Leveraging Competency-based Medical Education to Maximize Individual Outcomes
Disclosures

- Employed by the ACGME
- I receive royalties from Mosby-Elsevier for a textbook on assessment
- I am a member of the board of NBME and Medbiquitous
Outline

- Overview of competency-based education
- Brief review of several key learning theories underpinning CBME
- Implications for the individual learner
CBME: Start with System Needs

What Are The Ultimate Outcomes?

- A competent (at a minimum) practitioner aligned with:
  - CMS Triple Aim

**Health of a Population**

- **Experience of Care**
  - Safe
  - Effective
  - Patient centered
  - Efficient
  - Timely
  - Equitable

**Per Capita Cost**

---

**The IHI Triple Aim**

Better care for individuals, better health for populations, lower per capita costs
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 unit of progression is mastery of specific knowledge, skills and attitudes

Key Learning Theories and CBME: A Brief Sample
Experiential Learning: David Kolb

Concrete experience (1)

Testing in new situations (4)

Kolb’s Experiential Learning Cycle

Observation and reflection (2)

Forming abstract concepts (3)
Socio-cultural Theory: Key Principles

- Subject matter and learning processes not uniform: diverse as the people
- Learning highly influenced by social milieu
- Learning situated within context where it occurs
  - Subject matter, content and process inseparable

Deliberate Practice

Ericsson & Lehmann, 1996:
- “Individualized training activities especially designed by a coach or teacher to improve specific aspects of an individual's performance through repetition and successive refinement.
  - To receive maximal benefit from feedback, individuals have to monitor their training with full concentration, which is effortful and limits the duration of daily training.”
Dreyfus & Dreyfus Development Model

- Novice
- Advanced Beginner
- Competent
- Proficient
- Expert/Master

Time, Practice, Experience

Dreyfus SE and Dreyfus HL. 1980
Carraccio CL et al. Acad Med 2008;83:761-7
Getting to Better Outcomes…

…thru Assessment Systems, Milestones and Entrustable Professional Activities
The Assessment System in the U.S.

Assessments within Program:
- Direct observations
- Audit and performance data
- Multi-source FB
- Simulation
- ITExam

Residents

Judgment and Synthesis: Committee

Faculty, PDs and others

Milestones and EPAs as Guiding Framework and Blueprint

Institution and Program

Unit of Analysis: Program

Accreditation

Certification and Credentialing

Unit of Analysis: Individual

Work-based assessment

Residents

Certification and Credentialing
Learners in a CBME Program

- Learners must be *active agents* in a CBME program
- Implications:
  - Learners need to co-create and co-produce their own learning, including assessment
    - Self-directed assessment seeking
    - Informed self-assessment
  - Learners must be *partners* in designing their educational experiences

Holmboe ES, Batalden PB. Achieving the Desired Transformation: Thoughts on Next Steps for Outcomes-based Medical Education. Acad Med. 2015; in press
Getting to Better Outcomes…

…How Can We Help and Assist Both Learners and Training Programs?
Milestones

- By definition a milestone is a significant point in development.
- Milestones should enable the learner and training program to know an individual’s trajectory of competency development.
Defining Competency Based Education

Observable & Assessed

Defined outcome Competence

Frank JR et al. Med Teach. 2010;32:631-7
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 perform this activity [*unsupervised*].”\(^1\)

## Shared Mental Models and Frameworks

<table>
<thead>
<tr>
<th>Competency</th>
<th>Milestones</th>
<th>EPA in Training</th>
<th>EPA in Practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical Knowledge</td>
<td>MK¹</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>MK²</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patient Care</td>
<td>PC¹</td>
<td>“Lead” a care team</td>
<td>Lead &amp; work within IP health care teams.</td>
</tr>
<tr>
<td></td>
<td>PC²</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Professionalism</td>
<td>Prof¹</td>
<td>Care for patients with chronic illness with indirect supervision</td>
<td>Manage care of patients with chronic diseases</td>
</tr>
<tr>
<td></td>
<td>Prof²</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interpersonal Skills</td>
<td>ISC¹</td>
<td>Participate in QI and pt. safety initiatives</td>
<td>Enhance patient safety. Improve quality of health care</td>
</tr>
<tr>
<td></td>
<td>ISC²</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Systems-based Practice</td>
<td>SBP¹</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>SBP²</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Practice-based learning</td>
<td>PBLI¹</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PBLI²</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Milestones and EPAs as Roadmap

Observations:
1) Journey not a straight line
2) More than one path (but not infinite)
3) “If you don’t know where you are going, any road will get you there”
Thank You

Questions and Discussion

eholmboe@acgme.org