See Article page 828.

Commentary: Not just Nuss

John F. Lazar, MD

de Loos and colleagues¹ discuss their learning curve for the Nuss procedure and share 2 interesting concepts: calculating/applying a learning curve to evaluate a surgical procedure, and incorporating a new procedure into the existing practice of a group of thoracic surgeons. Both of these have significant relevance to both nonacademic and academic surgeons.

The authors believe that their “results could have important implications for training and credentialing of surgeons aiming to start a Nuss program”¹ and after studying their article, I believe they could be correct. However, my reasoning is probably different than the authors’ because it has less to do with their statistical analysis and more to do with their initial training and volume.

Many articles have tried to demonstrate the ideal number of cases to achieve proficiency, while cumulative sum (CUSUM) determines the shape of the curve.²⁻⁴ de Roo and colleagues¹ applied CUSUM to their complication rate in their experience of 222 consecutive cases by 3 general thoracic surgeons. Not surprisingly, there was no difference among the surgeons; all surgeons showed at least an average performance with no relation found between frequency of consecutive procedures and complication rate. Each surgeon after completing proctoring was found to have a low complication rate and improved operative times. The reason for the similarity in outcomes across the 3 surgeons is what makes this article so compelling rather than the CUSUM capturing and confirming this conclusion.

The strength of this article is how the authors were able to create excellent results while adopting a new procedure. By creating a strict initial protocol (ie, train up each surgeon

John F. Lazar, MD

CENTRAL MESSAGE

The 2 central points of proctoring and surgical volume are critical to adopting a new surgical technique and should be mandatory for any thoracic surgery program looking to expand its practice.

with 10 proctored cases by an experienced proctor/partner) and then having the necessary volume to build experience (median time between consecutive surgeries was 7-35 days) so that high quality outcomes could be established and maintained.

These 2 central points, proctoring and surgical volume, are no trivial matter to adopting a new surgical technique and should be mandatory for any practice looking to expand its scope despite level of difficulty (ie, incorporating robotic endobronchial transbronchial biopsy or minimally invasive esophagectomy). The results demonstrated by de Loos and colleagues¹ embody these values perfectly and should be incorporated when starting any program, not just a Nuss.

From the Division of Thoracic Surgery, Department of Surgery, MedStar Georgetown University Hospital, Washington, DC.

Disclosures: The author reported no conflicts of interest.

The *Journal* policy requires editors and reviewers to disclose conflicts of interest and to decline handling or reviewing manuscripts for which they may have a conflict of interest. The editors and reviewers of this article have no conflicts of interest.

Received for publication Dec 20, 2020; revisions received Dec 20, 2020; accepted for publication Dec 21, 2020; available ahead of print Dec 25, 2020.

Address for reprints: John F. Lazar, MD, Division of Thoracic Surgery, Department of Surgery, MedStar Georgetown University Hospital, 110 Irving St, G253, Washington, DC 20010 (E-mail: John.f.lazar@medstar.net).

J Thorac Cardiovasc Surg 2022;163:838

0022-5223/\$36.00

Copyright © 2021 by The American Association for Thoracic Surgery

<https://doi.org/10.1016/j.jtcvs.2020.12.086>

References

1. de Loos ER, Daemen JHT, Pennings AJ, Heuts S, Maessen JG, Hulswé KWE, et al. Minimally invasive repair of pectus excavatum by the Nuss procedure: the learning curve. *J Thorac Cardiovasc Surg*. 2022;163:828-37.e4.
2. Bolsin S, Colson M. The use of the CUSUM technique in the assessment of trainee competence in new procedures. *Int J Qual Health Care*. 2000;12:433-8.
3. Chan G, Pautler SE. Use of cumulative summation (CUSUM) as a tool for early feedback and monitoring in robot-assisted radical prostatectomy outcomes and performance. *Can Urol Assoc J*. 2019;13:53-8.
4. Song G, Sun X, Miao S, Li S, Zhao Y, Xuan Y, et al. Learning curve for robot-assisted lobectomy of lung cancer. *J Thorac Dis*. 2019;11:2431-7.