Projections of Utilization of Primary and Revision Shoulder Arthroplasty in United States in the Next 30 years

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INTRODUCTION: In the past twenty years the incidence of total shoulder arthroplasty (TSA) has increased greatly, and it is expected to continue growing. Current literature lacks future projections for the utilization of TSA. These projections can help predict demand quantities and anticipate the future burden on the healthcare system. This study's aim is to update the literature to show predictions of utilization for total shoulder arthroplasty through 2060.

METHODS: This analysis utilized the publicly available 2000-2019 data from the CMS Medicare Part-B National Summary. Procedure volumes including TSA, and revision TSA, were determined using current procedural terminology (CPT) codes and were uplifted to account for the growing number of Medicare eligible patients covered under Medicare Advantage. Using these volumes log-linear, Poisson, negative binomial regression, and autoregressive integrated moving average (ARIMA) models were applied to generate projections from 2020-2060[1]. The Poisson model was chosen to display the data based on error analysis and prior literature.

RESULTS:

The projected annual growth from 2020 to 2060 rates for primary and revision TSA are 11.65% growth (95% CI 11.60% - 11.69%) and 13.89% growth (95% CI 13.35% - 14.42%), respectively. By 2060 the demand for primary TSA and revision TSA is projected to be 10,029,260 and 1,690,634 respectively.

DISCUSSION AND CONCLUSION: The results of this study concluded that both primary and revision TSA, procedures are projected to exponentially increase from 2020 to 2060. Additionally, revision procedures are projected to increase at greater rates than their respective primary counterparts.