ACGME Milestones Project: Lessons Learned and What's Next

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Topics for Discussion

- Milestones Background – a recap
- How the Milestones Were Developed
- Phase 1 Data
- Current and Prospective Research
- Milestones 2.0
Milestones Background – What?

- Description of the performance levels residents are expected to demonstrate for skills, knowledge, and behaviors in the six competency domains
- Framework of observable behaviors
- One indicator of a program’s educational effectiveness
Milestones Background – What?

- What do they know? (Medical Knowledge)
- What can they do? (Patient Care)
- How do they conduct themselves? (Interpersonal and Communication Skills, Practice-based Learning and Improvement, Professionalism, and Systems-based Practice)
Milestones Background – Why?

- Fulfill the promise of the Outcome Project
- Increased use of educational outcome data in accreditation
- ACGME accountability to public
- Support the educational process
Milestones Background – How are they used?

ACGME
- Accreditation – continuous monitoring of programs; lengthening of site visit cycles
- Public Accountability – report at a national level on competency outcomes
- Community of practice for evaluation and research, with focus on continuous improvement

Residency Programs
- Guide curriculum development
- More explicit expectations of residents
- Support better assessment
- Enhanced opportunities for early identification of under-performers

Certification Boards
- Potential use – ascertain whether individuals have demonstrated qualifications needed to sit for Board exams

Residents
- Increased transparency of performance requirements
- Encourage resident self-assessment and self-directed learning
- Better feedback to residents

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Milestone Development – Who?

Working Group
- Review Committee
- Certification Boards
- Program Directors
- Residents/ Fellows
- Specialty Societies

Advisory Group
- Leaders within the specialty community
# Milestone Development – How?

<table>
<thead>
<tr>
<th>milestone Description: Template</th>
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</thead>
<tbody>
<tr>
<td><strong>Level 1</strong></td>
</tr>
<tr>
<td>What are the expectations for a beginning resident?</td>
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</table>

**Comments:**
Milestone Development – How?

- Each specialty began the same way with a review of available documents:
  - Program Requirements
  - Certification Exam Outlines
  - Competency Statements created by specialty groups
  - National Curricula
  - Milestones created by other specialties
Milestone Development – How?

- Brainstorming of topics that were important to resident education
- Drafting, rejecting, redrafting, etc
- Development of what the Working Group believed was a near final product
- Review by the Advisory Group and Review Committee
- Survey of Program Directors
- Final edits and publication
FUN FACT – Number of Volunteers

There were 916 volunteers who created all the milestones!

That is 3 times as many current RRC members that are serving at the ACGME
FUN FACT – Number of Meetings

It took about 100 meetings to create the milestones!

Lightning strikes the earth approximately 100 times every second!

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FUN FACT – Number of Institutions Represented

There were representatives from over 250 different institutions!

There are 250 toothpicks in a standard box
FUN FACT – Number of Volunteer Hours

It took over 1500 volunteer hours to create all the milestones!

It takes 1500 flight hours to become a certified pilot.
FUN FACT – Number of Milestone Threads

There were 1916 milestone threads created!

There are over 1900 types of edible insects in the world.
VALIDITY
Validity of Milestones Data

• Evidence of progression in NAS*
  • to support CBME
    • comprehensive approach to competencies
    • “entrustability”
  • how do we know this is working?
    • CQI approach

• Assessment validity framework
  • validity depends on research and CQI model

Milestone Database

- Dec 2013 = 5 specialties
- June 2014 = 8 specialties
- Dec 2014 = 90 specialties
- June 2015 = 96 specialties
- Dec 2015 = 140 specialties
- June 2016 = all specialties reporting Academic Year-End
Milestone Database

- Dec 2013 = 5 specialties
- **June 2014 = 8 specialties**
- Dec 2014 = 90 specialties
- June 2015 = 96 specialties
- Dec 2015 = 140 specialties
- June 2016 = all specialties reporting Academic Year-End
Number of Residents

AY 2013-14 (i.e. single data point = June 2014)
1) Neurosurgery (NS, N = 1,272)
2) Orthopedic surgery (OS, N = 3,574)
3) Emergency Medicine (EM, N = 5,806)
4) Diagnostic Radiology (DR, N = 4,686)
5) Urology (URO, N = 1,167)
6) Internal Medicine (IM, N = 23,915)
7) Internal Medicine / Pediatrics (IM/PEDS, N = 1,448)
8) Pediatrics (PEDS, N = 8,837)
Milestones

• How do we know we’re improving?
Data Extraction and Analysis

• For each resident (across all PGY-levels), we determined whether they had attained the recommended Level 4 (or higher) for all sub-competencies within a core competency.
• Then we determined the percentage of residents within a specialty who attained Level 4 across all programs.
Learning Curves (theoretical)
Learning Curves (theoretical)
Learning Curves (theoretical)
Residents Attaining Level 4 or Higher

![Graph showing proportion of residents attaining Level 4 or higher in Internal Medicine across PGY1, PGY2, and PGY3. The graph includes lines for PC, MK, SBP, PBLI, PROF, and ICS.]
Residents Attaining Recommended Graduation Targets

Percent of Senior-most Residents who Attained Level 4 or Higher

<table>
<thead>
<tr>
<th></th>
<th>IM (N=7157)</th>
<th>DR (N=1140)</th>
<th>NS (N=113)</th>
<th>URO (N=279)</th>
<th>OS (N=691)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PC</td>
<td>77%</td>
<td>85%</td>
<td>54%</td>
<td>77%</td>
<td>60%</td>
</tr>
<tr>
<td>MK</td>
<td>81</td>
<td>83</td>
<td>72</td>
<td>93</td>
<td>65</td>
</tr>
<tr>
<td>SBP</td>
<td>78</td>
<td>79</td>
<td>73</td>
<td>76</td>
<td>87</td>
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<tr>
<td>PBLI</td>
<td>76</td>
<td>83</td>
<td>77</td>
<td>75</td>
<td>89</td>
</tr>
<tr>
<td>PROF</td>
<td>82</td>
<td>85</td>
<td>92</td>
<td>81</td>
<td>89</td>
</tr>
<tr>
<td>ICS</td>
<td>86</td>
<td>86</td>
<td>83</td>
<td>82</td>
<td>89</td>
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PC - patient care; MK - medical knowledge; SBP - systems-based practice; PBLI - practice-based learning and improvement; PROF - professionalism; ICS - interpersonal and communication skills.
Residents Attaining Level 4 or Higher
Possible Interpretation:

- Neurological Surgery

  - Competence in PC is the most difficult to attain. This may represent differences in clinical experience for selected sub-competencies
  - thus, the full achievement of Level 4 in the Patient Care competency may be impossible for those residents.
Neurological Surgery

Level 4 Attainment per Patient Care Sub-Competency

<table>
<thead>
<tr>
<th>Question Key</th>
<th>Description</th>
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<tbody>
<tr>
<td>Q8</td>
<td>Traumatic Brain Injury</td>
</tr>
<tr>
<td>Q6</td>
<td>Spinal Neurosurgery</td>
</tr>
<tr>
<td>Q1</td>
<td>Brain Tumor</td>
</tr>
<tr>
<td>Q2</td>
<td>Critical Care</td>
</tr>
<tr>
<td>Q5</td>
<td>Pediatric Neurological Surgery</td>
</tr>
<tr>
<td>Q7</td>
<td>Vascular Neurosurgery</td>
</tr>
<tr>
<td>Q3</td>
<td>Epilepsy and Movement Disorders</td>
</tr>
<tr>
<td>Q4</td>
<td>Pain and Peripheral Nerves</td>
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</tbody>
</table>
RESEARCH
Advisory Groups:

- **Analytic**
  - John Norcini (FAIMER)
  - Reed Williams (SIU/IU)
  - Rachel Yudkowski (UIC)
  - Ara Tekian (UIC)

- **CCC**
  - Karen Hauer (UCSF)
  - Kathy Andolsek (Duke)
  - Jamie Padmore (Medstar Washington)
  - David Berg (Yale)
Selected Research Projects in Progress

- Emergency Medicine initial validity study
  - Factor structure supported three factor design of EM certification (in press)\(^1\)
  - Expected correlation between ITE and MK milestones
- ExploringITE and milestones associative studies with ABFM and ABPeds
- Neurosurgery PD and resident survey of first year experience
- Hauer - IM CCC experience studies

NAS AS CQI
Supporting the CQI Vision of NAS

- Milestones data should never be used for high-stakes decisions by RRC’s to accredit individual programs.
- Rather, in the spirit of CQI, it should be used for identifying gaps in training, or weaknesses in the data collection process to enhance the quality of the curricula and the validity of the data.
  - Bottom Line: the Milestones data should represent the resident’s underlying ability or competency.

- Goal of Milestones:
  - to enhance the quality of the judgment of the resident’s progression
Milestones CQI Process

Putting processes in place to reduce “Construct-Irrelevant Variance”
Milestones CQI Process

Pre-NAS

Time

True Score
What’s Next? Milestones 2.0

- Data, comments and suggestions are continually being monitored

- Competency Crosswalk for Interpersonal and Communication Skills, Practice-based Learning and Improvement, Professionalism, and Systems-based Practice
What’s Next? Milestones 2.0

- Milestones Summit with representatives from the ABMS Member Boards, AOA Certifying Boards and ACGME Review Committees

- Development will begin late 2016
Where do I find...?
Milestone Resources

Milestone Webpage:  
http://www.acgme.org/acgmeweb/tabid/430/ProgramandInstitutionalAccreditation/NextAccreditationSystem/Milestones.aspx

Milestone FAQs:  
http://www.acgme.org/acgmeweb/Portals/0/MilestonesFAQ.pdf

Clinical Competency Committee Guidebook:  
http://www.acgme.org/acgmeweb/Portals/0/ACGMEClinicalCompetencyCommitteeGuidebook.pdf

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We are here to help

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