The State of Milestones

An Update
The Ultimate Goal of CBME

Quadruple Aim

- Better Outcomes
- Improved Clinician Experience
- Lower Costs
- Improved Patient Experience

High Functioning CLE

Curriculum

Competencies (Abilities)

Educational Outcomes (Milestones)

Assessment
A Brief Look Back…
## U.S. Competency Journey: Phase 1

<table>
<thead>
<tr>
<th>Dates</th>
<th>Event/Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>1997</td>
<td>ACGME begins work on developing competencies</td>
</tr>
<tr>
<td>February, 1999</td>
<td>Six general competency framework approved</td>
</tr>
<tr>
<td>2001</td>
<td>Launch of Outcomes Project</td>
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</tbody>
</table>
### General Competencies

#### Patient Care and Procedural Skills

- Implementation, however, of an Outcomes-based approach was hard and confusing
- Educators struggled to understand how competencies translated into curriculum and assessments.
- Educators and faculty lacked a shared mental model

#### Systems-based Practice
Milestones

- By definition a milestone is simply a significant point in development.
- Competencies can be described in terms of stages, or narrative milestones.
- Milestones should enable the learner and training program to know an individual’s trajectory of professional development.
Key Educational Science Informing Milestones

- Stage models of development (e.g. Dreyfus)
- Deliberate practice
- Learning curves
- Mastery-based learning
- Competency-based education
CBME: An Evidenced Informed Approach

### Core Components

| Competencies required for practice are clearly articulated. | Competencies are arranged progressively. | Learning experiences facilitate progressive development. | Teaching practices promote the progressive development. | Assessment practices support & document the progressive development. |

### Key Educational Frameworks, Models and Theories

- Social Accountability
- Outcome-based Learning
- Backwards Design
- Novice to Expert
- EPAs
- Surface & Deep Approaches to Learning
- Situated Learning
- Deliberate Practice
- Self-regulated Learning
- Zone of Proximal Dev’t
- Constructive Friction
- Learner Centered
- Cognitive Apprenticeship
- Programmatic Assessment
- Formative Assessment

Van Melle E. Queens University
Learning Curves and Developmental Models

Current Experience
Cardiovascular Data

3. Patient Care - Manages patients with progressive responsibility and independence. (PC3)

4. Patient Care - Demonstrates skill in performing and interpreting invasive procedures. (PC4a)

Note: 1 of 2,917 residents have a status of "Not Yet Assessable" and are not included in the analysis.
Cardiovascular Data

21. Professionalism - Exhibits integrity and ethical behavior in professional conduct. (PROF4)

22. Interpersonal and Communication Skills - Communicates effectively with patients and caregivers. (ICS1)

Note: 1 of 2,917 residents have a status of "Not Yet Assessable" and are not included in the analysis.
Resident-Level Trajectories of Milestones Ratings

PC03: Manages patients with progressive responsibility and independence
Results – EM Wound Management

Milestones trajectories for residents who attained Level 4 and those who did not

- n = 1066 (80%)
- n = 270 (20%)

N = 1336
### PPV Matrix: EM Example

<table>
<thead>
<tr>
<th>Emergency Stabilization</th>
<th>1st year</th>
<th>2nd year</th>
<th>3rd year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cut-offs: Levels</td>
<td>Mid-Year 1</td>
<td>Year-End 1</td>
<td>Mid-Year 2</td>
</tr>
<tr>
<td>&lt;= Lev5.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;= Lev4.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;= Lev4.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;= Lev3.5</td>
<td></td>
<td>17.5</td>
<td>16.3</td>
</tr>
<tr>
<td>&lt;= Lev3.0</td>
<td>17.3</td>
<td>17.4</td>
<td>18.8</td>
</tr>
<tr>
<td>&lt;= Lev2.5</td>
<td>17.4</td>
<td>18.4</td>
<td>26.2</td>
</tr>
<tr>
<td>&lt;= Lev2.0</td>
<td>18.5</td>
<td>22.8</td>
<td>39.5</td>
</tr>
<tr>
<td>&lt;= Lev1.5</td>
<td>22.4</td>
<td>32.9</td>
<td>48.5</td>
</tr>
<tr>
<td>&lt;= Lev1.0</td>
<td>27.8</td>
<td>38.1</td>
<td></td>
</tr>
<tr>
<td>= Lev0.0</td>
<td>25.2</td>
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</table>

% Not Achieving Level 4 At Graduation
If You See These Patterns…

Simply ask “why?”

Is further assessment (i.e. educational diagnosis) or clarification needed?

Could such a realization help guide an individualized learning plan? Need for a formal remediation plan?

The purpose of Milestones analytics is to facilitate professional growth and improvement
What Works for the Learner

- Introduction and/or review of Milestones at beginning of every academic year
- Self assessment on Milestones prior to CCC
- In-person conversation with advisor to compare/contrast self-assessment with judgments of CCC
- Completion of written learning plan

*Cannot overemphasize the importance of involving the learner!*
Where to Next:
Milestones 2.0
Milestones 2.0

- Process already underway
  - Amazing amount of interest from Cardiology community in participating (thank you!)
  - Will be specialty specific (esp. PC and MK)
- Supplemental Guide for 2.0 sets
What will be changing?

1. Ensure enough breath of subcompetencies
2. Provide enough specificity for understanding
3. Limit the number of rows to 3
4. Each row must be a complete developmental process
What will be changing?

5. Asking each specialty to use the subcompetencies from the harmonized Milestones

6. Moving to “positive” language, including aspirational level

7. Supplemental Guide
## Supplemental Guide

<table>
<thead>
<tr>
<th>Systems-Based Practice 1</th>
<th>Patient Safety and Quality Improvement (QI)</th>
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</thead>
<tbody>
<tr>
<td><strong>Overall Intent</strong></td>
<td>To engage in the analysis and management of patient safety events, including relevant communication with patients, families, and healthcare professionals; to conduct a QI project</td>
</tr>
<tr>
<td><strong>Level 1 Examples</strong></td>
<td>• Has basic knowledge of patient safety events, reporting pathways, and QI strategies, but has not yet participated in such activities</td>
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<tr>
<td><strong>Level 2 Examples</strong></td>
<td>• Identifies and reports a patient safety issue (real or simulated), along with system factors contributing to that issue</td>
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<td></td>
<td>• Is aware of improvement initiatives within their scope of practice</td>
</tr>
<tr>
<td><strong>Level 3 Examples</strong></td>
<td>• Reviews a patient safety event (e.g., preparing for morbidity and mortality presentations, joining a Root Cause Analysis group) and has communicated with patients/families about such an event</td>
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<tr>
<td></td>
<td>• Participates in a QI project, though they may not have yet designed a QI project</td>
</tr>
<tr>
<td><strong>Level 4 Examples</strong></td>
<td>• Collaborates with a team to lead the analysis of a patient safety event and can competently communicate with patients/families about those events</td>
</tr>
<tr>
<td></td>
<td>• Initiates and completes a QI project, including communication with stakeholders</td>
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<td><strong>Level 5 Examples</strong></td>
<td>• Competently assumes a leadership role at the departmental or institutional level for patient safety and/or QI initiatives, possibly even being the person to initiate action or call attention to the need for action</td>
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<table>
<thead>
<tr>
<th>Assessment Models or Tools</th>
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<tbody>
<tr>
<td></td>
<td>• Simulation</td>
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<tr>
<td></td>
<td>• Reflection</td>
</tr>
<tr>
<td></td>
<td>• Direct observation at bedside or in meetings</td>
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<td></td>
<td>• E-module multiple choice tests</td>
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<tr>
<td></td>
<td>• Chart or other system documentation by fellow</td>
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<tr>
<td></td>
<td>• Documentation of QI or patient safety project processes or outcomes</td>
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<tr>
<td></td>
<td>• 360-degree evaluations</td>
</tr>
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<td></td>
<td>• Portfolio</td>
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| Notes or Resources         | Institute of Healthcare Improvement website ([http://www.ihi.org/Pages/default.aspx](http://www.ihi.org/Pages/default.aspx)) which includes multiple choice tests, reflective writing samples, and more |

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Resources

Are you aware of the Milestones resources available from ACGME?

Resident-Fellow Guidebook for Milestones?

Annual Milestones National Report?

Faculty Development in Assessment?
Thank you.