Discussion to: Comprehensive Value Implications of Surgeon Volume for Lung Cancer Surgery: Utilization of an Analytic Framework within a Regional Health System

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PII: S2666-2736(23)00373-X
DOI: https://doi.org/10.1016/j.xjon.2023.11.016
Reference: XJON 973

To appear in: JTCVS Open

Received Date: 29 November 2023
Accepted Date: 29 November 2023

Please cite this article as: Maxwell CM, Puri V, Allen CJ, Discussion to: Comprehensive Value Implications of Surgeon Volume for Lung Cancer Surgery: Utilization of an Analytic Framework within a Regional Health System, JTCVS Open (2024), doi: https://doi.org/10.1016/j.xjon.2023.11.016.

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Disclosures: None

Dr. Varun Puri (St. Louis, MO):

Thank you. I'd like to thank the AATS for the opportunity to discuss this work, and I'd like to congratulate you and your group on a very nice paper. Understanding the volume outcomes and volume value relationship in any field can be a complex task, and this is particularly so within the confines of a healthcare system where everybody knows everybody else. And such analyses have largely been conducted using large datasets in retrospective fashion, in a de-identified fashion, so your data are indeed unique. In the interest of time, I'm going to keep my comments and questions brief. So, my first question to you is there some information about what the pre- and post-operative practices are across the healthcare system? Because it seems that the two high-volume surgeons were in the same institution, while the remaining 10 lower-volume surgeons were at other institutions within the system.

Dr. Conor Maxwell (Pittsburgh, PA):

Yeah, that's a very good point. That is a limitation. The two surgeons that are at the single institution share a lot of common practice and round on the same
patients, and the protocols are essentially the same. It's hard to say what the other surgeons that were mixed practice cardiothoracic surgeons, how that kind of factors in. It's hard to really quantify that for the purpose of this study. I think that may be something we would need to factor into the value formula, but it's a difficult thing to really measure, kind of their patient management in the pre and post-op setting.

Dr. Puri:

Okay, thank you. Now, in the past, when studies looking at an individual surgeon's volume have been done, including some by our group, we have looked at their performance over the entire course of the study. And we've noticed that, at times, surgeons have changed from one group to the other, depending upon their case volume for that particular year. So, you utilize 25 cases per year as your cut point for categorizing surgeons. Was there any point in the study period that low-volume and high-volume surgeons changed their categorization for that particular year or case?

Dr. Maxwell:

Yeah. So, because it was over this kind of five-year period, there are surgeons that leave the institution and go elsewhere. It was basically an average of 25 cases over the years that they were present. So, there were some surgeons that operated, say, earlier on, and then left to a different institution later, but we average it out to 25 per year for each year that they were there.

Dr. Puri:

Okay, excellent. And finally, I think that I must share with you an experience, and then pose the question to you. We looked at, in our own institution, and then looked at surgeons, and we categorized them based upon their experience as low-experience, moderate-experience, and high-experience surgeons. And this was a relatively small group of thoracic surgeons, all less than 10, and was less than 10. We noticed that the moderate-volume surgeons had the best short and long-term outcomes, the moderate-experience surgeons. And so, the low-experience surgeons-- and I was a low-experience surgeon at that point in time, I wasn't really happy looking at the results. We all sat down in a room, and we looked at practices and figured out what it was that the moderate-experience surgeons were doing which the high-experience surgeons were not and the low-experience surgeons were not. And this was based upon years out of fellowship as the marker of experience. So, within your healthcare system where there seem to be about 12 surgeons performing these operations, how do you plan to, or have you already looked at these results and tried to figure out best practices how the system as a whole can improve outcomes?
Dr. Maxwell:

Yeah, so I think that brings up an important point of why these value frameworks are so important. It forces you to kind of analyze these outcomes and compare them across elements in your hospital network. This is kind of preliminary in that a part of these value committees, we're trying to come up with these ways of looking at value. And I think implementing them further is kind of the next step in the line. We didn't look at, like I mentioned, years out of training or even if they were general thoracic or mixed practice. It will be kind of a second step to look at that further in potentially another study. So, I'm sure I don't have a great answer for that, but it's a difficult thing to quantify. But just having these discussions involving these frameworks allows you to kind of bring forward, "Hey, look, this is what we're doing. This is where the value has improved in-- like I said, overall cost as well as some of the perioperative outcomes. How can we address this and implement them in the healthcare network?

Dr. Puri:

Thank you.

Unidentified Speaker 1:

Conor, an excellent presentation. I'm really impressed with the work you've done. This is part of a growing amount of data and research that we get that speaks to many things. Unfortunately, we've concentrated on surgeons. And I think the big issue is your team. And I think Dr. Puri brought a little bit about that out with the idea of you've got two very high-volume surgeons in this study in one institution, and they've got teams behind them that are working and that have a combined experience. And I wonder if that's part of the issue. And it speaks to the whole issue of centers of excellence. So when your network--does it make sense to have those pulmonary resections done in the hinterland, so to speak, or should they be concentrated in the area where you have-- and bring one of those 12 into the central area to benefit not only from a combined experience but the value of the team that's sitting behind doctors like Chris Fernando. And we have this illusory sense of superiority as surgeons, but most of the good work is done behind us or around us by our teams. And I think this is a demonstration of how the team is such a big important factor.

Do you have a discussion at Allegheny about bringing more of the cases centrally?

Dr. Maxwell:

Yeah. I mean there's been a lot of work on looking at hospital operative volume and surgeon operative volume showing some improved outcomes in those
higher volume centers. And we are a high-volume center, three-star. That's one thing this study doesn't factor in is all the auxiliary services having a dedicated team, in-house nursing, CTICU with rounding as well as surgical residence, things like that. Not something we factored into the study and definitely something that would've or may have influenced the results. Thank you.

Dr. Puri:

It's okay. So, thank you very much.

Dr. Maxwell:

Thank you.