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

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Vice President for Competency-based Assessment
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
A series of milestones for each of the 51 competencies
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

- Incomplete, illogical, superficial

- Inept, careless, disregards risk and discomfort to patients

- 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

0 = N/A
1 - 3 = Unsatisfactory
4 = Marginal
5 - 6 = Satisfactory
7 - 9 = Superior
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
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
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
Shared mental model of performance

- Work of Kogan et al reinforces this need for standardizing language

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

Olle ten Cate

The idea of competency-based training (CBT) seems to have evolved in medical education with respect to other fields other than medical education. The way in which we succeed in defining competencies, supervision, and evaluation is crucial.
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
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.
<table>
<thead>
<tr>
<th>Step 1. EPA Title</th>
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<tbody>
<tr>
<td>Step 2. Description of the activity</td>
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| Step 3. Map to Competency Domains | ___Patient Care  
___Medical Knowledge  
___Practice-Based learning and Improvement  
___Interpersonal & Communication Skills  
___Professionalism  
___Systems-Based Practice  
___Personal & Professional Development |
| Step 4. Map to Critical Competencies |  |
| Step 5. Curriculum | Modified from the work of ten Cate |
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

###Domains & Competencies

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<thead>
<tr>
<th>PBLI:</th>
<th>Milestone 1</th>
<th>Milestone 2</th>
<th>Milestone 3</th>
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<tbody>
<tr>
<td>Analyze practice</td>
<td>Novice behaviors</td>
<td>Advanced beginner behaviors</td>
<td>Competent behaviors</td>
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<td>Use information technology</td>
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<td>Professional role related to patient, community, specialty</td>
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<tr>
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<tr>
<td>Advocate for quality systems</td>
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<td>Advocate for health promotion</td>
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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

Domains of Competence

- Identify core activities
- Describe their functions
- Develop a curriculum G & O that support the KSA to perform the functions

Competencies

Milestones

Modified from original version created by Dr. Ann Burke