

CHAPTER 8

Entrustable professional activities and EPA frameworks defined

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Abstract

Entrustable professional activities (EPAs) serve important purposes in health professions education. These purposes include supporting curriculum development and delivery and guiding trainee assessment, as well as grounding high-stakes decisions to allow trainees to practice in unsupervised settings. These purposes require more than a succinct and recognizable title of an EPA. For their full potential, descriptions of EPAs must be fully elaborated with the detailed information required to deliver on each of these purposes. Elaborating EPAs also requires a clear understanding of the relationships between other educational and professional constructs such as knowledge and competencies. This chapter discusses the distinction and relationship between knowledge, skills, and attitudes (KSAs), competencies, and EPAs, discusses the components of a fully elaborated EPA and why these components are important to implementing EPAs in educational programs, and examines how EPAs are assembled into frameworks of EPAs to serve a profession or discipline. The chapter concludes with a brief discussion of transdisciplinary EPAs.

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Introduction

Many schools, programs, professional bodies, and curriculum committees in the health professions are currently involved in the implementation of entrustable professional activity (EPA)-based education,¹⁻⁴ but not all conceptualizations are equally helpful.⁵ A risk of new educational curricular concepts and frameworks, such as an EPA model, is the ease with which the focus of educational leaders shifts from *why is this framework important?* to *how do I adopt this new framework?* Developing EPAs and building EPA-based curricula requires that curricular leaders have an in-depth understanding of the rationale for the curricular change. This requires a rich understanding of EPA construction and its application within competency-based training, as well as limitations and opportunities of EPAs in areas of curriculum, assessment, and the local professional workplace. This chapter begins with a description of the essential characteristics of EPAs, followed by a discussion of three related but distinct constructs used in competency-based education (CBE)—EPAs; knowledge, skills, and attitudes (KSAs); and competencies. Building on these concepts, the chapter then focuses on designing a coherent framework of EPAs as part of a competency-based curriculum that is suitable for assessment decisions that capture grounded trust in trainees' readiness for unsupervised professional practice.

Essential characteristics of EPAs

As described in earlier chapters, an EPA is a *unit of work in professional practice*—it could be a bundle of tasks, it could be big or small, it could be an early activity, later nested within a broader EPA, but in all cases it should be an observable, standalone activity. If speaking a second language were the skill a person possessed, acting as a translator would be an example of an entrusted activity.⁶ Therefore, EPAs are *not* 'possessed' by a trainee (like knowledge or skills), but rather 'owned' by the profession and may be 'delegated' or 'given' to a practitioner, or one in training, to execute, which makes the activity 'entrustable.'

This draws on employment literature, which generally defines scopes of practice and role responsibilities using the activities of professional practice.^{7,8} In health care, EPAs are the work done in caring for patients. They constitute the task list for which KSAs and competencies are needed.

Understanding EPAs as units of work is an important starting point. Those embarking on developing EPAs must go beyond this, building a rich understanding of the purposes of developing and implementing EPAs.⁹ How one approaches elaborating descriptions of work naturally depends on the intended purpose(s) of developing the description.⁷ For CBE, identifying and elaborating EPAs supports decision-making related to education progression and professional certification, and supports curriculum planning within programs. More specifically, EPAs:

- operationalize competencies into observable units of work;
- support determinations of readiness for trainees to enter unsupervised practice, i.e., to allow for entrustment decisions and subsequent transfer of responsibility;
- guide the organization of learning and assessment within an education program;
- reflect what professionals do in practice.

Building on these core purposes of EPAs, the health professions literature has established eight defining characteristics of EPAs—characteristics considered essential to these purposes.⁹⁻¹¹ (Table 1).

Table 8.1: Entrustable professional activity characteristics.

Defining characteristics of an EPA
<ul style="list-style-type: none">• Is essential professional work in a given context• Leads to a recognized output of professional labor• Requires adequate knowledge, skill, and attitudes that are generally acquired through training to perform successfully• Is confined to qualified personnel• Is executable independent of other EPAs• Is executable within a defined time frame• Is observable and measurable in process and outcome (well done or not well done)• Requires integration of multiple competencies

It follows that EPAs developed for health professions education need to align with these characteristics in order to achieve their purposes. This sounds straightforward, but several EPA initiatives have produced EPAs that failed to achieve this alignment.^{12–15} These problematic outcomes may stem from a variety of mistakes during development including confusion in distinguishing between learning objectives, KSAs, competencies, and EPAs, or failing to develop a robust shared mental model among project team members.¹⁵ To help EPA development teams evaluate EPA quality and ensure this important alignment, Taylor et al. generated the EQual Rubric tool to evaluate EPA quality (see Chapter 11 for details).¹⁶ Organizing these defining characteristics into three, practical categories, the rubric structures the evaluation of EPAs as: (1) discrete units of work; (2) entrustable and essential to the profession; (3) described in a way that aligns with educational principles. Additionally, a faculty development [video](#) associated with the rubric can be used for educational purposes in addition to preparing people to use the rubric.¹⁷ Readers should also be aware of several articles useful in helping build a rich understanding of EPAs and their application in CBE.^{9,11,15}

KSAs, competencies, and entrustable professional activities

To understand the defining characteristics of EPAs, it is also important to understand the distinctions and relationships between KSAs, competencies, and EPAs. Although the lines between these often seem to blur,^{6,18–20} the underlying principles used to distinguish them are crucial. Hasty attempts to adopt CBE without the development of the prerequisite understanding of these related but distinct concepts have frequently undermined the goals and benefits of pursuing competency-based curricular design.^{6,15,21} Figure 8.1, adapted from the Royal Australian College of Physicians and the World Health Organization, demonstrates the relationship between KSAs, competencies, and EPAs using the ‘knowing, being, doing’ curricular model. Arrows show the dependencies between these domains,^{22,23} highlighting the ultimate goal of caring for patients through clinical work.

KSAs represent the foundational building blocks in curricula acquired in preparation for professional practice. Although sometimes broad, they are often more granular abilities—ones that generalize across contexts and settings. Examples of KSAs include: the ability to examine an ECG and identify rate, rhythm, axis, and intervals; non-verbal communication skills; and knowing the complications of compartment syndrome. Importantly, KSAs are abilities possessed by a trainee—something they either have or do not have when entering a clinical situation.

Like KSAs, competencies are also possessed by a trainee, but competencies represent higher-order abilities that integrate multiple KSAs. Building on the above examples, competencies might include: interpretation of ECGs for clinical decision-making; communication in emotionally charged situations; and examining limbs for neurovascular compromise. In contrast to singular KSAs, competencies require integration of multiple foundational KSAs to produce a clinically

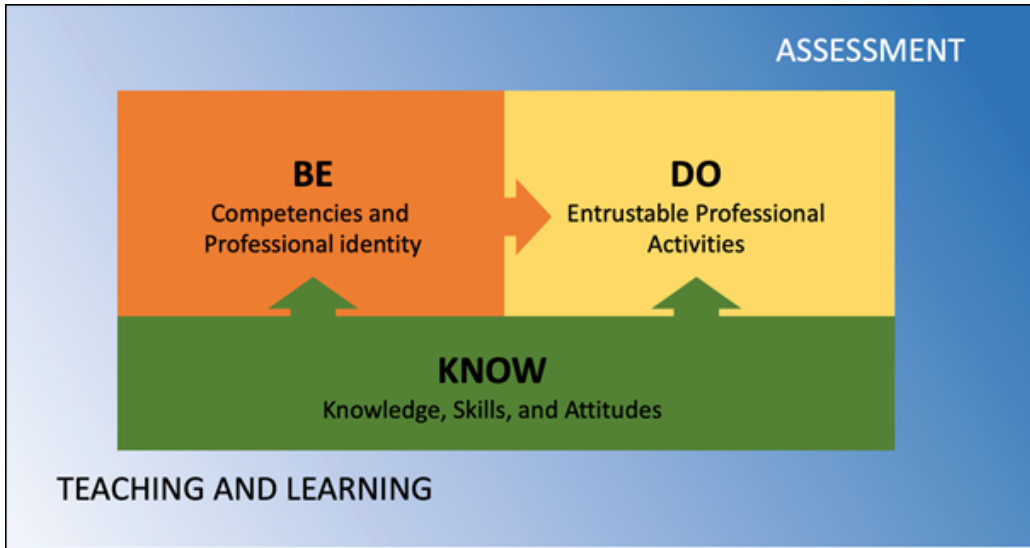


Figure 8.1: Relationships between KSAs, competencies, identity, and EPAs in the know-do-be curricular model.

usable ability that is recognizable within a profession or discipline. One cannot see the competencies trainees possess simply by looking at them. Instead, you can observe the *application* of competencies when trainees use them to perform the *tasks* of patient care as required for the context.

As described earlier, EPAs are the activities done in caring for patients. Performing an EPA requires trainees to draw from the KSAs and competencies that they bring with them to the clinical encounter—selecting those they recognize as necessary to deliver the care required for that patient. Performing an EPA is therefore specific to the clinical context and not something that is possessed by a trainee. Returning to our examples used for KSAs and competencies above, an example of an EPA would be ‘Managing trauma care,’ comprising numerous competencies (including the example competencies identified above), and foundational KSAs.

	EPA 1	EPA 2	EPA 3	EPA 4
Competency A	+	+		+
Competency B		+	+	
Competency C			+	

Figure 8.2: Relationship of EPAs and competencies as two dimensions of a grid.

This ‘knowing, being, doing’ model shows how KSAs, competencies, and a professional identity are prerequisites for practice, and EPAs representing that practice. The relationship between competencies and EPAs becomes clear when examining the construction of a framework of EPAs as two dimensions of a grid. Figure 8.2 shows how the competencies required for a profession relate

to the EPAs performed in providing health care. A matrix such as the one in Figure 8.2 can provide a start to a useful blueprint for curricula and guide the organization of learning content.

Not all important curricular components should fit the EPA construct

The definition of an EPA presented here can raise concerns around important areas in health professions education that do not fit the EPA construct. Lifelong learning, collaboration, and cultural safety are all essential competencies in health professions education but are in themselves not units of work that can be simply entrusted. With an emerging construct such as EPAs, there is often pressure to make everything fit the novel construct. By exclusively emphasizing EPAs, education programs can paradoxically diminish the value of these competencies by attempting to make them into EPAs. ‘Interprofessional collaboration,’ for example, is sometimes proposed as one EPA within an EPA framework; this disregards the need for interprofessional skills as a prerequisite for almost all entrustable activities in health care.²⁴ Curricula, programs, credentialing bodies, and others must ensure that such domains are taught and assessed as competencies—in addition, of course, to ensuring trainees synthesize these competencies into their clinical work, i.e., in EPAs, when appropriate.

Fully elaborated description of entrustable professional activities

An EPA is more than a succinct label of a clinical activity. A fully elaborated EPA should include the eight recommended components (Table 8.2) in order to provide transparency, robustness, validity, and applicability.¹¹ Each of these components provides information important to key stakeholders in health professions education. For curricular leaders it clarifies what students

Table 8.2: Components of a fully elaborated EPA, their purpose, and relevant stakeholders.

Component	Purpose	Most relevant persons
1. Title	Succinctly and clearly identifies the task	Trainees, clinical supervisors
2. Specification and limitations	Describes the task in detail to make clear what the qualification for this EPA includes	Trainees, clinical supervisors
3. Potential risks in case of failure	Identifies possible adverse outcomes from inadequate performance of the EPA	Trainees, supervisors, academic advisers/coaches
4. Most relevant competency domains	Identifies the key competency domains required to perform the EPA	Curriculum developers
5. Required KSAs and experiences	Maps the activity to relevant competencies and/or KSAs and identifies relevant learning experiences	Curriculum developers
6. Information sources to assess progress and support summative entrustment	Identifies sources of assessment data important to making summative entrustment decisions for the EPA	Curriculum developers, competence committees
7. Entrustment/supervision level expected at which stage of training	Provides a map of expected trainee progression toward readiness for unsupervised practice	Trainees, academic advisers/coaches
8. Time period to expiration if not practiced	Sets a timeline for which the skills needed to perform the task safely are likely to extinguish if not practiced	Regulators, practitioners

must learn (domains of competence and KSAs); for medical regulators it defines what exactly the clinician is certified to do without supervision and for what period of time (specifications, limitations, and time to expiration if not practiced). Each component serves a specific purpose in operationalizing EPA-based education in today's highly regulated health care and other professional fields. It is also important to recognize that not all components are relevant to all people. Table 8.2 highlights key stakeholders to whom components are most relevant. The appendix at the end of the chapter provides tips for elaborating EPAs in the eight-component format, with examples.

When developing EPAs, it is important to recognize that development teams do not need to (and in fact should not) define all components of an EPA from the outset. *EPA title, specifications and limitations*, and *most relevant competency domains* should be the first priority. These three components establish the shared mental model for performing the EPA in practice. If consensus is achieved on these components, elaborating the other components will be much easier and more meaningful. If there is not consensus on these priority components, it will be very difficult, if not impossible, to build consensus on the rest.

Beyond its application within professional training programs, this recommended approach to describing EPAs opens the possibility of microcredentialing for new or specialized clinical activities. Bedside ultrasound is a task that is increasingly becoming standard of care in many medical specialties. Yet many practicing physicians were trained prior to its widespread availability. Developing a fully elaborated EPA for such an activity provides opportunities for physicians to learn new skills and establish certification for their use.

EPA frameworks

Beyond elaboration of individual EPAs, it is important to consider how a discipline, profession, service area, or specialty is represented by a set (or framework) of EPAs. A framework of EPAs is a coherent and reasonably comprehensive set of EPAs that define the core activities of a discipline, generally arrived at through consensus methods.^{9,25} If a single EPA describes a single unit of work, then a framework of EPAs should capture all of the essential, entrustable work performed for the goals and scope of the profession or discipline. The framework (or core set) of EPAs allows for a certification, diploma, even a title (job title or professional title), and/or license. In essence, it constitutes the activities that would be listed in the job description of a profession—the activities entrusted and regulated in that profession. But a framework of EPAs for a specific profession is more than simply an aggregate of EPAs. The term ‘framework’ reflects the need for adaptability to the heterogeneity of practice that may be seen across a professional jurisdiction. Consider how a framework of EPAs for family medicine might include the same defined outcomes. In practice, the application of ‘Managing chronic disease, referring for specialized care, managing urgent presentations’ will look very different in a local urban setting than in a national context that includes rural and remote regions. It is the context that changes, not the EPA.²⁶

It is also important to recognize that there is not a single approach to developing a framework of EPAs. Frameworks can be composed of small activities with many identified, or broad and few.²⁷ Each of these approaches offers advantages and trade-offs (discussed in Chapter 9). In considering the use of EPAs within education programs and for professional certification, highly granular EPA frameworks often become unwieldy, and risk venturing into sets of skills rather than activities or tasks. For programs leading to professional certification, experience suggests a total of no more than 20 is ideal.^{28–30} Professions with a narrow scope of practice may have fewer; those with a broad scope of practice, such as family medicine, may require more. Regardless, operational feasibility is a critical consideration in planning.

Table 8.3: Features of an EPA framework to guide EPA development.

Features of a cohesive EPA framework
<ul style="list-style-type: none">• It identifies the groups of tasks that graduates will be certified to perform^{9,23}• It demonstrates congruent logic(s) across the EPAs²⁷• It clearly distinguishes each EPA from the others^{15,16}• It supports structural entrustment decisions for EPAs (i.e., STARS*)⁹• It describes EPAs broadly with limited numbers²⁸• It requires contextualization in how activities are realized in different clinical contexts—case to case and setting to setting^{23,25}• It shows alignment between EPAs in the framework and the competencies expected in practice^{9,15,23,28}

Ensuring an EPA framework is cohesive is another important consideration. Seven described features of EPA frameworks can be helpful to consider when envisioning or preparing to develop EPAs (Table 8.3).

*STAR or statement of awarded responsibility, is a certificate awarded to a trainee granting them permission to perform an EPA at a specified level of supervision (see Chapter 10).

One quality that warrants further explanation is the use of logics in developing EPAs.²⁷ While more extensively elaborated in Chapter 9, EPAs can be organized as procedures (‘Colonoscopy’), as functions (‘Consulting on inpatients’), or in relation to diseases (‘Managing patients with acute kidney injury’). It is easy to see each of these EPAs as a discrete, observable, and entrustable activity for that discipline. Although procedural EPAs combine well in frameworks with either of the other logics, blending function- and disease-oriented EPAs within a framework can be problematic. Considering the examples ‘Consulting on inpatients’ and ‘Managing patients with acute kidney injury,’ these EPAs create areas of overlap that introduce confusion. It is difficult to see how a trainee could be awarded the former EPA and not the latter. Attention to logics employed is important for developing a coherent framework.

Completeness of a framework

A final consideration with frameworks of EPAs surrounds professional certification decisions linked to licensing. As has been previously highlighted, summative entrustment decisions for EPAs are intended to enable authorization to perform those EPAs in unsupervised practice. However, certification for unsupervised practice is a regulatory decision generally made comprehensively for the full scope of practice in a given discipline. In most jurisdictions, it is impractical to routinely customize professional practice licenses from one individual to the next. The implication is that, if EPAs are adopted in a discipline and intended to inform high-stakes certification decisions, it is important that there is a complete framework of EPAs that represent the full scope of practice in that discipline. Microcredentialling, as described above, could in future be linked to certifications and permissions for individual EPAs, which could in turn enable a responsive workforce—as evidenced during the COVID-19 pandemic response. However, current practices are associated with whole qualifications linked to licensing. For that purpose, and for the EPA framework to provide the bridge between education, practice, and regulation, there must be a core set of EPAs providing a reasonably comprehensive description of professional practice.

Similar EPAs across different disciplines

There is increasing interest in examining aspects of overlap in clinical practice between disciplines and professions. In some cases, multiple disciplines may perform the same task, in the same

context, for the same purpose. For example, both gastroenterologists and general surgeons may perform a colonoscopy to identify the source of gastrointestinal bleeding in a patient with iron-deficient anemia. It seems reasonable that an EPA awarded in one discipline could be carried over to practice in the other discipline. More commonly, different disciplines or professions perform similar tasks, but for distinguishably different purposes and in different contexts. Patient handover is a common activity in most (if not all) health professions, but it is often performed differently in different contexts and for different purposes. Most would argue the handover EPA is not simply interchangeable across professions.

Increasingly, health professionals are being asked to work beyond their scope of practice or even provide aspects of care that are typically provided by another different health profession. This was perhaps most evident at the height of the COVID pandemic. Constructing the certification for health professions and design of health care systems with adaptability to shift work across disciplines in times of crisis is now understood to be of important value. Transdisciplinary EPAs, those EPAs that apply to multiple disciplines or specialties, provide an attractive approach to delivering on this need.³¹ But it should be noted that there remains significant debate around how this would and could be implemented, because the context in which an EPA is performed is crucial to its portability. Research into understanding how a transdisciplinary EPA awarded in one discipline can be safely transported by a specialist into a new context or discipline will be important in advancing this promising concept. Additional discussion of transdisciplinary EPAs can be found in Chapter 10.

Conclusion

EPAs and frameworks of EPAs constitute an attractive approach to clarify the core of health disciplines and their activities. Defining and identifying EPAs to be truly useful for the purpose of the training for these health professions requires thoughtful deliberation, consensus among educators, and careful planning.

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Appendix: Relevant components of the EPA description.

	Rationale	Tips for writing	Example 1	Example 2
1. Title	A concise title that that rings a bell with all relevant parties	<ul style="list-style-type: none"> • The shorter the better. EPAs should stick in the minds, as a single unit of practice. Details go into the specification, unless the title requires it to distinguish between EPAs • Avoid trainee performance qualifiers (e.g., effectively) • For verbs, use continuous tense (i.e., -ing); for the object of the verb, use plural (e.g., patients) to stress the generalized nature of the qualification 	<ul style="list-style-type: none"> • <i>Managing acutely ill, unstable, high complexity patients in the pediatric ICU</i> [last words can be left out if the full EPA framework regards PICU] 	<ul style="list-style-type: none"> • <i>Colonoscopy</i> [if clear, no other words are needed]
2. Specification and limitations	A specification and limitations are inextricable components of EPAs, together with the title (a title alone confuses). What is included and what is excluded? For what (exceptional) conditions does qualification for this EPA <i>not</i> hold?	<ul style="list-style-type: none"> • Add heading: 'Qualification for this EPA includes: ...' • A bulleted list of components of the activity, not too long but enough for all relevant parties (trainees, supervisors, nursing) to grasp what the qualification includes • Avoid 'ability to ...': specify the activity, not the trainee • Settings where the EPA can be practiced may be added (inpatient, outpatient, urban, rural setting) • For limitations: 'Qualification for the EPA does not include: ...' include only items that might lead to confusion if not specified 	<p><i>Qualification for this EPA includes:</i></p> <ul style="list-style-type: none"> • <i>Assessing the patient's condition</i> • <i>Interpreting diagnostic studies and monitoring data</i> • <i>Identifying leading and alternative diagnoses</i> • <i>Establishing patient's treatment goals</i> • <i>Implementing patient-centered testing and treatment strategies</i> • <i>Documenting encounter</i> <p><i>Setting: Pediatric ICU</i></p> <p><i>Limitations: Qualification for this EPA does not include extracorporeal membrane oxygenation (ECMO).</i></p>	<p><i>Qualification for this EPA includes:</i></p> <ul style="list-style-type: none"> • <i>Identifying relevant indication(s) and contraindications</i> • <i>Completing informed consent</i> • <i>Performing technical components of colonoscopy</i> • <i>Recognizing and responding to findings and complications during and after the procedure</i> • <i>Documenting procedure</i> <p><i>Setting: Endoscopy suite, ICU</i></p> <p><i>Limitations: None</i></p>

(Continued)

Appendix: Continued.

	Rationale	Tips for writing	Example 1	Example 2
3. Risks	All EPAs that require entrustment decisions to practice bear risks. Critical risks need to be reasonably clear	<ul style="list-style-type: none"> This section can be difficult to specify, as 'patient death' or 'inadequate care' are not very informative. Try to think of specific, prevalent adverse events and present these as 'examples' 	Irreversible end-organ damage including the central nervous system, heart, kidneys, and other systems	Bowel perforation, immediate and delayed bleeding, oversedation
4. Relevant broad competency domains	Which broad domains (CanMEDs, ACGME or other) apply and should serve for feedback in assessment?	<ul style="list-style-type: none"> Avoid including all competency domains of a framework, but the most prominent ones, useful for feedback Use + and ++ to distinguish between 'relevant' and 'highly relevant' 	Medical expert Communication Collaboration Professionalism	Medical expert Collaboration Health advocate Professionalism
5. KSAs and experiences	Specific knowledge, skills attitudes and specific experiences that must be present to allow for a summative entrustment decision	<ul style="list-style-type: none"> This may potentially lead to unwieldy long lists or uninformative short statements. Key is to guide trainees and curriculum developers in how trainees should become prepared to this responsibility. In part this may be curriculum specific, e.g., having passed specific tests, having had specific rotations, having practiced something X times, having the general knowledge level of book Y 	<ul style="list-style-type: none"> Recognition of patient instability and acuity Interpretation of clinical findings in unstable patients Knowledge of differential diagnosis Test selection in unstable patient presentations Identification of focused treatment strategies <ul style="list-style-type: none"> CPR Intubation Management of hemodynamics Closed loop communication <p>Minimum of 40 cases managed prior to consideration. Should include experiences in ICU, emergency department, and neonatal ICU.</p>	<ul style="list-style-type: none"> Knowledge of indications and contraindications and complications of procedure Positioning of patient throughout the procedure Manipulation of the endoscope Recognition of pathologic and normal findings Recognition of complications during and after the procedure Collaboration with endoscopy suite nurses and staff Communication and documentation of results <p>Minimum of 150 colonoscopies before consideration. Experiences should include screening colonoscopies, patients with suspected IBD, and acute gastrointestinal bleeding.</p>

(Continued)

Appendix: Continued.

	Rationale	Tips for writing	Example 1	Example 2
6. Information sources to support summative entrustment	Summary of the <i>program of assessment</i> that is needed to confirm the (structural) readiness for summative entrustment and that allows for decisions for a STAR	<ul style="list-style-type: none"> Think of four information sources (see Chapter 17) <ol style="list-style-type: none"> Direct observations (clinical encounters, procedures) Conversations (case-based or entrustment-based discussions) Longitudinal observation (multi-source feedback) Product evaluation (products of trainee activity not requiring their presence for evaluation, e.g., EHR entries) State how many <i>satisfactory</i> datapoints are needed 	Requires minimum of 15 satisfactory assessments. Must include: <ul style="list-style-type: none"> Direct observation (min 8) Entrustment-based discussion (min 1) Longitudinal assessment (min 3) Assessors should include supervisors, trauma team members, other nursing staff.	Requires minimum of 20 assessed procedures, all by direct observation. Must include presentations of: <ul style="list-style-type: none"> Screening colonoscopies Assessment of diarrhea Acute GI bleeding Inflammatory bowel disease Assessors should include supervisors, endoscopy suite staff, and patients.
7. Expected levels of supervision	When should trainees generally be ready for which level of supervision (1–5) at which stage of training?	Include when level 3 ('indirect supervision') or 4 ('unsupervised practice' or 'oversight only') are expected to be attained. Level 1, 2, and 5 are less relevant	Level 3 expected end of second year of training Level 4 expected by end of fourth year of training	Level 3 expected after six months of training Level 4 expected after 24 months of training
8. Expiry date	How long after qualification for unsupervised practice should this summative entrustment hold if never practiced? When should supervision be reinstalled?	<ul style="list-style-type: none"> Some EPAs may not be very critical for patient safety and expiry may never be indicated Other EPAs may be highly critical for patient safety and may require renewed supervision after one or more years of non-practice Some EPAs may become outdated and should cease to be practiced when better alternatives arise 	One year EPA can be reinstalled within four years of expiration. Reinstallation requires satisfactory performance, supervised by a qualified pediatric intensivist for minimum of five encounters. After four years, EPA requires full recertification.	Two years EPA can be reinstalled within three years of expiration. Reinstallation requires satisfactory performance, supervised by a qualified pediatric intensivist for minimum of 10 colonoscopies. After three years, EPA requires full recertification.
Title with specification and limitations are always needed to understand the EPA. Items 3, 4, and 8 may be regarded as general features; items 5, 6, and 7 may be program-specific.				