Size, Not Quality, Influences Privately Negotiated Prices for Hip and Knee Arthroplasty in the United States

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INTRODUCTION:
Until recently, commercial prices for total hip and knee arthroplasty (THA/TKA) negotiated between hospitals and insurers were largely opaque. The Transparency in Coverage Rule now requires public disclosure of this information. This study sought to investigate: (1) influence of hospital and market characteristics on commercial prices for TJA, and (2) the relationship between commercial prices and healthcare quality metrics.

METHODS:
We analyzed a dataset of privately negotiated prices for THA/TKA between 950 hospitals and five major insurers (Turquoise Health, San Diego, CA). Hospitals were categorized by hospital size, health system size, teaching status, ownership type, state, and surgical volume. Market concentration was assessed using the Herfindahl-Hirschman Index (HHI). Hospital quality metrics included HCAHPS/overall star ratings, and THA/TKA complication and readmission rates. A multivariate, log-transformed linear regression model examined relationships between commercial prices and these variables. Standardized beta coefficients were used to assess the relative strength of each variable's independent association with prices after controlling for confounders.

RESULTS:
Healthcare quality measures, including HCAHPS star ratings and overall hospital star ratings, were not associated with commercial prices ($\beta = 0.03$, $p = 0.55$ and $\beta = 0.02$, $p = 0.48$, respectively). Similarly, complication rates and readmission rates showed no significant association with commercial prices ($\beta = -0.02$, $p = 0.65$ and $\beta = 0.01$, $p = 0.78$, respectively). In contrast, hospital size was associated with higher prices ($\beta = 0.11$, $p = 0.002$). Additionally, larger systems negotiated higher prices ($\beta = 0.12$, $p < 0.001$). Market concentration also influenced prices, with those in highly concentrated markets (HHI > 2,500) negotiating lower prices ($\beta = -0.05$, $p = 0.008$). State-level effects on prices was also evident. Insurer was not associated with price differences (all, $p > 0.05$). The multivariate model explained 39% of the overall commercial price variability (Adjusted $R^2 = 0.39$).

DISCUSSION AND CONCLUSION:
Our findings highlight that variability in commercial pricing for THA/TKA is not associated with traditional quality metrics but is instead significantly influenced by hospital and health system size, as well as market concentration. These results suggest that larger institutions and those in less competitive markets may exert greater negotiating leverage, driving higher prices irrespective of clinical outcomes. This raises important questions about the alignment of pricing with value in musculoskeletal care. Future policy efforts should consider how to improve price transparency while encouraging value-based pricing tied to quality and outcomes.

Figure 1. U.S. Map of Commercial Prices for Total Hip and Knee Arthroplasty by State.

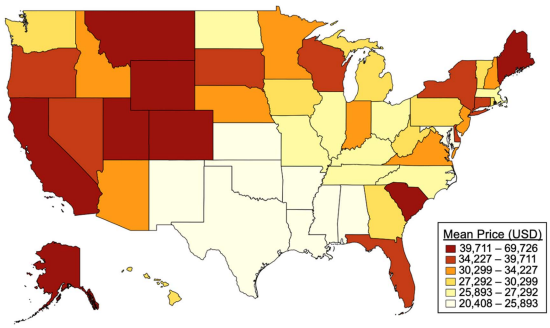

Figure 2. Scatterplot of THA/TKA Complication Rate vs. Mean Commercial Price.