Milestones Update

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Laura Edgar
Disclosures

Eric Holmboe works for the ACGME and receives royalties from Elsevier for a textbook.
Outline

- Milestones 2.0 Development
- Milestones Research
- Milestones Resources
“Good Learning for Good Patient Care”

- Described the development of the General Competencies
- Concentrate on developmental progression of residents/fellows
- Reduce micromanagement of process
- “Chaordic,” have the field show the way

Batalden, P, Leach, D, Swing, S, Dreyfus, H, Dreyfus, S. General Competencies and Accreditation in Graduate Medical Education. Health Affairs 21(5):103-111. 2002.
Milestones 2.0 and CBME
Learning Curves and Milestones

What Changed?

Uneven developmental “threads”

Medical Knowledge 3: Knowledge of Diagnostic Testing

<table>
<thead>
<tr>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
<th>Level 4</th>
<th>Level 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explains the rationale, risks, and benefits for common diagnostic testing</td>
<td>Explains the rationale, risks, and benefits for complex diagnostic testing</td>
<td>Integrates value and test characteristics of various diagnostic strategies in patients with common diseases</td>
<td>Integrates value and test characteristics of various diagnostic strategies in patients with comorbid conditions or multisystem disease</td>
<td>Demonstrates a nuanced understanding of emerging diagnostic tests and procedures</td>
</tr>
<tr>
<td>Interprets results of common diagnostic tests</td>
<td>Interprets complex diagnostic data</td>
<td>Integrates complex diagnostic data accurately to reach high-probability diagnoses</td>
<td>Anticipates and accounts for limitations when interpreting diagnostic data</td>
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</table>

Comments:
# Supplemental Guide

## Practice-Based Learning and Improvement 1: Evidence-Based and Informed Practice

**Overall Intent:** To incorporate evidence and patient values and experiences into clinical practice

<table>
<thead>
<tr>
<th>Milestones</th>
<th>Examples</th>
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<tbody>
<tr>
<td><strong>Level 1</strong> Demonstrates how to access, categorize, and analyze clinical evidence</td>
<td>• Identifies evidence-based guidelines for osteoporosis screening at US Preventative Services Task Force website</td>
</tr>
<tr>
<td><strong>Level 2</strong> Articulates clinical questions and elicits patient preferences and values in order to guide evidence-based care</td>
<td>• In a patient with hyperlipidemia, identifies and discusses potential evidence-based treatment options, and solicits patient perspective</td>
</tr>
</tbody>
</table>
| **Level 3** Locates and applies the best available evidence, integrated with patient preference, to the care of complex patients | • Obtains, discusses, and applies evidence for the treatment of a patient with hyperlipidemia and co-existing diabetes and hypertension  
• Understands and appropriately uses clinical practice guidelines in making patient care decisions while eliciting patient preferences  
• Elicits patient’s prior experiences of racism within the healthcare system and uses it to inform conversations about diagnostic and treatment plans. |
| **Level 4** Critically appraises and applies evidence even in the face of uncertainty and conflicting evidence to guide care, tailored to the individual patient | • Accesses the primary literature to identify alternative treatments to bisphosphonates for osteoporosis |
| **Level 5** Coaches others to critically appraise and apply evidence to patient care | • Leads clinical teaching on application of best practices in critical appraisal of sepsis criteria |
Supplemental Guide

<table>
<thead>
<tr>
<th>Assessment Models or Tools</th>
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<tbody>
<tr>
<td>● Chart stimulated recall</td>
</tr>
<tr>
<td>● Direct observation</td>
</tr>
<tr>
<td>● Evaluation of a presentation</td>
</tr>
<tr>
<td>● Journal club and case-based discussion</td>
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<tr>
<td>● Multisource feedback</td>
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<tr>
<td>● Oral or written examination</td>
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<tr>
<td>● Portfolio</td>
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<td>● Simulation</td>
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<table>
<thead>
<tr>
<th>Curriculum Mapping</th>
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<tr>
<td>●</td>
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</table>

<table>
<thead>
<tr>
<th>Notes or Resources</th>
</tr>
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</table>
What are the Harmonized Milestones?

- Created by 4 interdisciplinary/interprofessional groups
- Thorough review of the literature
- Creation of a shared mental model of what is needed and expected of every physician across all levels (GME and CPD)
- Each specialty is asked to use and edit as needed

>90% of specialties have made minimal or no edits
Research & Evaluation at ACGME
The GME Assessment “System”

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

Qual/Quant “Data” Synthesis: Committee

DEVELOPMENTAL JUDGMENTS

Residents → FB

Faculty, PDs and others → FB

Accreditation
Certification and Credentialing

Unit of Analysis: Program

Unit of Analysis: Individual

Foci of ACGME Research

Outcomes

R: Residents

B: Faculty, PDs and others

D: Direct observations

P: Program

L: Audit and performance data

C: Multi-source FB

U: Simulation

I: ITExam

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Experiential Qualitative Studies

Early experiences with Milestones implementation

- Longitudinal experience of IM programs over first four cycles of reporting.
- Implementation experience with Milestones in neurosurgery.¹
  - Residents, PDs, and CCC chairs.
- Multi-specialty experiential study in EM, FM, IM, and Peds.²
  - Residents, PDs, and CCC chairs.
- Ethnography of CCC process and decision-making.

# Examples of Milestones Validity Studies

<table>
<thead>
<tr>
<th>Messick Category</th>
<th>Examples of Studies</th>
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</thead>
</table>
| **Content**          | • Multi-step process involved; each committee publishes on its Milestones  

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Studies of Bias in Milestone Judgments

- Multiple studies of gender bias published, in press, or in process:
  - Published or in press: internal medicine (none); emergency medicine (mixed small effects); general surgery (mixed small effects).
  - In process: pediatrics

- Race and ethnicity
  - Work being led by Dowin Boatright (Yale) and team
    - Finishing analysis in internal medicine (disrupted by pandemic)
    - Other specialties to follow
  - Re-starting work examining attrition from programs
Reliability and Analytics

- Exciting work in longitudinal reliability analyses and learning analytics
  - Yamazaki: unique factor analytic study of Ob/Gyn Milestones
    - 8-factor solution best fit (in press)
  - Park: first MedEd studies of growth curve and growth rate reliabilities (in press)
- Predictive probability values (PPVs)
  - Two studies published
  - Now available in Annual Milestones Data Report
Milestones trajectories for residents who attained Level 4 and those who did not

How much risk at this point in training?
<table>
<thead>
<tr>
<th>Subcompetency</th>
<th>Threshold</th>
<th>Yr1, Mid-Year</th>
<th>Yr1, Year-End</th>
<th>Yr2, Mid-Year</th>
<th>Yr2, Year-End</th>
<th>Yr3, Mid-Year</th>
<th>Yr3, Year-End</th>
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<tbody>
<tr>
<td>PC01</td>
<td>≤ Level 5.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>20.7</td>
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<tr>
<td></td>
<td>≤ Level 4.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>28.8</td>
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<tr>
<td></td>
<td>≤ Level 4.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>55.3</td>
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<tr>
<td></td>
<td>≤ Level 3.5</td>
<td>19.5</td>
<td>19.9</td>
<td>20.3</td>
<td>22.4</td>
<td></td>
<td>70.3</td>
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<tr>
<td></td>
<td>≤ Level 3.0</td>
<td>19.6</td>
<td>20.5</td>
<td>22.4</td>
<td>31.4</td>
<td></td>
<td>68.7</td>
</tr>
<tr>
<td></td>
<td>≤ Level 2.5</td>
<td>20.7</td>
<td>24.6</td>
<td>30.1</td>
<td>50.5</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>≤ Level 2.0</td>
<td>20.0</td>
<td>21.1</td>
<td>36.4</td>
<td>56.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>≤ Level 1.5</td>
<td>22.1</td>
<td>30.0</td>
<td>56.8</td>
<td>52.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>≤ Level 1.0</td>
<td>27.1</td>
<td>43.6</td>
<td>74.7</td>
<td></td>
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Milestone Resources
Milestone Resources

Milestones homepage
https://www.acgme.org/What-We-Do/Accreditation/Milestones/Overview

Milestones Annual Report 2021
milestonesnationalreportfinal093021.pdf (acgme.org)

Faculty Development Courses
- Information available at https://www.acgme.org/Meetings-and-Educational-Activities/Other-Educational-Activities/Courses-and-Workshops/Developing-Faculty-Competencies-in-Assessment
# Milestones Resources

## Guidebooks
- Assessment Guidebook
- Milestones Implementation Guidebook
- Milestones Guidebook
- Milestones Guidebook for Residents and Fellows
- Clinical Competency Committee Guidebook
- Clinical Competency Committee Guidebook Executive Summaries

## Other Resources
- Resources for Assessment in the Learn at ACGME Online Learning Portal
- Use of Individual Milestones Data by External Entities for High Stakes Decisions
- Milestones FAQs

https://acgme.org/What-We-Do/Accreditation/Milestones/Resources
Research and Reports

The ACGME Milestones research team aims to provide relevant data and publications wherever possible. Not finding what you need? E-mail questions to milestones@acgme.org.

National Reports

- 2021 Milestones National Report
- 2020 Milestones National Report
- 2019 Milestones National Report
- 2018 Milestones National Report
- 2017 Milestones National Report
- 2016 Milestones National Report

Publications

- Milestones 2.0 – A Step Forward
- Harmonizing the Approach to Milestone Assessment of Systems-Based Practice
- Harmonizing the Practice-Based Learning and Improvement Milestones
- Refining the Milestones for Assessment of Professional Skills
- Strengthening Interpersonal and Communication Skills Assessment Through Harmonized Milestones
- Appendix A and B for Milestones 2.0 – A Step Forward
- Reflections on the First 2 Years of Milestone Implementation
- ACGME Milestones Project: Lessons Learned and What’s Next

Milestones Bibliography

- Milestones Bibliography — December 2020
Open Access Assessment Tools

DIRECT OBSERVATION OF CLINICAL CARE

TEAM: Teamwork Effectiveness Assessment Module
A web-based assessment tool for residency and fellowship programs.
Questions and Discussion

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