, this contradictory trend could lead to increased tension between hospital leaders and surgeons. Given the vast difference in payment structure between hospital and surgeon reimbursement in arthroplasty, this study may suggest that risk-adjustment for surgeon reimbursement in total joint arthroplasty should be considered among complex patients to properly incentivize and remunerate the surgeons who care for these at-risk patients.

HCC Risk Score Cohort	Hospital Reimbursement	Surgeon Reimbursement
Score ≥ 1.5 (Number of patients)	\$13,950.66 (40,799 patients)	\$1,021.06 (149,364 patients)
Score < 1.5 (Number of patients)	\$8,430.46 (71,213 patients)	\$1,060.13 (236,991 patients)
P-value of comparison	p<0.001	

Table 1. Mean surgeon reimbursement per procedure and mean hospital reimbursement per admission across study cohorts separated by HCC risk score