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Response to “Defining the Volume-Outcome Relationship in Reverse Shoulder Arthroplasty: A Nationwide Analysis” by Farley and colleagues

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Dear Editor,

With great interest we have read the article by Farley and colleagues on the volume-outcome relationship for reversed shoulder arthroplasty (RSA) (1). The authors present an extensive and well-executed database investigation demonstrating lower costs and shorter length of stay for patients operated in higher-volume hospitals. There were also lower rates of readmissions, revisions and complications at 90 days postoperatively for higher-volume centers. The authors used stratum-specific likelihood ratio analysis to define statistically significant volume thresholds. The authors concluded that this information may be used in future policy decisions to consolidate complex procedures, such as RSA, at high-volume destinations, or to encourage lower-volume institutions to strategize an approach to function as a higher-volume center.

We argue that this study, although of high quality, provides insufficient ground to steer health care policy on RSA centralization focused on numbers of procedures.

First, we would like to point out that the absolute risk differences among the volume categories are quite small, albeit statistically significant. For example, the lowest-volume (54 RSA per year) had an absolute risk difference in 90-day revision rates of only 1%. The same is true for 90-day readmission rates (2% difference for 69 RSA per year) and 90-day complication rates (3% difference for 68 RSA per year).

Although cost was above the median for lower-volume centers (<26 RSA/year), the magnitude of excess cost in this group cannot be extracted from the paper.

More fundamentally, we caution against basing decisions on the centralization of RSA care on outcome measures that do not incorporate patient function or satisfaction. Although the authors do mention the absence of functional outcomes as a limitation, this does not translate into their conclusion. In a recent systematic review on shoulder arthroplasty volumes by our group (2) not a single included study evaluated patient-reported or functional outcomes.

Lastly, factors other than annual RSA volume are likely to influence patient outcome. These include fellowship training (3), exposure to other open operative shoulder procedures, operation room personnel familiarity with the procedure, nursing adequacy and clear communication on rehabilitation with the patient and (specialized) physical therapist (4). Farley and colleagues do not specifically mention these factors, but do mention the need for education of low-volume centers by high-volume centers. Rather, well-performing centers, as measured by patient-reported outcomes, may educate less well-performing centers.

In conclusion, both components of health care value (5) are either not reported (i.e., patient-reported outcomes) or underreported (cost) in the paper by Farley and colleagues. Surrogate patient-important outcomes, such as short-term revision rates, seem to show relatively small benefits for patients treated in high-volume centers. Therefore, it is questionable if RSA centralization leads to an important increase in health care value and if this outweighs disadvantages of centralization, such as a potentially more limited access to care due to longer travel distances and longer waiting lists. Rather, and we fully agree with this part of the authors' conclusion, RSA care certification may enable any center, also the lower-volume centers, to uphold quality of care and optimize patient outcomes.

Yours sincerely,

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Conflict of Interest: None Declared