The American Journal of Surgery 220 (2020) 35–36

Contents lists available at ScienceDirect

The American Journal of Surgery

journal homepage: www.americanjournalofsurgery.com

Invited Commentary

What do we talk about next? Integrating lessons learned from resident discourse and technical outcomes

We read with great interest the study by D'Angelo et al. titled *Evaluating how residents talk and what it means for surgical performance in the simulation lab.*[1] This was a pilot study of senior residents attending an advanced laparoscopy course at a large academic conference. Subjects were asked to perform a simulated laparoscopic ventral hernia repair with a surgical faculty member as the assistant. It explored their ability to integrate both technical and non-technical skills and knowledge through epistemic network analysis to establish discourse. Discourse elements included: operative planning, identifying errors, asking for advice, giving the assistant instructions, and when the assistant gave procedural advice. Laparoscopic ventral hernia repairs were graded by a blinded member of the research team using final product analysis. The authors completed an impressive, yet complicated qualitative analysis that revealed that residents with better hernia repair scores had a greater ability to verbally communicate during the procedure, engaging in both proactive operative planning and the discussion of multiple operative steps. The superior hernia outcomes were associated with stronger discourse elements related specifically to identifying errors and giving assistant instructions, suggesting that trainees who are knowledgeable enough to recognize errors and are technically capable enough to instruct assistants will have superior performance.

This logically makes sense – surgical educators are familiar with the senior residents who simply seem to "get it" and can manage operations skillfully and effectively. It is more than just gross skills, but judgement, insight, and knowing one's limitations. It is nice to see that correlated in this study. Teaching technical skills and medical knowledge may not be enough, as this study nicely demonstrates. Non-operative skills likely influence technical outcomes.[2] But there is no silver bullet here either – because we see again how important these non-operative skills are but we still struggle with how to assess them practically. And when given useful assessment tools – the authors specifically mention the Zwisch scale – we find difficulty in remediating those who are behind. This study continues to highlight the importance of integrating more than technical skills training and medical knowledge into our curriculums, and continuing to seek alternative means of measuring trainees' abilities in all areas. Training on leadership, professionalism, growth mindset and these other non-technical skills is often missing or only a small portion of what we teach.[3,4]

As we critically examined this study, we noted that there were some confounders that may not have been adequately accounted for. For example, the prior experience of the residents in performing laparoscopic surgery and in particular laparoscopic ventral hernia repair does not seem to be addressed. Did the authors feel that getting a PGY 4–5 population for a subspecialty conference would likely yield a group with homogenous experiences? In addition, the conclusion paragraph states that "operative performance does not occur in isolation." Had the researchers considered or accounted for the possibility that the resident and assistant may know each other or have worked together before? Previous experience together even outside the OR and other inherent things about the participants, such as personality type, may affect the observed discourse through the mediator of entrustment.[5,6] An understanding of this dynamic relationship using this sophisticated discourse analysis may deepen our understanding of building trust or entrustment in the operating room, during simulations, and even in using EPAs.[7]

While it is certainly important to understand the impact of how residents talk in the operating room, we appreciate the fact that the authors suggest that these are first steps to understanding how to assess the interplay of skills, knowledge, and interaction in the operating room. How does what we learn here practically change what we do moving forward? What do we talk about next? We believe it should be continued emphasis on teaching these critical non-technical skills, as well as further research that helps us understand the dynamic interplays that happen in the operating room. We look forward to seeing where this research leads next, and applaud the efforts thus far on this important topic.

Declaration of competing interest

The Authors have no conflicts of interest to disclose.

References

1. D'Angelo A-LD et al. Evaluating how residents talk and what it means for surgical performance in the simulation lab. *Am J Surg.* 2020;220(1):37–43. https://doi.org/10.1016/j.amjsurg.2020.02.016.
2. Agha RA, Fowler AJ, Sevdalis N. The role of non-technical skills in surgery. *Ann Med Surg (Lond).* 2015 Oct 9;4(4):422–427. https://doi.org/10.1016/j.amsu.2015.10.006.
3. Vu J, Harbaugh C, Dimick J. The need for leadership training in surgical residency. JAMA Surg. 20119 Jul 1;154(7):575-576. doi:10.1001/jamasurg.2019.0087.
4. Cook DA, et al. Influencing mindsets and motivation in procedural skills learning: two randomized studies. *J Surg Educ.* May-Jun 2019;76(3):652–663. https://doi.org/10.1016/j.jsurg.2018.09.018.
5. Sandhu G, et al. Greater faculty familiarity with residents improves intraoperative entrustment. *Am J Surg.* 2020 Apr;219(4):608–612. https://doi.org/10.1016/j.amjsurg.2019.06.006.
6. Sutzko DC, et al. Alignment of personality is associated with increased intraoperative entrustment. *Ann Surg.* 2019 Dec;270(6):1058–1064. https://doi.org/10.1097/SLA.0000000000002813.
7. Lindeman B, Petrusa E, Phitayakorn R. Entrustable professional activities (EPAs) and applications to surgical training. *American College of Surgeons: RISE Articles*; June 2017. https://www.facs.org/education/division-of-education/publications/

https://doi.org/10.1016/j.amjsurg.2020.04.035
0002-9610/Published by Elsevier Inc.

rise/articles/entrustable. Accessed on 23 April 2020.

Samantha Baker, MD, MSHPEd
Department of Surgery, University of Alabama at Birmingham, 1720 2nd Avenue South, KB 429, Birmingham, AL, 35294, USA

Department of Surgery, Birmingham Veterans Affairs Medical Center, 700 19th Street South, Birmingham, AL, 35233, USA
E-mail address: sjbaker@uabmc.edu.

Britney Corey, MD*
Department of Surgery, University of Alabama at Birmingham, 1720 2nd Avenue South, KB 429, Birmingham, AL, 35294, USA

Department of Surgery, Birmingham Veterans Affairs Medical Center, 700 19th Street South, Birmingham, AL, 35233, USA

* Corresponding author. 1720 2nd Avenue South, KB 429, Birmingham, AL, 35294, USA.
E-mail address: blprince@uabmc.edu (B. Corey).

23 April 2020