



Tomorrow's Doctors, Tomorrow's Cures®



# Core Entrustable Professional Activities for Entering Residency

*Faculty and Learners' Guide*

---

Learn

---

Serve

---

Lead

---

©2014 Association of American Medical Colleges. May not be reproduced or distributed without prior permission. To request permission, please visit: [www.aamc.org/91514/reproductions.html](http://www.aamc.org/91514/reproductions.html)

This is a publication of the Association of American Medical Colleges. The AAMC serves and leads the academic medicine community to improve the health of all. [www.aamc.org](http://www.aamc.org).

# Core Entrustable Professional Activities for Entering Residency

*Faculty and Learners' Guide*

## Preface

We are excited to provide you with the final “version 1.0” of the Core Entrustable Professional Activities (EPAs) for Entering Residency. This work has been the product of a great deal of effort over the past year and a half. Many of you have been engaged through the Reactor Panel or through one of the Association of American Medical College’s groups that provided essential and actionable feedback. We are grateful for your input and hope you see the fruits of your efforts in this version.

We see the publication of this version as a beginning rather than an end—an open invitation to an ongoing conversation about how to assure that students are well prepared for residency training. While we used the literature and the “wisdom of the crowd” to inform our work, we are certain that the current version will change as the work of our community begins now with all of you. We hope you will receive the publication of the Core EPAs for Entering Residency as a call to action to think differently about the desired outcomes for your learners and the learning experiences and assessment opportunities they will encounter during their time with you.

Perhaps most importantly, we are asking that you continue to share feedback throughout the testing and implementation ahead. We need to understand from you what works, in what contexts, and for whom. We hope that as you begin to answer these questions at your sites, you will share lessons learned through posting to the Association of American Medical College’s iCollaborative website:

**[www.mededportal.com/icollaborative/resource/887](http://www.mededportal.com/icollaborative/resource/887)**

On the basis of your feedback, we created two separate manuals. One is for curriculum developers with details about how we mapped the EPAs to domains of competence, competencies, and their respective milestones, and the other is for frontline faculty and learners with just a description of the EPA, narrative and bulleted descriptions of learner behaviors, and clinical vignettes describing pre-entrustable and entrustable learners.

We hope you will find this a practical way to reframe your thinking about what we should expect from our medical school graduates. From the beginning, we have been guided by a focus on patient safety, so we are anxious to see this “bench” work translated into real differences “at the bedside.” We look forward to learning from you as we now move from the learning phase to the testing and implementation phases of the Core Entrustable Professional Activities for Entering Residency.

The Core Entrustable Professional Activities for Entering Residency Drafting Panel

## Acknowledgments

---

We would like to acknowledge our Advisory Panel, which met September 19, 2012, to help us set the course for this project:

**Robert G. Carroll, Ph.D.**

Assistant Dean for Academic Affairs  
in the Basic Sciences  
Brody School of Medicine  
East Carolina University

**Jason R. Frank, M.D., M.A. (Ed.), FRCPC**

Director, Specialty Education Strategy, and Standards  
Royal College of Physicians and Surgeons of Canada

**Tracy B. Fulton, Ph.D.**

Professor, Biochemistry and Biophysics  
Competency Director, Medical Knowledge  
University of California at San Francisco

**Heather Hageman**

Director of Educational Planning and Program  
Assessment  
Director, Standardized Patient Program  
Washington University School of Medicine

**Janet E. Lindsley, Ph.D.**

Associate Professor of Biochemistry  
Assistant Dean of Curriculum  
University of Utah

**Deborah Simpson, Ph.D., M.A.**

Medical Education Program Director,  
Aurora Health Care  
Clinical Adjunct Professor of Family Medicine, University  
of Wisconsin School of Medicine and Public Health

**Mark C. Wilson, M.D., M.P.H.**

Associate Dean, Graduate Medical Education  
University of Iowa, Carver College of Medicine  
DIO, University of Iowa Hospitals and Clinics

---

We wish to thank the many individuals who were part of our Reactor Panel for their invaluable feedback throughout the process of developing the Core Entrustable Professional Activities for Entering Residency.

Special thanks also to Jan Bull, Lead Specialist for Competency-based Learning and Assessment at the AAMC, for her efforts at developing the background material for the Drafting Panel and for putting together this document.

We wish to thank Olle ten Cate for his vision in developing the concept of Entrustable Professional Activities (EPAs) and for his valuable feedback.

## Drafting Panel for Core Entrustable Professional Activities for Entering Residency

---

**Timothy Flynn, M.D., Chair**

Senior Associate Dean for Clinical Affairs  
University of Florida

**Stephanie Call, M.D., MSPH**

Program Director, Internal Medicine  
Virginia Commonwealth University

**Carol Carraccio, M.D., M.A.**

Vice President, Competency-based Assessment  
American Board of Pediatrics

**Lynn Cleary, M.D.**

Vice President for Academic Affairs  
State University of New York, Upstate

**Tracy B. Fulton, Ph.D.**

Professor, Biochemistry and Biophysics  
Competency Director, Medical Knowledge  
University of California at San Francisco

**Maureen Garrity, Ph.D.**

Dean for Student Affairs  
University of Colorado, Denver

**Steven Lieberman, M.D.**

Senior Dean for Administration  
University of Texas Medical Branch, Galveston

**Brenessa Lindeman, M.D.**

Resident Physician, General Surgery  
Member, AAMC Board of Directors  
Johns Hopkins University

**Monica L. Lypson, M.D., MHPE**

Professor of Internal Medicine and Medical Education  
Assistant Dean for Graduate Medical Education  
University of Michigan Medical School

**Rebecca Minter, M.D.**

Associate Chair of Education, Department of Surgery;  
and Associate Program Director, General Surgery  
University of Michigan

**Jay Rosenfield, M.D., M.Ed.**

Vice Dean, Undergraduate Medical Professions  
Education  
University of Toronto

**Joe Thomas, M.D.**

Intern, Emergency Medicine  
Mayo Clinic

**Mark C. Wilson, M.D., M.P.H.**

Associate Dean, Graduate Medical Education  
University of Iowa, Carver College of Medicine  
DIO, University of Iowa Hospitals and Clinics

**AAMC Staff**

**Carol A. Aschenbrener, M.D.**

Chief Medical Education Officer

**Robert Englander, M.D., M.P.H.**

Senior Director, Competency-based Learning and  
Assessment

For inquiries and correspondence, contact Dr. Robert  
Englander at [renglander@aamc.org](mailto:renglander@aamc.org).

## Table of Contents

Background and Context for the Core EPAs for Entering Residency . . . . .	2
How to Use this Document . . . . .	6
EPA 1: Gather a history and perform a physical examination . . . . . (Primary authors: Stephanie Call, Tracy Fulton)	7
EPA 2: Prioritize a differential diagnosis following a clinical encounter . . . . . (Primary authors: Maureen Garrity, Brenessa Lindeman)	10
EPA 3: Recommend and interpret common diagnostic and screening tests . . . . . (Primary authors: Steven Lieberman, Monica Lypson)	13
EPA 4: Enter and discuss orders and prescriptions . . . . . (Primary authors: Rebecca Minter, Jay Rosenfield)	17
EPA 5: Document a clinical encounter in the patient record . . . . . (Primary authors: Carol Carraccio, Lynn Cleary)	20
EPA 6: Provide an oral presentation of a clinical encounter . . . . . (Primary authors: Rebecca Minter, Jay Rosenfield)	23
EPA 7: Form clinical questions and retrieve evidence to advance patient care . . . . . (Primary authors: Stephanie Call, Tracy Fulton)	26
EPA 8: Give or receive a patient handover to transition care responsibility . . . . . (Primary authors: Joe Thomas, Mark Wilson)	29
EPA 9: Collaborate as a member of an interprofessional team . . . . . (Primary authors: Carol Carraccio, Lynn Cleary)	32
EPA 10: Recognize a patient requiring urgent or emergent care and initiate evaluation and management . . . . . (Primary authors: Joe Thomas, Mark Wilson)	34
EPA 11: Obtain informed consent for tests and/or procedures . . . . . (Primary authors: Robert Englander, Timothy Flynn)	38
EPA 12: Perform general procedures of a physician . . . . . (Primary authors: Maureen Garrity, Brenessa Lindeman)	41
EPA 13: Identify system failures and contribute to a culture of safety and improvement . . . . . (Primary author: Robert Englander)	43
Appendix: Bulleted list of expected behaviors for pre-entrustable and entrustable learners . . . . .	46
References . . . . .	60

For a complete version of the Core Entrustable Professional Activities for Entering Residency Drafting Panel Report, please go to: [www.mededportal.org/icollaborative/resource/887](http://www.mededportal.org/icollaborative/resource/887)

## Background and Context for the Core EPAs for Entering Residency

Over the past several years, program directors have increasingly expressed concern that some medical school graduates are not prepared for residency.<sup>1-3</sup> Efforts are under way in both the United States and Canada<sup>4,5</sup> to better define the requirements at key transition points in the formation of physicians (college to medical school, medical school to residency, and residency to practice or fellowship).

Liaison Committee for Medical Education (LCME) standards require all accredited schools to have educational objectives that are grounded in outcomes valued by the profession and the public. Most schools have “graduation competencies” or “graduation objectives” that are linked to foundational competencies and to the unique mission of the school. However, *as of yet there has been no agreement in the undergraduate medical education (UME) community about a common core set of behaviors that could/should be expected of all graduates.* In 2013, the Accreditation Council for Graduate Medical Education (ACGME) in partnership with the American Board of Medical Specialties (ABMS) initiated the Milestone Project<sup>6</sup> to define progressive levels of performance for each competency, with the expectation that residents achieve specific milestones before graduating from training and taking their specialty certification examination. The time is right to identify a short list of integrated activities to be expected of all M.D. graduates making the transition from medical school to residency: the Core Entrustable Professional Activities for Entering Residency.

The AAMC convened an experienced Drafting Panel to engage in this important effort. The Drafting Panel had a student, a resident, and a basic scientist as well as distinguished medical educators who represented the continuum from undergraduate medical education through practice. The work of the Drafting Panel builds on previous work, including the AAMC Project on the Clinical Education of Medical Students<sup>4</sup>, the Milestones Project<sup>6</sup>, published studies of the UME-GME transition,<sup>7-9</sup> and the recently published “Reference List of General Physician Competencies.”<sup>10</sup>

### Conceptual Framework Chosen for This Work

To develop a conceptual framework, the members of the Drafting Panel first agreed on the following shared definitions:

1. *Competency*: An observable ability of a health professional, integrating multiple components such as knowledge, skills, values, and attitudes. Since competencies are observable, they can be measured and assessed to ensure their acquisition.<sup>11</sup>
2. *Entrustable Professional Activity (EPA)*: EPAs are units of professional practice, defined as tasks or responsibilities that trainees are entrusted to perform unsupervised once they have attained sufficient specific competence. EPAs are independently executable, observable, and measurable in their process and outcome, and, therefore, suitable for entrustment decisions.<sup>12</sup>
3. *Milestone*: A milestone is a behavioral descriptor that marks a level of performance for a given competency (derived from the ACGME Milestones project<sup>6</sup>).

After considering the benefits and disadvantages of the two prevailing conceptual frameworks in the literature, competencies and Entrustable Professional Activities (EPAs),<sup>13</sup> the Drafting Panel decided to proceed with EPAs (see Table 1). The reader should note that EPAs and competencies are not mutually exclusive. To the contrary, EPAs by definition require the integration of competencies, and competencies are best assessed in the context of performance (as can be provided by the EPA framework). The relationship between EPAs, competencies, and milestones is further explored in Figure 2.



**Table 1. Comparison of the Benefits and Disadvantages of the Two Conceptual Frameworks Considered: Competencies and EPAs**

	EPAs	Competencies
<b>Benefits</b>	<ul style="list-style-type: none"> <li>• EPAs are “activities,” which make sense to faculty, trainees, and the public</li> <li>• Represent the day-to-day work of the professional</li> <li>• Situate competencies and milestones in the clinical context in which we live</li> <li>• Make assessment more practical by clustering milestones into meaningful activities</li> <li>• Explicitly add the notions of trust and supervision into the assessment equation</li> </ul>	<ul style="list-style-type: none"> <li>• Competencies have been the basis for assessment in the GME space for a decade</li> <li>• In the aggregate, define the “good physician”</li> <li>• Have a reasonable body of evidence around assessment of the “traditional” domains (medical knowledge and patient care)</li> <li>• Have been used for establishing or developing milestones of performance for at least the GME years</li> </ul>
<b>Disadvantages</b>	<ul style="list-style-type: none"> <li>• Were relatively recently introduced in the literature</li> <li>• Have had little operationalization worldwide</li> <li>• Were designed originally for the residency-to-practice transition</li> </ul>	<ul style="list-style-type: none"> <li>• Are abstract</li> <li>• Are granular and therefore often not the way we think about or observe learners</li> </ul>

### Charge to the Core EPAs for Entering Residency Drafting Panel

As a result of the chosen conceptual framework, the Drafting Panel was charged with the following:

To delineate those **activities that all entering residents should be expected to perform on day 1 of residency without direct supervision**, regardless of specialty. We used the ACGME definitions for direct and indirect supervision<sup>14</sup>:

- 1) *Direct Supervision*: The supervising physician is physically present with the resident and the patient.
- 2) *Indirect Supervision* is broken down into two levels:
  - a. *Direct Supervision Immediately Available*: The supervising physician is physically within the hospital or other site of patient care and is immediately available to provide direct supervision.
  - b. *Direct Supervision Available*: The supervising physician is not physically present within the hospital or other site of patient care, but is immediately available by means of telephonic and/or electronic modalities, and is available to provide direct supervision.

## Guiding Principles

Before delineating the Core EPAs for Entering Residency, the Drafting Panel defined the following principles to guide our work:

### A. General

- The primary motivation for this work is patient safety. We focused on aligning the professional development at the UME-GME transition with safe, effective, and compassionate care.
- A secondary motivation is to enhance the confidence of new residents, program directors, and patients with respect to the residents' abilities to perform the activities they will be expected to do without direct supervision when they enter residency.
- The activities will represent a necessary but not sufficient set of competencies for entering residents, a "core," not a ceiling.
- These activities are intended to supplement, not replace, the mission- and specialty-specific graduation competencies of the individual medical schools and specialties.

### B. Implementation Principles

- The success of this work will require faculty development in teaching the EPAs, direct observation, using tools for workplace assessment, and delivering feedback.

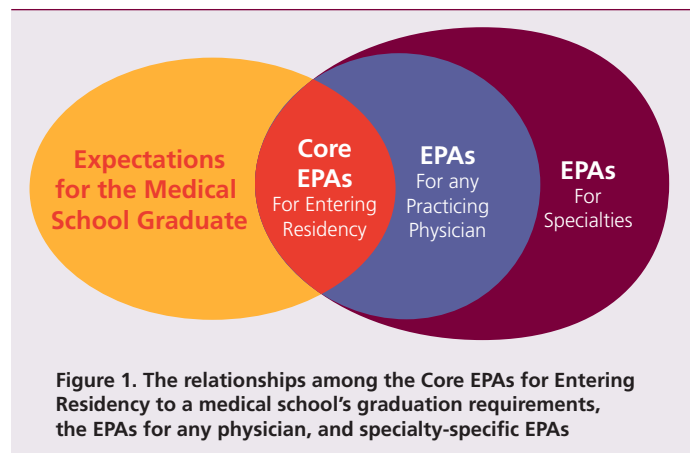
### C. Assessment Principles

- Assessment must be considered through every step of this process.
- Assessment of these activities must embrace qualitative feedback based on direct observation.
- Cost, feasibility and educational impact should be added to the validity and reliability considerations of new or existing assessment tools.<sup>15</sup>

- Critical competencies and their milestones should be linked to the EPAs to provide a shared mental model of expected behavior for new residents that will help faculty and students in assessment.
- The *ideal* implementation and assessment system will give students many opportunities to practice with repeated, low-stakes formative assessments, culminating in entrustment decisions for each of the 13 EPAs by the time they graduate.

## Relationship between the Core EPAs for Entering Residency and School or Specialty-Specific EPAs

The Core EPAs for Entering Residency are designed to be a subset of all of the graduation requirements of a medical school. Individual schools may have additional mission-specific graduation requirements, and specialties may have specific EPAs that would be required after the student has made the specialty decision but before residency matriculation. The Core EPAs may also be foundational to an EPA for any practicing physician or for specialty-specific EPAs. The relationships among Core EPAs for Entering Residency, medical school graduation requirements, EPAs for all physicians, and specialty-specific EPAs are depicted in Figure 1.



## The Relationships among EPAs, Competencies, and Milestones

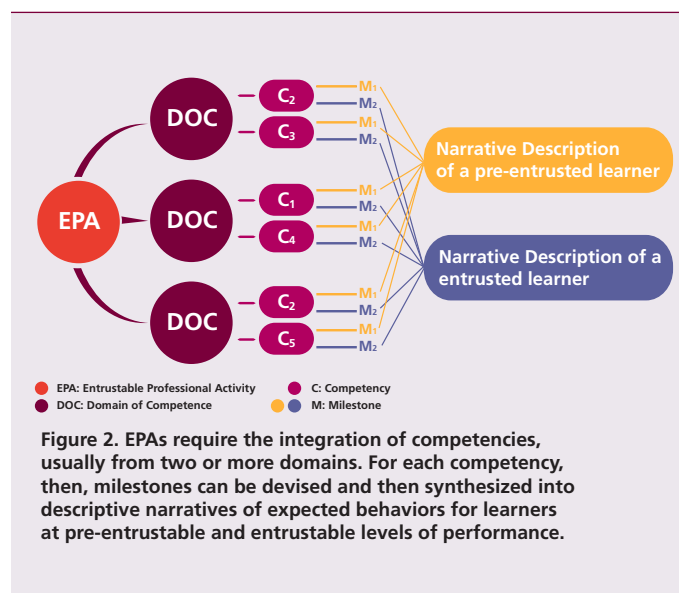
Before discussing the relationships among EPAs, competencies, and milestones, we want to emphasize that *two competencies are foundational to all of the EPAs* because they are required for any entrustment decision: 1) *trustworthiness* and 2) *self-awareness of limitations that leads to appropriate help-seeking behavior*.<sup>16</sup> Therefore, both of these competencies should be documented in a learner's portfolio before any entrustment decision is made.

The relationship between EPAs and competencies has been elucidated in the literature.<sup>12,17</sup> EPAs are units of work, while competencies are abilities of individuals. One of the defining markers of an EPA is that its performance requires integration of competencies, usually across domains. To apply that concept to this work, the Drafting Panel did a mapping exercise to determine the five to eight competencies most critical to making an entrustment decision for each of the 13 EPAs. We chose the competencies from the "Reference List for General Physician Competencies."<sup>10</sup>

Furthermore, we wanted to underscore that Interpersonal and Communication Skills (ICS) and Professionalism competencies are integrated throughout the Core EPAs for Entering Residency. Appendix D is a table that displays the number of times each competency was linked to one of the EPAs as a critical component of a supervisor's entrustment decision. Readers can see in that appendix that ICS and Professionalism competencies are among the most frequently cited as critical to performing the EPAs. In fact, ICS competencies 1 and 2, which refer to effective communication with patients and families (ICS 1) and with intra- and interprofessional colleagues (ICS 2), respectively, have the highest number of links to the EPAs.

While the relationship between EPAs and competencies is relatively well-defined in the literature, the relationship between EPAs and milestones is not. The EPAs provide the clinical context for the competencies. As such, each EPA can be mapped to the competencies that are critical to making an entrustment decision. Each competency, then, has milestones associated with it that represent behavioral markers of increasing levels of performance. Thus, an EPA is directly related to the milestones for those competencies that are critical to entrustment decisions for that EPA.

Once we determined the critical competencies for each EPA, we sought to develop milestones for each of the competencies. We used the pool of milestones from Pediatrics (PEDS)<sup>18</sup>, Surgery (SURG)<sup>19</sup>, Emergency Medicine (EM)<sup>20</sup>, Internal Medicine (IM)<sup>21</sup>, and Psychiatry (PSYCH)<sup>22</sup> and the Core Competencies for Interprofessional Collaboration (IPEC)<sup>23</sup> that were published when the EPAs were written. We developed two milestones for each competency: 1) the milestone at which a learner would be considered "pre-entrustable" (i.e., *not yet worthy* of entrustment to perform the activity without direct supervision) and 2) the milestone at which a learner would be considered "entrustable" (i.e., *worthy* of entrustment to perform the activity without direct supervision). We then synthesized the combined milestones for the pre-entrustable learner to create both a narrative and a bulleted description of the learner at this level, and we did the same using the milestones for the entrustable learner. Once we had created these behavioral descriptions, we translated them into clinical vignettes that can be used as the basis for faculty development and for assessment via vignette matching.<sup>24</sup> As conceived for the Core EPAs for Entering Residency, the relationships among EPAs, competencies, and milestones are illustrated in Figure 2.



## How to Use This Document

### Contents

This document delineates 13 EPAs that all entering residents should be expected to perform on day 1 of residency without direct supervision regardless of specialty choice.

Each EPA has the following sections:

- Description of the EPA with associated critical functions
- A narrative for each EPA of the expected behaviors for pre-entrustable and entrustable learners based on the milestones
- Vignettes for each EPA that illustrate what the pre-entrustable and entrustable learners might look like in a clinical setting

The Appendix lists the behaviors expected of a pre-entrustable and entrustable learner in bulleted form.

### Using the Guide for Developing Faculty

The EPA descriptions, the expected behaviors, and the vignettes are expected to serve as the foundation for faculty development. Faculty can use this guide as a reference for both feedback and assessment in pre-clinical and clinical settings. We have created this version of the document for frontline faculty and learners by retaining *only* the detail essential for observing and assessing the EPAs and making entrustment decisions. This document is available online and is titled Core Entrustable Professional Activities for Entering Residency: Faculty and Learners' Guide.

### Using the Guide for Developing Learners

Learners can also use this document to understand the core of what is expected of them by the time they graduate. The EPA descriptions themselves delineate the expectations, while the developmental progression laid out from pre-entrustable to entrustable behaviors can serve as the roadmap for achieving them.

## EPA 1: Gather a history and perform a physical examination

<p><b>Description of the activity</b></p>	<p>Day 1 residents should be able to perform an accurate complete or focused history and physical exam in a prioritized, organized manner without supervision and with respect for the patient. The history and physical examination should be tailored to the clinical situation and specific patient encounter. This data gathering and patient interaction activity serves as the basis for clinical work and as the building block for patient evaluation and management. Learners need to integrate the scientific foundations of medicine with clinical reasoning skills to guide their information gathering.</p> <p><b>Functions</b></p> <p><b>History</b></p> <ul style="list-style-type: none"> <li>• Obtain a complete and accurate history in an organized fashion.</li> <li>• Demonstrate patient-centered interview skills (attentive to patient verbal and nonverbal cues, patient/family culture, social determinants of health, need for interpretive or adaptive services; seeks conceptual context of illness; approaches the patient holistically and demonstrates active listening skills).</li> <li>• Identify pertinent history elements in common presenting situations, symptoms, complaints, and disease states (acute and chronic).</li> <li>• Obtain focused, pertinent histories in urgent, emergent, and consultative settings.</li> <li>• Consider cultural and other factors that may influence the patient’s description of symptoms.</li> <li>• Identify and use alternate sources of information to obtain history when needed, including but not limited to family members, primary care physicians, living facility, and pharmacy staff.</li> <li>• Demonstrate clinical reasoning in gathering focused information relevant to a patient’s care.</li> <li>• Demonstrate cultural awareness and humility (for example, by recognizing that one’s own cultural models may be different from others) and awareness of potential for bias (conscious and unconscious) in interactions with patients.</li> </ul> <p><b>Physical Exam</b></p> <ul style="list-style-type: none"> <li>• Perform a complete and accurate physical exam in logical and fluid sequence.</li> <li>• Perform a clinically relevant, focused physical exam pertinent to the setting and purpose of the patient visit.</li> <li>• Identify, describe, and document abnormal physical exam findings.</li> <li>• Demonstrate patient-centered examination techniques that reflect respect for patient privacy, comfort, and safety (e.g., explaining physical exam maneuvers, telling the patient what one is doing at each step, keeping patients covered during the examination).</li> </ul>
---	--

## Pre-Entrustable Learners

### Expected behaviors for a pre-entrustable learner

The learner at this level demonstrates underdeveloped skill in history gathering, manifested as errors of omission or commission in gathering information. This learner may also incorrectly perform physical exam maneuvers and may miss key physical exam findings. These gaps in demonstrated skill may be due to a limited ability to filter, prioritize, and connect pieces of information to each other; to prior clinical encounters; or to existing factual knowledge. The pre-entrustable learner may make decisions based on intuition or a limited ability to develop relevant mental models rather than on appropriate information. The learner inconsistently demonstrates use of patient-centered information gathering and physical exam skills and may either generalize based on a patient's background or pay inadequate attention to the patient's individual background.

### Vignette for a pre-entrustable learner

Zhongshu is seeing patients in the free clinic as part of a primary care team. Her first patient of the day is Mr. Rodriguez, for whom the nursing triage sheet documents a chief complaint of cough. Mr. Rodriguez is new to the clinic. He is fully clothed and sitting on the examination table when Zhongshu walks into the room. Zhongshu closes the door and stands, leaning against the wall, with a tablet in hand to take notes and document in the chart. Zhongshu starts her history-taking by saying, "The nurses said you have a cough. How long has it been going on?" She follows this with a series of questions regarding the description and progression of the cough. She finds that the patient has a chronic cough that seems to have gotten acutely worse. She asks about associated symptoms and inciting or relieving factors. She asks pertinent questions about history such as smoking, exposure to sick contacts, and known lung disease. She takes a full medical history, including medications, and details a family tree in the chart. Social history points include marital status, current living situation, and substance use history. She does not include occupational or travel history. She does not demonstrate curiosity about Mr. Rodriguez' cultural context or elicit his health beliefs.

After she is done taking the history, Zhongshu says, "OK, Mr. Rodriguez, I am going to take a look at you." She starts by auscultating the lungs in six areas, first

under the shirt then moving to over the shirt for the upper lung zones. During the lung exams, she asks the patient to "take some deep breaths." She then listens to the heart in four areas. Next, she grabs the otoscope on the wall and uses it to check pupillary reaction to light and eye movements (asking the patient to look up, to the side, and down), looks inside the oropharynx, and then grabs the ear piece to look at the ear. She does a brief but appropriate examination of the abdomen and checks the skin for rashes and feet for pulses. She does not note the temporal muscle wasting or the bilateral cervical adenopathy that is present.

After the examination, Zhongshu tells the patient that she will be discussing him with the primary care team and will return. As she is leaving the room, Mr. Rodriguez asks timidly, "What do you think is causing my cough?" Zhongshu turns and answers, "I am sure that it is nothing serious, probably an upper respiratory infection or bronchitis. There are some medications that cause coughs, but you are not on them. We will probably get a chest X-ray." She then walks out of the room.

## Entrustable Learners

### Expected behaviors for an entrustable learner

The learner at this level is routinely able to gather an accurate complete history and can also gather a focused history in an urgent, emergent, or consultation setting. When necessary, the learner identifies and uses alternative sources of information beyond the patients themselves and ensures appropriate communication by using interpreter services when necessary. The entrustable learner can perform an accurate complete physical exam or a focused physical exam pertinent to the patient visit, identify and document abnormal findings, and describe such findings to team members. For the entrustable learner, analytic reasoning and the abilities to activate prior foundational knowledge and prior clinical experience underlie the choice of either a complete or a focused history and physical exam and guide the gathering of information relevant to the patient's care. The learner at this level consistently uses patient-centered interview skills and physical exam techniques that, even under conditions of stress or fatigue, demonstrate respect for patients, insight about patients' emotional responses, sensitivity toward each patient's unique background and needs, and the ability to communicate bidirectionally.

### Vignette for an entrustable learner

Zhongshu is seeing patients in the free clinic as part of a primary care team. Her first patient of the day is Mr. Rodriguez, for whom the nursing triage sheet documents a chief complaint of cough. Mr. Rodriguez is new to the clinic. Before entering the room, Zhongshu asks the nurse if an interpreter is needed; she clarifies that the patient's first language is Spanish but that he has full ability to communicate in English. Mr. Rodriguez is fully clothed and sitting on the examination table when Zhongshu walks into the room. Zhongshu closes the door and invites the patient to sit in the chair while they review his history. Zhongshu grabs the stool and wheels it over so that she can sit facing the patient. She asks Mr. Rodriguez if he minds if she jots down a few notes while they are talking. Zhongshu starts her history-taking with: "Mr. Rodriguez, it is great to meet you. My name is Zhongshu Tang. You can call me Dr. Tang. I am working with the primary care team today. What brings you to the clinic today?" Upon eliciting the complaint of a cough, she says, "Tell me a bit more about the cough," and uses several techniques such as repeating back what she has heard, providing summary statements, and asking follow-up questions to elicit the pertinent details of the history. She finds that the patient has a chronic cough that seems to have gotten acutely worse. She asks about associated symptoms and symptoms related to potential diagnoses such as gastroesophageal reflux disease, allergic rhinitis, asthma and malignancy. She also identifies important risk factors for different diagnoses such as occupational history, travel history, and alcohol use. She takes detailed medical history, including the use of prescription, over-the-counter, and other medications and drugs; pertinent family history; social history; and information about allergies (including reactions). She specifically asks Mr. Rodriguez what he believes is causing the cough and if he has seen any healers or other providers. She identifies that he has seen a lay healer and tried some folk remedies including ajo (garlic) and gordolobo (mullein) tea. She concludes by asking, "Mr. Rodriguez, do you think that I have missed anything important in your medical history or about your cough?"

After she is done taking the history, Zhongshu says, "OK, Mr. Rodriguez, I would like to do a full examination at this point. I will step out and let you change into a gown, which is located in this drawer. I will be back in a minute. Is there anything else that you

need right now?" Zhongshu steps into the hall briefly, closing the door behind her. She returns to the room and states, "Mr. Rodriguez, I would like to do a full examination from head to toe. I am going to explain to you what I am doing at each point, but please let me know if you have questions." She starts by examining the head, eyes, ears, nose, and throat, telling the patient what she is doing before she touches the patient at each step. She notes that there is temporal wasting and inquires about recent weight loss and a bit about diet. She also notes cervical adenopathy and asks the patient about tenderness and duration. She does a thorough lung examination, removing or moving the gown so that she can auscultate directly at each point. She auscultates, then performs more detailed maneuvers such as listening for egophony and percussion. She moves through the rest of the exam, performing each part thoroughly and continuing to tell the patient what she is doing. Throughout the exam, she pays careful attention to draping and patient modesty and comfort.

After the examination, Zhongshu tells the patient that she will be discussing him with the primary care team and will return. She asks if there is anything else that Mr. Rodriguez has thought of during the exam and if Mr. Rodriguez has any further questions. As she is leaving the room, Mr. Rodriguez asks timidly, "What do you think is causing my cough?" Zhongshu turns, closes the door again, and sits down on the stool to answer the question. She first asks, "Is there something that you are worried about?" Mr. Rodriguez admits that he is worried about cancer. Zhongshu reviews that there are several causes of chronic cough, including upper airway cough syndrome, gastroesophageal reflux disease, asthma, allergies, chronic bronchitis, primary pulmonary diseases, and chronic infections. She explains that that is why she was asking so many questions, looking for clues to the underlying cause. She states that lung cancer can present as a chronic cough. She reassures the patient that she will discuss the symptoms and physical examination with the team and that they will pursue a work-up to find the cause. She asks again if the patient has any further questions and explains that she will be right back. She then walks out of the room.

## EPA 2: Prioritize a differential diagnosis following a clinical encounter

<b>Description of the activity</b>	<p>To be prepared for the first day of residency, all physicians need to be able to integrate patient data to formulate an assessment, developing a list of potential diagnoses that can be prioritized and lead to selection of a working diagnosis. Developing a differential diagnosis is a dynamic and reflective process that requires continuous adaptation to avoid common errors of clinical reasoning such as premature closure.</p> <p><b>Functions</b></p> <ul style="list-style-type: none"> <li>• Synthesize essential information from the previous records, history, physical exam, and initial diagnostic evaluations.</li> <li>• Integrate information as it emerges to continuously update differential diagnosis.</li> <li>• Integrate the scientific foundations of medicine with clinical reasoning skills to develop a differential diagnosis and a working diagnosis.</li> <li>• Engage with supervisors and team members for endorsement and verification of the working diagnosis in developing a management plan.</li> <li>• Explain and document the clinical reasoning that led to the working diagnosis in a manner that is transparent to all members of the health care team.</li> <li>• Manage ambiguity in a differential diagnosis for self and patient and respond openly to questions and challenges from patients and other members of the health care team.</li> </ul>
------------------------------------	--

### Pre-Entrustable Learners

#### Expected behaviors for a pre-entrustable learner

The learner at this level approaches assessment of a patient problem largely from a rigid template based on associations made between symptoms or physical exam findings and diagnoses. This learner may not gather all pertinent information from the patient's history or physical exam findings, leading to a differential diagnosis that is too narrow or contains inaccuracies. The learner at this level has a limited ability to filter, prioritize, and make connections between information gathered from primary and secondary sources, including the patient's history, physical exam, and diagnostic evaluations such as laboratory and radiographic studies. Additionally, this learner has a limited ability to identify and reflect on pertinent information as it emerges in order to continuously update the differential diagnosis and avoid errors of clinical reasoning, such as premature closure.

The pre-entrustable learner may overly rely on supervisors and team members for development of the differential diagnosis and selection of a working diagnosis and may not be able to articulate a cohesive management plan. When this learner does offer a management plan, it may not be sufficiently inclusive of all items in the differential, thereby missing confirmation or disconfirmation of important diagnoses. The pre-entrustable learner may also create and carry out a management plan without the required prior endorsement and/or verification of the working and differential diagnosis from supervisors. The management plans developed by the learner may, thus, include a broad range of diagnostic evaluations that are not tailored to the prioritized differential diagnosis; plans may disregard pre-test probability or relevant system factors.

The pre-entrustable learner has little insight into his limitations and may not be aware when his knowledge is insufficient for the situation at hand, leading to over- or underestimation of abilities and uneasiness when questioned by the patient or supervisor. This learner may come to premature closure. He or she may not be comfortable acknowledging ambiguity and may not



ask other health care providers on the team, including supervising physicians, nursing, or other staff, for help. The pre-entrustable learner may fail to document or may incompletely document the reasoning that led to the assessment and plan, which have errors that would be apparent to other team members.

### Vignette for a pre-entrustable learner

Tom is working at a general pediatrics clinic. He is asked to see Ben, a 3-year-old boy whose mother brought him in with a fever last night. Tom proceeds to gather a history from Ben's mom, who states that he was in his usual state of health until last night, when she noticed he felt warm. His temperature was 102.4, and she gave him Tylenol, which brought the fever down. Upon Tom's questioning, she notes that he has been drinking plenty of fluids. During the physical examination, Tom tells the mother that Ben has an erythematous pharynx and an erythematous, non-mobile right tympanic membrane.

Tom tells Ben's mother that he isn't sure exactly what is causing the fever, but he would like to obtain a strep test and a chest X-ray to be certain of what is going on. Ben's mother asks why a chest X-ray will be necessary, stating she is concerned about the radiation exposure for her son. Tom states he isn't sure, but the baby has a fever and might have pneumonia. He states he will discuss the case with his supervisor, Dr. Miller, and the two of them will return.

Tom gives a presentation about his encounter with Ben to Dr. Miller and lists his differential diagnosis as 1) strep throat, 2) ear infection, and 3) pneumonia. Dr. Miller asks Tom additional information about Ben's history, including hydration status and presence or absence of a productive cough. When Tom cannot provide the additional details, Dr. Miller also asks if he obtained Ben's past medical history. Tom says that he did not, and Dr. Miller informs him that Ben has a history of two prior ear infections and that because of the erythematous, non-mobile right tympanic membrane, ear infection is the most likely diagnosis.

Dr. Miller and Tom return to the exam room, and Dr. Miller confirms with Ben's mother that he has been making adequate urine and has not been suffering from a cough. Dr. Miller repeats Tom's physical exam and verifies the reported findings. He tells Ben's mom that a right ear infection is the working diagnosis

because of the red eardrum. He suggests a prescription for amoxicillin and a follow-up visit in 2 weeks to check the ears and make sure the infection has cleared. Mom asks about the strep test Tom mentioned, and Dr. Miller responds that because the plan is for a course of amoxicillin and the treatment for strep is the same, he thinks the test would not help and is therefore not worth the cost.

## Entrustable Learners

### Expected Behaviors for an entrustable learner

The individual at this level approaches development of the differential and working diagnosis of a patient problem with the ability to link current findings to prior clinical encounters. He gathers pertinent information not only from the patient but also from the patient's record and past history, using all the available data to propose a relevant set of differential diagnoses, neither too broad nor too narrow. This learner can usually understand how to relate current and emerging information to continuously update the differential diagnosis and is able to avoid most errors of clinical reasoning, such as premature closure.

The learner at this level has an understanding of his knowledge, strengths, and weaknesses. Entrustable learners know when to consult supervisors and team members in the development of their differential diagnosis and selection of a working diagnosis and can usually articulate a cohesive management plan that takes into account the items in the differential diagnosis. This learner engages with supervisors and team members for endorsement and verification of the working diagnosis in developing a management plan tailored to the prioritized differential diagnosis.

The entrustable learner is comfortable with some ambiguity, manifested as an ability to respond to questions or challenges from the patient, family, or supervisor in a professional manner even when uncertain about the answer. This learner feels comfortable seeking assistance from other members of the health care team. His documentation demonstrates evidence of clinical reasoning so that other providers will be able to ensure continuity of care for the patient.

### Vignette for an entrustable learner

Tom is working at a general pediatrics clinic. He is asked to see Ben, a 3 year-old boy whose mother brought him in with a fever last night. Before gathering the history from Ben's mom, he checks the medical record and finds that Ben has had two prior ear infections. As Tom gathers the history from Ben's mom, he learns that Ben was well until last night, when she noted a temperature of 102.4, and that Tylenol brought the fever down. He continues to be interested in play and is making adequate urine. When questioned, she denies productive cough. Tom tells Ben's mom that he sees a red throat and a red and non-moving eardrum on physical exam and that Ben's lung fields are clear.

Tom tells Ben's mother that he suspects an ear infection is the cause of the fever but that he is also considering a strep throat, given Ben's red throat. Tom tells Ben's mom that he will report his findings and plan to his supervisor, Dr. Miller.

Tom presents this encounter to Dr. Miller in a thorough yet focused manner and lists the differential diagnoses as ear infection, strep throat, or other pharyngitis, noting that because of the symptoms, physical exam findings, and past history, he believes that the most likely cause of the fever is an ear infection. Dr. Miller concurs with Tom's assessment and suggests that they return to the exam room to discuss the plan with Ben's mom. They enter the examination room and tell Mom the most likely diagnosis is an ear infection because of the red, non-moving eardrum. Tom states that since amoxicillin was effective for Ben's last infection, he will write a prescription for it. Mom asks about the strep test Tom mentioned, and Tom responds that because the plan is for a course of amoxicillin and the treatment for strep is the same, he thinks the test would not help and is therefore not worth the cost. He suggests that she return with Ben to see Dr. Miller in two weeks for a follow-up.

## EPA 3: Recommend and interpret common diagnostic and screening tests

<b>Description of the activity</b>	<p>This EPA describes the essential ability of the day 1 resident to select and interpret common diagnostic and screening tests* using evidence-based and cost-effective principles as one approaches a patient in any setting.</p> <p><b>Functions</b></p> <ul style="list-style-type: none"> <li>• Recommend first-line, cost-effective diagnostic evaluation for a patient with an acute or chronic common disorder or as part of routine health maintenance.</li> <li>• Provide a rationale for the decision to order the test.</li> <li>• Incorporate cost awareness and principles of cost-effectiveness and pre-test/post-test probability in developing diagnostic plans.</li> <li>• Interpret the results of basic diagnostic studies (both lab and imaging); know common lab values (e.g., electrolytes).</li> <li>• Understand the implications and urgency of an abnormal result and seek assistance for interpretation as needed.</li> <li>• Elicit and take into account patient preferences in making recommendations.</li> </ul> <p><b>*Common diagnostic and screening tests include the following:</b></p> <p><b>Plasma/serum/blood studies:</b></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 33%;">Arterial blood gases</td> <td style="width: 33%;">Culture and sensitivity</td> <td style="width: 33%;">HIV antibodies</td> </tr> <tr> <td>Bilirubin</td> <td>Electrolytes</td> <td>HIV viral load</td> </tr> <tr> <td>Cardiac enzymes</td> <td>Glucose</td> <td>Lipoproteins</td> </tr> <tr> <td>Coagulation studies</td> <td>Hepatic proteins</td> <td>Renal function tests</td> </tr> <tr> <td>CBC</td> <td>HgbA1c</td> <td>RPR</td> </tr> </table> <p><b>Urine studies:</b></p> <ul style="list-style-type: none"> <li>Chlamydia</li> <li>Culture and sensitivity</li> <li>Gonorrhea</li> <li>Microscopic analysis</li> <li>U/A dipstick</li> </ul> <p><b>Body fluids (CSF, pleural, peritoneal):</b></p> <ul style="list-style-type: none"> <li>Cell counts</li> <li>Culture and sensitivity</li> <li>Protein(s)</li> </ul>	Arterial blood gases	Culture and sensitivity	HIV antibodies	Bilirubin	Electrolytes	HIV viral load	Cardiac enzymes	Glucose	Lipoproteins	Coagulation studies	Hepatic proteins	Renal function tests	CBC	HgbA1c	RPR
Arterial blood gases	Culture and sensitivity	HIV antibodies														
Bilirubin	Electrolytes	HIV viral load														
Cardiac enzymes	Glucose	Lipoproteins														
Coagulation studies	Hepatic proteins	Renal function tests														
CBC	HgbA1c	RPR														

## Pre-Entrustable Learners\*

### Expected behaviors for a pre-entrustable learner

The pre-entrustable learner can recommend a standard set of studies for the patient and can provide a list of additional labs and imaging examinations thought to be useful for that particular patient. However, this learner is limited in her ability to discuss which panel(s) or individual lab value(s) or imaging studies are most important for specific patients. Additionally, she has difficulty justifying each recommendation and does not appear to have considered the impact a false-positive or false-negative test might have on the patient's work-up. At this level, the learner may not always provide the rationale for the recommended evaluation, and when she does, the rationale often does not include 1) considerations of pertinent risk factors identified from the history and physical examination, 2) other determinants of health that may modify the patient's risk profile, 3) considerations of pre-test and post-test probabilities, or 4) considerations of costs, either overall or out-of-pocket. Additionally, there is limited evidence that patient preferences have been factored into the recommendations.

When test results are received, the pre-entrustable learner may misinterpret common insignificant or explainable abnormalities as important or may fail to recognize important abnormalities and their urgency.

### Vignette #1 for a pre-entrustable learner

Terry has just taken a history and performed a physical examination on an 18-year-old woman who presented to the Emergency Department with a 2-week history of sharp chest pain. The patient was diagnosed with type 1 diabetes mellitus four weeks ago and is being treated with insulin. The chest pain is atypical for cardiac ischemia, and the patient has no known cardiovascular disease risk factors except diabetes. The patient does report polyuria. The previous medical records are not available for review. Physical exam findings—including vital signs—are normal. Following the presentation of the history and physical exam, Terry indicates that her working diagnosis is "rule out myocardial infarction." Her supervisor asks her to recommend a diagnostic evaluation with a rationale for each test. She recommends a basic chemistry panel to rule out

Diabetic Ketoacidosis (DKA), a CBC because the patient may need to be admitted, a urinalysis to help exclude DKA and urinary tract infection, a hemoglobin A1c to assess diabetic control, a lipid panel for risk factor identification, serum troponin I and creatine kinase levels, an ECG to rule out myocardial infarction, and a chest radiograph to exclude "other chest pathology." She reports having discussed these plans with the patient. The supervisor points out that given the presentation, a myocardial infarction is unlikely. He therefore suggests they forego the creatine kinase test given the almost zero pre-test probability, especially if the troponin comes back negative. Additionally, he asks Terry to review the chart to see when the hemoglobin A1c was last measured before ordering the test.

Serum studies show hyperglycemia and hyponatremia, and the urinalysis shows glycosuria, numerous squamous epithelial cells, 3 to 4 WBC/HPF, and a negative leukocyte esterase. ECG is normal. Troponin level is normal. Terry recommends admission to rule out myocardial infarction. She recommends a urine culture and sensitivity followed by broad-spectrum oral antibiotics for a urinary tract infection. She fails to recognize the hyponatremia as pseudo-hyponatremia due to hyperglycemia. The supervisor reiterates that this is unlikely to represent cardiac origin of the chest pain and explains the pseudo-hyponatremia to her. The supervisor also notes that while the squamous cells suggest the urinalysis was not "clean," the absence of significant WBC or leukocyte esterase make further evaluation unnecessary due to a low-to-absent pre-test probability. The supervisor also indicates that this is likely musculoskeletal pain and recommends discharge home from the Emergency Department with a non-steroidal anti-inflammatory drug (NSAID).

### Vignette #2 for a pre-entrustable learner

Margaret has been called down to the Emergency Room to see Ms. Smith, a 36-year-old who presented with severe abdominal pain of several hours duration. She has been unable to eat or find a comfortable position. The Emergency Room is busy, and Margaret begins her evaluation. The nurse notes that it is time for Ms. Smith to be admitted, so the supervising physician asks Margaret to report her initial thoughts and provide suggestions about next steps in the evaluation. Margaret presents the history of present

\*Note: For this EPA, two vignettes have been provided for the pre-entrustable and the entrustable learner.

illness and examination findings. When reviewing the labs, Margaret overlooks the positive beta-HCG and elevated alkaline phosphatase but states that the patient's white blood cell count is a little high but within normal limits. Finally, she provides detailed information on the picnic the patient attended that day and concern that she must immediately get a stool sample from Ms. Smith to rule out food poisoning.

In order to get a jump-start on things and help her team out, Margaret orders a comprehensive metabolic panel, lipase, amylase, CA-125, and a CT scan with contrast. Margaret volunteers to take the patient down to radiology for a CT scan as well to help make the diagnosis. Her supervisor thanks Margaret for her willingness to assist the team, but he cautions her about the possible implications of radiation in women of childbearing age until pregnancy is excluded. In addition, the supervisor discusses with Margaret the current lack of clear recommendations for screening for ovarian cancer.

## Entrustable Learners

### Expected behaviors for an entrustable learner

The entrustable learner provides an initial plan for laboratory tests and imaging studies that are targeted to the most important working diagnoses when discussing the next steps in a patient's care after a thorough history and physical exam. This learner is able to provide a rationale for each test. She provides information to the supervisor and other members of the health care team that attempts to place the patient's risk factors and clinical presentation in context and considers the patient's resources and preferences in making recommendations. The learner demonstrates cost awareness and attempts to apply cost-benefit considerations that are specific to the patient's condition, demographics, and ability to pay.

For common diagnostic tests, the learner at this level can cite relevant information on the likelihood and interpretation of a positive test. This learner also incorporates the patient's demographics and health behaviors into her recommendations for screening and diagnostic evaluations. At this level, the learner provides clear rationales for her diagnostic recommendations.

The entrustable learner methodically reviews each test and imaging result, interpreting the cause and urgency of abnormal values and seeking help for interpretation of tests that are beyond her scope of knowledge. She notes and attempts to interpret results that are unexpectedly normal.

### Vignette #1 for an entrustable learner

Terry has just taken a history and performed a physical examination on an 18-year-old woman who presented to the Emergency Department with a two-week history of sharp chest pain. The patient was diagnosed with type 1 diabetes mellitus four weeks ago and is being treated with insulin. The chest pain is atypical for cardiac ischemia, and the patient has no known cardiovascular risk factors except diabetes. The patient does report polyuria. The previous medical records are not available for review. Physical exam findings, including vital signs, are normal. Following the presentation of the history and physical exam, Terry indicates that her working diagnosis is "musculoskeletal chest pain." Her supervisor asks her to recommend a diagnostic evaluation with a rationale for each test. She recommends a basic chemistry panel to assess glucose and to exclude electrolyte imbalances that may accompany polyuria or the presumed hyperglycemia. She also recommends a urinalysis to assess polyuria. Despite the added expense, she recommends an ECG as baseline and a troponin 1 level to be sure that "we're not missing any pericarditis or something unusual." Terry defers a hemoglobin A1c as being too soon after initiation of therapy for diabetes, and she also defers a lipid panel until she can review the chart to see if it has already been done.

Terry discusses these recommendations with the patient and learns that she is insured under her parents' plan. Terry discusses with her the low likelihood of myocardial infarction and the caution needed in interpreting the ECG. The patient appreciates the attention to cost and is agreeable to the cardiac evaluation because she knew already that diabetic patients are at increased risk for heart disease.

Serum studies show hyperglycemia and hyponatremia. Urinalysis shows glycosuria, numerous squamous epithelial cells, 3 to 4 WBC/HPF, and a negative leukocyte esterase. ECG and troponin I tests are normal. Terry correctly interprets the urine collection

as a “dirty catch” but notes the lack of WBC and leukocyte esterase, telling her supervisor that she does not believe further testing is indicated. She correctly interprets the low sodium level as pseudo-hyponatremia due to hyperglycemia. She recommends an NSAID as needed for chest pain, suggests that the patient be reassured about the cause of her pain, and volunteers to explore further any concerns she may have about her pain and new diagnosis of diabetes.

### **Vignette #2 for an entrustable learner**

Margaret has been called down to the Emergency Room to see Ms. Smith, a 36-year-old who presented with severe abdominal pain of several hours duration. She has been unable to eat or find a comfortable position. The Emergency Room is busy, and Margaret begins her evaluation. The nurse notes that it is time for Ms. Smith to be admitted, so the supervising physician asks Margaret to share her initial thoughts and provide suggestions about next steps in the evaluation. Margaret presents the history of present illness and examination findings. She reports that while obtaining the history, she asked Ms. Smith what she thought was going on, and Ms. Smith mentioned that she might be pregnant. When reviewing the labs, Margaret notes first that Ms. Smith’s urine pregnancy test is positive and that not only must they consider abdominal causes of her pain, but a beta-HCG might be needed as ectopic pregnancy is in the differential as well. Margaret identifies the elevated alkaline phosphatase as an acute concern and notes that her white count that is higher than normal. She recommends an ultrasound, both to rule out gall bladder disease and to look for an ectopic pregnancy as the cause of pain. She chooses ultrasound out of concern for radiation exposure to the fetus and notes that if further testing is needed, the risk to the fetus must be considered.

## EPA 4: Enter and discuss orders and prescriptions

<p><b>Description of the activity</b></p>	<p>Writing safe and indicated orders is fundamental to the physician’s ability to prescribe therapies or interventions beneficial to patients. It is expected that physicians will be able to do this without direct supervision when they matriculate to residency. Entering residents will have a comprehensive understanding of some but not necessarily all of the patient’s clinical problems for which they must provide orders. They must also recognize their limitations and seek review for any orders and prescriptions they are expected to provide but for which they do not understand the rationale. The expectation is that learners will be able to enter safe orders and prescriptions in a variety of settings (e.g., inpatient, ambulatory, urgent, or emergent care).</p> <p><b>Functions</b></p> <ul style="list-style-type: none"> <li>• Demonstrate an understanding of the patient’s current condition and preferences that will underpin the orders being provided.</li> <li>• Demonstrate working knowledge of the protocol by which orders will be processed in the environment in which they are placing the orders.</li> <li>• Compose orders efficiently and effectively, such as by identifying the correct admission order set, selecting the correct fluid and electrolyte replacement orders, and recognizing the needs for deviations from standard order sets.</li> <li>• Compose prescriptions in verbal, written, and electronic formats.</li> <li>• Recognize and avoid errors by using safety alerts (e.g., drug-drug interactions) and information resources to place the correct order and maximize therapeutic benefit and safety for patients.</li> <li>• Attend to patient-specific factors such as age, weight, allergies, pharmacogenetics, and co-morbid conditions when writing or entering prescriptions or orders.</li> <li>• Discuss the planned orders and prescriptions (e.g., indications, risks) with patients and families and use a nonjudgmental approach to elicit health beliefs that may influence the patient’s comfort with orders and prescriptions.</li> </ul>
---	---

### Pre-Entrustable Learners

#### Expected behaviors for a pre-entrustable learner

The pre-entrustable learner has difficulty filtering and synthesizing key information from a patient’s history and physical examination to inform an understanding of a patient’s condition in a manner that enables safe and effective prioritization in ordering tests and therapies. This learner adopts a “shotgun” approach to orders, casting a wide, unfocused net that may, nonetheless, miss key tests needed and minimally considers costs of orders. The pre-entrustable learner acts impulsively in placing orders rather than pausing to consider the big picture and waiting for cause and effect to play out from earlier orders. She feels compelled to act and can be impatient and non-reflective. The learner does not take into account

patient preferences when placing orders and is often focused on her own needs and desire for information. She does not recognize when to tailor or deviate from a standard order set. The pre-entrustable learner can be defensive when questioned about orders and may be unable to clearly articulate the rationale behind the orders. She may be overly confident in her plans and may not seek sufficient review of orders despite her limited experience. This learner may place orders without communicating with the rest of the team and/or patients and families regarding plans. The learner, although technologically facile, has little ability to navigate the order-entry system and does not understand alerts or other system features that can aid the selection of order sets. The pre-entrustable learner may not follow established protocols for placing and carrying out orders within the system in which they are being placed. Common errors in prescription writing

and entry are made, with limited double-checking or knowledge of how to verify drug dosages, names, and interactions.

### Vignette for a pre-entrustable learner

Sheila is doing a rotation in pediatric orthopedic surgery, when she is called to the Emergency Department to assess an eight-year-old boy who was brought in after a motor vehicle accident. The paramedics tell Sheila that the child was initially transported to a community hospital close by. He was transferred to the tertiary children's hospital because it appeared that he had a femur fracture, and there was concern for significant blood loss. Sheila does not gather any other details about the accident or subsequent vital signs before the paramedics leave the Emergency Department. The patient's mother then arrives, and Sheila obtains a superficial history, identifying only that the boy is on medication for asthma without asking any details about the family background. She performs a quick physical, focused on the child's legs.

Sheila proceeds to the bedside computer, looks quickly for the order set labeled "trauma," and selects everything from that list. She orders 23 blood tests, with no thought about their indication. She orders three units of blood in case a transfusion is needed, requests X-rays of the lower limbs, and orders drugs for asthma. Sheila ignores the red triangle that appears on the computer screen beside the units of blood requested. She goes to meet with the mother and proceeds to list the tests being done, without asking the mom if this is OK or if she understands. Sheila then goes to the attending physician to present a straightforward case of a traumatic leg injury in an otherwise well child. She is questioned about the mechanism of injury but is unable to give details, perseverating instead on the probable need for blood transfusion.

In the meantime, the mother goes to the nursing station, politely tells the charge nurse that her English is not that strong, and asks the nurse to explain what is being done. The charge nurse gets an interpreter and discovers that the mother is a Jehovah's Witness and will not consent to any blood products. The mother also hands the charge nurse a CD that contains X-rays of the child's legs done at the community hospital before transfer. Mom indicates she is very nervous about her son getting any more radiation from X-rays. At this time, a note from the hospital pharmacy comes

back to the ED indicating that the dose of the asthma drug ordered is too high for the patient's age.

## Entrustable Learners

### Expected behaviors for an entrustable learner

The entrustable learner is able to synthesize the information at hand from the patient's history, physical exam, and review of existing studies to reach an understanding of the patient's current condition. This includes considering patient preferences and desires with respect to expectations for diagnostic and therapeutic next steps. With this big picture perspective, the entrustable learner is able to parsimoniously place orders in a thoughtful, stepwise process, awaiting results from one set of studies before making a decision to order additional tests. She is flexible in her thinking, and when faced with an unexpected result from a study, is able to interpret the result and adjust her plans for next steps. She communicates with patients as results become available and engages with patients when considering starting new medications or other treatments. When a patient asks about other options, she is able to articulate the risks and benefits of a given approach and to consider alternatives. The entrustable learner considers special patient demographics that may dictate a particular care pathway. This learner is able to effectively use care pathways and algorithms, yet can recognize when deviation is needed. She is also able to recognize and effectively use the safety alerts within the electronic medical record. When this learner is faced with a diagnostic or therapeutic need that is unfamiliar or that she is not comfortable with, she seeks the help of more experienced health care providers or other resources for guidance.

### Vignette for an entrustable learner

Sheila is doing a rotation in pediatric orthopedic surgery, when she is called to the Emergency Department to assess an eight-year-old boy who was brought in after a motor vehicle accident. Immediately upon the boy's arrival, Sheila assesses his vital signs and intravenous access and asks the paramedics for more information about the mechanism of injury and for details about the child's course since the accident. The paramedics tell Sheila that the child was initially transported to a community hospital close by. He was transferred to the larger tertiary children's hospital



because it appeared that he had a femur fracture, and there was concern for significant blood loss. Sheila verifies that the child has appropriate IV access and necessary monitoring in place and appears to be stable. She further queries the paramedics about the concerns about bleeding and reviews the outside hospital records to determine what work-up was completed there with respect to delineation of the femur fracture and evaluation for other injuries. She then performs her own complete physical exam. The boy's mother arrives, and it appears that English is not her first language, so Sheila requests an interpreter.

After assuring the boy's mother that he is currently stable and while awaiting the arrival of the interpreter, Sheila proceeds to the bedside computer to enter some orders. Because the boy had already undergone a full set of X-rays and a full panel of labs at the outside hospital, she elects to order only a CBC, type and screen, and basic metabolic panel at this time. The interpreter then arrives, and Sheila is able to obtain further history from the child's mother, learning that he has a history of asthma and that the family are Jehovah's Witnesses and refuse all blood products. Sheila returned to the computer to order the boy's asthma medication, and a safety alert pops up indicating an inappropriate dose. Sheila verifies the dose of his medication on the inhaler from the mother and re-enters the correct dose. She also enters an alert in the system regarding the parent's refusal of blood products for her son.

Sheila then presents the boy's case to the attending physician, noting her concern about the boy's anemia, which was just verified on repeat CBC, and the mother's refusal of blood products for her son. The attending physician asks Sheila if there are any alternatives to packed red blood cells for acute blood loss anemia and whether the mother might consider those alternatives. Sheila states she does not know but will investigate other options, report back, and discuss her findings with the mother. Pending this discussion, she will seek her attending's guidance before placing the order for alternative therapies that are not familiar to her. She also reports that she is seeking interpretation of the outside films to verify that no additional imaging is needed.

## EPA 5: Document a clinical encounter in the patient record

<b>Description of the activity</b>	<p>Entering residents should be able to provide accurate, focused, and context-specific documentation of a clinical encounter in either written or electronic formats. Performance of this EPA is predicated on the ability to obtain information through history, using both primary and secondary sources, and physical exam in a variety of settings (e.g., office visit, admission, discharge summary, telephone call, email). Documentation is a critical form of communication that supports the ability to provide continuity of care to patients and allows all health care team members and consultants to</p> <ol style="list-style-type: none"> <li>1. Understand the evolution of the patient’s problems, diagnostic work-up, and impact of therapeutic interventions.</li> <li>2. Identify the social and cultural determinants that affect the health of the patient.</li> <li>3. View the illness through the lens of the patients and family.</li> <li>4. Incorporate the patient’s preferences into clinical decision making.</li> </ol> <p>The patient record is a <i>legal document</i> that provides a record of the transactions in the patient-physician contract.</p> <p><b>Functions</b></p> <ul style="list-style-type: none"> <li>• Filter, organize, and prioritize information.</li> <li>• Synthesize information into a cogent narrative.</li> <li>• Record a problem list, working and differential diagnosis and plan.</li> <li>• Choose the information that requires emphasis in the documentation based on its purpose (e.g., Emergency Department visit, clinic visit, admission History and Physical Examination).</li> <li>• Comply with requirements and regulations regarding documentation in the medical record.</li> <li>• Verify the authenticity and origin of the information recorded in the documentation (e.g., avoids blind copying and pasting).</li> <li>• Record documentation so that it is timely and legible.</li> <li>• Accurately document the reasoning supporting the decision making in the clinical encounter for any reader (e.g., consultants, other health care professionals, patients and families, auditors).</li> <li>• Document patient preferences to allow their incorporation into clinical decision making.</li> </ul>
------------------------------------	---

## Pre-Entrustable Learners

### Expected behaviors for a pre-entrustable learner

Documentation follows a standard template regardless of the intended audience or purpose of the communication. Availability of documentation may be delayed and may be missing necessary elements but may also include unnecessary or redundant information, inaccurate information from cutting and pasting pieces of the electronic health record (EHR), as well as prohibited abbreviations. The note may not include date, time, and signature as well as other institutionally required information. Written forms are not always legible.

Documentation of the history does not demonstrate pursuit of primary or secondary sources to fill gaps. Documentation of part of the physical examination and/or laboratory values may not be verifiable by others. The note reflects lack of time or skill or both or frustration in navigating the system to piece together various sources of information required for accuracy (e.g., medication reconciliation is not accurate and complete) and does not identify gaps in care when they occur. Clinical reasoning is not reflected in the note, and laboratory values may be interpreted literally or inaccurately. Thus, management plans are based on directives from others and limited help-seeking behaviors often leave gaps in understanding. Communication may be unidirectional or may not consider the patient's cultural context or health beliefs, resulting in plans that may not address patient preferences.

### Vignette for a pre-entrustable learner

As the attending on service, you review the admission note of the learner, Meena, assigned to your team. Meena was asked to evaluate Griffin, a three-year-old boy with cystic fibrosis being readmitted after a recent admission for pneumonia and failure to thrive, who now presents with persistent cough, listlessness, and poor oral intake. When you round at 8 a.m. the morning after admission, there is no recorded history and physical, so you return in late morning to review it. The admission note has a date but no time or signature.

Meena's admission history documents that Griffin was doing well for the first couple of days after his last discharge and then his cough worsened. She wrote

that he hasn't been eating or drinking much and spends the day lying on the couch watching TV. The note indicates poor oral intake, but there is no mention of urine output or the pattern of bowel movements. Several other pertinent negative aspects of the history are not mentioned (e.g., color or amount of sputum, history of abdominal pain or urinary symptoms, fever, sweating). She gives the dates of the recent admission but does not mention results of sputum cultures or chest radiograph. She lists the medications from his discharge summary as his current medication list, but the list is not accurate. It does not include the increase in dose, which you prescribed yesterday when the mother called to ask for a new prescription because she left his medicine at the grandmother's house. During this call, Mom also told you that Griffin wouldn't take the nutritional supplement and that no one ever called her about the home care services she was supposed to receive. This information is not noted in the history. The recorded physical examination includes vital signs and oral and ear, lung, heart, and abdominal exams. There is no mention of overall appearance and no mention of skin turgor. The recorded lung exam does not address degree of distress and says, "Difficult to examine due to patient crying." The laboratory data include a CBC, electrolytes, and renal function tests noted as "within normal limits." The note does not clarify the date of those tests, and you are left wondering if they were done on this admission. Chest radiograph is noted as "pending."

In the assessment and plan, Meena includes a problem list and the specific diagnostic tests and orders for each problem, but there is no text explaining the differential diagnosis or thought process behind the cause for the worsened cough or listlessness and poor oral intake. Her plan includes the same nutritional supplement that the mother complained to you about on the phone. There is no mention in the plan of social service consultation or home health services referral.

## Entrustable Learners

### Expected behaviors for an entrustable learner

The learner at this level provides documentation that is adapted to the intended audience or purpose of the communication. The documentation is timely and comprehensive and tells a cogent patient story without excessive detail. The notes include only acceptable

abbreviations and date, time, and signature, as well as other institutionally required information. The written forms are always legible.

The entrustable learner's documentation of the history demonstrates accurate use of primary or secondary sources to fill in any gaps. The documentation of the physical examination and laboratory values is verifiable by others. The notes demonstrate successful navigation of the medical system by identifying problems when they arise and documenting engagement of those who can help resolve them. Clinical reasoning is documented and reflects a combination of thought processes as well as discussions with other providers; the latter are accurately noted as such. The entrustable learner interprets basic laboratory values accurately and uses them to inform the management plan. The communication with patients occurs in a bidirectional manner, highlights patient preferences in the documentation, and integrates those preferences into the plan.

### Vignette for an entrustable learner

As the attending on service, you review the admission note of the learner, Meena, assigned to your team. Meena was asked to admit Griffin, a three-year-old boy with cystic fibrosis being readmitted after a recent admission for pneumonia and failure to thrive, who now presents with persistent cough, listlessness, and poor oral intake. When you round at 8 a.m. the morning after the patient has been admitted, the history and physical have been recorded and with date, time, and signature.

Meena's note about Griffin's admission history and physical document that he was doing well for the first couple of days after his last discharge and then his cough worsened. She wrote that he hasn't been eating or drinking much and spends the day lying on the couch watching TV. She gives the dates of the recent admission and includes pertinent information from that encounter, including the results of the chest X-ray showing bilateral infiltrates and a sputum culture showing *Pseudomonas* sensitive to the antibiotic regimen prescribed. In the medication list she notes the change in antibiotic dosage you made recently when you learned that the original antibiotics were left at the grandmother's house. She also notes that he was prescribed a nutritional supplement at the last admission but that Mom hasn't been giving him much

of it because he doesn't like it. The note indicates poor oral intake and a slight decrease in urination over the past couple of days and mentions that the last bowel movement was three days ago. The note describes yellow-to-green-colored sputum that has increased in volume and perhaps a half dozen coughing episodes resulting in sputum. The note says that Mom thought Griffin felt warm but doesn't have a thermometer at home to check his temperature. The recorded physical examination includes vital signs; the general appearance of a quiet, listless, sleepy child with an intermittent cough; an observation of decreased skin turgor and dry mucous membranes; and a normal oral and ear exam, as well as a normal heart and abdominal exam and no clubbing. The recorded lung exam describes mild tachypnea but no retractions and scattered crackles in both lungs. The laboratory data are dated and include a CBC, electrolytes, and renal function tests with values documented. Chest radiograph is noted as ordered stat. A follow-up addendum describes the X-ray results.

In the assessment and plan, Meena includes a problem list and the specific diagnostic tests and orders for each problem. She includes a discussion of the potential for inadequately treated pneumonia as well as the potential for emergence of antibiotic resistance. Under the problem of "possible dehydration," she notes her initial plan for IV fluids and indicates that she will check with the senior resident about this. Under the discussion of nutritional status, she indicates the need for nutrition consultation and talking to Mom about the preferred type of nutritional supplement for her son. She also notes the need for social service evaluation and support as well as a second referral for visiting nurse services since no one ever called Mom about the home care services she was to receive. Meena notes that she has encountered a similar problem with a referral on another patient and plans to take this up with her senior resident and attending.

## EPA 6: Provide an oral presentation of a clinical encounter

<p><b>Description of the activity</b></p>	<p>The day 1 resident should be able to concisely present a summary of a clinical encounter to one or more members of the health care team (including patients and families) in order to achieve a shared understanding of the patient’s current condition. A prerequisite for the ability to provide an oral presentation is synthesis of the information, gathered into an accurate assessment of the patient’s current condition.</p> <p><b>Functions</b></p> <ul style="list-style-type: none"> <li>• Present information that has been personally gathered or verified, acknowledging any areas of uncertainty.</li> <li>• Provide an accurate, concise, and well-organized oral presentation.</li> <li>• Adjust the oral presentation to meet the needs of the receiver of the information.</li> <li>• Assure closed-loop communication between the presenter and receiver of the information to ensure that both parties have a shared understanding of the patient’s condition and needs.</li> </ul>
---	--

### Pre-Entrustable Learners

#### Expected behaviors for a pre-entrustable learner

The pre-entrustable learner follows a rigid template when presenting, failing to take cues from the receiver of information to ensure that there is a shared understanding of the information being conveyed. He often rushes ahead and fails to pause in the presentation at appropriate inflexion points to allow for input or discussion. The presentation is often not concise or well organized around the chief complaint or primary patient care issue being presented. The presentation wanders to include extraneous information that is not immediately relevant. The pre-entrustable learner does not tailor the presentation to meet the needs of the receiver of the information, often using many acronyms and medical jargon, nor is he able to adjust the presentation appropriately for varying contexts of patient care (e.g., emergent versus ambulatory settings). When queried about information presented about which he is unsure, the learner can become defensive or can sometimes even confabulate information in order to cover his uncertainty. The learner may also fail to retrieve some piece of evidence that is being requested. The learner at this level tends to accept information contained in the medical record and include it in the presentation without personally verifying it. The pre-entrustable learner can be either overconfident or underconfident in presentations, leading to a lack of comfort with the recommendations

from other members of the health care team and/or patients and their family members. At the conclusion of the presentation, the learner does not ensure that there is closed-loop communication, with verbal expression by all parties verifying the agreed-upon next steps and plan.

#### Vignette for a pre-entrustable learner

Nick is rotating on the General Surgery service at the Veterans Affairs hospital. He is on call to receive the next patient admitted. His resident, Janelle, pages him to come to the Emergency Department to evaluate a new patient. On arrival in the Emergency Room, Nick notices that the patient he is going to evaluate is an elderly gentleman in obvious distress who is accompanied by a young woman identified as his daughter. Nick jumps right in and begins assessing the gentleman, learning that he is 88 years old and has developed the acute onset of severe abdominal pain with vomiting in the past 24 hours and has had minimal urine output. Nick finishes the history and physical, sees that labs are pending, and rushes off to find Janelle to present his findings and plan. As he is leaving, the patient’s daughter stops him and asks what is wrong with her father, and Nick replies that he appears to be in acute renal failure secondary to severe dehydration and possible bowel obstruction. The daughter looks confused and very worried, but Nick states he has to leave to find his resident.

Nick runs into Janelle in the elevator and begins his presentation in front of several other people. Janelle asks him to wait until they exit the elevator. He then launches into the patient's past medical history, current medications, and extensive review of systems including the patient's past history of onychomycosis, for which he sees a podiatrist, rather than succinctly framing the discussion around the patient's current acute complaint. When Janelle tries to redirect Nick to define the chief complaint, he becomes very flustered and says he is getting to that next. He ultimately completes his presentation, which is quite prolonged and not well organized, and Janelle asks for his recommendations. He states with certainty that he feels the patient has a bowel obstruction, based on the vomiting and a history of past abdominal surgery, which has led to renal failure. When queried about the evidence to support this diagnosis Nick, is unable to provide any supporting evidence and becomes a bit defensive, stating that the ER resident hadn't yet ordered all the correct tests to confirm his suspicions, but labs were pending.

Nick and Janelle proceed to the Emergency Department to evaluate the patient together and run into their attending, who is in the Emergency Room to see the new patient consult with them. Nick immediately jumps in and again presents the patient in essentially the same manner as he had to Janelle, without incorporating her feedback about the organization and focus of his presentation. In addition, he fails to notice that the daughter is listening to his presentation and appears both confused and distraught. When she tries to interrupt, he briefly pauses and says he will be with her in a minute, when he is finished presenting her father's case to his attending.

## Entrustable Learners

### Expected behaviors for an entrustable learner

The entrustable learner is a skilled communicator who understands that the oral presentation serves an important function in medical care and is able to adjust his presentation appropriately for the receiver of information (e.g., faculty, patient/family, team members), for the context of the presentation (e.g., emergent versus ambulatory), and for the emotional intensity of the presentation. He actively engages the patient, family, and other team members in the presentation and does not shy away from difficult or

stressful issues. This learner tells the patient's story accurately and efficiently and can make a cogent argument to support the proposed management plan. He usually feels comfortable with uncertainty and readily acknowledges gaps in the knowledge and skills needed to manage a given patient. The learner reflects on areas of uncertainty and seeks additional information and assistance as needed. The entrustable learner engages consistently in bidirectional communication that ensures a shared understanding of information and avoids unnecessary medical jargon. He filters, synthesizes, and prioritizes information into broad categories and can recognize patterns while presenting findings, resulting in a concise, well-organized presentation. He is sensitive to issues of privacy and confidentiality when discussing patients.

### Vignette for an entrustable learner

Nick is rotating on the General Surgery service at the Veterans Affairs hospital. He is on call to receive the next patient admitted. His resident, Janelle, pages him to go to the Emergency Room to evaluate a new patient. On arrival in the Emergency Room, Nick notices that the patient he is going to evaluate is an elderly gentleman named Mr. Jones who is in obvious distress. Nick gently asks Mr. Jones who is accompanying him and is told it is his daughter. Mr. Jones then gives his daughter permission to tell Nick the details of his current condition. Nick learns from the daughter that her father is 88 years old and has developed the acute onset of severe abdominal pain with vomiting in the past 24 hours and has not urinated in a long time. Nick does a careful and focused history, gathering information as appropriate directly from the patient and also from his daughter, performs a physical examination, and then orders a number of laboratory tests, which he describes to Mr. Jones and his daughter. He tells them that he is going to speak to Janelle, his supervising resident, and will be back to discuss their next steps and recommendations. As he is leaving, the patient's daughter stops him and asks what is wrong with her father, and Nick replies that his kidneys appear to be shutting down and he is concerned it may be due to dehydration from a blockage in his bowels. The daughter looks confused and very worried. Nick sits down with the daughter to further explain his tentative diagnosis and reasoning, until she is able to verbalize that she understands his concerns and the plan.

Nick finds Mr. Jones' nurse and Janelle, and takes them to a private location to begin the presentation. Nick starts by ascertaining what Janelle already knows about Mr. Jones. He then focuses on the most emergent issues first and asks the nurse to contribute her initial history and sequential pattern of vital signs noted. Nick presents the chief complaint and relevant past medical history clearly, using the patient's own description and words for clarification. The presentation is concise and efficient, and Nick notes some of the gaps in the history that he will need to look for in Mr. Jones' chart, including the fact that neither the patient nor his daughter can recall the medication history fully. He states with confidence, but not certainty, that the patient likely has a bowel obstruction, based on the vomiting, his physical exam findings, and the history of past abdominal surgery. He states his concern that the obstruction has produced dehydration and consequent acute renal failure. He also considers a number of other possibilities in the differential diagnosis and notes that they will have to be ruled out by the various laboratory tests recommended. Nick states his plan to ask the nurse to start an IV and begin a fluid bolus, as well as some intravenous antibiotics, while they are waiting for the results of the blood tests and imaging studies. He states that he thinks the patient needs to be admitted but asks Janelle for her input on whether Mr. Jones should go to the OR urgently and whether he should anticipate the need for an ICU bed.

Once the presentation is completed, Nick asks Janelle and the nurse if they have any questions. He asks the nurse to repeat the plan to ensure they are all "on the same page." Once they have all agreed on the immediate plan, he tells Janelle that he needs to return to the daughter to more fully explain the results of the pending tests once they are available. When Nick returns to the Emergency Room, the on-call attending surgeon is at the patient's bedside and asks Nick to update him on Mr. Jones' condition. Nick refines his presentation, incorporating Janelle's feedback about his presentation style and plan. Nick also notices that the patient's daughter is listening intently, and he maintains eye contact with her to ensure that his presentation is delivered in a way that is understandable for her as well as appropriate for his attending, pausing to allow her to interject when she has questions or when his presentation points require clarification.

## EPA 7: Form clinical questions and retrieve evidence to advance patient care

<b>Description of the activity</b>	<p>On day 1 of residency, it is crucial that residents be able to identify key clinical questions in caring for patients, identify information resources, and retrieve information and evidence that will be used to address those questions. Day 1 residents should have basic skill in critiquing the quality of the evidence and assessing applicability to their patients and the clinical context. Underlying the skill set of practicing evidence-based medicine is the foundational knowledge an individual has and the self-awareness to identify gaps and fill them.</p> <p><b>Functions</b></p> <ul style="list-style-type: none"> <li>• Develop a well-formed, focused, pertinent clinical question based on clinical scenarios or real-time patient care.</li> <li>• Demonstrate basic awareness and early skills in appraisal of both the sources and content of medical information using accepted criteria.</li> <li>• Identify and demonstrate the use of information technology to access accurate and reliable online medical information.</li> <li>• Demonstrate basic awareness and early skills in assessing applicability/generalizability of evidence and published studies to specific patients.</li> <li>• Demonstrate curiosity, objectivity, and the use of scientific reasoning in acquisition of knowledge and application to patient care.</li> <li>• Apply the primary findings of one’s information search to an individual patient or panel of patients.</li> <li>• Communicate one’s findings to the health care team (including the patient/family).</li> <li>• Close the loop through reflection on the process and the outcome for the patient.</li> </ul>
------------------------------------	---

### Pre-Entrustable Learners

#### Expected behaviors for a pre-entrustable learner

The learner at this level often relies more on linear thinking than does a more advanced learner, has less experience to draw on, and is less aware of her own knowledge limitations. The pre-entrustable learner may be overly focused on the individual patient, less aware of or attentive to trends or understanding about populations and communities of patients, and may in general jump to conclusions or generalizations without fully understanding the complexity of the situation or the types of information or evidence needed. This learner may have an underdeveloped mental model of the problem even after multiple iterations of the problem-solving cycle, and, even with sufficient prior knowledge in place, may not be able to activate it to their advantage in problem solving. This learner needs improvement in the ability to both retrieve and assess relevant evidence. Finally, this learner is not always able

to translate new findings into the care of the patient or a panel of patients.

#### Vignette for a pre-entrustable learner

Sierra is on the transfusion medicine service and is asked to consult on a patient for whom the diagnosis of thrombotic thrombocytopenic purpura (TTP) is being considered and the initiation of plasmapheresis is being requested. Sierra reviews the chart quickly and notes that the patient was admitted with thrombocytopenia 24 hours ago. She notes a lack of agreement between the primary team and the consulting hematology service on the diagnosis. She continues to collect the data that she feels are pertinent and then notifies the transfusion medicine fellow that she has a new consult and is ready to present.

Upon hearing the presentation of Sierra’s chart review on the patient, the fellow asks Sierra what she thinks is the etiology of the thrombocytopenia. Sierra states that



the chart suggests TTP. When the fellow prompts for other causes of thrombocytopenia, Sierra is able to list several other diagnoses that should be considered. The fellow then asks Sierra what she thinks the next steps should be. Sierra states that they should go see the patient and talk to the hematology experts to figure out what the diagnosis is.

The fellow prompts Sierra to review some background literature on the differential diagnosis of thrombocytopenia, the diagnosis of TTP, and its treatment. Sierra consults her pocket medicine book and also searches online using a generic web browser. She returns stating that they need to review the blood smear, collect more laboratory data, and get some more historical facts from the patient. She states that she suspects TTP and thinks that, if they confirm by looking at the smear, they should initiate plasmapheresis as soon as possible.

The attending physician now joins the discussion and asks if Sierra and the fellow have reviewed the most recent evidence regarding the use of plasmapheresis in TTP. Sierra states that she has reviewed the literature and that plasmapheresis is useful. The attending physician asks her if she ran across any new evidence in this area and prompts Sierra to think about where she might find that evidence. Sierra states that she searched the Internet but that she could also use a summary updated source very quickly. She leaves, reviews a summary source, and returns again, suggesting that plasmapheresis should be started. At this point, the attending physician prompts Sierra to review the case one more time to identify any patient-specific issues that might suggest that the general evidence is not applicable to this patient, noting that the patient is on several specific medications that may be associated with TTP.

## Entrustable Learners

### Expected behaviors for an entrustable learner

The learner at this level routinely identifies situations in patient care in which additional information is needed based on assessment of her own knowledge gaps and patient needs. She formulates focused, pertinent clinical questions based on clinical scenarios, or real-time care of a patient or panel of patients and is willing and able to take the time to identify appropriate evidence to answer those questions. This

learner is able to focus her cognitive processes on discerning relevant factors, identifying the unknowns, and developing knowledge for generating a solution via just-in-time learning. When gaps in personal knowledge are identified, she takes steps to address those gaps in order to maintain a sufficient biophysical, clinical, epidemiological, and social-behavioral scientific knowledge base that can be applied to patient care activities. This learner demonstrates skill in appraising sources, using information technology appropriately, and generating a manageable volume of information. The learner is able to assess the applicability and generalizability of the information. When gaps in the evidence are identified, she takes steps to “close the loop” to determine ways to improve care.

### Vignette for an entrustable learner

Sierra is on the transfusion medicine service and is asked to consult on a patient for whom the diagnosis of TTP is being considered and the initiation of plasmapheresis is being requested. Sierra reviews the chart quickly, preparing to present to her fellow and attending physician, and notes a lack of agreement between the primary team and the consulting hematology service about the diagnosis. She is not familiar with the specific diagnostic criteria for TTP, so she goes to an online evidence summary source for a quick review. While reviewing the diagnostic criteria, she finds that there are several different causes of TTP and TTP-like syndromes, including medications. She notes several key references for later reading.

Sierra reviews the electronic medical record in more detail, paying particular attention to the data she has read that will help differentiate the diagnosis of TTP from other disease states. Seeing that some of the necessary information is not included in the chart notes, she tells the fellow that she will go talk to the patient and then meet the fellow in the laboratory to review the peripheral smear. On interviewing the patient, she identifies one medication known to be associated with a TTP-like syndrome and also notes that the patient has had a gastric bypass in the past, which puts the patient at risk for nutritional deficiencies such as vitamin B12.

Sierra reviews the peripheral smear with the hematopathology and transfusion fellows and then feels that she is ready to present the patient to the fellow and attending physician. When prompted by

the fellow to outline her assessment, Sierra outlines a differential diagnosis that considers the patient-specific key features. She includes medication-associated TTP. She states that she came across an association with one of the patient's medications in a review article, but that she is not aware of the actual incidence, reporting that she has a reference for an original article that she would like to pull because it will give her a more accurate sense of the association. She also includes several other disease states in her differential diagnosis, including B12 deficiency, noting that there are several case reports in the literature describing B12 deficiency and TTP presenting in similar ways.

At this point, the fellow asks Sierra what she thinks they should do next for the patient. Sierra states that based on her reading, plasmapheresis should not be initiated while there is still doubt about the diagnosis. She suggests that they need a few more laboratory studies and wonders aloud if there is evidence to support the use of empiric plasmapheresis in this type of a presentation. She also asks if there is harm in doing plasmapheresis if the diagnosis is actually B12 deficiency or medication-associated TTP. She confirms with the fellow that she should take a few minutes to search PubMed for any controlled-trial evidence in this area.

The attending physician now joins the discussion. Sierra reports from her literature search that there is strong and consistent evidence from randomized controlled trials for using plasmapheresis in TTP, but that this is less strong if the TTP is associated with a medication or if an alternative diagnosis is being considered. The attending physician agrees and confirms Sierra's recommendations to check several more lab values, including B12, and to postpone plasmapheresis for now. As a team, they go to discuss their recommendations with the primary team and the hematology consulting team. As they leave, Sierra suggests that they bring several of the articles with them for the team.

## EPA 8: Give or receive a patient handover to transition care responsibility

<p><b>Description of the activity</b></p>	<p>Effective and efficient handover communication is critical for patient care. Handover communication ensures that patients continue to receive high-quality and safe care through transitions of responsibility from one health care team or practitioner to another. Handovers are also foundational to the success of many other types of interprofessional communication, including discharge from one provider to another and from one setting to another. Handovers may occur between settings (e.g., hospitalist to PCP; pediatric to adult caregiver; discharges to lower-acuity settings) or within settings (e.g., shift changes).</p> <p><b>Functions for transmitter of information</b></p> <ul style="list-style-type: none"> <li>• Conduct handover communication that minimizes known threats to transitions of care (e.g., by ensuring you engage the listener, avoiding distractions).</li> <li>• Document—and update—an electronic handover tool.</li> <li>• Follow a structured handover template for verbal communication.</li> <li>• Provide succinct verbal communication that conveys, at a minimum, illness severity, situation awareness, action planning, and contingency planning.</li> <li>• Elicit feedback about the most recent handover communication when assuming primary responsibility of the patients.</li> <li>• Demonstrate respect for patient privacy and confidentiality.</li> </ul> <p><b>Functions for receiver of information</b></p> <ul style="list-style-type: none"> <li>• Provide feedback to transmitter to ensure informational needs are met.</li> <li>• Ask clarifying questions.</li> <li>• Repeat back to ensure closed-loop communication.</li> <li>• Ensure that the health care team (including patient/family) knows that the transition of responsibility has occurred.</li> <li>• Assume full responsibility for required care during one’s entire care encounter.</li> <li>• Demonstrate respect for patient privacy and confidentiality.</li> </ul>
---	--

## Pre-Entrustable Learners

### Expected behaviors for a pre-entrustable learner

When giving handover communication, this learner is inconsistent in the application of a standardized format, leading to errors of omission and/or commission in the verbal and written versions of the handover. Because the learner at this level may not be able to prioritize the information to be communicated, he often presents data in an unfiltered manner, resulting in a low “signal-to-noise” ratio. The pre-entrustable learner’s choice of setting in which to conduct the handover does not reflect awareness of established characteristics of high-quality handover communication (e.g., finding a setting that minimizes interruptions and distractions). This learner also focuses on his own tasks to the exclusion of the big picture, demonstrating minimal “situation awareness” about the overall team workload or other factors that may influence the receiver of the information.

When functioning as a receiver of handovers, the pre-entrustable learner does not ask clarifying questions, anticipate patient events, or verbalize understanding.

### Vignette for a pre-entrustable learner

Bob is rotating on a urology inpatient service. He is frantically working at the computer trying to update his sign-out when he glances at the clock and realizes he is running late. He runs to meet Jim, the incoming overnight intern, in the workroom where all the other team members are hanging out and talking. Another team member is already signing out and tells Bob that he must leave in order to make it to one of his children’s events. Bob wonders aloud why he doesn’t have kids, as an excuse to sign out early. He waits and begins to text on his cell phone until his colleague completes his sign-out.

He begins sign-out by apologizing to Jim because he did not have time to write down all the test results or completely update the electronic handover tool for all the patients because he had been “hammered” all afternoon. Using the hospital template format for his handover, Bob begins talking about his patients by reading from notes scribbled on his patient list. He starts with his most concerning patient, someone he thinks should be watched more closely. During the patient summary, he gives Jim the patient’s complete

past medical history of GERD, type 2 diabetes mellitus, coronary artery disease status post three vessel CABG, migraine headaches, COPD, peripheral vascular disease, and bladder cancer status post-ileal-conduit surgery 2 weeks ago. He continues by describing all the past hospitalizations, treatments, entire medication list, all normal and abnormal labs, and all medication changes and reasons for the changes. He states his concern that the patient may be developing an abscess. A page asking for potassium replacement for one of his patients interrupts him. He goes to put in the order. When he comes back, he recognizes that the first patient sign-out has taken too long. He quickly finishes the first patient, failing to mention that Jim will need to follow up on the CT abdomen and pelvis that is part of the action plan. He also fails to give Jim the opportunity to ask for feedback. The rest of his sign-out continues to be fraught with errors of omission as well as inclusion of extraneous information.

During the fourth day on service, Jim tells Bob about a patient of Bob’s who developed a fever the previous night and was supposed to be placed on MRSA coverage in the event of a fever because of prior history. Bob becomes defensive, stating that Jim knows how crazy it was the day before with all the admissions and the nurses interrupting them during sign-out. He says he’s amazed he got any information right given how busy it was and how loud it was during sign-out!

## Entrustable Learners

### Expected behaviors for an entrustable learner

When giving handover communication, the entrustable learner is able to consistently follow a standardized format, providing, at a minimum, for each patient: 1) illness severity, 2) action planning, and 3) contingency planning. This learner can modify the template to suit specific patient, team, and contextual variables. He is able to update and effectively use the computerized handoff tool to complement handover communication. He can organize the content of verbal communication about each patient to prioritize the information for the recipient of the handover. The entrustable learner conducts patient handovers in settings and in manners that reflect awareness of established characteristics of high-quality handover communication (e.g., in an appropriate environment for handovers, minimizing distractions and interruptions, using closed-loop

communication, and taking into account the workload of the other team members and the oncoming provider).

When functioning as a receiver of handovers, the entrustable learner demonstrates active listening and asks clarifying questions. Further, he uses summarizing and repeat-back techniques to ensure closed-loop communication.

### Vignette for an entrustable learner

Bob is rotating on a urology inpatient service. He is getting ready for the handover to the night team and completes his update of the electronic handover and prints out two copies, one for himself and one for the on-call person. He then stops by the nursing station to let the resource nurse know they are beginning sign-out and to ask if there is anything the nurses need or any patients that he should see before rounds. One of Bob's co-workers passes by and asks if he can sign out first because his child has an event that night that he has to attend. Bob agrees readily and asks if there is anything he can do to help ensure that his co-worker gets to his child's event on time. The co-worker asks Bob to just check the input/output on one of his patients; Bob does so and pages him with the results.

After his colleague completes his sign-out with Jim, the incoming on-call team member, Bob meets Jim in the workroom where team members from several health care teams are hanging out and talking. Recognizing the potential for distractions and HIPAA violations, Bob asks Jim to relocate to an adjacent room. Bob hands Jim the printout of the electronic handover communication tool that he copied for him. Using the hospital template format for his handover, he starts with his most concerning patient, someone who should be watched more closely. During the patient summary, Bob tells Jim that the patient is a 67-year-old male with a history of bladder cancer status post-ileal-conduit surgery two weeks ago, who presented with two days of fevers, abdominal pain, and tachycardia, suggesting sepsis. The patient's blood pressure has been within normal limits. He has received broad-spectrum antibiotics and fluids. He has a CT of the abdomen and pelvis that will require follow-up. The scan was ordered to look for an intra-abdominal abscess. A page asking for potassium replacement for one of his patients interrupts him. Bob confirms with the nurse that the patient is doing well and the potassium is not critically low. He lets the nurse

know he will put in the order as soon as he is finished with sign-out. When he comes back from speaking with the nurse, he finishes reporting to Jim about the first patient by discussing the action items for the night (including checking temperatures, blood pressures, urine output, and pain scores every four hours and following up on the CT of the abdomen and pelvis). He tells Jim the plan for recurrent fever, hypotension, poor urine output, or worsening pain. Bob also tells Jim that the patient may need escalation of care to the ICU, if he decompensates further. Jim reiterates the action and contingency plans. Bob asks Jim if he has any questions, and Jim replies, "What is the team's plan if the scan reveals an abscess?" Bob tells him the patient should be notified of the new information, since the current plan would be operative intervention. Importantly, Bob adds that Jim should be attentive to the fact that the patient is deaf in his left ear and is very hard of hearing in his right. They then proceed through the rest of the sign-out.

The following morning, Bob returns to obtain the handover from Jim. Bob asks Jim how the night went, and Jim states that overall it went well but that Bob had forgotten to tell him to check the post-bolus potassium on the patient they were interrupted for during rounds. Jim tells Bob he came across it this morning and noted it was low but above the threshold level for IV replacement that Bob had told him. Bob states that he is sorry and will develop a place on his sign-out sheet to note changes that occur during the sign-out process to try to avoid a similar error in the future.

## EPA 9: Collaborate as a member of an interprofessional team

<p><b>Description of the activity</b></p>	<p>Effective teamwork is necessary to achieve the Institute of Medicine competencies for care that is safe, timely, effective, efficient, and equitable. Introduction to the roles, responsibilities, and contributions of individual team members early in professional development is critical to fully embracing the value that teamwork adds to patient care outcomes.</p> <p><b>Functions</b></p> <ul style="list-style-type: none"> <li>• Identify team members’ roles and the responsibilities associated with each role.</li> <li>• Establish and maintain a climate of mutual respect, dignity, integrity, and trust.</li> <li>• Communicate with respect for and appreciation of team members and include them in all relevant information exchange.</li> <li>• Use attentive listening skills when communicating with team members.</li> <li>• Adjust communication content and style to align with team-member communication needs.</li> <li>• Understand one’s own roles and personal limits as an individual provider and seek help from the other members of the team to optimize health care delivery.</li> <li>• Help team members in need.</li> <li>• Prioritize team needs over personal needs in order to optimize delivery of care.</li> </ul>
---	---

### Pre-Entrustable Learners

#### Expected behaviors for a pre-entrustable learner

The pre-entrustable learner is at a stage of identity development where he is concerned about and focused on his own performance, making it difficult for him to recognize and prioritize team goals over his own. He identifies the roles of other team members but only fully understands and appreciates the contributions of other physicians. Therefore, the pre-entrustable learner usually seeks answers from physicians and adheres only to their recommendations and directives. The pre-entrustable learner has a limited ability to appreciate the importance of other team members and the role of diversity and inclusion in team-based care. His communication is largely unidirectional, in response to a prompt, and is template driven, with limited ability to modify content based on audience, venue, receiver preference, or type of message. The learner at this level has difficulty reading his own emotions and struggles with anticipating or reading others’ emotions. He is thus unable to manage strong emotions in himself or others. He may demonstrate lapses in professionalism such as disrespectful interactions, particularly in times of stress and fatigue.

The pre-entrustable learner functions as a passive member of the team and acts independently of input from team members, patients, and families. As a result, he is unaware of resources available to and needed by patients, which limits his ability to help coordinate their care with other members of the interprofessional team.

#### Vignette for a pre-entrustable learner

Karl is assigned to an inpatient general medicine service for four weeks. He is five minutes late for work rounds one morning. When he joins the team, he apologizes for being late and says that the telemetry tech wouldn’t let him look at the overnight tracings for one of his patients who is hospitalized for evaluation of syncope. He is obviously flustered and says, “I can’t believe she wouldn’t let me see those tracings! She was talking to the night tech, and they said to come back in a half hour. I have no control over her, but someone should really talk to her about unprofessional behavior.”

Later during rounds with the team, they go in to see Mrs. Gardner, another of his patients, an elderly woman who was hospitalized for urosepsis. The resident asks the patient how physical therapy is going. The patient says that she hasn’t had therapy for the

past three days. Karl rolls his eyes and when they leave the room, he says, "I spoke to that therapist two days ago. He said the patient had declined therapy on the first day, and on the second day she wasn't in the room when he stopped by. No wonder this hospital has a bad reputation! No one is doing their job to take care of the patient."

The next day, the case manager on the team approaches Karl's supervisor to say that when the liaison from the nursing home arrived to evaluate Mrs. Gardner, Karl wouldn't give up the patient's chart to let her review it for almost a half hour. The liaison had waited patiently, then inquired about when he would be done. Karl told her impatiently that he had had to wait for the chart, and so would she. The case manager described him as being dismissive and rude. When the supervisor asked Karl about it, he responded with frustration: "I can't believe she complained about that! She should know we have to get our notes in the chart as soon as possible, and I had to get to lecture at 1:00 p.m."

## Entrustable Learners

### Expected behaviors for an entrustable learner

The entrustable learner actively strives to integrate himself into the team. He recognizes the value and contributions of all team members and seeks their input and help as needed. This learner keeps other team members to stay informed. He enjoys good interactions with team members based on his ability to adapt his communication strategies to the needs of the recipient in content, style, and venue. The learner at this level listens actively and elicits ideas and opinions from all team members. He anticipates and responds to emotions in typical situations. Other team members perceive his style of interaction as professional, and he rarely shows lapses in professional conduct. These lapses tend to occur only in unanticipated situations that evoke strong emotions, when even entrustable learners may have some difficulty managing the situation. When the occasional lapse occurs, however, he has the insight to grow from the experience by using what he learns to anticipate and manage future triggers.

The entrustable learner generally works toward achieving team goals, though this is sometimes more difficult when personal goals compete with team goals. He usually involves patients, families, and other members of the interprofessional team in goal setting

and care plan development. He shares his knowledge of community resources with patients and is actively involved in care coordination.

### Vignette for an entrustable learner

Karl is assigned to an inpatient general medicine service for four weeks. He is five minutes late for work rounds one morning. When he joins the team, he apologizes for being late and says that he wanted to look at the overnight tracings for one of his patients who is hospitalized for evaluation of syncope so they could make a decision about discharge during rounds. He says he had to wait a few minutes for the overnight tech and the day tech to finish their handoff conversation.

Later during rounds with the other doctors, they go in to see Mrs. Gardner, another of his patients, an elderly woman who was hospitalized for urosepsis. One of the team members asks her how physical therapy is going. Mrs. Gardner says that she hasn't had therapy for the past three days. Karl responds by saying, "I know you didn't feel like therapy a couple of days ago. Since then, you've had so many tests that it might have been hard for the therapist to find you in the room. I know he really wants to get you going; I'll give him another call and see what we can work out."

The next day, the case manager on the team approaches Karl's supervisor to say that Karl was particularly helpful with Mrs. Gardner. He happened to be writing his note in her chart when the case manager came to review it and he explained his concerns about Mrs. Gardner's daughters' opposition to any suggestion of a temporary nursing home placement. He asked the case manager to help him work with them. With the help of Karl's preparation of the daughters, the case manager was successful in getting them to understand the rationale for the temporary placement as being in their mother's best interest.

## EPA 10: Recognize a patient requiring urgent or emergent care and initiate evaluation and management

<p><b>Description of the activity</b></p>	<p>The ability to promptly recognize a patient who requires urgent or emergent care, initiate evaluation and management, and seek help is essential for all physicians. New residents in particular are often among the first responders in an acute care setting, or the first to receive notification of an abnormal lab or deterioration in a patient's status. Early recognition and intervention provides the greatest chance for optimal outcomes in patient care. This EPA often calls for simultaneously recognizing need and initiating a call for assistance. Examples of conditions for which first-day interns might be expected to recognize, initiate evaluation and management, and seek help include the following:</p> <ol style="list-style-type: none"> <li>1. chest pain</li> <li>2. mental status changes</li> <li>3. shortness of breath and hypoxemia</li> <li>4. fever</li> <li>5. hypotension and hypertension</li> <li>6. tachycardia and arrhythmias (e.g., SVT, Afib, heart block)</li> <li>7. oliguria, anuria, urinary retention</li> <li>8. electrolyte abnormalities (e.g., hyponatremia, hyperkalemia)</li> <li>9. hypoglycemia and hyperglycemia</li> </ol> <p><b>Functions</b></p> <ul style="list-style-type: none"> <li>• Recognize normal vital signs and variations that might be expected based on patient- and disease-specific factors.</li> <li>• Recognize severity of a patient's illness and indications for escalating care.</li> <li>• Identify potential underlying etiologies of the patient's decompensation.</li> <li>• Apply basic and advanced life support as indicated.</li> <li>• Start initial care plan for the decompensating patient.</li> <li>• Engage team members required for immediate response, continued decision making, and necessary follow-up to optimize patient outcomes.</li> <li>• Understand how to initiate a code response and participate as a team member.</li> <li>• Communicate the situation to responding team members.</li> <li>• Document patient assessments and necessary interventions in the medical record.</li> <li>• Update family members to explain patient's status and escalation-of-care plans.</li> <li>• Clarify patient's goals of care upon recognition of deterioration (e.g., DNR, DNI, comfort care).</li> </ul>
---	--



## Pre-Entrustable Learners

### Expected behaviors for a pre-entrustable learner

The pre-entrustable learner has an incomplete understanding of personal limitations. This may result in an overestimation of personal ability, dismissal of concerns that other health care team members express about a deteriorating patient, and delay in responding to or asking for help for a patient in need of urgent or emergent care. The pre-entrustable learner has difficulty gathering, filtering, and prioritizing the critical data for a patient. Consequently, this learner has difficulty communicating clinical encounters in a concise and efficient manner. This learner has gaps in his medical knowledge and inconsistently applies the knowledge he does have. Consequently, he fails to recognize variations of vital signs that may occur with age or various disease states. He may also inconsistently order and interpret test results, delaying reassessment and further testing or therapeutic interventions. Gaps in medical knowledge make it challenging for him to anticipate next steps for patients requiring urgent or emergent care. Additionally, this learner does not understand the health care system and, therefore, may have difficulty mobilizing the skills and abilities of team members or using escalation in care policies and procedures. The pre-entrustable learner communicates in a unidirectional manner without seeking input from the patient, family members, or health care team members. Following the urgent or emergent interventions, the pre-entrustable learner may demonstrate a defensive and/or argumentative attitude in debriefing sessions.

### Vignette for a pre-entrustable learner

Jorge is the overnight provider on the hospital internal medicine team. He is called from the nursing station about Mr. Gold, who is complaining of shortness of breath. Jorge looks at his handoff notes and says, "He is just here with a COPD exacerbation. I am sure that is all it is. He should be fine." Ten minutes later, Mr. Gold's nurse comes to the call room and tells Jorge, "I am worried about Mr. Gold. He does not look well." Jorge inquires about the patient's oxygen saturation and is told that it is 87%. He responds, "This is fine for his condition." The nurse suggests that Jorge call his senior resident to discuss Mr. Gold. Jorge responds, "The patient is at baseline. I saw him a little while ago.

I don't think there is any reason to call anyone."

Thirty minutes later, Jorge receives a call that Mr. Gold's mental status has changed. Jorge goes to the room and sees Mr. Gold wearing a non-rebreather facemask, sleepy but arousable. Jorge tells the nurse, "You did not tell me he was requiring this much oxygen." Jorge talks with Mr. Gold, who expresses concern about his shortness of breath. Mr. Gold also asks Jorge to call his wife to give her an update. Jorge does not discuss goals of care with Mr. Gold. Jorge does a head-to-toe physical exam over the next several minutes. He finds decreased breath sounds on the right lower lung, with no wheezing or crackles. Peripheral pulses are diminished. The rest of the exam is unremarkable, with no focal neurologic deficits. Jorge decides to call his senior resident and discuss the case.

On the way to call his senior resident, he is called about another patient, who has not had a bowel movement for three days, and is asked to place an order for a bowel regimen. Before calling his senior resident, he places the order for the bowel regimen. He then calls his senior resident and first discusses the bowel regimen order. Jorge next expresses his displeasure at working with Mr. Gold's nurse because he felt he was able to handle the situation himself. When asked about vital signs, past medical history, hospital course, and initial interventions, Jorge states he had not reviewed this information or initiated tests or interventions because he wanted to discuss the case first. Jorge suggests a "shotgun" approach to diagnostic tests to cover all possible causes of altered mental status, tachycardia, and hypoxia.

After seeing Mr. Gold with the resident, Jorge realizes he failed to notice a trend of worsening hypotension and tachycardia. The resident points out that Jorge failed to notice that Mr. Gold had a fever and only one peripheral IV. At this point, the resident takes over care. Jorge steps back into a corner to stay out of the way. Because of the patient's persistent hypotension with possible need for vasopressors and advanced airway management, the resident recommends moving the patient to the ICU for further management of likely sepsis.

After the patient is moved to the ICU, Jorge is instructed to call the patient's family to discuss the need for transfer and the care plan. The patient's family does not answer the phone, so Jorge leaves this

message on their machine: “Mr. Gold has deteriorated and has been moved to the ICU for ventilator support and central line placement. Please call the hospital and ask for Jorge for further details.”

During subsequent debriefing of entire episode of care, Jorge becomes defensive and argumentative. He blames the nursing staff for giving him inaccurate information about the oxygen requirement and distracting him with “pointless” questions.

## Entrustable Learners

### Expected behaviors for an entrustable learner

The entrustable learner responding to an urgent or emergent patient condition has insight into his personal limitations. As this learner encounters new scenarios, he will seek help from colleagues, members of the health care team, and supervisors. Additionally, this learner uses information from credible sources (e.g., the electronic health record, or EHR) to aid in decision making. The entrustable learner has the ability to gather, filter, and prioritize information such as vital signs, focused physical exam, past medical history, recent tests or procedures, and medications to form a focused differential diagnosis, initiate interventions, and drive early testing decisions in the urgent or emergent setting. He can anticipate next steps in care, efficiently communicate the patient scenario to the health care team, interact with other team members based on an understanding of their roles and skills, and facilitate initial tests and interventions to stabilize the patient. During the urgent or emergent episode of care, this learner facilitates early bidirectional communication with the patient, patient families, and health care team members to allow for shared decision making. After the encounter, the entrustable learner seeks guidance and feedback from the health care team to improve future patient care.

### Vignette for an entrustable learner

Jorge is the overnight provider on the hospital internal medicine team. He is called from the nursing station about Mr. Gold, who is complaining of shortness of breath. Jorge immediately leaves his call room to assess Mr. Gold with the nurse. In reviewing the patient’s vital signs, he notices a trend in worsening hypoxia, tachycardia, and hypotension over the past few hours. He quickly reviews Mr. Gold’s medical record,

which reveals a history of end-stage renal disease on hemodialysis, type 2 diabetes mellitus, hypertension, recurrent pneumonias, and COPD. Additionally, the electronic medical record indicates the patient is DNR/DNI. Jorge completes a focused physical exam that reveals decreased breath sounds in the right lower lung with no wheezes or crackles; use of accessory muscles for breathing; and cool and clammy skin. Jorge discusses goals of care with Mr. Gold and asks if there is anyone he would like him to call for an update. Jorge discusses his findings with Mr. Gold and his nurse and addresses concerns and possible interventions. He explains that he is most worried about sepsis related to pneumonia. However, he notes that given prolonged hospital stay, tachypnea, tachycardia, and hypoxia, he cannot exclude a pulmonary embolus, myocardial infarction, congestive heart failure, or electrolyte abnormalities as the cause of Mr. Gold’s deterioration. Jorge asks the nurse to maintain oxygen saturation between 88% and 92%. He explains the stepwise approach and equipment limitations of nasal cannula, open facemask, and non-rebreather facemask. Jorge asks Mr. Gold if he has experienced both a facemask and nasal cannula, and Mr. Gold states he prefers the cannula but will wear the mask if Jorge wants him to. Jorge tells him they will start with the nasal cannula and only switch to the facemask if he requires increasing oxygen to maintain oxygen levels in his blood.

Jorge asks for placement of a second IV for access, anticipating the need for fluids, antibiotics, and other medications. Jorge orders a portable chest X-ray and arterial blood gas. Jorge tells the nurse he is going to step away for a moment to call and update his senior resident. He also states he will call Mr. Gold’s wife to update her on Mr. Gold’s condition. While Jorge is walking to call the family, he is paged about a patient who has not had a bowel movement in a few days. Jorge expresses his appreciation to the nurse for bringing this to his attention and states he will place the order for a bowel regimen as soon as he is able to stabilize another patient. Jorge places this on his checklist as a reminder for later. He sends a text page to the senior resident to meet him at the patient’s bedside and calls Mr. Gold’s wife, but there is no answer. He leaves a message for her to call him at the hospital for an update.

After calling Mr. Gold's wife, Jorge goes back to reassess the patient and finds him to be on a non-rebreather facemask to maintain adequate oxygen saturation. Recognizing further deterioration with persistent hypotension and tachycardia and the possible need for a central line or other invasive procedures, Jorge and Mr. Gold's nurse identify the need for additional resources. They initiate the rapid response team, which mobilizes a respiratory therapist, increased nursing support, and the senior resident. While Jorge is reviewing the chest X-ray on the bedside computer, the senior resident arrives. At the bedside, Jorge updates the senior resident using the SBAR format as follows: (Situation) "Mr. Gold is our 76 year-old man with end-stage renal disease, COPD, recurrent pneumonias, and type 2 diabetes mellitus who was admitted for a presumed COPD exacerbation yesterday and now has hypotension, tachycardia, and hypoxia. Of note, Mr. Gold has an advanced directive and is DNR/DNI." (Background) Jorge then presents a focused history and physical exam. He describes his initial testing and interventions, including the increased oxygen therapy, the placement of a second IV, and the chest X-ray findings. He goes on, saying: (Assessment) "I think the patient is developing sepsis secondary to a new pneumonia exacerbating his COPD. (Response) I think we should begin antibiotics. In addition, given the patient's current condition, I am concerned the patient will require ICU level of care. Are there any questions?"

Before being transferred to the ICU, Ms. Gold calls. Jorge confirms her relationship to the patient. Then, he updates her on Mr. Gold's condition. Ms. Gold reiterates that he is DNR/DNI and Mr. Gold would like testing and interventions up until he requires mechanical ventilation or his heart stops. In either of those cases, he would not want further resuscitation.

After Mr. Gold is stabilized and transferred to the ICU, Jorge asks the senior resident for feedback regarding his performance and potential areas for improvement.

## EPA 11: Obtain informed consent for tests and/or procedures

<b>Description of the activity</b>	<p>All physicians must be able to perform patient care interventions that require informed consent. From day 1, residents may be in a position to obtain informed consent for interventions, tests, or procedures they order or perform (e.g., immunizations, central lines, contrast and radiation exposures, blood transfusions). Of note, residents on day 1 should not be expected to obtain informed consent for procedures or tests for which they do not know the indications, contraindications, alternatives, risks, and benefits.</p> <p><b>Functions</b></p> <ul style="list-style-type: none"> <li>• Describes the indications, risks, benefits, alternatives, and potential complications of the procedure.</li> <li>• Communicates with the patient/family and ensures their understanding of the indications, risks, benefits, alternatives, and potential complications.</li> <li>• Creates a context that encourages the patient/family to ask questions.</li> <li>• Enlists interpretive services when necessary.</li> <li>• Documents the discussion and the informed consent appropriately in the health record.</li> <li>• Displays an appropriate balance of confidence with knowledge and skills that puts patients and families at ease.</li> <li>• Understands personal limitations and seeks help when needed.</li> </ul>
------------------------------------	---

### Pre-Entrustable Learners

#### Expected behaviors for a pre-entrustable learner

The pre-entrustable learner regards obtaining informed consent as a task to be performed based on the directive of others. This learner lacks understanding of at least some key elements of informed consent (indications, contraindications, risks, benefits, and alternatives) or knows the elements that should be addressed but does not know the specifics for the given procedure. As a result, conversations with the patient/family often have critical errors of omission. The learner also frequently uses medical jargon, further limiting the ability of patient/family to understand and make an informed decision.

Conversations with patients and families are unidirectional, with the learner describing what he knows about the procedure and then providing the form for the patient to sign, without first inviting questions or discussion. If patients raise issues around preferences or their own, the learner at this level will respect them; however, this learner does not solicit preferences that might relate to the procedure absent

the patient's prompt. The pre-entrustable learner does not consistently enlist interpretive services when needed, especially if the family does not make an explicit request. The learner at this level also often misses emotional cues from patients, such as anger, fear, or frustration, leaving them unaddressed. The inability of the learner to recognize emotional cues and the lack of knowledge to answer patient questions (e.g., about risks and benefits) may result in patients experiencing an erosion of trust and a request to talk to a more senior member of the team before signing the form. Alternately, the patient may sign without truly being informed.

Finally, documentation of the informed consent frequently has errors of commission or omission and/or deviates from policy (e.g., not timed, dated, signed by patient and physician, all sections completed).

#### Vignette for a pre-entrustable learner

John is working in a family medicine clinic that has just received its shipment of flu vaccines for the season. He is asked to make sure that all eligible patients receive the vaccine. He enters the room to see Mrs. Lopez, a 65-year-old in for her annual physical. This is only her

second visit to this clinic since she recently moved. Her chronic problems include hypertension, moderate obesity, and type 2 diabetes. John notices that she speaks with an accent but that her English is “good,” so he proceeds with the interval history and physical.

Following the interval history and physical examination, John tells her that she needs the flu vaccine and that he will need her to sign the informed consent. He hands her a flyer on the flu vaccine, along with the informed consent form, and asks her to read it over. She states: “I don’t need to read it, doctor. If you think I need it, then I’ll just sign.” She signs and hands the consent back to John. He states that someone will be in shortly to give her the vaccine.

John steps out into the hallway and meets his supervisor. “Here’s the consent form for Mrs. Lopez’s flu shot, Jim. She’s all set to go.” John’s supervisor looks at the sheet and says to John, “She hasn’t filled in the contraindications section. Did you ask her about a history of Guillain-Barre, prior reactions to the flu shot, or an egg allergy?” John admits he did not and notes that he was not sure what Guillain-Barre was or why it was on the list. His supervisor briefly explains Guillain-Barre syndrome and its prior association with the swine flu vaccine. He also notes that John has not signed on the medical provider line of the informed consent to document his discussion with Mrs. Lopez.

They enter the room together, and John’s supervisor asks Mrs. Lopez if she has ever had a problem with the flu shot in the past. Mrs. Lopez notes that she does not think she has received the flu vaccine for several years and is not sure why. She thought it was related to her diabetes. The supervisor suggests that John call her prior primary care practitioner’s office and asks Mrs. Lopez’s permission to do so.

When John calls, he is told that Mrs. Lopez did not get the flu vaccine for the past eight years because she reported an episode of possible hives three days after the flu vaccine nine years ago. John goes back into the room and explains what he found out to Mrs. Lopez, who then recalls the episode and says she was never really sure the two were related. John, unaware of the current recommendations that a history of hives alone should not prevent flu vaccine administration, suggests that they skip it this year but says he will ask a colleague.

John then goes out and finds his supervisor, who shows him the updated CDC recommendations. John’s supervisor and John return to Mrs. Lopez’s exam room to explain the risks, benefits, alternatives, and complications for the vaccine and why they are recommending proceeding.

## Entrustable Learners

### Expected behaviors for an entrustable learner

The entrustable learner understands the importance of the informed consent process in the patient-doctor relationship and for shared decision making. This learner understands the key elements of informed consent (indications, contraindications, risks, benefits, and alternatives) and begins the process prepared with the specifics for the given procedure. As a result, conversations with the patient/family rarely have errors of omission. The entrustable learner tends to avoid medical jargon in an attempt to maximize the patient’s and family’s ability to understand and make an informed decision.

Conversations with patients and families are bidirectional, with the learner sharing his knowledge about the procedure, walking the patient/family through the elements of the informed consent, and then inviting questions and/or discussion. The learner at this level enlists interpretive services as needed, even when not explicitly requested by the patient or family. During the conversation, learners at this level will seek to understand the patient’s and family’s preferences about the procedure. By recognizing and discussing patient or family preferences, the learner engages the patient and/or family in shared decision making. Additionally, the learner at this level generally can recognize emotional cues from patients, such as anger, fear, or frustration, and address them or seek help from supervisors in addressing them. The learner’s knowledge and concern for the patient’s input demonstrates the confidence necessary to put the patient at ease.

Finally, documentation of the informed consent rarely has errors of omission and is consistent with the policy of the institution (e.g., timed, dated, signed by patient and physician, all sections completed).

### Vignette for an entrustable learner

John is working in a family medicine clinic that has just received its shipment of flu vaccines for the season. He is asked to make sure that all eligible patients receive the vaccine. He enters the room to see Mrs. Lopez, a 65-year-old in for her annual physical. This is only her second visit to this clinic since she recently moved. Her chronic problems include hypertension, moderate obesity, and type 2 diabetes. John notices that Mrs. Lopez has an accent and asks if she would like to proceed with or without an interpreter. She says, "Thank you for the offer, but I am comfortable without an interpreter."

Following the interval history and physical examination, John tells Mrs. Lopez it is the time of year for the flu vaccine, and he wants to talk with her about whether she would like to receive it during this visit. He hands her a flyer on the flu vaccine, along with the informed consent form, and asks her to read it over. She says, "I don't need to read it, doctor. If you think I need it, then I'll just sign." John then says that he would prefer that she read the materials, especially the "contraindications" section. When she does so, Mrs. Lopez says, "Come to think of it, they haven't given me the flu shot over the last several years, and I am not entirely sure why. I think I may have had a reaction to it." John then walks through the contraindications with her, including Guillain-Barre syndrome, egg allergy, and prior severe reaction to a flu vaccine. When Mrs. Lopez notes that she hasn't had Guillain-Barre and has no egg allergy, she decides it must have been a reaction to the shot, but she can't remember.

John asks if he may call her prior primary care practitioner's office to investigate, and she consents. John learns that Mrs. Lopez did not get the flu vaccine for the past eight years because she reported an episode of possible hives three days after the flu vaccine nine years ago. John goes online to review the current CDC guidelines and notes that hives without other systemic symptoms is no longer a contraindication; the suggested guidelines include monitoring for 30 minutes post-vaccine. He returns to the room and explains what he learned to Mrs. Lopez, who then recalls the episode and says she was never really sure the two were related. He then goes over the risks and benefits one more time and asks Mrs. Lopez to repeat back to verbalize an understanding. She signs and dates the consent form and then John does the same and documents her history of hives and their conversation about the current guidelines.

## EPA 12: Perform general procedures of a physician

<b>Description of the activity</b>	<p>All physicians need to demonstrate competency in performing a few core procedures on completion of medical school in order to provide basic patient care. These procedures include:</p> <ul style="list-style-type: none"> <li>• Basic cardiopulmonary resuscitation (CPR)</li> <li>• Bag and mask ventilation</li> <li>• Venipuncture</li> <li>• Inserting an intravenous line</li> </ul> <p><b>Functions</b></p> <ul style="list-style-type: none"> <li>• Demonstrate the technical (motor) skills required for the procedure.</li> <li>• Understand and explain the anatomy, physiology, indications, risks, contraindications, benefits, alternatives, and potential complications of the procedure.</li> <li>• Communicate with the patient/family to ensure pre- and post-procedure explanation and instructions.</li> <li>• Manage post-procedure complications.</li> <li>• Demonstrate confidence that puts patients and families at ease.</li> </ul>
------------------------------------	--

### Pre-Entrustable Learners

#### Expected behaviors for a pre-entrustable learner

The learner at this level approaches a procedure as a mechanical task to perform, often at the behest of others, without understanding the context (such as patient-specific factors, indications, contraindications, risks, benefits, alternatives). She uses medical jargon that limits the patient's ability to verbalize a clear understanding of why the procedure is being done; this can impede shared decision making.

Additionally, the pre-entrustable learner may not be aware of potential complications of the procedure or may minimize or miss them. The pre-entrustable learner usually lacks confidence in her knowledge, making her uneasy when questioned by the patient. This, in turn, may prompt the patient to ask about her previous experience with this procedure or even request a more experienced provider. Conversely, the pre-entrustable learner may overestimate her skill. This may result in potential harm to the patient, both physically if the learner attempts a procedure without proper skill and emotionally if trust is eroded.

This learner's mechanical skills in the procedure are often inconsistent, resulting in an inability to reliably complete the procedure. This may include inconsistent use of universal precautions and aseptic technique. This learner's skill level may also require such intense focus on the task that the learner is unable to attend to the emotional response of the patient (e.g., pain, fear, frustration, anger). Finally, this learner's documentation of procedures may be incomplete or absent.

#### Vignette for a pre-entrustable learner

Shu is working on a general surgical service. On morning rounds, she is asked to replace an intravenous line that fell out in Mrs. Amir, who is post-operative day 2 status post modified right radical mastectomy for breast cancer. Shu tells Mrs. Amir, "I am here to replace your IV." Mrs. Amir states that she was hoping it wouldn't need to be replaced this time because she is close to discharge. She asks why it has to be replaced, and Shu states she is not sure but will check. She leaves the room and returns to tell Mrs. Amir that the IV is still needed because of her pain medication. Shu takes a couple of minutes to gather her supplies and returns to the supply cart several times for things she had forgotten. Mrs. Amir watches with growing concern.

As she readies a tourniquet for the right arm, Shu tells Mrs. Amir that she will be looking for an “antecubital vein.” Mrs. Amir says, “I’m not sure what that is, but I was told I couldn’t have IVs in my right arm.” Mrs. Amir points to a sign above her bed reading “No right arm procedures.” Shu changes to the left arm, applies a tourniquet and grabs an alcohol swab to start preparing. Mrs. Amir asks her if she is going to wash her hands. Shu goes to the sink but forgets to release the tourniquet prompting Mrs. Amir to say her arm is really starting to hurt. Shu returns and releases the tourniquet and apologizes.

Mrs. Amir asks Shu, “How many IVs have you put in?” She admits to “a couple.” Mrs. Amir asks for a more senior provider to place the IV.

The following day on rounds, Shu notes that the IV was replaced. The attending asks if there is any evidence of phlebitis at the site, to which Shu has to reply, “I’m not sure, I didn’t check.”

## Entrustable Learners

### Expected behaviors for an entrustable learner

The learner at this level understands both the skill required and the context of a procedure such as patient-specific factors, indications, contraindications, risks, benefits, and alternatives. The entrustable learner avoids medical jargon in communicating the indications, risks, benefits, and complications of a procedure to the patient. This enables the patient to verbalize a clear understanding of why the procedure is being done and to participate in shared decision making about the procedure.

Additionally, the entrustable learner knows and recognizes complications of the procedure and how to mitigate them. The learner at this level has confidence commensurate with her knowledge and skill, thus putting patients at ease during the procedure.

This learner’s mechanical skills in the procedure are consistent and reliable in most situations, and this learner knows when to get help for procedures or situations beyond her abilities (e.g., placing an IV in a neonatal intensive care patient). She consistently uses universal precautions and aseptic technique. This learner’s skill level allows her to simultaneously pay attention to the procedure and the patient’s emotional

response (e.g., pain, fear, frustration, anger). Finally, this learner’s documentation of procedures is usually complete and timely.

### Vignette for an entrustable learner

Shu is working on a general surgical service. On morning rounds, the nurse notifies the team that the intravenous line fell out overnight in Mrs. Amir, who is post-operative day 2 status post modified right radical mastectomy for breast cancer. Realizing that Mrs. Amir is still requiring intravenous pain medication, she volunteers to replace it.

Shu uses alcohol gel before entering the room and introduces herself to Mrs. Amir, stating, “I am here to discuss replacement of your IV with you.” She discusses the risks and benefits of placement of a new intravenous line, noting that Mrs. Amir may not need one if she feels that her pain could be managed with oral medications. Mrs. Amir expresses her understanding but requests that a new line be placed in an attempt to get her pain under control first.

Shu explains to Mrs. Amir that she will gather supplies and then attempts to place an IV in Mrs. Amir’s left arm because she knows of the increased risk for arm swelling with placement on the same side as her surgery. After washing her hands, Shu returns to the bedside with all necessary supplies. Since Shu uses a wheelchair, she lowers the patient bed to a comfortable height to ensure she has appropriate access to both the patient’s arm and all supplies. She applies a tourniquet to the left arm, and explains that she will attempt to place the IV in one of the big veins that cross Mrs. Amir’s elbow. Shu prepares the area using aseptic technique and successfully completes the intravenous catheter insertion, applying a sterile dressing and making note that the line flushes and draws easily and the site has no evidence of swelling. As Shu exits the room, again using alcohol gel, she communicates details of the line placement to Mrs. Amir’s nurse to ensure they are documented properly.

The following day on rounds Shu notes that the IV was replaced and that the site is clean, dry, and intact with no evidence of phlebitis.



## EPA 13: Identify system failures and contribute to a culture of safety and improvement

<p><b>Description of the activity</b></p>	<p>Since the publication of the IOM reports “To Err is Human”<sup>25</sup> and “Crossing the Quality Chasm,”<sup>26</sup> the public has been focused on the need to improve quality and safety in health care. Preventing unnecessary morbidity and mortality requires health professionals to have both an understanding of systems and a commitment to their improvement. This commitment must begin in the earliest stages of health professional education and training. Therefore, this EPA is critical to the professional formation of a physician and forms the foundation for a lifelong commitment to systems thinking and improvement.</p> <p><b>Functions</b></p> <ul style="list-style-type: none"> <li>• Understand systems and their vulnerabilities.</li> <li>• Identify actual and potential (“near miss”) errors in care.</li> <li>• “Speak up” in the face of real or potential errors.</li> <li>• Use system mechanisms for reporting errors (e.g., event reporting systems, chain of command policies).</li> <li>• Recognize the use of “workarounds” as an opportunity to improve the system.</li> <li>• Participate in system improvement activities in the context of rotations or learning experiences (e.g., rapid-cycle change using plan-do-study-act cycles; root cause analyses; morbidity and mortality conferences; failure modes and effects analyses; improvement projects).</li> <li>• Engage in daily safety habits (e.g., universal precautions, hand washing, time-outs).</li> <li>• Admit one’s own errors, reflect on one’s contribution, and develop an improvement plan.</li> </ul>
---	--

### Pre-Entrustable Learners

#### Expected behaviors for a pre-entrustable learner

The learner at this level either does not understand systems or has a superficial understanding that prevents recognition of real or potential errors. Common safety behaviors, such as the use of universal precautions or hand washing, require external prompts because they are not yet a matter of habit. Because these learners do not yet understand the systemic implications of safety behaviors, they are easily frustrated and may see them as overly burdensome (e.g., when asked to wash hands when going into a patient’s room for a couple of seconds to answer a patient’s question).

Additionally, the pre-entrustable learner tends to be a passive observer on the team and is dependent on external sources to identify safety risks, even when he is the cause of the risk. When confronted with his role in a real or potential error, he becomes defensive

and tends to blame others or the system for a lack of support. The pre-entrustable learner is unlikely to submit an occurrence or event report unless prompted and required to do so by supervisors. While this learner is invested in caring for individual patients, he does not recognize how problems in that care may be generalizable to populations of patients. Participation in identifying system solutions or in carrying out improvement plans also requires external prompting. This learner takes a passive role in improvement activities, generally simply doing what he is told to do.

The pre-entrustable learner tends to be rigid and rules-based, especially in communication. Thus, he would be hard-pressed to question a supervisor, even when questioning is warranted by an imminent unsafe behavior. When errors do occur, he avoids conversations about them, and tends to develop workarounds that ease his own burden of future work without improving the system for others. Finally, this learner may not recognize his own symptoms of fatigue, or

fears consequences of disclosing such symptoms to a supervisor, thus increasing risk of harm events.

### Vignette for a pre-entrustable learner

Sudeep has just started on an internal medicine inpatient team. On morning rounds, he is asked to schedule an EEG for a patient admitted with a possible seizure the night before. The team decides to wait on additional antiepileptic medication until the test is completed. Sudeep goes to the computerized prescriber order entry and types in "EEG." This results in the following message: "This is a test that requires a written request form in addition to the online order." Sudeep gets visibly upset that he has to find the form and walks toward the central nurse's station. En route, a patient calls out to him from a room, and he enters to answer her question without washing his hands. As he emerges, a nurse reminds him that he has to wash his hands on entry and exit from the patient's room, to which Sudeep replies, "I barely went in, and it was just to answer her question."

At the central nurse's station, Sudeep approaches a nurse to ask where he can find an EEG request form. She replies, "I'm sorry, but I do not know where they are kept." Sudeep begins to open drawers and file cabinets, becoming increasingly visibly frustrated. Another learner passes, and Sudeep asks him if he knows where the EEG forms are, to which he responds, "No, man. I haven't had to order one yet." Sudeep gets paged and has to leave the floor.

Two hours later, the unit coordinator for the floor returns from a break. Sudeep has started to search again and asks the unit coordinator if he knows where the EEG request forms are. The individual replies, "Yes, I keep them in a special drawer because the docs were taking them too often and losing them or not filling them out right. I had to keep going to central supply to restock the forms, and that costs the floor a lot of money." Sudeep responds with obvious frustration: "I've spent the last two hours looking for this form. This is ridiculous!"

He proceeds to fill out the form and hands it to the unit coordinator to be sent to the EEG lab. Two hours later, the EEG lab pages Sudeep to let him know that the test has been scheduled for the following day. Sudeep gets upset and says he really needed the test that day, to which the EEG lab technician responds he needed to

get the form in two hours earlier to ensure a same-day test. Sudeep hangs up in frustration.

The next day on rounds, Sudeep is presenting the patient and reports that the patient had another seizure the night before that required acute treatment with lorazepam. When the supervisor interrupts to ask for the EEG results, Sudeep reports that the EEG is scheduled for that day. The supervisor responds, "I thought the whole idea was to hold off on anticonvulsants and get the EEG yesterday to guide our treatment." Sudeep responds, "It's not my fault, Dr. Smith. The unit coordinator hides the forms, and it took me so long to find it that they wouldn't take the patient yesterday. It's amazing anyone gets an EEG in this place."

## Entrustable Learners

### Expected behaviors for an entrustable learner

The learner at this level understands systems well enough to identify real errors and some potential errors. The entrustable learner performs common safety behaviors, such as hand washing and universal precautions, with rare lapses (mostly when stressed or rushed). He understands the implications of these behaviors both to the individual patient and to the population of patients in the system (that is, the practice or institution).

The learner at this level is an active member of the team, understanding and taking responsibility for his own role in errors when they occur. Because he has learned to build into his routine "slowing down" to engage in reflection on practice, he often identifies system errors or opportunities for improvement on his own. However, he also relies on external sources for information on his own practice, especially for populations. He also looks to other members of the team for help understanding the root causes of quality or safety issues and identifying the solutions. This learner understands the importance of error reporting and almost always does so whenever he identifies an error. He actively participates in improvement efforts and in identifying systems issues and their solutions, recognizing the importance of learning from individual events when they have implications for populations.

The entrustable learner is an active listener. He understands the importance of communication about

errors, and can create a narrative that is compelling, accurate, and succinct to motivate others on the health care team. His understanding of the need to prevent errors propels him to question or challenge others on the team, including supervisors, when he is concerned that an error is about to occur, even if this means overcoming fears of the supervisor's response. Finally, this learner recognizes his own symptoms of fatigue and can moderate behavior accordingly or seek help when needed, thus decreasing the risk of harm events.

### Vignette for an entrustable learner

Sudeep has just started on an internal medicine inpatient team. On morning rounds, he is asked to schedule an EEG for a patient admitted with a possible seizure the night before. The team decides to wait on additional antiepileptic medication until the test is completed. Sudeep goes to the computerized prescriber order entry and types in "EEG." This results in the following message: "This is a test that requires a written request form in addition to the online order." Sudeep begins to walk toward the central nurse's station to find the form. En route, a patient calls out to him from a room with a question. Sudeep takes a step inside, then stops and looks for a hand soap container on the wall outside the room to wash his hands before entering.

At the central nurse's station, Sudeep approaches a nurse and asks where he can find an EEG request form, and she replies, "I'm sorry I don't know where they are kept." Sudeep then asks if the nurse knows who might be able to help him find the form, and the nurse suggests he speak to the unit coordinator, who is on break for 15 minutes. Sudeep heads off to take care of some other work.

Thirty minutes later, Sudeep returns to find the unit coordinator and explains that he needs a form for EEGs. The coordinator responds, "I keep them in a special drawer because the docs were taking them too often and losing them or not filling them out right. I had to keep going to central supply to restock the forms, and that costs the floor a lot of money." Sudeep thanks him for the form, fills it out, and hands it back, requesting that it be faxed to the EEG lab. Sudeep makes a note to call the lab in 15 minutes to make sure the form arrived.

Fifteen minutes later, Sudeep calls the EEG lab and is told that the lab received the form and is working on scheduling it for that day. The EEG lab receptionist states, "You're lucky, doc. I received the form at 11:50 a.m., and we try to guarantee same-day scheduling for any request in before noon. You just made the deadline! Should be no problem to get the EEG completed today." Sudeep says, "I guess I was lucky, but I wonder if there isn't a better way to make sure the patients get what they need without relying on luck!" He then goes online to fill out an occurrence report, recognizing that the delay in the EEG could have been a major issue for this patient.

At afternoon sign-out, Sudeep includes in his written sign-out a reminder for the night team to check results on the pending EEG. If the results are positive, they are to load the patient with phenytoin. If negative, the plan is to hold on antiepileptics and use lorazepam PRN. Sudeep then notes to the team what a hassle it was to get the EEG because the required written request was squirreled away by the unit coordinator and how lucky he was to make the deadline that he didn't know existed. He wonders if there's a way to get the form online and to make sure the form notes that requests before noon will result in same-day testing. His teammates like the idea and suggest he bring it up on rounds.

The next day on morning rounds, Sudeep presents the patient, noting that the EEG was positive. As a result, the patient was loaded with phenytoin and had an uneventful night. He notes to the attending that the EEG required a written form and submission by noon for same-day testing and that the unit coordinator kept the forms in a special place because the docs were overusing them and he was running out. He wonders if the system would be better if the forms were online and changed to note the required time of submission to guarantee same-day testing. He asks the attending how he might go about suggesting this. The attending says it's a great idea and tells Sudeep that after rounds, she will help him contact the head of the EEG lab and the chair of the Forms Committee to make his suggestion.

## Appendix: Bulleted List of Expected Behaviors for Pre-entrustable and Entrustable Learners

### EPA 1 Bulleted List: Gather a history and perform a physical examination

#### Expected behaviors for a pre-entrustable learner

- Information gathering and physical exam maneuvers:
  - Gathers either insufficient or overly exhaustive information.
  - Incorrectly performs physical exam maneuvers.
  - Misses key physical exam findings.
  - Does not seek or is overly reliant on secondary data.
  - Uses medical jargon or other examples of ineffective communication techniques.
- Scientific foundation and/or reasoning skills:
  - Limited ability to filter, prioritize, and connect pieces of information to each other or to previous clinical encounters.
  - May be less observant of important information or trends; focused on individual patients, potentially without attention to that patient's community or background.
  - May jump to conclusions without probing first (that is, shortcut the scientific method).
  - Lack of experience results in limited ability to develop clinical mental models, which limits ability to gather relevant information and/or perform appropriate maneuvers.
  - Demonstrates low activation of prior knowledge, either because they lack it or because they do not use it to their advantage in problem solving.
- Patient-centered skills:
  - May demonstrate disrespectful interactions with patients, because of stress, fatigue, or unawareness (e.g., forgetting to keep patient draped).
  - May generalize based on patient's age, gender, culture, race, religion, disabilities, and/or sexual orientation.

#### Expected behaviors for an entrustable learner

- Information gathering and physical exam maneuvers:
  - Obtains a complete and accurate history in an organized fashion.
  - Identifies pertinent history elements in common presenting situations, symptoms, complaints, disease states (acute and chronic).
  - Obtains focused, pertinent histories in urgent, emergent, and consultation settings.
  - Identifies and uses alternate sources of information to obtain history when needed, including from family members, primary care physicians, living facilities, and pharmacies.
  - Performs a complete and accurate physical exam in logical and fluid sequence.
  - Performs a clinically relevant, focused physical exam pertinent to the setting and focus of the patient visit.
  - Identifies, describes, and documents abnormal physical exam findings.
- Scientific foundation and/or reasoning skills:
  - Demonstrates clinical reasoning in gathering focused information relevant to a patient's care.
  - Links current findings to those from previous patients.
  - Uses analytic reasoning and activation of prior knowledge to guide process.
- Patient-centered skills:
  - Demonstrates patient-centered interview skills (attentive to patient verbal and nonverbal cues, patient/family culture, social determinants of health, need for interpretive or adaptive services; demonstrates active listening skills).
  - Demonstrates patient-centered examination techniques that reflect respect for patient privacy, comfort, and safety (that is, explaining physical exam maneuvers, telling the patient what the physician is doing at each step, keeping patients covered during the examination).

## **EPA 2 Bulleted List: Prioritize a differential diagnosis following a clinical encounter**

### **Expected behaviors for a pre-entrustable learner**

- Approaches assessment of patient problem from a rigid template, leading to creation of differential diagnoses that are too narrow or contain inaccuracies:
  - May have a limited ability to filter, prioritize, and make connections between sources of pertinent information.
  - May struggle to continuously update a differential diagnosis.
  - May make errors in clinical reasoning, such as premature closure.
  - May recommend a broad range of diagnostic evaluations that are not tailored to the prioritized differential diagnosis.
- May rely too much on supervisors and other team members in creating a differential diagnosis and selecting a working diagnosis.
- Offers management plans that may miss confirmation or disconfirmation of important diagnoses.
- May develop a management plan without required endorsement or verification.
- Has little insight into limitations and may over- or underestimate their own abilities.
- May not be comfortable with ambiguity.
- May not completely document reasoning so that other team members can understand what led to their assessment.

### **Expected behaviors for an entrustable learner**

- Can link current findings to prior data in approaching a patient assessment.
- Gathers pertinent information from many sources and proposes a relevant differential diagnosis that is neither too broad nor too narrow.
- Can usually integrate current and emerging information to continuously update the differential diagnosis.
- Understands limits of knowledge and personal strengths and weaknesses.
- Understands when to consult supervisors and team members for endorsement and verification of a working diagnosis and for developing a tailored management plan.
- Can usually articulate a management plan based on the well-reasoned differential and working diagnoses.
- Has insight into limitations and is comfortable with ambiguity.
  - Can respond to questions and challenges from patients and team members.
  - Is comfortable seeking assistance from other members of the health care team.
- Provides complete and succinct documentation so that other providers have evidence of their clinical reasoning to ensure continuity of care.

### **EPA 3 Bulleted List: Recommend and interpret common diagnostic and screening tests**

#### **Expected behaviors for a pre-entrustable learner**

- Recommends standard templates or order sets for patient evaluation but may not be able to explain the role of each study in screening, diagnosis, management, or follow-up.
- Identifies key diagnostic tests for some, but not all, common acute and chronic conditions.
- Frequently recommends unnecessary tests or tests with minimal or no pre-test probability for patients with common acute or chronic conditions.
- Has difficulty articulating how the test results will affect diagnosis, management, or risk stratification.
- Understands concepts of sensitivity and specificity, but diagnostic test recommendations do not consistently take these into account.
- Has difficulty integrating pre-test and post-test probabilities with patient risk factors in recommending screening and/or diagnostic evaluations.
- May repeat diagnostic or screening tests at intervals that are too frequent or too lengthy.
- Describes diagnostic plan to the patient but without soliciting or taking into account patient preferences in making recommendations.
- Infrequently includes consideration of costs or patient resources in the rationale for diagnostic evaluation recommendations.
- Fails to identify or respond to all critical values.
- May misinterpret common lab values and overreact to normal or readily explainable variations, fail to recognize important abnormalities, or fail to recognize inappropriately normal findings.

#### **Expected behaviors for an entrustable learner**

- Recommends reliable, cost-effective tests when indicated for screening or evaluating patients with common acute or chronic conditions.
- Is able to explain how the results of each test will influence diagnosis, management, and health-risk stratification and subsequent evaluation.
- Incorporates knowledge of sensitivity and specificity and pre-test and post-test probabilities along with patient risk factors in recommending tests.
- Consistently discusses diagnostic plans with the patient, and provides evidence that patient preferences have been solicited and factored into decision making.
- Includes in the rationale for recommendations some consideration of costs and patient resources.
- Correctly interprets abnormal laboratory and imaging findings for common tests.
- Identifies critical values and responds correctly and with commensurate urgency by (a) initiating confirmatory or corrective measures or (b) notifying the health care team for assistance in recognition of his or her own limitations.
- Is able to distinguish common, insignificant abnormalities from clinically important abnormalities.

#### **EPA 4 Bulleted List: Enter and discuss orders and prescriptions**

##### **Expected behaviors for a pre-entrustable learner**

- Is unable to filter and synthesize information to inform an understanding of a patient's condition that enables prioritization of correct diagnostics and orders.
- Focuses on one's own desire for information, sometimes ignoring patient preferences as a result (e.g., orders a CT scan when an ultrasound might have sufficed despite patients' expressed concern to avoid radiation).
- May focus on a single abnormality at the expense of putting all of the pieces together; has a "shotgun" approach to ordering tests.
- Misses subtle signs and/or physical exam findings that should guide orders.
- Understands general order sets but does not recognize when the need arises to tailor or deviate from the standard order set.
- Does not consider either cost of orders (e.g., tests, drugs/prescriptions) or patient factors (e.g., culture) in maximizing compliance.
- Views cost-containment efforts as externally mandated and interfering with the doctor-patient relationship.
- Is defensive when questioned about orders and is unable to articulate the rationale behind them (they don't know what they don't know).
- May demonstrate overconfidence by not seeking review of orders even when their experience is limited.
- Acts impulsively in placing orders rather than pausing to consider the big picture and waiting for cause and effect to play out from earlier orders. Feels compelled to act.
- Places orders without communicating with the rest of team, patient, and family regarding plans; communication style is unidirectional ("Here is what we are doing...").
- Does not involve patient as integral member of team in shared decision making.
- Does not understand the system; may ignore alerts; may not be able to navigate system or may know the mechanics of the system but not how to apply them (e.g., can find an order set but is unsure what order set is ideal or needed).
- Does not follow established protocols for placing and carrying out orders within a given system.
- Has not developed the habits of safe prescription writing, including doing a double check of patient weight, age, renal function, co-morbidities, dose, and/or interval.
- May rely excessively on technology to highlight drug-drug interactions and/or risks without understanding why there is an interaction (e.g., smartphone or EHR suggests an interaction, but the learner cannot explain why).

### Expected behaviors for an entrustable learner

- Is able to filter and synthesize information (e.g., history, signs, symptoms) to identify or clarify the condition(s) they are addressing with their orders/prescriptions.
- Recognizes patterns and takes into account the “big picture” when ordering diagnostics and/or therapeutics.
- Considers patient’s preferences in placing orders.
- Communicates recommendations to patients, families, and the health care team.
- Recognizes limitations and seeks help in a manner that places the needs of patients above one’s own sense of autonomy.
- Demonstrates flexibility in thinking; accepts questions as learning opportunities and considers other possibilities.
- Has a parsimonious, reasoned approach to placing orders (e.g., waits for contingent results before ordering more tests).
- Routinely reflects on how the results of a test will influence clinical decision making and, conversely, on the potential consequences of not doing a test.
- Articulates the risks and benefits of what they are ordering (e.g., drugs, tests).
- Considers the costs of their orders and the patient’s ability and willingness to proceed with the plan. Can adapt plan based on the patient’s unique demographic, cognitive, physical, cultural, socioeconomic, or situational needs.
- Engages in bidirectional communication with patients, their families, and members of the health care team.
- Uses treatment guidelines and algorithms consistently but recognizes or asks for help when the patient’s condition requires deviation from them.
- Responds to the EHR’s safety alerts and understands the rationale for them.
- Uses electronic resources to fill in gaps in knowledge and inform safe order writing and entry (e.g., drug-drug interactions, treatment guidelines).



## **EPA 5 Bulleted List: Document a clinical encounter in the patient record**

### **Expected behaviors for a pre-entrustable learner**

- Communicates and documents using a template with limited ability to adjust or adapt based on audience, context, or purpose.
- Makes errors of omission and/or commission when documenting and may not document the use of primary or secondary sources important to the encounter.
- May miss some required elements of written documentation, such as date, time, signature, or other institutionally required elements.
- May create handwritten documentation that is difficult to read.
- Demonstrates difficulty meeting needed turnaround time for documentation, limiting its availability to other team members engaged in a patient's care.
- Communicates in a unidirectional manner without actively soliciting or recording patient preferences.
- Does not typically document clinical reasoning in notes, and interpretation of laboratory values may be literal or inaccurate.
- Demonstrates limited help-seeking behavior to fill gaps in knowledge, skill, and experience, resulting in the learner relying on directives from others to manage patients' care.
- Demonstrates frustration with documentation systems (e.g., the EHR) due to a superficial understanding of systems rather than seeing opportunities to engage in system improvement.
- Is in early stages of identity formation as a physician, which lead to a more passive role in care activities.

### **Expected behaviors for an entrustable learner**

- Adjusts and adapts communication and documentation to audience, context, or purpose.
- Provides documentation that is comprehensive and contains important information without unnecessary details or redundancies.
- Provides documentation that includes institutionally required elements (e.g., date, time, and signature).
- Creates legible handwritten documentation.
- Enters documentation in a timely manner to make it readily available to other team members.
- Communicates in a bidirectional manner, allowing solicitation of patient preferences, which are recorded in the note.
- Documents clinical reasoning in notes, and interpretation of laboratory values is typically accurate.
- Engages in help-seeking behavior to fill gaps in knowledge, skill, and experience, enabling the development and documentation of management plans aligned with the patient's needs.
- Demonstrates a general understanding of documentation systems that leads to the identification of opportunities to engage with others in system improvement.
- Documents one's role(s) in all team care activities in the patient record.

## EPA 6 Bulleted List: Provide an oral presentation of a clinical encounter

### Expected behaviors for a pre-entrustable learner

- Tends toward unidirectional communication so may ignore the patient/family while presenting.
- Often fails to verify the information being presented and/or to obtain additional information from patient, family, and other team members.
- Avoids obtaining sensitive information from the history and does not follow up on ambiguous information.
- Uses medical jargon and acronyms without clarifying meaning or ensuring a shared understanding.
- Does not distill the presentation or focus on the most relevant information (e.g., last sentence of all presentations of the history of present illness (HPI) is "Patient denies fevers, night sweats, and chills," regardless of presenting signs or symptoms).
- Uses a template rigidly for all presentations without adapting to context of patient care or receiver of information (e.g., failing to tailor the presentation of an urgent or emergent patient issue to a briefer format with only immediately relevant information or adjusting communication style for a patient's family member as opposed to the health care team).
- Does not generally match the needs of the communication to the tool of communication (e.g., in person, phone, email).
- May present in a disorganized and incoherent fashion.
- Does not generally adjust presentation based on real-time verbal and nonverbal feedback from listener (e.g., a quizzical look suggesting a lack of understanding on the part of the receiver of the information).
- Does not ensure a shared understanding between the presenter and receiver of information at the conclusion of the presentation.
- May confabulate information to respond to questions the learner is unable to answer.
- Lacks situational awareness when discussing patients and presenting sensitive patient information (e.g., presenting in an elevator or in a loud voice in a public place).
- Presents information without personally verifying or acknowledging the source. Takes all information in the chart at face value, reporting it back sometimes without fully understanding and without questioning inconsistencies.
- Demonstrates either a lack of confidence or more confidence than merited by capabilities.
- At times reacts defensively when interrupted during case presentation (e.g., stating, "I'm going to get to that in a minute," when questioned midway during a presentation).

### Expected behaviors for an entrustable learner

- Can filter, synthesize, and prioritize information and recognize patterns, resulting in a concise, well organized, and accurate presentation.
- Engages in bidirectional communication that ensures a shared understanding of a presentation.
- Avoids medical jargon.
- Adjusts the presentation for the receiver of information (e.g., faculty, patient/family, team members) and for the context of the presentation (e.g., emergent versus ambulatory).
- Actively engages patient, family, and other team members in the presentation.
- Does not shy away from difficult or stressful issues in obtaining or presenting the information.
- Can efficiently tell a story and make an argument to support the plan.
- Acknowledges gaps in knowledge base and/or skills in managing a given patient presentation or condition and seeks help.
- Reflects on areas of uncertainty and seeks additional information.
- Acknowledges gaps in information without becoming defensive or confabulating information.
- Respects patient privacy and confidentiality by demonstrating situational awareness when discussing patients.
- Demonstrates a level of confidence commensurate with knowledge and skills that puts others at ease (e.g., less certain in emergent settings and more comfortable in an ambulatory setting).

## EPA 7 Bulleted List: Form clinical questions and retrieve evidence to advance patient care

### Expected behaviors for a pre-entrustable learner

- Asks relevant clinical questions:
  - Has more-limited experience, which results in linear, less complex thinking in terms of analytical skills.
  - Focuses on individual patients, which may result in missing important information or trends in populations or panels of patients.
  - May jump to conclusions without probing first (that is, shortcut the scientific method).
  - Lacks awareness of limitations and gaps in own scientific knowledge (that is, biophysical, clinical, epidemiological, social-behavioral) and how to get help to improve.
  - Lacks experience, which results in limited ability to develop clinical mental models and thus limits ability to form appropriate questions and solve them.
  - Demonstrates low activation of prior knowledge, either because they lack it or they do not use it to their advantage in problem solving.
- Retrieves and assesses evidence:
  - Is unable to manage the volume of possible evidence for review due to lack of focus in question or inability to match evidence to type of question.
  - Has limited ability to judge quality of evidence, applicability, and/or generalizability.
  - Is unable to identify gaps/limitations in literature, and is unable or unwilling to think about ways to close gaps.
  - Accepts findings of studies without critical appraisal.
  - Is unfamiliar with or unwilling to use new information/informatics technologies.
- Reports or applies evidence to effect change or improvement:
  - Does not attempt to apply evidence to one's patients.
  - Does not discuss findings with team or patient.

### Expected behaviors for an entrustable learner

- Routinely identifies the need to ask for help or seek new information in the context of the clinical setting, based on awareness of one's own knowledge gaps and patient needs.
- Maintains a sufficient biophysical, clinical, epidemiological, and social-behavioral scientific knowledge base that can be translated to patient care activities.
- Asks relevant clinical questions:
  - Develops well-formed, focused, pertinent clinical question based on clinical scenarios, real-time care of a patient or a panel of patients.
  - Demonstrates curiosity, objectivity, scientific reasoning.
  - Is able to focus cognitive processes on discerning relevant factors, identifying the unknowns, and developing knowledge for generating a solution via just-in-time-learning.
- Retrieves and assesses evidence:
  - Demonstrates awareness and early skill in appraisal of sources and content of medical information.
  - Uses info technology to gather and assess information.
  - Acquires a manageable volume of information.
  - Assesses applicability/generalizability of the information.
- Reports or applies evidence to effect change or improvement:
  - Applies findings by communicating with team and with patient, and changes approach to patient care if necessary.
  - Reflects on the process by which questions are identified and answered and seeks to improve (may need guidance in understanding subtleties of the evidence).

### **EPA 8 Bulleted List: Give or receive a patient handover to transition care responsibility**

Note: this list applies to both the giver and receiver of information.

#### **Expected behaviors for a pre-entrustable learner**

- Uses rigid rules of communication (e.g., a handover template) but cannot adjust based on the audience and/or context.
- Documents patient information in written or electronic handover tools incompletely with errors of both omission and commission.
- Demonstrates variability in transfer of information regarding content, accuracy, efficiency, and synthesis.
- May miss key aspects of the ideal handover, including verbalizing the patient's illness severity and/or providing action planning and/or contingency planning.
- Demonstrates minimal situation awareness of the team's total work load or of the circumstances of the individual to whom one is transferring care.
- Is unable to organize, prioritize, and anticipate patient care needs consistently.
- Demonstrates minimal awareness of known threats to handover communication (e.g., interruptions and distractions).
- Focuses on one's own handover responsibilities with minimal awareness of the workload and concurrent responsibilities of the remainder of the team.

#### **Expected behaviors for an entrustable learner**

- Uses a template for the handover communication but can adapt based on patient, audience, setting, or context, including patient disabilities or language barriers.
- Generally documents patient information without errors of omission and/or commission.
- Consistently transfers information regarding content, accuracy, efficiency, and synthesis.
- Organizes and prioritizes information for handover communications.
- Provides key aspects of the ideal handover to the recipient, including verbalizing the patient's illness severity and/or providing action planning and/or contingency planning.
- Demonstrates situation awareness of both the team's total work load and the circumstances of the individual to whom one is transferring care.
- Demonstrates awareness of known threats to handover communication (e.g., interruptions and distractions) by paying attention to the timing and location of the handover communication.

## **EPA 9 Bulleted List: Collaborate as a member of an interprofessional team**

### **Expected behaviors for a pre-entrustable learner**

- Prioritizes one's own goals over those of the team.
- Demonstrates limited understanding of the roles of other team members besides physicians (e.g., seeks counsel from the other physicians to the exclusion of other team members).
- Typically communicates in a unidirectional manner and in response to a prompt.
- Displays limited ability to modify communication based on audience, venue, receiver preference, or type of message.
- Demonstrates difficulty reading one's own emotions and struggles to anticipate or read the emotions of others.
- Succumbs to lapses in professionalism particularly when stressed or tired.
- Is typically a more passive member of the team.
- Has limited interaction with other team members, with the unintended consequence of not being able to optimally support patients through transitions of care.

### **Expected behaviors for an entrustable learner**

- Acts as an active and integrated member of the team who in most situations prioritizes team goals over one's own professional goals.
- Understands the roles of other team members, seeks their counsel, actively listens to their recommendations, and incorporates them into practice.
- Typically communicates in a bidirectional manner and keeps all team members informed and up to date.
- Modifies and adapts communication content and style based on audience, venue, receiver preference, or type of message.
- In most situations, is able to read one's own emotions and anticipates and reads the emotions of others.
- Maintains a professional demeanor in all but the most trying of circumstances.
- Actively engages with the patient and other team members to coordinate care and provide for seamless transitions between care providers and from one setting to another.

## **EPA 10 Bulleted List: Recognize a patient requiring urgent or emergent care and initiate evaluation and management**

### **Expected behaviors for a pre-entrustable learner**

- Does not recognize age appropriateness of trends in and variations of patients' vital signs.
- May dismiss concerns of patient deterioration by team members (e.g., nurses, families).
- Is easily distracted by multiple problems and has difficulty prioritizing for efficient patient care.
- Does not demonstrate an understanding of the roles and responsibilities of each member of the health care team.
- Demonstrates limited ability to gather, filter, prioritize, and connect pieces of information (e.g., vital signs, focused physical exam, pertinent medical history, recent test or procedures, medications) to form a patient-specific differential diagnosis, initiate interventions, and drive testing decisions.
- Requires supervisors and/or other members of the team to initiate correct interventions and testing in an urgent or emergent setting.
- Inconsistently orders and interprets test results delaying reassessment and further testing or interventions.
- Delays seeking help due to pride, anxiety, fear, and/or an inadequate awareness of personal limitations.
- Provides unidirectional communication with health care team and family regarding goals of care and treatment plan.
- Provides superfluous and/or incomplete patient information to responding members of the health care team.
- Demonstrates errors of omission when documenting the clinical encounter in the medical record.
- May become defensive and/or argumentative during debriefing sessions of the clinical encounter.

### **Expected behaviors for an entrustable learner**

- Recognizes age appropriateness of, trends in, and variations of patients' vital signs.
- Actively listens to and elicits feedback from team members (e.g., nursing, family members) regarding concerns about patient deterioration to determine next steps.
- Adheres to institutional procedures and protocols regarding escalation of patient care.
- Uses the health care team members according to their roles and responsibilities to increase task efficiency in dealing with urgent or emergent patient conditions.
- Gathers, filters, prioritizes, and connects pieces of information (e.g., vital signs, focused physical exam, pertinent medical history, recent test or procedures, medications) to form a patient-specific differential diagnosis, initiate interventions, and drive testing decisions.
- Initiates interventions and tests with frequent reassessment to determine level of help needed and to anticipate next steps.
- Interprets common test results to anticipate and respond to early clinical deterioration.
- Understands and recognizes personal limitations, emotions, and personal biases and seeks help when needed.
- Demonstrates bidirectional communication with health care team and family regarding goals of care and treatment plan that leads to shared decision making.
- Provides a focused and concise presentation of accurate patient information to responding members of the health care team.
- Completes documentation in the medical record of the clinical encounter.
- Seeks guidance and feedback from supervisors after the clinical encounter.

## **EPA 11 Bulleted List: Obtain informed consent for tests and/or procedures**

### **Expected behaviors for a pre-entrustable learner**

- May be complacent in the informed consent process due to a lack of understanding of its importance in shared decision making.
- Obtains informed consent only on the directive of others.
- Does not demonstrate an understanding of the key elements of informed consent (indications, contraindications, risks, benefits, alternatives) or may know the elements but not the specifics for the procedure for which consent is being sought.
- May let personal biases interfere with the informed consent process (e.g., history of bad experience with the procedure results in overemphasis of risks).
- May make errors of omission in communicating with patients and families about consent.
- Uses medical jargon frequently in conversations with patients and families.
- Uses unidirectional communication strategies that is, provides information and then requests signature on consent form.
- Does not solicit patient preferences.
- Is unable to read emotional cues in others.
- Provides documentation with errors of both commission and omission.

### **Expected behaviors for an entrustable learner**

- Understands the importance of informed consent to rapport building and shared decision making.
- Demonstrates an understanding of the elements of informed consent generally (indications, contraindications, risks, benefits, alternatives) and the specifics of these elements for the procedures for which consent is being sought.
- Provides complete information to patients and families.
- Avoids medical jargon in communicating with patients and families.
- Uses bidirectional communication to both inform patients and families and seek their input and questions.
- Solicits patient/family preferences to engage them in shared decision making.
- Recognizes emotional cues in others (e.g., fear, anger, anxiety) and can address them in real time or seek help from others on the health care team.
- Demonstrates confidence commensurate with skills.
- Seeks guidance from superiors around areas of uncertainty.
- Documents the informed consent in a complete and timely fashion.

## EPA 12 Bulleted List: Perform general procedures of a physician

### Expected behaviors for a pre-entrustable learner

- Approaches procedures as mechanical tasks to be performed and often initiated at the request of others.
- May not understand key issues in performing procedures, such as:
  - Patient-specific factors
  - Indications
  - Contraindications
  - Risks
  - Benefits
  - Alternatives
- Demonstrates limited knowledge of complications of procedures or how to minimize them.
- Has inconsistent mechanical skills and may not be able to reliably complete the procedure.
- Does not consistently demonstrate patient-centered skills in performing procedures:
  - Uses medical jargon or other examples of ineffective communication techniques.
  - May be unable to read emotional response from the patient during the procedure because of focus on the task.
  - Does not engage patients in shared decision making about the procedure.
  - Demonstrates a lack of confidence that results in an increase in patient's stress or discomfort or overconfidence that erodes trust with the patient if the learner struggles with the procedure.
- Uses universal precautions and aseptic technique inconsistently.
- Incompletely writes or enters required documentation or neglects to write or enter required documentation in the patient's health record.

### Expected behaviors for an entrustable learner

- Demonstrates the necessary preparation required for performance of procedures.
- Demonstrates and applies understanding of key issues in performing procedures, such as:
  - Patient-specific factors
  - Indications
  - Contraindications
  - Risks
  - Benefits
  - Alternatives
- Knows and takes steps to mitigate complications of procedures.
- Demonstrates reliable mechanical skills in performing procedures in most situations and knows when to seek help for procedures or situations beyond the learner's abilities.
- Uses universal precautions and aseptic technique consistently.
- Demonstrates patient-centered skills in performing procedures:
  - Avoids medical jargon such that patients are able to verbalize understanding of the procedure.
  - Participates in shared decision making with patients about procedures.
  - Has confidence commensurate with level of knowledge and skill that puts patients at ease.
  - Simultaneously pays attention to both the procedure and the patient's emotional response.
- Creates required documentation that is usually complete and timely.



### **EPA 13 Bulleted List: Identify system failures and contribute to a culture of safety and improvement**

#### **Expected behaviors for a pre-entrustable learner**

- Does not recognize potential errors and often misses real errors.
- Is inconsistent in demonstrating common safety behaviors (e.g., universal precautions, hand washing).
- May get frustrated by system requirements and see them as a burden.
- Tends to be passive observer on the team.
- Requires others to point out systems failures.
- May become defensive or blame the system when faced with an error.
- Does not recognize generalizability of lessons from understanding errors.
- Participates in system improvements only when externally prompted to do so.
- Uses rigid and rules-based communication that prevents “speaking up,” especially when a superior is involved in an error or potential error.
- Does not recognize one’s own fatigue or is afraid to tell superiors when fatigued.

#### **Expected behaviors for an entrustable learner**

- Identifies real and potential errors.
- Performs common safety behaviors (e.g., universal precautions, hand washing).
- Understands the importance of error prevention both to individual patients and to systems.
- Takes responsibility for one’s role in errors.
- Takes time to “slow down” and reflect on one’s work.
- Still relies on external sources of information to understand one’s population of patients.
- Reports real and/or potential errors when they occur using the system reporting structure.
- Participates in improvement activities voluntarily.
- Speaks up when concerned about a potential error, even if that means questioning or challenging a supervisor.
- Recognizes one’s own symptoms of fatigue and moderates behavior or seeks help.

## References

1. Okusanya OT, Kornfield ZN, Reinke CE, et al. The Effect and Durability of a Pregraduation Boot Camp on the Confidence of Senior Medical Student Entering Surgical Residencies. *Journal of Surgical Education*. 2012;69(4):536-543.
2. Naylor RA, Hollett LA, Castellvi A, Valentine RJ, Scott DJ. Preparing medical students to enter surgery residencies. *American Journal of Surgery*. 2010;199(1):105-109.
3. Lyss-Lerman P, Teherani A, Aagaard E, Loeser H, Cooke M, Harper GM. What Training Is Needed in the Fourth Year of Medical School? Views of Residency Program Directors. *Academic Medicine*. 2009;84(7).
4. Association of American Medical Colleges (AAMC). Recommendations for Clinical Skills Curricula for Undergraduate Medical Education. 2005; <https://members.aamc.org/eweb/upload/Recommendations%20for%20Clinical%20Skills%20Curricula%202005.pdf>.
5. The Association of Faculties of Medicine of Canada (AFMC). The Future of Medical Education in Canada (FMEC): A Collective Vision for MD Education. 2012. [http://www.afmc.ca/future-of-medical-education-in-canada/medical-doctor-project/pdf/collective\\_vision.pdf](http://www.afmc.ca/future-of-medical-education-in-canada/medical-doctor-project/pdf/collective_vision.pdf).
6. Accreditation Council for Graduate Medical Education (ACGME). Milestones. 2013; <http://www.acgme.org/acgmeweb/tabid/430/ProgramandInstitutionalAccreditation/NextAccreditationSystem/Milestones.aspx>. Accessed November 25, 2013.
7. Raymond MR, Mee J, King A, Haist SA, Winward ML. What New Residents Do During Their Initial Months of Training. *Academic Medicine*. 2011;86(10):S60-S63.
8. Langdale LA, Schaad D, Wipf J, Marshall S, Vontver L, Scott CS. Preparing graduates for the first year of residency: Are medical schools meeting the need? *Academic Medicine*. 2003;78(1).
9. Young JQ, Ranji SR, Wachter RM, Lee CM, Niehaus B, Auerbach AD. "July Effect": Impact of the Academic Year-End Changeover on Patient Outcomes A Systematic Review. *Annals of Internal Medicine*. 2011;155(5).
10. Englander R, Cameron T, Ballard AJ, Dodge J, Bull J, Aschenbrenner CA. Toward a Common Taxonomy of Competency Domains for the Health Professions and Competencies for Physicians. *Academic Medicine*. 2013;88(8):1088-1094.
11. Frank JR, Snell LS, Ten Cate O, et al. Competency-based medical education: theory to practice. *Medical Teacher*. 2010;32(8):638-645.
12. Ten Cate O. Nuts and bolts of entrustable professional activities. *J Grad Med Educ*. 2013;5(1):157-158.
13. Ten Cate O. Entrustability of professional activities and competency-based training. *Medical Education*. 2005;39(12):1176-1177.
14. Hall Render. The Lexicon of Supervision: CMS Versus ACGME Defined Terms. 2011. <http://www.hallrender.com/library/articles/862/070511HLN.html>. Accessed October 17, 2013.
15. Van der Vleuten CPM, Schuwirth LWT. Assessing professional competence: from methods to programmes. *Medical Education*. 2005;39:309-317.
16. Kennedy TJT, Regehr G, Baker GR, Lingard L. Point-of-Care Assessment of Medical Trainee Competence for Independent Clinical Work. *Academic Medicine*. 2008;83(10):S89-S92.

17. Ten Cate O, Scheele F. Viewpoint: Competency-based postgraduate training: Can we bridge the gap between theory and clinical practice? *Academic Medicine*. 2007;82(6):542-547.
18. Pediatrics Milestone Working Group. The Pediatrics Milestone Project. 2012. [http://www.acgme.org/acgmeweb/Portals/0/PFAssets/ProgramResources/320\\_PedsMilestonesProject.pdf](http://www.acgme.org/acgmeweb/Portals/0/PFAssets/ProgramResources/320_PedsMilestonesProject.pdf). Accessed December 6, 2012.
19. The American Board of Surgery. The General Surgery Milestone Project. 2013; <http://www.acgme.org/acgmeweb/Portals/0/PDFs/Milestones/SurgeryMilestones.pdf>.
20. The American Board of Emergency Medicine. The Emergency Medicine Milestone Project. 2013; <https://www.acgme.org/acgmeweb/Portals/0/PDFs/Milestones/EmergencyMedicineMilestones.pdf>.
21. The American Board of Internal Medicine. The Internal Medicine Milestone Project. 2013; <http://www.acgme.org/acgmeweb/Portals/0/PDFs/Milestones/InternalMedicineMilestones.pdf>.
22. The American Board of Psychiatry and Neurology. The Psychiatry Milestone Project. 2013; <https://www.acgme.org/acgmeweb/Portals/0/PDFs/Milestones/PsychiatryMilestones.pdf>.
23. Interprofessional Education Collaborative Expert Panel. *Core competencies for interprofessional collaborative practice: Report of an expert panel*. Washington, D.C. 2011.
24. Regehr G, Regehr C, Bogo M, Power R. Can we build a better mousetrap? Improving the measures of practice performance in the field practicum. *Journal of Social Work Education*. 2007;43(2):327-343.
25. Institute of Medicine (IOM). *To err is human: Building a safer health system*. Washington, D.C.: National Academy Press; 2000.
26. Institute of Medicine (IOM). *Crossing the quality chasm*. Washington, D.C.: National Academy Press; 2001.





**Association of  
American Medical Colleges**

655 K Street, N.W., Suite 100, Washington, D.C. 20001-2399

T 202 828 0400 F 202 828 1125

[www.aamc.org](http://www.aamc.org)