

Re-envisioning Physical Therapy Teaching and Assessment through Entrustable Professional Activities

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EDUCATIONAL LEADERSHIP CONFERENCE

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Self Assessment in CBE

Self-Assessment in CBE

- 1) What is a competency?
- 2) What is a milestone?
- 3) I get competencies and milestones but what is an EPA?
- 4) I am competent in CBE.
- 5) Get off the podium, Englander, I should be giving this talk.

Objectives

- Understand the context and steps for the paradigm shift to Competency-based Physical Therapist Education
- Discuss the specific challenges in assessment
- Envision the potential future of assessment using the PT Competencies and EPAs

Why did we change to CBME?

Not meeting the needs of the public with poor health outcomes

Lots of evidence that graduates are not prepared for residency and practice

Expanding notion of what it means to be a doctor in the 21st century

Current State of PT Education

- **>270 Programs**
- **Planned Class Size:** *Range: 10-110; Mean 48*
- **Average Length of Professional Program (wks) in AY 2022-2023:**
 - *Number of weeks in didactic portion: Range 56-215; Mean 87.65*
 - *Number of weeks in FT clinical education: Range 28-135; Mean 35.52*
 - *Total number of weeks in program: Range 88-245; Mean 123.87*

Current State of PT Education

Required Outcomes*:

- Graduation Rate (at least 80%)
- Ultimate Licensure Pass Rates (at least 85%)
- Employment Rates (at least 90%)

Current State of PT Education

Required Outcomes*

- Students demonstrate entry-level clinical performance during clinical education experiences prior to graduation
- The program graduates meet the expected outcomes:
 - The program has documented goals that are based on its mission and reflect contemporary PT education...
 - “Contemporary PT education”: Reflects the minimum skills required for entry-level preparation of the physical therapist and the needs of the workforce as documented by the program.

Why change to CBPTE?

Large variability in time and curriculum must result in highly variable outcomes

Are (all) graduates prepared for unsupervised practice in their first jobs?

*All models are wrong
but some are useful*



George E.P. Box

Disclaimer

Shifting Paradigms: From Flexner to Competencies

Carol Carraccio, MD, Susan D. Wolfsthal, MD, Robert Englander, MD, MPH,
Kevin Ferentz, MD, and Christine Martin, PhD

ABSTRACT

Realizing medical education is on the brink of a major paradigm shift from structure- and process-based to competency-based education and measurement of outcomes, the authors reviewed the existing medical literature to provide practical insight into how to accomplish full implementation and evaluation of this new paradigm. They searched Medline and the Educational Resource Information Clearinghouse from the 1960s until the present, reviewed the titles and abstracts of the 469 articles the search produced, and chose 68 relevant articles for full review.

The authors found that in the 1970s and 1980s much attention was given to the need for and the development of professional competencies for many medical disciplines. Little attention, however, was devoted to defining the

benchmarks of specific competencies, how to attain them, or the evaluation of competence. Lack of evaluation strategies was likely one of the forces responsible for the three-decade lag between initiation of the movement and widespread adoption. Lessons learned from past experiences include the importance of strategic planning and faculty and learner buy-in for defining competencies. In addition, the benchmarks for defining competency and the thresholds for attaining competence must be clearly delineated. The development of appropriate assessment tools to measure competence remains the challenge of this decade, and educators must be responsible for studying the impact of this paradigm shift to determine whether its ultimate effect is the production of more competent physicians.

Acad. Med. 2002;77:361-367.

The challenge to medical education at the turn of the 20th century took the form of the Flexnerian revolution.¹ Exposure of poor educational content and processes in the early 1900s captured public attention and concern, precipitating a chain of events that led to drastic reform. In the early 21st century, accountability

and responsibility to the public for the competency of practicing physicians have become a driving force behind an initiative of the American Board of Medical Specialties (ABMS) and the Accreditation Council for Graduate Medical Education (ACGME) to establish competency-based training for all physicians. The current structure- and process-based system defines the training experience by exposure to specific contents for specified periods of time (e.g., one month of adolescent medicine), while a competency-based system defines the desired outcome of training, the outcome driving the educational process (e.g., competence in the care of adolescent patients). The paradigm shift from the current structure- and process-based curriculum to a competency-based curriculum and evaluation of outcomes is the Flexnerian revolution of the 21st century.

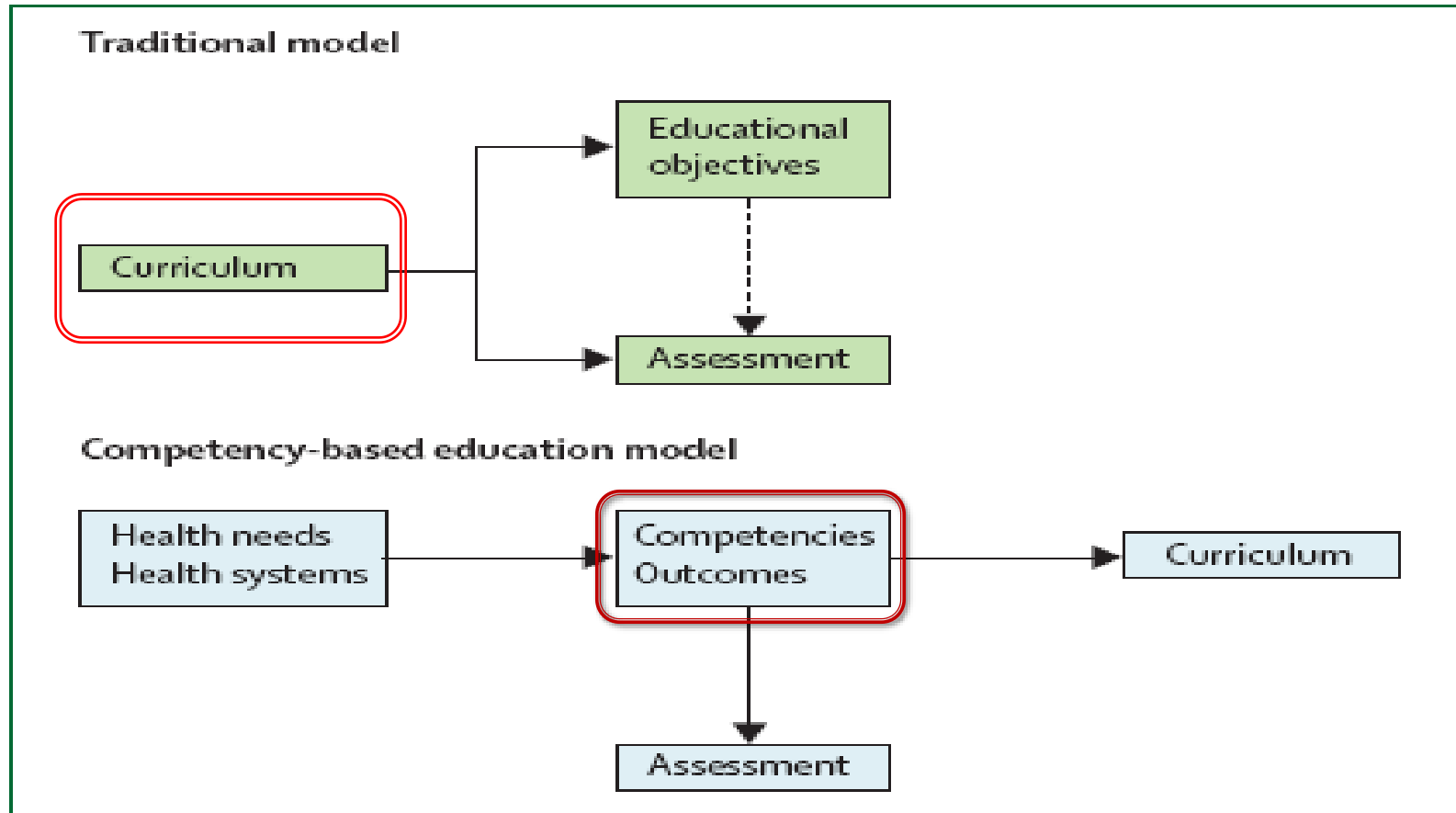
We reviewed the literature on competency-based education in medicine to (1) understand the evolution of this educational paradigm, (2) assess the evidence to date of the efficacy of competency-based education, and (3) provide practical insight into how to accomplish full implementation and evaluation of the paradigm shift.

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Shifting the paradigm from
**fixed time:variable
outcome to
fixed outcome:variable
time**
Medical Education

CBE: Start with System/Public Needs



	Structure/Process	Competency-based
Driving Force for Curriculum	Content & Knowledge Acquisition	Outcomes & Knowledge Application
Driving Force for Process	Teacher	Learner(s)
Path of Learning	Hierarchy	No Hierarchy
Responsibility for Learning	Teacher	Student and Teacher partnership

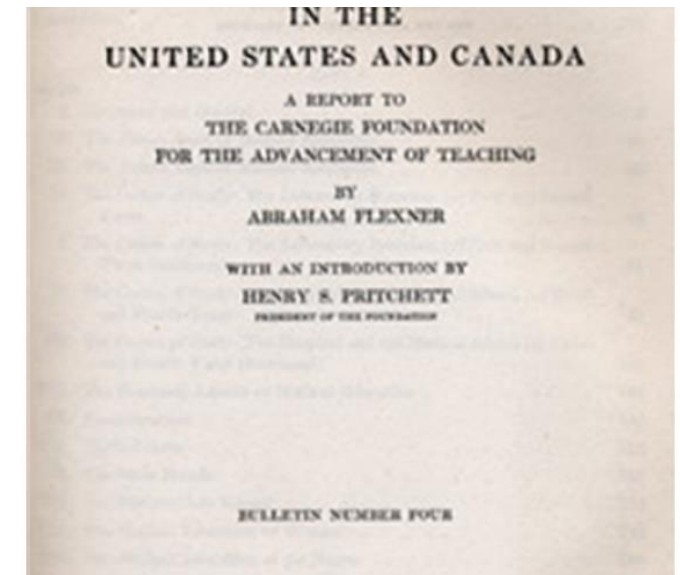
The Paradigm Shift

Framework for Evaluation of Competence

	Structure/Process	Competency-based
Typical Assessment Context	Proxy / Removed	Authentic / “In the trenches” Direct observation
Typical Assessment Tool	Single or few, often Multiple-Choice Questionnaires (MCQs)	Multiple, subjective as well as objective Portfolios
Timing of Assessment	Emphasis on summative	Emphasis on formative
Type of Evaluation	Norm-referenced	Criterion-referenced

Perspective: 1910-1930s

Abraham Flexner, 1866-1959



Perspective: 2002-202?



**The ACGME outcome project:
retrospective and prospective**

[Susan R. Swing](#), PhD

Pages 648-654 | Published
online: 03 Jul 2009

[Milestones Project](#)



BEGIN WITH THE END IN MIND

Plan

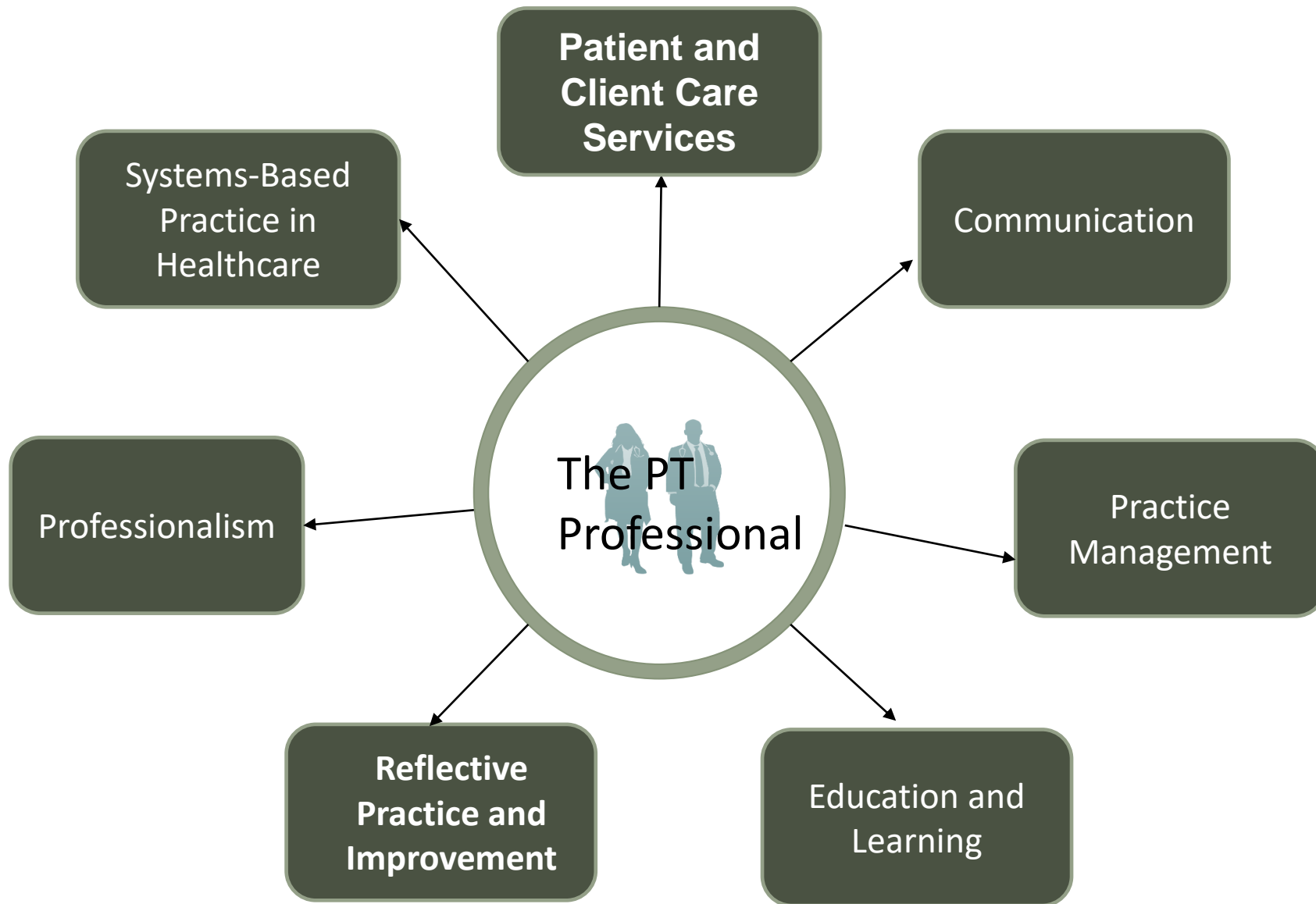
FreePosterMaker.com

Step 1: Define
the Outcomes

The Vision:

PTs will spend their careers on a developmental trajectory building expertise in 7 domains of competence





Step 2-Define the performance levels (milestones)

A defined, observable marker of an individual's ability along a developmental continuum.¹



Step 3: Developing Curriculum

Curriculum →



Outcomes



Step 4- The
Next Major
Hurdle:
Assessment of
Competence



Step 5- CBE
Program
Evaluation

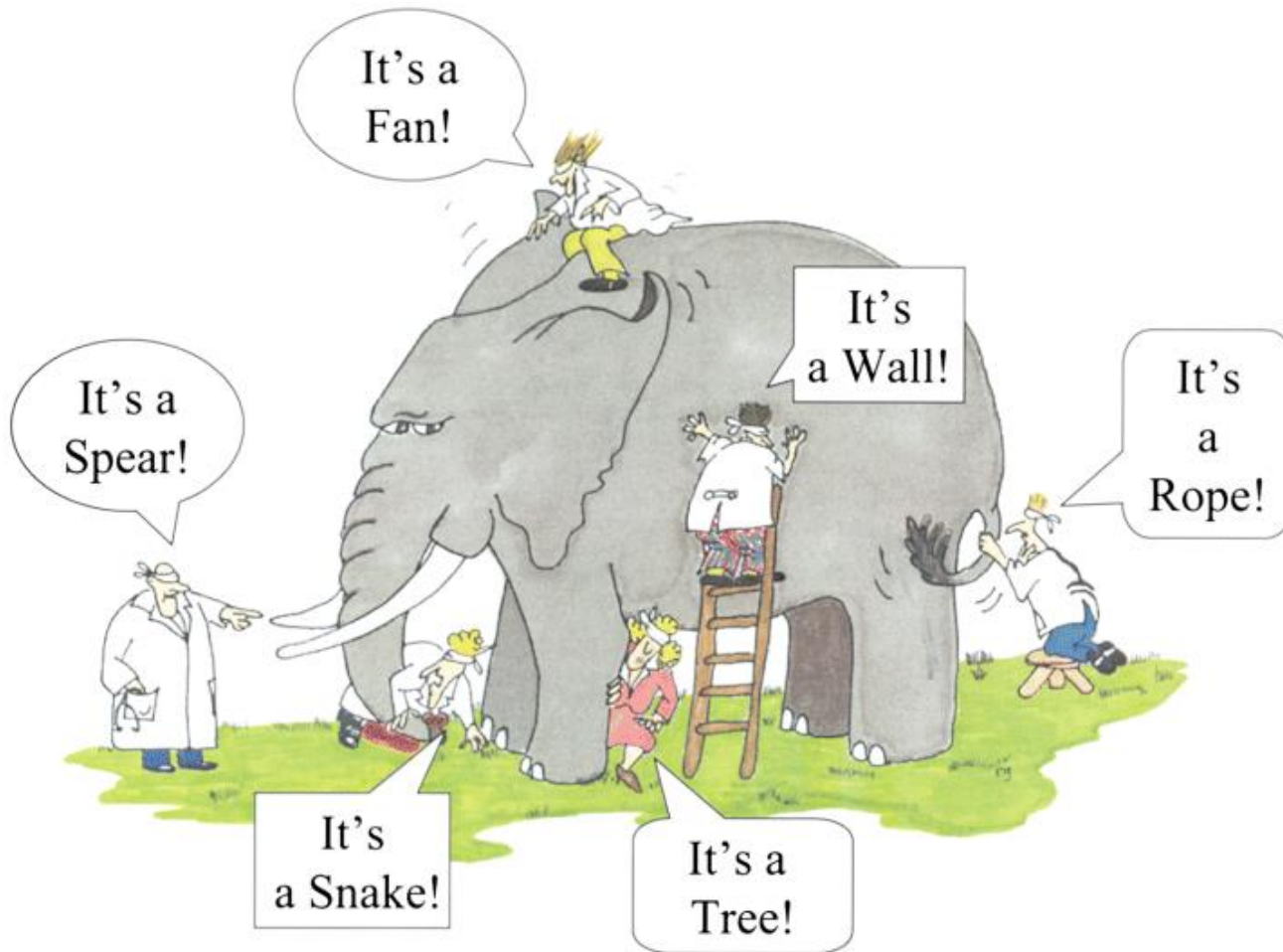
Utility Model of Assessment¹



Beyond psychometrics to utility model for assessment



Validity x Reliability x Cost x Acceptability x Educational Impact



Assessment Conundrum Part 1: Measuring the Meaningless

Assessment Conundrum Part 2: Logistics

- Average class size: ~48 (range 6-100)*
- #domains in the current draft: 7
- # competencies in the current draft = 65
- Avg # direct observations to reach next level of practice=5-10/competency
- 48 students x 65 competencies x 5 observations/competency = 15,600 observations
- Avg # Core Faculty FTEs=14.64*; avg # Associated Faculty FTEs=2*
- Avg Faculty FTEs=16.64 representing ~940 observations/year/faculty

*CAPTE data courtesy of Merrill R. Landers, PT, DPT, PhD

Assessment Conundrum Part 3: Bias

- All assessment is subject to bias
- Competencies are abilities of individuals and may be particularly subject to bias (esp in Professionalism and Communication)

Assumptions in getting to a solution

- Goal is all graduates competent at the level of unsupervised practice
- Getting this “right” is a years-long effort, and requires a continuous improvement model and continuous input and resources from your national organizations
- Standardized outcomes allow innovation and context specificity at the curricular and assessment levels

Potential Solution

- Provide an integrative construct that places the competencies and milestones in the context of clinical care

Entrustability of professional activities and competency-based training

Olle ten Cate

The idea of competency-based training (CBT) seems to have entered medical education with a

fields other than medical education.^{4,5} The way in which we succeed in defining competencies

respect, I supervise to deliver

An Integrative Solution to the Clinical Assessment Conundrum: EPAs

Important Distinctions

Competency

- Unit of assessment is the ability of an individual
- Context independent making assessment difficult
- Address the KSA of a specific ability

EPA

- Unit of assessment is the outcome of the activity
- Embedded in a clinical context making assessment meaningful/more intuitive
- Address the KSA of multiple competencies that need to be integrated for care delivery

EPA

- Entrustment refers to the ability to safely and effectively perform a professional activity without (direct) supervision
- Brings trust and supervision into assessment which are intuitive for faculty working with trainees
- Entrustment decisions allow inference about a learner's competence
- Entrustment itself is a “yes-no” decision, but the pathway to entrustment is developmental (think milestones)

Entrustment is Based On Trustworthiness

- Ability or level of KSA
- Conscientiousness
- Telling the truth – absence of deception (truthfulness)
- Knowing one's limits (discernment) and help seeking

EPA

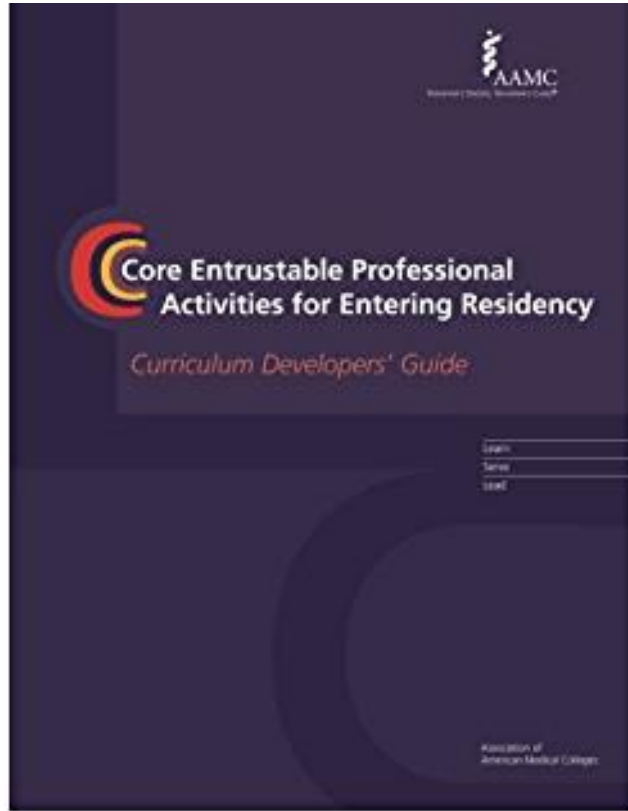
Professional is a modifier of activities that refers specifically to:

- Area of practice (e.g., specialty)
- Scope of practice (e.g., profession)
- Learner's place on the educational continuum (e.g. UME/GME)

EPA

The Activities:

- Represent the essential work that defines a discipline (in aggregate)
- Lead to a recognized outcome
- Should be independently executable within a given time frame
- Are observable and measurable units of work in both process and outcome
- Require integration of critical competencies and milestones



Core EPAs for Entering Residency

Example: Core EPAs for Entering Residency

- 1) Gather a history and perform a physical examination
- 2) Prioritize a differential diagnosis following a clinical encounter
- 3) Recommend and interpret common diagnostic and screening tests
- 4) Enter and discuss orders/prescriptions
- 5) Document a clinical encounter in the patient record
- 6) Provide an oral presentation of a clinical encounter
- 7) Form clinical questions and retrieve evidence to advance patient care

Core EPAs for Entering Residency

- 8) Give or receive a patient handover to transition care responsibility
- 9) Collaborate as a member of an interprofessional team
- 10) Recognize a patient requiring urgent or emergent care, and initiate evaluation and management
- 11) Obtain informed consent for tests and/or procedures
- 12) Perform general procedures of a physician
- 13) Identify system failures and contribute to a culture of safety and improvement

1. Observation only: *"I did it. The student observed."*

2. Direct Supervision: *"We did it together."*

3. Direct Supervision: *"I supervised and helped the student from time to time."*

4. Indirect Supervision: *"The student did it. I double-checked ALL elements."*

5. Indirect Supervision: *"The student did it. I double-checked KEY elements."*

6. Indirect Supervision: *"The student did it without me around. We reviewed it afterwards."*

Describe any **strengths** you noticed for in performing EPA 1. Note any specific knowledge, skills, or behaviors that were particularly strong.

What does need to do on EPA 1 in the future to move to the next level of entrustment?

Supervision Scale for GME

- 1) Observe only
- 2) Direct supervision
- 3) Indirect Supervision
- 4) Unsupervised practice
- 5) Able to supervise others in the EPA

Title	Description
Level 1: Observation only, presence allowed, no participation in the activity	<p>The clinical teacher is in the room completely performing the activity. The learner is allowed to be present but not allowed to practice the EPA, observes only.</p> <p>“I had to show and tell the learner everything”</p>
Level 2A: Perform activity with the clinical teacher	<p>The clinical teacher is in the room with the learner, talking and/or guiding them through the activity.</p> <p>The learner performs the activity with the clinical teacher.</p> <p>“I had to actively guide the learner during the task/activity”</p>
Level 2B: Direct supervision	<p>The task or activity is performed by the learner provided that the clinical teacher is physically present in the room, ready to jump in when necessary during the activity.</p> <p>“Need to assist before learner asks for guidance”</p>
Level 3: Indirect supervision	<p>The clinical teacher is not present in the room while the activity takes place but is within the workplace and quickly available if needed.</p> <p>“I could safely wait until the learner asked for guidance”</p>
Level 4: Allowed to practice independently without supervision	<p>The learner can perform this activity independently without supervision. The clinical teacher does not need to be on site or quickly available.</p> <p>“I did not need to provide help.”</p>
Level 5: Allowed to supervise others	<p>The learner is allowed to supervise others.</p>

Scale piloted for PT students courtesy of Jean Timmerberg

Feasibility of the EPA Assessment System

- Review of > 50 observations and assessments at the University of Minnesota revealed:
 - Average time of observation < or = 5 minutes
 - Average time for the Assessment: 2-3 minutes
- EPAC pilot (4 students/year): Students were able to obtain an EPA assessment for every half day clinic
- Scaled to full class (240 students) in both longitudinal Integrated Clerkships and block rotations-able to obtain 4 assessments/week

Emerging Validity Data for EPAs

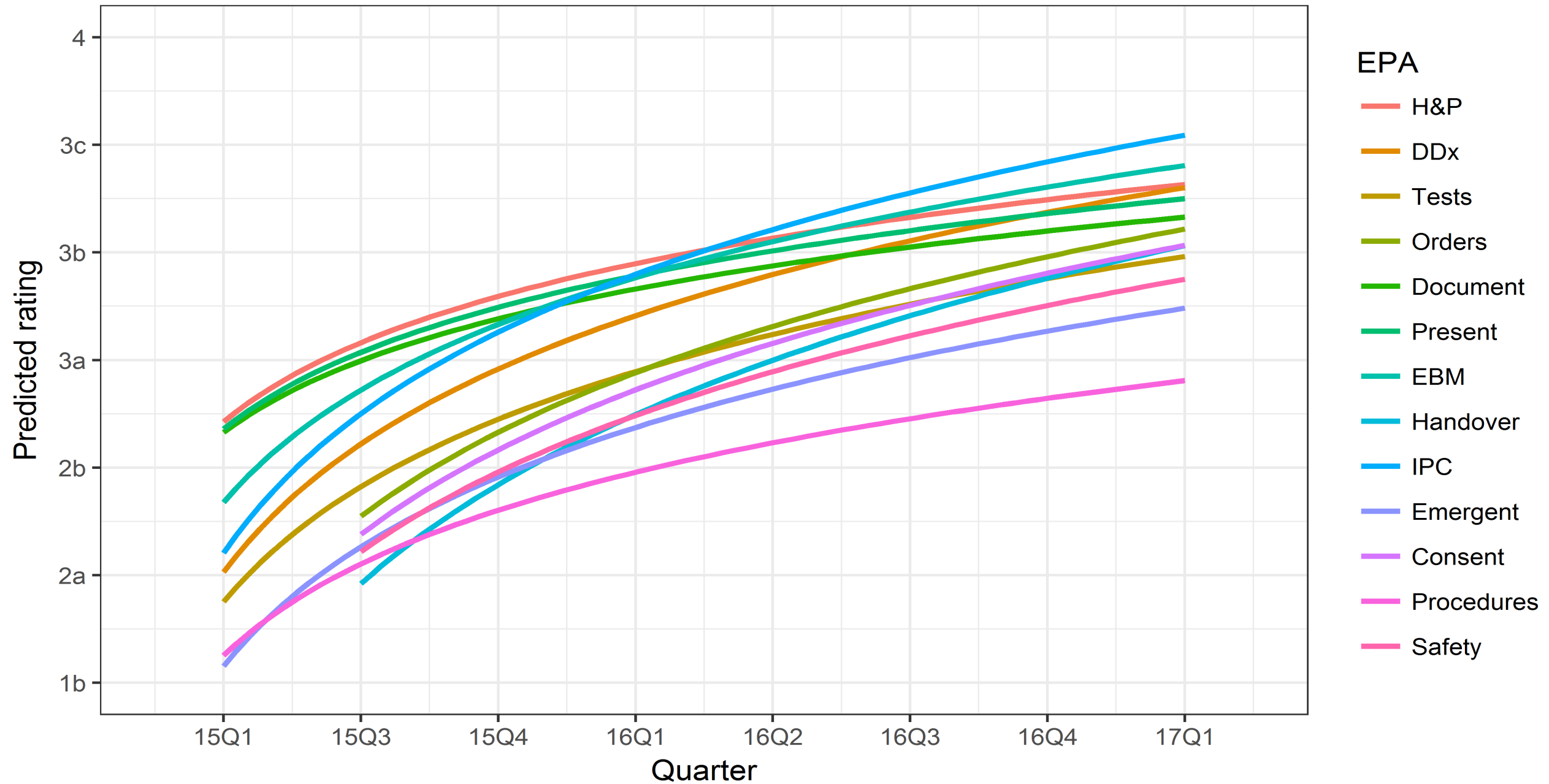
- EPAC students could reach a level of indirect supervision on 12/13 EPAs initially and 13/13 with minor adaptations (Murray et al)¹
- EPAC students prepared through an EPA framework can advance to residency in a time-variable fashion with as good or better performance in internship (Schwartz et al)²
- Learner growth in EPAs follows a classic learning curve³ (Violato et al)³

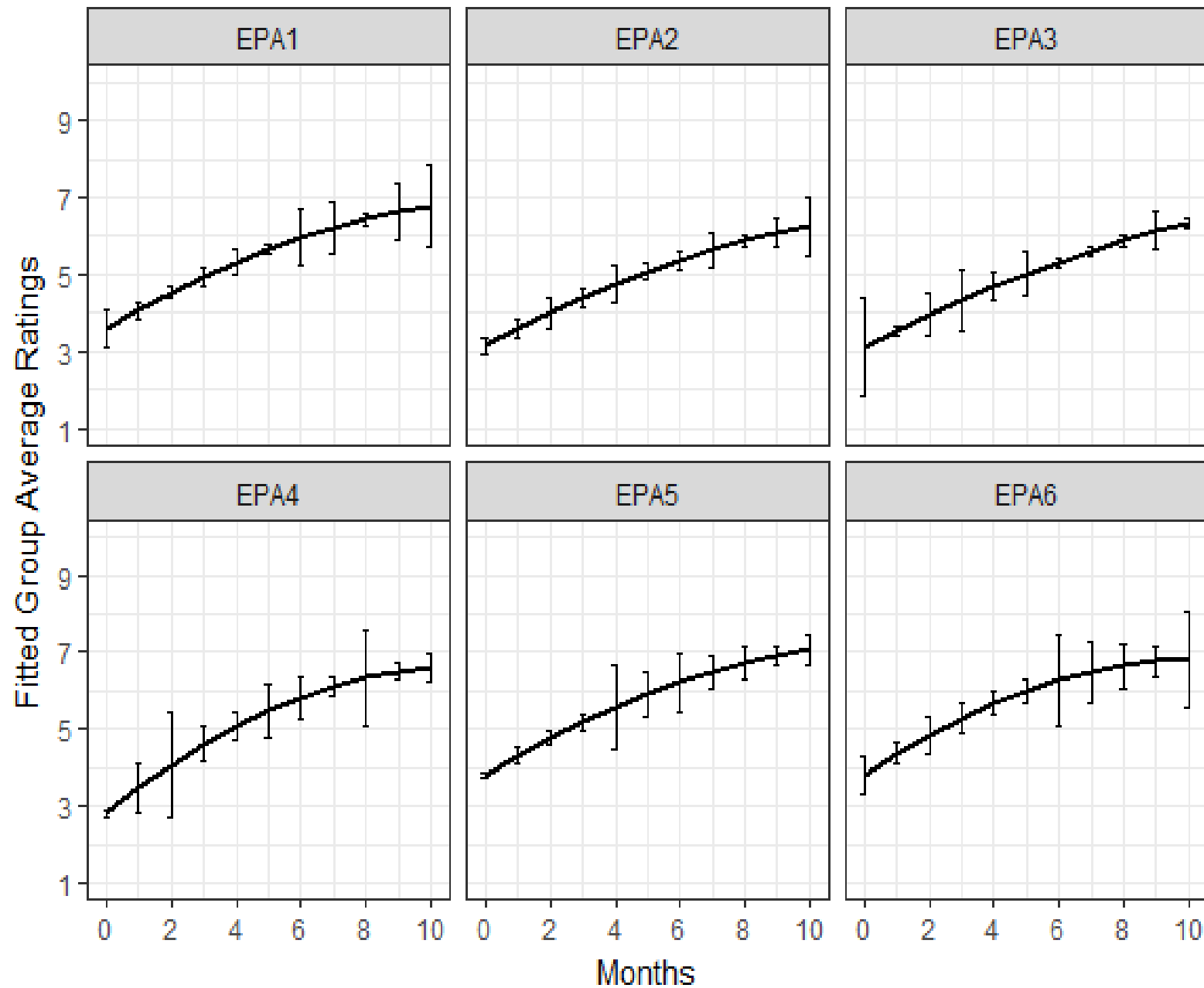
1) Murray KE et al. Crossing the Gap:... Acad Med. 2019 Mar;94(3):338-345.

2) Schwartz A et al. Shared Mental Models...Acad Med. 2020 Nov; S95-S102.

3) Violato C, et al. Validity Evidence for Assessing Entrustable Professional Activities...Acad Med. 2021 Jul 1;96(7S):S70-S75.

Average growth curves by EPA (Cohort 1)





Emerging Validity Data for EPAs

- Student's exposure to EPAs as an assessment framework was directly correlated with increased confidence and less supervision requirements in early residency (Obeso et al)¹
- EPAs as an assessment framework may mitigate gender and racial biases (Poepelman et al-poster presentation at PAS and University of Minnesota Health Professions Education Day)

1)Obeso V. Core Entrustable Professional Activities (EPAs) and the Transition from Medical School to Residency: the Postgraduate Year One Resident Perspective. Med Sci Educ. 2021 Sep 10;31(6):1813-1822.

Emerging Validity Data for EPAs: Mitigating Bias

- Examination of 5 years of Clinical Assessments using competencies:
 - 8/8 clerkships with bias female vs male
 - 4/8 clerkships bias white vs non-white
- Examination of >17,000 EPA Assessments showed no race or gender bias in language used (with traditional biases), length of comments, or quality of comments

A note on cost

Assessment and Coaching Expert Program

- 15 Faculty across six sites plus community FM and RPAP
- Each at 0.2 FTE
- Total 3 FTE=cost of ~\$600,000/year
- Total program = 1,000 students so cost is \$600/student/year and comes out of tuition allocation \$

Lessons learned through implementation

- Going to **pass/fail** was critical
- **Students as “owners”** of the system worked better than faculty
- Start with **Formative only**—need to clarify issues attributable to students versus program (eg EPAs 8, 10, 11, and 13)

Lessons learned through implementation

- **“Make it easy to do the right thing”:**
 - Access/tech support
 - Time commitment per assessment
 - Match curricular opportunities to context

Potential Strategies for Implementation

- Online application-student driven
- Simple assessment tool
- Start in the “didactic portion”—build from cases to simulation to authentic clinical contexts
- “Expert” Assessors
 - By EPA
 - By location/learning experience



Why EPAs?

- Make sense to faculty, trainees and the public
- Address the three conundrums of assessment in CBE
- Add meaning to assessment by focusing on integration of competencies in the context of care delivery (educational impact)
- Add “trust” to the assessment conversations
- Align what we assess with what we do

Objectives

- Understand the context and steps for the paradigm shift to Competency-based Physical Therapist Education
- Discuss the specific challenges in assessment
- Envision the potential future of assessment using the APTA's Competencies and EPAs

Questions/ Reflections

