

Utilization and Reimbursement of the Top Ten Most Common Spine Procedures: A Retrospective Analysis Using a National Insurance Database

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INTRODUCTION: There has been limited investigation into reimbursement trends in spine surgery. The objective of the present study is to query a large, national insurance claims database to assess how utilization and reimbursement has changed for the top ten most common spinal procedures from 2010 to 2021.

METHODS: PearlDiver, a large, national insurance claims database, was queried for data from 2010 to 2021 for common spine procedures using Current Procedural Terminology (CPT) codes. For the ten most common spinal procedures, annual reimbursement rates by payor (commercial, Medicare, Medicaid, Government, cash, other) and demographic data including gender, age, region, payor type, and service location were extracted. Dollar values have been adjusted using the Consumer Price Index and are reported in 2023 US dollars. Trend analysis was performed for the larger cohort, with subsequent subanalysis separated by payor and by type of procedure.

RESULTS SECTION: 1819635 patients underwent the top ten spinal procedures from 2010 to 2021. From greatest population to least, the top ten spinal codes broadly covered fusion, laminectomy, and laminotomy (included codes: CPT-63047, CPT-63030, CPT-63048, CPT-22551, CPT-22612, CPT-22614, CPT-22552, CPT-22633, CPT-22558, CPT-22585). All procedures, combined and individually, demonstrated a significantly positive linear trend in use over the included time period (combined: +24%, $p<0.001$; fusion: +46.32 %, $p<0.001$; laminectomy: +24.2%, $p<0.001$; laminotomy: +3.5 %, $p=0.02$). Medicare beneficiary utilization also significantly increased by +1.68% ($p<0.001$) during this time. On the other hand, Medicare reimbursement demonstrated a significant decline across fusion alone (all time: -12.47%, avg annual: -2.57%), laminectomy alone (all time: -25.20%; avg annual: -1.09%), laminotomy alone (all time: -12.70%, avg annual: -0.63%), and the three procedures combined (all time: -13.19%, avg annual: -2.06%).

DISCUSSION: The present study identified an increased use of the top ten spinal procedures across the analyzed time period in both combined and procedure-specific analysis. While utilization rates by Medicare beneficiaries have also increased, Medicare reimbursement rates have steadily fallen. Further analysis will include analyzing trends of other reimbursement modalities across all three procedure groups. Additionally, sub-analysis of reimbursement data by location—cervical, thoracic and lumbar—will also be performed.

SIGNIFICANCE/CLINICAL RELEVANCE: Despite the growing number of Medicare beneficiaries and utilization of all included procedures, the present data has demonstrated a decrease in Medicare reimbursement across all subgroups. Knowledge of such trends is important for the orthopedic field in order to advocate for sustainable reimbursement that supports the consistent delivery of high-quality patient care.