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In-training gastrointestinal endoscopy competency assessment tools: Types of tools, validation and impact



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The ability to perform endoscopy procedures safely, effectively and efficiently is a core element of gastroenterology practice. Training programs strive to ensure learners demonstrate sufficient competence to deliver high quality endoscopic care independently at completion of training. In-training assessments are an essential component of gastrointestinal endoscopy education, required to support training and optimize learner's capabilities. There are several approaches to in-training endoscopy assessment from direct observation of procedural skills to monitoring of surrogate measures of endoscopy skills such as procedural volume and quality metrics. This review outlines the current state of evidence as it pertains to in-training assessment of competency in performing gastrointestinal endoscopy as part of an overall endoscopy quality and skills training program.

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In-training gastrointestinal endoscopy competency assessment tools: types of tools, validation and impact

Gastrointestinal endoscopy training largely occurs during formalized gastroenterology training programs of at least 2 years duration. An increasing focus on quality, patient safety, and social accountability has resulted in a paradigm shift across postgraduate medical education from a time- and process-based system that specifies the amount of time required to “learn” specified content to a competency-based system that defines outcomes of training [1]. Competency-based education implies a training process that results in documented achievement of the requisite knowledge, skills and attitudes for competent independent medical practice [2]. Gastroenterology training programs are obliged to ensure trainees are competent to perform endoscopic procedures safely and effectively, without prescribed oversight, at completion of training. Assessment is required to support this goal. Assessment acts to optimize learner’s capabilities through the provision of motivation and direction for future learning, it permits documentation of competence prior to entering unsupervised practice (i.e., certification) and helps protect society from substandard care [3]. This review examines how endoscopic competence is conceptualized, outlines the importance of integrating assessment throughout the endoscopy learning cycle, and discusses the validity of currently available in-training assessment methods and measures for gastrointestinal endoscopy.

Defining endoscopic competence: what skills should be assessed?

A key goal of gastrointestinal endoscopy training programs, professional organizations and accreditation bodies is to develop competent professionals capable of providing high-quality patient care. In relation to the skill of gastrointestinal endoscopy, competence has been defined as the minimum level of skill, knowledge, and/or expertise, derived through training and experience, required to safely and proficiently perform a task or procedure [4]. The requisite skills to perform endoscopic procedures have traditionally been categorized into 2 core skill domains: technical and cognitive. Examples of technical or psychomotor skills related to endoscopy include scope handling and strategies for scope advancement, loop reduction, withdrawal and mucosal inspection [5,6]. Cognitive competencies are reflective of knowledge and the application of endoscopically derived information to clinical practice. Examples of cognitive skills include selection of the most appropriate endoscopic test to assess and/or treat the clinical problem at hand, lesion recognition and sedation management [5,6].

Acquisition of technical and cognitive skills is fundamental to providing high-quality patient care; however, there are additional non-technical skills that are required to perform endoscopic procedures safely and proficiently. The need to address these competencies is explicitly outlined within general competency-based frameworks from accreditation bodies such as the Accreditation Council of Graduate Medical Education’s (ACGME) Core Competencies in the United States [7] and the Royal College of Physicians and Surgeons of Canada’s (RCPSC) CanMEDS framework [8]. Additionally, the importance of assessing non-technical components of endoscopic competence is recognized by gastroenterology-focused organizations such as the American Society of Gastrointestinal Endoscopy [9], the Canadian Association of Gastroenterology [10] and the North American Society for Pediatric Gastroenterology, Hepatology and Nutrition [6]. The importance of non-technical competencies has also been emphasized by the recognition that procedural-related adverse events are more likely to originate from behavioural failures, such as a communication failure, rather than a lack of technical expertise [11]. Furthermore, literature has shown that failures in non-technical skills, such as teamwork and situational awareness, are associated with decreased technical performance [12]. With regard to endoscopy, there is literature to suggest that non-technical skills play a pivotal role in high-quality endoscopic practice. Twenty of 21 recommendations stemming from the 2004 National Confidential Enquiry into Perioperative Death [13], that investigated deaths occurring within 30 days of therapeutic gastrointestinal endoscopy procedures in the United Kingdom, highlighted deficiencies in non-technical skills such as patient assessment, decision making and teamwork, as opposed to technical skills.

A clear understanding of the competencies required to perform high-quality endoscopic procedures is fundamental to the development of a framework for assessment of endoscopic competence. The extant literature highlights that technical and cognitive skills are necessary but not sufficient to ensure

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