Competency-based Medical Education
The Basics

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Agenda

- CBME basics
  - Definitions
- Frameworks and outcomes
  - Where we are/where we need to be
- The role of milestones and entrustment in the assessment and evaluation of competence

Competency

An observable ability of a health professional, integrating multiple components such as knowledge, skills, values and attitudes.

The International CBME Collaborators, 2009

Competent

Possessing the required abilities in all domains in a certain context at a defined stage of medical education or practice.

The International CBME Collaborators, 2009

Competence

Competence entails more than the possession of knowledge, skills and attitudes; it requires you … to apply these [abilities] in the clinical environment to achieve optimal results.

ten Cate, Med Teach, 2010

What does competency-based medical education mean to you?
Competency-Based Medical Education

- is an outcomes-based approach to the design, implementation, assessment and evaluation of a medical education program using an organizing framework of competencies

The International CMBE Collaborators 2009

The Framework

ACGME General Competencies

- Medical knowledge
- Patient care and procedural skills
- Interpersonal and communication skills
- Practice-based learning and improvement
- Systems-based practice
- Professionalism

Who determines the outcome?

- The Profession?
- The Public?
- Policy Makers?

The Outcome

- The Profession?
  - The “core” of medicine?
  - Competence in the CanMED or ACGME general competencies?
  - Safe and effective patient care?
- The Public?
  - Trust that a doctor is competent to do what he or she does?
- Policy Makers?
  - Meeting the needs of the complex and aging population?

The IOM Outcome - High Quality Care

- Timely - Reducing waits and harmful delays
- Efficient - Avoiding waste
- Equitable - Providing care that does not vary in quality because of personal characteristics
- Safe - Avoiding injuries from care
- Effective - Providing services based on scientific knowledge to all who could benefit; refraining from providing services to those not likely to benefit
- Patient centered - Providing care that is respectful of and responsive to individual patient preferences, needs, and values


Crossing the Quality Chasm: A New Health System for the 21st Century 2001
An Institutional Question?

Are trainees in your institution achieving the competency required for unsupervised practice that includes the delivery of safe, timely, equitable, effective and patient-centered care?

“So how do you know?”

Individual Physician Readiness – The Gaps

Office-based Practice Competencies
- Inter-Professional team skills
- Clinical IT Meaningful Use skills
- Population management skills
- Reflective practice and CQI skills
- Care Coordination
- Continuity of Care
- Leadership and management skills
- Systems thinking
- Procedural Skills

Calls for Reform in Medical Education
- Standardize learning outcomes
- Individualize learning while allowing flexibility and the opportunity to progress as learners achieve competency milestones
- Establish rigorous and progressively higher levels of competency across the continuum of medical education
- Develop a coherent framework for the continuum of medical education and establish effective mechanisms to coordinate standards

Physician Skills for the Next Generation
- Leadership training/Emotional intelligence
- Systems theory and analysis
- Cross disciplinary training/multi-disciplinary teams
- Understanding and respecting the skills of other practitioners
- Population health management/health policy and regulation
- Palliative care/end-of-life
- Resource management/medical economics
- Less “captain of the ship”/more member/leader of the team
- Empathy/customer service
- Time/conflict management
- Giving formative feedback
- Understanding cultural and economic diversity

Competency-based training - A New Paradigm

You must specifically know the trainee has demonstrated competence and is ready to progress to the next stage of their training or career:
- Requires clear definition of expected outcomes or competencies (milestones)
- Requires assessment and evaluation systems capable of demonstrating that these things are done consistently and within the contextual needs of the clinical environment (work-based assessment using EPAs)
**The Transition to Competency**

*Fixed length, variable outcome*

**Structure/Process**
- Knowledge acquisition
- Single subjective measure
- Norm referenced evaluation
- Evaluation setting removed
- Emphasis on summative

**Competency Based Education**

*Variable length, defined outcome*

**Competency Based**
- Knowledge application
- Multiple objective measures
- Criterion referenced
- Evaluation setting: DO
- Emphasis on formative

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**Milestones**

- By definition a milestone is a significant point in development.
- Milestones should enable the trainee, program and the certification board to know an individual’s trajectory of competency acquisition.
- The milestones define the floor of competence but do not eliminate the need for aspirational goals!

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**The Curricular IM Milestones**

- 142 milestones organized by competency and competency sub-divisions
- Framed in behavioral terms (Competence is observed in practice!) that define knowledge, skills, attitudes and behaviors
- Linked with potential assessment tools
- Published in 2009

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**Patient Care**

<table>
<thead>
<tr>
<th>ACGME Competency</th>
<th>Developmental Milestones Interrelating ACGME Competencies</th>
<th>Approximate Time Frame to Achieve Stage</th>
<th>Assessment Methods/Tools</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT</td>
<td><strong>Clinical skills and reasoning</strong></td>
<td>Manage patients using clinical skills of physical examination</td>
<td>6 months</td>
</tr>
<tr>
<td>CT</td>
<td><strong>Historical Data Gathering</strong></td>
<td>Acquire accurate and relevant history from the patient in an efficiently customized, prioritized, and hypothesis driven fashion</td>
<td>9 months</td>
</tr>
<tr>
<td>CT</td>
<td></td>
<td>Seek and obtain appropriate, verified, and prioritized data from secondary sources (e.g., family, records, pharmacy)</td>
<td></td>
</tr>
<tr>
<td>CT</td>
<td></td>
<td>Obtain relevant historical subtleties that inform and prioritize both differential diagnoses and diagnostic plans, including sensitive, complicated, and detailed information that may not often be volunteered by the patient</td>
<td></td>
</tr>
</tbody>
</table>

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*“However, this agreement [the competencies] has not resulted in operationalizing outcomes in the evaluation of residents and fellows or in the accreditation of programs. Clearly, if we are to move forward, two events must take place ……… First, we must agree on the ‘milestones’ of Competency development in each discipline. Second, we must agree on and implement common evaluation tools in each discipline to document our residents’ achievement of these milestones.”* Nasca T.J., ACGME Bulletin, May 2008
**Milestones and Trajectories**

*Figure: Milestone trajectories showing progression from PGY1 to PGY3 with milestones.*

**Milestones Benefits**
- Provide the learner with a clear path of progression
  - There are no surprises
- Allow for rich formative feedback. Learners know where they are and where they need to go
- Define specific behaviors that can focus assessment

**Milestones Criticisms**
- Milestones are reductionistic
- Checking off a milestones list does not equal competent practice in a highly complex health care environment
- There are 142 curricular milestones Programs can not assess them all
  - Even over three years!

**Milestone Challenges**
- Utilize the milestones to develop meaningful assessment and evaluation.
  - Generate data that enables attestation of competence in what is needed for unsupervised practice.
  - What the public and the profession trust physicians are capable of doing
- Evolve the milestones to be more manageable.

**Next Accreditation Milestones**
- 23 milestones streams (sub-competencies) within the six ACGME general competencies
- Define stages of development (informed by assessment data) that provide the framework for making judgment/attestation of competence
- Developed using the original 142 curricular milestones
- Will be published this December
**Entrustment/Entrustable Professional Activities (EPAs)**

- Ensure that assessment and evaluation document competence in those activities that are important —
  - that define the profession and that meet desired training outcomes!

**The M&M principal**

**The M & M Principle**

Meaningful and Manageable

**Entrustable Professional Activities**

- EPAs represent the routine professional-life activities of physicians based on their specialty and subspecialty
- The concept of “entrustable” means:
  - “a practitioner has demonstrated the necessary knowledge, skills and attitudes to be trusted to independently perform this activity.”


**An Entrustable Professional Activity**

- Part of essential work for a qualified professional
- Requires specific knowledge, skill, attitude
- Acquired through training
- Leads to recognized output
- Observable and measureable, leading to a conclusion
- Reflects the competencies expected
- EPA’s together constitute the core of the profession

*Ten Cate et al. Acad Med 2007*

**“Entrustment in Medical Education”**

- Focused assessments around what faculty and training programs already “entrust” trainees to do?
- Reflects the most important outcome of training: a trainee’s readiness to bear professional responsibility
- Reflect a developmental process of entrustment across the continuum that ultimately demonstrates competency in an EPA!
  - Appropriate entrustment across the continuum (think Dreyfus!)*
Lets watch a video.

What has this resident been entrusted to do?
If this were your institution, are you confident that you can attest to the resident’s competence?

How are these entrustments taught, assessed and evaluated in your home institution?
- Informed consent
- Procedural competency
- Teamwork
- Breaking bad news

Dreyfus and Dreyfus Model

Progression Varies by Trainee/Context

What is Needed by the Patient

A Foot In Two Worlds
- Developmental Learning
- Safe and Effective Care

Dreyfus SE and Dreyfus HL. A 1980
Carraccio CL et al. Acad Med 2008;83:761-7

Time, Practice, Experience

Kogan
The Outcome of High Quality Care

- Importance of appropriate supervision
- Entrustment

Trainee performance* X Appropriate level of supervision**

Must = Safe, effective patient-centered care

* a function of level of competence in context
** a function of attending competence in context

Kogan, Iobst and Holmboe

AAIM End of Training EPAs

1. Manage care of patients with acute common diseases across multiple care settings.
2. Manage care of patients with acute complex diseases across multiple care settings.
3. Manage care of patients with chronic diseases across multiple care settings.
4. Provide age-appropriate screening and preventative care.
5. Resuscitate, stabilize, and care for unstable or critically ill patients.
7. Provide general internal medicine consultation to nonmedical specialties.
8. Manage transitions of care.
10. Lead and work within inter-professional health care teams.
11. Facilitate the learning of patients, families, and members of the inter-disciplinary team.
13. Improve the quality of health care at both the individual and systems level.
14. Advocate for individual patients.
15. Demonstrate personal habits of lifelong learning.
16. Demonstrate professional behavior.

Assessment vs. Evaluation

- Assessment - The process of generating data (regarding competent vs. not competent)

  Competent - Possessing the required abilities in all domains in a certain context at a defined stage of medical education or practice.
  (curricular milestones and EPAs)

- Evaluation - The process of making a judgment or attestation of competence based upon assessment data.

  Competence - entails more than the possession of knowledge, skills and attitudes; it requires you apply these [abilities] in the clinical environment to achieve optimal results.
  (The NAS milestones)
The “System”

- Residents
- Assessments within Program: Direct observations, Audit and performance data, Multi-source FB, Simulation, ITExam
- Faculty, Peds, and others
- Curricular Milestone and EPAs as Guiding Framework and Blueprint

Institution and Program

Judgment and Synthesis: Committee

Accreditation: ACGME/RRC

Program Aggregation

NAS Milestone ABIM Facilit

No Aggregation

Certification: ABIM

Thank You