



Increased specialization in spine surgery and its implications on delivery and access to care in the United States Healthcare System

Howard Young Park, Don Young Park

UCLA Department of Orthopaedic Surgery, David Geffen School of Medicine at UCLA, Los Angeles, CA, USA

Correspondence to: Don Young Park, MD. UCLA Department of Orthopaedic Surgery, David Geffen School of Medicine at UCLA, Los Angeles, CA, USA. Email: dypark@mednet.ucla.edu.

Comment on: Schoenfeld AJ, Ferrone ML, Sturgeon DJ, *et al.* Volume-Outcome Relationship in Surgical Interventions for Spinal Metastases. *J Bone Joint Surg Am* 2017;99:1753-9.

Received: 05 March 2018; Accepted: 16 March 2018; Published: 13 April 2018.

doi: [10.21037/amj.2018.03.14](https://doi.org/10.21037/amj.2018.03.14)

View this article at: <http://dx.doi.org/10.21037/amj.2018.03.14>

The phenomenon of increasingly favorable outcomes for high volume centers that care for rare pathologies has been well documented across multiple medical disciplines (1-4). In their article, *Volume-Outcome Relationship in Surgical Interventions for Spinal Metastases*, Schoenfeld *et al.* should be commended for their contribution to this literature with regard to oncologic spine surgery (5). Their analysis brings to light a pervasive finding that echoes the very public discourse of the past regarding the differential mortality rates of African-American versus Caucasian women diagnosed with breast cancer.

Schoenfeld *et al.* performed a retrospective, comparative analysis of spine oncology surgical cases utilizing data from the Florida State Inpatient Database. They delineated high and low-volume surgeons and hospitals and compared these cohorts with respect to 90-day complication and re-hospitalization rates. Their analysis revealed that low-volume surgeons and hospitals were more likely to experience post-operative complications and readmissions. Although the author's posit that the Florida States Inpatient Database is generally applicable to the United States, Florida's age distribution is skewed towards the elderly, the proportion of Hispanic and African-American residents are higher, the median income is lower than the US average, and the number of Medicare beneficiaries relative to the state population as a whole is higher (6). The extent to which these factors may affect the study's results is unknown, and the use of a national database may allow the generalizability of these findings. Furthermore, as the

authors candidly admit, retrospective analysis of large, administrative databases are fraught with their unique set of limitations, including errors in coding and the inability to judge individual surgeon or hospital performance in surgical outcome.

In spite of these limitations, the authors put forth several very important findings with regard to delivery and access to care. If we assume that the care of patients with oncologic spine pathologies should be delivered by high-volume surgeons and hospitals, then one may logically conclude that all patients with such pathologies should be directed to these tertiary or quaternary care settings. This is especially true since the study demonstrated that there was a 40% greater risk for complications and readmissions with low volume surgeons at low volume centers. If you had a family member with spinal metastatic disease, you would want your family member treated by a high-volume surgeon at a high-volume hospital to optimize the chances of a successful outcome.

However, it is possible that such tertiary or quaternary referral practices can distort the health care system to produce expensive and convoluted referral patterns without consideration to the multi-morbid nature of individual patients (7,8). Overspecialization is not only an academic issue, as the media have published multiple reports to their purported costs and benefits (9,10). The merits and shortcomings of highly specialized care may be difficult to reach a consensus opinion upon, but medicine is heading towards increased specialization, for better or worse.

With regard to access of care, the finding that Hispanic and African American populations had lower likelihood of receiving an intervention from a high-volume surgeon and high-volume hospital (in the case of African Americans only) is concerning. This is particularly the case given the broad population demographics that reside in Florida. The concepts of racial disparities to access of care and outcomes has been well documented in the breast oncology literature where nearly 25% of the racial difference in survival between African American women and white women can be attributed to sociodemographic variables (11).

Race is not the sole determinant to access to high volume surgeons and hospitals, but economic considerations come into play as well. The study demonstrated that Medicaid patients were 54% less likely to be treated in these settings as compared to Medicare. Given the exponentially escalating cost of health care in the U.S. and the high complexity and cost of these surgeries, these Medicaid patients may be a heavy economic burden to these high-volume centers. Prolonged ICU stays with extended hospitalizations, need for extensive rehabilitation, greater risk for medical and surgical complications, and the need for a multidisciplinary approach with oncologists, radiation oncologists, radiologists, pathologists, and surgeons serve to tax an already overstretched health care system. High volume hospitals are disincentivized to take care of the Medicaid patient due to economic considerations.

Geographic location also contributes to this access problem since patients of low socioeconomic status that likely have Medicaid are likely to live in rural areas which serve these low volume hospitals. Once admitted to these hospitals, it may be difficult to transfer to the high volume hospital if there is a surgeon that can perform these surgeries, even if that surgeon may be a low volume surgeon. These patients may present to a public “county” hospital that is tasked to care for low income patients, patients without insurance, and the indigent population. These hospitals may not have the same resources or expertise as the tertiary or quaternary centers and outcomes may deteriorate as a result.

Access to care in the United States is a controversial topic with the philosophic core of this debate revolving around whether care is a right or a privilege. As the Obamacare controversy rages on, the fundamental question may not be whether care is a right, but whether access to superior care is a right. If the current landscape of healthcare is an indication as to what side our society has favored, access to superior care is a privilege as racial, socioeconomic, and

geographical factors inexplicably drive certain patients to certain surgeons and hospitals. As such, improving access to superior care for all may require fundamental changes of our societal view of health care.

Acknowledgements

Funding: None.

Footnote

Provenance and Peer Review: This article was commissioned and reviewed by the Section Editor Ai-Min Wu (Department of Spinal Surgery, Zhejiang Spinal Surgery Centre, Orthopaedic Hospital, The Second Affiliated Hospital and Yuying Children’s Hospital of Wenzhou Medical University, The Key Orthopaedic Laboratory in Zhejiang Province, Wenzhou, China).

Conflicts of Interest: The authors have completed the ICMJE uniform disclosure form (available at <http://dx.doi.org/10.21037/amj.2018.03.14>). The authors have no conflicts of interest to declare.

Ethical Statement: The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

Open Access Statement: This is an Open Access article distributed in accordance with the Creative Commons Attribution-NonCommercial-NoDerivs 4.0 International License (CC BY-NC-ND 4.0), which permits the non-commercial replication and distribution of the article with the strict proviso that no changes or edits are made and the original work is properly cited (including links to both the formal publication through the relevant DOI and the license). See: <https://creativecommons.org/licenses/by-nc-nd/4.0/>.

References

1. Birkmeyer NJ, Dimick JB, Share D, et al. Hospital complication rates with bariatric surgery in Michigan. *JAMA* 2010;304:435-42.
2. Gonzalez AA, Dimick JB, Birkmeyer JD, et al. Understanding the volume-outcome effect in cardiovascular surgery: the role of failure to rescue. *JAMA Surg* 2014;149:119-23.

3. Shervin N, Rubash HE, Katz JN. Orthopaedic procedure volume and patient outcomes: a systematic literature review. *Clin Orthop Relat Res* 2007;457:35-41.
4. Wilson S, Marx RG, Pan TJ, et al. Meaningful Thresholds for the Volume-Outcome Relationship in Total Knee Arthroplasty. *J Bone Joint Surg Am* 2016;98:1683-90.
5. Schoenfeld AJ, Ferrone ML, Sturgeon DJ, et al. Volume-Outcome Relationship in Surgical Interventions for Spinal Metastases. *J Bone Joint Surg Am* 2017;99:1753-9.
6. Medicare Beneficiaries as a Percent of Total Population. The Henry J. Kaiser Family Foundation, 2015 3/2/2018. Report No.
7. Cassel CK, Reuben DB. Specialization, subspecialization, and subspecialization in internal medicine. *N Engl J Med* 2011;364:1169-73.
8. Barnett K, Mercer SW, Norbury M, et al. Epidemiology of multimorbidity and implications for health care, research, and medical education: a cross-sectional study. *Lancet* 2012;380:37-43.
9. Jauhar S. One Patient, Too Many Doctors: The Terrible Expense of Overspecialization. *Time* 2014 August 19, 2014.
10. Emery N. Our Unsustainable Culture of Medical Specialization. *The Atlantic* 2012 Jul 31.
11. Eley JW, Hill HA, Chen VW, et al. Racial differences in survival from breast cancer. Results of the National Cancer Institute Black/White Cancer Survival Study. *JAMA* 1994;272:947-54.

doi: 10.21037/amj.2018.03.14

Cite this article as: Park HY, Park DY. Increased specialization in spine surgery and its implications on delivery and access to care in the United States Healthcare System. *AME Med J* 2018;3:56.