Core Entrustable Professional Activities for Entering Residency

Core Entrustable Professional Activities for Entering Residency: Toolkits for the 13 Core EPAs

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Core Entrustable Professional Activities for Entering Residency: Toolkits for the 13 Core EPAs

Association of American Medical Colleges

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EPA 1 Toolkit: Gather a History and Perform a Physical Examination

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User Guide

This toolkit is for medical schools interested in implementing the Core Entrustable Professional Activities (EPAs) for Entering Residency. Written by the AAMC Core EPA Pilot Group, the toolkit expands on the EPA framework outlined in the *EPA Developer’s Guide* (AAMC 2014). The Pilot Group identified progressive sequences of student behavior that medical educators may encounter as students engage in the medical school curriculum and became proficient in integrating their clinical skills. These sequences of behavior are articulated for each of the 13 EPAs in one-page schematics to provide a framework for understanding EPAs; additional resources follow.

This toolkit includes:

- One-page schematic of each EPA
- Core EPA Pilot supervision and coactivity scales
- List of resources associated with each EPA
- Reference to EPA bulleted behaviors and vignettes from the *Core EPA Guide*
- The Physician Competency Reference Set
- Opportunities for engagement with the Core EPA Pilot
One-Page Schematics

In 2014, the AAMC launched a pilot project with 10 institutions to address the feasibility of implementing 13 EPAs for entering residency in undergraduate medical education. To standardize our approach as a pilot and promote a shared mental model, the Core EPA Pilot Group developed one-page schematics for each of the 13 EPAs.

These schematics were developed to translate the rich and detailed content within The Core Entrustable Professional Activities for Entering Residency Curriculum Developers’ Guide published in 2014 by the AAMC into a one-page, easy-to-use format (AAMC 2014). These one-page schematics of developmental progression to entrustment provide user-friendly descriptions of each EPA. We sought fidelity to the original ideas and concepts created by the expert drafting panel that developed the Core EPA Guide.

We envision the one-page schematics as a resource for:

- Development of curriculum and assessment tools
- Faculty development
- Student understanding
- Entrustment committees, portfolio advisors, and others tracking longitudinal student progress

Understanding the One-Page Schematic

Performance of an EPA requires integration of multiple competencies (Englander and Carraccio 2014). Each EPA schematic begins with its list of key functions and related competencies. The functions are followed by observable behaviors of increasing ability describing a medical student’s development toward readiness for indirect supervision. The column following the functions lists those behaviors requiring immediate correction or remediation. The last column lists expected behaviors of an entrustable learner.

The members of the Curriculum and Assessment Team of the Core EPA Pilot Group led this initiative. Thirteen EPA groups, each comprising representatives from four to five institutions, were tasked with creating each EPA schematic. Development of the schematics involved an explicit, standardized process to reduce variation and ensure consistency with functions, competencies, and the behaviors explicit in the Core EPA Guide. Behaviors listed were carefully gathered from the Core EPA Guide and reorganized by function and competency and listed in a developmental progression. The Curriculum and Assessment Team promoted content validity by carrying out iterative reviews by telephone conference call with the members of the Core EPA Pilot Group assigned to each EPA.

EPA Curriculum and Assessment

Multiple methods of teaching and assessing EPAs throughout the curriculum will be required to make a summative entrustment decision about residency readiness. The schematics can help to systematically identify and map curricular elements required to prepare students to perform EPAs. Specific prerequisite curricula may be needed to develop knowledge, skills, and attitudes before the learner engages in practice of the EPA.

To implement EPAs, medical schools should identify where in the curriculum EPAs will be taught, practiced, and assessed. Among other modalities, simulation, reflection, and standardized and structured experiences will all provide data about student competence. However, central to the concept of entrustment is the global performance of EPAs in authentic clinical settings, where the EPA is taught and assessed holistically, not as the sum of its parts.
Workplace-Based Assessments: Supervision and Coactivity Scales

On a day-to-day basis, clinical supervisors make and communicate judgments about how much help (coactivity) or supervision a student or resident needs. “Will I let the student go in the room without me? How much will I let the student do versus observe? Because I wasn’t present to observe, how much do I need to double-check?” Scales for clinical supervisors to determine how much help or supervision a student needs for a specific activity have been proposed (Chen et al 2015; Rekman et al 2016). There is limited validity evidence for these scales, and no published data comparing them. Given our initial experience, the Core EPA Pilot Group has agreed on a trial using modified versions of these scales (Appendix 1).

Resources

The Pilot Group compiled a list of resources, including relevant Critical Synthesis Packages from MedEdPORTAL®, a review of current existing literature, teaching methods, and assessment tools related to each EPA (Appendix 2). This collection of products may help schools with implementation. For example, schools may find the teaching methods and assessment tools useful when considering multiple sources of data about student performance that may eventually contribute to a summative entrustment decision. The Pilot Group concluded that new teaching methods and assessment tools will be needed to complement these resources. This need is particularly relevant for workplace-based assessments where the synthetic performance of an EPA is linked to a level of supervision. We envision the one-page schematics as a resource for the development of new teaching and assessment methods.
Frequently Asked Questions

Why are EPAs important?

In many cases, medical school graduates are perceived by residency program directors as insufficiently prepared at the beginning of their residency training for indirect supervision in clinical skills and for exhibiting professional behaviors. The EPAs define a shared set of clinical activities that residents are expected to perform on day one of residency. This is an important opportunity for undergraduate medical education to develop a new construct toward preparedness and, as an end goal, improvements in patient safety. Ideally, students will perform the Core EPAs consistently in situations of varying complexity as they practice and receive actionable feedback, formulating learning goals for future demonstrations of competence.

What does “entrustment” mean in the context of the EPAs?

Entrustment is defined as trustworthiness in applying knowledge, skills, and attitudes in performance of an EPA. To be “trustworthy,” students must consistently demonstrate attributes such as conscientiousness, knowledge of their own limits and help-seeking behavior (discernment), and truthfulness (Kennedy et al 2008). Throughout medical education, students should be assessed on trustworthiness—though this may occur implicitly or explicitly. The EPA framework makes this assessment explicit and transparent.

EPA entrustment is defined as a judgment by a supervisor or collection of supervisors signaling a student has met specific, defined expectations for needing limited supervision. The Core EPA Pilot Group recommends the formation of an entrustment committee to make evidence-based summative entrustment decisions about each student’s readiness for residency (Brown et al 2017).

What is the relationship between competencies and EPAs?

The EPA framework reorganizes competencies into observable units of clinical work by function. Each function is a subunit of work required to perform an EPA. The functions and related competencies are the parts, and the EPA is the whole. The Toolkit’s one-page schematics highlight an EPA’s specific functions with underlying competencies into observable behaviors within a developmental progression toward entrustment.

Although tracking progression within individual functions can help learners develop appropriate skills, monitoring learner progress toward entrustability for that EPA requires synthesis: At some point the learner must apply each of the functions in execution of the EPA task. *To this end, we emphasize the importance of the holistic nature of the EPA and prioritize assessment for entrustment in these activities in workplace settings as a whole, not as the sum of their parts.*

Is the one-page schematic designed as a rubric for student assessment?

No, the one-page schematics are not intended to serve as assessment tools. They can serve as guides for development of instructional, feedback, and assessment tools for EPAs. We share them as a framework for understanding the developmental progression that graduating medical students should demonstrate as a reflection of their readiness for residency.
How can I or my institution become more involved?

Medical schools in the AAMC pilot, those interested in implementing EPAs, and those wondering about the faculty resources needed to teach and assess EPAs are already part of a dynamic learning community. Opportunities for engaging with others exist through the AAMC Core EPA listserve, conference presentations, collaborative projects, and in informal medical education networks. Your contributions help shape the work of the Core EPA Pilot project and are a source of new ideas, feedback, and suggestions for implementation. We invite you to continue your conversations with us by sharing the decisions you face within the unique culture of your institution.

- To subscribe to the Core EPAs listserve, send a blank email to subscribe-coreepas@lists.aamc.org. To post a comment to the listserve, simply send an email to coreepas@lists.aamc.org.

- Core EPA Pilot Website: [https://www.aamc.org/initiatives/coreepas/](https://www.aamc.org/initiatives/coreepas/)

- Publications from the Core EPA Pilot Group: [https://www.aamc.org/initiatives/coreepas/publicationsandpresentations/](https://www.aamc.org/initiatives/coreepas/publicationsandpresentations/)

- Core EPA Pilot Group email for queries and observations: coreepas@aamc.org
EPA 1: Gather a History and Perform a Physical Examination

Key Functions with Related Competencies

- **Obtain a complete and accurate history in an organized fashion**
  - PC2
- **Demonstrate patient-centered interview skills**
  - ICS1 ICS7 P1 P3 P5
- **Demonstrate clinical reasoning in gathering focused information relevant to a patient’s care**
  - KP1
- **Perform a clinically relevant, appropriately thorough physical exam pertinent to the setting and purpose of the patient visit**
  - PC2

Behaviors Requiring Corrective Response

- Gathers excessive or incomplete data
- Does not deviate from a template
- Relies exclusively on secondary sources or documentation of others
- Is disrespectful in interactions with patients
- Disregards patient privacy and autonomy
- Fails to recognize patient’s central problem
- Does not consider patient’s privacy and comfort during exams
- Incorrectly performs basic physical exam maneuvers
- Performs basic exam maneuvers correctly
- Does not perform exam in an organized fashion
- Relies on head-to-toe examination
- Misses key findings

Developing Behaviors

- Uses a logical progression of questioning
- Questions are prioritized and not excessive
- Demonstrates effective communication skills, including silence, open-ended questions, body language, listening, and avoids jargon
- Anticipates and interprets patient’s emotions
- Incorporates responses appropriate to age, gender, culture, race, religion, disabilities and/or sexual orientation
- Questions are purposefully used to clarify patient’s issues
- Is able to filter signs and symptoms into pertinent positives and negatives
- Performs the exam to areas necessary for the encounter
- Identifies and describes normal findings
- Explains exam maneuvers to patient
- Performs an accurate exam in a logical and fluid sequence

Expected Behaviors for an Entrustable Learner

- Obtains a complete and accurate history in an organized fashion
- Seeks secondary sources of information when appropriate (e.g. family, primary care physician, living facility, pharmacy)
- Adapts to different care settings and encounters
- Adapts communication skills to the individual patient’s needs and characteristics
- Responds effectively to patient’s verbal and nonverbal cues and emotions
- Demonstrates astute clinical reasoning through targeted hypothesis-driven questioning
- Incorporates secondary data into medical reasoning

Underlying entrustability for all EPAs are trustworthy habits, including truthfulness, conscientiousness, and discernment.

This schematic depicts development of proficiency in the Core EPAs. It is not intended for use as an assessment instrument. Entrustment decisions should be made after EPAs have been observed in multiple settings with varying context, acuity, and complexity and with varying patient characteristics.
Appendix 1: Core EPA Pilot Supervision and Coactivity Scales

Scales for clinical supervisors to determine how much help (coactivity) or supervision they judge a student needs for a specific activity have been proposed—the Chen entrustment scale and the Ottawa scale (Chen et al 2015; Rekman et al 2016). There is limited validity evidence for these scales and no published data comparing them. We include these published tools here for your reference. The Core EPA Pilot Group has agreed on a trial using modified versions of these scales (described below). A description of how the pilot is working with these scales is available on the Core EPA website.

<table>
<thead>
<tr>
<th>Modified Chen entrustment scale: If you were to supervise this student again in a similar situation, which of the following statements aligns with how you would assign the task?</th>
<th>Corresponding excerpt from original Chen entrustment scale (Chen et al 2015)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1b. “Watch me do this.”</td>
<td>1b. Not allowed to practice EPA; allowed to observe</td>
</tr>
<tr>
<td>2a. “Let's do this together.”</td>
<td>2a. Allowed to practice EPA only under proactive, full supervision as coactivity with supervisor</td>
</tr>
<tr>
<td>2b. “I'll watch you.”</td>
<td>2b. Allowed to practice EPA only under proactive, full supervision with supervisor in room ready to step in as needed</td>
</tr>
<tr>
<td>3a. “You go ahead, and I'll double-check all of your findings.”</td>
<td>3a. Allowed to practice EPA only under reactive/on-demand supervision with supervisor immediately available, all findings double-checked</td>
</tr>
<tr>
<td>3b. “You go ahead, and I'll double-check key findings.”</td>
<td>3b. Allowed to practice EPA only under reactive/on-demand supervision with supervisor immediately available, key findings double-checked</td>
</tr>
</tbody>
</table>
**Modified Ottawa scale:** In supervising this student, how much did you participate in the task?  

<table>
<thead>
<tr>
<th>Modified Ottawa scale</th>
<th>Original Ottawa scale (Rekman et al 2016)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. “I did it.” Student required complete guidance or was unprepared; I had to do most of the work myself.</td>
<td>1. “I had to do.” (i.e., requires complete hands-on guidance, did not do, or was not given the opportunity to do)</td>
</tr>
<tr>
<td>2. “I talked them through it.” Student was able to perform some tasks but required repeated directions.</td>
<td>2. “I had to talk them through.” (i.e., able to perform tasks but requires constant direction)</td>
</tr>
<tr>
<td>3. “I directed them from time to time.” Student demonstrated some independence and only required intermittent prompting.</td>
<td>3. “I had to prompt them from time to time.” (i.e., demonstrates some independence, but requires intermittent direction)</td>
</tr>
<tr>
<td>4. “I was available just in case.” Student functioned fairly independently and only needed assistance with nuances or complex situations.</td>
<td>4. “I needed to be there in the room just in case.” (i.e., independence but unaware of risks and still requires supervision for safe practice)</td>
</tr>
<tr>
<td>5. (No level 5: Students are ineligible for complete independence in our systems.)</td>
<td>5. “I did not need to be there.” (i.e., complete independence, understands risks and performs safely, practice ready)</td>
</tr>
</tbody>
</table>
Appendix 2: Resources Related to EPA 1

Hypothesis-Driven Physical Examination (HDPE)

Mini-Clinical Evaluation Exercise

Faculty Observer Rating Scale (FORS)

Interpreter Scale (IS)

Patient-Practitioner Orientation Scale (PPOS)

Assessment of Professional Behaviors (APB)

MAAS-Global Manual 2000

Cross-Cultural Counseling Inventory—Revised (CCCI-R)

CAM Health Belief Questionnaire (CHBQ)

Relational Communication Scale (RCS)

**Communication Assessment Tool (CAT)**


**Liverpool Communication Skills Assessment Scale (LCSAS)**


**Communication Curriculum Package**


**Professionalism Mini-Evaluation Exercise (P-MEX)**


**Rochester Communication Rating Scale**


**Evidence in the Literature**

Appendix 3: Behaviors and Vignettes

The Core EPA Guide produced by the AAMC contains additional detailed information that may be useful for curriculum designers.

1. For a convenient list of behaviors for this EPA that were used to develop a developmental progression, we refer you to the Core EPA Guide.

2. For exemplars of learner vignettes that highlight pre-entrustable and entrustable scenarios, please see the Core EPA Guide.
Appendix 4: The Physician Competency Reference Set (PCRS)

The Physician Competency Reference Set (Englander et al 2013) is provided for cross-referencing with the one-page schematic.

<table>
<thead>
<tr>
<th>1. PATIENT CARE (PC): Provide patient-centered care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1 Perform all medical, diagnostic, and surgical procedures considered essential for the area of practice</td>
</tr>
<tr>
<td>1.2 Gather essential and accurate information about patients and their condition through history-taking, physical examination, and the use of laboratory data, imaging, and other tests</td>
</tr>
<tr>
<td>1.3 Organize and prioritize responsibilities to provide care that is safe, effective, and efficient</td>
</tr>
<tr>
<td>1.4 Interpret laboratory data, imaging studies, and other tests required for the area of practice</td>
</tr>
<tr>
<td>1.5 Make informed decisions about diagnostic and therapeutic interventions based on patient information and preferences, up-to-date scientific evidence, and clinical judgment</td>
</tr>
<tr>
<td>1.6 Develop and carry out patient management plans</td>
</tr>
<tr>
<td>1.7 Counsel and educate patients and their families to empower them to participate in their care and enable shared decision making</td>
</tr>
<tr>
<td>1.8 Provide appropriate referral of patients, including ensuring continuity of care throughout transitions between providers or settings and following up on patient progress and outcomes</td>
</tr>
<tr>
<td>1.9 Provide health care services to patients, families, and communities aimed at preventing health problems or maintaining health</td>
</tr>
<tr>
<td>1.10 Provide appropriate role modeling</td>
</tr>
<tr>
<td>1.11 Perform supervisory responsibilities commensurate with one’s roles, abilities, and qualifications</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2. KNOWLEDGE FOR PRACTICE (KP): Demonstrate knowledge of established and evolving biomedical, clinical, epidemiological, and social–behavioral sciences, as well as the application of this knowledge to patient care</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1 Demonstrate an investigatory and analytic approach to clinical situations</td>
</tr>
<tr>
<td>2.2 Apply established and emerging biophysical scientific principles fundamental to health care for patients and populations</td>
</tr>
<tr>
<td>2.3 Apply established and emerging principles of clinical sciences to diagnostic and therapeutic decision making, clinical problem solving, and other aspects of evidence-based health care</td>
</tr>
<tr>
<td>2.4 Apply principles of epidemiological sciences to the identification of health problems, risk factors, treatment strategies, resources, and disease prevention/health promotion efforts for patients and populations</td>
</tr>
<tr>
<td>2.5 Apply principles of social–behavioral sciences to provision of patient care, including assessment of the impact of psychosocial–cultural influences on health, disease, care-seeking, care compliance, and barriers to and attitudes toward care</td>
</tr>
<tr>
<td>2.6 Contribute to the creation, dissemination, application, and translation of new health care knowledge and practices</td>
</tr>
</tbody>
</table>
3. PRACTICE-BASED LEARNING AND IMPROVEMENT (PBLI): Demonstrate the ability to investigate and evaluate their care of patients, to appraise and assimilate scientific evidence, and to continuously improve patient care based on constant self-evaluation and lifelong learning

3.1 Identify strengths, deficiencies, and limits in one’s knowledge and expertise
3.2 Set learning and improvement goals
3.3 Identify and perform learning activities that address one’s gaps in knowledge, skills, or attitudes
3.4 Systematically analyze practice using quality-improvement methods, and implement changes with the goal of practice improvement
3.5 Incorporate feedback into daily practice
3.6 Locate, appraise, and assimilate evidence from scientific studies related to patients’ health problems
3.7 Use information technology to optimize learning
3.8 Participate in the education of patients, families, students, trainees, peers, and other health professionals
3.9 Obtain and utilize information about individual patients, populations of patients, or communities from which patients are drawn to improve care
3.10 Continually identify, analyze, and implement new knowledge, guidelines, standards, technologies, products, or services that have been demonstrated to improve outcomes

4. INTERPERSONAL AND COMMUNICATION SKILLS (ICS): Demonstrate interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, their families, and health professionals

4.1 Communicate effectively with patients, families, and the public, as appropriate, across a broad range of socioeconomic and cultural backgrounds
4.2 Communicate effectively with colleagues within one’s profession or specialty, other health professionals, and health-related agencies (see also interprofessional collaboration competency, IPC 7.3)
4.3 Work effectively with others as a member or leader of a health care team or other professional group (see also IPC 7.4)
4.4 Act in a consultative role to other health professionals
4.5 Maintain comprehensive, timely, and legible medical records
4.6 Demonstrate sensitivity, honesty, and compassion in difficult conversations (e.g., about issues such as death, end-of-life issues, adverse events, bad news, disclosure of errors, and other sensitive topics)
4.7 Demonstrate insight and understanding about emotions and human responses to emotions that allow one to develop and manage interpersonal interactions

5. PROFESSIONALISM (P): Demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles

5.1 Demonstrate compassion, integrity, and respect for others
5.2 Demonstrate responsiveness to patient needs that supersedes self-interest
5.3 Demonstrate respect for patient privacy and autonomy
5.4 Demonstrate accountability to patients, society, and the profession
5.5 Demonstrate sensitivity and responsiveness to a diverse patient population, including but not limited to diversity in gender, age, culture, race, religion, disabilities, and sexual orientation
5.6 Demonstrate a commitment to ethical principles pertaining to provision or withholding of care, confidentiality, informed consent, and business practices, including compliance with relevant laws, policies, and regulations

6. SYSTEMS-BASED PRACTICE (SBP): Demonstrate an awareness of and responsiveness to the larger context and system of health care, as well as the ability to call effectively on other resources in the system to provide optimal health care

6.1 Work effectively in various health care delivery settings and systems relevant to one’s clinical specialty
6.2 Coordinate patient care within the health care system relevant to one’s clinical specialty
6.3 Incorporate considerations of cost awareness and risk–benefit analysis in patient and/or population-based care
6.4 Advocate for quality patient care and optimal patient care systems
6.5 Participate in identifying system errors and implementing potential systems solutions
6.6 Perform administrative and practice management responsibilities commensurate with one’s role, abilities, and qualifications

7. INTERPROFESSIONAL COLLABORATION (IPC): Demonstrate the ability to engage in an interprofessional team in a manner that optimizes safe, effective patient- and population-centered care

7.1 Work with other health professionals to establish and maintain a climate of mutual respect, dignity, diversity, ethical integrity, and trust
7.2 Use the knowledge of one’s own role and those of other professions to appropriately assess and address the health care needs of the patients and populations served
7.3 Communicate with other health professionals in a responsive and responsible manner that supports the maintenance of health and the treatment of disease in individual patients and populations
7.4 Participate in different team roles to establish, develop, and continuously enhance interprofessional teams to provide patient- and population-centered care that is safe, timely, efficient, effective, and equitable

8. PERSONAL AND PROFESSIONAL DEVELOPMENT (PPD): Demonstrate the qualities required to sustain lifelong personal and professional growth

8.1 Develop the ability to use self-awareness of knowledge, skills, and emotional limitations to engage in appropriate help-seeking behaviors
8.2 Demonstrate healthy coping mechanisms to respond to stress
8.3 Manage conflict between personal and professional responsibilities
8.4 Practice flexibility and maturity in adjusting to change with the capacity to alter behavior
8.5 Demonstrate trustworthiness that makes colleagues feel secure when one is responsible for the care of patients
8.6 Provide leadership skills that enhance team functioning, the learning environment, and/or the health care delivery system
8.7 Demonstrate self-confidence that puts patients, families, and members of the health care team at ease
8.8 Recognize that ambiguity is part of clinical health care and respond by using appropriate resources in dealing with uncertainty
References

Publications From the Core EPA Pilot Group


Other Related Publications


EPA 2 Toolkit: Prioritize a Differential Diagnosis Following a Clinical Encounter

Association of American Medical Colleges
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User Guide

This toolkit is for medical schools interested in implementing the Core Entrustable Professional Activities (EPAs) for Entering Residency. Written by the AAMC Core EPA Pilot Group, the toolkit expands on the EPA framework outlined in the EPA Developer’s Guide (AAMC 2014). The Pilot Group identified progressive sequences of student behavior that medical educators may encounter as students engage in the medical school curriculum and became proficient in integrating their clinical skills. These sequences of behavior are articulated for each of the 13 EPAs in one-page schematics to provide a framework for understanding EPAs; additional resources follow.

This toolkit includes:

- One-page schematic of each EPA
- Core EPA Pilot supervision and coactivity scales
- List of resources associated with each EPA
- Reference to EPA bulleted behaviors and vignettes from the Core EPA Guide
- The Physician Competency Reference Set
- Opportunities for engagement with the Core EPA Pilot
One-Page Schematics

In 2014, the AAMC launched a pilot project with 10 institutions to address the feasibility of implementing 13 EPAs for entering residency in undergraduate medical education. To standardize our approach as a pilot and promote a shared mental model, the Core EPA Pilot Group developed one-page schematics for each of the 13 EPAs.

These schematics were developed to translate the rich and detailed content within The Core Entrustable Professional Activities for Entering Residency Curriculum Developers’ Guide published in 2014 by the AAMC into a one-page, easy-to-use format (AAMC 2014). These one-page schematics of developmental progression to entrustment provide user-friendly descriptions of each EPA. We sought fidelity to the original ideas and concepts created by the expert drafting panel that developed the Core EPA Guide.

We envision the one-page schematics as a resource for:

- Development of curriculum and assessment tools
- Faculty development
- Student understanding
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Understanding the One-Page Schematic

Performance of an EPA requires integration of multiple competencies (Englander and Carraccio 2014). Each EPA schematic begins with its list of key functions and related competencies. The functions are followed by observable behaviors of increasing ability describing a medical student’s development toward readiness for indirect supervision. The column following the functions lists those behaviors requiring immediate correction or remediation. The last column lists expected behaviors of an entrustable learner.

The members of the Curriculum and Assessment Team of the Core EPA Pilot Group led this initiative. Thirteen EPA groups, each comprising representatives from four to five institutions, were tasked with creating each EPA schematic. Development of the schematics involved an explicit, standardized process to reduce variation and ensure consistency with functions, competencies, and the behaviors explicit in the Core EPA Guide. Behaviors listed were carefully gathered from the Core EPA Guide and reorganized by function and competency and listed in a developmental progression. The Curriculum and Assessment Team promoted content validity by carrying out iterative reviews by telephone conference call with the members of the Core EPA Pilot Group assigned to each EPA.

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On a day-to-day basis, clinical supervisors make and communicate judgments about how much help (coactivity) or supervision a student or resident needs. “Will I let the student go in the room without me? How much will I let the student do versus observe? Because I wasn’t present to observe, how much do I need to double-check?” Scales for clinical supervisors to determine how much help or supervision a student needs for a specific activity have been proposed (Chen et al 2015; Rekman et al 2016). There is limited validity evidence for these scales, and no published data comparing them. Given our initial experience, the Core EPA Pilot Group has agreed on a trial using modified versions of these scales (Appendix 1).

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EPA 2: Prioritize a Differential Diagnosis Following a Clinical Encounter

**Core Entrustable Professional Activities for Entering Residency**

**EPA 2**

Prioritize a differential diagnosis

- **Underlying entrustability for all EPAs are trustworthy habits, including truthfulness, conscientiousness, and discernment.**

This schematic depicts development of proficiency in the Core EPAs. It is not intended for use as an assessment instrument. Entrustment decisions should be made after EPAs have been observed in multiple settings with varying context, acuity, and complexity and with varying patient characteristics.

**Key Functions with Related Competencies**

- **Synthesize essential information from previous records, history, physical exam, and initial diagnostic evaluations to propose a scientifically supported differential diagnosis**
  - PC2 KP3 KP4 KP2
- **Prioritize and continue to integrate information as it emerges to update differential diagnosis, while managing ambiguity**
  - PC4 KP3 KP4 PPD8 PBL1
- **Engage and communicate with team members for endorsement and verification of the working diagnosis that will inform management plans**
  - KP3 KP4 ICS2

**Behaviors Requiring Corrective Response**

- Cannot gather or synthesize data to inform an acceptable diagnosis
- Lacks basic medical knowledge to reason effectively
- Disregards emerging diagnostic information
- Ignores team’s recommendations
- Cannot explain or document clinical reasoning

**Developing Behaviors**

- Approaches assessment from a rigid template
- Struggles to filter, prioritize, and make connections between sources of information
- Proposes a differential diagnosis that is too narrow, is too broad, or contains inaccuracies
- Demonstrates difficulty retrieving knowledge for effective reasoning
- Ignores team’s recommendations
- Develops and acts on a management plan before receiving team’s endorsement
- Cannot explain or document clinical reasoning

**Expected Behaviors for an Entrustable Learner**

- Gathers pertinent data based on initial diagnostic hypotheses
- Proposes a reasonable differential diagnosis but may neglect important diagnostic information
- Is beginning to organize knowledge by illness scripts (patterns) to generate and support a diagnosis
- Seeks and integrates emerging information to update the differential diagnosis
- Encourages questions and challenges from patients and team

**EPA 2: Prioritize a Differential Diagnosis Following a Clinical Encounter**

- **An EPA: A unit of observable, measurable professional practice requiring integration of competencies**

Green, M, Tewksbury, L, Wagner, D, Obeso V, Brown D, Phillipi C, eds.; for Core EPAs for Entering Residency Pilot Program. Adapted from the Association of American Medical Colleges (AAMC). Core entrustable professional activities for entering residency. 2014.
Appendix 1: Core EPA Pilot Supervision and Coactivity Scales

Scales for clinical supervisors to determine how much help (coactivity) or supervision they judge a student needs for a specific activity have been proposed—the Chen entrustment scale and the Ottawa scale (Chen et al 2015; Rekman et al 2016). There is limited validity evidence for these scales and no published data comparing them. We include these published tools here for your reference. The Core EPA Pilot Group has agreed on a trial using modified versions of these scales (described below). A description of how the pilot is working with these scales is available on the Core EPA website.

<table>
<thead>
<tr>
<th>Modified Chen entrustment scale: If you were to supervise this student again in a similar situation, which of the following statements aligns with how you would assign the task?</th>
<th>Corresponding excerpt from original Chen entrustment scale (Chen et al 2015)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1b. “Watch me do this.”</td>
<td>1b. Not allowed to practice EPA; allowed to observe</td>
</tr>
<tr>
<td>2a. “Let's do this together.”</td>
<td>2a. Allowed to practice EPA only under proactive, full supervision as coactivity with supervisor</td>
</tr>
<tr>
<td>2b. “I'll watch you.”</td>
<td>2b. Allowed to practice EPA only under proactive, full supervision with supervisor in room ready to step in as needed</td>
</tr>
<tr>
<td>3a. “You go ahead, and I'll double-check all of your findings.”</td>
<td>3a. Allowed to practice EPA only under reactive/on-demand supervision with supervisor immediately available, all findings double-checked</td>
</tr>
<tr>
<td>3b. “You go ahead, and I'll double-check key findings.”</td>
<td>3b. Allowed to practice EPA only under reactive/on-demand supervision with supervisor immediately available, key findings double-checked</td>
</tr>
</tbody>
</table>
### Modified Ottawa scale: In supervising this student, how much did you participate in the task?

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
<th>Original Ottawa scale (Rekman et al 2016)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>“I did it.” Student required complete guidance or was unprepared; I had to do most of the work myself.</td>
<td>1. “I had to do.” (i.e., requires complete hands-on guidance, did not do, or was not given the opportunity to do)</td>
</tr>
<tr>
<td>2.</td>
<td>“I talked them through it.” Student was able to perform some tasks but required repeated directions.</td>
<td>2. “I had to talk them through.” (i.e., able to perform tasks but requires constant direction)</td>
</tr>
<tr>
<td>3.</td>
<td>“I directed them from time to time.” Student demonstrated some independence and only required intermittent prompting.</td>
<td>3. “I had to prompt them from time to time.” (i.e., demonstrates some independence, but requires intermittent direction)</td>
</tr>
<tr>
<td>4.</td>
<td>“I was available just in case.” Student functioned fairly independently and only needed assistance with nuances or complex situations.</td>
<td>4. “I needed to be there in the room just in case.” (i.e., independence but unaware of risks and still requires supervision for safe practice)</td>
</tr>
<tr>
<td>5.</td>
<td>(No level 5: Students are ineligible for complete independence in our systems.)</td>
<td>5. “I did not need to be there.” (i.e., complete independence, understands risks and performs safely, practice ready)</td>
</tr>
</tbody>
</table>
Appendix 2: Resources Related to EPA 2

Hypothesis-Driven Physical Examination (HDPE)

Mini-Clinical Evaluation Exercise

Script Concordance Testing (SCT)

Assessment of Professional Behaviors (APB)

MAAS-Global Manual 2000

UCSF Reflection Tool

Professionalism Mini-Evaluation Exercise (P-MEX)

Reflective Ability Rubric

Evidence and Instruments in the Literature
Geller G, Tambor ES, Chase GA, Holtzman NA. Measuring physicians’ tolerance for ambiguity and its relationship to their reported practices regarding genetic testing. *Med Care*. 1993;31(11):989-1001. (This scale is used currently at the AAMC.)

Appendix 3: Behaviors and Vignettes

The Core EPA Guide produced by the AAMC contains additional detailed information that may be useful for curriculum designers.

1. For a convenient list of behaviors for this EPA that were used to develop a developmental progression, we refer you to the Core EPA Guide.

2. For exemplars of learner vignettes that highlight pre-entrustable and entrustable scenarios, please see the Core EPA Guide.
Appendix 4: The Physician Competency Reference Set (PCRS)

The Physician Competency Reference Set (Englander et al 2013) is provided for cross-referencing with the one-page schematic.

### 1. PATIENT CARE (PC): Provide patient-centered care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health

1.1 Perform all medical, diagnostic, and surgical procedures considered essential for the area of practice
1.2 Gather essential and accurate information about patients and their condition through history-taking, physical examination, and the use of laboratory data, imaging, and other tests
1.3 Organize and prioritize responsibilities to provide care that is safe, effective, and efficient
1.4 Interpret laboratory data, imaging studies, and other tests required for the area of practice
1.5 Make informed decisions about diagnostic and therapeutic interventions based on patient information and preferences, up-to-date scientific evidence, and clinical judgment
1.6 Develop and carry out patient management plans
1.7 Counsel and educate patients and their families to empower them to participate in their care and enable shared decision making
1.8 Provide appropriate referral of patients, including ensuring continuity of care throughout transitions between providers or settings and following up on patient progress and outcomes
1.9 Provide health care services to patients, families, and communities aimed at preventing health problems or maintaining health
1.10 Provide appropriate role modeling
1.11 Perform supervisory responsibilities commensurate with one’s roles, abilities, and qualifications

### 2. KNOWLEDGE FOR PRACTICE (KP): Demonstrate knowledge of established and evolving biomedical, clinical, epidemiological, and social–behavioral sciences, as well as the application of this knowledge to patient care

2.1 Demonstrate an investigatory and analytic approach to clinical situations
2.2 Apply established and emerging biophysical scientific principles fundamental to health care for patients and populations
2.3 Apply established and emerging principles of clinical sciences to diagnostic and therapeutic decision making, clinical problem solving, and other aspects of evidence-based health care
2.4 Apply principles of epidemiological sciences to the identification of health problems, risk factors, treatment strategies, resources, and disease prevention/health promotion efforts for patients and populations
2.5 Apply principles of social–behavioral sciences to provision of patient care, including assessment of the impact of psychosocial–cultural influences on health, disease, care-seeking, care compliance, and barriers to and attitudes toward care
2.6 Contribute to the creation, dissemination, application, and translation of new health care knowledge and practices
3. **PRACTICE-BASED LEARNING AND IMPROVEMENT (PBLI):** Demonstrate the ability to investigate and evaluate their care of patients, to appraise and assimilate scientific evidence, and to continuously improve patient care based on constant self-evaluation and lifelong learning

3.1 Identify strengths, deficiencies, and limits in one’s knowledge and expertise
3.2 Set learning and improvement goals
3.3 Identify and perform learning activities that address one’s gaps in knowledge, skills, or attitudes
3.4 Systematically analyze practice using quality-improvement methods, and implement changes with the goal of practice improvement
3.5 Incorporate feedback into daily practice
3.6 Locate, appraise, and assimilate evidence from scientific studies related to patients’ health problems
3.7 Use information technology to optimize learning
3.8 Participate in the education of patients, families, students, trainees, peers, and other health professionals
3.9 Obtain and utilize information about individual patients, populations of patients, or communities from which patients are drawn to improve care
3.10 Continually identify, analyze, and implement new knowledge, guidelines, standards, technologies, products, or services that have been demonstrated to improve outcomes

4. **INTERPERSONAL AND COMMUNICATION SKILLS (ICS):** Demonstrate interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, their families, and health professionals

4.1 Communicate effectively with patients, families, and the public, as appropriate, across a broad range of socioeconomic and cultural backgrounds
4.2 Communicate effectively with colleagues within one’s profession or specialty, other health professionals, and health-related agencies (see also interprofessional collaboration competency, IPC 7.3)
4.3 Work effectively with others as a member or leader of a health care team or other professional group (see also IPC 7.4)
4.4 Act in a consultative role to other health professionals
4.5 Maintain comprehensive, timely, and legible medical records
4.6 Demonstrate sensitivity, honesty, and compassion in difficult conversations (e.g., about issues such as death, end-of-life issues, adverse events, bad news, disclosure of errors, and other sensitive topics)
4.7 Demonstrate insight and understanding about emotions and human responses to emotions that allow one to develop and manage interpersonal interactions

5. **PROFESSIONALISM (P):** Demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles

5.1 Demonstrate compassion, integrity, and respect for others
5.2 Demonstrate responsiveness to patient needs that supersedes self-interest
5.3 Demonstrate respect for patient privacy and autonomy
5.4 Demonstrate accountability to patients, society, and the profession

5.5 Demonstrate sensitivity and responsiveness to a diverse patient population, including but not limited to diversity in gender, age, culture, race, religion, disabilities, and sexual orientation

5.6 Demonstrate a commitment to ethical principles pertaining to provision or withholding of care, confidentiality, informed consent, and business practices, including compliance with relevant laws, policies, and regulations

6. SYSTEMS-BASED PRACTICE (SBP): Demonstrate an awareness of and responsiveness to the larger context and system of health care, as well as the ability to call effectively on other resources in the system to provide optimal health care

6.1 Work effectively in various health care delivery settings and systems relevant to one’s clinical specialty

6.2 Coordinate patient care within the health care system relevant to one’s clinical specialty

6.3 Incorporate considerations of cost awareness and risk–benefit analysis in patient and/or population-based care

6.4 Advocate for quality patient care and optimal patient care systems

6.5 Participate in identifying system errors and implementing potential systems solutions

6.6 Perform administrative and practice management responsibilities commensurate with one’s role, abilities, and qualifications

7. INTERPROFESSIONAL COLLABORATION (IPC): Demonstrate the ability to engage in an interprofessional team in a manner that optimizes safe, effective patient- and population-centered care

7.1 Work with other health professionals to establish and maintain a climate of mutual respect, dignity, diversity, ethical integrity, and trust

7.2 Use the knowledge of one’s own role and those of other professions to appropriately assess and address the health care needs of the patients and populations served

7.3 Communicate with other health professionals in a responsive and responsible manner that supports the maintenance of health and the treatment of disease in individual patients and populations

7.4 Participate in different team roles to establish, develop, and continuously enhance interprofessional teams to provide patient- and population-centered care that is safe, timely, efficient, effective, and equitable

8. PERSONAL AND PROFESSIONAL DEVELOPMENT (PPD): Demonstrate the qualities required to sustain lifelong personal and professional growth

8.1 Develop the ability to use self-awareness of knowledge, skills, and emotional limitations to engage in appropriate help-seeking behaviors

8.2 Demonstrate healthy coping mechanisms to respond to stress

8.3 Manage conflict between personal and professional responsibilities

8.4 Practice flexibility and maturity in adjusting to change with the capacity to alter behavior

8.5 Demonstrate trustworthiness that makes colleagues feel secure when one is responsible for the care of patients

8.6 Provide leadership skills that enhance team functioning, the learning environment, and/or the health care delivery system
8.7 Demonstrate self-confidence that puts patients, families, and members of the health care team at ease

8.8 Recognize that ambiguity is part of clinical health care and respond by using appropriate resources in dealing with uncertainty
References

Publications From the Core EPA Pilot Group


Other Related Publications


Chen HC, van den Broek WS, ten Cate O. The case for use of entrustable professional activities in undergraduate medical education. Acad Med. 2015;90(4):431-436.


EPA 3 Toolkit: Recommend and Interpret Common Diagnostic and Screening Tests

Association of American Medical Colleges

Washington, D.C.
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- Publications from the Core EPA Pilot Group: https://www.aamc.org/initiatives/coreepas/publicationsandpresentations/

- Core EPA Pilot Group email for queries and observations: coreepas@aamc.org
### EPA 3: Recommend and Interpret Common Diagnostic and Screening Tests

<table>
<thead>
<tr>
<th>Key Functions with Related Competencies</th>
<th>Behaviors Requiring Corrective Response</th>
<th>Developing Behaviors</th>
<th>Expected Behaviors for an Entrustable Learner</th>
</tr>
</thead>
</table>
| Recommend first-line cost-effective screening and diagnostic tests for routine health maintenance and common disorders  
PC5 PC9 SBP3 PBL19 KP1 KP4 | Unable to recommend a standard set of screening or diagnostic tests  
Demonstrates frustration at cost-containment efforts | Recommends tests for common conditions  
Considers costs  
Identifies guidelines for standard tests  
Repeats diagnostic tests at intervals that are too frequent or too lengthy | Recommends key, reliable, cost-effective screening and diagnostic tests  
Applies patient-specific guidelines |
| Provide rationale for decision to order tests, taking into account pre- and posttest probability and patient preference  
PC5 PC7 KP1 KP4 SBP3 PBL19 | Cannot provide a rationale for ordering tests | Recommends unnecessary tests or tests with low pretest probability  
Neglects patient's preferences  
Understands pre- and posttest probability  
Neglects impact of false positive or negative results  
Aware of patient's preferences | Provides individual rationale based on patient's preferences, demographics, and risk factors  
Incorporates sensitivity, specificity, and prevalence in recommending and interpreting tests  
Explains how results will influence diagnosis and evaluation |
| Interpret results of basic studies and understand the implication and urgency of the results  
PC4 PC5 PC7 KP1 | Can only interpret results based on normal values from the lab  
Does not discern urgent from nonurgent results | Misinterprets insignificant or explainable abnormalities  
Does not know how to respond to urgent test results  
Requires supervisor to discuss results with patient | Distinguishes common, insignificant abnormalities from clinically important findings  
Discerns urgent from nonurgent results and responds correctly  
Seeks help for interpretation of tests beyond scope of knowledge |

Underlying entrustability for all EPAs are trustworthy habits, including truthfulness, conscientiousness, and discernment.

This schematic depicts development of proficiency in the Core EPAs. It is not intended for use as an assessment instrument. Entrustment decisions should be made after EPAs have been observed in multiple settings with varying context, acuity, and complexity and with varying patient characteristics.
Appendix 1: Core EPA Pilot Supervision and Coactivity Scales

Scales for clinical supervisors to determine how much help (coactivity) or supervision they judge a student needs for a specific activity have been proposed—the Chen entrustment scale and the Ottawa scale (Chen et al 2015; Rekman et al 2016). There is limited validity evidence for these scales and no published data comparing them. We include these published tools here for your reference. The Core EPA Pilot Group has agreed on a trial using modified versions of these scales (described below). A description of how the pilot is working with these scales is available on the Core EPA website.

**Modified Chen entrustment scale:** If you were to supervise this student again in a similar situation, which of the following statements aligns with how you would assign the task?

<table>
<thead>
<tr>
<th>Modified Chen entrustment scale</th>
<th>Corresponding excerpt from original Chen entrustment scale (Chen et al 2015)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1b. “Watch me do this.”</td>
<td>1b. Not allowed to practice EPA; allowed to observe</td>
</tr>
<tr>
<td>2a. “Let's do this together.”</td>
<td>2a. Allowed to practice EPA only under proactive, full supervision as coactivity with supervisor</td>
</tr>
<tr>
<td>2b. “I'll watch you.”</td>
<td>2b. Allowed to practice EPA only under proactive, full supervision with supervisor in room ready to step in as needed</td>
</tr>
<tr>
<td>3a. “You go ahead, and I'll double-check all of your findings.”</td>
<td>3a. Allowed to practice EPA only under reactive/on-demand supervision with supervisor immediately available, all findings double-checked</td>
</tr>
<tr>
<td>3b. “You go ahead, and I'll double-check key findings.”</td>
<td>3b. Allowed to practice EPA only under reactive/on-demand supervision with supervisor immediately available, key findings double-checked</td>
</tr>
<tr>
<td>Modified Ottawa scale: In supervising this student, how much did you participate in the task?</td>
<td>Original Ottawa scale (Rekman et al 2016)</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td><strong>1. “I did it.”</strong> Student required complete guidance or was unprepared; I had to do most of the work myself.</td>
<td><strong>1. “I had to do.”</strong> (i.e., requires complete hands-on guidance, did not do, or was not given the opportunity to do)</td>
</tr>
<tr>
<td><strong>2. “I talked them through it.”</strong> Student was able to perform some tasks but required repeated directions.</td>
<td><strong>2. “I had to talk them through.”</strong> (i.e., able to perform tasks but requires constant direction)</td>
</tr>
<tr>
<td><strong>3. “I directed them from time to time.”</strong> Student demonstrated some independence and only required intermittent prompting.</td>
<td><strong>3. “I had to prompt them from time to time.”</strong> (i.e., demonstrates some independence, but requires intermittent direction)</td>
</tr>
<tr>
<td><strong>4. “I was available just in case.”</strong> Student functioned fairly independently and only needed assistance with nuances or complex situations.</td>
<td><strong>4. “I needed to be there in the room just in case.”</strong> (i.e., independence but unaware of risks and still requires supervision for safe practice)</td>
</tr>
<tr>
<td><strong>5. (No level 5: Students are ineligible for complete independence in our systems.)</strong></td>
<td><strong>5. “I did not need to be there.”</strong> (i.e., complete independence, understands risks and performs safely, practice ready)</td>
</tr>
</tbody>
</table>
Appendix 2: Resources Related to EPA 3

**Hypothesis-Driven Physical Examination (HDPE)**


**Script Concordance Testing (SCT)**


**Professionalism Mini-Evaluation Exercise (P-MEX)**


**Shared Decision-Making (SDM) Toolkit: Train the Trainer**


**Evidence and Instruments in the Literature**

**Decision Boxes (Link)**

Appendix 3: Behaviors and Vignettes

The Core EPA Guide produced by the AAMC contains additional detailed information that may be useful for curriculum designers.

1. For a convenient list of behaviors for this EPA that were used to develop a developmental progression, we refer you to the Core EPA Guide.

2. For exemplars of learner vignettes that highlight pre-entrustable and entrustable scenarios, please see the Core EPA Guide.
Appendix 4: The Physician Competency Reference Set (PCRS)

The Physician Competency Reference Set (Englander et al 2013) is provided for cross-referencing with the one-page schematic.

<table>
<thead>
<tr>
<th></th>
<th>PATIENT CARE (PC): Provide patient-centered care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>Perform all medical, diagnostic, and surgical procedures considered essential for the area of practice</td>
</tr>
<tr>
<td>1.2</td>
<td>Gather essential and accurate information about patients and their condition through history-taking, physical examination, and the use of laboratory data, imaging, and other tests</td>
</tr>
<tr>
<td>1.3</td>
<td>Organize and prioritize responsibilities to provide care that is safe, effective, and efficient</td>
</tr>
<tr>
<td>1.4</td>
<td>Interpret laboratory data, imaging studies, and other tests required for the area of practice</td>
</tr>
<tr>
<td>1.5</td>
<td>Make informed decisions about diagnostic and therapeutic interventions based on patient information and preferences, up-to-date scientific evidence, and clinical judgment</td>
</tr>
<tr>
<td>1.6</td>
<td>Develop and carry out patient management plans</td>
</tr>
<tr>
<td>1.7</td>
<td>Counsel and educate patients and their families to empower them to participate in their care and enable shared decision making</td>
</tr>
<tr>
<td>1.8</td>
<td>Provide appropriate referral of patients, including ensuring continuity of care throughout transitions between providers or settings and following up on patient progress and outcomes</td>
</tr>
<tr>
<td>1.9</td>
<td>Provide health care services to patients, families, and communities aimed at preventing health problems or maintaining health</td>
</tr>
<tr>
<td>1.10</td>
<td>Provide appropriate role modeling</td>
</tr>
<tr>
<td>1.11</td>
<td>Perform supervisory responsibilities commensurate with one’s roles, abilities, and qualifications</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>KNOWLEDGE FOR PRACTICE (KP): Demonstrate knowledge of established and evolving biomedical, clinical, epidemiological, and social–behavioral sciences, as well as the application of this knowledge to patient care</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1</td>
<td>Demonstrate an investigatory and analytic approach to clinical situations</td>
</tr>
<tr>
<td>2.2</td>
<td>Apply established and emerging biophysical scientific principles fundamental to health care for patients and populations</td>
</tr>
<tr>
<td>2.3</td>
<td>Apply established and emerging principles of clinical sciences to diagnostic and therapeutic decision making, clinical problem solving, and other aspects of evidence-based health care</td>
</tr>
<tr>
<td>2.4</td>
<td>Apply principles of epidemiological sciences to the identification of health problems, risk factors, treatment strategies, resources, and disease prevention/health promotion efforts for patients and populations</td>
</tr>
<tr>
<td>2.5</td>
<td>Apply principles of social–behavioral sciences to provision of patient care, including assessment of the impact of psychosocial–cultural influences on health, disease, care-seeking, care compliance, and barriers to and attitudes toward care</td>
</tr>
<tr>
<td>2.6</td>
<td>Contribute to the creation, dissemination, application, and translation of new health care knowledge and practices</td>
</tr>
</tbody>
</table>
### 3. PRACTICE-BASED LEARNING AND IMPROVEMENT (PBLI):
Demonstrate the ability to investigate and evaluate their care of patients, to appraise and assimilate scientific evidence, and to continuously improve patient care based on constant self-evaluation and lifelong learning

| 3.1 | Identify strengths, deficiencies, and limits in one’s knowledge and expertise |
| 3.2 | Set learning and improvement goals |
| 3.3 | Identify and perform learning activities that address one’s gaps in knowledge, skills, or attitudes |
| 3.4 | Systematically analyze practice using quality-improvement methods, and implement changes with the goal of practice improvement |
| 3.5 | Incorporate feedback into daily practice |
| 3.6 | Locate, appraise, and assimilate evidence from scientific studies related to patients’ health problems |
| 3.7 | Use information technology to optimize learning |
| 3.8 | Participate in the education of patients, families, students, trainees, peers, and other health professionals |
| 3.9 | Obtain and utilize information about individual patients, populations of patients, or communities from which patients are drawn to improve care |
| 3.10 | Continually identify, analyze, and implement new knowledge, guidelines, standards, technologies, products, or services that have been demonstrated to improve outcomes |

### 4. INTERPERSONAL AND COMMUNICATION SKILLS (ICS):
Demonstrate interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, their families, and health professionals

| 4.1 | Communicate effectively with patients, families, and the public, as appropriate, across a broad range of socioeconomic and cultural backgrounds |
| 4.2 | Communicate effectively with colleagues within one’s profession or specialty, other health professionals, and health-related agencies (see also interprofessional collaboration competency, IPC 7.3) |
| 4.3 | Work effectively with others as a member or leader of a health care team or other professional group (see also IPC 7.4) |
| 4.4 | Act in a consultative role to other health professionals |
| 4.5 | Maintain comprehensive, timely, and legible medical records |
| 4.6 | Demonstrate sensitivity, honesty, and compassion in difficult conversations (e.g., about issues such as death, end-of-life issues, adverse events, bad news, disclosure of errors, and other sensitive topics) |
| 4.7 | Demonstrate insight and understanding about emotions and human responses to emotions that allow one to develop and manage interpersonal interactions |

### 5. PROFESSIONALISM (P):
Demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles

| 5.1 | Demonstrate compassion, integrity, and respect for others |
| 5.2 | Demonstrate responsiveness to patient needs that supersedes self-interest |
| 5.3 | Demonstrate respect for patient privacy and autonomy |
5.4 Demonstrate accountability to patients, society, and the profession

5.5 Demonstrate sensitivity and responsiveness to a diverse patient population, including but not limited to diversity in gender, age, culture, race, religion, disabilities, and sexual orientation

5.6 Demonstrate a commitment to ethical principles pertaining to provision or withholding of care, confidentiality, informed consent, and business practices, including compliance with relevant laws, policies, and regulations

6. SYSTEMS-BASED PRACTICE (SBP): Demonstrate an awareness of and responsiveness to the larger context and system of health care, as well as the ability to call effectively on other resources in the system to provide optimal health care

6.1 Work effectively in various health care delivery settings and systems relevant to one’s clinical specialty

6.2 Coordinate patient care within the health care system relevant to one’s clinical specialty

6.3 Incorporate considerations of cost awareness and risk–benefit analysis in patient and/or population-based care

6.4 Advocate for quality patient care and optimal patient care systems

6.5 Participate in identifying system errors and implementing potential systems solutions

6.6 Perform administrative and practice management responsibilities commensurate with one’s role, abilities, and qualifications

7. INTERPROFESSIONAL COLLABORATION (IPC): Demonstrate the ability to engage in an interprofessional team in a manner that optimizes safe, effective patient- and population-centered care

7.1 Work with other health professionals to establish and maintain a climate of mutual respect, dignity, diversity, ethical integrity, and trust

7.2 Use the knowledge of one’s own role and those of other professions to appropriately assess and address the health care needs of the patients and populations served

7.3 Communicate with other health professionals in a responsive and responsible manner that supports the maintenance of health and the treatment of disease in individual patients and populations

7.4 Participate in different team roles to establish, develop, and continuously enhance interprofessional teams to provide patient- and population-centered care that is safe, timely, efficient, effective, and equitable

8. PERSONAL AND PROFESSIONAL DEVELOPMENT (PPD): Demonstrate the qualities required to sustain lifelong personal and professional growth

8.1 Develop the ability to use self-awareness of knowledge, skills, and emotional limitations to engage in appropriate help-seeking behaviors

8.2 Demonstrate healthy coping mechanisms to respond to stress

8.3 Manage conflict between personal and professional responsibilities

8.4 Practice flexibility and maturity in adjusting to change with the capacity to alter behavior

8.5 Demonstrate trustworthiness that makes colleagues feel secure when one is responsible for the care of patients

8.6 Provide leadership skills that enhance team functioning, the learning environment, and/or the health care delivery system
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>8.7</strong></td>
<td>Demonstrate self-confidence that puts patients, families, and members of the health care team at ease</td>
</tr>
<tr>
<td><strong>8.8</strong></td>
<td>Recognize that ambiguity is part of clinical health care and respond by using appropriate resources in dealing with uncertainty</td>
</tr>
</tbody>
</table>
References

Publications From the Core EPA Pilot Group


Other Related Publications


Chen HC, van den Broek WS, ten Cate O. The case for use of entrustable professional activities in undergraduate medical education. Acad Med. 2015;90(4):431-436.


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User Guide

This toolkit is for medical schools interested in implementing the Core Entrustable Professional Activities (EPAs) for Entering Residency. Written by the AAMC Core EPA Pilot Group, the toolkit expands on the EPA framework outlined in the *EPA Developer’s Guide* (AAMC 2014). The Pilot Group identified progressive sequences of student behavior that medical educators may encounter as students engage in the medical school curriculum and became proficient in integrating their clinical skills. These sequences of behavior are articulated for each of the 13 EPAs in one-page schematics to provide a framework for understanding EPAs; additional resources follow.

This toolkit includes:

- One-page schematic of each EPA
- Core EPA Pilot supervision and coactivity scales
- List of resources associated with each EPA
- Reference to EPA bulleted behaviors and vignettes from the *Core EPA Guide*
- The Physician Competency Reference Set
- Opportunities for engagement with the Core EPA Pilot
One-Page Schematics

In 2014, the AAMC launched a pilot project with 10 institutions to address the feasibility of implementing 13 EPAs for entering residency in undergraduate medical education. To standardize our approach as a pilot and promote a shared mental model, the Core EPA Pilot Group developed one-page schematics for each of the 13 EPAs.

These schematics were developed to translate the rich and detailed content within *The Core Entrustable Professional Activities for Entering Residency Curriculum Developers’ Guide* published in 2014 by the AAMC into a one-page, easy-to-use format (AAMC 2014). These one-page schematics of developmental progression to entrustment provide user-friendly descriptions of each EPA. We sought fidelity to the original ideas and concepts created by the expert drafting panel that developed the *Core EPA Guide*.

We envision the one-page schematics as a resource for:

- Development of curriculum and assessment tools
- Faculty development
- Student understanding
- Entrustment committees, portfolio advisors, and others tracking longitudinal student progress

Understanding the One-Page Schematic

Performance of an EPA requires integration of multiple competencies (Englander and Carraccio 2014). Each EPA schematic begins with its list of key functions and related competencies. The functions are followed by observable behaviors of increasing ability describing a medical student’s development toward readiness for indirect supervision. The column following the functions lists those behaviors requiring immediate correction or remediation. The last column lists expected behaviors of an entrustable learner.

The members of the Curriculum and Assessment Team of the Core EPA Pilot Group led this initiative. Thirteen EPA groups, each comprising representatives from four to five institutions, were tasked with creating each EPA schematic. Development of the schematics involved an explicit, standardized process to reduce variation and ensure consistency with functions, competencies, and the behaviors explicit in the *Core EPA Guide*. Behaviors listed were carefully gathered from the *Core EPA Guide* and reorganized by function and competency and listed in a developmental progression. The Curriculum and Assessment Team promoted content validity by carrying out iterative reviews by telephone conference call with the members of the Core EPA Pilot Group assigned to each EPA.

EPA Curriculum and Assessment

Multiple methods of teaching and assessing EPAs throughout the curriculum will be required to make a summative entrustment decision about residency readiness. The schematics can help to systematically identify and map curricular elements required to prepare students to perform EPAs. Specific prerequisite curricula may be needed to develop knowledge, skills, and attitudes before the learner engages in practice of the EPA.

To implement EPAs, medical schools should identify where in the curriculum EPAs will be taught, practiced, and assessed. Among other modalities, simulation, reflection, and standardized and structured experiences will all provide data about student competence. However, central to the concept of entrustment is the global performance of EPAs in authentic clinical settings, where the EPA is taught and assessed holistically, not as the sum of its parts.
Workplace-Based Assessments: Supervision and Coactivity Scales

On a day-to-day basis, clinical supervisors make and communicate judgments about how much help (coactivity) or supervision a student or resident needs. “Will I let the student go in the room without me? How much will I let the student do versus observe? Because I wasn’t present to observe, how much do I need to double-check?” Scales for clinical supervisors to determine how much help or supervision a student needs for a specific activity have been proposed (Chen et al 2015; Rekman et al 2016). There is limited validity evidence for these scales, and no published data comparing them. Given our initial experience, the Core EPA Pilot Group has agreed on a trial using modified versions of these scales (Appendix 1).

Resources

The Pilot Group compiled a list of resources, including relevant Critical Synthesis Packages from MedEdPORTAL®, a review of current existing literature, teaching methods, and assessment tools related to each EPA (Appendix 2). This collection of products may help schools with implementation. For example, schools may find the teaching methods and assessment tools useful when considering multiple sources of data about student performance that may eventually contribute to a summative entrustment decision. The Pilot Group concluded that new teaching methods and assessment tools will be needed to complement these resources. This need is particularly relevant for workplace-based assessments where the synthetic performance of an EPA is linked to a level of supervision. We envision the one-page schematics as a resource for the development of new teaching and assessment methods.
Frequently Asked Questions

Why are EPAs important?
In many cases, medical school graduates are perceived by residency program directors as insufficiently prepared at the beginning of their residency training for indirect supervision in clinical skills and for exhibiting professional behaviors. The EPAs define a shared set of clinical activities that residents are expected to perform on day one of residency. This is an important opportunity for undergraduate medical education to develop a new construct toward preparedness and, as an end goal, improvements in patient safety. Ideally, students will perform the Core EPAs consistently in situations of varying complexity as they practice and receive actionable feedback, formulating learning goals for future demonstrations of competence.

What does “entrustment” mean in the context of the EPAs?
Entrustment is defined as trustworthiness in applying knowledge, skills, and attitudes in performance of an EPA. To be “trustworthy,” students must consistently demonstrate attributes such as conscientiousness, knowledge of their own limits and help-seeking behavior (discernment), and truthfulness (Kennedy et al 2008). Throughout medical education, students should be assessed on trustworthiness—though this may occur implicitly or explicitly. The EPA framework makes this assessment explicit and transparent.

EPA entrustment is defined as a judgment by a supervisor or collection of supervisors signaling a student has met specific, defined expectations for needing limited supervision. The Core EPA Pilot Group recommends the formation of an entrustment committee to make evidence-based summative entrustment decisions about each student’s readiness for residency (Brown et al 2017).

What is the relationship between competencies and EPAs?
The EPA framework reorganizes competencies into observable units of clinical work by function. Each function is a subunit of work required to perform an EPA. The functions and related competencies are the parts, and the EPA is the whole. The Toolkit’s one-page schematics highlight an EPA’s specific functions with underlying competencies into observable behaviors within a developmental progression toward entrustment.

Although tracking progression within individual functions can help learners develop appropriate skills, monitoring learner progress toward entrustability for that EPA requires synthesis: At some point the learner must apply each of the functions in execution of the EPA task. To this end, we emphasize the importance of the holistic nature of the EPA and prioritize assessment for entrustment in these activities in workplace settings as a whole, not as the sum of their parts.

Is the one-page schematic designed as a rubric for student assessment?
No, the one-page schematics are not intended to serve as assessment tools. They can serve as guides for development of instructional, feedback, and assessment tools for EPAs. We share them as a framework for understanding the developmental progression that graduating medical students should demonstrate as a reflection of their readiness for residency.
How can I or my institution become more involved?

Medical schools in the AAMC pilot, those interested in implementing EPAs, and those wondering about the faculty resources needed to teach and assess EPAs are already part of a dynamic learning community. Opportunities for engaging with others exist through the AAMC Core EPA listserv, conference presentations, collaborative projects, and in informal medical education networks. Your contributions help shape the work of the Core EPA Pilot project and are a source of new ideas, feedback, and suggestions for implementation. We invite you to continue your conversations with us by sharing the decisions you face within the unique culture of your institution.

- To subscribe to the Core EPAs listserve, send a blank email to subscribe-coreepas@lists.aamc.org. To post a comment to the listserve, simply send an email to coreepas@lists.aamc.org.
- Core EPA Pilot Website: https://www.aamc.org/initiatives/coreepas/
- Publications from the Core EPA Pilot Group: https://www.aamc.org/initiatives/coreepas/publicationsandpresentations/
- Core EPA Pilot Group email for queries and observations: coreepas@aamc.org
### EPA 4: Enter and Discuss Orders and Prescriptions

#### Key Functions with Related Competencies

<table>
<thead>
<tr>
<th>Key Function</th>
<th>Related Competencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compose orders efficiently and effectively verbally, on paper, and electronically</td>
<td>PC6, PBL1</td>
</tr>
<tr>
<td>Demonstrate an understanding of the patient’s condition that underpins the provided orders</td>
<td>PC5, PC2</td>
</tr>
<tr>
<td>Recognize and avoid errors by attending to patient-specific factors, using resources, and appropriately responding to safety alerts</td>
<td>PBL7</td>
</tr>
<tr>
<td>Discuss planned orders and prescriptions with team, patients, and families</td>
<td>ICS1, SBP3</td>
</tr>
</tbody>
</table>

#### Behaviors Requiring Corrective Response

<table>
<thead>
<tr>
<th>Sequence</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Does not recognize when to tailor or deviate from the standard order set</td>
</tr>
<tr>
<td>2</td>
<td>Orders tests excessively (uses shotgun approach)</td>
</tr>
<tr>
<td>3</td>
<td>May be overconfident, does not seek review of orders</td>
</tr>
<tr>
<td>4</td>
<td>Has difficulty filtering and synthesizing information to prioritize diagnostics and therapies</td>
</tr>
<tr>
<td>5</td>
<td>Discounts information obtained from resources designed to avoid drug–drug interactions</td>
</tr>
<tr>
<td>6</td>
<td>Ignores alerts</td>
</tr>
<tr>
<td>7</td>
<td>Places orders without communicating with others; uses unidirectional style (“Here is what we are doing...”)</td>
</tr>
<tr>
<td>8</td>
<td>Does not consider cost of orders or patient’s preferences</td>
</tr>
</tbody>
</table>

#### Developing Behaviors

Learner may be at different levels within a row.

<table>
<thead>
<tr>
<th>Sequence</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Recognizes when to tailor or deviate from the standard order set</td>
</tr>
<tr>
<td>2</td>
<td>Completes simple orders</td>
</tr>
<tr>
<td>3</td>
<td>Demonstrates working knowledge of how orders are processed in the workplace</td>
</tr>
<tr>
<td>4</td>
<td>Articulates rationale behind orders</td>
</tr>
<tr>
<td>5</td>
<td>May not take into account subtle signs or exam findings guiding orders</td>
</tr>
<tr>
<td>6</td>
<td>Recognizes patterns, takes into account the patient’s condition when ordering diagnostics and/or therapeutics</td>
</tr>
<tr>
<td>7</td>
<td>Explains how test results influence clinical decision making</td>
</tr>
<tr>
<td>8</td>
<td>Modifies plan based on patient’s preferences</td>
</tr>
<tr>
<td>9</td>
<td>May describe cost-containment efforts as externally mandated and interfering with the doctor–patient relationship</td>
</tr>
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#### Expected Behaviors for an Entrustable Learner

<table>
<thead>
<tr>
<th>Sequence</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Routinely recognizes when to tailor or deviate from the standard order set</td>
</tr>
<tr>
<td>2</td>
<td>Able to complete complex orders requiring changes in dose or frequency over time (e.g., a taper)</td>
</tr>
<tr>
<td>3</td>
<td>Undertakes a reasoned approach to placing orders (e.g., waits for contingent results before ordering more tests)</td>
</tr>
<tr>
<td>4</td>
<td>Recognizes limitations and seeks help</td>
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<tr>
<td>5</td>
<td>Routinely practices safe habits when writing or entering prescriptions or orders</td>
</tr>
<tr>
<td>6</td>
<td>Responds to EHR’s safety alerts and understands rationale for them</td>
</tr>
<tr>
<td>7</td>
<td>Uses electronic resources to fill in gaps in knowledge to inform safe order writing (e.g., drug–drug interactions, treatment guidelines)</td>
</tr>
<tr>
<td>8</td>
<td>Enters orders that reflect bidirectional communication with patients, families, and team</td>
</tr>
<tr>
<td>9</td>
<td>Considers the costs of orders and the patient’s ability and willingness to proceed with the plan</td>
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*This schematic depicts development of proficiency in the Core EPAs. It is not intended for use as an assessment instrument. Entrustment decisions should be made after EPAs have been observed in multiple settings with varying context, acuity, and complexity and with varying patient characteristics.*
Appendix 1: Core EPA Pilot Supervision and Coactivity Scales

Scales for clinical supervisors to determine how much help (coactivity) or supervision they judge a student needs for a specific activity have been proposed—the Chen entrustment scale and the Ottawa scale (Chen et al 2015; Rekman et al 2016). There is limited validity evidence for these scales and no published data comparing them. We include these published tools here for your reference. The Core EPA Pilot Group has agreed on a trial using modified versions of these scales (described below). A description of how the pilot is working with these scales is available on the Core EPA website.

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Appendix 2: Resources Related to EPA 4

Hypothesis-Driven Physical Examination (HDPE)

UCSF Reflection Tool

Reflective Ability Rubric and User Guide

MAAS-Global Manual 2000

Communication Assessment Tool (CAT)

Liverpool Communication Skills Assessment Scale (LCSAS)

Communication Curriculum Package

Professionalism Mini-Evaluation Exercise (P-MEX)

Assessment of Professional Behaviors (APB)

Rochester Communication Rating Scale
Appendix 3: Behaviors and Vignettes

The Core EPA Guide produced by the AAMC contains additional detailed information that may be useful for curriculum designers.

1. For a convenient list of behaviors for this EPA that were used to develop a developmental progression, we refer you to the Core EPA Guide.

2. For exemplars of learner vignettes that highlight pre-entrustable and entrustable scenarios, please see the Core EPA Guide.
Appendix 4: The Physician Competency Reference Set (PCRS)

The Physician Competency Reference Set (Englander et al 2013) is provided for cross-referencing with the one-page schematic.

1. **PATIENT CARE (PC): Provide patient-centered care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health**
   1.1 Perform all medical, diagnostic, and surgical procedures considered essential for the area of practice
   1.2 Gather essential and accurate information about patients and their condition through history-taking, physical examination, and the use of laboratory data, imaging, and other tests
   1.3 Organize and prioritize responsibilities to provide care that is safe, effective, and efficient
   1.4 Interpret laboratory data, imaging studies, and other tests required for the area of practice
   1.5 Make informed decisions about diagnostic and therapeutic interventions based on patient information and preferences, up-to-date scientific evidence, and clinical judgment
   1.6 Develop and carry out patient management plans
   1.7 Counsel and educate patients and their families to empower them to participate in their care and enable shared decision making
   1.8 Provide appropriate referral of patients, including ensuring continuity of care throughout transitions between providers or settings and following up on patient progress and outcomes
   1.9 Provide health care services to patients, families, and communities aimed at preventing health problems or maintaining health
   1.10 Provide appropriate role modeling
   1.11 Perform supervisory responsibilities commensurate with one’s roles, abilities, and qualifications

2. **KNOWLEDGE FOR PRACTICE (KP): Demonstrate knowledge of established and evolving biomedical, clinical, epidemiological, and social–behavioral sciences, as well as the application of this knowledge to patient care**
   2.1 Demonstrate an investigatory and analytic approach to clinical situations
   2.2 Apply established and emerging biophysical scientific principles fundamental to health care for patients and populations
   2.3 Apply established and emerging principles of clinical sciences to diagnostic and therapeutic decision making, clinical problem solving, and other aspects of evidence-based health care
   2.4 Apply principles of epidemiological sciences to the identification of health problems, risk factors, treatment strategies, resources, and disease prevention/health promotion efforts for patients and populations
   2.5 Apply principles of social–behavioral sciences to provision of patient care, including assessment of the impact of psychosocial–cultural influences on health, disease, care-seeking, care compliance, and barriers to and attitudes toward care
   2.6 Contribute to the creation, dissemination, application, and translation of new health care knowledge and practices
3. PRACTICE-BASED LEARNING AND IMPROVEMENT (PBLI): Demonstrate the ability to investigate and evaluate their care of patients, to appraise and assimilate scientific evidence, and to continuously improve patient care based on constant self-evaluation and lifelong learning
   3.1 Identify strengths, deficiencies, and limits in one’s knowledge and expertise
   3.2 Set learning and improvement goals
   3.3 Identify and perform learning activities that address one’s gaps in knowledge, skills, or attitudes
   3.4 Systematically analyze practice using quality-improvement methods, and implement changes with the goal of practice improvement
   3.5 Incorporate feedback into daily practice
   3.6 Locate, appraise, and assimilate evidence from scientific studies related to patients’ health problems
   3.7 Use information technology to optimize learning
   3.8 Participate in the education of patients, families, students, trainees, peers, and other health professionals
   3.9 Obtain and utilize information about individual patients, populations of patients, or communities from which patients are drawn to improve care
   3.10 Continually identify, analyze, and implement new knowledge, guidelines, standards, technologies, products, or services that have been demonstrated to improve outcomes

4. INTERPERSONAL AND COMMUNICATION SKILLS (ICS): Demonstrate interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, their families, and health professionals
   4.1 Communicate effectively with patients, families, and the public, as appropriate, across a broad range of socioeconomic and cultural backgrounds
   4.2 Communicate effectively with colleagues within one’s profession or specialty, other health professionals, and health-related agencies (see also interprofessional collaboration competency, IPC 7.3)
   4.3 Work effectively with others as a member or leader of a health care team or other professional group (see also IPC 7.4)
   4.4 Act in a consultative role to other health professionals
   4.5 Maintain comprehensive, timely, and legible medical records
   4.6 Demonstrate sensitivity, honesty, and compassion in difficult conversations (e.g., about issues such as death, end-of-life issues, adverse events, bad news, disclosure of errors, and other sensitive topics)
   4.7 Demonstrate insight and understanding about emotions and human responses to emotions that allow one to develop and manage interpersonal interactions

5. PROFESSIONALISM (P): Demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles
   5.1 Demonstrate compassion, integrity, and respect for others
   5.2 Demonstrate responsiveness to patient needs that supersedes self-interest
   5.3 Demonstrate respect for patient privacy and autonomy
### 5.4 Demonstrate accountability to patients, society, and the profession

### 5.5 Demonstrate sensitivity and responsiveness to a diverse patient population, including but not limited to diversity in gender, age, culture, race, religion, disabilities, and sexual orientation

### 5.6 Demonstrate a commitment to ethical principles pertaining to provision or withholding of care, confidentiality, informed consent, and business practices, including compliance with relevant laws, policies, and regulations

### 6. SYSTEMS-BASED PRACTICE (SBP): Demonstrate an awareness of and responsiveness to the larger context and system of health care, as well as the ability to call effectively on other resources in the system to provide optimal health care

#### 6.1 Work effectively in various health care delivery settings and systems relevant to one’s clinical specialty

#### 6.2 Coordinate patient care within the health care system relevant to one’s clinical specialty

#### 6.3 Incorporate considerations of cost awareness and risk–benefit analysis in patient and/or population-based care

#### 6.4 Advocate for quality patient care and optimal patient care systems

#### 6.5 Participate in identifying system errors and implementing potential systems solutions

#### 6.6 Perform administrative and practice management responsibilities commensurate with one’s role, abilities, and qualifications

### 7. INTERPROFESSIONAL COLLABORATION (IPC): Demonstrate the ability to engage in an interprofessional team in a manner that optimizes safe, effective patient- and population-centered care

#### 7.1 Work with other health professionals to establish and maintain a climate of mutual respect, dignity, diversity, ethical integrity, and trust

#### 7.2 Use the knowledge of one’s own role and those of other professions to appropriately assess and address the health care needs of the patients and populations served

#### 7.3 Communicate with other health professionals in a responsive and responsible manner that supports the maintenance of health and the treatment of disease in individual patients and populations

#### 7.4 Participate in different team roles to establish, develop, and continuously enhance interprofessional teams to provide patient- and population-centered care that is safe, timely, efficient, effective, and equitable

### 8. PERSONAL AND PROFESSIONAL DEVELOPMENT (PPD): Demonstrate the qualities required to sustain lifelong personal and professional growth

#### 8.1 Develop the ability to use self-awareness of knowledge, skills, and emotional limitations to engage in appropriate help-seeking behaviors

#### 8.2 Demonstrate healthy coping mechanisms to respond to stress

#### 8.3 Manage conflict between personal and professional responsibilities

#### 8.4 Practice flexibility and maturity in adjusting to change with the capacity to alter behavior

#### 8.5 Demonstrate trustworthiness that makes colleagues feel secure when one is responsible for the care of patients

#### 8.6 Provide leadership skills that enhance team functioning, the learning environment, and/or the health care delivery system
| 8.7 | Demonstrate self-confidence that puts patients, families, and members of the health care team at ease |
| 8.8 | Recognize that ambiguity is part of clinical health care and respond by using appropriate resources in dealing with uncertainty |
References

Publications From the Core EPA Pilot Group


Other Related Publications


Chen HC, van den Broek WS, ten Cate O. The case for use of entrustable professional activities in undergraduate medical education. Acad Med. 2015;90(4):431-436.


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User Guide

This toolkit is for medical schools interested in implementing the Core Entrustable Professional Activities (EPAs) for Entering Residency. Written by the AAMC Core EPA Pilot Group, the toolkit expands on the EPA framework outlined in the EPA Developer’s Guide (AAMC 2014). The Pilot Group identified progressive sequences of student behavior that medical educators may encounter as students engage in the medical school curriculum and became proficient in integrating their clinical skills. These sequences of behavior are articulated for each of the 13 EPAs in one-page schematics to provide a framework for understanding EPAs; additional resources follow.

This toolkit includes:

- One-page schematic of each EPA
- Core EPA Pilot supervision and coactivity scales
- List of resources associated with each EPA
- Reference to EPA bulleted behaviors and vignettes from the Core EPA Guide
- The Physician Competency Reference Set
- Opportunities for engagement with the Core EPA Pilot
One-Page Schematics

In 2014, the AAMC launched a pilot project with 10 institutions to address the feasibility of implementing 13 EPAs for entering residency in undergraduate medical education. To standardize our approach as a pilot and promote a shared mental model, the Core EPA Pilot Group developed one-page schematics for each of the 13 EPAs.

These schematics were developed to translate the rich and detailed content within *The Core Entrustable Professional Activities for Entering Residency Curriculum Developers’ Guide* published in 2014 by the AAMC into a one-page, easy-to-use format (AAMC 2014). These one-page schematics of developmental progression to entrustment provide user-friendly descriptions of each EPA. We sought fidelity to the original ideas and concepts created by the expert drafting panel that developed the *Core EPA Guide*.

We envision the one-page schematics as a resource for:

- Development of curriculum and assessment tools
- Faculty development
- Student understanding
- Entrustment committees, portfolio advisors, and others tracking longitudinal student progress

Understanding the One-Page Schematic

Performance of an EPA requires integration of multiple competencies (Englander and Carraccio 2014). Each EPA schematic begins with its list of key functions and related competencies. The functions are followed by observable behaviors of increasing ability describing a medical student’s development toward readiness for indirect supervision. The column following the functions lists those behaviors requiring immediate correction or remediation. The last column lists expected behaviors of an entrustable learner.

The members of the Curriculum and Assessment Team of the Core EPA Pilot Group led this initiative. Thirteen EPA groups, each comprising representatives from four to five institutions, were tasked with creating each EPA schematic. Development of the schematics involved an explicit, standardized process to reduce variation and ensure consistency with functions, competencies, and the behaviors explicit in the *Core EPA Guide*. Behaviors listed were carefully gathered from the *Core EPA Guide* and reorganized by function and competency and listed in a developmental progression. The Curriculum and Assessment Team promoted content validity by carrying out iterative reviews by telephone conference call with the members of the Core EPA Pilot Group assigned to each EPA.

EPA Curriculum and Assessment

Multiple methods of teaching and assessing EPAs throughout the curriculum will be required to make a summative entrustment decision about residency readiness. The schematics can help to systematically identify and map curricular elements required to prepare students to perform EPAs. Specific prerequisite curricula may be needed to develop knowledge, skills, and attitudes before the learner engages in practice of the EPA.

To implement EPAs, medical schools should identify where in the curriculum EPAs will be taught, practiced, and assessed. Among other modalities, simulation, reflection, and standardized and structured experiences will all provide data about student competence. However, central to the concept of entrustment is the global performance of EPAs in authentic clinical settings, where the EPA is taught and assessed holistically, not as the sum of its parts.
Workplace-Based Assessments: Supervision and Coactivity Scales

On a day-to-day basis, clinical supervisors make and communicate judgments about how much help (coactivity) or supervision a student or resident needs. “Will I let the student go in the room without me? How much will I let the student do versus observe? Because I wasn’t present to observe, how much do I need to double-check?” Scales for clinical supervisors to determine how much help or supervision a student needs for a specific activity have been proposed (Chen et al 2015; Rekman et al 2016). There is limited validity evidence for these scales, and no published data comparing them. Given our initial experience, the Core EPA Pilot Group has agreed on a trial using modified versions of these scales (Appendix 1).

Resources

The Pilot Group compiled a list of resources, including relevant Critical Synthesis Packages from MedEdPORTAL®, a review of current existing literature, teaching methods, and assessment tools related to each EPA (Appendix 2). This collection of products may help schools with implementation. For example, schools may find the teaching methods and assessment tools useful when considering multiple sources of data about student performance that may eventually contribute to a summative entrustment decision. The Pilot Group concluded that new teaching methods and assessment tools will be needed to complement these resources. This need is particularly relevant for workplace-based assessments where the synthetic performance of an EPA is linked to a level of supervision. We envision the one-page schematics as a resource for the development of new teaching and assessment methods.
Frequently Asked Questions

Why are EPAs important?

In many cases, medical school graduates are perceived by residency program directors as insufficiently prepared at the beginning of their residency training for indirect supervision in clinical skills and for exhibiting professional behaviors. The EPAs define a shared set of clinical activities that residents are expected to perform on day one of residency. This is an important opportunity for undergraduate medical education to develop a new construct toward preparedness and, as an end goal, improvements in patient safety. Ideally, students will perform the Core EPAs consistently in situations of varying complexity as they practice and receive actionable feedback, formulating learning goals for future demonstrations of competence.

What does “entrustment” mean in the context of the EPAs?

Entrustment is defined as trustworthiness in applying knowledge, skills, and attitudes in performance of an EPA. To be “trustworthy,” students must consistently demonstrate attributes such as conscientiousness, knowledge of their own limits and help-seeking behavior (discernment), and truthfulness (Kennedy et al 2008). Throughout medical education, students should be assessed on trustworthiness—though this may occur implicitly or explicitly. The EPA framework makes this assessment explicit and transparent.

EPA entrustment is defined as a judgment by a supervisor or collection of supervisors signaling a student has met specific, defined expectations for needing limited supervision. The Core EPA Pilot Group recommends the formation of an entrustment committee to make evidence-based summative entrustment decisions about each student’s readiness for residency (Brown et al 2017).

What is the relationship between competencies and EPAs?

The EPA framework reorganizes competencies into observable units of clinical work by function. Each function is a subunit of work required to perform an EPA. The functions and related competencies are the parts, and the EPA is the whole. The Toolkit’s one-page schematics highlight an EPA’s specific functions with underlying competencies into observable behaviors within a developmental progression toward entrustment.

Although tracking progression within individual functions can help learners develop appropriate skills, monitoring learner progress toward entrustability for that EPA requires synthesis: At some point the learner must apply each of the functions in execution of the EPA task. To this end, we emphasize the importance of the holistic nature of the EPA and prioritize assessment for entrustment in these activities in workplace settings as a whole, not as the sum of their parts.

Is the one-page schematic designed as a rubric for student assessment?

No, the one-page schematics are not intended to serve as assessment tools. They can serve as guides for development of instructional, feedback, and assessment tools for EPAs. We share them as a framework for understanding the developmental progression that graduating medical students should demonstrate as a reflection of their readiness for residency.
How can I or my institution become more involved?

Medical schools in the AAMC pilot, those interested in implementing EPAs, and those wondering about the faculty resources needed to teach and assess EPAs are already part of a dynamic learning community. Opportunities for engaging with others exist through the AAMC Core EPA listserve, conference presentations, collaborative projects, and in informal medical education networks. Your contributions help shape the work of the Core EPA Pilot project and are a source of new ideas, feedback, and suggestions for implementation. We invite you to continue your conversations with us by sharing the decisions you face within the unique culture of your institution.

- To subscribe to the Core EPAs listserve, send a blank email to subscribe-coreepas@lists.aamc.org. To post a comment to the listserve, simply send an email to coreepas@lists.aamc.org.

- Core EPA Pilot Website: https://www.aamc.org/initiatives/coreepas/

- Publications from the Core EPA Pilot Group: https://www.aamc.org/initiatives/coreepas/publicationsandpresentations/

- Core EPA Pilot Group email for queries and observations: coreepas@aamc.org
EPA 5: Document a Clinical Encounter in the Patient Record

Key Functions with Related Competencies
- Prioritize and synthesize information into a cogent narrative for a variety of clinical encounters (e.g., admission, progress, pre- and post-op, and procedure notes; informed consent; discharge summary)
- Follow documentation requirements to meet regulations and professional expectations
- Document a problem list, differential diagnosis, and plan supported through clinical reasoning that reflects patient’s preferences

Behaviors Requiring Corrective Response
- Provides incoherent documentation
- Copies and pastes information without verification or attribution
- Does not provide documentation when required
- Provides illegible documentation
- Includes inappropriate judgmental language
- Documents potentially damaging information without attribution

Developing Behaviors (Learner may be at different levels within a row.)
- Misses key information
- Uses a template with limited ability to adjust or adapt based on audience, context, or purpose
- Produces documentation that has errors or does not fulfill institutional requirements (e.g., date, time, signature, avoidance of prohibited abbreviations)
- Has difficulty meeting turnaround expectations, resulting in team members’ lack of access to documentation
- Does not document a problem list, differential diagnosis, plan, clinical reasoning, or patient’s preferences
- Interprets laboratories by relying on norms rather than context

Expected Behaviors for an Entrustable Learner
- Provides key information but may include unnecessary details or redundancies
- Demonstrates ability to adjust or adapt to audience, context, or purpose
- Recognizes and corrects errors related to required elements of documentation
- Meets needed turnaround time for standard documentation
- Documents a problem list, differential diagnosis, plan, and clinical reasoning
- Is inconsistent in interpreting basic tests accurately
- Demonstrates limited help-seeking behavior to fill gaps in knowledge, skill, and experience

An EPA: A unit of observable, measurable professional practice requiring integration of competencies

Underlying entrustability for all EPAs are trustworthy habits, including truthfulness, conscientiousness, and discernment.

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Appendix 2: Resources Related to EPA 5

Writer’s Workshop: Teaching Preclinical Medical Students the Art of the Patient “Write Up”

MAAS-Global Manual 2000

Communication Assessment Tool (CAT)

Liverpool Communication Skills Assessment Scale (LCSAS)

Communication Curriculum Package

Professionalism Mini-Evaluation Exercise (P-MEX)

Rochester Communication Rating Scale

Evidence and Instruments in the Literature
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<td>1.5 Make informed decisions about diagnostic and therapeutic interventions based on patient information and preferences, up-to-date scientific evidence, and clinical judgment</td>
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<td>1.6 Develop and carry out patient management plans</td>
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<td>1.7 Counsel and educate patients and their families to empower them to participate in their care and enable shared decision making</td>
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<td>1.8 Provide appropriate referral of patients, including ensuring continuity of care throughout transitions between providers or settings and following up on patient progress and outcomes</td>
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<td>1.10 Provide appropriate role modeling</td>
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<tr>
<td>1.11 Perform supervisory responsibilities commensurate with one’s roles, abilities, and qualifications</td>
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</table>

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
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</tr>
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<td>2.2 Apply established and emerging biophysical scientific principles fundamental to health care for patients and populations</td>
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### 3. PRACTICE-BASED LEARNING AND IMPROVEMENT (PBLI): Demonstrate the ability to investigate and evaluate their care of patients, to appraise and assimilate scientific evidence, and to continuously improve patient care based on constant self-evaluation and lifelong learning

- **3.1** Identify strengths, deficiencies, and limits in one’s knowledge and expertise
- **3.2** Set learning and improvement goals
- **3.3** Identify and perform learning activities that address one’s gaps in knowledge, skills, or attitudes
- **3.4** Systematically analyze practice using quality-improvement methods, and implement changes with the goal of practice improvement
- **3.5** Incorporate feedback into daily practice
- **3.6** Locate, appraise, and assimilate evidence from scientific studies related to patients’ health problems
- **3.7** Use information technology to optimize learning
- **3.8** Participate in the education of patients, families, students, trainees, peers, and other health professionals
- **3.9** Obtain and utilize information about individual patients, populations of patients, or communities from which patients are drawn to improve care
- **3.10** Continually identify, analyze, and implement new knowledge, guidelines, standards, technologies, products, or services that have been demonstrated to improve outcomes

### 4. INTERPERSONAL AND COMMUNICATION SKILLS (ICS): Demonstrate interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, their families, and health professionals

- **4.1** Communicate effectively with patients, families, and the public, as appropriate, across a broad range of socioeconomic and cultural backgrounds
- **4.2** Communicate effectively with colleagues within one’s profession or specialty, other health professionals, and health-related agencies (see also interprofessional collaboration competency, IPC 7.3)
- **4.3** Work effectively with others as a member or leader of a health care team or other professional group (see also IPC 7.4)
- **4.4** Act in a consultative role to other health professionals
- **4.5** Maintain comprehensive, timely, and legible medical records
- **4.6** Demonstrate sensitivity, honesty, and compassion in difficult conversations (e.g., about issues such as death, end-of-life issues, adverse events, bad news, disclosure of errors, and other sensitive topics)
- **4.7** Demonstrate insight and understanding about emotions and human responses to emotions that allow one to develop and manage interpersonal interactions

### 5. PROFESSIONALISM (P): Demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles

- **5.1** Demonstrate compassion, integrity, and respect for others
- **5.2** Demonstrate responsiveness to patient needs that supersedes self-interest
- **5.3** Demonstrate respect for patient privacy and autonomy
5.4 Demonstrate accountability to patients, society, and the profession
5.5 Demonstrate sensitivity and responsiveness to a diverse patient population, including but not limited to diversity in gender, age, culture, race, religion, disabilities, and sexual orientation
5.6 Demonstrate a commitment to ethical principles pertaining to provision or withholding of care, confidentiality, informed consent, and business practices, including compliance with relevant laws, policies, and regulations

6. SYSTEMS-BASED PRACTICE (SBP): Demonstrate an awareness of and responsiveness to the larger context and system of health care, as well as the ability to call effectively on other resources in the system to provide optimal health care
6.1 Work effectively in various health care delivery settings and systems relevant to one’s clinical specialty
6.2 Coordinate patient care within the health care system relevant to one’s clinical specialty
6.3 Incorporate considerations of cost awareness and risk–benefit analysis in patient and/or population-based care
6.4 Advocate for quality patient care and optimal patient care systems
6.5 Participate in identifying system errors and implementing potential systems solutions
6.6 Perform administrative and practice management responsibilities commensurate with one’s role, abilities, and qualifications

7. INTERPROFESSIONAL COLLABORATION (IPC): Demonstrate the ability to engage in an interprofessional team in a manner that optimizes safe, effective patient- and population-centered care
7.1 Work with other health professionals to establish and maintain a climate of mutual respect, dignity, diversity, ethical integrity, and trust
7.2 Use the knowledge of one’s own role and those of other professions to appropriately assess and address the health care needs of the patients and populations served
7.3 Communicate with other health professionals in a responsive and responsible manner that supports the maintenance of health and the treatment of disease in individual patients and populations
7.4 Participate in different team roles to establish, develop, and continuously enhance interprofessional teams to provide patient- and population-centered care that is safe, timely, efficient, effective, and equitable

8. PERSONAL AND PROFESSIONAL DEVELOPMENT (PPD): Demonstrate the qualities required to sustain lifelong personal and professional growth
8.1 Develop the ability to use self-awareness of knowledge, skills, and emotional limitations to engage in appropriate help-seeking behaviors
8.2 Demonstrate healthy coping mechanisms to respond to stress
8.3 Manage conflict between personal and professional responsibilities
8.4 Practice flexibility and maturity in adjusting to change with the capacity to alter behavior
8.5 Demonstrate trustworthiness that makes colleagues feel secure when one is responsible for the care of patients
8.6 Provide leadership skills that enhance team functioning, the learning environment, and/or the health care delivery system
| 8.7 | Demonstrate self-confidence that puts patients, families, and members of the health care team at ease |
| 8.8 | Recognize that ambiguity is part of clinical health care and respond by using appropriate resources in dealing with uncertainty |
References

Publications From the Core EPA Pilot Group


Other Related Publications


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User Guide

This toolkit is for medical schools interested in implementing the Core Entrustable Professional Activities (EPAs) for Entering Residency. Written by the AAMC Core EPA Pilot Group, the toolkit expands on the EPA framework outlined in the *EPA Developer’s Guide* (AAMC 2014). The Pilot Group identified progressive sequences of student behavior that medical educators may encounter as students engage in the medical school curriculum and became proficient in integrating their clinical skills. These sequences of behavior are articulated for each of the 13 EPAs in one-page schematics to provide a framework for understanding EPAs; additional resources follow.

This toolkit includes:

- One-page schematic of each EPA
- Core EPA Pilot supervision and coactivity scales
- List of resources associated with each EPA
- Reference to EPA bulleted behaviors and vignettes from the *Core EPA Guide*
- The Physician Competency Reference Set
- Opportunities for engagement with the Core EPA Pilot
One-Page Schematics

In 2014, the AAMC launched a pilot project with 10 institutions to address the feasibility of implementing 13 EPAs for entering residency in undergraduate medical education. To standardize our approach as a pilot and promote a shared mental model, the Core EPA Pilot Group developed one-page schematics for each of the 13 EPAs.

These schematics were developed to translate the rich and detailed content within *The Core Entrustable Professional Activities for Entering Residency Curriculum Developers’ Guide* published in 2014 by the AAMC into a one-page, easy-to-use format (AAMC 2014). These one-page schematics of developmental progression to entrustment provide user-friendly descriptions of each EPA. We sought fidelity to the original ideas and concepts created by the expert drafting panel that developed the *Core EPA Guide*.

We envision the one-page schematics as a resource for:

- Development of curriculum and assessment tools
- Faculty development
- Student understanding
- Entrustment committees, portfolio advisors, and others tracking longitudinal student progress

Understanding the One-Page Schematic

Performance of an EPA requires integration of multiple competencies (Englander and Carraccio 2014). Each EPA schematic begins with its list of key functions and related competencies. The functions are followed by observable behaviors of increasing ability describing a medical student’s development toward readiness for indirect supervision. The column following the functions lists those behaviors requiring immediate correction or remediation. The last column lists expected behaviors of an entrustable learner.

The members of the Curriculum and Assessment Team of the Core EPA Pilot Group led this initiative. Thirteen EPA groups, each comprising representatives from four to five institutions, were tasked with creating each EPA schematic. Development of the schematics involved an explicit, standardized process to reduce variation and ensure consistency with functions, competencies, and the behaviors explicit in the *Core EPA Guide*. Behaviors listed were carefully gathered from the *Core EPA Guide* and reorganized by function and competency and listed in a developmental progression. The Curriculum and Assessment Team promoted content validity by carrying out iterative reviews by telephone conference call with the members of the Core EPA Pilot Group assigned to each EPA.

EPA Curriculum and Assessment

Multiple methods of teaching and assessing EPAs throughout the curriculum will be required to make a summative entrustment decision about residency readiness. The schematics can help to systematically identify and map curricular elements required to prepare students to perform EPAs. Specific prerequisite curricula may be needed to develop knowledge, skills, and attitudes before the learner engages in practice of the EPA.

To implement EPAs, medical schools should identify where in the curriculum EPAs will be taught, practiced, and assessed. Among other modalities, simulation, reflection, and standardized and structured experiences will all provide data about student competence. However, central to the concept of entrustment is the global performance of EPAs in authentic clinical settings, where the EPA is taught and assessed holistically, not as the sum of its parts.
Workplace-Based Assessments: Supervision and Coactivity Scales

On a day-to-day basis, clinical supervisors make and communicate judgments about how much help (coactivity) or supervision a student or resident needs. “Will I let the student go in the room without me? How much will I let the student do versus observe? Because I wasn’t present to observe, how much do I need to double-check?” Scales for clinical supervisors to determine how much help or supervision a student needs for a specific activity have been proposed (Chen et al 2015; Rekman et al 2016). There is limited validity evidence for these scales, and no published data comparing them. Given our initial experience, the Core EPA Pilot Group has agreed on a trial using modified versions of these scales (Appendix 1).

Resources

The Pilot Group compiled a list of resources, including relevant Critical Synthesis Packages from MedEdPORTAL®, a review of current existing literature, teaching methods, and assessment tools related to each EPA (Appendix 2). This collection of products may help schools with implementation. For example, schools may find the teaching methods and assessment tools useful when considering multiple sources of data about student performance that may eventually contribute to a summative entrustment decision. The Pilot Group concluded that new teaching methods and assessment tools will be needed to complement these resources. This need is particularly relevant for workplace-based assessments where the synthetic performance of an EPA is linked to a level of supervision. We envision the one-page schematics as a resource for the development of new teaching and assessment methods.
Frequently Asked Questions

**Why are EPAs important?**
In many cases, medical school graduates are perceived by residency program directors as insufficiently prepared at the beginning of their residency training for indirect supervision in clinical skills and for exhibiting professional behaviors. The EPAs define a shared set of clinical activities that residents are expected to perform on day one of residency. This is an important opportunity for undergraduate medical education to develop a new construct toward preparedness and, as an end goal, improvements in patient safety. Ideally, students will perform the Core EPAs consistently in situations of varying complexity as they practice and receive actionable feedback, formulating learning goals for future demonstrations of competence.

**What does “entrustment” mean in the context of the EPAs?**
Entrustment is defined as trustworthiness in applying knowledge, skills, and attitudes in performance of an EPA. To be “trustworthy,” students must consistently demonstrate attributes such as conscientiousness, knowledge of their own limits and help-seeking behavior (discernment), and truthfulness (Kennedy et al 2008). Throughout medical education, students should be assessed on trustworthiness—though this may occur implicitly or explicitly. The EPA framework makes this assessment explicit and transparent.

EPA entrustment is defined as a judgment by a supervisor or collection of supervisors signaling a student has met specific, defined expectations for needing limited supervision. The Core EPA Pilot Group recommends the formation of an entrustment committee to make evidence-based summative entrustment decisions about each student’s readiness for residency (Brown et al 2017).

**What is the relationship between competencies and EPAs?**
The EPA framework reorganizes competencies into observable units of clinical work by function. Each function is a subunit of work required to perform an EPA. The functions and related competencies are the parts, and the EPA is the whole. The Toolkit’s one-page schematics highlight an EPA’s specific functions with underlying competencies into observable behaviors within a developmental progression toward entrustment.

Although tracking progression within individual functions can help learners develop appropriate skills, monitoring learner progress toward entrustability for that EPA requires synthesis: At some point the learner must apply each of the functions in execution of the EPA task. *To this end, we emphasize the importance of the holistic nature of the EPA and prioritize assessment for entrustment in these activities in workplace settings as a whole, not as the sum of their parts.*

**Is the one-page schematic designed as a rubric for student assessment?**
No, the one-page schematics are not intended to serve as assessment tools. They can serve as guides for development of instructional, feedback, and assessment tools for EPAs. We share them as a framework for understanding the developmental progression that graduating medical students should demonstrate as a reflection of their readiness for residency.
How can I or my institution become more involved?

Medical schools in the AAMC pilot, those interested in implementing EPAs, and those wondering about the faculty resources needed to teach and assess EPAs are already part of a dynamic learning community. Opportunities for engaging with others exist through the AAMC Core EPA listserve, conference presentations, collaborative projects, and in informal medical education networks. Your contributions help shape the work of the Core EPA Pilot project and are a source of new ideas, feedback, and suggestions for implementation. We invite you to continue your conversations with us by sharing the decisions you face within the unique culture of your institution.

- To subscribe to the Core EPAs listserve, send a blank email to subscribe-coreepas@lists.aamc.org. To post a comment to the listserve, simply send an email to coreepas@lists.aamc.org.

- Core EPA Pilot Website: [https://www.aamc.org/initiatives/coreepas/](https://www.aamc.org/initiatives/coreepas/)

- Publications from the Core EPA Pilot Group: [https://www.aamc.org/initiatives/coreepas/publicationsandpresentations/](https://www.aamc.org/initiatives/coreepas/publicationsandpresentations/)

- Core EPA Pilot Group email for queries and observations: coreepas@aamc.org
<table>
<thead>
<tr>
<th>Key Functions with Related Competencies</th>
<th>Behaviors Requiring Corrective Response</th>
<th>Expected Behaviors for an Entrustable Learner</th>
</tr>
</thead>
<tbody>
<tr>
<td>Present personally gathered and verified information, acknowledging areas of uncertainty</td>
<td>Fabricates information when unable to respond to questions</td>
<td>Presents personally verified and accurate information, even when sensitive</td>
</tr>
<tr>
<td>ICS2 PC6</td>
<td>Reacts defensively when queried</td>
<td>Acknowledges gaps in knowledge, reflects on areas of uncertainty, and seeks additional information to clarify or refine presentation</td>
</tr>
<tr>
<td>Provide an accurate, concise, well-organized oral presentation</td>
<td>Presents in a disorganized and incoherent fashion</td>
<td>Filters, synthesizes, and prioritizes information into a concise and well-organized presentation</td>
</tr>
<tr>
<td>ICS1 P3</td>
<td>Presents information in a manner that frightens family</td>
<td>Integrates pertinent positives and negatives to support hypothesis</td>
</tr>
<tr>
<td>Adjust the oral presentation to meet the needs of the receiver</td>
<td>Presents information incompletely or exhaustively</td>
<td>Provides sound arguments to support the plan</td>
</tr>
<tr>
<td>ICS1 P2 PC1 PPD7</td>
<td>Fails to verify information</td>
<td></td>
</tr>
<tr>
<td>Demonstrate respect for patient’s privacy and autonomy</td>
<td>Does not obtain sensitive information</td>
<td></td>
</tr>
<tr>
<td>P3 P1</td>
<td>Delivers a presentation that is not concise or that wanders</td>
<td></td>
</tr>
<tr>
<td>Disregards patient’s privacy and autonomy</td>
<td>Delivers a presentation organized around the chief concern</td>
<td></td>
</tr>
<tr>
<td>PC4 PC6 P1</td>
<td>Presents a story that is imprecise because of omitted or extraneous information</td>
<td></td>
</tr>
<tr>
<td>Gathers evidence incompletely or exhaustively</td>
<td>When asked, can identify pertinent positives and negatives that support hypothesis</td>
<td></td>
</tr>
<tr>
<td>PC2 PBL1 PPD4 P1</td>
<td>Does not obtain sensitive information</td>
<td>Supports management plans with limited information</td>
</tr>
<tr>
<td>PC2 PBL1 PPD4</td>
<td>Acknowledges gaps in knowledge, adjusts to feedback, and then obtains additional information</td>
<td></td>
</tr>
<tr>
<td>PC2 PBL1 PPD4</td>
<td>Follows a template</td>
<td></td>
</tr>
<tr>
<td>PC2 PBL1 PPD4</td>
<td>Uses acronyms and medical jargon</td>
<td></td>
</tr>
<tr>
<td>PC2 PBL1 PPD4</td>
<td>Projects too much or too little confidence</td>
<td></td>
</tr>
<tr>
<td>PC2 PBL1 PPD4</td>
<td>Incorporates patient’s preferences and privacy needs</td>
<td></td>
</tr>
<tr>
<td>PC2 PBL1 PPD4</td>
<td>Lacks situational awareness when presenting sensitive patient information</td>
<td></td>
</tr>
<tr>
<td>PC2 PBL1 PPD4</td>
<td>Does not engage patients and families in discussions of care</td>
<td></td>
</tr>
<tr>
<td>PC2 PBL1 PPD4</td>
<td>Incorporates patient’s preferences and privacy needs</td>
<td></td>
</tr>
<tr>
<td>PC2 PBL1 PPD4</td>
<td>Respects patients’ privacy and confidentiality by demonstrating situational awareness when discussing patients</td>
<td></td>
</tr>
<tr>
<td>PC2 PBL1 PPD4</td>
<td>Engages in shared decision making by actively soliciting patient’s preferences</td>
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</table>

EPA 6: Provide an Oral Presentation of a Clinical Encounter

An EPA: A unit of observable, measurable professional practice requiring integration of competencies

Provide an oral presentation of a clinical encounter

Underlying entrustability for all EPAs are trustworthy habits, including truthfulness, conscientiousness, and discernment.

This schematic depicts development of proficiency in the Core EPAs. It is not intended for use as an assessment instrument. Entrustment decisions should be made after EPAs have been observed in multiple settings with varying context, acuity, and complexity and with varying patient characteristics.
Appendix 1: Core EPA Pilot Supervision and Coactivity Scales

Scales for clinical supervisors to determine how much help (coactivity) or supervision they judge a student needs for a specific activity have been proposed—the Chen entrustment scale and the Ottawa scale (Chen et al 2015; Rekman et al 2016). There is limited validity evidence for these scales and no published data comparing them. We include these published tools here for your reference. The Core EPA Pilot Group has agreed on a trial using modified versions of these scales (described below). A description of how the pilot is working with these scales is available on the Core EPA website.

<table>
<thead>
<tr>
<th>Modified Chen entrustment scale: If you were to supervise this student again in a similar situation, which of the following statements aligns with how you would assign the task?</th>
<th>Corresponding excerpt from original Chen entrustment scale (Chen et al 2015)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1b. “Watch me do this.”</td>
<td>1b. Not allowed to practice EPA; allowed to observe</td>
</tr>
<tr>
<td>2a. “Let's do this together.”</td>
<td>2a. Allowed to practice EPA only under proactive, full supervision as coactivity with supervisor</td>
</tr>
<tr>
<td>2b. “I'll watch you.”</td>
<td>2b. Allowed to practice EPA only under proactive, full supervision with supervisor in room ready to step in as needed</td>
</tr>
<tr>
<td>3a. “You go ahead, and I'll double-check all of your findings.”</td>
<td>3a. Allowed to practice EPA only under reactive/on-demand supervision with supervisor immediately available, all findings double-checked</td>
</tr>
<tr>
<td>3b. “You go ahead, and I'll double-check key findings.”</td>
<td>3b. Allowed to practice EPA only under reactive/on demand supervision with supervisor immediately available, key findings double-checked</td>
</tr>
<tr>
<td>Modified Ottawa scale: In supervising this student, how much did you participate in the task?</td>
<td>Original Ottawa scale (Rekman et al 2016)</td>
</tr>
<tr>
<td>---</td>
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</tr>
<tr>
<td>1. “I did it.” Student required complete guidance or was unprepared; I had to do most of the work myself.</td>
<td>1. “I had to do.” (i.e., requires complete hands-on guidance, did not do, or was not given the opportunity to do)</td>
</tr>
<tr>
<td>2. “I talked them through it.” Student was able to perform some tasks but required repeated directions.</td>
<td>2. “I had to talk them through.” (i.e., able to perform tasks but requires constant direction)</td>
</tr>
<tr>
<td>3. “I directed them from time to time.” Student demonstrated some independence and only required intermittent prompting.</td>
<td>3. “I had to prompt them from time to time.” (i.e., demonstrates some independence, but requires intermittent direction)</td>
</tr>
<tr>
<td>4. “I was available just in case.” Student functioned fairly independently and only needed assistance with nuances or complex situations.</td>
<td>4. “I needed to be there in the room just in case.” (i.e., independence but unaware of risks and still requires supervision for safe practice)</td>
</tr>
<tr>
<td>5. (No level 5: Students are ineligible for complete independence in our systems.)</td>
<td>5. “I did not need to be there.” (i.e., complete independence, understands risks and performs safely, practice ready)</td>
</tr>
</tbody>
</table>
Appendix 2: Resources Related to EPA 6

Assessment of Professional Behaviors (APB)

UCSF Reflection Tool

Reflective Ability Rubric and User Guide

Teaching Oral Presentation Skills to Second-Year Medical Students

Patient Presentation Rating Tool

MAAS-Global Manual 2000

Communication Assessment Tool (CAT)

Liverpool Communication Skills Assessment Scale (LCSAS)

Communication Curriculum Package

Professionalism Mini-Evaluation Exercise (P-MEX)

Rochester Communication Rating Scale

Evidence in the Literature

Appendix 3: Behaviors and Vignettes

The Core EPA Guide produced by the AAMC contains additional detailed information that may be useful for curriculum designers.

1. For a convenient list of behaviors for this EPA that were used to develop a developmental progression, we refer you to the Core EPA Guide.

2. For exemplars of learner vignettes that highlight pre-entrustable and entrustable scenarios, please see the Core EPA Guide.
Appendix 4: The Physician Competency Reference Set (PCRS)

The Physician Competency Reference Set (Englander et al 2013) is provided for cross-referencing with the one-page schematic.

1. PATIENT CARE (PC): Provide patient-centered care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health
   1.1 Perform all medical, diagnostic, and surgical procedures considered essential for the area of practice
   1.2 Gather essential and accurate information about patients and their condition through history-taking, physical examination, and the use of laboratory data, imaging, and other tests
   1.3 Organize and prioritize responsibilities to provide care that is safe, effective, and efficient
   1.4 Interpret laboratory data, imaging studies, and other tests required for the area of practice
   1.5 Make informed decisions about diagnostic and therapeutic interventions based on patient information and preferences, up-to-date scientific evidence, and clinical judgment
   1.6 Develop and carry out patient management plans
   1.7 Counsel and educate patients and their families to empower them to participate in their care and enable shared decision making
   1.8 Provide appropriate referral of patients, including ensuring continuity of care throughout transitions between providers or settings and following up on patient progress and outcomes
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   1.10 Provide appropriate role modeling
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2. KNOWLEDGE FOR PRACTICE (KP): Demonstrate knowledge of established and evolving biomedical, clinical, epidemiological, and social-behavioral sciences, as well as the application of this knowledge to patient care
   2.1 Demonstrate an investigatory and analytic approach to clinical situations
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   3.3 Identify and perform learning activities that address one’s gaps in knowledge, skills, or attitudes
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   4.4 Act in a consultative role to other health professionals
   4.5 Maintain comprehensive, timely, and legible medical records
   4.6 Demonstrate sensitivity, honesty, and compassion in difficult conversations (e.g., about issues such as death, end-of-life issues, adverse events, bad news, disclosure of errors, and other sensitive topics)
   4.7 Demonstrate insight and understanding about emotions and human responses to emotions that allow one to develop and manage interpersonal interactions

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5.5 Demonstrate sensitivity and responsiveness to a diverse patient population, including but not limited to diversity in gender, age, culture, race, religion, disabilities, and sexual orientation
5.6 Demonstrate a commitment to ethical principles pertaining to provision or withholding of care, confidentiality, informed consent, and business practices, including compliance with relevant laws, policies, and regulations

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6.2 Coordinate patient care within the health care system relevant to one’s clinical specialty
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6.4 Advocate for quality patient care and optimal patient care systems
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7.2 Use the knowledge of one’s own role and those of other professions to appropriately assess and address the health care needs of the patients and populations served
7.3 Communicate with other health professionals in a responsive and responsible manner that supports the maintenance of health and the treatment of disease in individual patients and populations
7.4 Participate in different team roles to establish, develop, and continuously enhance interprofessional teams to provide patient- and population-centered care that is safe, timely, efficient, effective, and equitable

8. PERSONAL AND PROFESSIONAL DEVELOPMENT (PPD): Demonstrate the qualities required to sustain lifelong personal and professional growth
8.1 Develop the ability to use self-awareness of knowledge, skills, and emotional limitations to engage in appropriate help-seeking behaviors
8.2 Demonstrate healthy coping mechanisms to respond to stress
8.3 Manage conflict between personal and professional responsibilities
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</tr>
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<td>8.8</td>
<td>Recognize that ambiguity is part of clinical health care and respond by using appropriate resources in dealing with uncertainty</td>
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References

Publications From the Core EPA Pilot Group


Other Related Publications


Chen HC, van den Broek WS, ten Cate O. The case for use of entrustable professional activities in undergraduate medical education. Acad Med. 2015;90(4):431-436.


EPA 7 Toolkit: Form Clinical Questions and Retrieve Evidence to Advance Patient Care

Association of American Medical Colleges
Washington, D.C.
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User Guide

This toolkit is for medical schools interested in implementing the Core Entrustable Professional Activities (EPAs) for Entering Residency. Written by the AAMC Core EPA Pilot Group, the toolkit expands on the EPA framework outlined in the EPA Developer’s Guide (AAMC 2014). The Pilot Group identified progressive sequences of student behavior that medical educators may encounter as students engage in the medical school curriculum and became proficient in integrating their clinical skills. These sequences of behavior are articulated for each of the 13 EPAs in one-page schematics to provide a framework for understanding EPAs; additional resources follow.

This toolkit includes:

- One-page schematic of each EPA
- Core EPA Pilot supervision and coactivity scales
- List of resources associated with each EPA
- Reference to EPA bulleted behaviors and vignettes from the Core EPA Guide
- The Physician Competency Reference Set
- Opportunities for engagement with the Core EPA Pilot
One-Page Schematics

In 2014, the AAMC launched a pilot project with 10 institutions to address the feasibility of implementing 13 EPAs for entering residency in undergraduate medical education. To standardize our approach as a pilot and promote a shared mental model, the Core EPA Pilot Group developed one-page schematics for each of the 13 EPAs.

These schematics were developed to translate the rich and detailed content within *The Core Entrustable Professional Activities for Entering Residency Curriculum Developers’ Guide* published in 2014 by the AAMC into a one-page, easy-to-use format (AAMC 2014). These one-page schematics of developmental progression to entrustment provide user-friendly descriptions of each EPA. We sought fidelity to the original ideas and concepts created by the expert drafting panel that developed the *Core EPA Guide*.

We envision the one-page schematics as a resource for:

- Development of curriculum and assessment tools
- Faculty development
- Student understanding
- Entrustment committees, portfolio advisors, and others tracking longitudinal student progress

Understanding the One-Page Schematic

Performance of an EPA requires integration of multiple competencies (Englander and Carraccio 2014). Each EPA schematic begins with its list of key functions and related competencies. The functions are followed by observable behaviors of increasing ability describing a medical student’s development toward readiness for indirect supervision. The column following the functions lists those behaviors requiring immediate correction or remediation. The last column lists expected behaviors of an entrustable learner.

The members of the Curriculum and Assessment Team of the Core EPA Pilot Group led this initiative. Thirteen EPA groups, each comprising representatives from four to five institutions, were tasked with creating each EPA schematic. Development of the schematics involved an explicit, standardized process to reduce variation and ensure consistency with functions, competencies, and the behaviors explicit in the *Core EPA Guide*. Behaviors listed were carefully gathered from the *Core EPA Guide* and reorganized by function and competency and listed in a developmental progression. The Curriculum and Assessment Team promoted content validity by carrying out iterative reviews by telephone conference call with the members of the Core EPA Pilot Group assigned to each EPA.

EPA Curriculum and Assessment

Multiple methods of teaching and assessing EPAs throughout the curriculum will be required to make a summative entrustment decision about residency readiness. The schematics can help to systematically identify and map curricular elements required to prepare students to perform EPAs. Specific prerequisite curricula may be needed to develop knowledge, skills, and attitudes before the learner engages in practice of the EPA.

To implement EPAs, medical schools should identify where in the curriculum EPAs will be taught, practiced, and assessed. Among other modalities, simulation, reflection, and standardized and structured experiences will all provide data about student competence. However, central to the concept of entrustment is the global performance of EPAs in authentic clinical settings, where the EPA is taught and assessed holistically, not as the sum of its parts.
Workplace-Based Assessments: Supervision and Coactivity Scales

On a day-to-day basis, clinical supervisors make and communicate judgments about how much help (coactivity) or supervision a student or resident needs. “Will I let the student go in the room without me? How much will I let the student do versus observe? Because I wasn’t present to observe, how much do I need to double-check?” Scales for clinical supervisors to determine how much help or supervision a student needs for a specific activity have been proposed (Chen et al 2015; Rekman et al 2016). There is limited validity evidence for these scales, and no published data comparing them. Given our initial experience, the Core EPA Pilot Group has agreed on a trial using modified versions of these scales (Appendix 1).

Resources

The Pilot Group compiled a list of resources, including relevant Critical Synthesis Packages from MedEdPORTAL®, a review of current existing literature, teaching methods, and assessment tools related to each EPA (Appendix 2). This collection of products may help schools with implementation. For example, schools may find the teaching methods and assessment tools useful when considering multiple sources of data about student performance that may eventually contribute to a summative entrustment decision. The Pilot Group concluded that new teaching methods and assessment tools will be needed to complement these resources. This need is particularly relevant for workplace-based assessments where the synthetic performance of an EPA is linked to a level of supervision. We envision the one-page schematics as a resource for the development of new teaching and assessment methods.
Frequently Asked Questions

Why are EPAs important?

In many cases, medical school graduates are perceived by residency program directors as insufficiently prepared at the beginning of their residency training for indirect supervision in clinical skills and for exhibiting professional behaviors. The EPAs define a shared set of clinical activities that residents are expected to perform on day one of residency. This is an important opportunity for undergraduate medical education to develop a new construct toward preparedness and, as an end goal, improvements in patient safety. Ideally, students will perform the Core EPAs consistently in situations of varying complexity as they practice and receive actionable feedback, formulating learning goals for future demonstrations of competence.

What does “entrustment” mean in the context of the EPAs?

Entrustment is defined as trustworthiness in applying knowledge, skills, and attitudes in performance of an EPA. To be “trustworthy,” students must consistently demonstrate attributes such as conscientiousness, knowledge of their own limits and help-seeking behavior (discernment), and truthfulness (Kennedy et al 2008). Throughout medical education, students should be assessed on trustworthiness—though this may occur implicitly or explicitly. The EPA framework makes this assessment explicit and transparent.

EPA entrustment is defined as a judgment by a supervisor or collection of supervisors signaling a student has met specific, defined expectations for needing limited supervision. The Core EPA Pilot Group recommends the formation of an entrustment committee to make evidence-based summative entrustment decisions about each student’s readiness for residency (Brown et al 2017).

What is the relationship between competencies and EPAs?

The EPA framework reorganizes competencies into observable units of clinical work by function. Each function is a subunit of work required to perform an EPA. The functions and related competencies are the parts, and the EPA is the whole. The Toolkit’s one-page schematics highlight an EPA’s specific functions with underlying competencies into observable behaviors within a developmental progression toward entrustment.

Although tracking progression within individual functions can help learners develop appropriate skills, monitoring learner progress toward entrustability for that EPA requires synthesis: At some point the learner must apply each of the functions in execution of the EPA task. To this end, we emphasize the importance of the holistic nature of the EPA and prioritize assessment for entrustment in these activities in workplace settings as a whole, not as the sum of their parts.

Is the one-page schematic designed as a rubric for student assessment?

No, the one-page schematics are not intended to serve as assessment tools. They can serve as guides for development of instructional, feedback, and assessment tools for EPAs. We share them as a framework for understanding the developmental progression that graduating medical students should demonstrate as a reflection of their readiness for residency.
How can I or my institution become more involved?

Medical schools in the AAMC pilot, those interested in implementing EPAs, and those wondering about the faculty resources needed to teach and assess EPAs are already part of a dynamic learning community. Opportunities for engaging with others exist through the AAMC Core EPA listserve, conference presentations, collaborative projects, and in informal medical education networks. Your contributions help shape the work of the Core EPA Pilot project and are a source of new ideas, feedback, and suggestions for implementation. We invite you to continue your conversations with us by sharing the decisions you face within the unique culture of your institution.

- To subscribe to the Core EPAs listserve, send a blank email to subscribe-coreepas@lists.aamc.org. To post a comment to the listserve, simply send an email to coreepas@lists.aamc.org.

- Core EPA Pilot Website: [https://www.aamc.org/initiatives/coreepas/](https://www.aamc.org/initiatives/coreepas/)

- Publications from the Core EPA Pilot Group: [https://www.aamc.org/initiatives/coreepas/publicationsandpresentations/](https://www.aamc.org/initiatives/coreepas/publicationsandpresentations/)

- Core EPA Pilot Group email for queries and observations: coreepas@aamc.org
EPA 7: Form Clinical Questions and Retrieve Evidence to Advance Patient Care

**Key Functions with Related Competencies**

- **Combine curiosity, objectivity, and scientific reasoning to develop a well-formed, focused, pertinent clinical question (ASK)**
  - KP3 PBL16 PBL11 PBL13

- **Demonstrate awareness and skill in using information technology to access accurate and reliable medical information (ACQUIRE)**
  - PBL16 PBL17

- **Demonstrate skill in appraising sources, content, and applicability of evidence (APPRAISE)**
  - PBL16 KP3 KP4

- **Apply findings to individuals and/or patient panels; communicate findings to the patient and team, reflecting on process and outcomes (ADVISE)**
  - ICS1 ICS2 PBL11 PBL18 PBL19 PC7

**Behaviors Requiring Corrective Response**

- **Does not reconsider approach to a problem, ask for help, or seek new information**
- **Declines to use new information technologies**
- **Refuses to consider gaps and limitations in the literature or apply published evidence to specific patient care**
- **Does not discuss findings with team**
- **Does not determine or discuss outcomes and/or process, even with prompting**

**→ Developing Behaviors →**

(Learner may be at different levels within a row.)

- **With prompting, translates information needs into clinical questions**
- **Declines to use new information technologies**
- **Accepts findings from clinical studies without critical appraisal**
- **Does not discuss findings with team**
- **Does not determine or discuss outcomes and/or process, even with prompting**

**Expected Behaviors for an Entrustable Learner**

- **Seeks assistance to translate information needs into well-formed clinical questions**
- **Employs different search engines and refines search strategies to improve efficiency of evidence retrieval**
- **Judges evidence quality from clinical studies**
- **Applies published evidence to common medical conditions**
- **Communicates with rigid recitation of findings, using medical jargon or displaying personal biases**
- **Acknowledges ambiguity of findings and manages personal bias**

- **Identifies limitations and gaps in personal knowledge**
- **Identifies and uses available databases, search engines, and refined search strategies to acquire relevant information**
- **Uses levels of evidence to appraise literature and determines applicability of evidence**
- **Seeks guidance in understanding subtleties of evidence**
- **Applies nuanced findings by communicating the level and consistency of evidence with appropriate citation**
- **Reflects on ambiguity, outcomes, and the process by which questions were identified and answered and findings were applied**

**An EPA: A unit of observable, measurable professional practice requiring integration of competencies**

**Clinical questions to advance patient care**

Underlying entrustability for all EPAs are trustworthy habits, including truthfulness, conscientiousness, and discernment.

This schematic depicts development of proficiency in the Core EPAs. It is not intended for use as an assessment instrument. Entrustment decisions should be made after EPAs have been observed in multiple settings with varying context, acuity, and complexity and with varying patient characteristics.

Appendix 1: Core EPA Pilot Supervision and Coactivity Scales

Scales for clinical supervisors to determine how much help (coactivity) or supervision they judge a student needs for a specific activity have been proposed—the Chen entrustment scale and the Ottawa scale (Chen et al 2015; Rekman et al 2016). There is limited validity evidence for these scales and no published data comparing them. We include these published tools here for your reference. The Core EPA Pilot Group has agreed on a trial using modified versions of these scales (described below). A description of how the pilot is working with these scales is available on the Core EPA website.

Modified Chen entrustment scale: If you were to supervise this student again in a similar situation, which of the following statements aligns with how you would assign the task?

<table>
<thead>
<tr>
<th>Modified Chen entrustment scale: If you were to supervise this student again in a similar situation, which of the following statements aligns with how you would assign the task?</th>
<th>Corresponding excerpt from original Chen entrustment scale (Chen et al 2015)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1b. “Watch me do this.”</td>
<td>1b. Not allowed to practice EPA; allowed to observe</td>
</tr>
<tr>
<td>2a. “Let's do this together.”</td>
<td>2a. Allowed to practice EPA only under proactive, full supervision as coactivity with supervisor</td>
</tr>
<tr>
<td>2b. “I'll watch you.”</td>
<td>2b. Allowed to practice EPA only under proactive, full supervision with supervisor in room ready to step in as needed</td>
</tr>
<tr>
<td>3a. “You go ahead, and I'll double-check all of your findings.”</td>
<td>3a. Allowed to practice EPA only under reactive/on-demand supervision with supervisor immediately available, all findings double-checked</td>
</tr>
<tr>
<td>3b. “You go ahead, and I'll double-check key findings.”</td>
<td>3b. Allowed to practice EPA only under reactive/on demand supervision with supervisor immediately available, key findings double-checked</td>
</tr>
</tbody>
</table>
**Modified Ottawa scale:** In supervising this student, how much did you participate in the task?  

<table>
<thead>
<tr>
<th>Modified Ottawa scale</th>
<th>Original Ottawa scale (Rekman et al 2016)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. “I did it.”</strong> Student required complete guidance or was unprepared; I had to do most of the work myself.</td>
<td>1. “I had to do.” (i.e., requires complete hands-on guidance, did not do, or was not given the opportunity to do)</td>
</tr>
<tr>
<td><strong>2. “I talked them through it.”</strong> Student was able to perform some tasks but required repeated directions.</td>
<td>2. “I had to talk them through.” (i.e., able to perform tasks but requires constant direction)</td>
</tr>
<tr>
<td><strong>3. “I directed them from time to time.”</strong> Student demonstrated some independence and only required intermittent prompting.</td>
<td>3. “I had to prompt them from time to time.” (i.e., demonstrates some independence, but requires intermittent direction)</td>
</tr>
<tr>
<td><strong>4. “I was available just in case.”</strong> Student functioned fairly independently and only needed assistance with nuances or complex situations.</td>
<td>4. “I needed to be there in the room just in case.” (i.e., independence but unaware of risks and still requires supervision for safe practice)</td>
</tr>
<tr>
<td><strong>5. (No level 5: Students are ineligible for complete independence in our systems.)</strong></td>
<td>5. “I did not need to be there.” (i.e., complete independence, understands risks and performs safely, practice ready)</td>
</tr>
</tbody>
</table>
Appendix 2: Resources Related to EPA 7

A Longitudinal Medical School Evidence-Based Medicine Curriculum

Making Evidence-Based Medicine Simple Series

Search Assessment Tool for Ovid Medline

UCSF Reflection Tool

Reflective Ability Rubric and User Guide

Jefferson Scale of Physician Lifelong Learning

Evidence and Instruments in the Literature

Appendix 3: Behaviors and Vignettes

The Core EPA Guide produced by the AAMC contains additional detailed information that may be useful for curriculum designers.

1. For a convenient list of behaviors for this EPA that were used to develop a developmental progression, we refer you to the Core EPA Guide.

2. For exemplars of learner vignettes that highlight pre-entrustable and entrustable scenarios, please see the Core EPA Guide.
## Appendix 4: The Physician Competency Reference Set (PCRS)

The Physician Competency Reference Set (Englander et al 2013) is provided for cross-referencing with the one-page schematic.

<table>
<thead>
<tr>
<th></th>
<th>PATIENT CARE (PC): Provide patient-centered care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>Perform all medical, diagnostic, and surgical procedures considered essential for the area of practice</td>
</tr>
<tr>
<td>1.2</td>
<td>Gather essential and accurate information about patients and their condition through history-taking, physical examination, and the use of laboratory data, imaging, and other tests</td>
</tr>
<tr>
<td>1.3</td>
<td>Organize and prioritize responsibilities to provide care that is safe, effective, and efficient</td>
</tr>
<tr>
<td>1.4</td>
<td>Interpret laboratory data, imaging studies, and other tests required for the area of practice</td>
</tr>
<tr>
<td>1.5</td>
<td>Make informed decisions about diagnostic and therapeutic interventions based on patient information and preferences, up-to-date scientific evidence, and clinical judgment</td>
</tr>
<tr>
<td>1.6</td>
<td>Develop and carry out patient management plans</td>
</tr>
<tr>
<td>1.7</td>
<td>Counsel and educate patients and their families to empower them to participate in their care and enable shared decision making</td>
</tr>
<tr>
<td>1.8</td>
<td>Provide appropriate referral of patients, including ensuring continuity of care throughout transitions between providers or settings and following up on patient progress and outcomes</td>
</tr>
<tr>
<td>1.9</td>
<td>Provide health care services to patients, families, and communities aimed at preventing health problems or maintaining health</td>
</tr>
<tr>
<td>1.10</td>
<td>Provide appropriate role modeling</td>
</tr>
<tr>
<td>1.11</td>
<td>Perform supervisory responsibilities commensurate with one’s roles, abilities, and qualifications</td>
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<tr>
<th></th>
<th>KNOWLEDGE FOR PRACTICE (KP): Demonstrate knowledge of established and evolving biomedical, clinical, epidemiological, and social–behavioral sciences, as well as the application of this knowledge to patient care</th>
</tr>
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<tbody>
<tr>
<td>2.1</td>
<td>Demonstrate an investigatory and analytic approach to clinical situations</td>
</tr>
<tr>
<td>2.2</td>
<td>Apply established and emerging biophysical scientific principles fundamental to health care for patients and populations</td>
</tr>
<tr>
<td>2.3</td>
<td>Apply established and emerging principles of clinical sciences to diagnostic and therapeutic decision making, clinical problem solving, and other aspects of evidence-based health care</td>
</tr>
<tr>
<td>2.4</td>
<td>Apply principles of epidemiological sciences to the identification of health problems, risk factors, treatment strategies, resources, and disease prevention/health promotion efforts for patients and populations</td>
</tr>
<tr>
<td>2.5</td>
<td>Apply principles of social–behavioral sciences to provision of patient care, including assessment of the impact of psychosocial–cultural influences on health, disease, care-seeking, care compliance, and barriers to and attitudes toward care</td>
</tr>
<tr>
<td>2.6</td>
<td>Contribute to the creation, dissemination, application, and translation of new health care knowledge and practices</td>
</tr>
</tbody>
</table>
3. **PRACTICE-BASED LEARNING AND IMPROVEMENT (PBLI):** Demonstrate the ability to investigate and evaluate their care of patients, to appraise and assimilate scientific evidence, and to continuously improve patient care based on constant self-evaluation and lifelong learning

3.1 Identify strengths, deficiencies, and limits in one’s knowledge and expertise
3.2 Set learning and improvement goals
3.3 Identify and perform learning activities that address one’s gaps in knowledge, skills, or attitudes
3.4 Systematically analyze practice using quality-improvement methods, and implement changes with the goal of practice improvement
3.5 Incorporate feedback into daily practice
3.6 Locate, appraise, and assimilate evidence from scientific studies related to patients’ health problems
3.7 Use information technology to optimize learning
3.8 Participate in the education of patients, families, students, trainees, peers, and other health professionals
3.9 Obtain and utilize information about individual patients, populations of patients, or communities from which patients are drawn to improve care
3.10 Continually identify, analyze, and implement new knowledge, guidelines, standards, technologies, products, or services that have been demonstrated to improve outcomes

4. **INTERPERSONAL AND COMMUNICATION SKILLS (ICS):** Demonstrate interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, their families, and health professionals

4.1 Communicate effectively with patients, families, and the public, as appropriate, across a broad range of socioeconomic and cultural backgrounds
4.2 Communicate effectively with colleagues within one’s profession or specialty, other health professionals, and health-related agencies (see also interprofessional collaboration competency, IPC 7.3)
4.3 Work effectively with others as a member or leader of a health care team or other professional group (see also IPC 7.4)
4.4 Act in a consultative role to other health professionals
4.5 Maintain comprehensive, timely, and legible medical records
4.6 Demonstrate sensitivity, honesty, and compassion in difficult conversations (e.g., about issues such as death, end-of-life issues, adverse events, bad news, disclosure of errors, and other sensitive topics)
4.7 Demonstrate insight and understanding about emotions and human responses to emotions that allow one to develop and manage interpersonal interactions

5. **PROFESSIONALISM (P):** Demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles

5.1 Demonstrate compassion, integrity, and respect for others
5.2 Demonstrate responsiveness to patient needs that supersedes self-interest
5.3 Demonstrate respect for patient privacy and autonomy
5.4 Demonstrate accountability to patients, society, and the profession
5.5 Demonstrate sensitivity and responsiveness to a diverse patient population, including but not limited to diversity in gender, age, culture, race, religion, disabilities, and sexual orientation
5.6 Demonstrate a commitment to ethical principles pertaining to provision or withholding of care, confidentiality, informed consent, and business practices, including compliance with relevant laws, policies, and regulations

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8.2 Demonstrate healthy coping mechanisms to respond to stress
8.3 Manage conflict between personal and professional responsibilities
8.4 Practice flexibility and maturity in adjusting to change with the capacity to alter behavior
8.5 Demonstrate trustworthiness that makes colleagues feel secure when one is responsible for the care of patients
8.6 Provide leadership skills that enhance team functioning, the learning environment, and/or the health care delivery system
| 8.7 | Demonstrate self-confidence that puts patients, families, and members of the health care team at ease |
| 8.8 | Recognize that ambiguity is part of clinical health care and respond by using appropriate resources in dealing with uncertainty |
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Other Related Publications


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EPA 8 Toolkit: Give or Receive a Patient Handover to Transition Care Responsibility

Association of American Medical Colleges
Washington, D.C.
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User Guide

This toolkit is for medical schools interested in implementing the Core Entrustable Professional Activities (EPAs) for Entering Residency. Written by the AAMC Core EPA Pilot Group, the toolkit expands on the EPA framework outlined in the EPA Developer’s Guide (AAMC 2014). The Pilot Group identified progressive sequences of student behavior that medical educators may encounter as students engage in the medical school curriculum and became proficient in integrating their clinical skills. These sequences of behavior are articulated for each of the 13 EPAs in one-page schematics to provide a framework for understanding EPAs; additional resources follow.

This toolkit includes:

- One-page schematic of each EPA
- Core EPA Pilot supervision and coactivity scales
- List of resources associated with each EPA
- Reference to EPA bulleted behaviors and vignettes from the Core EPA Guide
- The Physician Competency Reference Set
- Opportunities for engagement with the Core EPA Pilot
One-Page Schematics

In 2014, the AAMC launched a pilot project with 10 institutions to address the feasibility of implementing 13 EPAs for entering residency in undergraduate medical education. To standardize our approach as a pilot and promote a shared mental model, the Core EPA Pilot Group developed one-page schematics for each of the 13 EPAs.

These schematics were developed to translate the rich and detailed content within *The Core Entrustable Professional Activities for Entering Residency Curriculum Developers’ Guide* published in 2014 by the AAMC into a one-page, easy-to-use format (AAMC 2014). These one-page schematics of developmental progression to entrustment provide user-friendly descriptions of each EPA. We sought fidelity to the original ideas and concepts created by the expert drafting panel that developed the *Core EPA Guide*.

We envision the one-page schematics as a resource for:

- Development of curriculum and assessment tools
- Faculty development
- Student understanding
- Entrustment committees, portfolio advisors, and others tracking longitudinal student progress

Understanding the One-Page Schematic

Performance of an EPA requires integration of multiple competencies (Englander and Carraccio 2014). Each EPA schematic begins with its list of key functions and related competencies. The functions are followed by observable behaviors of increasing ability describing a medical student’s development toward readiness for indirect supervision. The column following the functions lists those behaviors requiring immediate correction or remediation. The last column lists expected behaviors of an entrustable learner.

The members of the Curriculum and Assessment Team of the Core EPA Pilot Group led this initiative. Thirteen EPA groups, each comprising representatives from four to five institutions, were tasked with creating each EPA schematic. Development of the schematics involved an explicit, standardized process to reduce variation and ensure consistency with functions, competencies, and the behaviors explicit in the *Core EPA Guide*. Behaviors listed were carefully gathered from the *Core EPA Guide* and reorganized by function and competency and listed in a developmental progression. The Curriculum and Assessment Team promoted content validity by carrying out iterative reviews by telephone conference call with the members of the Core EPA Pilot Group assigned to each EPA.

EPA Curriculum and Assessment

Multiple methods of teaching and assessing EPAs throughout the curriculum will be required to make a summative entrustment decision about residency readiness. The schematics can help to systematically identify and map curricular elements required to prepare students to perform EPAs. Specific prerequisite curricula may be needed to develop knowledge, skills, and attitudes before the learner engages in practice of the EPA.

To implement EPAs, medical schools should identify where in the curriculum EPAs will be taught, practiced, and assessed. Among other modalities, simulation, reflection, and standardized and structured experiences will all provide data about student competence. However, central to the concept of entrustment is the global performance of EPAs in authentic clinical settings, where the EPA is taught and assessed holistically, not as the sum of its parts.
Workplace-Based Assessments: Supervision and Coactivity Scales

On a day-to-day basis, clinical supervisors make and communicate judgments about how much help (coactivity) or supervision a student or resident needs. “Will I let the student go in the room without me? How much will I let the student do versus observe? Because I wasn’t present to observe, how much do I need to double-check?” Scales for clinical supervisors to determine how much help or supervision a student needs for a specific activity have been proposed (Chen et al 2015; Rekman et al 2016). There is limited validity evidence for these scales, and no published data comparing them. Given our initial experience, the Core EPA Pilot Group has agreed on a trial using modified versions of these scales (Appendix 1).

Resources

The Pilot Group compiled a list of resources, including relevant Critical Synthesis Packages from MedEdPORTAL®, a review of current existing literature, teaching methods, and assessment tools related to each EPA (Appendix 2). This collection of products may help schools with implementation. For example, schools may find the teaching methods and assessment tools useful when considering multiple sources of data about student performance that may eventually contribute to a summative entrustment decision. The Pilot Group concluded that new teaching methods and assessment tools will be needed to complement these resources. This need is particularly relevant for workplace-based assessments where the synthetic performance of an EPA is linked to a level of supervision. We envision the one-page schematics as a resource for the development of new teaching and assessment methods.
Frequently Asked Questions

Why are EPAs important?

In many cases, medical school graduates are perceived by residency program directors as insufficiently prepared at the beginning of their residency training for indirect supervision in clinical skills and for exhibiting professional behaviors. The EPAs define a shared set of clinical activities that residents are expected to perform on day one of residency. This is an important opportunity for undergraduate medical education to develop a new construct toward preparedness and, as an end goal, improvements in patient safety. Ideally, students will perform the Core EPAs consistently in situations of varying complexity as they practice and receive actionable feedback, formulating learning goals for future demonstrations of competence.

What does “entrustment” mean in the context of the EPAs?

Entrustment is defined as trustworthiness in applying knowledge, skills, and attitudes in performance of an EPA. To be “trustworthy,” students must consistently demonstrate attributes such as conscientiousness, knowledge of their own limits and help-seeking behavior (discernment), and truthfulness (Kennedy et al 2008). Throughout medical education, students should be assessed on trustworthiness—though this may occur implicitly or explicitly. The EPA framework makes this assessment explicit and transparent.

EPA entrustment is defined as a judgment by a supervisor or collection of supervisors signaling a student has met specific, defined expectations for needing limited supervision. The Core EPA Pilot Group recommends the formation of an entrustment committee to make evidence-based summative entrustment decisions about each student’s readiness for residency (Brown et al 2017).

What is the relationship between competencies and EPAs?

The EPA framework reorganizes competencies into observable units of clinical work by function. Each function is a subunit of work required to perform an EPA. The functions and related competencies are the parts, and the EPA is the whole. The Toolkit’s one-page schematics highlight an EPA’s specific functions with underlying competencies into observable behaviors within a developmental progression toward entrustment.

Although tracking progression within individual functions can help learners develop appropriate skills, monitoring learner progress toward entrustability for that EPA requires synthesis: At some point the learner must apply each of the functions in execution of the EPA task. To this end, we emphasize the importance of the holistic nature of the EPA and prioritize assessment for entrustment in these activities in workplace settings as a whole, not as the sum of their parts.

Is the one-page schematic designed as a rubric for student assessment?

No, the one-page schematics are not intended to serve as assessment tools. They can serve as guides for development of instructional, feedback, and assessment tools for EPAs. We share them as a framework for understanding the developmental progression that graduating medical students should demonstrate as a reflection of their readiness for residency.
How can I or my institution become more involved?

Medical schools in the AAMC pilot, those interested in implementing EPAs, and those wondering about the faculty resources needed to teach and assess EPAs are already part of a dynamic learning community. Opportunities for engaging with others exist through the AAMC Core EPA listserv, conference presentations, collaborative projects, and in informal medical education networks. Your contributions help shape the work of the Core EPA Pilot project and are a source of new ideas, feedback, and suggestions for implementation. We invite you to continue your conversations with us by sharing the decisions you face within the unique culture of your institution.

- To subscribe to the Core EPAs listserv, send a blank email to subscribe-coreepas@lists.aamc.org. To post a comment to the listserve, simply send an email to coreepas@lists.aamc.org.

- Core EPA Pilot Website: [https://www.aamc.org/initiatives/coreepas/](https://www.aamc.org/initiatives/coreepas/)

- Publications from the Core EPA Pilot Group: [https://www.aamc.org/initiatives/coreepas/publicationsandpresentations/](https://www.aamc.org/initiatives/coreepas/publicationsandpresentations/)

- Core EPA Pilot Group email for queries and observations: coreepas@aamc.org
EPA 8: Give or Receive a Patient Handover to Transition Care Responsibility

**Key Functions with Related Competencies**

**Document and update an electronic handover tool and apply this to deliver a structured verbal handover**
- PBL17 ICS2 ICS3 P3
  - *Transmitter

**Conduct handover using communication strategies known to minimize threats to transition of care**
- ICS2 ICS3
  - *Transmitter

**Provide succinct verbal communication conveying illness severity, situational awareness, action planning, and contingency planning**
- ICS2 PC8
  - *Transmitter

**Give or elicit feedback about handover communication and ensure closed-loop communication**
- PBL15 ICS2 ICS3
  - *Transmitter and Receiver

**Demonstrate respect for patient’s privacy and confidentiality**
- P3
  - *Transmitter and Receiver

**Behaviors Requiring Corrective Response**

- Inconsistently uses standardized format or uses alternative tool
- Provides information that is incomplete and/or includes multiple errors in patient information
- Is frequently distracted
- Carries out handover with inappropriate timing and context
- Communication lacks all key components of standardized handover
- Withholds or is defensive with feedback
- Displays lack of insight on the role of feedback
- Does not summarize (or repeat) key points for effective closed-loop communication
- Is unaware of HIPAA policies
- Breaches patient confidentiality and privacy

**Developing Behaviors →** (Learner may be at different levels within a row.)

- Uses electronic handover tool
- Inconsistently updates tool
- Requires clarification and additional relevant information from others to prioritize information
- Provides patient information that is disorganized, too detailed, and/or too brief
- Requires assistance to minimize interruptions and distractions
- Demonstrates minimal situational awareness
- Inconsistently communicates key components of the standardized tool
- Does not provide action plan and contingency plan
- Delivers incomplete feedback; accepts feedback when given
- Does not encourage other team members to express their ideas or opinions
- Inconsistently uses summary statements and/or asks clarifying questions
- Is aware of HIPAA policies

**Expected Behaviors for an Entrustable Learner**

- Consistently updates electronic handover tool with clear, relevant, and succinct documentation
- Adapts and applies all elements of a standardized template
- Presents a verbal handover that is prioritized, relevant, and succinct
- Avoids interruptions and distractions
- Manages time effectively
- Demonstrates situational awareness
- Highlights illness severity accurately
- Provides complete action plans and appropriate contingency plans
- Provides and solicits feedback regularly, listens actively, and engages in reflection
- Identifies areas of improvement
- Asks mutually clarifying questions, provides succinct summaries, and uses repeat-back techniques
- Consistently considers patient privacy and confidentiality
- Highlights and respects patient’s preferences

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*Functions are designated as “transmitter” or “transmitter and receiver.”

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Appendix 1: Core EPA Pilot Supervision and Coactivity Scales

Scales for clinical supervisors to determine how much help (coactivity) or supervision they judge a student needs for a specific activity have been proposed—the Chen entrustment scale and the Ottawa scale (Chen et al 2015; Rekman et al 2016). There is limited validity evidence for these scales and no published data comparing them. We include these published tools here for your reference. The Core EPA Pilot Group has agreed on a trial using modified versions of these scales (described below). A description of how the pilot is working with these scales is available on the Core EPA website.

<table>
<thead>
<tr>
<th>Modified Chen entrustment scale: If you were to supervise this student again in a similar situation, which of the following statements aligns with how you would assign the task?</th>
<th>Corresponding excerpt from original Chen entrustment scale (Chen et al 2015)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1b. “Watch me do this.”</td>
<td>1b. Not allowed to practice EPA; allowed to observe</td>
</tr>
<tr>
<td>2a. “Let’s do this together.”</td>
<td>2a. Allowed to practice EPA only under proactive, full supervision as coactivity with supervisor</td>
</tr>
<tr>
<td>2b. “I’ll watch you.”</td>
<td>2b. Allowed to practice EPA only under proactive, full supervision with supervisor in room ready to step in as needed</td>
</tr>
<tr>
<td>3a. “You go ahead, and I’ll double-check all of your findings.”</td>
<td>3a. Allowed to practice EPA only under reactive/on-demand supervision with supervisor immediately available, all findings double-checked</td>
</tr>
<tr>
<td>3b. “You go ahead, and I’ll double-check key findings.”</td>
<td>3b. Allowed to practice EPA only under reactive/on-demand supervision with supervisor immediately available, key findings double-checked</td>
</tr>
</tbody>
</table>
**Modified Ottawa scale**: In supervising this student, how much did you participate in the task?

<table>
<thead>
<tr>
<th>Modified Ottawa scale</th>
<th>Original Ottawa scale (Rekman et al 2016)</th>
</tr>
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<tbody>
<tr>
<td><strong>1. “I did it.”</strong> Student required complete guidance or was unprepared; I had to do most of the work myself.</td>
<td>1. “I had to do.” (i.e., requires complete hands-on guidance, did not do, or was not given the opportunity to do)</td>
</tr>
<tr>
<td><strong>2. “I talked them through it.”</strong> Student was able to perform some tasks but required repeated directions.</td>
<td>2. “I had to talk them through.” (i.e., able to perform tasks but requires constant direction)</td>
</tr>
<tr>
<td><strong>3. “I directed them from time to time.”</strong> Student demonstrated some independence and only required intermittent prompting.</td>
<td>3. “I had to prompt them from time to time.” (i.e., demonstrates some independence, but requires intermittent direction)</td>
</tr>
<tr>
<td><strong>4. “I was available just in case.”</strong> Student functioned fairly independently and only needed assistance with nuances or complex situations.</td>
<td>4. “I needed to be there in the room just in case.” (i.e., independence but unaware of risks and still requires supervision for safe practice)</td>
</tr>
<tr>
<td><strong>5. (No level 5: Students are ineligible for complete independence in our systems.)</strong></td>
<td>5. “I did not need to be there.” (i.e., complete independence, understands risks and performs safely, practice ready)</td>
</tr>
</tbody>
</table>
Appendix 2: Resources Related to EPA 8

I-PASS Handoff Curriculum: Campaign Toolkit

Clinical Teamwork Scale

Assessment of Professional Behaviors (APB)

Professionalism Mini-Evaluation Exercise (P-MEX)
Appendix 3: Behaviors and Vignettes

The Core EPA Guide produced by the AAMC contains additional detailed information that may be useful for curriculum designers.

1. For a convenient list of behaviors for this EPA that were used to develop a developmental progression, we refer you to the Core EPA Guide.

2. For exemplars of learner vignettes that highlight pre-entrustable and entrustable scenarios, please see the Core EPA Guide.
Appendix 4: The Physician Competency Reference Set (PCRS)

The Physician Competency Reference Set (Englander et al 2013) is provided for cross-referencing with the one-page schematic.

<table>
<thead>
<tr>
<th>1. PATIENT CARE (PC): Provide patient-centered care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health</th>
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<tbody>
<tr>
<td>1.1</td>
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<td>1.11</td>
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<table>
<thead>
<tr>
<th>2. KNOWLEDGE FOR PRACTICE (KP): Demonstrate knowledge of established and evolving biomedical, clinical, epidemiological, and social–behavioral sciences, as well as the application of this knowledge to patient care</th>
</tr>
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<tbody>
<tr>
<td>2.1</td>
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<td>2.5</td>
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<td>2.6</td>
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</tbody>
</table>
3. **PRACTICE-BASED LEARNING AND IMPROVEMENT (PBLI):** Demonstrate the ability to investigate and evaluate their care of patients, to appraise and assimilate scientific evidence, and to continuously improve patient care based on constant self-evaluation and lifelong learning

3.1 Identify strengths, deficiencies, and limits in one’s knowledge and expertise
3.2 Set learning and improvement goals
3.3 Identify and perform learning activities that address one’s gaps in knowledge, skills, or attitudes
3.4 Systematically analyze practice using quality-improvement methods, and implement changes with the goal of practice improvement
3.5 Incorporate feedback into daily practice
3.6 Locate, appraise, and assimilate evidence from scientific studies related to patients’ health problems
3.7 Use information technology to optimize learning
3.8 Participate in the education of patients, families, students, trainees, peers, and other health professionals
3.9 Obtain and utilize information about individual patients, populations of patients, or communities from which patients are drawn to improve care
3.10 Continually identify, analyze, and implement new knowledge, guidelines, standards, technologies, products, or services that have been demonstrated to improve outcomes

4. **INTERPERSONAL AND COMMUNICATION SKILLS (ICS):** Demonstrate interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, their families, and health professionals

4.1 Communicate effectively with patients, families, and the public, as appropriate, across a broad range of socioeconomic and cultural backgrounds
4.2 Communicate effectively with colleagues within one’s profession or specialty, other health professionals, and health-related agencies (see also interprofessional collaboration competency, IPC 7.3)
4.3 Work effectively with others as a member or leader of a health care team or other professional group (see also IPC 7.4)
4.4 Act in a consultative role to other health professionals
4.5 Maintain comprehensive, timely, and legible medical records
4.6 Demonstrate sensitivity, honesty, and compassion in difficult conversations (e.g., about issues such as death, end-of-life issues, adverse events, bad news, disclosure of errors, and other sensitive topics)
4.7 Demonstrate insight and understanding about emotions and human responses to emotions that allow one to develop and manage interpersonal interactions

5. **PROFESSIONALISM (P):** Demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles

5.1 Demonstrate compassion, integrity, and respect for others
5.2 Demonstrate responsiveness to patient needs that supersedes self-interest
5.3 Demonstrate respect for patient privacy and autonomy
| 5.4 | Demonstrate accountability to patients, society, and the profession |
| 5.5 | Demonstrate sensitivity and responsiveness to a diverse patient population, including but not limited to diversity in gender, age, culture, race, religion, disabilities, and sexual orientation |
| 5.6 | Demonstrate a commitment to ethical principles pertaining to provision or withholding of care, confidentiality, informed consent, and business practices, including compliance with relevant laws, policies, and regulations |

| 6. SYSTEMS-BASED PRACTICE (SBP): Demonstrate an awareness of and responsiveness to the larger context and system of health care, as well as the ability to call effectively on other resources in the system to provide optimal health care |
| --- | --- |
| 6.1 | Work effectively in various health care delivery settings and systems relevant to one’s clinical specialty |
| 6.2 | Coordinate patient care within the health care system relevant to one’s clinical specialty |
| 6.3 | Incorporate considerations of cost awareness and risk–benefit analysis in patient and/or population-based care |
| 6.4 | Advocate for quality patient care and optimal patient care systems |
| 6.5 | Participate in identifying system errors and implementing potential systems solutions |
| 6.6 | Perform administrative and practice management responsibilities commensurate with one’s role, abilities, and qualifications |

| 7. INTERPROFESSIONAL COLLABORATION (IPC): Demonstrate the ability to engage in an interprofessional team in a manner that optimizes safe, effective patient- and population-centered care |
| --- | --- |
| 7.1 | Work with other health professionals to establish and maintain a climate of mutual respect, dignity, diversity, ethical integrity, and trust |
| 7.2 | Use the knowledge of one’s own role and those of other professions to appropriately assess and address the health care needs of the patients and populations served |
| 7.3 | Communicate with other health professionals in a responsive and responsible manner that supports the maintenance of health and the treatment of disease in individual patients and populations |
| 7.4 | Participate in different team roles to establish, develop, and continuously enhance interprofessional teams to provide patient- and population-centered care that is safe, timely, efficient, effective, and equitable |

<p>| 8. PERSONAL AND PROFESSIONAL DEVELOPMENT (PPD): Demonstrate the qualities required to sustain lifelong personal and professional growth |
| --- | --- |
| 8.1 | Develop the ability to use self-awareness of knowledge, skills, and emotional limitations to engage in appropriate help-seeking behaviors |
| 8.2 | Demonstrate healthy coping mechanisms to respond to stress |
| 8.3 | Manage conflict between personal and professional responsibilities |
| 8.4 | Practice flexibility and maturity in adjusting to change with the capacity to alter behavior |
| 8.5 | Demonstrate trustworthiness that makes colleagues feel secure when one is responsible for the care of patients |
| 8.6 | Provide leadership skills that enhance team functioning, the learning environment, and/or the health care delivery system |</p>
<table>
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<tbody>
<tr>
<td>8.7</td>
<td>Demonstrate self-confidence that puts patients, families, and members of the health care team at ease</td>
</tr>
<tr>
<td>8.8</td>
<td>Recognize that ambiguity is part of clinical health care and respond by using appropriate resources in dealing with uncertainty</td>
</tr>
</tbody>
</table>
References

Publications From the Core EPA Pilot Group


Other Related Publications


EPA 9 Toolkit: Collaborate as a Member of an Interprofessional Team
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Frequently Asked Questions

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In many cases, medical school graduates are perceived by residency program directors as insufficiently prepared at the beginning of their residency training for indirect supervision in clinical skills and for exhibiting professional behaviors. The EPAs define a shared set of clinical activities that residents are expected to perform on day one of residency. This is an important opportunity for undergraduate medical education to develop a new construct toward preparedness and, as an end goal, improvements in patient safety. Ideally, students will perform the Core EPAs consistently in situations of varying complexity as they practice and receive actionable feedback, formulating learning goals for future demonstrations of competence.

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The EPA framework reorganizes competencies into observable units of clinical work by function. Each function is a subunit of work required to perform an EPA. The functions and related competencies are the parts, and the EPA is the whole. The Toolkit’s one-page schematics highlight an EPA’s specific functions with underlying competencies into observable behaviors within a developmental progression toward entrustment.

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EPA 9: Collaborate as a Member of an Interprofessional Team

**Key Functions with Related Competencies**

- Identify team members’ roles and responsibilities and seek help from other members of the team to optimize health care delivery
  - IPC2 SBP2 ICS3
- Include team members, listen attentively, and adjust communication content and style to align with team-member needs
  - ICS2/IPC3 IPC1 ICS7 P1
- Establish and maintain a climate of mutual respect, dignity, integrity, and trust
- Prioritize team needs over personal needs to optimize delivery of care
  - Help team members in need
    - P1 ICS7 IPC1 SBP2

**Behaviors Requiring Corrective Response**

- Does not acknowledge other members of the interdisciplinary team as important
- Displays little initiative to interact with team members
- Dismisses input from professionals other than physicians
- Has disrespectful interactions or does not tell the truth
- Is unable to modify behavior
- Puts others in position of reminding, enforcing, and resolving interprofessional conflicts

**→ Developing Behaviors →** (Learner may be at different levels within a row.)

- Identifies roles of other team members but does not know how or when to use them
- Acts independently of input from team members, patients, and families
- Communication is largely unidirectional, in response to prompts, or template driven
- Has limited participation in team discussion
- Is typically a more passive member of the team

- Interacts with other team members, seeks their counsel, actively listens to their recommendations, and incorporates these recommendations into practice
- Listens actively and elicits ideas and opinions from other team members
- Listens actively and elicits ideas and opinions from other team members
- Integrates into team function, prioritizing team goals
- Demonstrates respectful interactions and tells the truth
- Remains professional and anticipates and manages emotional triggers
- Supports other team members and communicates their value to the patient and family
- Anticipates, reads, and reacts to emotions to gain and maintain therapeutic alliances with others
- Prioritizes team’s needs over personal needs

**Expected Behaviors for an Entrustable Learner**

- Effectively partners as an integrated member of the team
- Articulates the unique contributions and roles of other health care professionals
- Actively engages with the patient and other team members to coordinate care and provide for seamless care transition
- Communicates bidirectionally; keeps team members informed and up to date
- Tailors communication strategy to the situation
Appendix 1: Core EPA Pilot Supervision and Coactivity Scales

Scales for clinical supervisors to determine how much help (coactivity) or supervision they judge a student needs for a specific activity have been proposed—the Chen entrustment scale and the Ottawa scale (Chen et al 2015; Rekman et al 2016). There is limited validity evidence for these scales and no published data comparing them. We include these published tools here for your reference. The Core EPA Pilot Group has agreed on a trial using modified versions of these scales (described below). A description of how the pilot is working with these scales is available on the [Core EPA website](http://example.com).

<table>
<thead>
<tr>
<th><strong>Modified Chen entrustment scale:</strong> If you were to supervise this student again in a similar situation, which of the following statements aligns with how you would assign the task?</th>
<th>Corresponding excerpt from original Chen entrustment scale (Chen et al 2015)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1b. “Watch me do this.”</td>
<td>1b. Not allowed to practice EPA; allowed to observe</td>
</tr>
<tr>
<td>2a. “Let's do this together.”</td>
<td>2a. Allowed to practice EPA only under proactive, full supervision as coactivity with supervisor</td>
</tr>
<tr>
<td>2b. “I'll watch you.”</td>
<td>2b. Allowed to practice EPA only under proactive, full supervision with supervisor in room ready to step in as needed</td>
</tr>
<tr>
<td>3a. “You go ahead, and I'll double-check all of your findings.”</td>
<td>3a. Allowed to practice EPA only under reactive/on-demand supervision with supervisor immediately available, all findings double-checked</td>
</tr>
<tr>
<td>3b. “You go ahead, and I'll double-check key findings.”</td>
<td>3b. Allowed to practice EPA only under reactive/on-demand supervision with supervisor immediately available, key findings double-checked</td>
</tr>
</tbody>
</table>
**Modified Ottawa scale:** In supervising this student, how much did you participate in the task?

<table>
<thead>
<tr>
<th>Modified Ottawa scale</th>
<th>Original Ottawa scale (Rekman et al 2016)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. “I did it.” Student required complete guidance or was unprepared; I had to do most of the work myself.</td>
<td>1. “I had to do.” (i.e., requires complete hands-on guidance, did not do, or was not given the opportunity to do)</td>
</tr>
<tr>
<td>2. “I talked them through it.” Student was able to perform some tasks but required repeated directions.</td>
<td>2. “I had to talk them through.” (i.e., able to perform tasks but requires constant direction)</td>
</tr>
<tr>
<td>3. “I directed them from time to time.” Student demonstrated some independence and only required intermittent prompting.</td>
<td>3. “I had to prompt them from time to time.” (i.e., demonstrates some independence, but requires intermittent direction)</td>
</tr>
<tr>
<td>4. “I was available just in case.” Student functioned fairly independently and only needed assistance with nuances or complex situations.</td>
<td>4. “I needed to be there in the room just in case.” (i.e., independence but unaware of risks and still requires supervision for safe practice)</td>
</tr>
<tr>
<td>5. (No level 5: Students are ineligible for complete independence in our systems.)</td>
<td>5. “I did not need to be there.” (i.e., complete independence, understands risks and performs safely, practice ready)</td>
</tr>
</tbody>
</table>
Appendix 2: Resources Related to EPA 9

Clinical Teamwork Scale

Preparing Students for Collaborative Practice

MAAS-Global Manual 2000

Communication Curriculum Package

Professionalism Mini-Evaluation Exercise (P-MEX)

Rochester Communication Rating Scale

Evidence and Instruments from the Literature

The Teamwork Mini-Clinical Evaluation Exercise (T-MEX)

ICAR Tool (Link)

ICCAS Tool (Link)

Readiness for Interprofessional Learning Scale (RIPLS Link)
Appendix 3: Behaviors and Vignettes

The Core EPA Guide produced by the AAMC contains additional detailed information that may be useful for curriculum designers.

1. For a convenient list of behaviors for this EPA that were used to develop a developmental progression, we refer you to the Core EPA Guide.

2. For exemplars of learner vignettes that highlight pre-entrustable and entrustable scenarios, please see the Core EPA Guide.
# Appendix 4: The Physician Competency Reference Set (PCRS)

The Physician Competency Reference Set (Englander et al 2013) is provided for cross-referencing with the one-page schematic.

## 1. PATIENT CARE (PC): Provide patient-centered care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health

1.1 Perform all medical, diagnostic, and surgical procedures considered essential for the area of practice

1.2 Gather essential and accurate information about patients and their condition through history-taking, physical examination, and the use of laboratory data, imaging, and other tests

1.3 Organize and prioritize responsibilities to provide care that is safe, effective, and efficient

1.4 Interpret laboratory data, imaging studies, and other tests required for the area of practice

1.5 Make informed decisions about diagnostic and therapeutic interventions based on patient information and preferences, up-to-date scientific evidence, and clinical judgment

1.6 Develop and carry out patient management plans

1.7 Counsel and educate patients and their families to empower them to participate in their care and enable shared decision making

1.8 Provide appropriate referral of patients, including ensuring continuity of care throughout transitions between providers or settings and following up on patient progress and outcomes

1.9 Provide health care services to patients, families, and communities aimed at preventing health problems or maintaining health

1.10 Provide appropriate role modeling

1.11 Perform supervisory responsibilities commensurate with one’s roles, abilities, and qualifications

## 2. KNOWLEDGE FOR PRACTICE (KP): Demonstrate knowledge of established and evolving biomedical, clinical, epidemiological, and social–behavioral sciences, as well as the application of this knowledge to patient care

2.1 Demonstrate an investigatory and analytic approach to clinical situations

2.2 Apply established and emerging biophysical scientific principles fundamental to health care for patients and populations

2.3 Apply established and emerging principles of clinical sciences to diagnostic and therapeutic decision making, clinical problem solving, and other aspects of evidence-based health care

2.4 Apply principles of epidemiological sciences to the identification of health problems, risk factors, treatment strategies, resources, and disease prevention/health promotion efforts for patients and populations

2.5 Apply principles of social–behavioral sciences to provision of patient care, including assessment of the impact of psychosocial–cultural influences on health, disease, care-seeking, care compliance, and barriers to and attitudes toward care

2.6 Contribute to the creation, dissemination, application, and translation of new health care knowledge and practices
3. **PRACTICE-BASED LEARNING AND IMPROVEMENT (PBLI):** Demonstrate the ability to investigate and evaluate their care of patients, to appraise and assimilate scientific evidence, and to continuously improve patient care based on constant self-evaluation and lifelong learning

   3.1 Identify strengths, deficiencies, and limits in one’s knowledge and expertise
   3.2 Set learning and improvement goals
   3.3 Identify and perform learning activities that address one’s gaps in knowledge, skills, or attitudes
   3.4 Systematically analyze practice using quality-improvement methods, and implement changes with the goal of practice improvement
   3.5 Incorporate feedback into daily practice
   3.6 Locate, appraise, and assimilate evidence from scientific studies related to patients’ health problems
   3.7 Use information technology to optimize learning
   3.8 Participate in the education of patients, families, students, trainees, peers, and other health professionals
   3.9 Obtain and utilize information about individual patients, populations of patients, or communities from which patients are drawn to improve care
   3.10 Continually identify, analyze, and implement new knowledge, guidelines, standards, technologies, products, or services that have been demonstrated to improve outcomes

4. **INTERPERSONAL AND COMMUNICATION SKILLS (ICS):** Demonstrate interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, their families, and health professionals

   4.1 Communicate effectively with patients, families, and the public, as appropriate, across a broad range of socioeconomic and cultural backgrounds
   4.2 Communicate effectively with colleagues within one’s profession or specialty, other health professionals, and health-related agencies (see also interprofessional collaboration competency, IPC 7.3)
   4.3 Work effectively with others as a member or leader of a health care team or other professional group (see also IPC 7.4)
   4.4 Act in a consultative role to other health professionals
   4.5 Maintain comprehensive, timely, and legible medical records
   4.6 Demonstrate sensitivity, honesty, and compassion in difficult conversations (e.g., about issues such as death, end-of-life issues, adverse events, bad news, disclosure of errors, and other sensitive topics)
   4.7 Demonstrate insight and understanding about emotions and human responses to emotions that allow one to develop and manage interpersonal interactions

5. **PROFESSIONALISM (P):** Demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles

   5.1 Demonstrate compassion, integrity, and respect for others
   5.2 Demonstrate responsiveness to patient needs that supersedes self-interest
   5.3 Demonstrate respect for patient privacy and autonomy
| 5.4 | Demonstrate accountability to patients, society, and the profession |
| 5.5 | Demonstrate sensitivity and responsiveness to a diverse patient population, including but not limited to diversity in gender, age, culture, race, religion, disabilities, and sexual orientation |
| 5.6 | Demonstrate a commitment to ethical principles pertaining to provision or withholding of care, confidentiality, informed consent, and business practices, including compliance with relevant laws, policies, and regulations |

| 6. | SYSTEMS-BASED PRACTICE (SBP): Demonstrate an awareness of and responsiveness to the larger context and system of health care, as well as the ability to call effectively on other resources in the system to provide optimal health care |
| 6.1 | Work effectively in various health care delivery settings and systems relevant to one’s clinical specialty |
| 6.2 | Coordinate patient care within the health care system relevant to one’s clinical specialty |
| 6.3 | Incorporate considerations of cost awareness and risk–benefit analysis in patient and/or population-based care |
| 6.4 | Advocate for quality patient care and optimal patient care systems |
| 6.5 | Participate in identifying system errors and implementing potential systems solutions |
| 6.6 | Perform administrative and practice management responsibilities commensurate with one’s role, abilities, and qualifications |

| 7. | INTERPROFESSIONAL COLLABORATION (IPC): Demonstrate the ability to engage in an interprofessional team in a manner that optimizes safe, effective patient- and population-centered care |
| 7.1 | Work with other health professionals to establish and maintain a climate of mutual respect, dignity, diversity, ethical integrity, and trust |
| 7.2 | Use the knowledge of one’s own role and those of other professions to appropriately assess and address the health care needs of the patients and populations served |
| 7.3 | Communicate with other health professionals in a responsive and responsible manner that supports the maintenance of health and the treatment of disease in individual patients and populations |
| 7.4 | Participate in different team roles to establish, develop, and continuously enhance interprofessional teams to provide patient- and population-centered care that is safe, timely, efficient, effective, and equitable |

| 8. | PERSONAL AND PROFESSIONAL DEVELOPMENT (PPD): Demonstrate the qualities required to sustain lifelong personal and professional growth |
| 8.1 | Develop the ability to use self-awareness of knowledge, skills, and emotional limitations to engage in appropriate help-seeking behaviors |
| 8.2 | Demonstrate healthy coping mechanisms to respond to stress |
| 8.3 | Manage conflict between personal and professional responsibilities |
| 8.4 | Practice flexibility and maturity in adjusting to change with the capacity to alter behavior |
| 8.5 | Demonstrate trustworthiness that makes colleagues feel secure when one is responsible for the care of patients |
| 8.6 | Provide leadership skills that enhance team functioning, the learning environment, and/or the health care delivery system |
8.7 Demonstrate self-confidence that puts patients, families, and members of the health care team at ease
8.8 Recognize that ambiguity is part of clinical health care and respond by using appropriate resources in dealing with uncertainty
References

Publications From the Core EPA Pilot Group


Other Related Publications


Chen HC, van den Broek WS, ten Cate O. The case for use of entrustable professional activities in undergraduate medical education. Acad Med. 2015;90(4):431-436.


EPA 10 Toolkit: Recognize a Patient Requiring Urgent or Emergent Care and Initiate Evaluation and Management

Association of American Medical Colleges

Washington, D.C.
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User Guide

This toolkit is for medical schools interested in implementing the Core Entrustable Professional Activities (EPAs) for Entering Residency. Written by the AAMC Core EPA Pilot Group, the toolkit expands on the EPA framework outlined in the EPA Developer’s Guide (AAMC 2014). The Pilot Group identified progressive sequences of student behavior that medical educators may encounter as students engage in the medical school curriculum and became proficient in integrating their clinical skills. These sequences of behavior are articulated for each of the 13 EPAs in one-page schematics to provide a framework for understanding EPAs; additional resources follow.

This toolkit includes:

- One-page schematic of each EPA
- Core EPA Pilot supervision and coactivity scales
- List of resources associated with each EPA
- Reference to EPA bulleted behaviors and vignettes from the Core EPA Guide
- The Physician Competency Reference Set
- Opportunities for engagement with the Core EPA Pilot
One-Page Schematics
In 2014, the AAMC launched a pilot project with 10 institutions to address the feasibility of implementing 13 EPAs for entering residency in undergraduate medical education. To standardize our approach as a pilot and promote a shared mental model, the Core EPA Pilot Group developed one-page schematics for each of the 13 EPAs.

These schematics were developed to translate the rich and detailed content within The Core Entrustable Professional Activities for Entering Residency Curriculum Developers’ Guide published in 2014 by the AAMC into a one-page, easy-to-use format (AAMC 2014). These one-page schematics of developmental progression to entrustment provide user-friendly descriptions of each EPA. We sought fidelity to the original ideas and concepts created by the expert drafting panel that developed the Core EPA Guide.

We envision the one-page schematics as a resource for:

- Development of curriculum and assessment tools
- Faculty development
- Student understanding
- Entrustment committees, portfolio advisors, and others tracking longitudinal student progress

Understanding the One-Page Schematic
Performance of an EPA requires integration of multiple competencies (Englander and Carraccio 2014). Each EPA schematic begins with its list of key functions and related competencies. The functions are followed by observable behaviors of increasing ability describing a medical student’s development toward readiness for indirect supervision. The column following the functions lists those behaviors requiring immediate correction or remediation. The last column lists expected behaviors of an entrustable learner.

The members of the Curriculum and Assessment Team of the Core EPA Pilot Group led this initiative. Thirteen EPA groups, each comprising representatives from four to five institutions, were tasked with creating each EPA schematic. Development of the schematics involved an explicit, standardized process to reduce variation and ensure consistency with functions, competencies, and the behaviors explicit in the Core EPA Guide. Behaviors listed were carefully gathered from the Core EPA Guide and reorganized by function and competency and listed in a developmental progression. The Curriculum and Assessment Team promoted content validity by carrying out iterative reviews by telephone conference call with the members of the Core EPA Pilot Group assigned to each EPA.

EPA Curriculum and Assessment
Multiple methods of teaching and assessing EPAs throughout the curriculum will be required to make a summative entrustment decision about residency readiness. The schematics can help to systematically identify and map curricular elements required to prepare students to perform EPAs. Specific prerequisite curricula may be needed to develop knowledge, skills, and attitudes before the learner engages in practice of the EPA.

To implement EPAs, medical schools should identify where in the curriculum EPAs will be taught, practiced, and assessed. Among other modalities, simulation, reflection, and standardized and structured experiences will all provide data about student competence. However, central to the concept of entrustment is the global performance of EPAs in authentic clinical settings, where the EPA is taught and assessed holistically, not as the sum of its parts.
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EPA 10: Recognize a Patient Requiring Urgent or Emergent Care and Initiate Evaluation and Management

**Key Functions with Related Competencies**

- Recognize normal and abnormal vital signs as they relate to patient- and disease-specific factors as potential etiologies of a patient’s decompensation
- Recognize severity of a patient’s illness and indications for escalating care and initiate interventions and management
- Initiate and participate in a code response and apply basic and advanced life support
- Upon recognition of a patient’s deterioration, communicate situation, clarify patient’s goals of care, and update family members

**Behaviors Requiring Corrective Response**

- Fails to recognize trends or variations of vital signs in a decompensating patient
- Does not recognize change in patient’s clinical status or seek help when a patient requires urgent or emergent care
- Responds to a decompensated patient in a manner that detracts from or harms team’s ability to intervene
- Dismisses concerns of team members (nurses, family members, etc.) about patient deterioration

- Recognizes outliers or unexpected results or data and seeks out an explanation
- Misses abnormalities in patient’s clinical status or does not anticipate next steps
- May be distracted by multiple problems or have difficulty prioritizing
- Accepts help

- Requires prompting to perform basic procedural or life support skills correctly
- Does not engage with other team members

- Demonstrates appropriate airway and basic life support (BLS) skills
- Initiates basic management plans
- Seeks input or guidance from other members of the health care team

- Communicates in a unidirectional manner with family and health care team
- Provides superfluous or incomplete information to health care team members
- Does not consider patient’s wishes if they differ from those of the provider
- Communicates bi-directionally with the health care team and family about goals of care and treatment plan while keeping them up to date

**Expected Behaviors for an Enturable Learner**

- Recognizes variations of patient’s vital signs based on patient- and disease-specific factors
- Responds to early clinical deterioration and seeks timely help
- Prioritizes patients who need immediate care and initiates critical interventions
- Initiates and applies effective airway management, BLS, and advanced cardiovascular life support (ACLS) skills
- Monitors response to initial interventions and adjusts plan accordingly
- Adheres to institutional procedures and protocols for escalation of patient care
- Uses the health care team members according to their roles and responsibilities to increase task efficiency in an emergent patient condition

**Underlying entrustability for all EPAs are trustworthy habits, including truthfulness, conscientiousness, and discernment.**

This schematic depicts development of proficiency in the Core EPAs. It is not intended for use as an assessment instrument. Entrustment decisions should be made after EPAs have been observed in multiple settings with varying context, acuity, and complexity and with varying patient characteristics.
Appendix 1: Core EPA Pilot Supervision and Coactivity Scales

Scales for clinical supervisors to determine how much help (coactivity) or supervision they judge a student needs for a specific activity have been proposed—the Chen entrustment scale and the Ottawa scale (Chen et al 2015; Rekman et al 2016). There is limited validity evidence for these scales and no published data comparing them. We include these published tools here for your reference. The Core EPA Pilot Group has agreed on a trial using modified versions of these scales (described below). A description of how the pilot is working with these scales is available on the Core EPA website.

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Appendix 2: Resources Related to EPA 10

Perform All Medical, Diagnostic, and Surgical Procedures (PC1)
EPAC is using PALS training for this. Other possibilities include CPR and ACLS.

Hypothesis-Driven Physical Examination (HDPE)

Script Concordance Testing (SCT)

Professionalism Mini-Evaluation Exercise (P-MEX)

MAAS-Global Manual 2000

Reflective Ability Rubric

Evidence in the Literature

Appendix 3: Behaviors and Vignettes

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3. **PRACTICE-BASED LEARNING AND IMPROVEMENT (PBLI):** Demonstrate the ability to investigate and evaluate their care of patients, to appraise and assimilate scientific evidence, and to continuously improve patient care based on constant self-evaluation and lifelong learning
   3.1 Identify strengths, deficiencies, and limits in one’s knowledge and expertise
   3.2 Set learning and improvement goals
   3.3 Identify and perform learning activities that address one’s gaps in knowledge, skills, or attitudes
   3.4 Systematically analyze practice using quality-improvement methods, and implement changes with the goal of practice improvement
   3.5 Incorporate feedback into daily practice
   3.6 Locate, appraise, and assimilate evidence from scientific studies related to patients’ health problems
   3.7 Use information technology to optimize learning
   3.8 Participate in the education of patients, families, students, trainees, peers, and other health professionals
   3.9 Obtain and utilize information about individual patients, populations of patients, or communities from which patients are drawn to improve care
   3.10 Continually identify, analyze, and implement new knowledge, guidelines, standards, technologies, products, or services that have been demonstrated to improve outcomes

4. **INTERPERSONAL AND COMMUNICATION SKILLS (ICS):** Demonstrate interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, their families, and health professionals
   4.1 Communicate effectively with patients, families, and the public, as appropriate, across a broad range of socioeconomic and cultural backgrounds
   4.2 Communicate effectively with colleagues within one’s profession or specialty, other health professionals, and health-related agencies (see also interprofessional collaboration competency, IPC 7.3)
   4.3 Work effectively with others as a member or leader of a health care team or other professional group (see also IPC 7.4)
   4.4 Act in a consultative role to other health professionals
   4.5 Maintain comprehensive, timely, and legible medical records
   4.6 Demonstrate sensitivity, honesty, and compassion in difficult conversations (e.g., about issues such as death, end-of-life issues, adverse events, bad news, disclosure of errors, and other sensitive topics)
   4.7 Demonstrate insight and understanding about emotions and human responses to emotions that allow one to develop and manage interpersonal interactions

5. **PROFESSIONALISM (P):** Demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles
   5.1 Demonstrate compassion, integrity, and respect for others
   5.2 Demonstrate responsiveness to patient needs that supersedes self-interest
   5.3 Demonstrate respect for patient privacy and autonomy
5.4 Demonstrate accountability to patients, society, and the profession
5.5 Demonstrate sensitivity and responsiveness to a diverse patient population, including but not limited to diversity in gender, age, culture, race, religion, disabilities, and sexual orientation
5.6 Demonstrate a commitment to ethical principles pertaining to provision or withholding of care, confidentiality, informed consent, and business practices, including compliance with relevant laws, policies, and regulations

6. SYSTEMS-BASED PRACTICE (SBP): Demonstrate an awareness of and responsiveness to the larger context and system of health care, as well as the ability to call effectively on other resources in the system to provide optimal health care
6.1 Work effectively in various health care delivery settings and systems relevant to one’s clinical specialty
6.2 Coordinate patient care within the health care system relevant to one’s clinical specialty
6.3 Incorporate considerations of cost awareness and risk–benefit analysis in patient and/or population-based care
6.4 Advocate for quality patient care and optimal patient care systems
6.5 Participate in identifying system errors and implementing potential systems solutions
6.6 Perform administrative and practice management responsibilities commensurate with one’s role, abilities, and qualifications

7. INTERPROFESSIONAL COLLABORATION (IPC): Demonstrate the ability to engage in an interprofessional team in a manner that optimizes safe, effective patient- and population-centered care
7.1 Work with other health professionals to establish and maintain a climate of mutual respect, dignity, diversity, ethical integrity, and trust
7.2 Use the knowledge of one’s own role and those of other professions to appropriately assess and address the health care needs of the patients and populations served
7.3 Communicate with other health professionals in a responsive and responsible manner that supports the maintenance of health and the treatment of disease in individual patients and populations
7.4 Participate in different team roles to establish, develop, and continuously enhance interprofessional teams to provide patient- and population-centered care that is safe, timely, efficient, effective, and equitable

8. PERSONAL AND PROFESSIONAL DEVELOPMENT (PPD): Demonstrate the qualities required to sustain lifelong personal and professional growth
8.1 Develop the ability to use self-awareness of knowledge, skills, and emotional limitations to engage in appropriate help-seeking behaviors
8.2 Demonstrate healthy coping mechanisms to respond to stress
8.3 Manage conflict between personal and professional responsibilities
8.4 Practice flexibility and maturity in adjusting to change with the capacity to alter behavior
8.5 Demonstrate trustworthiness that makes colleagues feel secure when one is responsible for the care of patients
8.6 Provide leadership skills that enhance team functioning, the learning environment, and/or the health care delivery system
8.7 Demonstrate self-confidence that puts patients, families, and members of the health care team at ease

8.8 Recognize that ambiguity is part of clinical health care and respond by using appropriate resources in dealing with uncertainty
References

Publications From the Core EPA Pilot Group


Other Related Publications


Chen HC, van den Broek WS, ten Cate O. The case for use of entrustable professional activities in undergraduate medical education. Acad Med. 2015;90(4):431-436.


EPA 11 Toolkit: Obtain Informed Consent for Tests and/or Procedures

Association of American Medical Colleges
Washington, D.C.
User Guide

This toolkit is for medical schools interested in implementing the Core Entrustable Professional Activities (EPAs) for Entering Residency. Written by the AAMC Core EPA Pilot Group, the toolkit expands on the EPA framework outlined in the EPA Developer’s Guide (AAMC 2014). The Pilot Group identified progressive sequences of student behavior that medical educators may encounter as students engage in the medical school curriculum and became proficient in integrating their clinical skills. These sequences of behavior are articulated for each of the 13 EPAs in one-page schematics to provide a framework for understanding EPAs; additional resources follow.

This toolkit includes:

- One-page schematic of each EPA
- Core EPA Pilot supervision and coactivity scales
- List of resources associated with each EPA
- Reference to EPA bulleted behaviors and vignettes from the Core EPA Guide
- The Physician Competency Reference Set
- Opportunities for engagement with the Core EPA Pilot
One-Page Schematics

In 2014, the AAMC launched a pilot project with 10 institutions to address the feasibility of implementing 13 EPAs for entering residency in undergraduate medical education. To standardize our approach as a pilot and promote a shared mental model, the Core EPA Pilot Group developed one-page schematics for each of the 13 EPAs.

These schematics were developed to translate the rich and detailed content within The Core Entrustable Professional Activities for Entering Residency Curriculum Developers’ Guide published in 2014 by the AAMC into a one-page, easy-to-use format (AAMC 2014). These one-page schematics of developmental progression to entrustment provide user-friendly descriptions of each EPA. We sought fidelity to the original ideas and concepts created by the expert drafting panel that developed the Core EPA Guide.

We envision the one-page schematics as a resource for:

▪ Development of curriculum and assessment tools
▪ Faculty development
▪ Student understanding
▪ Entrustment committees, portfolio advisors, and others tracking longitudinal student progress

Understanding the One-Page Schematic

Performance of an EPA requires integration of multiple competencies (Englander and Carraccio 2014). Each EPA schematic begins with its list of key functions and related competencies. The functions are followed by observable behaviors of increasing ability describing a medical student’s development toward readiness for indirect supervision. The column following the functions lists those behaviors requiring immediate correction or remediation. The last column lists expected behaviors of an entrustable learner.

The members of the Curriculum and Assessment Team of the Core EPA Pilot Group led this initiative. Thirteen EPA groups, each comprising representatives from four to five institutions, were tasked with creating each EPA schematic. Development of the schematics involved an explicit, standardized process to reduce variation and ensure consistency with functions, competencies, and the behaviors explicit in the Core EPA Guide. Behaviors listed were carefully gathered from the Core EPA Guide and reorganized by function and competency and listed in a developmental progression. The Curriculum and Assessment Team promoted content validity by carrying out iterative reviews by telephone conference call with the members of the Core EPA Pilot Group assigned to each EPA.

EPA Curriculum and Assessment

Multiple methods of teaching and assessing EPAs throughout the curriculum will be required to make a summative entrustment decision about residency readiness. The schematics can help to systematically identify and map curricular elements required to prepare students to perform EPAs. Specific prerequisite curricula may be needed to develop knowledge, skills, and attitudes before the learner engages in practice of the EPA.

To implement EPAs, medical schools should identify where in the curriculum EPAs will be taught, practiced, and assessed. Among other modalities, simulation, reflection, and standardized and structured experiences will all provide data about student competence. However, central to the concept of entrustment is the global performance of EPAs in authentic clinical settings, where the EPA is taught and assessed holistically, not as the sum of its parts.
Workplace-Based Assessments: Supervision and Coactivity Scales

On a day-to-day basis, clinical supervisors make and communicate judgments about how much help (coactivity) or supervision a student or resident needs. “Will I let the student go in the room without me? How much will I let the student do versus observe? Because I wasn’t present to observe, how much do I need to double-check?” Scales for clinical supervisors to determine how much help or supervision a student needs for a specific activity have been proposed (Chen et al 2015; Rekman et al 2016). There is limited validity evidence for these scales, and no published data comparing them. Given our initial experience, the Core EPA Pilot Group has agreed on a trial using modified versions of these scales (Appendix 1).

Resources

The Pilot Group compiled a list of resources, including relevant Critical Synthesis Packages from MedEdPORTAL®, a review of current existing literature, teaching methods, and assessment tools related to each EPA (Appendix 2). This collection of products may help schools with implementation. For example, schools may find the teaching methods and assessment tools useful when considering multiple sources of data about student performance that may eventually contribute to a summative entrustment decision. The Pilot Group concluded that new teaching methods and assessment tools will be needed to complement these resources. This need is particularly relevant for workplace-based assessments where the synthetic performance of an EPA is linked to a level of supervision. We envision the one-page schematics as a resource for the development of new teaching and assessment methods.
Frequently Asked Questions

Why are EPAs important?
In many cases, medical school graduates are perceived by residency program directors as insufficiently prepared at the beginning of their residency training for indirect supervision in clinical skills and for exhibiting professional behaviors. The EPAs define a shared set of clinical activities that residents are expected to perform on day one of residency. This is an important opportunity for undergraduate medical education to develop a new construct toward preparedness and, as an end goal, improvements in patient safety. Ideally, students will perform the Core EPAs consistently in situations of varying complexity as they practice and receive actionable feedback, formulating learning goals for future demonstrations of competence.

What does “entrustment” mean in the context of the EPAs?
Entrustment is defined as trustworthiness in applying knowledge, skills, and attitudes in performance of an EPA. To be “trustworthy,” students must consistently demonstrate attributes such as conscientiousness, knowledge of their own limits and help-seeking behavior (discernment), and truthfulness (Kennedy et al 2008). Throughout medical education, students should be assessed on trustworthiness—though this may occur implicitly or explicitly. The EPA framework makes this assessment explicit and transparent.

EPA entrustment is defined as a judgment by a supervisor or collection of supervisors signaling a student has met specific, defined expectations for needing limited supervision. The Core EPA Pilot Group recommends the formation of an entrustment committee to make evidence-based summative entrustment decisions about each student’s readiness for residency (Brown et al 2017).

What is the relationship between competencies and EPAs?
The EPA framework reorganizes competencies into observable units of clinical work by function. Each function is a subunit of work required to perform an EPA. The functions and related competencies are the parts, and the EPA is the whole. The Toolkit’s one-page schematics highlight an EPA’s specific functions with underlying competencies into observable behaviors within a developmental progression toward entrustment.

Although tracking progression within individual functions can help learners develop appropriate skills, monitoring learner progress toward entrustability for that EPA requires synthesis: At some point the learner must apply each of the functions in execution of the EPA task. To this end, we emphasize the importance of the holistic nature of the EPA and prioritize assessment for entrustment in these activities in workplace settings as a whole, not as the sum of their parts.

Is the one-page schematic designed as a rubric for student assessment?
No, the one-page schematics are not intended to serve as assessment tools. They can serve as guides for development of instructional, feedback, and assessment tools for EPAs. We share them as a framework for understanding the developmental progression that graduating medical students should demonstrate as a reflection of their readiness for residency.
How can I or my institution become more involved?

Medical schools in the AAMC pilot, those interested in implementing EPAs, and those wondering about the faculty resources needed to teach and assess EPAs are already part of a dynamic learning community. Opportunities for engaging with others exist through the AAMC Core EPA listserv, conference presentations, collaborative projects, and in informal medical education networks. Your contributions help shape the work of the Core EPA Pilot project and are a source of new ideas, feedback, and suggestions for implementation. We invite you to continue your conversations with us by sharing the decisions you face within the unique culture of your institution.

- To subscribe to the Core EPAs listserv, send a blank email to subscribe-coreepas@lists.aamc.org. To post a comment to the listserv, simply send an email to coreepas@lists.aamc.org.

- Core EPA Pilot Website: [https://www.aamc.org/initiatives/coreepas/](https://www.aamc.org/initiatives/coreepas/)

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- Core EPA Pilot Group email for queries and observations: coreepas@aamc.org
### EPA 11: Obtain Informed Consent for Tests and/or Procedures

#### Key Functions with Related Competencies

- **Describe the key elements of informed consent:** indications, contraindications, risks, benefits, alternatives, and potential complications of the intervention  
  - PC6 KP3 KP4 KP5 P6
- **Communicate with the patient and family to ensure that they understand the intervention**  
  - PC7 ICS1 ICS7 PC5
- **Display an appropriate balance of confidence and skill to put the patient and family at ease, seeking help when needed**  
  - PPD1 PPD7 PPD8

#### Behaviors Requiring Corrective Response

- Lacks basic knowledge of the intervention  
- Provides inaccurate or misleading information  
- Hands the patient a form and requests a signature  
- Uses language that frightens patient and family  
- Disregards emotional cues  
-Regards interpreters as unhelpful or inefficient  
- Displays overconfidence and takes actions that can have a negative effect on outcomes  
- Asks questions  
- Accepts help

#### Developing Behaviors

(Learner may be at different levels within a row.)

- Is complacent with informed consent due to limited understanding of importance of informed consent  
- Allows personal biases with intervention to influence consent process  
- Obtains informed consent only on the directive of others  
- Uses medical jargon  
- Uses unidirectional communication; does not elicit patient’s preferences  
- Has difficulty in attending to emotional cues  
- Does not consider the use of an interpreter when needed  
- Displays a lack of confidence that increases patient stress or discomfort, or overconfidence that erodes trust  
- Asks questions  
- Accepts help

#### Expected Behaviors for an Entrustable Learner

- Understands and explains the key elements of informed consent  
- Provides complete and accurate information  
- Recognizes when informed consent is needed and describes it as a matter of good practice rather than as an externally imposed sanction  
- Avoids medical jargon  
- Uses bidirectional communication to build rapport  
- Practices shared decision making, eliciting patient and family preferences  
- Responds to emotional cues in real time  
- Enlists interpreters collaboratively  
- Demonstrates confidence commensurate with knowledge and skill so that patient and family are at ease  
- Seeks timely help

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From day 1, residents may be in a position to obtain informed consent for interactions, tests, or procedures they order and perform, including immunizations, medications, central lines, contrast and radiation exposures, and blood transfusions.

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**Shared Decision-Making (SDM) Toolkit: Train the Trainer**

**MAAS-Global Manual 2000**

**Communication Assessment Tool (CAT)**

**Liverpool Communication Skills Assessment Scale (LCSAS)**

**Communication Curriculum Package**

**Professionalism Mini-Evaluation Exercise (P-MEX)**

**Rochester Communication Rating Scale**

**Evidence and Instruments in the Literature**

**Decision Boxes** ([Link](#))
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   2.5 Apply principles of social–behavioral sciences to provision of patient care, including assessment of the impact of psychosocial–cultural influences on health, disease, care-seeking, care compliance, and barriers to and attitudes toward care
   
   2.6 Contribute to the creation, dissemination, application, and translation of new health care knowledge and practices
3. **PRACTICE-BASED LEARNING AND IMPROVEMENT (PBLI):** Demonstrate the ability to investigate and evaluate their care of patients, to appraise and assimilate scientific evidence, and to continuously improve patient care based on constant self-evaluation and lifelong learning
   3.1 Identify strengths, deficiencies, and limits in one’s knowledge and expertise
   3.2 Set learning and improvement goals
   3.3 Identify and perform learning activities that address one’s gaps in knowledge, skills, or attitudes
   3.4 Systematically analyze practice using quality-improvement methods, and implement changes with the goal of practice improvement
   3.5 Incorporate feedback into daily practice
   3.6 Locate, appraise, and assimilate evidence from scientific studies related to patients’ health problems
   3.7 Use information technology to optimize learning
   3.8 Participate in the education of patients, families, students, trainees, peers, and other health professionals
   3.9 Obtain and utilize information about individual patients, populations of patients, or communities from which patients are drawn to improve care
   3.10 Continually identify, analyze, and implement new knowledge, guidelines, standards, technologies, products, or services that have been demonstrated to improve outcomes

4. **INTERPERSONAL AND COMMUNICATION SKILLS (ICS):** Demonstrate interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, their families, and health professionals
   4.1 Communicate effectively with patients, families, and the public, as appropriate, across a broad range of socioeconomic and cultural backgrounds
   4.2 Communicate effectively with colleagues within one’s profession or specialty, other health professionals, and health-related agencies (see also interprofessional collaboration competency, IPC 7.3)
   4.3 Work effectively with others as a member or leader of a health care team or other professional group (see also IPC 7.4)
   4.4 Act in a consultative role to other health professionals
   4.5 Maintain comprehensive, timely, and legible medical records
   4.6 Demonstrate sensitivity, honesty, and compassion in difficult conversations (e.g., about issues such as death, end-of-life issues, adverse events, bad news, disclosure of errors, and other sensitive topics)
   4.7 Demonstrate insight and understanding about emotions and human responses to emotions that allow one to develop and manage interpersonal interactions

5. **PROFESSIONALISM (P):** Demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles
   5.1 Demonstrate compassion, integrity, and respect for others
   5.2 Demonstrate responsiveness to patient needs that supersedes self-interest
   5.3 Demonstrate respect for patient privacy and autonomy
5.4 Demonstrate accountability to patients, society, and the profession
5.5 Demonstrate sensitivity and responsiveness to a diverse patient population, including but not limited to diversity in gender, age, culture, race, religion, disabilities, and sexual orientation
5.6 Demonstrate a commitment to ethical principles pertaining to provision or withholding of care, confidentiality, informed consent, and business practices, including compliance with relevant laws, policies, and regulations

6. SYSTEMS-BASED PRACTICE (SBP): Demonstrate an awareness of and responsiveness to the larger context and system of health care, as well as the ability to call effectively on other resources in the system to provide optimal health care

| 6.1 | Work effectively in various health care delivery settings and systems relevant to one’s clinical specialty |
| 6.2 | Coordinate patient care within the health care system relevant to one’s clinical specialty |
| 6.3 | Incorporate considerations of cost awareness and risk–benefit analysis in patient and/or population-based care |
| 6.4 | Advocate for quality patient care and optimal patient care systems |
| 6.5 | Participate in identifying system errors and implementing potential systems solutions |
| 6.6 | Perform administrative and practice management responsibilities commensurate with one’s role, abilities, and qualifications |

7. INTERPROFESSIONAL COLLABORATION (IPC): Demonstrate the ability to engage in an interprofessional team in a manner that optimizes safe, effective patient- and population-centered care

| 7.1 | Work with other health professionals to establish and maintain a climate of mutual respect, dignity, diversity, ethical integrity, and trust |
| 7.2 | Use the knowledge of one’s own role and those of other professions to appropriately assess and address the health care needs of the patients and populations served |
| 7.3 | Communicate with other health professionals in a responsive and responsible manner that supports the maintenance of health and the treatment of disease in individual patients and populations |
| 7.4 | Participate in different team roles to establish, develop, and continuously enhance interprofessional teams to provide patient- and population-centered care that is safe, timely, efficient, effective, and equitable |

8. PERSONAL AND PROFESSIONAL DEVELOPMENT (PPD): Demonstrate the qualities required to sustain lifelong personal and professional growth

<p>| 8.1 | Develop the ability to use self-awareness of knowledge, skills, and emotional limitations to engage in appropriate help-seeking behaviors |
| 8.2 | Demonstrate healthy coping mechanisms to respond to stress |
| 8.3 | Manage conflict between personal and professional responsibilities |
| 8.4 | Practice flexibility and maturity in adjusting to change with the capacity to alter behavior |
| 8.5 | Demonstrate trustworthiness that makes colleagues feel secure when one is responsible for the care of patients |
| 8.6 | Provide leadership skills that enhance team functioning, the learning environment, and/or the health care delivery system |</p>
<table>
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<tbody>
<tr>
<td>8.7</td>
<td>Demonstrate self-confidence that puts patients, families, and members of the health care team at ease</td>
</tr>
<tr>
<td>8.8</td>
<td>Recognize that ambiguity is part of clinical health care and respond by using appropriate resources in dealing with uncertainty</td>
</tr>
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</table>
References

Publications From the Core EPA Pilot Group


Other Related Publications


EPA 12 Toolkit: Perform General Procedures of a Physician
Core Entrustable Professional Activities for Entering Residency

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**User Guide**

This toolkit is for medical schools interested in implementing the Core Entrustable Professional Activities (EPAs) for Entering Residency. Written by the AAMC Core EPA Pilot Group, the toolkit expands on the EPA framework outlined in the *EPA Developer's Guide* (AAMC 2014). The Pilot Group identified progressive sequences of student behavior that medical educators may encounter as students engage in the medical school curriculum and became proficient in integrating their clinical skills. These sequences of behavior are articulated for each of the 13 EPAs in one-page schematics to provide a framework for understanding EPAs; additional resources follow.

This toolkit includes:

- One-page schematic of each EPA
- Core EPA Pilot supervision and coactivity scales
- List of resources associated with each EPA
- Reference to EPA bulleted behaviors and vignettes from the *Core EPA Guide*
- The Physician Competency Reference Set
- Opportunities for engagement with the Core EPA Pilot
One-Page Schematics

In 2014, the AAMC launched a pilot project with 10 institutions to address the feasibility of implementing 13 EPAs for entering residency in undergraduate medical education. To standardize our approach as a pilot and promote a shared mental model, the Core EPA Pilot Group developed one-page schematics for each of the 13 EPAs.

These schematics were developed to translate the rich and detailed content within The Core Entrustable Professional Activities for Entering Residency Curriculum Developers’ Guide published in 2014 by the AAMC into a one-page, easy-to-use format (AAMC 2014). These one-page schematics of developmental progression to entrustment provide user-friendly descriptions of each EPA. We sought fidelity to the original ideas and concepts created by the expert drafting panel that developed the Core EPA Guide.

We envisage the one-page schematics as a resource for:

- Development of curriculum and assessment tools
- Faculty development
- Student understanding
- Entrustment committees, portfolio advisors, and others tracking longitudinal student progress

Understanding the One-Page Schematic

Performance of an EPA requires integration of multiple competencies (Englander and Carraccio 2014). Each EPA schematic begins with its list of key functions and related competencies. The functions are followed by observable behaviors of increasing ability describing a medical student’s development toward readiness for indirect supervision. The column following the functions lists those behaviors requiring immediate correction or remediation. The last column lists expected behaviors of an entrustable learner.

The members of the Curriculum and Assessment Team of the Core EPA Pilot Group led this initiative. Thirteen EPA groups, each comprising representatives from four to five institutions, were tasked with creating each EPA schematic. Development of the schematics involved an explicit, standardized process to reduce variation and ensure consistency with functions, competencies, and the behaviors explicit in the Core EPA Guide. Behaviors listed were carefully gathered from the Core EPA Guide and reorganized by function and competency and listed in a developmental progression. The Curriculum and Assessment Team promoted content validity by carrying out iterative reviews by telephone conference call with the members of the Core EPA Pilot Group assigned to each EPA.

EPA Curriculum and Assessment

Multiple methods of teaching and assessing EPAs throughout the curriculum will be required to make a summative entrustment decision about residency readiness. The schematics can help to systematically identify and map curricular elements required to prepare students to perform EPAs. Specific prerequisite curricula may be needed to develop knowledge, skills, and attitudes before the learner engages in practice of the EPA.

To implement EPAs, medical schools should identify where in the curriculum EPAs will be taught, practiced, and assessed. Among other modalities, simulation, reflection, and standardized and structured experiences will all provide data about student competence. However, central to the concept of entrustment is the global performance of EPAs in authentic clinical settings, where the EPA is taught and assessed holistically, not as the sum of its parts.
Workplace-Based Assessments: Supervision and Coactivity Scales

On a day-to-day basis, clinical supervisors make and communicate judgments about how much help (coactivity) or supervision a student or resident needs. “Will I let the student go in the room without me? How much will I let the student do versus observe? Because I wasn’t present to observe, how much do I need to double-check?” Scales for clinical supervisors to determine how much help or supervision a student needs for a specific activity have been proposed (Chen et al 2015; Rekman et al 2016). There is limited validity evidence for these scales, and no published data comparing them. Given our initial experience, the Core EPA Pilot Group has agreed on a trial using modified versions of these scales (Appendix 1).

Resources

The Pilot Group compiled a list of resources, including relevant Critical Synthesis Packages from MedEdPORTAL®, a review of current existing literature, teaching methods, and assessment tools related to each EPA (Appendix 2). This collection of products may help schools with implementation. For example, schools may find the teaching methods and assessment tools useful when considering multiple sources of data about student performance that may eventually contribute to a summative entrustment decision. The Pilot Group concluded that new teaching methods and assessment tools will be needed to complement these resources. This need is particularly relevant for workplace-based assessments where the synthetic performance of an EPA is linked to a level of supervision. We envision the one-page schematics as a resource for the development of new teaching and assessment methods.
Frequently Asked Questions

Why are EPAs important?
In many cases, medical school graduates are perceived by residency program directors as insufficiently prepared at the beginning of their residency training for indirect supervision in clinical skills and for exhibiting professional behaviors. The EPAs define a shared set of clinical activities that residents are expected to perform on day one of residency. This is an important opportunity for undergraduate medical education to develop a new construct toward preparedness and, as an end goal, improvements in patient safety. Ideally, students will perform the Core EPAs consistently in situations of varying complexity as they practice and receive actionable feedback, formulating learning goals for future demonstrations of competence.

What does “entrustment” mean in the context of the EPAs?
Entrustment is defined as trustworthiness in applying knowledge, skills, and attitudes in performance of an EPA. To be “trustworthy,” students must consistently demonstrate attributes such as conscientiousness, knowledge of their own limits and help-seeking behavior (discernment), and truthfulness (Kennedy et al 2008). Throughout medical education, students should be assessed on trustworthiness—though this may occur implicitly or explicitly. The EPA framework makes this assessment explicit and transparent.

EPA entrustment is defined as a judgment by a supervisor or collection of supervisors signaling a student has met specific, defined expectations for needing limited supervision. The Core EPA Pilot Group recommends the formation of an entrustment committee to make evidence-based summative entrustment decisions about each student’s readiness for residency (Brown et al 2017).

What is the relationship between competencies and EPAs?
The EPA framework reorganizes competencies into observable units of clinical work by function. Each function is a subunit of work required to perform an EPA. The functions and related competencies are the parts, and the EPA is the whole. The Toolkit’s one-page schematics highlight an EPA’s specific functions with underlying competencies into observable behaviors within a developmental progression toward entrustment.

Although tracking progression within individual functions can help learners develop appropriate skills, monitoring learner progress toward entrustability for that EPA requires synthesis: At some point the learner must apply each of the functions in execution of the EPA task. To this end, we emphasize the importance of the holistic nature of the EPA and prioritize assessment for entrustment in these activities in workplace settings as a whole, not as the sum of their parts.

Is the one-page schematic designed as a rubric for student assessment?
No, the one-page schematics are not intended to serve as assessment tools. They can serve as guides for development of instructional, feedback, and assessment tools for EPAs. We share them as a framework for understanding the developmental progression that graduating medical students should demonstrate as a reflection of their readiness for residency.
How can I or my institution become more involved?

Medical schools in the AAMC pilot, those interested in implementing EPAs, and those wondering about the faculty resources needed to teach and assess EPAs are already part of a dynamic learning community. Opportunities for engaging with others exist through the AAMC Core EPA listserve, conference presentations, collaborative projects, and in informal medical education networks. Your contributions help shape the work of the Core EPA Pilot project and are a source of new ideas, feedback, and suggestions for implementation. We invite you to continue your conversations with us by sharing the decisions you face within the unique culture of your institution.

- To subscribe to the Core EPAs listserve, send a blank email to subscribe-coreepas@lists.aamc.org. To post a comment to the listserve, simply send an email to coreepas@lists.aamc.org.

- Core EPA Pilot Website: https://www.aamc.org/initiatives/coreepas/

- Publications from the Core EPA Pilot Group: https://www.aamc.org/initiatives/coreepas/publicationsandpresentations/

- Core EPA Pilot Group email for queries and observations: coreepas@aamc.org
### EPA 12: Perform General Procedures of a Physician

#### Key Functions with Related Competencies

**Demonstrate technical skills required for the procedure**
- **PC1**
  - Understand and explain the anatomy, physiology, indications, contraindications, risks, benefits, alternatives, and potential complications of the procedure
- **PC7 ICS6 P6**
  - Communicate with the patient and family to ensure they understand pre- and post-procedural activities
- **PPD7 PPD1**
  - Demonstrate confidence that puts patients and families at ease

#### Behaviors Requiring Corrective Response

- **Lacks required technical skills**
  - Fails to follow sterile technique when indicated

#### Developing Behaviors (Learner may be at different levels within a row.)

**Technical skills are variably applied**
- Completes the procedure unreliably
- Uses universal precautions and aseptic technique inconsistently

**Displays lack of awareness of knowledge gaps**
- Does not understand key issues in performing procedures, such as indications, contraindications, risks, benefits, and alternatives
- Demonstrates limited knowledge of procedural complications or how to minimize them

**Uses inaccurate language or presents information distorted by personal biases**
- Disregards patient’s and family’s wishes
- Fails to obtain appropriate consent before performing a procedure

**Uses jargon or other ineffective communication techniques**
- Does not read emotional response from the patient
- Does not engage patient in shared decision making

**Displays a lack of confidence that increases patient’s stress or discomfort, or overconfidence that erodes patient’s trust if the learner struggles to perform the procedure**
- Accepts help when offered

#### Expected Behaviors for an Entrustable Learner

- **Demonstrates necessary preparation for performance of procedures**
- **Correctly performs procedure on multiple occasions over time**
- **Uses universal precautions and aseptic technique consistently**

- **Demonstrates and applies working knowledge of essential anatomy, physiology, indications, contraindications, risks, benefits, and alternatives for each procedure**
- **Knows and takes steps to mitigate complications of procedures**

- **Demonstrates patient-centered skills while performing procedures (avoids jargon, participates in shared decision making, considers patient’s emotional response)**
- **Having accounted for the patient’s and family’s wishes, obtains appropriate informed consent**

- **Seeks timely help**
- **Has confidence commensurate with level of knowledge and skill that puts patients and families at ease**
Appendix 1: Core EPA Pilot Supervision and Coactivity Scales

Scales for clinical supervisors to determine how much help (coactivity) or supervision they judge a student needs for a specific activity have been proposed—the Chen entrustment scale and the Ottawa scale (Chen et al 2015; Rekman et al 2016). There is limited validity evidence for these scales and no published data comparing them. We include these published tools here for your reference. The Core EPA Pilot Group has agreed on a trial using modified versions of these scales (described below). A description of how the pilot is working with these scales is available on the Core EPA website.

<table>
<thead>
<tr>
<th>Modified Chen entrustment scale: If you were to supervise this student again in a similar situation, which of the following statements aligns with how you would assign the task?</th>
<th>Corresponding excerpt from original Chen entrustment scale (Chen et al 2015)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1b. “Watch me do this.”</td>
<td>1b. Not allowed to practice EPA; allowed to observe</td>
</tr>
<tr>
<td>2a. “Let's do this together.”</td>
<td>2a. Allowed to practice EPA only under proactive, full supervision as coactivity with supervisor</td>
</tr>
<tr>
<td>2b. “I'll watch you.”</td>
<td>2b. Allowed to practice EPA only under proactive, full supervision with supervisor in room ready to step in as needed</td>
</tr>
<tr>
<td>3a. “You go ahead, and I'll double-check all of your findings.”</td>
<td>3a. Allowed to practice EPA only under reactive/on-demand supervision with supervisor immediately available, all findings double-checked</td>
</tr>
<tr>
<td>3b. “You go ahead, and I'll double-check key findings.”</td>
<td>3b. Allowed to practice EPA only under reactive/on-demand supervision with supervisor immediately available, key findings double-checked</td>
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</tbody>
</table>
**Modified Ottawa scale:** In supervising this student, how much did you participate in the task?

<table>
<thead>
<tr>
<th>Modified Ottawa scale</th>
<th>Original Ottawa scale (Rekman et al 2016)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. “I did it.” Student required complete guidance or was unprepared; I had to do most of the work myself.</td>
<td>1. “I had to do.” (i.e., requires complete hands-on guidance, did not do, or was not given the opportunity to do)</td>
</tr>
<tr>
<td>2. “I talked them through it.” Student was able to perform some tasks but required repeated directions.</td>
<td>2. “I had to talk them through.” (i.e., able to perform tasks but requires constant direction)</td>
</tr>
<tr>
<td>3. “I directed them from time to time.” Student demonstrated some independence and only required intermittent prompting.</td>
<td>3. “I had to prompt them from time to time.” (i.e., demonstrates some independence, but requires intermittent direction)</td>
</tr>
<tr>
<td>4. “I was available just in case.” Student functioned fairly independently and only needed assistance with nuances or complex situations.</td>
<td>4. “I needed to be there in the room just in case.” (i.e., independence but unaware of risks and still requires supervision for safe practice)</td>
</tr>
<tr>
<td>5. (No level 5: Students are ineligible for complete independence in our systems.)</td>
<td>5. “I did not need to be there.” (i.e., complete independence, understands risks and performs safely, practice ready)</td>
</tr>
</tbody>
</table>
Appendix 2: Resources Related to EPA 12

**Shared Decision-Making (SDM) Toolkit: Train the Trainer**

**MAAS-Global Manual 2000**

**Communication Assessment Tool (CAT)**

**Liverpool Communication Skills Assessment Scale (LCSAS)**

**Communication Curriculum Package**

**Professionalism Mini-Evaluation Exercise (P-MEX)**

**Rochester Communication Rating Scale**

**Evidence and Instruments in the Literature**

Appendix 3: Behaviors and Vignettes

The Core EPA Guide produced by the AAMC contains additional detailed information that may be useful for curriculum designers.

1. For a convenient list of behaviors for this EPA that were used to develop a developmental progression, we refer you to the Core EPA Guide.

2. For exemplars of learner vignettes that highlight pre-entrustable and entrustable scenarios, please see the Core EPA Guide.
Appendix 4: The Physician Competency Reference Set (PCRS)

The Physician Competency Reference Set (Englander et al 2013) is provided for cross-referencing with the one-page schematic.

<table>
<thead>
<tr>
<th>1. PATIENT CARE (PC): Provide patient-centered care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health</th>
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<tbody>
<tr>
<td>1.1 Perform all medical, diagnostic, and surgical procedures considered essential for the area of practice</td>
</tr>
<tr>
<td>1.2 Gather essential and accurate information about patients and their condition through history-taking, physical examination, and the use of laboratory data, imaging, and other tests</td>
</tr>
<tr>
<td>1.3 Organize and prioritize responsibilities to provide care that is safe, effective, and efficient</td>
</tr>
<tr>
<td>1.4 Interpret laboratory data, imaging studies, and other tests required for the area of practice</td>
</tr>
<tr>
<td>1.5 Make informed decisions about diagnostic and therapeutic interventions based on patient information and preferences, up-to-date scientific evidence, and clinical judgment</td>
</tr>
<tr>
<td>1.6 Develop and carry out patient management plans</td>
</tr>
<tr>
<td>1.7 Counsel and educate patients and their families to empower them to participate in their care and enable shared decision making</td>
</tr>
<tr>
<td>1.8 Provide appropriate referral of patients, including ensuring continuity of care throughout transitions between providers or settings and following up on patient progress and outcomes</td>
</tr>
<tr>
<td>1.9 Provide health care services to patients, families, and communities aimed at preventing health problems or maintaining health</td>
</tr>
<tr>
<td>1.10 Provide appropriate role modeling</td>
</tr>
<tr>
<td>1.11 Perform supervisory responsibilities commensurate with one’s roles, abilities, and qualifications</td>
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</tbody>
</table>

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<tr>
<th>2. KNOWLEDGE FOR PRACTICE (KP): Demonstrate knowledge of established and evolving biomedical, clinical, epidemiological, and social–behavioral sciences, as well as the application of this knowledge to patient care</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1 Demonstrate an investigatory and analytic approach to clinical situations</td>
</tr>
<tr>
<td>2.2 Apply established and emerging biophysical scientific principles fundamental to health care for patients and populations</td>
</tr>
<tr>
<td>2.3 Apply established and emerging principles of clinical sciences to diagnostic and therapeutic decision making, clinical problem solving, and other aspects of evidence-based health care</td>
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<td>2.6 Contribute to the creation, dissemination, application, and translation of new health care knowledge and practices</td>
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3.1 Identify strengths, deficiencies, and limits in one’s knowledge and expertise
3.2 Set learning and improvement goals
3.3 Identify and perform learning activities that address one’s gaps in knowledge, skills, or attitudes
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4.4 Act in a consultative role to other health professionals
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4.7 Demonstrate insight and understanding about emotions and human responses to emotions that allow one to develop and manage interpersonal interactions

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5.3 Demonstrate respect for patient privacy and autonomy
5.4 Demonstrate accountability to patients, society, and the profession

5.5 Demonstrate sensitivity and responsiveness to a diverse patient population, including but not limited to diversity in gender, age, culture, race, religion, disabilities, and sexual orientation

5.6 Demonstrate a commitment to ethical principles pertaining to provision or withholding of care, confidentiality, informed consent, and business practices, including compliance with relevant laws, policies, and regulations

6. **SYSTEMS-BASED PRACTICE (SBP):** Demonstrate an awareness of and responsiveness to the larger context and system of health care, as well as the ability to call effectively on other resources in the system to provide optimal health care

   6.1 Work effectively in various health care delivery settings and systems relevant to one’s clinical specialty

   6.2 Coordinate patient care within the health care system relevant to one’s clinical specialty

   6.3 Incorporate considerations of cost awareness and risk–benefit analysis in patient and/or population-based care

   6.4 Advocate for quality patient care and optimal patient care systems

   6.5 Participate in identifying system errors and implementing potential systems solutions

   6.6 Perform administrative and practice management responsibilities commensurate with one’s role, abilities, and qualifications

7. **INTERPROFESSIONAL COLLABORATION (IPC):** Demonstrate the ability to engage in an interprofessional team in a manner that optimizes safe, effective patient- and population-centered care

   7.1 Work with other health professionals to establish and maintain a climate of mutual respect, dignity, diversity, ethical integrity, and trust

   7.2 Use the knowledge of one’s own role and those of other professions to appropriately assess and address the health care needs of the patients and populations served

   7.3 Communicate with other health professionals in a responsive and responsible manner that supports the maintenance of health and the treatment of disease in individual patients and populations

   7.4 Participate in different team roles to establish, develop, and continuously enhance interprofessional teams to provide patient- and population-centered care that is safe, timely, efficient, effective, and equitable

8. **PERSONAL AND PROFESSIONAL DEVELOPMENT (PPD):** Demonstrate the qualities required to sustain lifelong personal and professional growth

   8.1 Develop the ability to use self-awareness of knowledge, skills, and emotional limitations to engage in appropriate help-seeking behaviors

   8.2 Demonstrate healthy coping mechanisms to respond to stress

   8.3 Manage conflict between personal and professional responsibilities

   8.4 Practice flexibility and maturity in adjusting to change with the capacity to alter behavior

   8.5 Demonstrate trustworthiness that makes colleagues feel secure when one is responsible for the care of patients

   8.6 Provide leadership skills that enhance team functioning, the learning environment, and/or the health care delivery system
8.7 Demonstrate self-confidence that puts patients, families, and members of the health care team at ease

8.8 Recognize that ambiguity is part of clinical health care and respond by using appropriate resources in dealing with uncertainty
References

Publications From the Core EPA Pilot Group


Other Related Publications


Chen HC, van den Broek WS, ten Cate O. The case for use of entrustable professional activities in undergraduate medical education. Acad Med. 2015;90(4):431-436.


EPA 13 Toolkit: Identity System Failures and Contribute to a Culture of Safety and Improvement

Association of American Medical Colleges
Washington, D.C.
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User Guide

This toolkit is for medical schools interested in implementing the Core Entrustable Professional Activities (EPAs) for Entering Residency. Written by the AAMC Core EPA Pilot Group, the toolkit expands on the EPA framework outlined in the EPA Developer’s Guide (AAMC 2014). The Pilot Group identified progressive sequences of student behavior that medical educators may encounter as students engage in the medical school curriculum and became proficient in integrating their clinical skills. These sequences of behavior are articulated for each of the 13 EPAs in one-page schematics to provide a framework for understanding EPAs; additional resources follow.

This toolkit includes:

- One-page schematic of each EPA
- Core EPA Pilot supervision and coactivity scales
- List of resources associated with each EPA
- Reference to EPA bulleted behaviors and vignettes from the Core EPA Guide
- The Physician Competency Reference Set
- Opportunities for engagement with the Core EPA Pilot
One-Page Schematics

In 2014, the AAMC launched a pilot project with 10 institutions to address the feasibility of implementing 13 EPAs for entering residency in undergraduate medical education. To standardize our approach as a pilot and promote a shared mental model, the Core EPA Pilot Group developed one-page schematics for each of the 13 EPAs.

These schematics were developed to translate the rich and detailed content within *The Core Entrustable Professional Activities for Entering Residency Curriculum Developers’ Guide* published in 2014 by the AAMC into a one-page, easy-to-use format (AAMC 2014). These one-page schematics of developmental progression to entrustment provide user-friendly descriptions of each EPA. We sought fidelity to the original ideas and concepts created by the expert drafting panel that developed the *Core EPA Guide*.

We envision the one-page schematics as a resource for:

- Development of curriculum and assessment tools
- Faculty development
- Student understanding
- Entrustment committees, portfolio advisors, and others tracking longitudinal student progress

Understanding the One-Page Schematic

Performance of an EPA requires integration of multiple competencies (Englander and Carraccio 2014). Each EPA schematic begins with its list of key functions and related competencies. The functions are followed by observable behaviors of increasing ability describing a medical student’s development toward readiness for indirect supervision. The column following the functions lists those behaviors requiring immediate correction or remediation. The last column lists expected behaviors of an entrustable learner.

The members of the Curriculum and Assessment Team of the Core EPA Pilot Group led this initiative. Thirteen EPA groups, each comprising representatives from four to five institutions, were tasked with creating each EPA schematic. Development of the schematics involved an explicit, standardized process to reduce variation and ensure consistency with functions, competencies, and the behaviors explicit in the *Core EPA Guide*. Behaviors listed were carefully gathered from the *Core EPA Guide* and reorganized by function and competency and listed in a developmental progression. The Curriculum and Assessment Team promoted content validity by carrying out iterative reviews by telephone conference call with the members of the Core EPA Pilot Group assigned to each EPA.

EPA Curriculum and Assessment

Multiple methods of teaching and assessing EPAs throughout the curriculum will be required to make a summative entrustment decision about residency readiness. The schematics can help to systematically identify and map curricular elements required to prepare students to perform EPAs. Specific prerequisite curricula may be needed to develop knowledge, skills, and attitudes before the learner engages in practice of the EPA.

To implement EPAs, medical schools should identify where in the curriculum EPAs will be taught, practiced, and assessed. Among other modalities, simulation, reflection, and standardized and structured experiences will all provide data about student competence. However, central to the concept of entrustment is the global performance of EPAs in authentic clinical settings, where the EPA is taught and assessed holistically, not as the sum of its parts.
Workplace-Based Assessments: Supervision and Coactivity Scales

On a day-to-day basis, clinical supervisors make and communicate judgments about how much help (coactivity) or supervision a student or resident needs. “Will I let the student go in the room without me? How much will I let the student do versus observe? Because I wasn’t present to observe, how much do I need to double-check?” Scales for clinical supervisors to determine how much help or supervision a student needs for a specific activity have been proposed (Chen et al 2015; Rekman et al 2016). There is limited validity evidence for these scales, and no published data comparing them. Given our initial experience, the Core EPA Pilot Group has agreed on a trial using modified versions of these scales (Appendix 1).

Resources

The Pilot Group compiled a list of resources, including relevant Critical Synthesis Packages from MedEdPORTAL®, a review of current existing literature, teaching methods, and assessment tools related to each EPA (Appendix 2). This collection of products may help schools with implementation. For example, schools may find the teaching methods and assessment tools useful when considering multiple sources of data about student performance that may eventually contribute to a summative entrustment decision. The Pilot Group concluded that new teaching methods and assessment tools will be needed to complement these resources. This need is particularly relevant for workplace-based assessments where the synthetic performance of an EPA is linked to a level of supervision. We envision the one-page schematics as a resource for the development of new teaching and assessment methods.
Frequently Asked Questions

**Why are EPAs important?**

In many cases, medical school graduates are perceived by residency program directors as insufficiently prepared at the beginning of their residency training for indirect supervision in clinical skills and for exhibiting professional behaviors. The EPAs define a shared set of clinical activities that residents are expected to perform on day one of residency. This is an important opportunity for undergraduate medical education to develop a new construct toward preparedness and, as an end goal, improvements in patient safety. Ideally, students will perform the Core EPAs consistently in situations of varying complexity as they practice and receive actionable feedback, formulating learning goals for future demonstrations of competence.

**What does “entrustment” mean in the context of the EPAs?**

Entrustment is defined as trustworthiness in applying knowledge, skills, and attitudes in performance of an EPA. To be “trustworthy,” students must consistently demonstrate attributes such as conscientiousness, knowledge of their own limits and help-seeking behavior (discernment), and truthfulness (Kennedy et al 2008). Throughout medical education, students should be assessed on trustworthiness—though this may occur implicitly or explicitly. The EPA framework makes this assessment explicit and transparent.

EPA entrustment is defined as a judgment by a supervisor or collection of supervisors signaling a student has met specific, defined expectations for needing limited supervision. The Core EPA Pilot Group recommends the formation of an entrustment committee to make evidence-based summative entrustment decisions about each student’s readiness for residency (Brown et al 2017).

**What is the relationship between competencies and EPAs?**

The EPA framework reorganizes competencies into observable units of clinical work by function. Each function is a subunit of work required to perform an EPA. The functions and related competencies are the parts, and the EPA is the whole. The Toolkit’s one-page schematics highlight an EPA’s specific functions with underlying competencies into observable behaviors within a developmental progression toward entrustment.

Although tracking progression within individual functions can help learners develop appropriate skills, monitoring learner progress toward entrustability for that EPA requires synthesis: At some point the learner must apply each of the functions in execution of the EPA task. To this end, we emphasize the importance of the holistic nature of the EPA and prioritize assessment for entrustment in these activities in workplace settings as a whole, not as the sum of their parts.

**Is the one-page schematic designed as a rubric for student assessment?**

No, the one-page schematics are not intended to serve as assessment tools. They can serve as guides for development of instructional, feedback, and assessment tools for EPAs. We share them as a framework for understanding the developmental progression that graduating medical students should demonstrate as a reflection of their readiness for residency.
How can I or my institution become more involved?

Medical schools in the AAMC pilot, those interested in implementing EPAs, and those wondering about the faculty resources needed to teach and assess EPAs are already part of a dynamic learning community. Opportunities for engaging with others exist through the AAMC Core EPA listserv, conference presentations, collaborative projects, and in informal medical education networks. Your contributions help shape the work of the Core EPA Pilot project and are a source of new ideas, feedback, and suggestions for implementation. We invite you to continue your conversations with us by sharing the decisions you face within the unique culture of your institution.

- To subscribe to the Core EPAs listserv, send a blank email to subscribe-coreepas@lists.aamc.org. To post a comment to the listserv, simply send an email to coreepas@lists.aamc.org.

- Core EPA Pilot Website: [https://www.aamc.org/initiatives/coreepas/](https://www.aamc.org/initiatives/coreepas/)

- Publications from the Core EPA Pilot Group: [https://www.aamc.org/initiatives/coreepas/publicationsandpresentations/](https://www.aamc.org/initiatives/coreepas/publicationsandpresentations/)

- Core EPA Pilot Group email for queries and observations: coreepas@aamc.org
EPA 13: Identify System Failures and Contribute to a Culture of Safety and Improvement

An EPA: A unit of observable, measurable professional practice requiring integration of competencies

Key Functions with Related Competencies

- Identify and report actual and potential ("near miss") errors in care using system reporting structure (e.g., event reporting systems, chain of command policies)
- 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 conference, failure modes and effects analyses, improvement projects)
- Engage in daily safety habits (e.g., accurate and complete documentation, including allergies and adverse reactions, medicine reconciliation, patient education, universal precautions, hand washing, isolation protocols, falls and other risk assessments, standard prophylaxis, time-outs)

**Expected Behaviors for an Entrustable Learner**

- Identifies and reports patient safety concerns in a timely manner using existing system reporting structures (e.g., event reporting systems, chain of command policies)
- Speaks up to identify actual and potential errors, even against hierarchy
- Actively engages in efforts to identify systems issues and their solutions

**Developing Behaviors**

- Superficial understanding prevents recognition of real or potential errors
- Passively observes system improvement activities in the context of rotations or learning experiences
- Requires prompts for common safety behaviors
- Requires prompts to reflect on own errors and their underlying factors
- Recognizes causes of lapses, such as fatigue, and modifies behavior or seeks help

**Behaviors Requiring Corrective Response**

- Reports errors in a disrespectful or misleading manner
- Displays frustration at system improvement efforts
- Places self or others at risk of injury or adverse event
- Avoids discussing or reporting errors; attempts to cover up errors
- Demonstrates defensiveness or places blame

**Expected Behaviors for an Entrustable Learner**

- Identifies and reports actual and potential errors
- Demonstrates structured approach to describing key elements of patient safety concerns
- Participates in system improvement activities when prompted but may require others to point out system failures
- Demonstrates common safety behaviors
- Identifies and reflects on own contribution to errors but needs help developing an improvement plan
- Identifies and reflects on the element of personal responsibility for errors

Underlying entrustability for all EPAs are trustworthy habits, including truthfulness, conscientiousness, and discernment.

This schematic depicts development of proficiency in the Core EPAs. It is not intended for use as an assessment instrument. Entrustment decisions should be made after EPAs have been observed in multiple settings with varying context, acuity, and complexity and with varying patient characteristics.

Adapted from the Association of American Medical Colleges (AAMC). Core entrustable professional activities for entering residency. 2014.

EPA 13

System failures and culture of safety

Underlying entrustability for all EPAs are trustworthy habits, including truthfulness, conscientiousness, and discernment.

This schematic depicts development of proficiency in the Core EPAs. It is not intended for use as an assessment instrument. Entrustment decisions should be made after EPAs have been observed in multiple settings with varying context, acuity, and complexity and with varying patient characteristics.

Notes:
- EPA 13: Identify System Failures and Contribute to a Culture of Safety and Improvement
- Identifying and reporting errors prevent recognition of real or potential errors.
- Demonstrating structured approach to describing key elements of patient safety concerns.
- Engaging in daily safety habits with only rare lapses.
- Admitting one’s own errors, reflecting on one’s contribution, and developing an individual improvement plan.
- Requires prompts to reflect on own errors and their underlying factors.
Appendix 1: Core EPA Pilot Supervision and Coactivity Scales

Scales for clinical supervisors to determine how much help (coactivity) or supervision they judge a student needs for a specific activity have been proposed—the Chen entrustment scale and the Ottawa scale (Chen et al 2015; Rekman et al 2016). There is limited validity evidence for these scales and no published data comparing them. We include these published tools here for your reference. The Core EPA Pilot Group has agreed on a trial using modified versions of these scales (described below). A description of how the pilot is working with these scales is available on the Core EPA website.

<table>
<thead>
<tr>
<th>Modified Chen entrustment scale: If you were to supervise this student again in a similar situation, which of the following statements aligns with how you would assign the task?</th>
<th>Corresponding excerpt from original Chen entrustment scale (Chen et al 2015)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1b. “Watch me do this.”</td>
<td>1b. Not allowed to practice EPA; allowed to observe</td>
</tr>
<tr>
<td>2a. “Let's do this together.”</td>
<td>2a. Allowed to practice EPA only under proactive, full supervision as coactivity with supervisor</td>
</tr>
<tr>
<td>2b. “I'll watch you.”</td>
<td>2b. Allowed to practice EPA only under proactive, full supervision with supervisor in room ready to step in as needed</td>
</tr>
<tr>
<td>3a. “You go ahead, and I'll double-check all of your findings.”</td>
<td>3a. Allowed to practice EPA only under reactive/on-demand supervision with supervisor immediately available, all findings double-checked</td>
</tr>
<tr>
<td>3b. “You go ahead, and I'll double-check key findings.”</td>
<td>3b. Allowed to practice EPA only under reactive/on demand supervision with supervisor immediately available, key findings double-checked</td>
</tr>
</tbody>
</table>
Modified Ottawa scale: In supervising this student, how much did you participate in the task?

<table>
<thead>
<tr>
<th>Modified Ottawa scale</th>
<th>Original Ottawa scale (Rekman et al 2016)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. “I did it.” Student required complete guidance or was unprepared; I had to do most of the work myself.</td>
<td>1. “I had to do.” (i.e., requires complete hands-on guidance, did not do, or was not given the opportunity to do)</td>
</tr>
<tr>
<td>2. “I talked them through it.” Student was able to perform some tasks but required repeated directions.</td>
<td>2. “I had to talk them through.” (i.e., able to perform tasks but requires constant direction)</td>
</tr>
<tr>
<td>3. “I directed them from time to time.” Student demonstrated some independence and only required intermittent prompting.</td>
<td>3. “I had to prompt them from time to time.” (i.e., demonstrates some independence, but requires intermittent direction)</td>
</tr>
<tr>
<td>4. “I was available just in case.” Student functioned fairly independently and only needed assistance with nuances or complex situations.</td>
<td>4. “I needed to be there in the room just in case.” (i.e., independence but unaware of risks and still requires supervision for safe practice)</td>
</tr>
<tr>
<td>5. (No level 5: Students are ineligible for complete independence in our systems.)</td>
<td>5. “I did not need to be there.” (i.e., complete independence, understands risks and performs safely, practice ready)</td>
</tr>
</tbody>
</table>
Appendix 2: Resources Related to EPA 13

Quality Improvement Curriculum for the Inpatient Setting

Clinical Evaluation Report Rating (CCERR)

Hospital Survey on Patient Safety Culture

Institute for Health Care Improvement (IHI) Open School: Free Online Courses
app.ihi.org/lms/home.aspx?CatalogGuid=6cb1c614-884b-43ef-9abd-d90849f183d4

Improvement Capability or Quality Improvement (QI)
  • QI 101: Introduction to Health Care Improvement
  • QI 102: How to Improve with the Model for Improvement

Patient Safety (PS)
  • PS 101: Introduction to Patient Safety
  • PS 102: From Error to Harm
  • PS 103: Human Factors and Safety
  • PS 104: Teamwork and Communication in a Culture of Safety
  • PS 105: Responding to Adverse Events
  • PS 201: Root Cause and Systems Analysis
  • PS 202: Building a Culture of Safety

Professionalism Mini-Evaluation Exercise (P-MEX)

Evidence and Instruments in the Literature

QIKAT-R
Appendix 3: Behaviors and Vignettes

The Core EPA Guide produced by the AAMC contains additional detailed information that may be useful for curriculum designers.

1. For a convenient list of behaviors for this EPA that were used to develop a developmental progression, we refer you to the Core EPA Guide.

2. For exemplars of learner vignettes that highlight pre-entrustable and entrustable scenarios, please see the Core EPA Guide.
Appendix 4: The Physician Competency Reference Set (PCRS)

The Physician Competency Reference Set (Englander et al 2013) is provided for cross-referencing with the one-page schematic.

<table>
<thead>
<tr>
<th>1. PATIENT CARE (PC): Provide patient-centered care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1 Perform all medical, diagnostic, and surgical procedures considered essential for the area of practice</td>
</tr>
<tr>
<td>1.2 Gather essential and accurate information about patients and their condition through history-taking, physical examination, and the use of laboratory data, imaging, and other tests</td>
</tr>
<tr>
<td>1.3 Organize and prioritize responsibilities to provide care that is safe, effective, and efficient</td>
</tr>
<tr>
<td>1.4 Interpret laboratory data, imaging studies, and other tests required for the area of practice</td>
</tr>
<tr>
<td>1.5 Make informed decisions about diagnostic and therapeutic interventions based on patient information and preferences, up-to-date scientific evidence, and clinical judgment</td>
</tr>
<tr>
<td>1.6 Develop and carry out patient management plans</td>
</tr>
<tr>
<td>1.7 Counsel and educate patients and their families to empower them to participate in their care and enable shared decision making</td>
</tr>
<tr>
<td>1.8 Provide appropriate referral of patients, including ensuring continuity of care throughout transitions between providers or settings and following up on patient progress and outcomes</td>
</tr>
<tr>
<td>1.9 Provide health care services to patients, families, and communities aimed at preventing health problems or maintaining health</td>
</tr>
<tr>
<td>1.10 Provide appropriate role modeling</td>
</tr>
<tr>
<td>1.11 Perform supervisory responsibilities commensurate with one’s roles, abilities, and qualifications</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>2. KNOWLEDGE FOR PRACTICE (KP): Demonstrate knowledge of established and evolving biomedical, clinical, epidemiological, and social–behavioral sciences, as well as the application of this knowledge to patient care</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1 Demonstrate an investigatory and analytic approach to clinical situations</td>
</tr>
<tr>
<td>2.2 Apply established and emerging biophysical scientific principles fundamental to health care for patients and populations</td>
</tr>
<tr>
<td>2.3 Apply established and emerging principles of clinical sciences to diagnostic and therapeutic decision making, clinical problem solving, and other aspects of evidence-based health care</td>
</tr>
<tr>
<td>2.4 Apply principles of epidemiological sciences to the identification of health problems, risk factors, treatment strategies, resources, and disease prevention/health promotion efforts for patients and populations</td>
</tr>
<tr>
<td>2.5 Apply principles of social–behavioral sciences to provision of patient care, including assessment of the impact of psychosocial–cultural influences on health, disease, care-seeking, care compliance, and barriers to and attitudes toward care</td>
</tr>
<tr>
<td>2.6 Contribute to the creation, dissemination, application, and translation of new health care knowledge and practices</td>
</tr>
</tbody>
</table>
3. PRACTICE-BASED LEARNING AND IMPROVEMENT (PBLI): Demonstrate the ability to investigate and evaluate their care of patients, to appraise and assimilate scientific evidence, and to continuously improve patient care based on constant self-evaluation and lifelong learning

3.1 Identify strengths, deficiencies, and limits in one’s knowledge and expertise
3.2 Set learning and improvement goals
3.3 Identify and perform learning activities that address one’s gaps in knowledge, skills, or attitudes
3.4 Systematically analyze practice using quality-improvement methods, and implement changes with the goal of practice improvement
3.5 Incorporate feedback into daily practice
3.6 Locate, appraise, and assimilate evidence from scientific studies related to patients’ health problems
3.7 Use information technology to optimize learning
3.8 Participate in the education of patients, families, students, trainees, peers, and other health professionals
3.9 Obtain and utilize information about individual patients, populations of patients, or communities from which patients are drawn to improve care
3.10 Continually identify, analyze, and implement new knowledge, guidelines, standards, technologies, products, or services that have been demonstrated to improve outcomes

4. INTERPERSONAL AND COMMUNICATION SKILLS (ICS): Demonstrate interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, their families, and health professionals

4.1 Communicate effectively with patients, families, and the public, as appropriate, across a broad range of socioeconomic and cultural backgrounds
4.2 Communicate effectively with colleagues within one’s profession or specialty, other health professionals, and health-related agencies (see also interprofessional collaboration competency, IPC 7.3)
4.3 Work effectively with others as a member or leader of a health care team or other professional group (see also IPC 7.4)
4.4 Act in a consultative role to other health professionals
4.5 Maintain comprehensive, timely, and legible medical records
4.6 Demonstrate sensitivity, honesty, and compassion in difficult conversations (e.g., about issues such as death, end-of-life issues, adverse events, bad news, disclosure of errors, and other sensitive topics)
4.7 Demonstrate insight and understanding about emotions and human responses to emotions that allow one to develop and manage interpersonal interactions

5. PROFESSIONALISM (P): Demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles

5.1 Demonstrate compassion, integrity, and respect for others
5.2 Demonstrate responsiveness to patient needs that supersedes self-interest
5.3 Demonstrate respect for patient privacy and autonomy
5.4 Demonstrate accountability to patients, society, and the profession
5.5 Demonstrate sensitivity and responsiveness to a diverse patient population, including but not limited to diversity in gender, age, culture, race, religion, disabilities, and sexual orientation
5.6 Demonstrate a commitment to ethical principles pertaining to provision or withholding of care, confidentiality, informed consent, and business practices, including compliance with relevant laws, policies, and regulations

6. SYSTEMS-BASED PRACTICE (SBP): Demonstrate an awareness of and responsiveness to the larger context and system of health care, as well as the ability to call effectively on other resources in the system to provide optimal health care
6.1 Work effectively in various health care delivery settings and systems relevant to one’s clinical specialty
6.2 Coordinate patient care within the health care system relevant to one’s clinical specialty
6.3 Incorporate considerations of cost awareness and risk–benefit analysis in patient and/or population-based care
6.4 Advocate for quality patient care and optimal patient care systems
6.5 Participate in identifying system errors and implementing potential systems solutions
6.6 Perform administrative and practice management responsibilities commensurate with one’s role, abilities, and qualifications

7. INTERPROFESSIONAL COLLABORATION (IPC): Demonstrate the ability to engage in an interprofessional team in a manner that optimizes safe, effective patient- and population-centered care
7.1 Work with other health professionals to establish and maintain a climate of mutual respect, dignity, diversity, ethical integrity, and trust
7.2 Use the knowledge of one’s own role and those of other professions to appropriately assess and address the health care needs of the patients and populations served
7.3 Communicate with other health professionals in a responsive and responsible manner that supports the maintenance of health and the treatment of disease in individual patients and populations
7.4 Participate in different team roles to establish, develop, and continuously enhance interprofessional teams to provide patient- and population-centered care that is safe, timely, efficient, effective, and equitable

8. PERSONAL AND PROFESSIONAL DEVELOPMENT (PPD): Demonstrate the qualities required to sustain lifelong personal and professional growth
8.1 Develop the ability to use self-awareness of knowledge, skills, and emotional limitations to engage in appropriate help-seeking behaviors
8.2 Demonstrate healthy coping mechanisms to respond to stress
8.3 Manage conflict between personal and professional responsibilities
8.4 Practice flexibility and maturity in adjusting to change with the capacity to alter behavior
8.5 Demonstrate trustworthiness that makes colleagues feel secure when one is responsible for the care of patients
8.6 Provide leadership skills that enhance team functioning, the learning environment, and/or the health care delivery system
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<tr>
<td>8.8</td>
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Publications From the Core EPA Pilot Group


Other Related Publications


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