The Shrinking Value of Septic Total Knee Revision Arthroplasty: A 12-Years of Analysis of Physician Reimbursement Trends

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INTRODUCTION:
Revision total knee arthroplasty (R-TKA) is a highly complex procedure, often demanding extended operative time, higher complication risks, and considerable effort from the surgical team. Despite its complexity, physician compensation as measured in relative value units and reimbursement dollars has shown a concerning downward trend over time. We sought to describe the trends in physician and 90-day episode of care reimbursement during a 12-year period.
METHODS:
We conducted a retrospective analysis using the PearlDiver national claims database. Patients who underwent septic and aseptic R-TKA procedures from 2010 to 2022 were identified based on ICD-9-10 and CPT codes. Debridement, antibiotics and implant retention (DAIR) procedures were excluded. The yearly mean reimbursement in dollars was calculated and adjusted for inflation using consumer price indices. Patients were grouped by insurance type: 1) Commercial, 2) Medicare Advantage (MCR-A), 3) Medicare (MCR). A subgroup analysis compared septic revisions based on procedure type, categorizing them into single stage exchange, explant/first stage of two stage exchange and reimplantation/second stage of two stage exchange.
RESULTS:
A total of 87,644 aseptic and 33,013 septic procedures were identified. Commercial insurance claims comprised 58.9% and 54% of the aseptic and septic cohorts, respectively. Commercially insured septic procedures showed a limited increase in physician reimbursement (mean difference [delta]=$1,938.38, p<0.001) during the 12-year period, followed by MCR-A (Delta=$803.5, p<0.001) and MCR (Delta=$179.4, p<0.001) (Figure 1). Although compared to 2010, physician reimbursement in 2022 had a slight increase, 90-day reimbursement significantly decreased (Commercial delta=$-764; MCR delta=$-1,510.7; MCR-A delta=$-1,554.7, p<0.001) (Figure 2). Regarding procedure type, overall reimbursement for aseptic revisions and reimplantation procedures remained stagnant throughout the 12-year period (Figure 3).
DISCUSSION AND CONCLUSION: The decline in 90-day reimbursement for R-TKA reflects reductions in both physician and facility payments, with Medicare plans, aseptic revisions, and septic reimplantations showing the most limited growth in professional fees. These trends are misaligned with the increasing complexity and resource demands of revision procedures, rendering them financially unsustainable. Without targeted reimbursement reform, there is a growing risk of disincentivizing surgeons and institutions, ultimately threatening patient access to essential R-TKA care.

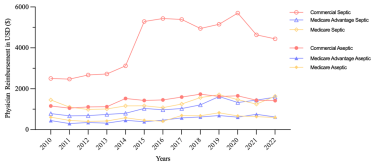

Figure 1. Temporal trends in physician reimbursement for revision total knee arthroplasty by insurance type 2010-2022

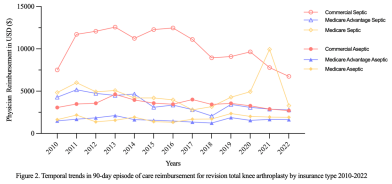

Figure 2. Temporal trends in 90-day episode of care reimbursement for revision total knee arthroplasty by insurance type 2010-2022

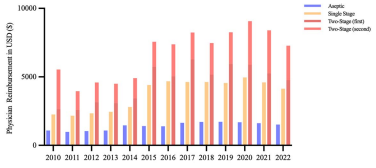

Figure 3. Temporal trends in physician reimbursement for revision total knee arthroplasty by procedure type 2010-2022