



The Value of Competencies, Milestones, and Entrustable Professional Activities in Learner Assessment

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Learning Objectives

- Review the current state of Graduate Medical Education
- Describe the contributions of the Milestone Project to advancing competency-based education
- Explain the relationship between competencies/milestones and Entrustable Professional Activities (EPAs)
- Discuss the value of EPAs in learner assessment



Setting the Stage

➤ ACGME Competencies

- Shifted the educational paradigm to focus on outcomes
- Expanded to domains beyond patient care & knowledge
- BUT the competencies present challenges based on abstract language & complexity of assessment



The Milestone Project

- Spearheaded by ACGME in partnership with member boards of ABMS
- Charge
 - Refine the competencies in the context of the specialty
 - Set performance standards for GME
 - Identify or develop tools for assessment of performance



Pediatrics Milestone Project

- Adds critical competencies not explicit in original ACGME competencies
- Describes each competency in terms of behaviors along a developmental continuum from **novice** to **master**
- Provides brief narratives of behaviors that build on the one that came before



The Pediatric Milestones

- 4-5 milestones or performance levels for each competency
- Each milestone provides specific behavioral expectations that form the substrate of formative feedback – “*Assessment as the teachable moment*” (*Friedman Ben David*)
- The series of milestones for each competency serve as a learning roadmap



The Product

A series of milestones for each
of the 51 competencies



A Joint Initiative of
the Accreditation Council for Graduate Medical Education
and
the American Board of Pediatrics





Experiencing the Milestones

- Current state of assessment tools versus the milestones: A head-to-head match-up





Global Rating: Patient Care

(Modified from ABIM Rating Scale)

- Incomplete, inaccurate medical interviews, physical exams, and review of other data; incompetent performance of essential procedures; fails to analyze clinical data and consider patient preferences when making medical decisions

0 =N/A
1-3= Unsatisfactory
4 =Marginal
5-6= Satisfactory
7-9=Superior

- Incomplete, illogical, superficial

- Inept, careless, disregards risk and discomfort to patients

0	1	2	3	4	5	6	7	8	9
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- Does not use information from technology or references to support patient care decisions and patient education

- Does not work effectively with other health care professionals

- Superb, accurate, comprehensive medical interviews, physical exams, review of data, and procedural skills; always makes diagnostic and therapeutic decisions based on available evidence, sound judgment, and patient preferences
- Logical, thorough and efficient
- Proficient, minimizes patients' discomfort
- Uses information technology and references to support patient care decisions and patient education
- Works effectively with other health care professionals

Trigger Encounter Video

An 18 month old child presents to
the Pediatric Emergency Department
with emesis and a first seizure

- Special thanks to Dan Schumacher and Brad Benson for the writing and producing of this video



Performance Assessment

For MS3? For PGY-2?

1. Unsatisfactory
2. Unsatisfactory
3. Unsatisfactory
4. Marginal
5. Satisfactory
6. Satisfactory
7. Superior
8. Superior
9. Superior



Example Competency: Patient Care Domain

- Competency: Make informed diagnostic and therapeutic decisions that result in optimal clinical judgment



“First Level” Milestone

- Recalls and **presents** clinical **facts** in the history and physical in the order they were elicited **without filtering, reorganization or synthesis**
- Provides a **non-prioritized list of all diagnostic considerations** rather than the development of working diagnostic considerations
- Has **difficulty** developing a **therapeutic plan**
- Summary: Recites the history and physical and then looks to supervisor for synthesis and plan



“Second Level” Milestone

- Focuses on features of the clinical presentation, making pattern recognition elusive and leading to a continual search for new diagnostic possibilities
- Reorganizes clinical facts in the history and physical exam to help decide on clarifying tests to order rather than to develop and prioritize a differential
- Suggests a myriad of tests and therapies and unclear management plans since there is no unifying diagnosis
- Summary: Jumps from information gathering to broad evaluation without a focused differential



“Third Level” Milestone

- Abstracts and reorganizes elicited clinical findings; compares and contrasts the diagnoses being considered when presenting or discussing the case.
- Presents a well synthesized and organized assessment of the focused differential diagnosis and management plan
- Summary: Synthesizes information to allow a working diagnosis and differential diagnosis that informs the evaluation and management plan



“Fourth Level” Milestone

- Reorganizes and stores clinical information leading to **early directed diagnostic hypothesis** testing with subsequent history, physical, and tests used to confirm this initial schema
- Able to **identify discriminating features between similar patients** and avoid premature closure
- Focuses therapies based on a **unifying diagnosis**, which results in an **effective and efficient diagnostic work-up and plan**
- Summary: Rapidly focuses on correct working and differential diagnosis, allowing for an efficient and accurate evaluation and management plan



Performance Assessment

➤ Milestone for MS3? For PGY-2?

- **Level 1:** Recites the history and physical and then looks to supervisor for synthesis and plan
- **Level 2:** Jumps from information gathering to broad evaluation without a focused differential
- **Level 3:** Synthesizes information to allow a working diagnosis and differential diagnosis that informs the evaluation and management plan
- **Level 4:** Rapidly focuses on correct working and differential diagnosis allowing for efficient and accurate evaluation and management plan



Reflections on the Exercise





Major Contribution to Assessment

- Shared mental model of performance
 - Work of Kogan et al reinforces this need for standardizing language

Kogan et al. Opening the black box of clinical skills assessment via observation:
a conceptual model. Med Ed 2011;45:1048- 1060.





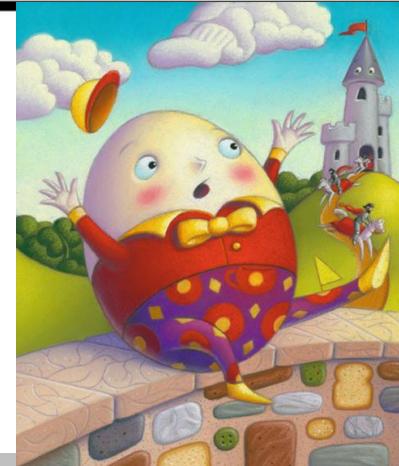
Assessment Challenges of Competencies & Milestones

- Context independent (e.g., *develop and carry out management plans*)
- Care delivery requires an integration of competencies but milestones describe individual competencies (e.g., *gather essential and accurate information + perform a complete physical exam + ...*)



Putting It All Back Together...EPAs

- Integrate the competencies
- Embed them in a clinical context



Entrustability of professional activities and competency-based training

Olli ten Cate

The idea of competency-based training (CBT) seems to have

fields other than medical education.^{4,5} The way in which we suc-

respect, supervise



Entrustable Professional Activities (EPAs)

- Routine work of practitioners
- In aggregate - represent the essential professional work that defines a discipline
- Lead to a recognized outcome
- Are observable and measurable
- Require integration of competencies across domains
- Map to competencies and their milestones



Example EPAs for Generalists

- Provide a medical home for well children of all ages
- Lead and work within interprofessional health care teams
- Facilitate the transition from pediatric to adult health care
- Provide care for a well newborn



EPA

- Entrustment refers to the ability to effectively perform a professional activity **without supervision**
- Brings trust and supervision into assessment which are intuitive for faculty working with trainees
- Entrustment decisions allow inference about a learner's competence



EPA Worksheet

Step 1. EPA Title	
Step 2. Description of the activity	
Step 3. Map to Competency Domains	<input type="checkbox"/> Patient Care <input type="checkbox"/> Medical Knowledge <input type="checkbox"/> Practice-Based learning and Improvement <input type="checkbox"/> Interpersonal & Communication Skills <input type="checkbox"/> Professionalism <input type="checkbox"/> Systems-Based Practice <input type="checkbox"/> Personal & Professional Development
Step 4. Map to Critical Competencies	
Step 5. Curriculum	Modified from the work of ten Cate



Step 1: EPA Title

- Apply quality improvement methods to improve care for a population of patients



Step 2: EPA Description/Functions

- Apply knowledge of population health (SBP)
- Function in an interdependent health care team (SBP)
- Collaborate with others to improve systems (SBP)
- Recognize one's professional responsibility to populations, communities and society at large (P)
- Utilize technology (e.g., patient registries and databases) (PBLI)
- Demonstrate adaptability in developing and implementing improvement plans (PPD/PBLI)
- Utilize risk/benefit and cost/benefit analysis (SBP)



Step 3: Judicious Mapping to Competency Domains

Patient Care

Medical Knowledge

Practice-Based Learning and Improvement

Interpersonal & Communication Skills

Professionalism

Systems-Based Practice

Personal & Professional Development



Step 4: Judicious Mapping to Competencies

- Practice-based Learning and Improvement
 - Systematically **analyze practice** using quality improvement methods, and implement changes with the goal of practice improvement
 - Use **information technology** to optimize learning and care delivery
- Professionalism
 - Develop a professional identify, including understanding, appreciation, and internalization of the **professional role** as it relates to patient, **community**, or specialty



Step 4: Judicious Mapping to Competencies

- Systems-based Practice
 - Incorporate considerations of cost awareness and risk-benefit analysis
 - Advocate for quality patient care and optimal patient care systems
 - Know how to advocate for the promotion of health and the prevention of disease and injury in populations

- Personal & Professional Development
 - Flexibility and maturity in adjusting to change with the capacity to alter one's own behaviors

EPA: Apply QI Methods to Improve Care for a Population of Patients	Milestone Series for a Given Competency		
Domains & Competencies	Milestone 1	Milestone 2	Milestone 3 ...etc
PBLI: -Analyze practice -Use information technology	Novice behaviors	Advanced beginner behaviors	Competent behaviors
Prof: - Professional role related to patient, community, specialty			
SBP: -Advocate for quality systems -Advocate for health promotion			
PPD: -Flexibility & maturity in adjusting to change			



Step 5: Curriculum Example

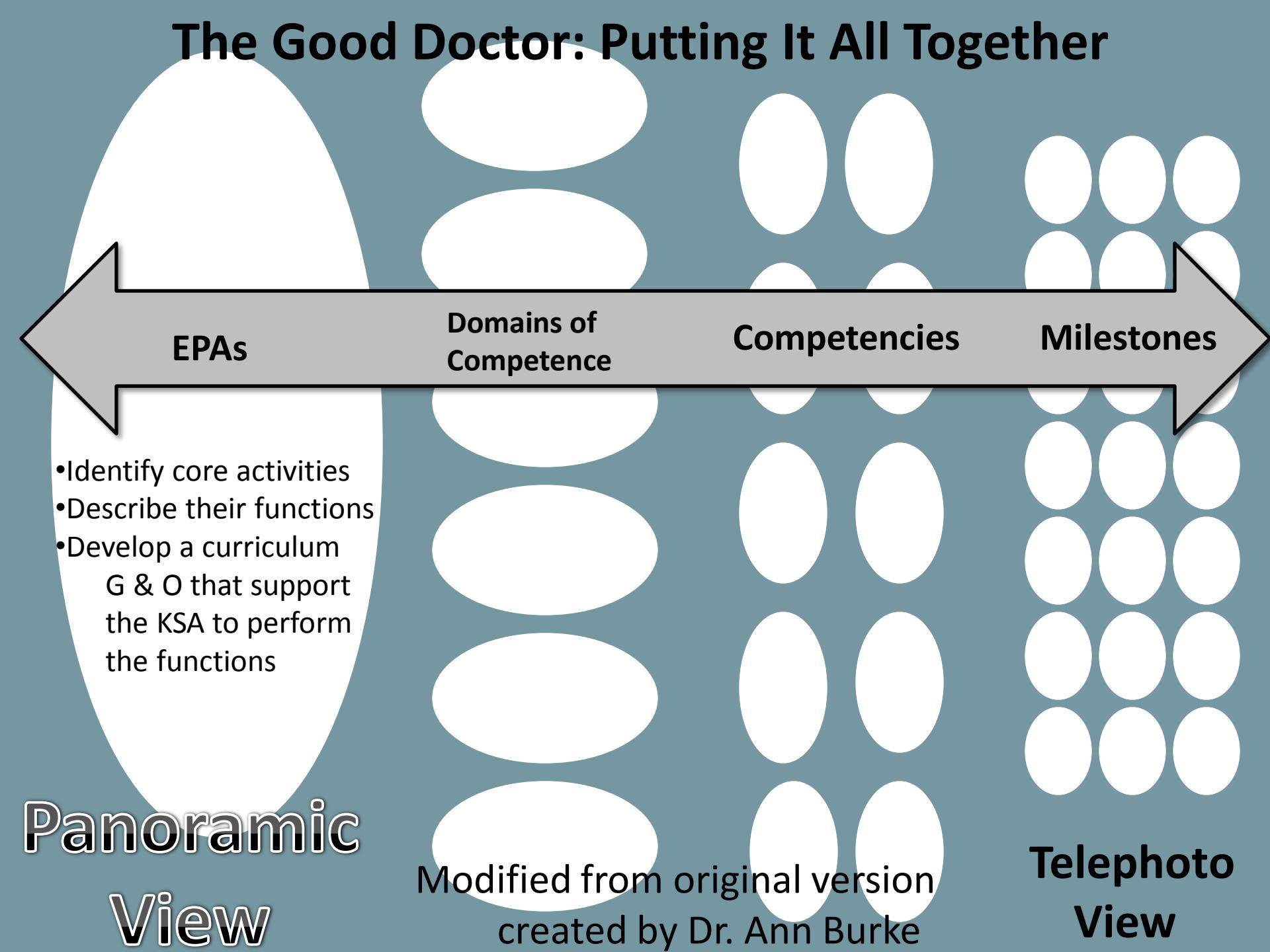
- List **specific knowledge, skills** and attitudes that are needed
- Example: EPA “Use QI methods to improve care for a population of patients”
 - If desired outcome of MOC is use of patient registries for continuous quality improvement of practice then
 - GME should include a continuity clinic registry with ongoing quality improvement activities for the clinic team
 - If residents are expected to use a registry to improve care quality for their panel of clinic patients then
 - UME should address the knowledge base of improvement science and apply it in the world of UME



Milestones + EPAs: Both Are Critical for Assessment

- Competencies & Milestones: A Granular Approach (Telephoto)
 - Assess how well a learner can accomplish some small part of a professional activity (e.g., a complete and accurate physical examination of a newborn)
- EPAs (integration of competencies): A Holistic Approach (Panoramic)
 - Integrate competencies within a clinical context and assess clusters of behaviors that allow one to carry out a professional activity (e.g., provide care for a well newborn)
 - Map to competencies & milestones

The Good Doctor: Putting It All Together



Modified from original version
created by Dr. Ann Burke