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Commentary: Stay midline, stay steady: Median sternotomy training

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I vividly remember performing my first median sternotomy as a general surgery intern. The room was busy, the music was loud. The attending surgeon peered over the drape, nodded his head toward me, and signaled to the fellow to give me the saw. My only instruction: Stay midline, stay steady. Although it is the most commonly used approach in cardiac surgery, performing a so-called good sternotomy is often an afterthought. Trainees generally acquire the skill in the operating room on actual patients. Considered a basic skill, a poorly performed median sternotomy can result in significant complications.¹ Recognizing an opportunity for an adjunct educational tool, and spurred by significant support from educators and program directors in Canada, Vo and colleagues² have developed a simulation model for the practice of median sternotomy and provide preliminary validation evidence for its use in training.

Trehan and colleagues³ have recently reviewed cardiothoracic surgical simulation. Although there are excellent models for techniques such as vascular anastomosis or cannulation for cardiopulmonary bypass, the median sternotomy is often neglected. A major strength of the study by Vo and colleagues² is that they have developed an inexpensive, realistic model focusing on performing this important task. The model is easy to reproduce, and blinded assessments by participants indicate they found the model to

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CENTRAL MESSAGE

Formal training and assessment on the performance of median sternotomy is often overlooked in cardiothoracic surgical education. A novel model has been developed that has been validated to provide a realistic feel for performing a sternotomy and a serve as a reproducible assessment tool.

be realistic and useful. The checklist developed for the model served not only to elucidate the basic steps in performing a sternotomy, but also highlighted the importance of areas such as communication. In addition to serving as a training tool, the checklist developed by the authors also serves as a tool for assessment, allowing for incorporation of the model into a competency-based educational curriculum.

While providing a new tool for training and competency assessment, the study does have a few limitations which the authors acknowledge. The sample size of 13 participants is small and nearly one-third had performed 10 or more sternotomies before participating in the study. Due to logistical constraints, the sample size could not be increased for the current article. Additionally, participants were junior trainees in the Canadian training system where cardiac surgical training begins at the completion of medical school, rather than after general surgery training, as is common in the United States. Whether more advanced trainees would find as much utility in the model is unclear. Lastly, the inter-rater reliability for assessment on the checklist was

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suboptimal, raising some questions as to the validity of the checklist as a good metric for assessment.

Patients recognize the importance of a median sternotomy, often having more questions about having their chest cracked open than how the bypass is done or how the valve is sewn in place. As educators, we should ensure we pay as much attention to opening the chest as patients do.

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