

CHAPTER 13

Use of entrustable professional activities in pre-licensure health professions education

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Abstract

This chapter introduces how entrustable professional activities (EPAs) can be implemented in the pre-licensure stage of education (e.g., undergraduate health professions education), with a focus on how trainees can contribute to patient care in a legitimate participatory role prior to licensure. The relative freedom of trainees from workplace-based productivity provides pre-licensure training with a great deal of flexibility. Such flexibility allows creativity and different approaches to laying the canonical foundation for specific EPAs, preparing trainees for clinical training based on EPAs and entrustment, and establishing an appreciation for how entrustment represents an assurance of readiness for safe patient care rather than a grade. Educators can leverage the required knowledge, skills, and attitudes detailed in EPA descriptions to ensure that foundational science courses are preparing trainees for clinical care. The transition from canonical knowledge to more EPA-focused activities is ideally via a ‘Z-shaped’ curriculum. Factors of a trainee’s trustworthiness, which underlie entrustment in later clinical stages of training, can be explicitly introduced, explored, and strengthened in pre-workplace-based settings. Lastly, the chapter delineates how early pre-licensure workplace-based learning founded on EPAs provides opportunities to introduce contextual competencies, while advanced workplace-based education further refines practice with limited supervision, preparing trainees for the transition to additional post-licensure training or licensed practice.

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Introduction

The entrustable professional activities (EPAs) framework has emerged as a powerful framework for implementing competency-based education.¹ EPAs define the activities that are critical to a profession, shifting the focus from characteristics of trainees to the activities trainees are required to perform upon gaining licensure (e.g., graduation, entering practice), and employing entrustment of trainees to complete the activities with increasing autonomy as a natural means of progression. EPAs as outcome expectations have been implemented across many health professions including medicine, nursing, pharmacy, psychology, veterinary medicine, allied health therapy,^a and more.² EPAs were initially developed and have been primarily implemented in workplace settings with trainees who are both capable of and permitted to participate in health care delivery. This capability and permission are often recognized through licensure. In this chapter, we focus on the pre-licensure phase of education. Pre-licensure refers to the phase of training in which a health professions trainee is enrolled in their formal degree-granting education programs (e.g., medical, nursing, allied health school). The term pre-licensure is often used synonymously with *undergraduate*, particularly in the medical field—we use the term pre-licensure to offer a more inclusive frame of reference for professions that do not typically include a post-licensure or post-graduate phase. While EPAs have been predominantly described in later stages of training, this does not mean that EPAs do not also have a role in pre-licensure health professions education.³ In fact, linking pre-licensure education to the EPAs expected of trainees in unsupervised clinical practice is critical and this linkage should be made explicit to both trainees and supervisors, to prepare trainees for professional work in clinical settings.

Notably, laws, regulations, and accepted practices vary across different regions and professions. This is true not only of supervision during training (e.g., medical trainees in Brazil are permitted to perform EPAs as part of community service without supervision)⁴ but also of expectations upon completion of training. EPAs must therefore be tailored to relevant professions in their local contexts. In many regions, nurses and allied health professionals (therapists, radiographers, dietitians, etc.) transition directly from pre-licensure education into practice. Medical trainees in certain jurisdictions (e.g., South America, the Middle East) are authorized for unsupervised practice upon completing pre-licensure medical education, while those in other regions (e.g., Europe, North America, Taiwan, Singapore) must complete additional post-licensure medical education before transitioning to unsupervised practice.^{5–7} While these variations necessitate customized approaches to EPA development and implementation, pre-licensure education also represents an opportunity to develop interprofessional EPAs in addition to profession-specific EPAs.⁸

This chapter delves into the implementation of EPAs in pre-licensure health professions education. Despite variations in the outcome expectations at the end of pre-licensure education, there are common principles that can be applied across professions and jurisdictions. By thoughtfully integrating EPAs into the curriculum and, as permitted, allowing pre-licensure learners to meaningfully engage in clinical workplace activities, EPAs provide a means to nurture a generation of graduates who can be entrusted to safely contribute to patient care in their transition to either further training or unsupervised practice. Moreover, because trainees in pre-licensure phases of training are not required to meet productivity targets, the pre-licensure period offers more flexibility to use creative approaches not limited by clinical workplace structures to lay the foundation for later entrustment.

^a Refers to, for example, physiotherapy, occupational therapy, radiography, podiatry, dietetics, and speech therapy.

Considerations in an EPA-based pre-licensure health professions education program

The commencement of a pre-licensure health professions education program represents a major step in a trainee's journey to becoming a health professional. A key function of pre-licensure education is helping trainees broaden their attention from their own needs as a student to including the needs of their teammates and patients. Trainees need to shift their priorities from demonstrating their knowledge and skills acquisition for grades and passing courses each semester to mastering knowledge and skills in service of the patient care activities that they will perform as a health professional. The EPA framework supports this identity shift by emphasizing the patient care activities and the trust being placed on trainees to contribute to or perform those activities safely as they complete their training.⁹ Trainees entering a pre-licensure education program, especially in the early preworkplace phase, may not intuit how the curriculum's content is preparing them to become a health professional. Articulating this professional identity formation as one explicit goal of an EPA-based curriculum and demonstrating how the curriculum supports trainees in achieving that goal may help trainees engage in the learner-driven elements of the programs. It also can be helpful to explicitly show trainees from the outset, and as they progress through the curriculum, the EPAs they will be expected to perform at a certain level of supervision upon graduation, henceforth referred to as core EPAs.

Additionally, mapping of the learning objectives of a curriculum to its core EPAs can help trainees understand the relationship between learning in the classroom and the activities required for clinical practice. For example, it may be helpful for trainees to realize how the theoretical content they learn in anatomy and physiology, pathophysiology and pharmacology can be applied in the management of childbirth. This represents a mindset shift from 'just in case learning' to 'just in time learning.' To further support the trainee experience of becoming a professional, smaller EPAs appropriate for practice by early trainees in different settings (simulation, workplace) may be used at different points of the curriculum. They also can be mapped to or nested within the larger core EPAs.¹⁰ These smaller, nested EPAs allow increasing participation and contribution to patient care and ultimately prepare the trainees for the practice of the larger core EPAs. Admittedly, linking curricular components to EPAs is not easy. It often requires collaboration between clinicians and those who teach the foundational sciences. It can also painfully highlight historically prized curricular areas as potentially less relevant than previously perceived.

To actively engage with and optimize learning from an EPA-based curriculum, trainees should understand how it differs from a traditional or typical preprofessional curriculum and why these elements are beneficial to their learning. This includes the different approach to assessment (namely the use of entrustment and supervision levels versus proficiency scales), the concept of entrustment, and how trainee behaviors influence entrustment/supervision decisions. A number of trainee qualities (agency, reliability, integrity, capability, and humility), captured in the A RICH framework, have been identified as important for enabling entrustment.¹¹ Trainees need to be educated explicitly about these elements of 'trustworthiness' and associated behaviors and provided with opportunities to practice and receive feedback and coaching.

The implementation of EPAs in a pre-licensure health professions education program involves significant changes to traditional curriculum paradigms and requires both change management and a faculty development process (see Chapters 22 and 23).¹² Ideally, the EPA-based curriculum is an integrated, longitudinal curriculum in which the curricular content is structured with iterative and spiral opportunities for learning, application, and practice.¹³ The next sections will explore in more detail how EPAs can be integrated in two distinct phases of pre-licensure education: preworkplace and workplace-based education.

Preworkplace education—education without contributions to patient care

Classroom-based learning

During pre-licensure education, a significant part of the education occurs in the classroom where foundational science content is addressed. This begs the question of how EPAs, which were developed for workplace-based training, may apply. The performance of each EPA or patient care activity requires a specific set of relevant knowledge, skills, attitudes, and experiences that are delineated in the elaborated descriptions of each EPA. This level of competence has been described as canonical competence—the standard foundational knowledge and skills, independent of context, expected of all trainees in the profession. Classroom-based learning thus provides the core knowledge and skills (canonical competence) trainees need to perform the EPAs.^{1,14} In fact, the elaborated EPA descriptions should inform the selection of content and instructional methods for the classroom curriculum. As noted above, this classroom learning may be mapped to core EPAs to highlight—for both classroom educators and trainees—how foundational science knowledge and skills will support trainee ability to eventually achieve entrustment for their core EPAs and perform the work of the profession. It ensures that classroom instruction is EPA-centered, reflecting Merrill's principle of *task-/problem-centered* learning.¹⁵ Of note, some important knowledge or attitude objectives (e.g., ethics, professionalism) may not map specifically to individual EPAs. Rather, they may support the trainee 'trustworthiness' qualities or professional values underlying all EPAs. The mapping of the classroom curriculum is also a good opportunity to introduce trainees to the concept of longitudinal and cumulative learning. Trainees, who may have been sensitized to the idea of passing 'individual courses,' can start to track their longitudinal progress in mastering and integrating increasingly complicated material as an indicator for being 'ready' to progress to future stages of training and participation in patient care activities.

More importantly, the trainee factors that enable entrustment for all EPAs (agency, reliability, integrity, capability, and humility) should be emphasized throughout pre-licensure education, including in the classroom. For instance, in team-based learning activities, trainees may be asked to demonstrate and be held accountable for agency in preparing for the sessions, reliability in the information they share based on research using valid resources, truthfulness in their interactions with peers, and willingness to ask for help and receive feedback. Role play exercises with peer-teaching activities may help make personally relevant the concept of entrustment and trustworthiness. Another often-overlooked opportunity for programs to reinforce these expectations as part of the culture is in program-supported extracurricular activities. Programs can highlight trainee capability in a leadership position, reliability in supporting a research project, or humility in a volunteer organization as authentic examples of trainee trustworthiness behaviors. Many pre-licensure programs already have expectations, hold their trainees accountable, and provide feedback and coaching for a subset of these trustworthiness qualities framed under the concept of professionalism. Making clear to trainees at the outset of pre-licensure education the expectations around agency, reliability, integrity, capability, and humility can help trainees develop these habits during classroom learning and prepare them for future entrustment with patient care activities in the workplace curriculum.

Simulated or controlled workplace-based experiences

Many pre-licensure programs offer early introductions to workplace-based experiences that are interspersed or integrated with classroom-based learning where the primary goal is exposure rather than participation in or contribution to the patient care work of the workplace. This can

be considered clinical education without contribution to patient care and includes ‘observerships’ and practice with simulation. Here trainees begin to attend to the context in which their canonical competence will be applied and EPAs offer a helpful guide in ensuring the *task-/problem-centered* development of these experiences. They can help educators choose experiences and focus learner attention on learning points during observerships such as understanding the clinical workplace, health system, and various professional roles and specialties. Simulation activities with standardized patients, manikins, and simulated electronic health records enable early practice of communication, physical exam, and documentation skills with feedback within a safe environment without direct consequences for patient care. These experiences allow activation of canonical knowledge from the classroom, demonstration of skills in context, and application of knowledge and skills. Some programs may require that learners meet a certain level of entrustment in simulation before being allowed to progress to the workplace, where they will engage in authentic clinical activities.

Workplace-based education—education with contributions to patient care

Ideally, pre-licensure trainees enter the workplace adequately prepared by the preworkplace curriculum to join the professional community of practice and begin contributing to the patient care work of the workplace. The workplace provides a rich context in which tasks necessary for professional practice can be further demonstrated, experienced, and acquired in context. A workplace curriculum can be defined as an organized set of experiences in a real-world setting that fosters the acquisition of contextual competence tied to work that are necessary for unsupervised practice.^{10,14} Here trainees practice further application of their canonical competence but also integration of their knowledge and skills for deeper problem-solving and increasingly complex tasks in the workplace to develop contextual competence.

Unique to pre-licensure trainees is the initial entry into the workplace and limitations to their readiness to engage. Their initial participation is typically heavily supervised and involves relatively low-risk peripheral yet authentic professional tasks. Programs may choose to add limitations to their EPA specifications to match the developmental expectations of an early trainee. An example would be an EPA specification that limits trainees to taking a history of a stable cognitively intact and cooperative adult patient with no emotional or physical distress with a common chief complaint.¹⁰ As trainees progress, the limitations in the EPA specifications could be pulled back to include new developmental expectations such as taking the history of emotionally distressed patients, pediatric or geriatric patients, patients with uncommon chief complaints, patients with severe or acute illness, etc. Broadening the expectations using this spiral approach will, over time, allow trainees to be entrusted with the full specifications required at graduation. This nesting of EPAs helps support the entry of pre-licensure trainees into the real-world workplace setting and gradually prepares them for entrustment with the increased responsibility and breadth of the core EPAs.

In addition to the use of nested EPAs, the curriculum can be built using different ancillary frameworks for the developmental progression of trainees. EPAs are synthetic and holistic in their framing of competencies and early trainees may benefit from a breaking down of those competencies into more analytic or developmental steps. For instance, the RIME (reporter–interpreter–manager–educator) model often used in undergraduate medical education can allow educators and trainees to account for current ability and focus on the next level of development.¹⁶ Regardless of the frameworks used, the curriculum must be designed to encourage developmental progression and allow the practice (with available support) of core EPAs in the final stages of training such that trainees graduate ready to practice the core EPAs with distant or no supervision.

Therefore, an EPA-based workplace curriculum should map out a route for individual trainees with summative entrustment decisions at significant moments in their training that lead to

permission to engage in patient care activities with increasing responsibility and decreasing degrees of supervision. The units of professional practice that the smaller nested EPAs represent should be large enough to allow entrustment for practice under varying levels of supervision and not lose their specificity. The curriculum should account for the level of training at which trainees are expected to be able to perform nested EPAs and core EPAs with either distant supervision or unsupervised. In some training situations, achievement of a set of core EPAs may be sufficient. In others, trainees may be expected to achieve additional selective or elective EPAs that can help position them for additional post-licensure training or prepare them for transition to practice in specific workplace contexts.¹⁷

A challenge to workplace-based curricula in pre-licensure education is the varying rules and regulations developed around patient safety or liability concerns. Jurisdictions may limit trainee participation and/or require all patients be seen by a licensed professional. In this case, a program may not be able to build a curriculum where trainees can be entrusted with unsupervised practice for an EPA despite being ready. These requirements will be different across contexts, programs, and professions. The job of the curriculum then becomes the creation of an environment in which supervision is close enough to be safe and meet regulatory requirements, while feeling distant enough to fuel the growth in responsibility that motivates learning. Trainees demonstrating readiness for more responsibility should be allowed greater responsibility; true entrustment decisions should permit trainees to become genuine team members with legitimate roles and contributions to patient care under distant or no supervision. Education and engagement of key stakeholders, including those representing the clinical workplace and regulatory bodies, in designing the workplace-based curriculum may help the clinical setting and regulatory bodies accept and adjust expectations around trainee roles and contributions to patient care.

Entrustment decisions in pre-licensure education

Though this chapter is focused on curriculum, it is important to note considerations around assessment and entrustment decision-making in pre-licensure education. The ultimate aim of any EPA-based education program is to be able to confirm and ensure the readiness of trainees to perform the core EPAs upon graduation via summative entrustment decisions on trainees. These entrustment decisions must be valid (e.g., defensible, justifiable, and reproducible) and several principles apply to entrustment decision-making that is generalizable to all educational contexts (see Chapters 18–21). In pre-licensure education, questions about entrustment decisions arise, including: when are decisions applicable, when or how they can be used for assessment, and what is their ultimate purpose? Is the purpose of entrustment decision-making purely *for* learning or is there an advancement implication (i.e., assessment *of* learning with explicit linkage to progression, and/or remediation)?¹⁸ Modern programmatic assessment approaches endorse the value of multiple low-stakes assessments while learning to promote the maximum growth of the trainee prior to a high-stakes decision.¹⁹ In an EPA program, such an approach may be particularly beneficial to offer feedback throughout a trainee's growth and development.

For classroom-based education, many of the assessments, whether low- or high-stakes, will focus on the assessment of foundational knowledge, which is typically best done using traditional methods. However, as noted above, the concept of entrustment as assessment can be introduced in the context of teamwork in the classroom and entrustment of classmates for their contributions to team learning while considering agency, reliability, integrity, capability, and humility.

In workplace-based education, entrustment decisions for specific EPAs can be used to facilitate learning and trainee growth and/or to determine trainee readiness for advancement. Entrustment decisions used exclusively to facilitate learning should be driven by trainee needs. Consider the value for trainees and how the decision will inform their learning goals.

An assessment tension that is potentially unique to pre-licensure education in some health professions is the need to differentiate among trainees for the purposes of selection into post-licensure

education. Epstein describes this as one of the main goals of assessment along with the other two goals of protecting public safety by ensuring trainee competence and promoting learning and optimization of trainee capabilities.²⁰ However, EPA-based curricula are competency-based and emphasize the latter two goals. EPA-based assessments focus on levels of supervision and readiness for unsupervised practice and do not rank trainees on levels of proficiency. Graduates are certified as having achieved readiness to perform core EPAs but are not 'graded' in relation to each other. In systems where stakeholders such as post-licensure programs and graduates seeking post-licensure training advocate strongly for grading or ranking of graduates, it can be difficult to reconcile a curriculum that uses EPA outcomes and entrustment decisions for assessment with one that grades or ranks trainees. This has led some programs to use EPAs as curricular outcomes to structure the curriculum and only operationalize entrustment for assessment in various degrees, such as for formative assessment only with a separate assessment system for grading and ranking.

Curricular design and planning

Pre-licensure education with an EPA-based curriculum faces unique design challenges, in particular in the need to provide both pre-workplace-based and workplace-based education and transition the trainee from student to professional. An ideal curricular design is one that iteratively builds upon itself in a spiral fashion¹³ and vertically integrates preworkplace-based and workplace-based education. The latter vertical integration creates what has been called a 'Z-shaped' curriculum (Figure 13.1).²¹ It introduces opportunities for early application and integration of knowledge and skills to begin to build contextual competence even as initial education is primarily focused on building canonical competence. Experience with early trainees in student-run clinics show that, when given the opportunity and adequate support, they are able to apply and improve their

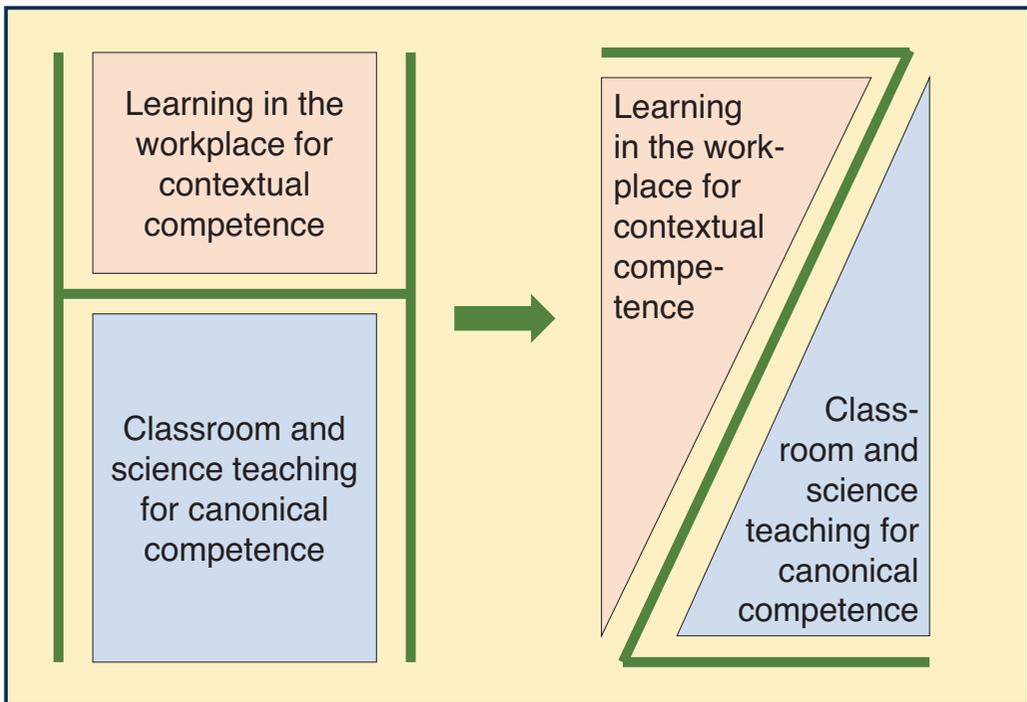


Figure 13.1: Modernization of health professions education toward vertically integrated or Z-shaped curricula with a focus on becoming a professional.

knowledge and skills in the workplace and contribute to patient care.^{22,23} As trainees progress, the curriculum increases emphasis on the development of contextual competence in the workplace and supports their increasing capability and responsibility for patient care. At the same time, space is reserved to allow a return to the classroom even at advanced clinical stages to reinforce and reintegrate important foundational knowledge and skills.

Box 13.1: Curricular planning case study 1: adopting EPAs for pre-licensure trainees.

Overview

A pre-licensure education program would like to utilize EPAs to guide its curriculum and assessment efforts. The curriculum is divided into two stages: one that occurs primarily in the classroom using lectures and one that involves hands-on learning in the workplace. A committee is formed of education specialists and experts from the field who are recipients of the program's graduates. The committee reviews the program's goals and objectives along with typical job requirements from the field to determine what EPAs define the profession. As part of the EPA definitions, the committee includes a set of smaller EPAs that can be nested into the more complex core EPAs. They also determine for each EPA, where the skills and knowledge required to complete the EPA should be taught and which levels of entrustment are required to advance to the workplace stage of training and to graduate.

When the curriculum committee shares their proposed curricular plan, the faculty react with two very different responses. The faculty from the classroom stage note that they have been 'left out.' Several ask if their courses will be removed as they do not 'define the profession.' Some point out that they cannot use entrustment as an assessment tool if there are no opportunities to entrust. The faculty from the workplace stage are outraged that students will be expected to have supervision levels below required regulations. They cite safety concerns and legal ramifications.

Analysis

This case highlights problems that often occur when faculty from within different stages of training are not included in the EPA-based curriculum planning process. Key opportunities for faculty engagement have been missed and it will be much harder to gain buy-in. It is important to explain how the foundational science curriculum might map to core EPAs or more immediately to nested EPAs—and that the use of traditional assessment tools for knowledge and skills can and should still be utilized. Reviewing trainee qualities and behaviors that are important for entrustment and that can be assessed outside the workplace (e.g., agency, reliability, integrity, capability, and humility)²⁴ is another way to help classroom-based faculty connect to the overall educational mission. It is also critical to ensure that those who understand legal and program limitations related to trainee supervision are involved and help account for these limitations in the curriculum.²⁵

This case also shows several best practices such as including stakeholders, who are 'recipients' of the program graduates, to ensure the EPAs are relevant to the profession. Working backward through stages of training to determine required levels of entrustment helps to ensure attention to developmental progression through the curriculum and to define advancement decisions. Additionally, nesting smaller EPAs into more complex core EPAs and mapping knowledge and skills to EPAs promote a cohesive curriculum.

Whether a program can create a ‘Z-shaped’ curriculum, there are key principles that are important to highlight when designing the curriculum. One is creating integrated content to support the application of knowledge to the care of patients. This can include the integration of different foundational sciences (e.g., anatomy, histology) into organs-based and problem-based curricula as well as the integration of foundational science learning and its application in the clinical context. The latter can be achieved by juxtaposing classroom, simulation, and workplace-based experiences. A second important principle is that of ‘longitudinality.’ Longitudinal supervisor–trainee relationships and experiences are important to support learning and enable valid entrustment decision. Some pre-licensure medical education programs have combined these two principles to create longitudinal integrated clerkships where trainees work in various specialty units throughout the year, learning, for instance, pediatrics at the same time as surgery with an assigned longitudinal supervisor in each specialty. A final principle is the engagement of all stakeholders including educators involved in the classroom-based curriculum, those representing recipients of the program graduates, and the trainees. See the case studies in Boxes 13.1 and 13.2 for examples of how these and other considerations discussed in this chapter can present challenges and potential solutions during curricular planning.

Box 13.2: Curricular planning case study 2: establishing programmatic assessment of EPAs for pre-licensure trainees.

Overview

A pre-licensure educational program implemented EPAs a few years ago. The program decided to use repeated low-stakes assessments of each EPA from a variety of faculty as the best approach for providing feedback to trainees and making advancement decisions during the workplace stage of training. The faculty approach the entrustment–supervision scale as a proficiency scale and are loath to ‘rate’ trainees at the lower end of the entrustment–supervision scale, and they continue to assess trainees only at the end of each rotation. Trainees complain about the paucity of assessments and feedback and are also surprised when, upon being reviewed for advancement decisions, they are told that they are ‘not yet ready to move to the next stage’ despite their ‘passing’ ratings.

Analysis

This situation highlights challenges in implementing an entrustment system in a pre-licensure program. Faculty and trainees may have difficulty transitioning from a proficiency rating and ‘grades’ mindset to that of entrustment–supervision. Faculty may rate trainees as being ready for more autonomy based on a history of using a higher part of a rating scale. Trainees in turn may interpret that as a ‘passing’ or high rating/grade and not a reflection of how much supervision they may still actually need to complete certain tasks.

This case demonstrates the importance of training both faculty and trainees on how entrustment–supervision scales function. Without a clear understanding of entrustment, supervision, and the goals of workplace-based assessments, faculty will have a difficult time pivoting from end-of-rotation evaluations to frequent low-stakes assessments and the interaction could become a checklist versus a process for entrustment. Similarly, trainees may remain focused merely on passing or receiving high ratings for clinical placements/rotations without understanding what is needed to achieve entrustment for an EPA or what it means to be ready to perform an EPA with distant or no supervision. This case also reinforces the importance of helping trainees seek feedback and build upon that feedback as part of their journey toward greater autonomy.

Conclusion

EPAs can be implemented in the pre-licensure stage of education, allowing trainees to contribute to patient care in a legitimate participatory role. Pre-licensure training lays a foundation of canonical competence, prepares trainees for entrustment, and reorients the trainee from student to emerging professional. The required knowledge, skills, and attitudes from EPA descriptions can help inform preworkplace-based curricula. Entrustment to perform specific EPAs informs the workplace-based curricula. The use of entrustment provides a means to explore and strengthen trainee qualities important for ongoing entrustment in later clinical stages of training and practice. Finally, an important step in building an EPA-based curriculum is the engagement of all stakeholders (e.g., classroom faculty, clinical administrators, trainees) and ensuring stakeholder understanding of the key principles and differences in an EPA-based curriculum.

Competing interests

The authors declare that they have no competing interests.

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