Editorial

NextGen training assessment tools in thoracic surgery

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For trainees in a thoracic surgery fellowship, the development of thoracoscopic skills is a principle focus. Not only is minimally invasive lobectomy rapidly becoming the treatment of choice for early stage lung cancer (1), but the sound performance of this operation provides a competitive edge in markets where lung resections are commonly performed via thoracotomy. While competency in this operation is one of the main goals of a general thoracic training program, there are few well-established, standardized, and widely-accepted assessment tools available to help educators prepare their trainees for practice in thoracic surgery.

In March's issue of *Surgical Endoscopy*, Jensen *et al.* present a competency-based assessment tool for the evaluation of proficiency in performing video-assisted thoracoscopic surgery (VATS) lobectomy (2). Thirty-one internationally recognized experts in the field of VATS lung surgery participated in several rounds of questionnaires using the Delphi method, until the essential technical aspects of the operation were agreed upon and categorized. The final VATS lobectomy assessment tool (VATSAT) contained eight items for assessment of competency. This incorporated six purely technical competencies, including dissection of the vein, artery, bronchus, lymph nodes, retrieval of lobe, and technical skills in general, as well as two cognitive competencies, including respect for tissue and assessment of intrathoracic pathology. Scoring of these items was clearly defined based on the amount of guidance required to perform each task. Furthermore, the scoring system was designed to rate performance from video recordings to ensure objectivity.

Historically, advancement in thoracic training programs has been based on the length of time spent in the program. Over the last 10–15 years, there has been a shift toward competency-based advancement world-wide (3,4). The transition to competency-based assessment reflects an understanding that trainees do not progress at the same rate, and the overall duration of training should depend on accomplishment of specific objectives. In 2006, the Accreditation Council on Graduate Medical Education (ACGME) identified six core competencies, including patient care, medical knowledge, practice-based learning and improvement, interpersonal communication skills, professionalism, and system-based practice that are used as a foundation for establishing "milestones" specific to thoracic surgical training. However, these "milestones" lack the granularity to assess and ensure that essential technical skills are obtained by surgical trainees. As innovations in techniques and technology sweep through the landscape of our specialty, it is the responsibility of surgical educators to identify, understand, and address the needs that face our trainees.

Jensen *et al.* have taken an important step toward accomplishing this by establishing a core set of metrics that world leaders have agreed upon as essential skills for proficiency in performing VATS lobectomies. These metrics have been identified in a manner that minimizes bias from variation in surgical technique between and within institutions. Perhaps the most important contribution of this tool is the ability to apply it to recorded cases that are reviewed post-operatively outside of the operative theatre. The ability to review recorded video of a case with a trainee

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after its completion is an under-utilized, yet invaluable, training tool that we commonly employ at our institution. We have found that the post-operative setting, after the pressure of the operation subsides, affords both the surgeon and the trainee an opportunity to make the most objective assessment of competence.

The main limitation of this assessment tool is its lack of validation. In addition, the VATSAT scoring system does not account for the difficulty of the case. Commonly, there are parts of an operation that the surgeon must take over to ensure the patient receives the safest operation possible. If the trainee is not given the opportunity to perform a given part of a case, is the tool still valid for assessing the other components? Additionally, trainees are assigned a VATSAT score that reflects their overall competency for VATS lobectomy, but should every part of the operation be weighed the same? Perhaps weighing dissection of the artery more than retrieval of the lobe in a bag would give a broader distribution of scores and better reflect real-world competency. Finally, the exclusion of experts in robotic thoracic surgery may diminish the application of this tool in programs that prepare residents and fellows to practice predominantly on the robotic platform.

As we enter a new era in modern surgical education, with increased rates of post-residency sub-specialization, the VATSAT is quite timely. The perception that general surgery residency should instill a basic understanding of surgical principles, and leave the development of high-level surgical skills to sub-specialist training programs, is increasingly prevalent (5). Equally concerning is the increasingly peripatetic career requirements of early-career surgeons, resulting in less supervision for surgeons immediately out of training. Taken together, there is a great need and an urgency to accelerate trainees' learning and ensure that they have the skills required to provide high quality care. An assessment tool developed through the collaboration of experts in the field, such as the VATSAT, is a vital step toward this goal.

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Footnote

Conflicts of Interest: The authors have no conflicts of interest to declare.

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