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Core Entrustable Professional Activities for Entering Residency

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

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Association of American Medical Colleges

Washington, D.C.

Core Entrustable Professional Activities for Entering Residency

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Core Entrustable Professional Activities for Entering Residency

AAMC

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

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
- 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 1: Gather a History and Perform a Physical Examination

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

EPA 1

Gather a history and perform a physical exam

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	Behaviors Requiring Corrective Response	→ Developing Behaviors → (Learner may be at different levels within a row.)		Expected Behaviors for an Entrustable Learner
Obtain a complete and accurate history in an organized fashion **PC2**	Does not collect accurate historical data Relies exclusively on secondary sources or documentation of others	Gathers excessive or incomplete data Does not deviate from a template	Uses a logical progression of questioning Questions are prioritized and not excessive	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
Demonstrate patient-centered interview skills **ICS1 ICS7 P1 P3 P5**	Is disrespectful in interactions with patients Disregards patient privacy and autonomy	Communicates unidirectionally Does not respond to patient verbal and nonverbal cues May generalize based on age, gender, culture, race, religion, disabilities, and/or sexual orientation Does not consistently consider patient privacy and autonomy	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	Adapts communication skills to the individual patient's needs and characteristics Responds effectively to patient's verbal and nonverbal cues and emotions
Demonstrate clinical reasoning in gathering focused information relevant to a patient's care **KP1**	Fails to recognize patient's central problem	Questions are not guided by the evidence and data collected Does not prioritize or filter information Questions reflect a narrow differential diagnosis	Questions are purposefully used to clarify patient's issues Is able to filter signs and symptoms into pertinent positives and negatives	Demonstrates astute clinical reasoning through targeted hypothesis-driven questioning Incorporates secondary data into medical reasoning
Perform a clinically relevant, appropriately thorough physical exam pertinent to the setting and purpose of the patient visit **PC2**	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	Targets 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 Uses the exam to explore and prioritize the working differential diagnosis Can identify and describe normal and abnormal findings

Barron, B, Orlander, P, Schwartz, ML. 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.

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?	Corresponding excerpt from **original Chen** entrustment scale (Chen et al 2015)
1b. "Watch me do this."	1b. Not allowed to practice EPA; allowed to observe
2a. "Let's do this together."	2a. Allowed to practice EPA only under proactive, full supervision as coactivity with supervisor
2b. "I'll watch you."	2b. Allowed to practice EPA only under proactive, full supervision with supervisor in room ready to step in as needed
3a. "You go ahead, and I'll double-check all of your findings."	3a. Allowed to practice EPA only under reactive/on-demand supervision with supervisor immediately available, all findings double-checked
3b. "You go ahead, and I'll double-check key findings."	3b. Allowed to practice EPA only under reactive/on demand supervision with supervisor immediately available, key findings double-checked

Modified Ottawa scale: In supervising this student, how much did you participate in the task?	**Original Ottawa scale** (Rekman et al 2016)
1. "I did it." Student required complete guidance or was unprepared; I had to do most of the work myself.	1. "I had to do." (i.e., requires complete hands-on guidance, did not do, or was not given the opportunity to do)
2. "I talked them through it." Student was able to perform some tasks but required repeated directions.	2. "I had to talk them through." (i.e., able to perform tasks but requires constant direction)
3. "I directed them from time to time." Student demonstrated some independence and only required intermittent prompting.	3. "I had to prompt them from time to time." (i.e., demonstrates some independence, but requires intermittent direction)
4. "I was available just in case." Student functioned fairly independently and only needed assistance with nuances or complex situations.	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)
5. (No level 5: Students are ineligible for complete independence in our systems.)	5. "I did not need to be there." (i.e., complete independence, understands risks and performs safely, practice ready)

Appendix 2: Resources Related to EPA 1

Hypothesis-Driven Physical Examination (HDPE)

Uchida T, Heiman H. Critical synthesis package: hypothesis-driven physical examination (HDPE). MedEdPORTAL Publications. 2013;9:9435. doi.org/10.15766/mep_2374-8265.9435.

Mini-Clinical Evaluation Exercise

Perkowski L. Critical synthesis package: mini-clinical evaluation exercise (mCEX). MedEdPORTAL Publications. 2014;10:9793. doi.org/10.15766/mep_2374-8265.9793.

Faculty Observer Rating Scale (FORS)

Nadir N. Critical synthesis package: faculty observer rating scale (FORS). MedEdPORTAL Publications. 2014;10:9853. doi.org/10.15766/mep_2374-8265.9853.

Interpreter Scale (IS)

Pelts M, Albright D. Critical synthesis package: interpreter scale (IS). MedEdPORTAL Publications. 2014;10:9845. doi.org/10.15766/mep_2374-8265.9845.

Patient-Practitioner Orientation Scale (PPOS)

Trapp S, Stern M. Critical synthesis package: patient-practitioner orientation scale (PPOS). MedEdPORTAL Publications. 2013;9:9501. doi.org/10.15766/mep_2374-8265.9501.

Assessment of Professional Behaviors (APB)

Fornari A, Akbar S, Tyler S. Critical synthesis package: assessment of professional behaviors (APB). MedEdPORTAL Publications. 2014;10:9902. doi.org/10.15766/mep_2374-8265.9902.

MAAS-Global Manual 2000

Lacy N. Critical synthesis package: MAAS-global. MedEdPORTAL Publications. 2015;11:10028. dx.doi.org/10.15766/mep_2374-8265.10028.

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

Young K. Critical synthesis package: cross-cultural counseling inventory–revised (CCCI-R). MedEdPORTAL Publications. 2014;10:9950. doi.org/10.15766/mep_2374-8265.9950.

CAM Health Belief Questionnaire (CHBQ)

Nicolais C, Stern M. Critical synthesis package: CAM health belief questionnaire (CHBQ). MedEdPORTAL Publications. 2014;10:9882. doi.org/10.15766/mep_2374-8265.9882.

Relational Communication Scale (RCS)

Hartmark-Hill J. Critical synthesis package: relational communication scale (RCS). MedEdPORTAL Publications. 2013;9:9454. doi.org/10.15766/mep_2374-8265.9454.

Communication Assessment Tool (CAT)

Ibrahim H. Critical synthesis package: communication assessment tool (CAT). MedEdPORTAL Publications. 2014;10:9806. dx.doi.org/10.15766/mep_2374-8265.9806.

Liverpool Communication Skills Assessment Scale (LCSAS)

Islam L, Dorflinger L. Critical synthesis package: Liverpool communication skills assessment scale (LCSAS). MedEdPORTAL Publications. 2015;11:10126. dx.doi.org/10.15766/mep_2374-8265.10126.

Communication Curriculum Package

Hofert S, Burke M, Balighian E, Serwint J. Improving provider-patient communication: a verbal and non-verbal communication skills curriculum. MedEdPORTAL Publications. 2015;11:10087. dx.doi.org/10.15766/mep_2374-8265.10087.

Professionalism Mini-Evaluation Exercise (P-MEX)

Gathright M. Critical synthesis package: professionalism mini-evaluation exercise (P-MEX). MedEdPORTAL Publications. 2014;10:9929. doi.org/10.15766/mep_2374-8265.9929.

Rochester Communication Rating Scale

Stalburg C. Critical synthesis package: Rochester communication rating scale. MedEdPORTAL Publications. 2015;11:9969. doi.org/10.15766/mep_2374-8265.9969.

Evidence in the Literature

Gowda D, Blatt B, Fink MJ, Kosowicz LY, Baecker A, Silvestri RC. A core physical exam for medical students: results of a national survey. *Acad Med.* 2014;89(3):436-442. doi: 10.1097/acm.0000000000000137.

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

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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
- 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 2: Prioritize a Differential Diagnosis Following a Clinical Encounter

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

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	Behaviors Requiring Corrective Response	→ Developing Behaviors → (Learner may be at different levels within a row.)		Expected Behaviors for an Entrustable Learner
Synthesize essential information from previous records, history, physical exam, and initial diagnostic evaluations to propose a scientifically supported differential diagnosis **PC2 KP3 KP4 KP2**	Cannot gather or synthesize data to inform an acceptable diagnosis Lacks basic medical knowledge to reason effectively	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	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	Gathers pertinent information from many sources in a hypothesis-driven fashion Filters, prioritizes, and makes connections between sources of information Proposes a relevant differential diagnosis that is neither too broad nor too narrow Organizes knowledge into illness scripts (patterns) that generate and support a diagnosis
Prioritize and continue to integrate information as it emerges to update differential diagnosis, while managing ambiguity **PC4 KP3 KP4 PPD8 PBL1**	Disregards emerging diagnostic information Becomes defensive and/or belligerent when questioned on differential diagnosis	Does not integrate emerging information to update the differential diagnosis Displays discomfort with ambiguity	Considers emerging information but does not completely integrate to update the differential diagnosis Acknowledges ambiguity and is open to questions and challenges	Seeks and integrates emerging information to update the differential diagnosis Encourages questions and challenges from patients and team
Engage and communicate with team members for endorsement and verification of the working diagnosis that will inform management plans **KP3 KP4 ICS2**	Ignores team's recommendations Develops and acts on a management plan before receiving team's endorsement Cannot explain or document clinical reasoning	Recommends a broad range of untailored diagnostic evaluations Depends on team for all management plans Does not completely explain and document reasoning	Recommends diagnostic evaluations tailored to the evolving differential diagnosis after having consulted with team Explains and documents clinical reasoning	Proposes diagnostic and management plans reflecting team's input Seeks assistance from team members Provides complete and succinct documentation explaining clinical reasoning

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?	Corresponding excerpt from **original Chen** entrustment scale (Chen et al 2015)
1b. "Watch me do this."	1b. Not allowed to practice EPA; allowed to observe
2a. "Let's do this together."	2a. Allowed to practice EPA only under proactive, full supervision as coactivity with supervisor
2b. "I'll watch you."	2b. Allowed to practice EPA only under proactive, full supervision with supervisor in room ready to step in as needed
3a. "You go ahead, and I'll double-check all of your findings."	3a. Allowed to practice EPA only under reactive/on-demand supervision with supervisor immediately available, all findings double-checked
3b. "You go ahead, and I'll double-check key findings."	3b. Allowed to practice EPA only under reactive/on demand supervision with supervisor immediately available, key findings double-checked

Modified Ottawa scale: In supervising this student, how much did you participate in the task?	**Original Ottawa scale** (Rekman et al 2016)
1. "I did it." Student required complete guidance or was unprepared; I had to do most of the work myself.	1. "I had to do." (i.e., requires complete hands-on guidance, did not do, or was not given the opportunity to do)
2. "I talked them through it." Student was able to perform some tasks but required repeated directions.	2. "I had to talk them through." (i.e., able to perform tasks but requires constant direction)
3. "I directed them from time to time." Student demonstrated some independence and only required intermittent prompting.	3. "I had to prompt them from time to time." (i.e., demonstrates some independence, but requires intermittent direction)
4. "I was available just in case." Student functioned fairly independently and only needed assistance with nuances or complex situations.	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)
5. (No level 5: Students are ineligible for complete independence in our systems.)	5. "I did not need to be there." (i.e., complete independence, understands risks and performs safely, practice ready)

Appendix 2: Resources Related to EPA 2

Hypothesis-Driven Physical Examination (HDPE)

Uchida T, Heiman H. Critical synthesis package: hypothesis-driven physical examination (HDPE). MedEdPORTAL Publications. 2013;9:9435. doi.org/10.15766/mep_2374-8265.9435.

Mini-Clinical Evaluation Exercise

Perkowski L. Critical synthesis package: mini-clinical evaluation exercise (mCEX). MedEdPORTAL Publications. 2014;10:9793. doi.org/10.15766/mep_2374-8265.9793.

Script Concordance Testing (SCT)

Russell J. Critical synthesis package: script concordance testing (SCT). MedEdPORTAL Publications. 2013;9:9492. doi.org/10.15766/mep_2374-8265.9492.

Assessment of Professional Behaviors (APB)

Fornari A, Akbar S, Tyler S. Critical synthesis package: assessment of professional behaviors (APB). MedEdPORTAL Publications. 2014;10:9902. doi.org/10.15766/mep_2374-8265.9902.

MAAS-Global Manual 2000

Lacy N. Critical synthesis package: MAAS-global. MedEdPORTAL Publications. 2015;11:10028. dx.doi.org/10.15766/mep_2374-8265.10028.

UCSF Reflection Tool

Aronson L, Kruidering M, Niehaus B, O'Sullivan P. UCSF LEaP (learning from your experiences as a professional): guidelines for critical reflection. MedEdPORTAL Publications. 2012;8:9073. dx.doi.org/10.15766/mep_2374-8265.9073.

Professionalism Mini-Evaluation Exercise (P-MEX)

Gathright M. Critical synthesis package: professionalism mini-evaluation exercise (P-MEX). MedEdPORTAL Publications. 2014;10:9929. doi.org/10.15766/mep_2374-8265.9929.

Reflective Ability Rubric

O'Sullivan P, Aronson L, Chittenden E, Niehaus B, Learman L. Reflective ability rubric and user guide. MedEdPORTAL Publications. 2010;6:8133. doi.org/10.15766/mep_2374-8265.8133.

Evidence and Instruments in the Literature

Hancock J, Roberts M, Monrouxe L, Mattick K. Medical student and junior doctors' tolerance of ambiguity: development of a new scale. *Adv Health Sci Educ*. 2015;20(1):113-130. doi: 10.1007/s10459-014-9510-z.

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.)

Gowda D, Blatt B, Fink MJ, Kosowicz LY, Baecker A, Silvestri, RC. A core physical exam for medical students: results of a national survey. *Acad Med.* 2014;89(3):436-442. doi: 10.1097/acm.0000000000000137.

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

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Englander R, Cameron T, Ballard AJ, Dodge J, Bull J, Aschenbrener CA. Toward a common taxonomy of competency domains for the health professions and competencies for physicians. *Acad Med.* 2013;88(8):1088-1094.

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Other Related Publications

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

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/
- 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

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

EPA 3

Diagnostic and screening tests

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	Behaviors Requiring Corrective Response	→ Developing Behaviors → (Learner may be at different levels within a row.)		Expected Behaviors for an Entrustable Learner
Recommend first-line cost-effective screening and diagnostic tests for routine health maintenance and common disorders **PC5 PC9 SBP3 PBLI9 KP1 KP4**	Unable to recommend a standard set of screening or diagnostic tests Demonstrates frustration at cost-containment efforts	Recommends tests for common conditions Does not consider harm, costs, guidelines, or patient resources Does not consider patient-specific screening unless instructed	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 PBLI9**	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	Recognizes need for assistance to evaluate urgency of results and communicate these to 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

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?	Corresponding excerpt from **original Chen** entrustment scale (Chen et al 2015)
1b. "Watch me do this."	1b. Not allowed to practice EPA; allowed to observe
2a. "Let's do this together."	2a. Allowed to practice EPA only under proactive, full supervision as coactivity with supervisor
2b. "I'll watch you."	2b. Allowed to practice EPA only under proactive, full supervision with supervisor in room ready to step in as needed
3a. "You go ahead, and I'll double-check all of your findings."	3a. Allowed to practice EPA only under reactive/on-demand supervision with supervisor immediately available, all findings double-checked
3b. "You go ahead, and I'll double-check key findings."	3b. Allowed to practice EPA only under reactive/on demand supervision with supervisor immediately available, key findings double-checked

Modified Ottawa scale: In supervising this student, how much did you participate in the task?	**Original Ottawa scale** (Rekman et al 2016)
1. "I did it." Student required complete guidance or was unprepared; I had to do most of the work myself.	1. "I had to do." (i.e., requires complete hands-on guidance, did not do, or was not given the opportunity to do)
2. "I talked them through it." Student was able to perform some tasks but required repeated directions.	2. "I had to talk them through." (i.e., able to perform tasks but requires constant direction)
3. "I directed them from time to time." Student demonstrated some independence and only required intermittent prompting.	3. "I had to prompt them from time to time." (i.e., demonstrates some independence, but requires intermittent direction)
4. "I was available just in case." Student functioned fairly independently and only needed assistance with nuances or complex situations.	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)
5. (No level 5: Students are ineligible for complete independence in our systems.)	5. "I did not need to be there." (i.e., complete independence, understands risks and performs safely, practice ready)

Appendix 2: Resources Related to EPA 3

Hypothesis-Driven Physical Examination (HDPE)

Uchida T, Heiman H. Critical synthesis package: hypothesis-driven physical examination (HDPE). MedEdPORTAL Publications. 2013;9:9435. doi.org/10.15766/mep_2374-8265.9435.

Script Concordance Testing (SCT)

Russell J. Critical synthesis package: script concordance testing (SCT). MedEdPORTAL Publications. 2013;9:9492. doi.org/10.15766/mep_2374-8265.9492.

Professionalism Mini-Evaluation Exercise (P-MEX)

Gathright M. Critical synthesis package: professionalism mini-evaluation exercise (P-MEX). MedEdPORTAL Publications. 2014;10:9929. doi.org/10.15766/mep_2374-8265.9929.

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

Mincer S, Adeogba S, Bransford R, et al. Shared decision-making (SDM) toolkit: train-the-trainer tools for teaching SDM in the classroom and clinic. MedEdPORTAL Publications. 2013;9:9413. doi.org/10.15766/mep_2374-8265.9413.

Evidence and Instruments in the Literature

Decision Boxes (Link)

Giguere AMC, Labrecque M, Légaré F, et al. Feasibility of a randomized controlled trial to evaluate the impact of decision boxes on shared decision-making processes. *BMC Med Inform Decis Mak.* 2015;15. doi: 10.1186/s12911-015-0134-x.

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

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EPA 4 Toolkit: Enter and Discuss Orders and Prescriptions

Association of American Medical Colleges

Washington, D.C.

EPA 4 Workgroup

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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 4: Enter and Discuss Orders and Prescriptions

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

EPA 4

Enter and discuss orders and prescriptions

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	Behaviors Requiring Corrective Response	→ Developing Behaviors → (Learner may be at different levels within a row.)		Expected Behaviors for an Entrustable Learner
Compose orders efficiently and effectively verbally, on paper, and electronically **PC6 PBLI1**	Unable to compose or enter electronic orders or write prescriptions (or does so for the wrong patient or using an incorrect order set) Does not follow established protocols for placing orders	Does not recognize when to tailor or deviate from the standard order set Orders tests excessively (uses shotgun approach) May be overconfident, does not seek review of orders	Recognizes when to tailor or deviate from the standard order set Completes simple orders Demonstrates working knowledge of how orders are processed in the workplace Asks questions, accepts feedback	Routinely recognizes when to tailor or deviate from the standard order set Able to complete complex orders requiring changes in dose or frequency over time (e.g., a taper) Undertakes a reasoned approach to placing orders (e.g., waits for contingent results before ordering more tests) Recognizes limitations and seeks helps
Demonstrate an understanding of the patient's condition that underpins the provided orders **PC5 PC2**	Lacks basic knowledge needed to guide orders Demonstrates defensiveness when questioned	Has difficulty filtering and synthesizing information to prioritize diagnostics and therapies Unable to articulate the rationale behind orders	Articulates rationale behind orders May not take into account subtle signs or exam findings guiding orders	Recognizes patterns, takes into account the patient's condition when ordering diagnostics and/or therapeutics Explains how test results influence clinical decision making
Recognize and avoid errors by attending to patient-specific factors, using resources, and appropriately responding to safety alerts **PBLI7**	Discounts information obtained from resources designed to avoid drug–drug interactions Fails to adjust doses when advised to do so by others Ignores alerts	Underuses information that could help avoid errors Relies excessively on technology to highlight drug–drug interactions and/or risks (e.g., smartphone or EHR suggests an interaction, but learner cannot explain relevance)	May inconsistently apply safe prescription-writing habits such as double-check of patient's weight, age, renal function, comorbidities, dose and/or interval, and pharmacogenetics when applicable	Routinely practices safe habits when writing or entering prescriptions or orders Responds to EHR's safety alerts and understands rationale for them Uses electronic resources to fill in gaps in knowledge to inform safe order writing (e.g., drug–drug interactions, treatment guidelines)
Discuss planned orders and prescriptions with team, patients, and families **ICS1 SBP3**	Places orders and/or prescriptions that directly conflict with patient's and family's health or cultural beliefs	Places orders without communicating with others; uses unidirectional style ("Here is what we are doing...") Does not consider cost of orders or patient's preferences	Modifies plan based on patient's preferences May describe cost-containment efforts as externally mandated and interfering with the doctor–patient relationship	Enters orders that reflect bidirectional communication with patients, families, and team Considers the costs of orders and the patient's ability and willingness to proceed with the plan

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?	Corresponding excerpt from **original Chen** entrustment scale (Chen et al 2015)
1b. "Watch me do this."	1b. Not allowed to practice EPA; allowed to observe
2a. "Let's do this together."	2a. Allowed to practice EPA only under proactive, full supervision as coactivity with supervisor
2b. "I'll watch you."	2b. Allowed to practice EPA only under proactive, full supervision with supervisor in room ready to step in as needed
3a. "You go ahead, and I'll double-check all of your findings."	3a. Allowed to practice EPA only under reactive/on-demand supervision with supervisor immediately available, all findings double-checked
3b. "You go ahead, and I'll double-check key findings."	3b. Allowed to practice EPA only under reactive/on demand supervision with supervisor immediately available, key findings double-checked

Modified Ottawa scale: In supervising this student, how much did you participate in the task?	**Original Ottawa scale** (Rekman et al 2016)
1. "I did it." Student required complete guidance or was unprepared; I had to do most of the work myself.	1. "I had to do." (i.e., requires complete hands-on guidance, did not do, or was not given the opportunity to do)
2. "I talked them through it." Student was able to perform some tasks but required repeated directions.	2. "I had to talk them through." (i.e., able to perform tasks but requires constant direction)
3. "I directed them from time to time." Student demonstrated some independence and only required intermittent prompting.	3. "I had to prompt them from time to time." (i.e., demonstrates some independence, but requires intermittent direction)
4. "I was available just in case." Student functioned fairly independently and only needed assistance with nuances or complex situations.	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)
5. (No level 5: Students are ineligible for complete independence in our systems.)	5. "I did not need to be there." (i.e., complete independence, understands risks and performs safely, practice ready)

Appendix 2: Resources Related to EPA 4

Hypothesis-Driven Physical Examination (HDPE)

Uchida T, Heiman H. Critical synthesis package: hypothesis-driven physical examination (HDPE). MedEdPORTAL Publications. 2013;9:9435. doi.org/10.15766/mep_2374-8265.9435.

UCSF Reflection Tool

Aronson L, Kruidering M, Niehaus B, O'Sullivan P. UCSF LEaP (learning from your experiences as a professional): guidelines for critical reflection. MedEdPORTAL Publications. 2012;8:9073. dx.doi.org/10.15766/mep_2374-8265.9073.

Reflective Ability Rubric and User Guide

O'Sullivan P, Aronson L, Chittenden E, Niehaus B, Learman L. Reflective ability rubric and user guide. MedEdPORTAL Publications. 2010;6:8133. dx.doi.org/10.15766/mep_2374-8265.8133.

MAAS-Global Manual 2000

Lacy N. Critical synthesis package: MAAS-global. MedEdPORTAL Publications. 2015;11:10028. dx.doi.org/10.15766/mep_2374-8265.10028.

Communication Assessment Tool (CAT)

Ibrahim H. Critical synthesis package: communication assessment tool (CAT). MedEdPORTAL Publications. 2014;10:9806. dx.doi.org/10.15766/mep_2374-8265.9806.

Liverpool Communication Skills Assessment Scale (LCSAS)

Islam L, Dorflinger L. Critical synthesis package: Liverpool communication skills assessment scale (LCSAS). MedEdPORTAL Publications. 2015;11:10126. dx.doi.org/10.15766/mep_2374-8265.10126.

Communication Curriculum Package

Hofert S, Burke M, Balighian E, Serwint J. Improving provider-patient communication: a verbal and non-verbal communication skills curriculum. MedEdPORTAL Publications. 2015;11:10087. dx.doi.org/10.15766/mep_2374-8265.10087.

Professionalism Mini-Evaluation Exercise (P-MEX)

Gathright M. Critical synthesis package: professionalism mini-evaluation exercise (P-MEX). MedEdPORTAL Publications. 2014;10:9929. doi.org/10.15766/mep_2374-8265.9929.

Assessment of Professional Behaviors (APB)

Fornari A, Akbar S, Tyler S. Critical synthesis package: assessment of professional behaviors (APB). MedEdPORTAL Publications. 2014;10:9902. doi.org/10.15766/mep_2374-8265.9902.

Rochester Communication Rating Scale

Stalburg C. Critical synthesis package: Rochester communication rating scale. MedEdPORTAL Publications. 2015;11:9969. doi.org/10.15766/mep_2374-8265.9969

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

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EPA 5 Toolkit: Document a Clinical Encounter in the Patient Record

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/
- 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

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

EPA 5

Document 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.

Key Functions with Related Competencies	Behaviors Requiring Corrective Response	→ Developing Behaviors → (Learner may be at different levels within a row.)		Expected Behaviors for an Entrustable Learner
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) **P4 ICS1**	Provides incoherent documentation	Misses key information Uses a template with limited ability to adjust or adapt based on audience, context, or purpose	Provides key information but may include unnecessary details or redundancies Demonstrates ability to adjust or adapt to audience, context, or purpose	Provides a verifiable cogent narrative without unnecessary details or redundancies Adjusts and adapts documentation based on audience, context, or purpose (e.g., admission, progress, pre- and post-op, and procedure notes; informed consent; discharge summary)
Follow documentation requirements to meet regulations and professional expectations **ICS5 P4 SBP1**	Copies and pastes information without verification or attribution Does not provide documentation when required Provides illegible documentation	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	Recognizes and corrects errors related to required elements of documentation Meets needed turnaround time for standard documentation May not document the pursuit of primary or secondary sources important to the encounter	Provides accurate, legible, timely documentation that includes institutionally required elements Documents in the patient's record role in team-care activities Documents use of primary and secondary sources necessary to fill in gaps
Document a problem list, differential diagnosis, and plan supported through clinical reasoning that reflects patient's preferences **PC4 PC6 ICS1 ICS2**	Includes inappropriate judgmental language Documents potentially damaging information without attribution	Does not document a problem list, differential diagnosis, plan, clinical reasoning, or patient's preferences Interprets laboratories by relying on norms rather than context Does not include a rationale for ordering studies or treatment plans Demonstrates limited help-seeking behavior to fill gaps in knowledge, skill, and experience	Documents a problem list, differential diagnosis, plan, and clinical reasoning Is inconsistent in interpreting basic tests accurately Engages in help-seeking behavior resulting in improved ability to develop and document management plans Solicits patient's preferences and records them in a note	Documents a problem list, differential diagnosis, and plan, reflecting a combination of thought processes and input from other providers Interprets laboratory values accurately Identifies key problems, documenting engagement of those who can help resolve them Communicates bidirectionally to develop and record management plans aligned with patient's preferences

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?	Corresponding excerpt from **original Chen** entrustment scale (Chen et al 2015)
1b. "Watch me do this."	1b. Not allowed to practice EPA; allowed to observe
2a. "Let's do this together."	2a. Allowed to practice EPA only under proactive, full supervision as coactivity with supervisor
2b. "I'll watch you."	2b. Allowed to practice EPA only under proactive, full supervision with supervisor in room ready to step in as needed
3a. "You go ahead, and I'll double-check all of your findings."	3a. Allowed to practice EPA only under reactive/on-demand supervision with supervisor immediately available, all findings double-checked
3b. "You go ahead, and I'll double-check key findings."	3b. Allowed to practice EPA only under reactive/on demand supervision with supervisor immediately available, key findings double-checked

Modified Ottawa scale: In supervising this student, how much did you participate in the task?	**Original Ottawa scale** (Rekman et al 2016)
1. "I did it." Student required complete guidance or was unprepared; I had to do most of the work myself.	1. "I had to do." (i.e., requires complete hands-on guidance, did not do, or was not given the opportunity to do)
2. "I talked them through it." Student was able to perform some tasks but required repeated directions.	2. "I had to talk them through." (i.e., able to perform tasks but requires constant direction)
3. "I directed them from time to time." Student demonstrated some independence and only required intermittent prompting.	3. "I had to prompt them from time to time." (i.e., demonstrates some independence, but requires intermittent direction)
4. "I was available just in case." Student functioned fairly independently and only needed assistance with nuances or complex situations.	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)
5. (No level 5: Students are ineligible for complete independence in our systems.)	5. "I did not need to be there." (i.e., complete independence, understands risks and performs safely, practice ready)

Appendix 2: Resources Related to EPA 5

Writer's Workshop: Teaching Preclinical Medical Students the Art of the Patient "Write Up"
Bynum D, Colford C, McNeely D. Writer's workshop: teaching preclinical medical students the art of the patient "write up." MedEdPORTAL Publications. 2014;10:9805. doi.org/10.15766/mep_2374-8265.9805.

MAAS-Global Manual 2000
Lacy N. Critical synthesis package: MAAS-global. MedEdPORTAL Publications. 2015;11:10028. dx.doi.org/10.15766/mep_2374-8265.10028.

Communication Assessment Tool (CAT)
Ibrahim H. Critical synthesis package: communication assessment tool (CAT). MedEdPORTAL Publications. 2014;10:9806. dx.doi.org/10.15766/mep_2374-8265.9806.

Liverpool Communication Skills Assessment Scale (LCSAS)
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Communication Curriculum Package
Hofert S, Burke M, Balighian E, Serwint J. Improving provider-patient communication: a verbal and non-verbal communication skills curriculum. MedEdPORTAL Publications. 2015;11:10087. dx.doi.org/10.15766/mep_2374-8265.10087.

Professionalism Mini-Evaluation Exercise (P-MEX)
Gathright M. Critical synthesis package: professionalism mini-evaluation exercise (P-MEX). MedEdPORTAL Publications. 2014;10:9929. doi.org/10.15766/mep_2374-8265.9929.

Rochester Communication Rating Scale
Stalburg C. Critical synthesis package: Rochester communication rating scale. MedEdPORTAL Publications. 2015;11:9969. doi.org/10.15766/mep_2374-8265.9969.

Evidence and Instruments in the Literature

Baker EA, Ledford CH, Fogg L, Way DP, Park YS. The IDEA assessment tool: assessing the reporting, diagnostic reasoning, and decision-making skills demonstrated in medical students' hospital admission notes. *Teach Learn Med.* 2015;27(2):163-173. doi: 10.1080/10401334.2015.1011654.

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

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EPA 6 Toolkit: Provide an Oral Presentation of a Clinical Encounter

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/
- 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 6: Provide an Oral Presentation of a Clinical Encounter

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

EPA 6

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.

Key Functions with Related Competencies	Behaviors Requiring Corrective Response	→ Developing Behaviors → (Learner may be at different levels within a row.)		Expected Behaviors for an Entrustable Learner
Present personally gathered and verified information, acknowledging areas of uncertainty **PC2 PBL1 PPD4 P1**	Fabricates information when unable to respond to questions Reacts defensively when queried	Gathers evidence incompletely or exhaustively Fails to verify information Does not obtain sensitive information	Acknowledges gaps in knowledge, adjusts to feedback, and then obtains additional information	Presents personally verified and accurate information, even when sensitive Acknowledges gaps in knowledge, reflects on areas of uncertainty, and seeks additional information to clarify or refine presentation
Provide an accurate, concise, well-organized oral presentation **ICS2 PC6**	Presents in a disorganized and incoherent fashion	Delivers a presentation that is not concise or that wanders Presents a story that is imprecise because of omitted or extraneous information	Delivers a presentation organized around the chief concern When asked, can identify pertinent positives and negatives that support hypothesis Supports management plans with limited information	Filters, synthesizes, and prioritizes information into a concise and well-organized presentation Integrates pertinent positives and negatives to support hypothesis Provides sound arguments to support the plan
Adjust the oral presentation to meet the needs of the receiver **ICS1 ICS2 PBL1 PPD7**	Presents information in a manner that frightens family	Follows a template Uses acronyms and medical jargon Projects too much or too little confidence	When prompted, can adjust presentation in length and complexity to match situation and receiver of information	Tailors length and complexity of presentation to situation and receiver of information Conveys appropriate self-assurance to put patient and family at ease
Demonstrate respect for patient's privacy and autonomy **P3 P1 PPD4**	Disregards patient's privacy and autonomy	Lacks situational awareness when presenting sensitive patient information Does not engage patients and families in discussions of care	Incorporates patient's preferences and privacy needs	Respects patients' privacy and confidentiality by demonstrating situational awareness when discussing patients Engages in shared decision making by actively soliciting patient's preferences

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?	Corresponding excerpt from **original Chen** entrustment scale (Chen et al 2015)
1b. "Watch me do this."	1b. Not allowed to practice EPA; allowed to observe
2a. "Let's do this together."	2a. Allowed to practice EPA only under proactive, full supervision as coactivity with supervisor
2b. "I'll watch you."	2b. Allowed to practice EPA only under proactive, full supervision with supervisor in room ready to step in as needed
3a. "You go ahead, and I'll double-check all of your findings."	3a. Allowed to practice EPA only under reactive/on-demand supervision with supervisor immediately available, all findings double-checked
3b. "You go ahead, and I'll double-check key findings."	3b. Allowed to practice EPA only under reactive/on demand supervision with supervisor immediately available, key findings double-checked

Modified Ottawa scale: In supervising this student, how much did you participate in the task?	**Original Ottawa scale** (Rekman et al 2016)
1. "I did it." Student required complete guidance or was unprepared; I had to do most of the work myself.	1. "I had to do." (i.e., requires complete hands-on guidance, did not do, or was not given the opportunity to do)
2. "I talked them through it." Student was able to perform some tasks but required repeated directions.	2. "I had to talk them through." (i.e., able to perform tasks but requires constant direction)
3. "I directed them from time to time." Student demonstrated some independence and only required intermittent prompting.	3. "I had to prompt them from time to time." (i.e., demonstrates some independence, but requires intermittent direction)
4. "I was available just in case." Student functioned fairly independently and only needed assistance with nuances or complex situations.	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)
5. (No level 5: Students are ineligible for complete independence in our systems.)	5. "I did not need to be there." (i.e., complete independence, understands risks and performs safely, practice ready)

Appendix 2: Resources Related to EPA 6

Assessment of Professional Behaviors (APB)
Fornari A, Akbar S, Tyler S. Critical synthesis package: assessment of professional behaviors (APB). MedEdPORTAL Publications. 2014;10:9902. dx.doi.org/10.15766/mep_2374-8265.9902.

UCSF Reflection Tool
Aronson L, Kruidering M, Niehaus B, O'Sullivan P. UCSF LEaP (learning from your experiences as a professional): guidelines for critical reflection. MedEdPORTAL Publications. 2012;8:9073. dx.doi.org/10.15766/mep_2374-8265.9073.

Reflective Ability Rubric and User Guide
O'Sullivan P, Aronson L, Chittenden E, Niehaus B, Learman L. Reflective ability rubric and user guide. MedEdPORTAL Publications. 2010;6:8133. dx.doi.org/10.15766/mep_2374-8265.8133.

Teaching Oral Presentation Skills to Second-Year Medical Students
Daniel M, Rougas S, Warrier S, et al. Teaching oral presentation skills to second-year medical students. MedEdPORTAL Publications. 2015;11:10017. dx.doi.org/10.15766/mep_2374-8265.10017.

Patient Presentation Rating Tool
Lewin L, Dolan S, Carraccio C. The patient presentation rating tool for oral case presentations. MedEdPORTAL Publications. 2014;10:9659. dx.doi.org/10.15766/mep_2374-8265.9659.

MAAS-Global Manual 2000
Lacy N. Critical synthesis package: MAAS-global. MedEdPORTAL Publications. 2015;11:10028. dx.doi.org/10.15766/mep_2374-8265.10028.

Communication Assessment Tool (CAT)
Ibrahim H. Critical synthesis package: communication assessment tool (CAT). MedEdPORTAL Publications. 2014;10:9806. dx.doi.org/10.15766/mep_2374-8265.9806.

Liverpool Communication Skills Assessment Scale (LCSAS)
Islam L, Dorflinger L. Critical synthesis package: Liverpool communication skills assessment scale (LCSAS). MedEdPORTAL Publications. 2015;11:10126. dx.doi.org/10.15766/mep_2374-8265.10126.

Communication Curriculum Package
Hofert S, Burke M, Balighian E, Serwint J. Improving provider-patient communication: a verbal and non-verbal communication skills curriculum. MedEdPORTAL Publications. 2015;11:10087. dx.doi.org/10.15766/mep_2374-8265.10087.

Professionalism Mini-Evaluation Exercise (P-MEX)
Gathright M. Critical synthesis package: professionalism mini-evaluation exercise (P-MEX). MedEdPORTAL Publications. 2014;10:9929. doi.org/10.15766/mep_2374-8265.9929.

Rochester Communication Rating Scale

Stalburg C. Critical synthesis package: Rochester communication rating scale. MedEdPORTAL Publications. 2015;11:9969. doi.org/10.15766/mep_2374-8265.9969.

Evidence in the Literature

Sox CM, Dell M, Phillipi CA, Cabral HJ, Vargas G, Lewin LO. Feedback on oral presentations during pediatric clerkships: a randomized controlled trial. *Pediatrics.* 2014;134(5):965-971. doi: 10.1542/peds.2014-1209.

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

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Englander R, Cameron T, Ballard AJ, Dodge J, Bull J, Aschenbrener CA. Toward a common taxonomy of competency domains for the health professions and competencies for physicians. *Acad Med.* 2013;88(8):1088-1094.

Englander R, Carraccio C. From theory to practice: making entrustable professional activities come to life in the context of milestones. *Acad Med.* 2014;89(10):1321-1323.

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Other Related Publications

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

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

EPA 7

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.

Key Functions with Related Competencies	Behaviors Requiring Corrective Response	→ Developing Behaviors → (Learner may be at different levels within a row.)		Expected Behaviors for an Entrustable Learner
Combine curiosity, objectivity, and scientific reasoning to develop a well-formed, focused, pertinent clinical question (ASK) **KP3 PBLI6 PBLI1 PBLI3**	Does not reconsider approach to a problem, ask for help, or seek new information	With prompting, translates information needs into clinical questions	Seeks assistance to translate information needs into well-formed clinical questions	Identifies limitations and gaps in personal knowledge Develops knowledge guided by well-formed clinical questions
Demonstrate awareness and skill in using information technology to access accurate and reliable medical information (ACQUIRE) **PBLI6 PBLI7**	Declines to use new information technologies	Uses vague or inappropriate search strategies, leading to an unmanageable volume of information	Employs different search engines and refines search strategies to improve efficiency of evidence retrieval	Identifies and uses available databases, search engines, and refined search strategies to acquire relevant information
Demonstrate skill in appraising sources, content, and applicability of evidence (APPRAISE) **PBLI6 KP3 KP4**	Refuses to consider gaps and limitations in the literature or apply published evidence to specific patient care	Accepts findings from clinical studies without critical appraisal With assistance, applies evidence to common medical conditions	Judges evidence quality from clinical studies Applies published evidence to common medical conditions	Uses levels of evidence to appraise literature and determines applicability of evidence Seeks guidance in understanding subtleties of evidence
Apply findings to individuals and/or patient panels; communicate findings to the patient and team, reflecting on process and outcomes (ADVISE) **ICS1 ICS2 PBLI1 PBLI8 PBLI9 PC7**	Does not discuss findings with team Does not determine or discuss outcomes and/or process, even with prompting	Communicates with rigid recitation of findings, using medical jargon or displaying personal biases Shows limited ability to connect outcomes to the process by which questions were identified and answered and findings were applied	Applies findings based on audience needs Acknowledges ambiguity of findings and manages personal bias Connects outcomes to process by which questions were identified and answered	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

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?	Corresponding excerpt from **original Chen** entrustment scale (Chen et al 2015)
1b. "Watch me do this."	1b. Not allowed to practice EPA; allowed to observe
2a. "Let's do this together."	2a. Allowed to practice EPA only under proactive, full supervision as coactivity with supervisor
2b. "I'll watch you."	2b. Allowed to practice EPA only under proactive, full supervision with supervisor in room ready to step in as needed
3a. "You go ahead, and I'll double-check all of your findings."	3a. Allowed to practice EPA only under reactive/on-demand supervision with supervisor immediately available, all findings double-checked
3b. "You go ahead, and I'll double-check key findings."	3b. Allowed to practice EPA only under reactive/on demand supervision with supervisor immediately available, key findings double-checked

Modified Ottawa scale: In supervising this student, how much did you participate in the task?	**Original Ottawa scale** (Rekman et al 2016)
1. "I did it." Student required complete guidance or was unprepared; I had to do most of the work myself.	1. "I had to do." (i.e., requires complete hands-on guidance, did not do, or was not given the opportunity to do)
2. "I talked them through it." Student was able to perform some tasks but required repeated directions.	2. "I had to talk them through." (i.e., able to perform tasks but requires constant direction)
3. "I directed them from time to time." Student demonstrated some independence and only required intermittent prompting.	3. "I had to prompt them from time to time." (i.e., demonstrates some independence, but requires intermittent direction)
4. "I was available just in case." Student functioned fairly independently and only needed assistance with nuances or complex situations.	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)
5. (No level 5: Students are ineligible for complete independence in our systems.)	5. "I did not need to be there." (i.e., complete independence, understands risks and performs safely, practice ready)

Appendix 2: Resources Related to EPA 7

A Longitudinal Medical School Evidence-Based Medicine Curriculum
West C, Jaeger T, McDonald F. A longitudinal medical school evidence-based medicine curriculum. MedEdPORTAL Publications. 2014;10:9827. doi.org/10.15766/mep_2374-8265.9827.

Making Evidence-Based Medicine Simple Series
Mojica M. The making evidence-based medicine simple series—meta-analysis module. MedEdPORTAL Publications. 2013;9:9479. doi.org/10.15766/mep_2374-8265.9479.

Search Assessment Tool for Ovid Medline
Sperr Jr. E. Critical synthesis package: University of Michigan search assessment tool for Ovid Medline (UMMSA). MedEdPORTAL Publications. 2014;10:9801. doi.org/10.15766/mep_2374-8265.9801.

UCSF Reflection Tool
Aronson L, Kruidering M, Niehaus B, O'Sullivan P. UCSF LEaP (learning from your experiences as a professional): guidelines for critical reflection. MedEdPORTAL Publications. 2012;8:9073. dx.doi.org/10.15766/mep_2374-8265.9073.

Reflective Ability Rubric and User Guide
O'Sullivan P, Aronson L, Chittenden E, Niehaus B, Learman L. Reflective ability rubric and user guide. MedEdPORTAL Publications. 2010;6:8133. dx.doi.org/10.15766/mep_2374-8265.8133.

Jefferson Scale of Physician Lifelong Learning
Novak M. Critical synthesis package: Jefferson scale of physician lifelong learning (JeffSPLL). MedEdPORTAL Publications. 2013;9:9493. doi.org/10.15766/mep_2374-8265.9493.

Evidence and Instruments in the Literature

Ramos K, Schafer S, Tracz S. Validation of the Fresno test of competence in evidence based medicine. *Br Med J.* 2003;326(7384):319-321. doi: 10.1136/bmj.326.7384.319.

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

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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

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

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

EPA 8

Give or receive a patient handover

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.

**** Functions are designated as "transmitter" or "transmitter and receiver."***

Key Functions with Related Competencies	Behaviors Requiring Corrective Response	→ Developing Behaviors → (Learner may be at different levels within a row.)		Expected Behaviors for an Entrustable Learner
Document and update an electronic handover tool and apply this to deliver a structured verbal handover **PBLI7 ICS2 ICS3 P3** ***Transmitter**	Inconsistently uses standardized format or uses alternative tool Provides information that is incomplete and/or includes multiple errors in patient information	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	Consistently updates electronic handover tool with mostly relevant information, applying a standardized template Adjusts patient information for context and audience May omit relevant information or present irrelevant information	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
Conduct handover using communication strategies known to minimize threats to transition of care **ICS2 ICS3** ***Transmitter**	Is frequently distracted Carries out handover with inappropriate timing and context	Requires assistance to minimize interruptions and distractions Demonstrates minimal situational awareness	Requires assistance with time management Focuses on own handover tasks with some awareness of other's needs	Avoids interruptions and distractions Manages time effectively Demonstrates situational awareness
Provide succinct verbal communication conveying illness severity, situational awareness, action planning, and contingency planning **ICS2 PC8** ***Transmitter**	Communication lacks all key components of standardized handover	Inconsistently communicates key components of the standardized tool Does not provide action plan and contingency plan	Identifies illness severity Provides incomplete action list and contingency planning Creates a contingency plan that lacks clarity	Highlights illness severity accurately Provides complete action plans and appropriate contingency plans
Give or elicit feedback about handover communication and ensure closed-loop communication **PBLI5 ICS2 ICS3** ***Transmitter and Receiver**	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	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	Accepts feedback and adjusts Summary statements are too elaborate Inconsistently uses repeat-back technique	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
Demonstrate respect for patient's privacy and confidentiality **P3** ***Transmitter and Receiver**	Is unaware of HIPAA policies Breaches patient confidentiality and privacy	Is aware of HIPAA policies	Is cognizant of and attempts to minimize breaches in privacy and confidentiality	Consistently considers patient privacy and confidentiality Highlights and respects patient's preferences

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?	Corresponding excerpt from **original Chen** entrustment scale (Chen et al 2015)
1b. "Watch me do this."	1b. Not allowed to practice EPA; allowed to observe
2a. "Let's do this together."	2a. Allowed to practice EPA only under proactive, full supervision as coactivity with supervisor
2b. "I'll watch you."	2b. Allowed to practice EPA only under proactive, full supervision with supervisor in room ready to step in as needed
3a. "You go ahead, and I'll double-check all of your findings."	3a. Allowed to practice EPA only under reactive/on-demand supervision with supervisor immediately available, all findings double-checked
3b. "You go ahead, and I'll double-check key findings."	3b. Allowed to practice EPA only under reactive/on demand supervision with supervisor immediately available, key findings double-checked

Modified Ottawa scale: In supervising this student, how much did you participate in the task?	**Original Ottawa scale** (Rekman et al 2016)
1. "I did it." Student required complete guidance or was unprepared; I had to do most of the work myself.	1. "I had to do." (i.e., requires complete hands-on guidance, did not do, or was not given the opportunity to do)
2. "I talked them through it." Student was able to perform some tasks but required repeated directions.	2. "I had to talk them through." (i.e., able to perform tasks but requires constant direction)
3. "I directed them from time to time." Student demonstrated some independence and only required intermittent prompting.	3. "I had to prompt them from time to time." (i.e., demonstrates some independence, but requires intermittent direction)
4. "I was available just in case." Student functioned fairly independently and only needed assistance with nuances or complex situations.	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)
5. (No level 5: Students are ineligible for complete independence in our systems.)	5. "I did not need to be there." (i.e., complete independence, understands risks and performs safely, practice ready)

Appendix 2: Resources Related to EPA 8

I-PASS Handoff Curriculum: Campaign Toolkit
Rosenbluth G, Patel S, Destino L, et al. I-PASS handoff curriculum: campaign toolkit. MedEdPORTAL Publications. 2013;9:9397. doi.org/10.15766/mep_2374-8265.9397.

Clinical Teamwork Scale
Zadinsky J. Critical synthesis package: clinical teamwork scale. MedEdPORTAL Publications. 2014;10:9919. doi.org/10.15766/mep_2374-8265.9919.

Assessment of Professional Behaviors (APB)
Fornari A, Akbar S, Tyler S. Critical synthesis package: assessment of professional behaviors (APB). MedEdPORTAL Publications. 2014;10:9902. dx.doi.org/10.15766/mep_2374-8265.9902.

Professionalism Mini-Evaluation Exercise (P-MEX)
Gathright M. Critical synthesis package: professionalism mini-evaluation exercise (P-MEX). MedEdPORTAL Publications. 2014;10:9929. doi.org/10.15766/mep_2374-8265.9929.

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

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

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.

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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 9: Collaborate as a Member of an Interprofessional Team

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

EPA 9

Collaborate as a member of an interprofessional team

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	Behaviors Requiring Corrective Response	→ Developing Behaviors → (Learner may be at different levels within a row.)		Expected Behaviors for an Entrustable Learner
Identify team members' roles and responsibilities and seek help from other members of the team to optimize health care delivery **IPC2 SBP2 ICS3**	Does not acknowledge other members of the interdisciplinary team as important Displays little initiative to interact with team members	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	Interacts with other team members, seeks their counsel, actively listens to their recommendations, and incorporates these recommendations into practice	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
Include team members, listen attentively, and adjust communication content and style to align with team-member needs **ICS2/IPC3 IPC1 ICS7 P1**	Dismisses input from professionals other than physicians	Communication is largely unidirectional, in response to prompts, or template driven Has limited participation in team discussion	Listens actively and elicits ideas and opinions from other team members	Communicates bidirectionally; keeps team members informed and up to date Tailors communication strategy to the situation
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**	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	Is typically a more passive member of the team Prioritizes own goals over those of the team	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

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?	Corresponding excerpt from **original Chen** entrustment scale (Chen et al 2015)
1b. "Watch me do this."	1b. Not allowed to practice EPA; allowed to observe
2a. "Let's do this together."	2a. Allowed to practice EPA only under proactive, full supervision as coactivity with supervisor
2b. "I'll watch you."	2b. Allowed to practice EPA only under proactive, full supervision with supervisor in room ready to step in as needed
3a. "You go ahead, and I'll double-check all of your findings."	3a. Allowed to practice EPA only under reactive/on-demand supervision with supervisor immediately available, all findings double-checked
3b. "You go ahead, and I'll double-check key findings."	3b. Allowed to practice EPA only under reactive/on demand supervision with supervisor immediately available, key findings double-checked

Modified Ottawa scale: In supervising this student, how much did you participate in the task?	**Original Ottawa scale** (Rekman et al 2016)
1. "I did it." Student required complete guidance or was unprepared; I had to do most of the work myself.	1. "I had to do." (i.e., requires complete hands-on guidance, did not do, or was not given the opportunity to do)
2. "I talked them through it." Student was able to perform some tasks but required repeated directions.	2. "I had to talk them through." (i.e., able to perform tasks but requires constant direction)
3. "I directed them from time to time." Student demonstrated some independence and only required intermittent prompting.	3. "I had to prompt them from time to time." (i.e., demonstrates some independence, but requires intermittent direction)
4. "I was available just in case." Student functioned fairly independently and only needed assistance with nuances or complex situations.	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)
5. (No level 5: Students are ineligible for complete independence in our systems.)	5. "I did not need to be there." (i.e., complete independence, understands risks and performs safely, practice ready)

Appendix 2: Resources Related to EPA 9

Clinical Teamwork Scale
Zadinsky J. Critical synthesis package: clinical teamwork scale. MedEdPORTAL Publications. 2014;10:9919. doi.org/10.15766/mep_2374-8265.9919.

Preparing Students for Collaborative Practice
Collins L, Ankam N, Antony R, et al. Preparing students for collaborative practice: an overview of the 2012 Jefferson health mentors program. MedEdPORTAL Publications. 2013;9:9312. doi.org/10.15766/mep_2374-8265.9312.

MAAS-Global Manual 2000
Lacy N. Critical synthesis package: MAAS-global. MedEdPORTAL Publications. 2015;11:10028. dx.doi.org/10.15766/mep_2374-8265.10028.

Communication Curriculum Package
Hofert S, Burke M, Balighian E, Serwint J. Improving provider-patient communication: a verbal and non-verbal communication skills curriculum. MedEdPORTAL Publications. 2015;11:10087. dx.doi.org/10.15766/mep_2374-8265.10087.

Professionalism Mini-Evaluation Exercise (P-MEX)
Gathright M. Critical synthesis package: professionalism mini-evaluation exercise (P-MEX). MedEdPORTAL Publications. 2014;10:9929. doi.org/10.15766/mep_2374-8265.9929.

Rochester Communication Rating Scale
Stalburg C. Critical synthesis package: Rochester communication rating scale. MedEdPORTAL Publications. 2015;11:9969. doi.org/10.15766/mep_2374-8265.9969.

Evidence and Instruments from the Literature

Oates M, Davidson M. A critical appraisal of instruments to measure outcomes of interprofessional education. *Med Educ.* 2015;49(4):386-398. doi: 10.1111/medu.12681.

The Teamwork Mini-Clinical Evaluation Exercise (T-MEX)
Olupeliyawa AM, O'Sullivan AJ, Hughes C, Balasooriya CD. The teamwork mini-clinical evaluation exercise (T-MEX): a workplace-based assessment focusing on collaborative competencies in health care. *Acad Med.* 2014;89(2):359-365. doi: 10.1097/acm.0000000000000115. (Note: This tool is being considered by EPAC.)

ICAR Tool (Link)
Curran V, Hollett A, Casimiro LM, et al. Development and validation of the interprofessional collaborator assessment rubric (ICAR). *J Interprof Care*. 2011;25(5);339-344. doi: 10.3109/13561820.2011.589542.

ICCAS Tool (Link)
Archibald D, Trumpower D, MacDonald CJ. Validation of the interprofessional collaborative competency attainment survey (ICCAS). *J Interprof Care.* 2014;28(6):553-558. doi: 10.3109/13561820.2014.917407.

Readiness for Interprofessional Learning Scale (RIPLS Link)

Mahler C, Rochon J, Karstens S, Szecsenyi J, Hermann, K. Internal consistency of the readiness for interprofessional learning scale in German health care students and professionals. *BMC Med Educ.* 2014;14. doi: 10.1186/1472-6920-14-145.

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

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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.

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.

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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.

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

- Chest pain
- Mental status change
- Shortness of breath and hypoxemia
- Fever
- Hypotension or hypertension
- Tachycardia or arrhythmia
- Oliguria, anuria, or urinary retention
- Electrolyte abnormalities
- Hypoglycemia or hyperglycemia

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

EPA 10

Recognize urgent or emergent situation

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	Behaviors Requiring Corrective Response	→ Developing Behaviors → (Learner may be at different levels within a row.)		Expected Behaviors for an Entrustable Learner
Recognize normal and abnormal vital signs as they relate to patient- and disease-specific factors as potential etiologies of a patient's decompensation PC2 PC4 PC5	Fails to recognize trends or variations of vital signs in a decompensating patient	Demonstrates limited ability to gather, filter, prioritize, and connect pieces of information to form a patient-specific differential diagnosis in an urgent or emergent setting	Recognizes outliers or unexpected results or data and seeks out an explanation	Recognizes variations of patient's vital signs based on patient- and disease-specific factors Gathers, filters, and prioritizes information related to a patient's decompensation in an urgent or emergent setting
Recognize severity of a patient's illness and indications for escalating care and initiate interventions and management PC4 PC3 PC2 PC5 PC6 PPD1	Does not recognize change in patient's clinical status or seek help when a patient requires urgent or emergent care	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	Recognizes concerning clinical symptoms or unexpected results or data Asks for help	Responds to early clinical deterioration and seeks timely help Prioritizes patients who need immediate care and initiates critical interventions
Initiate and participate in a code response and apply basic and advanced life support PC1 PPD1 SBP2 IPC4	Responds to a decompensated patient in a manner that detracts from or harms team's ability to intervene	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	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
Upon recognition of a patient's deterioration, communicate situation, clarify patient's goals of care, and update family members ICS2 ICS6 PPD1	Dismisses concerns of team members (nurses, family members, etc.) about patient deterioration Disregards patient's goals of care or code status	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	Tailors communication and message to the audience, purpose, and context in most situations Actively listens and encourages idea sharing from the team (including patient and family) Confirms goals of care	Communicates bidirectionally with the health care team and family about goals of care and treatment plan while keeping them up to date Actively listens to and elicits feedback from team members (e.g., patient, nurses, family members) regarding concerns about patient deterioration to determine next steps

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?	Corresponding excerpt from **original Chen** entrustment scale (Chen et al 2015)
1b. "Watch me do this."	1b. Not allowed to practice EPA; allowed to observe
2a. "Let's do this together."	2a. Allowed to practice EPA only under proactive, full supervision as coactivity with supervisor
2b. "I'll watch you."	2b. Allowed to practice EPA only under proactive, full supervision with supervisor in room ready to step in as needed
3a. "You go ahead, and I'll double-check all of your findings."	3a. Allowed to practice EPA only under reactive/on-demand supervision with supervisor immediately available, all findings double-checked
3b. "You go ahead, and I'll double-check key findings."	3b. Allowed to practice EPA only under reactive/on demand supervision with supervisor immediately available, key findings double-checked

Modified Ottawa scale: In supervising this student, how much did you participate in the task?	**Original Ottawa scale** (Rekman et al 2016)
1. "I did it." Student required complete guidance or was unprepared; I had to do most of the work myself.	1. "I had to do." (i.e., requires complete hands-on guidance, did not do, or was not given the opportunity to do)
2. "I talked them through it." Student was able to perform some tasks but required repeated directions.	2. "I had to talk them through." (i.e., able to perform tasks but requires constant direction)
3. "I directed them from time to time." Student demonstrated some independence and only required intermittent prompting.	3. "I had to prompt them from time to time." (i.e., demonstrates some independence, but requires intermittent direction)
4. "I was available just in case." Student functioned fairly independently and only needed assistance with nuances or complex situations.	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)
5. (No level 5: Students are ineligible for complete independence in our systems.)	5. "I did not need to be there." (i.e., complete independence, understands risks and performs safely, practice ready)

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)
Uchida T, Heiman H. Critical synthesis package: hypothesis-driven physical examination (HDPE). MedEdPORTAL Publications. 2013;9:9435. doi.org/10.15766/mep_2374-8265.9435.

Script Concordance Testing (SCT)
Russell J. Critical synthesis package: script concordance testing (SCT). MedEdPORTAL Publications. 2013;9:9492. doi.org/10.15766/mep_2374-8265.9492.

Professionalism Mini-Evaluation Exercise (P-MEX)
Gathright M. Critical synthesis package: professionalism mini-evaluation exercise (P-MEX). MedEdPORTAL Publications. 2014;10:9929. doi.org/10.15766/mep_2374-8265.9929.

MAAS-Global Manual 2000
Lacy N. Critical synthesis package: MAAS-global. MedEdPORTAL Publications. 2015;11:10028. dx.doi.org/10.15766/mep_2374-8265.10028.

Reflective Ability Rubric
O'Sullivan P, Aronson L, Chittenden E, Niehaus B, Learman L. Reflective ability rubric and user guide. MedEdPORTAL Publications. 2010;6:8133. doi.org/10.15766/mep_2374-8265.8133.

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Pusic, MV, Brydges R, Kessler D, Szyld D, Nachbar M, Kalet A. What's your best time? Chronometry in the learning of medical procedures. *Med Educ.* 2014;48(5):479-488. doi: 10.1111/medu.12395.

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

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

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).

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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 11: Obtain Informed Consent for Tests and/or Procedures

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.

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

EPA 11

Obtain informed consent

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	Behaviors Requiring Corrective Response	→ Developing Behaviors → (Learner may be at different levels within a row.)		Expected Behaviors for an Entrustable Learner
Describe the key elements of informed consent: indications, contraindications, risks, benefits, alternatives, and potential complications of the intervention **PC6 KP3 KP4 KP5 P6**	Lacks basic knowledge of the intervention Provides inaccurate or misleading information Hands the patient a form and requests a signature	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	Lacks specifics when providing key elements of informed consent Lacks specifics or requires prompting	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
Communicate with the patient and family to ensure that they understand the intervention **PC7 ICS1 ICS7 PC5**	Uses language that frightens patient and family Disregards emotional cues Regards interpreters as unhelpful or inefficient	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	Notices use of jargon and self-corrects Elicits patient's preferences by asking questions Recognizes emotional cues Enlists interpreters	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
Display an appropriate balance of confidence and skill to put the patient and family at ease, seeking help when needed **PPD1 PPD7 PPD8**	Displays overconfidence and takes actions that can have a negative effect on outcomes	Displays a lack of confidence that increases patient stress or discomfort, or overconfidence that erodes trust Asks questions Accepts help	Has difficulty articulating personal limitations such that patient and family will need reassurance from a senior colleague Asks for help	Demonstrates confidence commensurate with knowledge and skill so that patient and family are at ease Seeks timely help

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?	Corresponding excerpt from **original Chen** entrustment scale (Chen et al 2015)
1b. "Watch me do this."	1b. Not allowed to practice EPA; allowed to observe
2a. "Let's do this together."	2a. Allowed to practice EPA only under proactive, full supervision as coactivity with supervisor
2b. "I'll watch you."	2b. Allowed to practice EPA only under proactive, full supervision with supervisor in room ready to step in as needed
3a. "You go ahead, and I'll double-check all of your findings."	3a. Allowed to practice EPA only under reactive/on-demand supervision with supervisor immediately available, all findings double-checked
3b. "You go ahead, and I'll double-check key findings."	3b. Allowed to practice EPA only under reactive/on demand supervision with supervisor immediately available, key findings double-checked

Modified Ottawa scale: In supervising this student, how much did you participate in the task?	**Original Ottawa scale** (Rekman et al 2016)
1. "I did it." Student required complete guidance or was unprepared; I had to do most of the work myself.	1. "I had to do." (i.e., requires complete hands-on guidance, did not do, or was not given the opportunity to do)
2. "I talked them through it." Student was able to perform some tasks but required repeated directions.	2. "I had to talk them through." (i.e., able to perform tasks but requires constant direction)
3. "I directed them from time to time." Student demonstrated some independence and only required intermittent prompting.	3. "I had to prompt them from time to time." (i.e., demonstrates some independence, but requires intermittent direction)
4. "I was available just in case." Student functioned fairly independently and only needed assistance with nuances or complex situations.	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)
5. (No level 5: Students are ineligible for complete independence in our systems.)	5. "I did not need to be there." (i.e., complete independence, understands risks and performs safely, practice ready)

Appendix 2: Resources Related to EPA 11

Shared Decision-Making (SDM) Toolkit: Train the Trainer
Mincer S, Adeogba S, Bransford R, et al. Shared decision-making (SDM) toolkit: train-the-trainer tools for teaching SDM in the classroom and clinic. MedEdPORTAL Publications. 2013;9:9413. doi.org/10.15766/mep_2374-8265.9413.

MAAS-Global Manual 2000
Lacy N. Critical synthesis package: MAAS-global. MedEdPORTAL Publications. 2015;11:10028. dx.doi.org/10.15766/mep_2374-8265.10028.

Communication Assessment Tool (CAT)
Ibrahim H. Critical synthesis package: communication assessment tool (CAT). MedEdPORTAL Publications. 2014;10:9806. dx.doi.org/10.15766/mep_2374-8265.9806.

Liverpool Communication Skills Assessment Scale (LCSAS)
Islam L, Dorflinger L. Critical synthesis package: Liverpool communication skills assessment scale (LCSAS). MedEdPORTAL Publications. 2015;11:10126. dx.doi.org/10.15766/mep_2374-8265.10126.

Communication Curriculum Package
Hofert S, Burke M, Balighian E, Serwint J. Improving provider-patient communication: a verbal and non-verbal communication skills curriculum. MedEdPORTAL Publications. 2015;11:10087. dx.doi.org/10.15766/mep_2374-8265.10087.

Professionalism Mini-Evaluation Exercise (P-MEX)
Gathright M. Critical synthesis package: professionalism mini-evaluation exercise (P-MEX). MedEdPORTAL Publications. 2014;10:9929. doi.org/10.15766/mep_2374-8265.9929.

Rochester Communication Rating Scale
Stalburg C. Critical synthesis package: Rochester communication rating scale. MedEdPORTAL Publications. 2015;11:9969. doi.org/10.15766/mep_2374-8265.9969.

Evidence and Instruments in the Literature

Decision Boxes (Link)
Giguere AMC, Labrecque M, Légaré F, et al. Feasibility of a randomized controlled trial to evaluate the impact of decision boxes on shared decision-making processes. *BMC Med Inform Decis Mak.* 2015;15. doi: 10.1186/s12911-015-0134-x.

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

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EPA 12 Toolkit: Perform General Procedures of a Physician

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?

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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.

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EPA 12: Perform General Procedures of a Physician

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

EPA 12

Perform general procedures of a physician

- Basic cardiopulmonary resuscitation (CPR)
- Bag-mask ventilation (BMC)
- Sterile technique
- Venipuncture
- Insertion of an intravenous line
- Placement of a Foley catheter

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	Behaviors Requiring Corrective Response	→ Developing Behaviors → (Learner may be at different levels within a row.)		Expected Behaviors for an Entrustable Learner
Demonstrate technical skills required for the procedure **PC1**	Lacks required technical skills Fails to follow sterile technique when indicated	Technical skills are variably applied Completes the procedure unreliably Uses universal precautions and aseptic technique inconsistently	Approaches procedures as mechanical tasks to be performed and often initiated at the request of others Struggles to adapt approach when indicated	Demonstrates necessary preparation for performance of procedures Correctly performs procedure on multiple occasions over time Uses universal precautions and aseptic technique consistently
Understand and explain the anatomy, physiology, indications, contraindications, risks, benefits, alternatives, and potential complications of the procedure **PC1**	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	Describes most of these key issues in performing procedures: indications, contraindications, risks, benefits, and alternatives Demonstrates knowledge of common procedural complications but struggles to mitigate them	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
Communicate with the patient and family to ensure they understand pre- and post-procedural activities **PC7 ICS6 P6**	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	Conversations are respectful and generally free of jargon and elicit patient's and family's wishes When focused on the task during the procedure, may struggle to read emotional response from the patient	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
Demonstrate confidence that puts patients and families at ease **PPD7 PPD1**	Displays overconfidence and takes actions that could endanger patients or providers	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	Asks for help with complications	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.

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?	Corresponding excerpt from **original Chen** entrustment scale (Chen et al 2015)
1b. "Watch me do this."	1b. Not allowed to practice EPA; allowed to observe
2a. "Let's do this together."	2a. Allowed to practice EPA only under proactive, full supervision as coactivity with supervisor
2b. "I'll watch you."	2b. Allowed to practice EPA only under proactive, full supervision with supervisor in room ready to step in as needed
3a. "You go ahead, and I'll double-check all of your findings."	3a. Allowed to practice EPA only under reactive/on-demand supervision with supervisor immediately available, all findings double-checked
3b. "You go ahead, and I'll double-check key findings."	3b. Allowed to practice EPA only under reactive/on demand supervision with supervisor immediately available, key findings double-checked

Modified Ottawa scale: In supervising this student, how much did you participate in the task?	**Original Ottawa scale** (Rekman et al 2016)
1. "I did it." Student required complete guidance or was unprepared; I had to do most of the work myself.	1. "I had to do." (i.e., requires complete hands-on guidance, did not do, or was not given the opportunity to do)
2. "I talked them through it." Student was able to perform some tasks but required repeated directions.	2. "I had to talk them through." (i.e., able to perform tasks but requires constant direction)
3. "I directed them from time to time." Student demonstrated some independence and only required intermittent prompting.	3. "I had to prompt them from time to time." (i.e., demonstrates some independence, but requires intermittent direction)
4. "I was available just in case." Student functioned fairly independently and only needed assistance with nuances or complex situations.	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)
5. (No level 5: Students are ineligible for complete independence in our systems.)	5. "I did not need to be there." (i.e., complete independence, understands risks and performs safely, practice ready)

Appendix 2: Resources Related to EPA 12

Shared Decision-Making (SDM) Toolkit: Train the Trainer
Mincer S, Adeogba S, Bransford R, et al. Shared decision-making (SDM) toolkit: train-the-trainer tools for teaching SDM in the classroom and clinic. MedEdPORTAL Publications. 2013;9:9413. doi.org/10.15766/mep_2374-8265.9413.

MAAS-Global Manual 2000
Lacy N. Critical synthesis package: MAAS-global. MedEdPORTAL Publications. 2015;11:10028. dx.doi.org/10.15766/mep_2374-8265.10028.

Communication Assessment Tool (CAT)
Ibrahim H. Critical synthesis package: communication assessment tool (CAT). MedEdPORTAL Publications. 2014;10:9806. dx.doi.org/10.15766/mep_2374-8265.9806.

Liverpool Communication Skills Assessment Scale (LCSAS)
Islam L, Dorflinger L. Critical synthesis package: Liverpool communication skills assessment scale (LCSAS). MedEdPORTAL Publications. 2015;11:10126. dx.doi.org/10.15766/mep_2374-8265.10126.

Communication Curriculum Package
Hofert S, Burke M, Balighian E, Serwint J. Improving provider-patient communication: a verbal and non-verbal communication skills curriculum. MedEdPORTAL Publications. 2015;11:10087. dx.doi.org/10.15766/mep_2374-8265.10087.

Professionalism Mini-Evaluation Exercise (P-MEX)
Gathright M. Critical synthesis package: professionalism mini-evaluation exercise (P-MEX). MedEdPORTAL Publications. 2014;10:9929. doi.org/10.15766/mep_2374-8265.9929.

Rochester Communication Rating Scale
Stalburg C. Critical synthesis package: Rochester communication rating scale. MedEdPORTAL Publications. 2015;11:9969. doi.org/10.15766/mep_2374-8265.9969.

Evidence and Instruments in the Literature

Pusic MV, Brydges R, Kessler D, Szyld D, Nachbar M, Kalet A. What's your best time? Chronometry in the learning of medical procedures. *Med Educ.* 2014;48(5):479-488. doi: 10.1111/medu.12395.

Sawyer T, White M, Zaveri P. et al. Learn, see, practice, prove, do, maintain: an evidence-based pedagogical framework for procedural skill training in medicine. *Acad Med.* 2015;90(8):1025-1033. doi: 10.1097/ACM.0000000000000734.

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

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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 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 13: Identify System Failures and Contribute to a Culture of Safety

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

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.

Key Functions with Related Competencies	Behaviors Requiring Corrective Response	→ Developing Behaviors → (Learner may be at different levels within a row.)		Expected Behaviors for an Entrustable Learner
Identify and report actual and potential ("near miss") errors in care using system reporting structure (e.g., event reporting systems, chain of command policies) **KP1 ICS2 P4 PPD5**	Reports errors in a disrespectful or misleading manner	Superficial understanding prevents recognition of real or potential errors	Identifies and reports actual and potential errors Demonstrates structured approach to describing key elements of patient safety concerns	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
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) **PBLI4 PBLI10**	Displays frustration at system improvement efforts	Passively observes system improvement activities in the context of rotations or learning experiences	Participates in system improvement activities when prompted but may require others to point out system failures	Actively engages in efforts to identify systems issues and their solutions
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) **SBP4**	Places self or others at risk of injury or adverse event	Requires prompts for common safety behaviors	Demonstrates common safety behaviors	Engages in daily safety habits with only rare lapses
Admit one's own errors, reflect on one's contribution, and develop an individual improvement plan **P4 SBP5**	Avoids discussing or reporting errors; attempts to cover up errors Demonstrates defensiveness or places blame	Requires prompts to reflect on own errors and their underlying factors May not recognize own fatigue or may be afraid to tell supervisor when fatigued	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 Recognizes causes of lapses, such as fatigue, and modifies behavior or seeks help

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?	Corresponding excerpt from **original Chen** entrustment scale (Chen et al 2015)
1b. "Watch me do this."	1b. Not allowed to practice EPA; allowed to observe
2a. "Let's do this together."	2a. Allowed to practice EPA only under proactive, full supervision as coactivity with supervisor
2b. "I'll watch you."	2b. Allowed to practice EPA only under proactive, full supervision with supervisor in room ready to step in as needed
3a. "You go ahead, and I'll double-check all of your findings."	3a. Allowed to practice EPA only under reactive/on-demand supervision with supervisor immediately available, all findings double-checked
3b. "You go ahead, and I'll double-check key findings."	3b. Allowed to practice EPA only under reactive/on demand supervision with supervisor immediately available, key findings double-checked

Modified Ottawa scale: In supervising this student, how much did you participate in the task?	**Original Ottawa scale** (Rekman et al 2016)
1. "I did it." Student required complete guidance or was unprepared; I had to do most of the work myself.	1. "I had to do." (i.e., requires complete hands-on guidance, did not do, or was not given the opportunity to do)
2. "I talked them through it." Student was able to perform some tasks but required repeated directions.	2. "I had to talk them through." (i.e., able to perform tasks but requires constant direction)
3. "I directed them from time to time." Student demonstrated some independence and only required intermittent prompting.	3. "I had to prompt them from time to time." (i.e., demonstrates some independence, but requires intermittent direction)
4. "I was available just in case." Student functioned fairly independently and only needed assistance with nuances or complex situations.	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)
5. (No level 5: Students are ineligible for complete independence in our systems.)	5. "I did not need to be there." (i.e., complete independence, understands risks and performs safely, practice ready)

Appendix 2: Resources Related to EPA 13

Quality Improvement Curriculum for the Inpatient Setting
Tad-y D, Price L, Cumbler E, Levin D, Wald H, Glasheen J. An experiential quality improvement curriculum for the inpatient setting–part 1: design phase of a QI project. MedEdPORTAL Publications. 2014;10:9841. doi.org/10.15766/mep_2374-8265.9841.

Clinical Evaluation Report Rating (CCERR)
Rougas S. Critical synthesis package: completed clinical evaluation report rating (CCERR). MedEdPORTAL Publications. 2014;10:9772. doi.org/10.15766/mep_2374-8265.9772.

Hospital Survey on Patient Safety Culture
Miller K, Wagner L. Critical synthesis package: hospital survey on patient safety culture (HSOPS). MedEdPORTAL Publications. 2015;11:10075. doi.org/10.15766/mep_2374-8265.10075.

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
- Q1 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)
Gathright M. Critical synthesis package: professionalism mini-evaluation exercise (P-MEX). MedEdPORTAL Publications. 2014;10:9929. doi.org/10.15766/mep_2374-8265.9929.

Evidence and Instruments in the Literature

Barber K, Schultz K, Scott A, Pollock E, Kotecha J, Martin D. Teaching quality improvement in graduate medical education: An experiential and team-based approach to the acquisition of quality improvement competencies. *Acad Med.* 2015;90(10):1363-1367. doi: 10.1097/ACM.0000000000000851.

QIKAT-R
Singh MK, Ogrinc G, Cox KR, et al. The quality improvement knowledge application tool revised (QIKAT-R). *Acad Med.* 2014;89(10):1386-1391. doi: 10.1097/acm.0000000000000456. (Note: EPAC uses QIKAT.)

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

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