

## Training to competency: Are we ready for a radical reform?

Over the past decade there has been a paradigm shift in the way we teach procedural skills to physicians-in-training. We have been moving from apprenticeship, where the experienced physicians coach the trainees closely, to constructivist model where the trainees construct their own experience and reflect on them. Simulation-based education (SBE) provides a safe environment for the learners to acquire the necessary knowledge, skills and behavior without inflicting harm to patients. Several regulatory training and licensing bodies such as the Saudi Commission for Health Specialties (SCFHS), Accreditation Council for Medical Education (CGME) and Royal College of Physicians and Surgeons of Canada, have developed milestones to gauge the progression of a trainee's training from: novice, advanced beginner, competent, proficient to expert. However, the main challenge remains to determine the acceptable level of competency required for safe practice of specific procedures.

The answer to this dilemma could be in a mastery learning model that can be particularly relevant to competency-based education. Mastery learning is based on achieving educational excellence to all learners with little or no variation in measured outcomes rather than defined learning time.<sup>[1]</sup> Therefore, a key variable in mastery learning is the amount of time needed to reach mastery levels since not all learners can achieve the educational activities at the same pace. Mastery learning has been practiced in aviation where pilots are trained on simulators until they reach mastery level with zero errors. Are we ready in medical education to train our residents and fellows to reach mastery level in skill-based competencies regardless of the time it takes for them to reach that level? Indeed not, since our current postgraduate model is more oriented to time rather than outcome. For instance, the gastroenterology fellowship is a 3-year program under SCFHS, but what about if a fellow performs the required number of banding of esophageal varices (20 is needed as per the SCFHS Adult Gastroenterology Fellowship Program<sup>[2]</sup>), however he/she isn't skillful yet. Would he/she graduate at the end of the 3<sup>rd</sup> year after passing the required exam? Most probably yes. For sure, the outcome will be different if simulation is utilized in final exams for promotion and licensing of physicians.

In their article, Azzam *et al.*<sup>[3]</sup> in this issue, have attempted to present a complete curriculum for gastrointestinal endoscopy under the name of Fundamentals of Gastrointestinal Endoscopy (FGE). They adapted the didactic online course of the Fundamentals of Endoscopic Surgery (FES)<sup>[4]</sup> and added to it teaching material based on local needs in Saudi Arabia. The simulation-based training part is based on one of the initial versions of endoscopy simulators the AccuTouch<sup>®</sup> by Immersion that has been upgraded by CAE to EndoVR<sup>®</sup>. The assessment part is divided into the cognitive assessment through typical multiple choice question methodology and technical assessment through a newly developed tool, the Simulation Endoscopic Skill Assessment Score (SESAS) that is tailored specifically to upper gastrointestinal (GI) endoscopy. The main strength of this article is the genuine attempt to develop a comprehensive national curriculum for GI endoscopy. The authors assessed the local needs in Saudi Arabia and developed the program accordingly. If this curriculum is endorsed by the national regulatory training body (i.e., SCFHS), it will allow a nationwide application of uniform training of GI fellowship utilizing SBE.

There has been similar experience in integrating simulation into postgraduate curriculum in anesthesia in Saudi Arabia that has been endorsed and sponsored by SCFHS.<sup>[5]</sup> To label the FGE as a comprehensive curriculum, it has to include procedures other than upper endoscopy. The best way to build a complete postgraduate SBE curriculum is the modular approach.<sup>[6]</sup>

Another great strength of this article is the SESAS checklist which was adequately validated in the article. A key element in assessment of SBE is to utilize the proper tool or checklist that can evaluate the various steps of a procedure. There have been several assessment tools to assess competencies in GI endoscopy such as the Direct Observation of Procedural Skills (DOPS), American Society of gastrointestinal endoscopy (ASGE) assessment of competency in endoscopy evaluation for colonoscopy and esophagogastroduodenoscopy,<sup>[7]</sup> and Gastrointestinal Endoscopy Competency Assessment Tool (GiECAT).<sup>[8]</sup> The proposed SESAS checklist in this issue is made for upper endoscopy and includes, like other assessment tools, subjective adjectives such as “appropriate”, “proper” and an open question related to “commitment of common

errors". All these should be defined to reduce variations among raters. Moreover, other assessment tools for other basic and advanced procedures (e.g., colonoscopy, ERCP, EUS) need to be adapted or constructed and included in the FGE curriculum. A similar attempt was made by the Bronchoscopy International™ when they developed various assessment tools for basic and advanced bronchoscopy procedures and translated them into different languages.<sup>[9]</sup>

Finally, training till competency such as mastery learning is getting momentum in postgraduate medical education. It enables residents and fellows to practice medicine and perform procedures more confidently, safely and with better outcomes. SBE can be used to expedite the learning curve of learners in a psychologically safe environment.

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