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Commentary: Transcatheter cardiac surgery training: What to teach?

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In the era of transcatheter cardiovascular procedures and the evolution of structural heart disease as a niche specialty, it is necessary for structural cardiac surgeons to be integral members of the heart team.¹ Beyond functioning as surgical backup in case of disaster, the transcatheter skillset is broad, including understanding indications and advanced imaging and ability to execute and troubleshoot a variety of transcatheter procedures and complications for all 4 valves and the aorta. Currently, no formal curriculum exists in transcatheter cardiac therapies to assess proficiency; thus, self-reported case volume serves as the metric for validation. Many have called for a designated Structural Heart and Valve subspecialization pathway, similar to advanced fellowships in cardiac transplant, robotic, and aortic surgery.^{2,3}

However, the level of involvement of a transcatheter cardiac surgeon varies between institutions in the United States and Canada. It remains unclear whether a single pathway to transcatheter or structural cardiac surgery subspecialty fellowship is necessary or if the skills can be acquired during residency. It is worth mentioning that Canadian cardiac surgery residents spend 6 to 9 months training in vascular surgery, and many of the endovascular competencies and basic wire skills and techniques can be learned under the objectives of the vascular surgery rotation.⁴ Moreover, the requirement for fellowship training

CENTRAL MESSAGE

Transcatheter procedures in cardiac surgery necessitates graduates be familiar with transcatheter approaches and proficient in specialized skills. A formalized transcatheter curriculum is needed.

could be a barrier for those who achieve a level of proficiency during residency.

Muller Moran and colleagues^{5,6} previously published the results of a scoping review, identifying 97 competencies for transcatheter procedures. In this issue of the *Journal*, they survey Canadian physicians and refine the previously identified skills using a modified Delphi approach.⁷ Herein, they identified 53 fundamental competencies for transcatheter procedures and a minimal skillset requirement for cardiac surgery residents to graduate.

Competency-based medical education is not a new concept and establishes an assessment tool of a definitive set of outcomes through a specific intellectual and technical checklist.⁸ The checklists, or milestones, serve as a standardized assessment for evaluation and promotion and ultimately graduation. The competencies identified via Muller Moran and colleagues ranged from very basic fundamentals (working in a sterile field, knowing the anatomy and the disease, and taking a history) to transcatheter procedure-specific skills (performing size measurements, selecting the prosthesis). One would assume the foundation of surgical education would encompass the very basic competencies in existing milestones, which begs the question if there is real value in including fundamentals in transcatheter milestones. Moreover, it is important to emphasize the study outcome was not procedure specific, and these

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fundamental skills alone will not graduate a solo transcatheter aortic valve replacement or thoracic endovascular aortic repair operator. However, these competencies will empower the new cardiac surgery graduate with an introduction to transcatheter approaches.

Nevertheless, these competencies seem reasonable to identify a safe resident who understands the basics of transcatheter procedures and can progress in the path of becoming a transcatheter surgeon. Procedure-specific guidance and/or subspecialty training are needed to qualify new surgeons to be primary operators in structural valve cases.

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