A Phased Approach: The General Surgery Experience Adopting Entrustable Professional Activities in the United States

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Abstract

Entrustable professional activities (EPAs) have been increasingly used as an assessment framework to formally capture the myriad ad hoc entrustment decisions that occur on a daily basis in clinical settings with learners present. Following the definition of Core EPAs for Entering Residency by the Association of American Medical Colleges in 2014, the American Board of Surgery (ABS) began to explore the utility of EPAs as a framework to support competency-based resident education within general surgery in 2016. As the complement of EPAs drafted for a specialty serve to define the core tasks of a professional within that discipline, initial efforts to define the entire scope of general surgery were fraught with difficulty as no commonly accepted definition of a general surgeon currently exists. Opting to prioritize a pilot of the EPA conceptual framework within surgical training rather than defining the entirety of the specialty, ABS leaders identified 5 EPAs that represent a core of general surgery with which to begin. This article details the process of choosing the initial set of EPAs and provides a roadmap for other disciplines interested in testing the feasibility of this assessment framework while garnering buy-in among the community of educators. Future steps, including implementation of the existing 5 EPAs beyond the initial pilot sites and drafting and implementation of the additional complement of EPAs, are also described.

Entrustable professional activities (EPAs) have become an increasingly popular assessment framework to formally capture the myriad ad hoc entrustment decisions that occur on a daily basis in clinical settings with learners present. While these decisions are sometimes deliberate, taking into account information about a trainee's past experiences and readiness for autonomy, they are also commonly automatic and occur at a subconscious level (e.g., would I trust this resident to care for this patient with gallbladder disease?), and can have distinct consequences for both patient outcomes and resident training. EPAs provide a mechanism to assess the confluence of the physician competencies defined by the Accreditation Council for Graduate Medical Education (ACGME) which are often difficult to assess in isolation in the context of a single patient encounter.

EPAs were first defined by ten Cate in 2005 as units of professional practice that constitute what clinicians do in their daily work. This approach to implementing workplace-based assessment subsequently gained traction internationally following foundational work in the discipline of pediatrics and selection by the Association of American Medical Colleges as the framework with which to assess the abilities of graduating medical students before entry to residency training. The Royal College of Physicians and Surgeons of Canada has also taken a leading role internationally via their Competence By Design program, in which evaluation of competencies across all specialties was mandated by 2022.

The American Board of Surgery (ABS) began to explore the utility of EPAs as a framework to support competency-based resident education within general surgery in 2016. This effort came on the heels of several studies raising concerns that general surgery residency graduates may not be sufficiently prepared to enter unsupervised practice, and renewed discussions within the leadership of national surgical organizations about whether training may need to be lengthened or how it may be possible to “Fix the Five” years of the current training model. One underlying recognition was that, other than numbers of procedures in discrete categories that must be completed, learners in surgical training (and correspondingly their supervisors) had no explicit understanding of the minimum performance necessary to be deemed ready for unsupervised practice. This observation created enthusiasm for moving toward a competency-based training paradigm that could collectively move the field forward.

Impetus for the Phased Approach

The first challenge was to create a complement of EPAs for the specialty, which would represent the full spectrum of work and practice for a professional in general surgery. To begin this work, the ABS convened an initial retreat with broad stakeholder representation from the American College of Surgeons (ACS) including the Young Fellows Association (YFA) and Resident and Associate Society (RAS), the Association of Program Directors in Surgery (APDS), and the ACGME Review Committee (RC) for Surgery. This effort drew leadership from within surgery (Dr. Rebecca Minter) and outside of surgery (Drs. Olle ten Cate and Robert Englander). The retreat produced a comprehensive list of approximately 50 potential EPAs. Several months later, a smaller group met with the intent to identify the 20–30 EPAs that could represent the entirety of general surgery.

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This task was a daunting one given the breadth of the specialty and lack of one commonly accepted definition of a general surgeon. Correspondingly, there was recognition that making formal determinations about the scope of a general surgeon’s work could have broad-sweeping implications for both the future of training and practice, as many components of patient care performed by general surgeons may have overlap with one or more of the many specialties that branch from general surgery after residency training.

Opting to prioritize a pilot of the EPA conceptual framework within surgical training rather than taking on the potentially overwhelming task of defining the entirety of the specialty, the smaller leadership group identified 5 EPAs that represent undeniable core skills of a general surgeon, with plans to expand if the EPA framework was subsequently embraced. The 5 EPAs selected were chosen from the ABS core general surgery definition to cover the most common conditions managed by general surgeons. These conditions were selected from among the most commonly performed procedures on case lists that residents report to the ACGME and include other essential nontechnical skills to ensure that trainees would have experience managing the selected conditions regardless of training program or region. These EPAs are:

- Evaluation and management of a patient with inguinal hernia.
- Evaluation and management of a patient with right lower quadrant pain.
- Evaluation and management of a patient with gallbladder disease.
- Evaluation and initial management of a patient with blunt or penetrating trauma.
- Provide general surgical consultation to other health care providers.

Importantly, the 5 EPAs comprising the pilot were deliberately selected to highlight 2 distinct considerations: (1) EPAs represent more than just a specific procedural or case, and (2) EPAs may focus either on broad activities of a professional or management of narrow disease process or symptomatology. In procedural specialties in particular, the assessment of an operation or procedure is often conflated with assessment of managing the entirety of the disease process; however, the holistic EPA construct is focused on the latter. This aspect of the general surgery EPAs was discussed at length with this initial pilot group and almost all subsequent participants in the general surgery EPA project. In the general surgery EPAs, the first 4 that describe evaluation and management of a symptom or disease process are evaluated across the preoperative, intraoperative, and postoperative phases of care. This approach allows evaluators to explicitly recognize that neither a preoperative clinic visit, performance of an operation, nor a postoperative clinic visit provide a comprehensive assessment of a resident’s performance, and learners must be observed across the continuum of these phases of care. Additionally, inclusion of an EPA about providing general surgical consultation to other health care providers cements the frame of a broad professional activity that goes beyond a specific disease process and includes important nontechnical elements like professionalism and communication skills that are essential for the practice of a general surgeon.

EPA Drafting
Following the selection of these 5 initial EPAs, a drafting panel, again representing major national surgical organizations including the ABS, APDS, ACS, YFA, RAS, and RC, but with little overlap to the initial leadership group, was charged with detailing each EPA’s definition, scope, and essential functions. Members of the drafting panel were provided background about EPAs as an assessment framework and EPAs’ relationship to competencies and milestones, and then they were paired into dyads. Each dyad was assigned one specific EPA, and the scope of each EPA delineated its inclusions and exclusions, such as population served (e.g., pediatric patients) and setting (e.g., elective or emergent settings). All of these facets were edited and finalized on one of several conference calls or at in-person meetings. Feedback from the initial leadership “reactor panel” was subsequently incorporated into the final version of each EPA.

Once the definition, scope, and essential functions were available, the drafting panel met in person to map the EPAs to the 5 or 6 ACGME Surgery Milestone subcompetencies critical to its performance, using a Q-sort methodology. Although it was desired that the EPA subset cover the majority of the subcompetencies, so as to provide a comprehensive scope within general surgery, this information was not tracked during the Q-sort process so as to minimize potential bias. Following the exercise, a table of the subcompetency mappings was constructed to ascertain the breadth of subcompetencies included, and indeed 13 of the 16 general surgery subcompetencies were covered, not explicitly incorporating only PBLI-1 (communication as a teacher), PROF-2 (maintenance of personal well-being), and SBP-1 (coordination of care transitions). While components of these concepts are important and likely represented in the initial 5 EPAs, they were ultimately not selected because they were not determined to be critical to the performance of the selected EPAs, and it was anticipated that they would likely be incorporated following definition of the remaining subset of EPAs for general surgery.

To ensure the essential functions of the learner for each EPA were anchored to progressive levels of entrustment, specific behaviors were defined at each level by the writing dyads using language directly from the milestones. Taken together for each of the subcompetencies, the expected behaviors paint a picture of what a resident would look like at each level of entrustment. Next, vignettes were composed for each level of entrustment, in an attempt to provide a vivid narrative that might simulate clinical encounters frontline faculty and learners would face (List 1). Thus, the expected behaviors and vignettes written for each level of entrustment were designed to foster a shared mental model between faculty and learners as to the expected progression for a given EPA over time.

EPA Pilot
A separate implementation group was also convened, with experts in surgical education and implementation science, plus representatives from the ACGME with experience in milestone deployment. Given the focus on a subset of 5 EPAs, a 2-year pilot trial for feasibility was used as the guiding implementation strategy. This pilot had 2 overarching goals: 1)
to determine the relationship of EPA assessments to milestone evaluations and 2) to identify successes and barriers in implementation of EPAs broadly across a variety of general surgery programs.

The ABS sent out a call for interested programs in fall 2017 with a goal of selecting 20–25 diverse programs in terms of hospital affiliation, size, research background, available resources, and track record of innovation. Response to this call was overwhelming, and with application of the only exclusion criterion of having a program director in the role for fewer than 3 years, 28 programs were ultimately selected by the implementation group (Figure 1, List 2). Each program was assigned 2 of the 5 EPAs to implement at their site, ensuring that all 5 EPAs were well represented across the cohort as a whole, and attempting to strike a balance between ensuring a sufficient number of assessments would be obtained without overburdening pilot sites.

Faculty development materials constructed by implementation group members, including videos for both faculty and residents, were disseminated to pilot programs. The “explainer” videos consisted of a 3-part series to first define what CBME and EPAs are, why the ABS chose to embrace EPAs, and the nuts and bolts of how residents and faculty could participate in the pilot. An in-person kickoff meeting for leadership at each pilot site was held during the spring 2018 annual meeting of the APDS, known as Surgical Education Week. This meeting served to facilitate alignment between programs as well as share implementation and faculty development ideas.

The pilot study officially opened with EPA use on July 1, 2018, and representatives from each participating program participated in monthly conference calls and in-person meetings in the fall and spring to share best practices, including specific electronic platforms being used to collect EPA assessments as well as seek troubleshooting support, often around how to garner buy-in and enhance participation among faculty and residents at their programs.

The level of evaluation in the pilot was set as each program’s Clinical Competency Committee (CCC). Participating programs were asked to report all EPA assessments collected and the milestone levels assigned for each resident on a biannual basis into a national data collection warehouse using a secure online platform. While the data to be reported centrally were specified, methods for EPA collection deliberately were not. This approach was designed to foster innovation within participating programs, and a variety of collection methods were used across the range of available technology. Some programs used paper-based cards or forms for data collection, but most programs used a web-based collection platform, with selections including Google Forms™, one of a few commercially available assessment platforms, and an in-house mobile application. Innovation was also encouraged among pilot sites in the methods by which they incorporated EPA assessment data into their CCC process. Participating programs reported a variety of strategies, ranging from discussion of the EPA assessment data as part of the information used to assign milestone levels, to assignment of milestone levels based on traditional assessment methods and separate reporting of EPA assessment data.

Early results from the pilot support that collection of EPA data was feasible at the majority of participating programs. Over 6,000 assessments in total were collected on over 1,000 residents across the 28 sites, representing 40% of all residents within these programs. The mean number of assessments collected per resident on

Figure 1 General surgery EPA pilot participating sites.
List 2

Programs Participating in the General Surgery EPA Pilot

Boston Medical Center
Brigham and Women’s Hospital
East Carolina University, Brody School of Medicine
Einstein Healthcare
Gunderson Health System
Indiana University School of Medicine
Lahey Clinic Medical Center
Maine Medical Center
New York Presbyterian–Weill Cornell Medicine
Northwestern University
Oregon Health & Science University
Southern Illinois University School of Medicine
State University of New York–Upstate
Swedish Medical Center
University of Alabama at Birmingham
University of Arizona, Tucson
University of California, Irvine
University of Connecticut
University of Florida College of Medicine
University of Michigan
University of Rochester
University of Wisconsin
University of Nebraska
University of Rochester
University of Texas Health Science Center at San Antonio
University of Wisconsin
Washington University in St. Louis/Barnes-Jewish Hospital
West Virginia University
Wright State University Boonshoft School of Medicine

Future Directions
In January 2020, 1.5 years into the 2-year pilot study, the ABS Board of Directors met at a retreat to discuss progress of the pilot and consider next steps moving forward. Given the success in collecting EPA assessments across many sites, they endorsed continuing to move toward a competency-based assessment framework incorporating EPAs across general surgery in a phased approach, with unsupervised practice as the graduation standard so as to remain in alignment with the ACGME milestones. The first proposed initial step is transitioning existing assessments reported to the ABS to EPAs. The current requirement is for trainees to report at least 6 Operative Performance Rating System assessments as a requirement for eventual certification, and these would be transitioned to EPA assessments for the 5 areas currently available. Having this type of standardized information about competence of graduating residents represents a big step forward.

An additional leadership structure was created to facilitate the ongoing work necessary to define the remaining complement of EPAs for general surgery and to engage in iterative updates of the existing 5 EPAs. This advisory group of senior leaders has convened 3 working committees to: 1) revise the existing EPAs to incorporate feedback from the pilot and align with Milestones 2.0, the next iteration of the required milestones-based assessment effort of the ACGME; 2) disseminate promising practices to help address implementation barriers identified by the pilot; and 3) come to consensus around the technology standards necessary for collection and transmission of assessment data centrally. With direction provided by these items, a subsequent scope council of senior leaders from across multiple surgical specialties will be convened to define the full complement of EPAs, and thereby, the essential components for the discipline of general surgery. Flowing directly from the work of the scope council, a broad and diverse writing group will be engaged to draft all components of the remaining EPAs. It is anticipated that this work will continue over the academic year 2021–2022, with the ability to implement the full set of general surgery EPAs broadly in July 2022. Assessment of the full complement of EPAs will be required for the cohort entering residency in July 2023.

While this manuscript has described success in early implementation of EPAs in general surgery, it is the opinion of the authors that it has been the phased approach and corresponding opportunity to identify best practices and challenges to even broader implementation that are largely responsible for this success. Benefits reaped by our discipline include gentle, repeated introduction of frontline faculty and residents to concepts of competency-based education, and that the totality of care for a disease or presentation, rather than a focus in the operating room alone, must be represented in assessment paradigms for surgery. This approach also allowed our specialty to assess the feasibility of an EPA assessment paradigm before wrestling with broader questions about the definition of our discipline’s core.

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