

# Developing Entrustable Professional Activities for Entry Into Clerkship

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## Abstract

### Purpose

Despite the growing emphasis on early clinical experiences, preceptors still face challenges integrating preclerkship medical students into their practices. Entrustable professional activities (EPAs), which frame competencies in the context of clinical workplace activities, may provide explicit guidance on appropriate student roles and activities. This study aimed to develop and appraise content validity evidence for EPAs for clerkship entry.

### Method

The authors employed a multistep process from November 2012 to June 2014. They identified EPA content domains using study data, student focus groups, and preceptor interviews. They then mapped

each domain to preclerkship course objectives, graduation competencies, and resident-level EPAs to ensure relevancy and adequacy. Next, they developed seven-part EPA descriptions for each domain with specifications/limitations; expected knowledge, skills, and attitudes; associated competencies; and assessment information. Subsequently, they conducted local, national, and international workshops to verify the appropriateness of the content and supervision level, before finalizing each EPA with additional expert and stakeholder review.

### Results

This process resulted in five EPAs for entry into clerkship: (1) information

gathering, (2) information integration for a differential diagnosis and plan, (3) health care team communication, (4) information sharing with patients, and (5) resource identification. Workshop participants approved and refined the content for each EPA and agreed that a single level of supervision (practice under reactive supervision) was appropriate.

### Conclusions

The development of these EPAs indicates support for setting a standard for entry into clerkship, provides guidance for engaging preclerkship students in clinical workplace activities, and can be adapted for use by any institution.

**C**alls for medical education reform advocate the use of curricular designs that integrate the teaching of didactic knowledge with experiential learning.<sup>1</sup> Medical schools strive to provide this integrated approach by imbedding in the preclerkship curriculum a variety of early clinical experiences, such as preceptorship placements in a hospital or ambulatory clinic setting.<sup>2,3</sup> Ideally, these preceptorships allow students to learn clinical and reasoning skills by interacting with patients in the clinical workplace.<sup>4-6</sup> The richness of learning in the workplace, however, depends on the degree of student engagement in workplace activities.<sup>7</sup> Yet, preceptors, who frequently are volunteer faculty, have difficulty identifying activities appropriate for students in their clinical practices.

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Similarly, students are unclear about their role in the workplace. Consequently, preceptorships often consist mostly of shadowing experiences rather than the desired hands-on clinical experiences.<sup>8-11</sup>

Entrustable professional activities (EPAs) offer a potential solution to this problem by identifying the work activities that preclerkship students can be expected to perform. EPAs are aligned with workplace learning, and they place competencies in the context of practice.<sup>12</sup> Here, multiple competencies can be evaluated through the lens of the specific activities a physician performs.<sup>13</sup> By defining the educational goals and objectives of early clinical experiences in the language of EPAs, we can provide students and preceptors with explicit guidance regarding students' roles. Using this model, we can clarify what developmentally appropriate activities students can be expected to perform and how they may be effectively integrated into the preceptor's clinical workplace.

Although EPAs primarily have been applied to graduate medical education (GME), we have argued that they also are applicable to undergraduate medical

education (UME).<sup>14</sup> Also, EPAs define expectations specifically at transition points in medical training—at entry into residency, fellowship, and/or practice.<sup>13,15-19</sup> Entry into clerkship is just an earlier transition point. We therefore developed EPAs to clarify competency expectations for students entering clerkship.

### Approach

To develop these EPAs, we first determined a level of supervision or entrustment with which to anchor the EPAs to ensure consistency. The published supervision scale for EPAs includes five levels of supervision/entrustment.<sup>12</sup> EPAs for entry into practice are defined at level 4: The learner may practice unsupervised. Because students are not expected to perform clinical activities without supervision, we designed our EPAs at entrustment level 3: The learner may practice under reactive supervision. For some activities, this means that a student may complete the activity alone in the room with the patient, while the supervisor is outside the room but immediately available.

Approaches to EPA development have commonly included the use of the Delphi or nominal group process.<sup>15,16,20–25</sup> Both use experts to define what the EPAs should be, leading to a list of EPA titles. However, the real essence of an EPA is in its fully elaborated description, which includes a detailed explanation containing limitations of the activity; expected knowledge, skills, and attitudes; associated competencies; and assessment information.<sup>26,27</sup> Although the tasks described in an EPA title may seem self-evident and require little explanation for a learner transitioning to practice, novices to the workplace, and those working with them, need explicit details to understand the specifications and limitations of the activities they are being asked to perform. This detailed information is needed to implement EPAs for performance assessment.

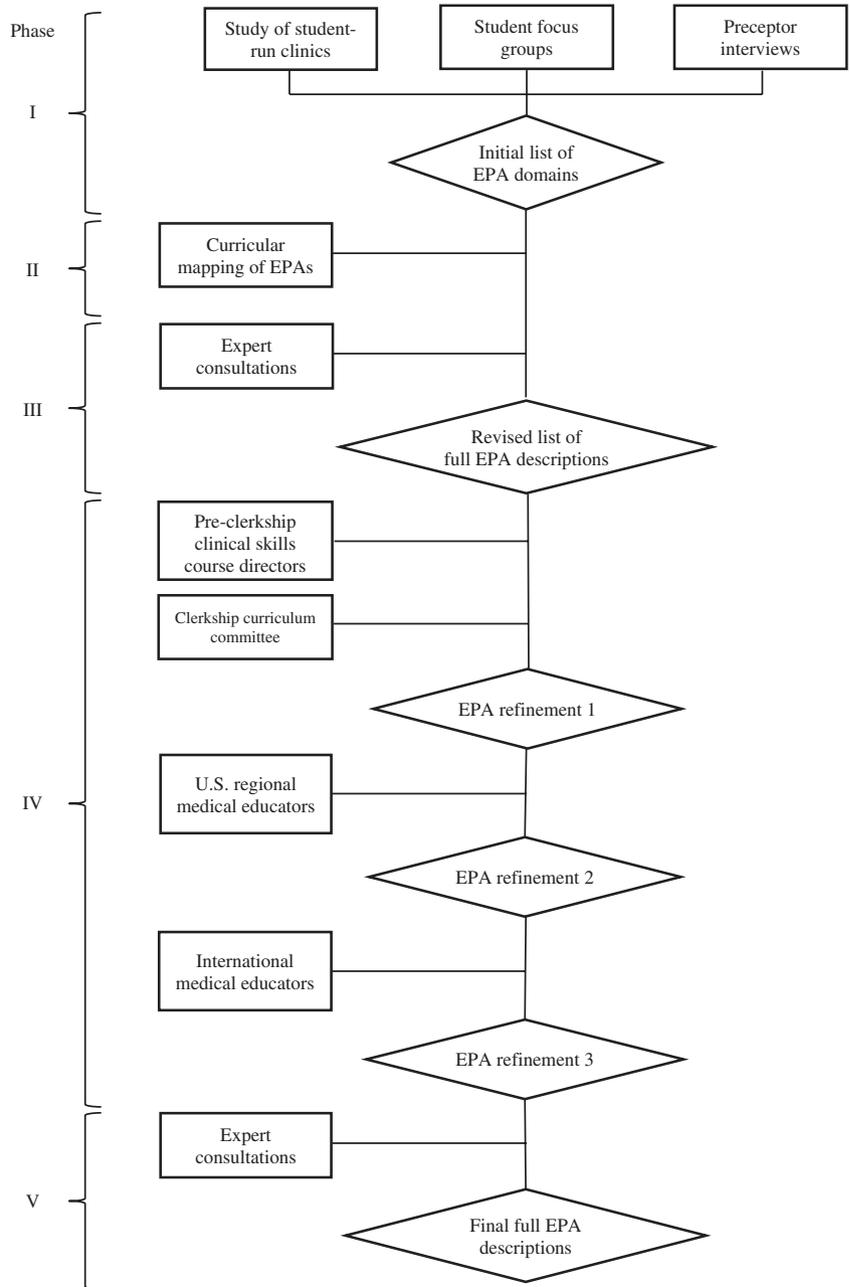
The purpose of this article is to report the novel methodology we used to develop fully elaborated descriptions of EPAs for entry into clerkship. Such a description includes seven parts: (1) EPA title; (2) specifications and limitations; (3) required knowledge, skills, and attitudes; (4) link to an existing competency framework; (5) information sources to assess progress; (6) methods to arrive at the entrustment decision; and (7) conditions and implications for entrustment.<sup>26,27</sup> We also emphasize the steps we took during development to ensure content validity.

In the sections that follow, we describe the methods and results of our multistep process, providing the rationale, data sources, and data analysis for each phase (see Figure 1). The entire process took approximately two years, and all phases were approved by the University of California, San Francisco (UCSF) institutional review board.

**Phase I: Identification of EPA Content Domains**

**Rationale**

The identification of EPA content domains should be based on demonstrated student capabilities. Thus, to determine what professional activities preclerkship students are capable of, and what activities could feasibly be incorporated into the curriculum, we started with a study of preclerkship students' roles and activities in UCSF's student-run clinics (SRCs).



**Figure 1** Steps in the development of and collection of content validity evidence for entrustable professional activities (EPAs) for entry into clerkship, 2012–2014.

We found that students performed direct patient care activities, such as history taking and physical examinations, patient education, encounter documentation, and minor procedures (e.g., phlebotomy, vaccinations).<sup>28</sup> They also helped patients access local health programs and performed quality improvement activities.<sup>28</sup> We confirmed this information via preceptor interviews and student focus groups.

**Method**

Between November 2012 and June 2013, we conducted 20- to 45-minute

structured telephone interviews with preceptors in UCSF's preclerkship clinical skills course. We selected preceptors with demonstrated ability to incorporate students into workplace activities. Seventy-one of 363 preceptors met this criteria by having consistently high student ratings (over three academic years, 2009–2012) for their ability to provide learners with history taking and physical examination opportunities and for their teaching effectiveness. To capture student activities across various clinical workplaces, we used purposive sampling

to recruit 40 of the 71 preceptors who worked in outpatient clinics, emergency departments, and inpatient wards; in general or subspecialty practices; and cared for adult or pediatric patients. We asked the preceptors about the patient care activities they have students perform and their ability to provide students with clinical skills practice opportunities.

We invited all second-year (MS2) and third-year (MS3) UCSF students to participate in focus groups, and included the first students who responded from each class. We conducted two 60-minute focus groups, one with MS2 students who had recently completed their first preclerkship year and one with MS3 students who were currently completing their clerkships. We asked them to reflect on what they found most valuable in their preceptorship experiences, their ability to practice various clinical skills, and whether they could have engaged in additional learning or patient care activities.

All interviews and focus groups were audio-recorded, transcribed, and deidentified. One author (H.C.C.) used the constant comparative method with open coding to analyze the transcripts for types of clinical workplace activities.<sup>29,30</sup> Two authors (H.C.C., M.M.) triangulated these activities with those described in the SRC study.<sup>28</sup>

## Results

Twenty-two of the 40 preceptors responded, and 19 were interviewed. Eight students participated in the MS2 focus group and 3 in the MS3 focus group. Using the clinical workplace activities described in the SRC study, the preceptor interviews, and the student focus groups, we identified five initial EPA content domains: (A) information gathering, (B) information sharing with providers, (C) information sharing with patients, (D) patient advocacy and quality improvement, and (E) information management for lifelong learning.

### Phase II: EPA Content Domain Mapping and Confirmation

#### Rationale

To ensure the relevance and adequacy of each EPA content domain, we mapped them to existing competency frameworks, as ten Cate and Young<sup>31</sup> recommended for establishing credibility with

stakeholders and providing a framework for observation and assessment.

#### Method

We performed this mapping between May and November 2013. First, we mapped the EPA content domains to UCSF's preceptorship objectives and preclerkship clinical skills course competencies. Then we mapped the domains to our institution's graduation competencies and milestones. Finally, we mapped the domains to the GME EPAs from medicine<sup>18</sup> and pediatrics<sup>17</sup> and to the Association of American Medical Colleges (AAMC) Core Entrustable Professional Activities for Entering Residency (CEPAER)<sup>15</sup> when they became available in November 2013. Two authors (H.C.C., M.M.) independently completed each step of this mapping and met to discuss and reconcile differences.

#### Results

We linked all existing curricular objectives and competencies to each of the five EPA content domains except "facilitate learning by giving, receiving, and applying feedback." This competency was important but not specific to, and therefore not linked to, any EPA content domain. We also were able to map the five EPA content domains to 11 of the 16 medicine EPAs,<sup>18</sup> 8 of the 16 draft pediatrics EPAs,<sup>17</sup> and 10 of the 13 AAMC CEPAER.<sup>15</sup> Because our domains were narrower in scope, representing foundational and smaller units of activity than the GME EPAs, some of the domains mapped to multiple GME EPAs. Our mapping results confirmed the relevance of our EPA content domains to current and future expectations of preclerkship students.

### Phase III: EPA Content Description and Expert Consultation

#### Rationale

To be used in practice, the content of each EPA must be expanded beyond its content domain to include a detailed delineation of the expected observable behaviors and the context for those behaviors. To achieve this step, we developed comprehensive seven-part descriptions for each EPA using ten Cate's published guidelines<sup>27</sup> and the assistance of an EPA expert (O.t.C.).

#### Method

From July to December 2013, using level 3 supervision (practice under

reactive supervision) as a guide and the results of our curricular mapping, we developed titles for each EPA content domain and delineated the scope of each EPA by specifying the parameters or conditions limiting each activity. For instance, for the activity of gathering information from the history and physical examination of a patient, we limited the activity to types of patients appropriate for a preclerkship student (e.g., those who are medically stable). We also identified the knowledge, skills, and attitudes needed for the successful completion of each EPA. We then used the preclerkship course objectives to identify where in the curriculum students would learn, for instance, the required foundational science knowledge to support these clinical activities. Finally, we identified the sources of information for determining students' progress, the conditions and methods for granting level 3 entrustment, and the implications for students once they have been granted level 3 entrustment.

As we developed these seven-part EPA descriptions,<sup>27</sup> we received guidance and iterative feedback from our EPA expert (O.t.C.) regarding the structure, clarity, and adequacy of the descriptions. We also sought and received feedback on the clarity of our EPA descriptions from health professions educators working with our EPA expert at the University Medical Center Utrecht.

#### Results

We developed fully elaborated descriptions for each EPA (see Appendix 1 for an example). Upon review, we revised the EPA domains to improve their suitability for preclerkship students (see Chart 1). For example, we separated generating a differential diagnosis and plan from information sharing to create a separate EPA. Doing so makes explicit an important activity that naive preclerkship students may not recognize and emphasizes it as an entrustable contribution to patient care that can serve as a prerequisite for more advanced patient care activities. We also merged the last two EPAs (D and E) into one. For preclerkship students, the practice of information management is most often observable when applied to researching resources for patients or the health care team, where it is also a patient advocacy and quality improvement behavior.

## Chart 1

**Evolution of the Content Domains/Titles of Entrustable Professional Activities (EPAs) for Entry Into Clerkship, 2012–2014**

Initial EPA content domains	Revised EPA titles	Final EPA titles
A. Information gathering	1. Information gathering from a cooperative patient in no distress with a common chief complaint and no complicated underlying medical problems	1. Gather information from a medically stable patient with a common chief complaint
B. Information sharing with providers	2. Integrate information gathered about the patient to construct an initial assessment and plan for common chief complaints	2. Integrate information gathered about a patient to construct a reasoned and prioritized differential diagnosis as well as a preliminary plan for common chief complaints
	3. Communication of information relevant to the patient's care with other members of the health care team	3. Communicate information relevant to a patient's care with other members of the health care team
C. Information sharing with patients	4. Information sharing with a patient in no distress about the patient's diagnosis and/or management plan	4. Share information about the patient's care, including diagnosis and management plan, with a patient in no significant physical or emotional distress
D. Patient advocacy and quality improvement	5. Identify and share relevant resources to improve quality of patient care	5. Provide the health care team with resources to improve an individual patient's care or collective patient care
E. Information management for lifelong learning		

**Phase IV: Assurance of Appropriate EPA Content****Rationale**

The standards for content-related validity set out in the *Standards for Educational and Psychological Testing* state that the process for specifying assessment content should be described and justified according to the intended population and the construct the assessment is intended to measure.<sup>32</sup> To ensure the appropriateness of each EPA, we engaged internal and external subject matter experts to assess the specifications/limitations of each activity for the correct level of complexity and alignment with expected student competencies. We opted to use focused workshop discussions to elicit in-depth feedback from diverse stakeholders in medical education. These workshops allowed us to explain the intended use of the EPAs and expected supervision/entrustment level, explore perspectives, understand concerns, and work collaboratively with workshop participants to refine content.

**Method**

From January to April 2014, we held four content validation workshops: two local,

one national, and one international. The first two workshops were held at UCSF; one with preclerkship clinical skills course directors and the other with the clerkship curriculum committee. The third workshop was held at the 2014 annual meeting of the AAMC Western Group on Educational Affairs. The last workshop was held at the 2014 Ottawa Conference, a biennial international medical education conference focused on assessment. See Table 1 for details about workshop participants, procedures, and outcomes.

All workshops were led by two authors (H.C.C., M.M.) and followed the same format. Up to two additional authors (A.T., O.t.C., P.O.) participated as small-group facilitators. After a brief introduction explaining how the EPAs were developed and the expected level of supervision/entrustment, participants divided themselves into small working groups by background (clinician/nonclinician, UME/GME, institution) to ensure diversity in each group (see Table 1). Each small group focused on a specific EPA, discussed its title and specifications/limitations, and provided written comments. A large-group

discussion of each EPA followed. Finally, participants discussed whether any EPAs were missing. Participant and small-group notes were collected. All workshops were audio-recorded, and workshop facilitators took additional notes. Two authors (H.C.C., M.M.) compiled and reviewed all information.

**Results**

On the basis of the discussions at the local workshops, we refined the EPA titles and detailed specifications/limitations, including a substantive change in language for EPA 5. Smaller refinements followed each subsequent workshop. Table 1 details this refinement process. Consensus of the workshop participants was that no EPAs were missing, although some suggested adding an EPA for common clinical procedures.

**Phase V: Finalizing EPA Content With Expert and Stakeholder Review****Rationale**

Because our EPA descriptions underwent several refinements, we performed a final review with our EPA expert as well as with local stakeholders to ensure adherence to EPA principles and the appropriateness and alignment of the EPA content with curricular objectives.

**Method**

In May 2014, our EPA expert (O.t.C.) reviewed the refined EPA descriptions for conceptualization, wording, and semantics. The resulting final version of the EPA descriptions was sent to UCSF's preclerkship clinical skills course directors and clerkship curriculum committee for review and approval in June 2014.

**Results**

Our EPA expert found that our EPAs were written with a focus on the learner, similar to that seen in typical competency language (i.e., what a learner will do). With his guidance, we reframed the EPAs to focus on the activity/unit of work within a specific context. We made no other alterations. Local stakeholders approved the final version of the EPAs for implementation in the fall of 2014. See Chart 1 for the final titles of the EPAs and Appendix 1 and 2 for the specifications/limitations.

Table 1

**Characteristics of the Four Workshops Held to Provide Content Validity Evidence for Entrustable Professional Activities (EPAs) for Entry Into Clerkship, 2014**

Characteristic	Workshop 1: Preclerkship clinical skills course directors	Workshop 2: Clerkship curriculum committee	Workshop 3: National medical education conference	Workshop 4: International medical education conference <sup>a</sup>
Workshop	<ul style="list-style-type: none"> <li>60 minutes</li> <li>7 participants</li> <li>4 departments</li> </ul>	<ul style="list-style-type: none"> <li>45 minutes</li> <li>18 participants (including 2 students)</li> <li>7 departments</li> </ul>	<ul style="list-style-type: none"> <li>90 minutes</li> <li>26 participants</li> <li>12 U.S. schools and 1 international school</li> </ul>	<ul style="list-style-type: none"> <li>90 minutes</li> <li>23 participants</li> <li>At least 15 schools from 7 countries (United States, Canada, United Kingdom, Germany, Switzerland, New Zealand, Thailand)</li> </ul>
Small groups	<ul style="list-style-type: none"> <li>2 small groups</li> <li>Each group with at least 1 clinician and 1 nonclinician</li> <li>2–3 EPAs/group</li> </ul>	<ul style="list-style-type: none"> <li>5 small groups</li> <li>Each group with at least 1 clerkship director</li> <li>1 EPA/group</li> </ul>	<ul style="list-style-type: none"> <li>5 small groups</li> <li>Each group with at least 3 schools represented</li> <li>1 EPA/group</li> </ul>	<ul style="list-style-type: none"> <li>5 small groups</li> <li>4 groups with at least 3 schools and 3 countries represented</li> <li>1 EPA/group</li> </ul>
EPAs provided to participants	<ul style="list-style-type: none"> <li>Revised list</li> </ul>	<ul style="list-style-type: none"> <li>Revised list</li> </ul>	<ul style="list-style-type: none"> <li>Refinement 1</li> </ul>	<ul style="list-style-type: none"> <li>Refinement 2</li> </ul>
General feedback	<ul style="list-style-type: none"> <li>Expand activity parameters (increase expectations)</li> <li>Clarify EPA 5</li> </ul>	<ul style="list-style-type: none"> <li>Add interpreter use</li> <li>Clarify EPA 5</li> </ul>	<ul style="list-style-type: none"> <li>Increase emphasis on clinical reasoning, basic science application</li> <li>Consider adding EPA for systems-based practice and procedures</li> <li>Refine language and parameters</li> </ul>	<ul style="list-style-type: none"> <li>Exclude sensitive parts of exam (e.g., genitourinary exam)</li> <li>Consider adding EPA for systems-based practice and procedures</li> <li>Refine language and parameters</li> </ul>
Revisions made	<ul style="list-style-type: none"> <li>Updated EPA language (major rewrite of EPA 5)</li> <li>Clarified parameters, in many cases expanding them</li> </ul>		<ul style="list-style-type: none"> <li>Refined language</li> <li>Adjusted parameters</li> </ul>	<ul style="list-style-type: none"> <li>Refined language</li> <li>Adjusted parameters (excluded sensitive part of exam)</li> </ul>
Resulting EPAs	<ul style="list-style-type: none"> <li>Refinement 1</li> </ul>	<ul style="list-style-type: none"> <li>Refinement 1</li> </ul>	<ul style="list-style-type: none"> <li>Refinement 2</li> </ul>	<ul style="list-style-type: none"> <li>Refinement 3</li> </ul>

<sup>a</sup>The worksheet from one table with participants' demographics was lost, so the tally of schools and countries does not include the participants from that table.

## Discussion

In this article, we described the methodology we used to identify and develop detailed descriptions of five core EPAs for entry into clerkship. These EPAs clarify the developmentally appropriate activities that preclerkship students can perform as part of their engagement in the clinical workplace. We mapped these EPAs to our institution's curricular objectives and aligned them with EPAs developed by other groups. Our EPAs also are supported by content validity evidence from both internal and external subject matter experts. Our detailed descriptions and validity evidence may allow others to operationalize these EPAs to improve early clinical experiences at their institutions.

Workshop participants readily accepted the constructs and content domains for the five EPAs we identified. They agreed on the expected level of supervision (practice under reactive supervision)

and helped to tailor the content of the EPAs (expanding or limiting the breadth/complexity of the detailed specifications and limitations) to fit this level of supervision. Despite variable preclerkship clinical preparation across institutions, workshop participants were able to agree on what is expected of preclerkship students.

Some participants did express interest in a procedures-oriented EPA, which highlights that ours are core EPAs. Individual institutions may choose to include additional, elective EPAs, such as one related to procedures, to suit their institution-specific objectives and student needs. In addition, the sources of information used to arrive at an entrustment decision likely will differ on the basis of local resources and circumstances. For these reasons, we did not include any information specific to implementation at UCSF in the full EPA description in Appendix 1. We encourage institutions interested in

implementing these core preclerkship EPAs to complete parts 3, 4a, 4b, 5, and 6 of the EPA descriptions according to their local curriculum. Discussions about the information sources for assessment should look beyond existing assessments and address the validity of the assessments for making entrustment decisions. We recommend that multiple and preferably different types of information sources (e.g., faculty evaluation, multisource feedback, standardized patient exams) be used to gauge progress and that entrustment decisions be based on the input of more than one person or time point (e.g., three faculty members recommending entrustment).

A valuable outcome of our EPA development process was the promotion of discussion among the preclerkship and clerkship faculty, who may have differing expectations of students' clinical skills.<sup>33</sup> At our institution, this discussion created consensus among

the faculty regarding expectations of students entering clerkship. Now these expectations can be explicit and clearly delineated for students. The framing of students' roles and responsibilities in the clinical workplace also generated valuable conversations about the importance of learning through participation and the ability of preclerkship students to contribute to the care of patients. By carefully considering the level of supervision, meaning of entrustment, and detailed specifications/limitations for each EPA, faculty were able to reach consensus on which tasks and in what circumstances preclerkship students could safely engage in authentic patient care activities. Such discussions may help alter faculty expectations and encourage them to see preclerkship students as contributors in the clinical workplace, rather than as potential burdens.

We began this project a year before the AAMC CEPAER were publicly available.<sup>15</sup> Later, we found the CEPAER too broad in scope relative to preclerkship students' capabilities. Broad EPAs may prevent preclerkship students from assuming the degree of responsibility needed for legitimate participation in the workplace, and our primary goal for this work was to define EPAs that could promote student participation. Also, whether preclerkship students should be capable of performing each of the 13 CEPAER to some degree or only a subset of them, with the expectation that they would expand their skills during clerkship, was unclear. Therefore, we elected not to work backward from the CEPAER but to work forward on the basis of evidence of demonstrated preclerkship student capabilities. The ability to link or nest our preclerkship EPAs to the CEPAER, as demonstrated by our mapping process, reinforces their content validity and allows their use with the CEPAER.

We acknowledge that EPAs should not be too granular.<sup>34</sup> However, preclerkship students may see seemingly small tasks as major responsibilities that only later will become part of a broader task. For instance, EPA 2, "Integrate information gathered about a patient to construct a reasoned and prioritized differential diagnosis as well as a preliminary plan for common chief complaints," becomes part of the residents' broader task to "manage care of patients with acute common diseases."<sup>18</sup> We deliberated

the validity of EPA 2 because it is an activity that would not necessarily be prohibited without supervision. We retained it as part of our EPAs, deciding that for very junior learners, the activity should be conceptualized and presented as a responsibility that contributes to patient care. This evolution of small tasks into broader responsibilities adds to the holistic sense of growth in clinical performance that is the goal of medical education.

It is important to note where our EPAs may have digressed from recommendations in the literature. As is evident in Chart 1, the EPA titles increased in length during our development process, despite the recommendation to keep titles short.<sup>34,35</sup> We felt that adding limitations to the titles, rather than mentioning them only in the elaborated EPA description, would emphasize their appropriateness for preclerkship students and help prevent any misunderstandings or concerns that might occur when faculty and students encounter these EPAs for the first time. Also, EPA 5 ("Provide the health care team with resources to improve an individual patient's care or collective patient care") is similar to and incorporates elements of two AAMC CEPAER ("Form clinical questions and retrieve high-quality evidence to advance patient care" and "Identify systems failures and contribute to a culture of safety and improvement"). ten Cate has questioned whether these two AAMC CEPAER are true EPAs.<sup>35</sup> However, unlike the two AAMC CEPAER, EPA 5 meets the definition of an EPA in two respects: (1) It is a discrete task that relates back to the care of a patient rather than to an ongoing habit, and (2) students can advance to higher levels of autonomy for this task.<sup>34</sup>

Our methodology has several limitations. First, it was a lengthy process, taking almost two years. However, basing our EPAs on evidence of demonstrated preclerkship student capabilities facilitated their acceptance by various stakeholders. This acceptance was particularly important because many stakeholders do not appreciate the extent to which preclerkship students are capable of engaging in patient care activities.<sup>33,36</sup> Second, our use of local and conference workshops restricted the number of content experts we could

engage in our process. It also limited our ability to control who was engaged at the national and international levels, as participation was based on conference attendance. However, we did specifically hold our workshops at meetings we knew would be attended by individuals experienced in medical education, and both workshops were well attended. We also kept track of our participants' educational roles, clinical background, and institutions; had them work in diverse groups; and checked for broad representation of institutions and regions in evaluating the workshop feedback. In fact, we found the workshop approach to collecting content validity evidence highly advantageous for allowing rich discussions and for fine-tuning the detailed specifications and limitations of the EPAs, which would have been more difficult using strategies such as the Delphi or nominal group process. Third, the validity evidence that we collected focused entirely on content validity. Additional validity evidence regarding use in student assessment is required. The EPAs currently are being implemented locally, and future work will focus on collecting this validity evidence.

In conclusion, we developed full descriptions for five core EPAs for entry into clerkship, following published guidelines for EPA development and with special attention to validity standards for educational testing. We endorse their use by other institutions because we anticipate that the EPAs can provide explicit guidance for the engagement of preclerkship students in clinical workplace activities with attention to patient safety.

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## Appendix 1

### Example of an Entrustable Professional Activity (EPA) for Entry Into Clerkship: EPA 1<sup>a</sup>

Type of information	Details
1. EPA title	Gather information from a medically stable patient with a common chief complaint
2. Specifications and limitations	<p>Use the chief complaint to gather a history and perform a complete or focused physical exam appropriate to the context, within a reasonable time frame (i.e., considering setting, complexity) in the following circumstances:</p> <ul style="list-style-type: none"> <li>• The patient has a common chief complaint (e.g., earache, headache, cough, shortness of breath, abdominal pain, vomiting/diarrhea, back pain, dysuria, fever, or rash)</li> <li>• The patient may have underlying medical problems (e.g., chronic conditions such as hypertension, COPD/asthma, or diabetes)</li> <li>• The physical exam does not include a genitourinary, rectal, or female breast exam</li> <li>• The patient is medically stable and is not in significant physical or emotional distress as determined by a supervising clinician</li> <li>• The setting can be in the outpatient clinic, emergency department, or inpatient ward (but not intensive care units)</li> <li>• The patient is mostly cooperative (e.g., noncombative, adult or child greater than seven years of age), relatively cognitively intact (e.g., nonsedated, not delirious or demented or psychotic)                             <ul style="list-style-type: none"> <li>• History could be obtained from a cooperative family member of patient (e.g., parent of a child)</li> <li>• Physical exam where the patient is able to ambulate/transfer him/herself</li> </ul> </li> <li>• Interactions are conducted in a language in which both parties are fluent or through a qualified interpreter</li> </ul>
3. Specific knowledge, skills, and attitudes needed to execute the EPA well	List of knowledge, skills, and attitudes with links to where in the local curriculum a student would learn them
4a. Link to preceptorship objectives and clinical skills competencies	List of associated local preceptorship objectives and clinical skills competencies
4b. Link to graduation competencies and milestones most applicable to this EPA	List of local graduation competencies and milestones sorted by Accreditation Council for Graduate Medical Education competency domain
4c. Link to EPAs from professional organizations	<p>Association of American Medical Colleges Core EPAs for Entering Residency</p> <ul style="list-style-type: none"> <li>• Gather a history and perform a physical examination</li> </ul> <p>Graduate Medical Education</p> <ul style="list-style-type: none"> <li>• Manage care of patients with acute common diseases across multiple care settings (medicine)</li> <li>• Manage patients with acute, common, single-system diagnoses in an ambulatory, emergency, or inpatient setting (pediatrics)</li> </ul>
5. Information sources to gauge progress	List of local learner assessment sources
6. Method for formal entrustment decision	Description of the number of times the ability needs to be demonstrated under what circumstances locally
7. Conditions and implications of entrustment for the student	<ul style="list-style-type: none"> <li>• Student will be allowed to (without in-room supervision) gather information from history and physical examination of medically stable patients with common chief complaints to support his/her role as a primary care provider in the outpatient clinic, emergency department, or inpatient ward</li> <li>• The supervising clinician is not with the student but is nearby and available and will recheck the student's findings</li> </ul>

<sup>a</sup>Because of space considerations, only information for the title, detailed specifications and limitations, and alignment with EPAs from external agencies is shown.

## Appendix 2

**Titles and Specifications/Limitations of Entrustable Professional Activities (EPAs) for Entry Into Clerkship: EPAs 2–5**

Type of information	Details
<b>EPA 2</b>	
Title	Integrate information gathered about the patient to construct a reasoned and prioritized differential diagnosis as well as a preliminary plan for common chief complaints
Specifications and limitations	<p>Integrate information from the history and physical exam in the following circumstances and with the following characteristics:</p> <ul style="list-style-type: none"> <li>The patient has a common chief complaint (e.g., earache, headache, cough, shortness of breath, abdominal pain, vomiting/diarrhea, back pain, dysuria, fever, or rash)</li> <li>The patient has up to three significant, stable medical problems (e.g., controlled hypertension, asthma, or diabetes)</li> <li>The differential diagnosis and plan: <ul style="list-style-type: none"> <li>Are based on the patient's history of present illness</li> <li>Incorporate factors from the patient's past medical, social, and family histories, and the patient's medical record (e.g., considers a patient's travel history in the differential diagnosis of fever)</li> <li>Incorporate foundational science knowledge (e.g., pathophysiology or molecular mechanisms of disease)</li> </ul> </li> <li>The differential diagnosis includes more than one possible diagnosis and is prioritized and supported by clinical reasoning</li> <li>The plan includes suggestions for next steps as appropriate (e.g., commonly ordered diagnostic tests/imaging and/or initial treatment, medications, or interventions)</li> </ul>
<b>EPA 3</b>	
Title	Communicate information relevant to patient's care with other members of the health care team
Specifications and limitations	<p>The following conditions and limitations apply:</p> <ul style="list-style-type: none"> <li>Findings following a patient encounter (e.g., patient interview, physical exam, chart review, test results) are organized and prioritized and then communicated via: <ul style="list-style-type: none"> <li>Oral case presentation using an accepted standard format</li> <li>Written documentation using an accepted standard format (e.g., electronic health record or other)</li> </ul> </li> <li>The setting can be in the outpatient clinic, emergency department, or inpatient ward (but not intensive care units)</li> <li>Encounters may also include interactions outside the clinical setting (e.g., home visit, telephone call, e-mail correspondence)</li> <li>Findings are presented and discussed with the supervising clinician before sharing with other members of the health care team (e.g., nursing staff, consulting service)</li> </ul>
<b>EPA 4</b>	
Title	Share information about the patient's care, including diagnosis and management plan, with a patient in no significant physical or emotional distress
Specifications and limitations	<p>The following conditions and limitations apply:</p> <ul style="list-style-type: none"> <li>The information to be shared is straightforward and has been vetted by the supervising clinician <ul style="list-style-type: none"> <li>Information can include diagnosis, management plan, next steps, patient education, anticipatory guidance, or health coaching</li> <li>The discussion is anticipated not to surprise or provoke undue anxiety in the patient (e.g., counseling patients on eating habits, medications, or HbA1c but not providing cancer diagnosis)</li> </ul> </li> <li>The patient is medically stable and has a common acute or chronic diagnosis that is not immediately life threatening, critical, or emergent</li> <li>The patient is generally cooperative (noncombative, older child or adult), relatively cognitively intact (nonsedated, not delirious or demented or psychotic) <ul style="list-style-type: none"> <li>Communication may be with a family member of the patient (e.g., parent of a child)</li> </ul> </li> <li>Communication is in a language in which the provider and patient are both fluent or through a qualified interpreter</li> <li>Sharing information includes checking the patient's understanding of the information conveyed and seeking assistance from a supervising clinician if there is notable patient surprise or anxiety.</li> </ul>
<b>EPA 5</b>	
Title	Provide the health care team with resources to improve an individual patient's care or collective patient care
Specifications and limitations	<p>Information that has been researched and appraised may only be shared with permission of the supervising clinician. Resources include:</p> <ul style="list-style-type: none"> <li>Information from the medical literature such as practice guidelines and possible treatment options from clinical reviews and studies weighted by quality and relevance of evidence</li> <li>Patient education materials from the electronic health record system or other vetted, evidence-based sources (e.g., UpToDate patient handouts, clinic-specific information, instructions on how to take medications)</li> <li>Local, community-based resources for support of patients and/or patients' families (e.g., nonprofit organizations, support groups, food bank, hotline numbers)</li> <li>National organizations for information, support, and advocacy for patients and/or patients' families (e.g., American Heart Association, American Cancer Society, Cystic Fibrosis Foundation)</li> <li>Expert opinion related to a given problem from other members of the health care team (e.g., medical or nurse specialist, pharmacist, nutritionist, social worker)</li> </ul>