Trends of Hip and Knee Arthroplasty Providers and Volume from 2013-2020: A Call to Action

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INTRODUCTION:

Total Hip and Total Knee Arthroplasties (THA, TKA) are two of the most common elective procedures performed in the US today. Given the increasing demand for musculoskeletal procedures, it is crucial we adequately characterize the workforce of surgeons performing these procedures. Therefore, the purpose of this study was to characterize the total number of orthopaedic surgeons performing THAs or TKAs in the United States and their billing volume using Medicare data.

METHODS:

A retrospective cohort study was conducted, including all primary and revision THA and TKA procedures done from 2013 to 2020 using the Medicare Provider Utilization and Payment Data: Physician and Other Practitioners Dataset. THA and TKA primary and revision procedures were identified using Healthcare Common Procedure Coding System procedure codes. Analysis was based on orthopaedic surgeon billing volume and orthopaedic surgeon numbers. Trend analyses were performed with 2-sided correlated Mann-Kendall tests. All analyses were conducted using same software, and statistical significance was set at $P < 0.05$.

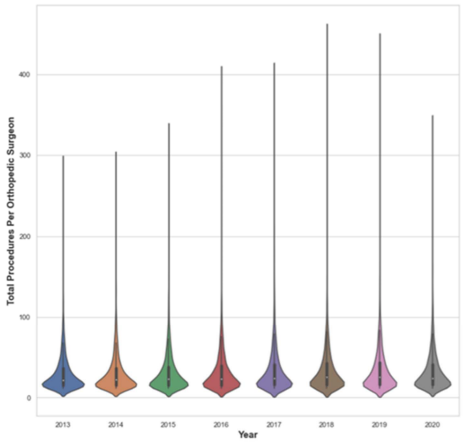
RESULTS:

There were 3,262,006 THA and TKA primary and revision surgeries billed for by 10,856 orthopaedic surgeons during the 8-year study period. Orthopaedic surgeons billed Medicare for a median number of primary and revision THAs of 21 [IQR: 15-36] in 2013, 22 [IQR: 15-36] in 2014, 23 [IQR: 15-38] in 2015, 23 [IQR: 15-39] in 2016, 24 [IQR: 16-41] in 2017, 25 [IQR: 16-42] in 2018, 25 [IQR: 16-43] in 2019, 24 [IQR: 16-41] in 2020. They also billed Medicare for a median number of primary and revision TKAs of 27 [IQR: 17-45] in 2013, 27 [IQR: 17-45] in 2014, 27 [IQR: 17-46] in 2015, 28 [IQR: 18-49] in 2016, 29 [IQR: 18-50] in 2017, 29 [IQR: 18-50] in 2018, 30 [IQR: 18-51] in 2019, 27 [IQR: 17-45] in 2020. A trend was observed in the number of orthopaedic surgeons performing THA ($P < 0.018$) and in the median number of THAs performed per orthopaedic surgeon ($P < 0.011$).

DISCUSSION AND CONCLUSION:

Over the last decade, there has been an increase in the number of orthopaedic surgeons performing THAs but not TKAs. The median number of THAs performed by surgeons has also increased from an average of 21 to 24 procedures per year, while the median number of TKAs performed by surgeon has remained at an average of 27 procedures per year. The growing demand for TJA represents a major healthcare burden and challenge, especially in the context of an overall relatively stagnant orthopaedic surgeon workforce. To ensure a surgeon workforce capable of meeting current and future population demands, more studies are needed to understand how these trends will affect access to high value total joint arthroplasty and inform appropriate adjustments.

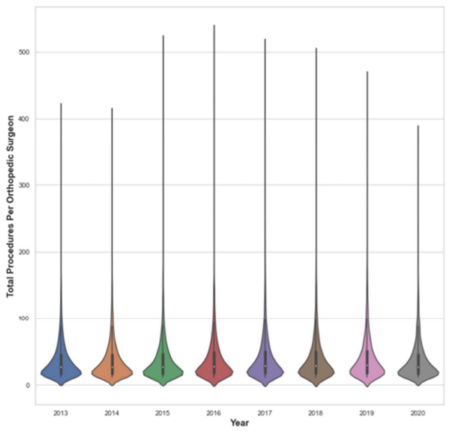
Figure 1. THA Procedures billed to Medicare per surgeon by year



Total number of orthopedic surgeons performing THAs

Year	2013	2014	2015	2016	2017	2018	2019	2020
Surgeons	3842	3966	4053	4224	4261	4366	4515	4069

Figure 2. TKA Procedures billed to Medicare per surgeon by year



Total number of orthopedic surgeons performing TKAs

Year	2013	2014	2015	2016	2017	2018	2019	2020
Surgeons	7011	6828	6961	7095	7070	7055	7074	6183