Implant Costs for Revision Hip and Knee Arthroplasty Account for More than a Quarter of Hospital Reimbursement

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INTRODUCTION: While overall reimbursement for revision total hip (THA) and revision knee arthroplasty (TKA) decreases, the revision burden continues to expand. We sought to evaluate the percentage of the Diagnostic-Related Group (DRG) reimbursement spent on implants in revision arthroplasty and calculated the variability of implant costs within each DRG.

METHODS: A consecutive series of 199 revision THAs and 187 revision TKAs performed between June 1, 2019, and June 1, 2021, were reviewed at one academic medical center. Patient characteristics, preoperative diagnosis, implant records and billing data were recorded from the hospital billing records for DRG 466 (revision hip or knee replacement with major complication), 467 (revision with complication or comorbidity) and 468 (revision without comorbidity or complication). Data was stratified by DRG and diagnosis for comparison. Implant and patient comorbidity factors were analyzed for association with increased costs.

RESULTS: Implant costs comprised 24% of reimbursements for DRG 466 (range: 2.4-133%), 36.7% for DRG 467 (3.5-118%), and 35% for DRG 468 (2.5-175%). When stratified by diagnoses, the groups with the largest ranges in implant costs measured as a percentage of the reimbursement were aseptic loosening (range: 6.6-171.6%), infection (3.2-129.3%), and metallosis (2.4-108%). Implants for revision TKA were significantly more costly than revision THA across all DRGs (33.3 vs. 25.7%, $p < .010$). Factors associated with higher implant costs included a greater number of prior arthroplasty surgeries on the same joint ($p<.001$) and an American Society of Anesthesiology (ASA) score ≥ 3 ($p=.006$).

DISCUSSION AND CONCLUSION: On average, 30% of the DRG reimbursement is spent on implants in revision arthroplasty. However, there is a wide range in cost contributions within DRG groups, making it difficult to determine profitability associated with individual diagnoses. Regardless of DRG grouping, revision joint arthroplasty in sicker patients (ASA ≥ 3) or multiply revised joints was associated with higher implant costs.