RISE OF COMPETENCY-BASED MEDICAL EDUCATION

DEVELOPING AND ASSESSING COMPETENCIES FOR TEACHERS AND CAREGIVERS SERVING INFANTS AND TODDLERS

ERIC HOLMBOE
• Historical and current context for competency-based approach to medical education
• Shift of education and regulation to a continuous quality improvement approach
  – Milestones
• Early signals: neurosurgery
HISTORICAL AND CURRENT CONTEXT
EARLY SIGNALS: QUALITY & SAFETY

- Increasing pockets of evidence and concern arise around the quality and safety of healthcare in the 1960s and 1970s
  - A.L. Cochrane: Effectiveness and efficiency
  - J. Wennberg: Unjustifiable regional variations in care delivery
  - R. Brook: medical errors
EARLY PRINCIPLES

• World Health Organization (1978):
  – “The intended output of a competency-based programme is a health professional who can practise medicine at a defined level of proficiency, in accord with local conditions, to meet local needs.”

CONTEXT 1999-2001
OUTCOMES AND COMPETENCIES
# U.S. COMPETENCY JOURNEY: PHASE 1

<table>
<thead>
<tr>
<th>Dates</th>
<th>Event/Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>1994</td>
<td>ACGME begins work on developing competencies</td>
</tr>
<tr>
<td>1999</td>
<td>Six general competency framework approved by ABMS/ACGME</td>
</tr>
<tr>
<td>2001</td>
<td>Launch of Outcomes Project</td>
</tr>
</tbody>
</table>
OBME: START WITH SYSTEM NEEDS

# U.S. GENERAL COMPETENCIES FRAMEWORK

<table>
<thead>
<tr>
<th>General Competencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient Care</td>
</tr>
<tr>
<td>Medical Knowledge</td>
</tr>
<tr>
<td>Professionalism</td>
</tr>
<tr>
<td>Interpersonal Skills &amp; Communication</td>
</tr>
<tr>
<td>Practice-based learning &amp; Improvement</td>
</tr>
<tr>
<td>Systems-based Practice</td>
</tr>
</tbody>
</table>
THE ULTIMATE OUTCOMES FOR CLINICAL CARE & EDUCATION

Health of a Population

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

Per Capita Cost

The IHI TripleAim

Better care for individuals, better health for populations, lower per capita costs
Figure 1 Schematic of the traditional academic faculty perspective and the current educational design of graduate medical education programs, which often consider educational outcomes as separate from clinical outcomes. As a result, educational outcomes are often centered around the learner, and clinical outcomes are often centered around the patient. This perspective tends to place greater emphasis on learner–patient interactions than on learner–patient–clinical microsystem interactions.
**NEEDED PERSPECTIVE**

*Figure 2* Schematic of the proposed framework for academic faculty perspective and educational design of graduate medical education training programs, where both educational and clinical outcomes are centered around the patient. This reorganization recognizes that (1) the dynamic interplay between the faculty, learner, training program, and clinical microsystem ultimately influences the quality of physician that emerges from the training program and the environment, and (2) patient outcomes relate to the quality of education and the success of clinical microsystems.
## U.S. COMPETENCY JOURNEY: MILESTONES

<table>
<thead>
<tr>
<th>Dates</th>
<th>Event/Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>First Milestone summit – Internal Medicine</td>
</tr>
<tr>
<td>2009</td>
<td>First Milestones published</td>
</tr>
<tr>
<td>2010-13</td>
<td>Milestone sets created for all specialties</td>
</tr>
<tr>
<td>2013</td>
<td>First 7 specialties start using and reporting Milestones</td>
</tr>
<tr>
<td>2014</td>
<td>All specialties fully in system</td>
</tr>
<tr>
<td>Competency</td>
<td>Sub-competency</td>
</tr>
<tr>
<td>------------</td>
<td>----------------</td>
</tr>
<tr>
<td>PC1. History (Appropriate for age and impairment)</td>
<td></td>
</tr>
<tr>
<td><strong>Level 1</strong></td>
<td><strong>Level 2</strong></td>
</tr>
<tr>
<td>Acquires a general medical history</td>
<td>Acquires a basic physiatric history including medical, functional, and psychosocial elements</td>
</tr>
<tr>
<td></td>
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<td></td>
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</tr>
</tbody>
</table>
# MILESTONES: GENERAL TO SPECIALTY-SPECIFIC

## General Competencies
- Patient Care
- Medical Knowledge
- Professionalism
- Interpersonal Skills & Communication
- PBL & I
- Systems-based Practice

## Specialty Specific Milestones
COMPETENCIES AND MILESTONES

- Competencies define the core *abilities* of the individual (i.e. educational outcomes)
- Competencies are needed by the individual in order to effectively perform the professional activity.
- Milestones simply describe in narrative terms the developmental trajectory of a competency
PROFESSIONAL DEVELOPMENT: DREYFUS MODEL

MILESTONES Guiding an Integrated Curriculum and Program of Assessment

Proficient

Competent

Advanced Beginner

Expert/
Master

Development is a non-linear phenomenon

Novice

Time, Practice, Experience

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

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THE ASSESSMENT “SYSTEM”

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

Qual/Quant “Data” Synthesis: Committee

Residents

Faculty, PDs and others

Milestones and EPAs as Guiding Framework and Blueprint

Feedback

Unit of Analysis: Program

Accreditation

Certification and Credentialing

Unit of Analysis: Individual

Feedback

JUDGMENT

D/FB
RESIDENTS ATTAINING LEVEL 4 OR HIGHER: NEUROLOGICAL SURGERY

Neurological Surgery - 2014

None reach 100% in each competency
### Neurological Surgery (June 2014)

#### Level 4 Attainment per Patient Care Sub-Competency

<table>
<thead>
<tr>
<th>Question Key</th>
<th>Topic</th>
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</thead>
<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>
</tr>
</tbody>
</table>

The graph shows the proportion of attainment for each sub-competency across different PGY levels (PGY1 to PGY7).
FOSTERING IMPLEMENTATION INTO PRACTICE

• Intervention characteristics
  – Relative advantage, adaptability, complexity

• Outer setting
  – Patient needs, cosmopolitanism, external policy

• Inner setting
  – Social architecture, culture, tension for change, relative priority, readiness, learning climate

• Characteristics of individuals
  – Safe efficacy, stage of change

• Process
  – Planning, engaging, opinion leaders, champions

THANK YOU

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