

Individualization and Standardization in Medical Education: The Holy Grail or the Third Rail?

CATHERINE R LUCEY MD
UNIVERSITY OF CALIFORNIA, SAN FRANCISCO

Effective Learning in Medical Education

THE CARNEGIE FOUNDATION *for the* ADVANCEMENT of TEACHING

A Physician's Work: Three Main Domains

Patient Care

Professional Communities

Inquiry and Improvement

THE CARNEGIE FOUNDATION *for the* ADVANCEMENT of TEACHING

Aspirational Goals for Medical Education

- Individualize learning processes and standardize learning outcomes
- Integrate knowledge and clinical learning experiences, roles and responsibilities.
- Develop habits of inquiry and improvement
- Explicitly address professional identity formation

THE CARNEGIE FOUNDATION *for the* ADVANCEMENT of TEACHING

Standardizing Outcomes rather than Process

Existing Paradigm:
Process Based

Hours of Class
Years of Training

Aspirational Paradigm: Performance Based

Medical Competency	Competencies	Performance-Based Outcomes	Assessments (Medical Archival Study Outcomes)	Medical Education Strategies	
<p>Clinical skills and reasoning</p> <ul style="list-style-type: none"> • Manage patients using clinical skills of assessment, reasoning and physical examination • Demonstrate competence in the performance of procedures mandated by the ACGME • Appropriately use laboratory and imaging techniques 	<p>Historical data gathering</p> <ol style="list-style-type: none"> 1. Acquire accurate and relevant history from the patient or an affected individual (pastoral and psychiatric data not) 2. Sort and utilize appropriate, verified, and pertinent data (not secondary sources, long, family, records, etc.) 3. Obtain relevant history (addition that history and practice from different disciplines and domains, using history, physical, and social information that may not often be obtained by the patient) 4. Use multi-gathering and valid information from the patient for pain management of the health care team 	6	6	Standardized patient Direct observation	
	<p>Performing a physical examination</p> <ol style="list-style-type: none"> 1. Obtain an accurate physical examination that is appropriately targeted to the patient's complaints and social history, identifying pertinent abnormalities using common examination 2. Accurately track important changes in the physical examination over time in the outpatient and inpatient settings 	6	6	Standardized patient Direct observation	
			6	6	
			6	6	

Coverage: KJ et al. *Academic Internal Medicine Insight*. 2010;8(1):4-9.

THE CARNEGIE FOUNDATION *for the* ADVANCEMENT of TEACHING

Individualize Learning Process

- Build on learner's prior experience and expertise
- Progressively advance learner responsibilities as competencies attained
- Increase educational flexibility and develop alternate tracks

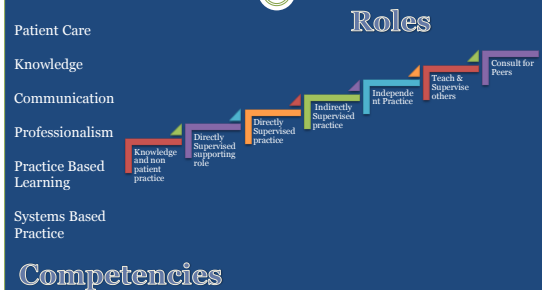
THE CARNEGIE FOUNDATION *for the* ADVANCEMENT of TEACHING

The Holy Grail

- Medical Education occurs along a continuum, characterized by well defined and agreed upon milestones at key transition points.
- Learners advance along the continuum by demonstrating reliable and consistent performance with progressively difficult and complex tasks
- Valid and reliable assessment tools exist for formative and summative evaluation
- Individualized learning plans help all achieve success
- Flexible options for enrichment exist

THE CARNEGIE FOUNDATION *for the* ADVANCEMENT of TEACHING

Milestones



THE CARNEGIE FOUNDATION *for the* ADVANCEMENT of TEACHING

The Third Rail Concerns

- Individualized Education = Chaos
- Doomsday scenarios:
 - Learners will refuse to care for patients whose care involves competencies they have already met
 - Residency programs will lose skilled senior residents to early fellowship training
 - Unpredictable resident complement will force hospitals to design care systems independent of residents
 - Faculty work will become increasingly complex
 - 'Time to degree' metrics will pressure education programs to advance learners before they are truly ready

THE CARNEGIE FOUNDATION *for the* ADVANCEMENT of TEACHING

Objectives for Today

- Analyze the drivers of I&S in the current health care and educational environment
- Review common educational practices, current educational innovations and accepted pedagogy that support the principles of I & S
- Apply the principles of I & S to learner case studies
- Describe communal work that must be accomplished for advance the principles of I & S
- Identify targets of advocacy beyond the educational world

THE CARNEGIE FOUNDATION *for the* ADVANCEMENT of TEACHING

Environmental Drivers for I&S

- Culture of Quality and Safety
 - Accountability
 - Care personalized for patient rather than for physician
 - MOC
- Informatics
 - Availability of data
- Economics
 - Length of training
- Care Delivery
 - Physician shortage-- ? Increase the output
 - Interprofessional education and scope of practice issues

THE CARNEGIE FOUNDATION *for the* ADVANCEMENT of TEACHING

Educational Drivers: Problems and Potential

- Holistic Admissions
- Greater variability of educational environments
- Less continuity in learner-patient and learner-teacher relationships
- Concern about readiness to navigate transitions of education
 - Into residency and into practice

THE CARNEGIE FOUNDATION *for the* ADVANCEMENT of TEACHING

Current Examples of I&S

- Surgical Training
 - Component skills → simple procedures → assistant → first assistant → surgeon
- ‘Signature Pedagogy’: Clinical Case Presentations
 - R → I → M → E
- IM Short tracking
- Combined Degree Programs

THE CARNEGIE FOUNDATION for the ADVANCEMENT of TEACHING

Commonly Used Tools that Facilitate I&S

- Simulation:
 - Standardized patients and feedback
 - Task Trainers
 - Formative and Summative OSCEs
- Podcasting and On line modules
- Team Based Learning with Individual Readiness Tests (IRTs)

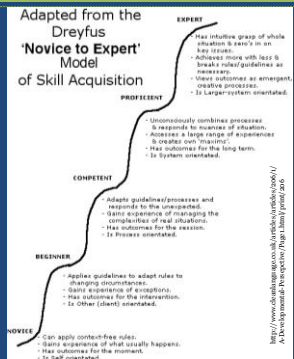
THE CARNEGIE FOUNDATION for the ADVANCEMENT of TEACHING

Current Innovations in Education Demonstrating I&S

- Medical School
 - UCSF (Adler): Pathways to Discovery
 - UCLA: Fourth Year Colleges
- Residency
 - Northwestern (Wayne): Central Line Simulation Training
 - University of Toronto (Resnick): Deliberate Practice in Orthopedic Residency Programs
- Fellowship
 - OSU (Mastrorade/Lucarelli): Pulmonary Medical School

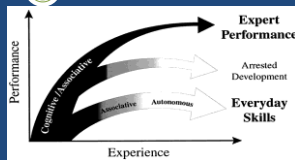
THE CARNEGIE FOUNDATION for the ADVANCEMENT of TEACHING

Pedagogy Supporting Individualization on: Dreyfus and the Competency Curve



Pedagogy Supporting Individualization: Ericsson and Deliberate Practice

- Motivation and Time
- Coaching and Feedback
- Progressively Challenging Cases
- Reflection
- Planning



Development of Expertise (reproducibly superior performance)

THE CARNEGIE FOUNDATION for the ADVANCEMENT of TEACHING

Pedagogy Supporting Standardization: ten Cate: EPAs

- Competency: general attribute
- Activity: observable performance
- Faculty comfort with gestalt assessment of when a learner can be *trusted to act* is higher than their assessment of individual competencies

- List 1**
Conditions of Entrustable Professional Activities
1. Is part of essential professional work in a given context.
 2. Must require adequate knowledge, skill, and attitude.
 3. Must lead to recognized output of professional labor.
 4. Should be confined to qualified personnel.
 5. Should be independently executable.
 6. Should be executable within a time frame.
 7. Should be observable and measurable in its process and outcome (well done or not well done).
 8. Should reflect one or more competencies.

THE CARNEGIE FOUNDATION for the ADVANCEMENT of TEACHING

Pedagogy Supporting Standardization : ten Cate: EPAs

Chart 1
The Two-Dimensional Matrix Relationship Between Entrustable Professional Activities (EPAs) and General Competencies*

ACMG Competency	EPAs					
	Care of acutely ill patients	Normal delivery	Uncomplicated parturition and neonate	The high risk obstetrical delivery	Parturition care	Surgery-related low risk
The ability to provide adequate patient care	•	•	•	•	•	•
The possession and ability to apply medical knowledge	•	•	•	•	•	•
The ability to learn from clinical practice and to improve it				•	•	
The possession and ability to apply interpersonal and communication skills		•		•	•	
The ability and commitment to carry out professional responsibilities	•		•		•	
The awareness of and ability to operate optimally within the context, system, and resources of health care				•		•

*EPAs are the focus of assessment, by observation, ratings or otherwise

The overall assessment of competencies is not based on the assessment of individual EPAs. It is the assessment of all EPAs.

Academic Medicine, v18, No. 6, June 2007

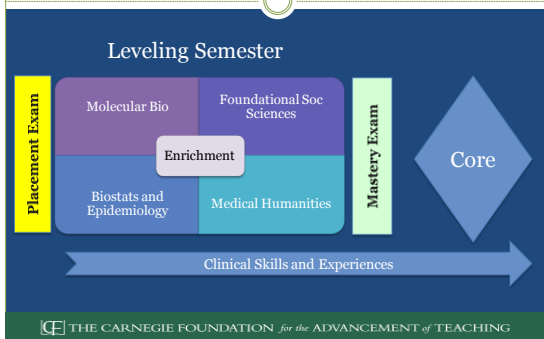
THE CARNEGIE FOUNDATION for the ADVANCEMENT of TEACHING

I & S Case Study: Early Medical School

- John Smith: Anthropology major and social worker
- Jane Smith: Engineering major and researcher
- Challenge: Develop a curriculum that allows both students to master the foundational science curriculum at their medical school, including mastery in :
 - Life sciences
 - Social sciences
 - Doctoring skills

THE CARNEGIE FOUNDATION for the ADVANCEMENT of TEACHING

Individualization Strategy : Early Medical School



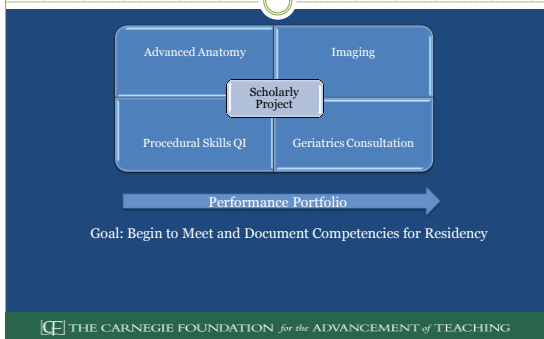
THE CARNEGIE FOUNDATION for the ADVANCEMENT of TEACHING

I & S Case Study: Late Medical School

- JK: Med 3, career goal is academic surgery
- His medical school begins clinical clerkships in April of the second year for those who meet milestones.
- JK achieves all academic and clinical performance milestones by June of his Med 3 year.
- Challenge: individualize the fourth year to capitalize on his career interests

THE CARNEGIE FOUNDATION for the ADVANCEMENT of TEACHING

I & S Case Study: Late Medical School



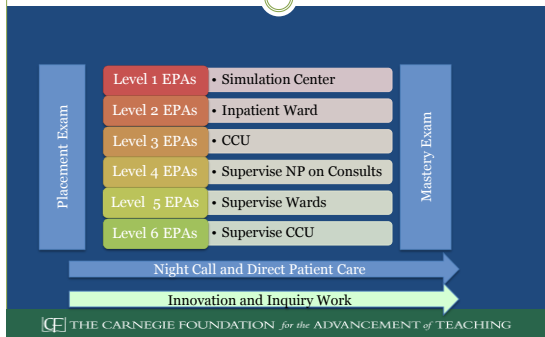
THE CARNEGIE FOUNDATION for the ADVANCEMENT of TEACHING

I&S Case Study: Residency

- IM residency uses EPAs and Simulation testing to assess performance during clinical rotations
- SP MD: PGY-1 IM, successfully navigates all intern EPAs during her first and second month in cardiology
- LM MD: PGY-1 IM; still requiring intense supervision to optimize patient management
- Both have three scheduled months of cardiology
- Challenge: Construct an individualized plan that meets learner and patient needs

THE CARNEGIE FOUNDATION for the ADVANCEMENT of TEACHING

I & S Strategy: Residency with Patient Care Responsibilities



Educational Challenges for the Community

- Defining the core for each stage of education
- Defining the core for each discipline
- Develop and achieve nationwide acceptance of milestones that signify advancement
- Develop and implement valid and reliable assessment tools for complex, performance based competencies
- Develop a consistent language to effectively communicate across institutions

THE CARNEGIE FOUNDATION *for the* ADVANCEMENT of TEACHING

Advocacy Issues for the Educational Community

- Accreditation
- Licensing
- Funding
- Informatics
- Educational Infrastructure

THE CARNEGIE FOUNDATION *for the* ADVANCEMENT of TEACHING

Conclusions

- Individualizing the Learning Process
 - An extension of what we already do
 - Pedagogically Sound
 - Learner Centered
 - Educationally Efficient
 - Need not be disruptive
 - Critically important to achieving the desired outcomes
- Standardizing the Outcomes
 - Ensures we meet our commitment to educating physicians capable of providing care that is safe, effective, efficient and patient centered

THE CARNEGIE FOUNDATION *for the* ADVANCEMENT of TEACHING

Questions?

Thank you!



THE CARNEGIE FOUNDATION *for the* ADVANCEMENT of TEACHING