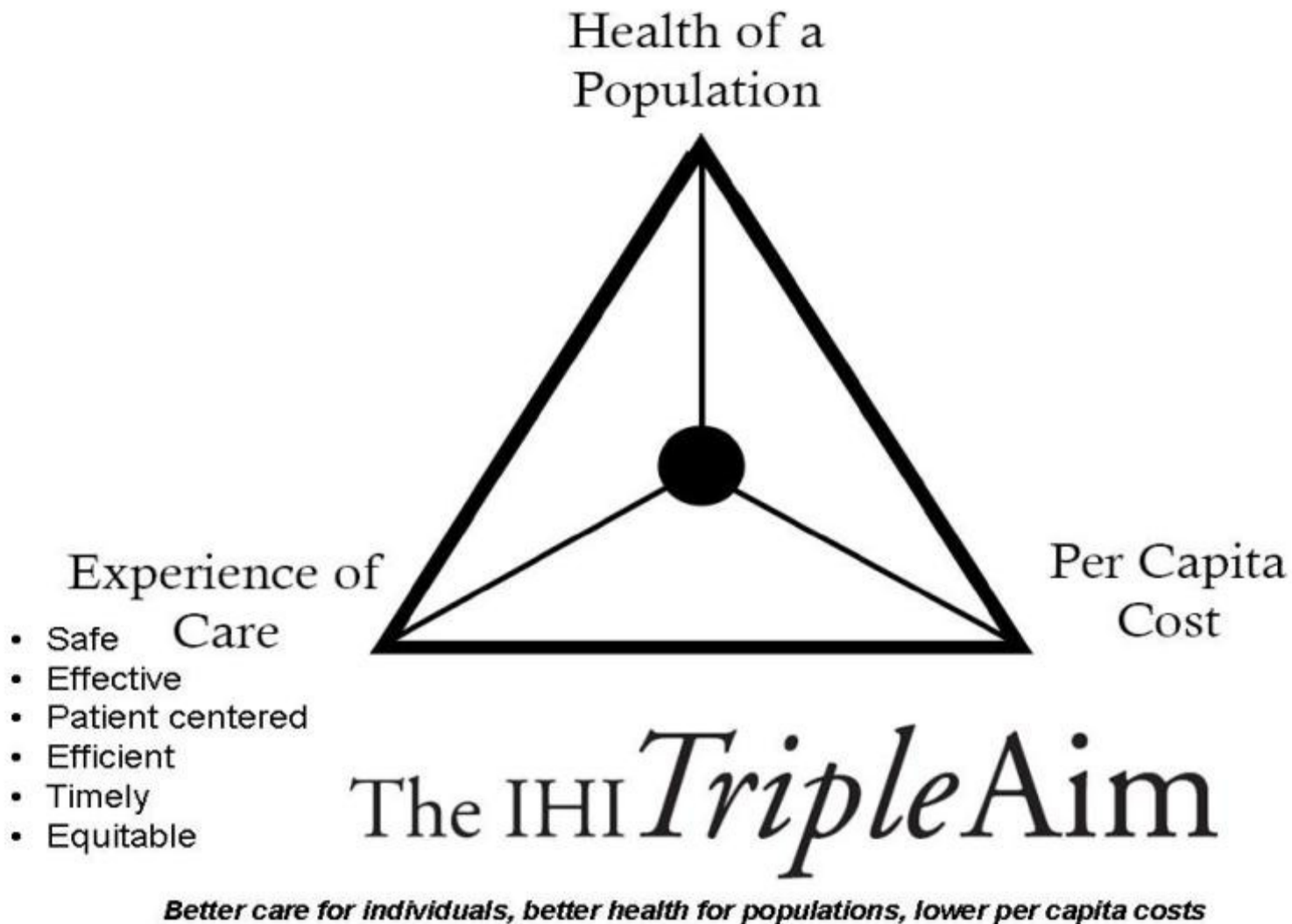**Accreditation Council for Graduate Medical Education**

Competency-based Medical Education (CBME): Systems Thinking for Assessment
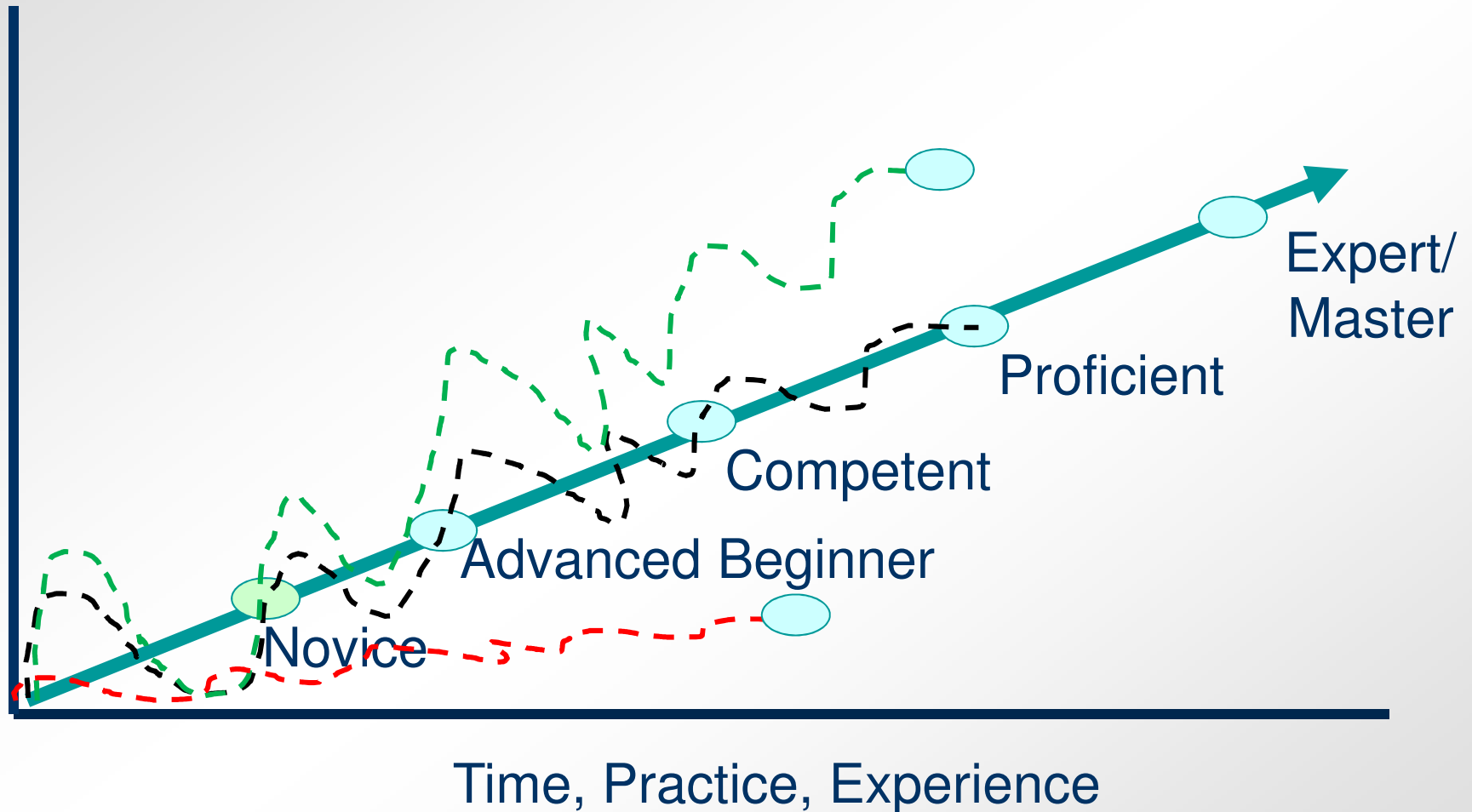
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Think of your training program...

- What outcomes do you expect of your trainees?
    - How do they "connect" to system needs?

- What are the current outcomes demonstrated by your trainees?

A C G M E

What Are The Outcomes?

Health of a Population

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

Per Capita Cost

The IHI *Triple* Aim

Better care for individuals, better health for populations, lower per capita costs

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Dreyfus & Dreyfus Development Model

Time, Practice, Experience

Expert/
Master

Proficient

Competent

Advanced Beginner

Novice

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

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

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Milestones

- By definition a milestone is a significant point in development.

- Milestones should enable the trainee, program and the certification board to know an individuals trajectory of competency acquisition.
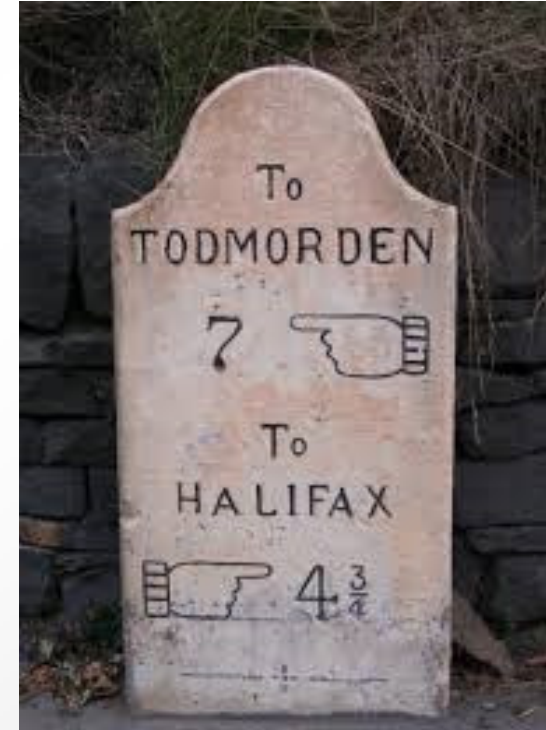
Competency

Sub-competency

Developmental Progression or Set of Milestones

PC1. **History (Appropriate for age and impairment)**

Level 1	Level 2	Level 3	Level 4	Level 5
Acquires a general medical history	Acquires a basic physiatric history including medical, functional, and psychosocial elements	Acquires a comprehensive physiatric history integrating medical, functional, and psychosocial elements Seeks and obtains data from secondary sources when needed	Efficiently acquires and presents a relevant history in a prioritized and hypothesis driven fashion across a wide spectrum of ages and impairments Elicits subtleties and information that may not be readily volunteered by the patient	Gathers and synthesizes information in a highly efficient manner Rapidly focuses on presenting problem, and elicits key information in a prioritized fashion Models the gathering of subtle and difficult information from the patient

Specific Milestone

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Entrustable Professional Activities

- EPAs represent the routine *professional*-life activities of physicians based on their specialty and subspecialty

- The concept of "entrustable" means:
  - "a practitioner has demonstrated the necessary knowledge, skills and attitudes to be <u>trusted</u> to perform this activity [*unsupervised*]."[1]

[1]Ten Cate O, Scheele F. Competency-based postgraduate training: can we bridge the gap between theory and clinical practice? Acad Med. 2007; 82(6):542–547.

An Entrustable Professional Activity

- Part of essential work for a qualified professional
- Requires specific knowledge, skill, attitude
- Acquired through training
- Leads to recognized output
- Observable and measureable, leading to a conclusion
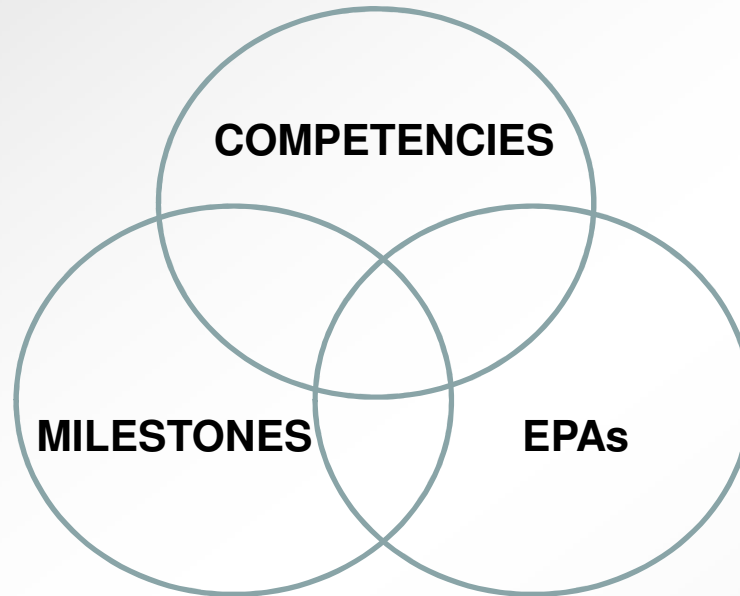- Reflects the competencies expected

- EPA's together constitute the core of the profession

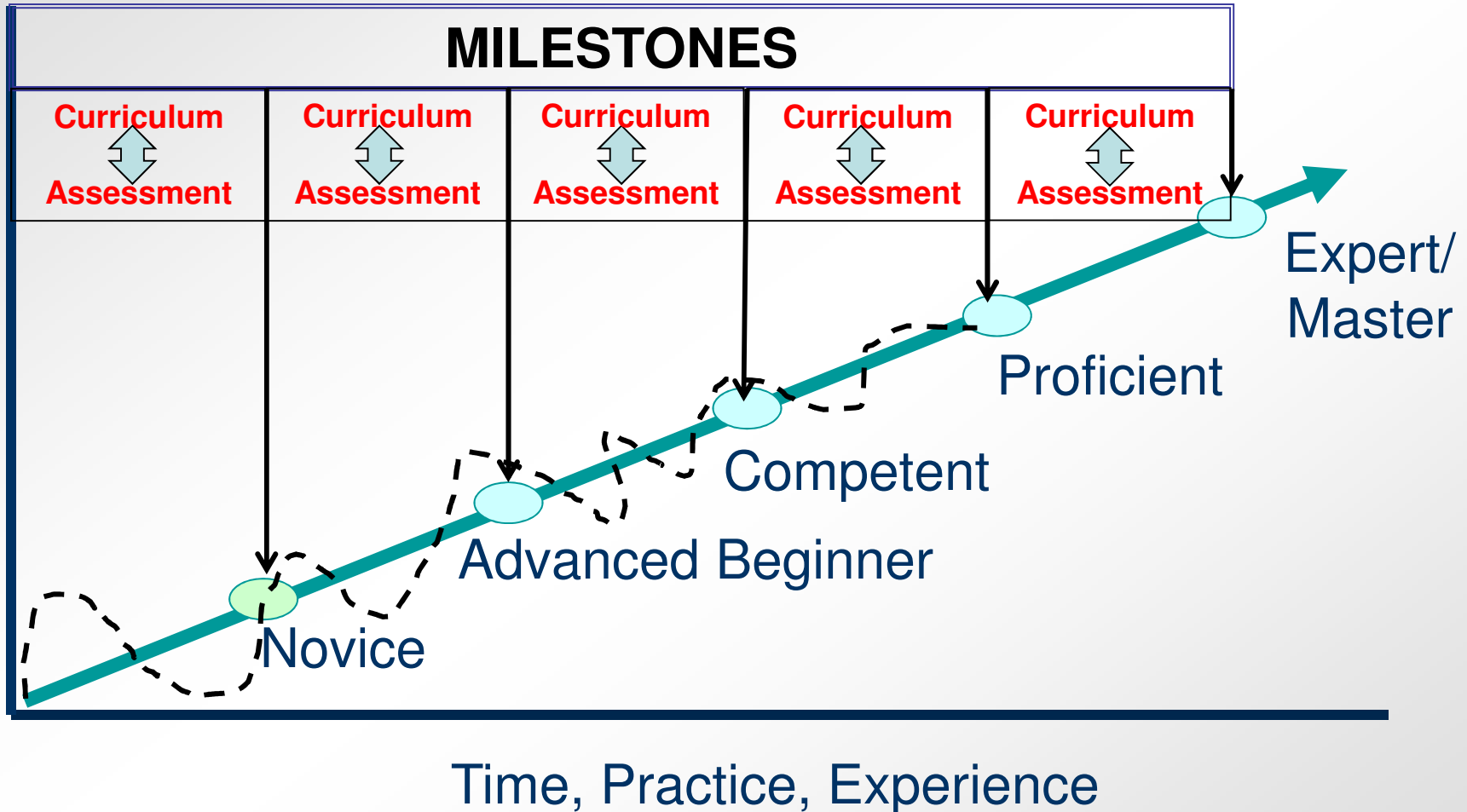ten Cate et al.
Acad Med 2007

Small Group Exercise

Write out an EPA or core graduation entrustment you currently have or make in your training program

Competencies, Milestones and EPAs

Characteristic	Competencies	Milestones	EPAs
Granularity	Low	Moderate to High	Low to Moderate
Synthetic/Integrated	Moderate	Low to Moderate	High
Practicality (application)	Low	Moderate	High
Conceptual	High	Low	Low to Moderate

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Dreyfus & Dreyfus Development Model

Time, Practice, Experience

Information Current as of December 2, 2013
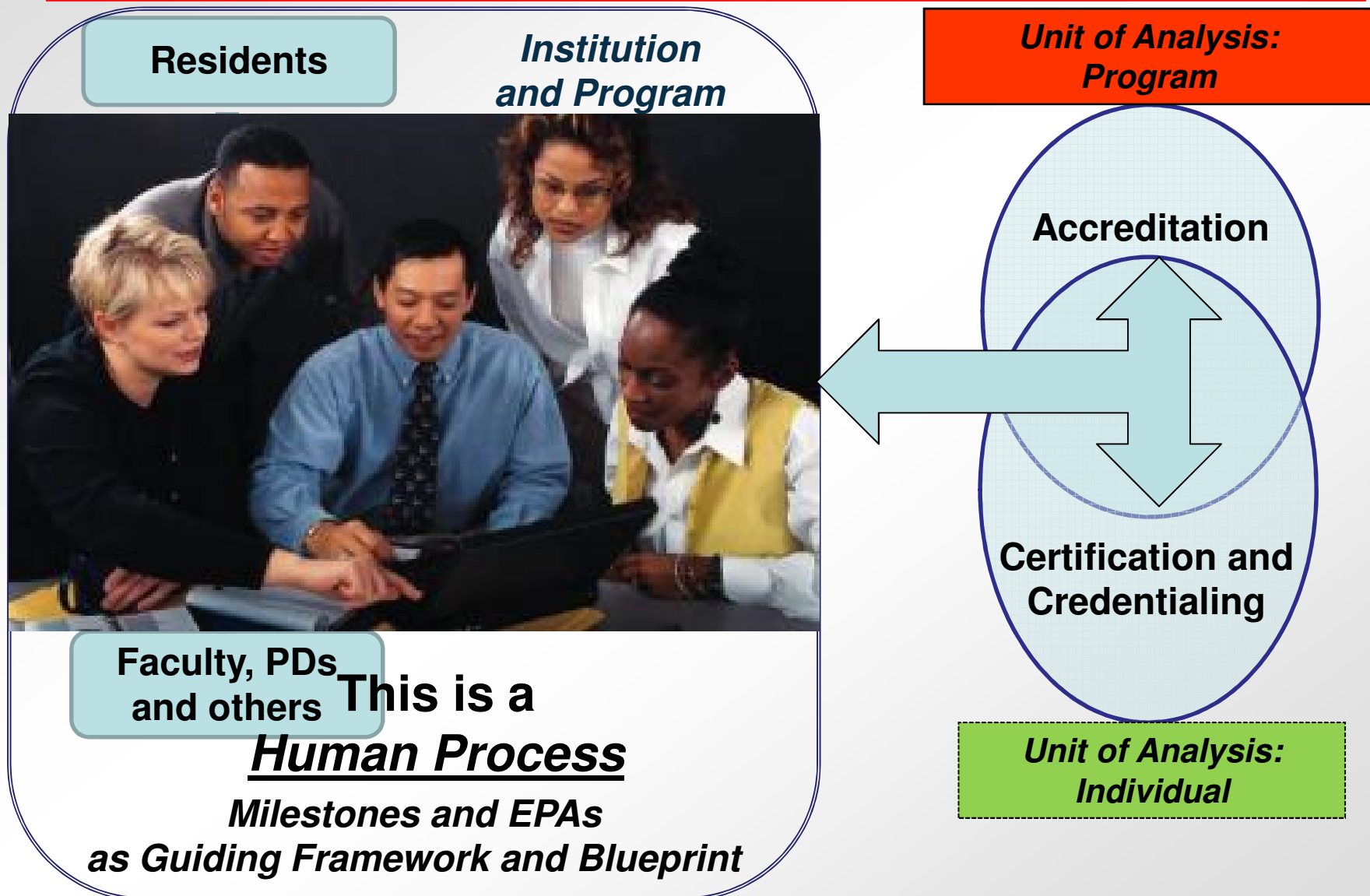
Small Group Exercise

What Do You See As Your Major Curricular Issues?

Where Might There Be Mismatch Between Outcomes-Assessment-Curriculum?

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Assessment System
for Effective CBME

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A C G M E

The U.S. GME Assessment "System"

Residents

Institution and Program

Unit of Analysis: Program

Accreditation

Certification and Credentialing

Unit of Analysis: Individual

Faculty, PDs and others This is a
**Human Process**
*Milestones and EPAs
as Guiding Framework and Blueprint*

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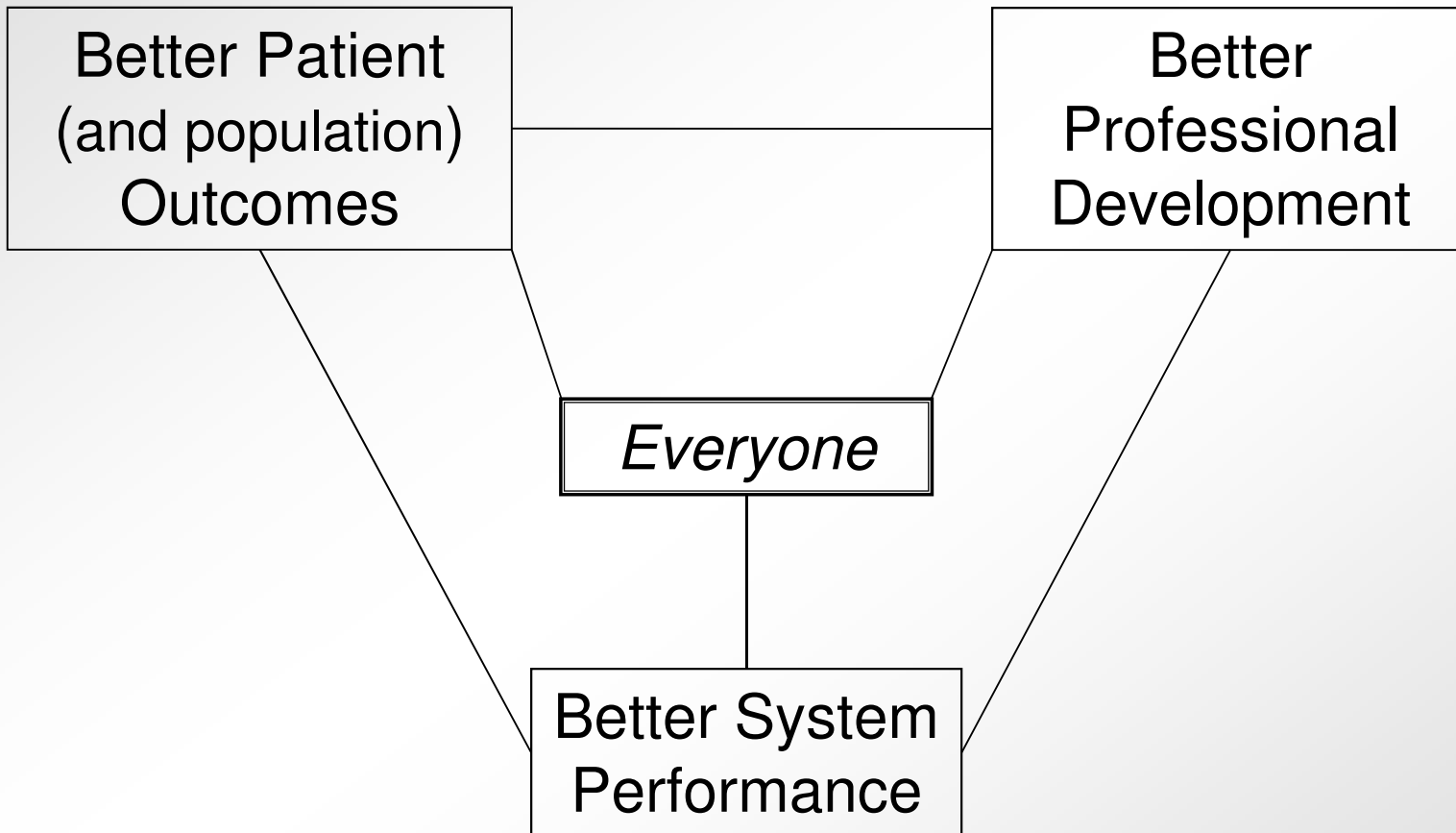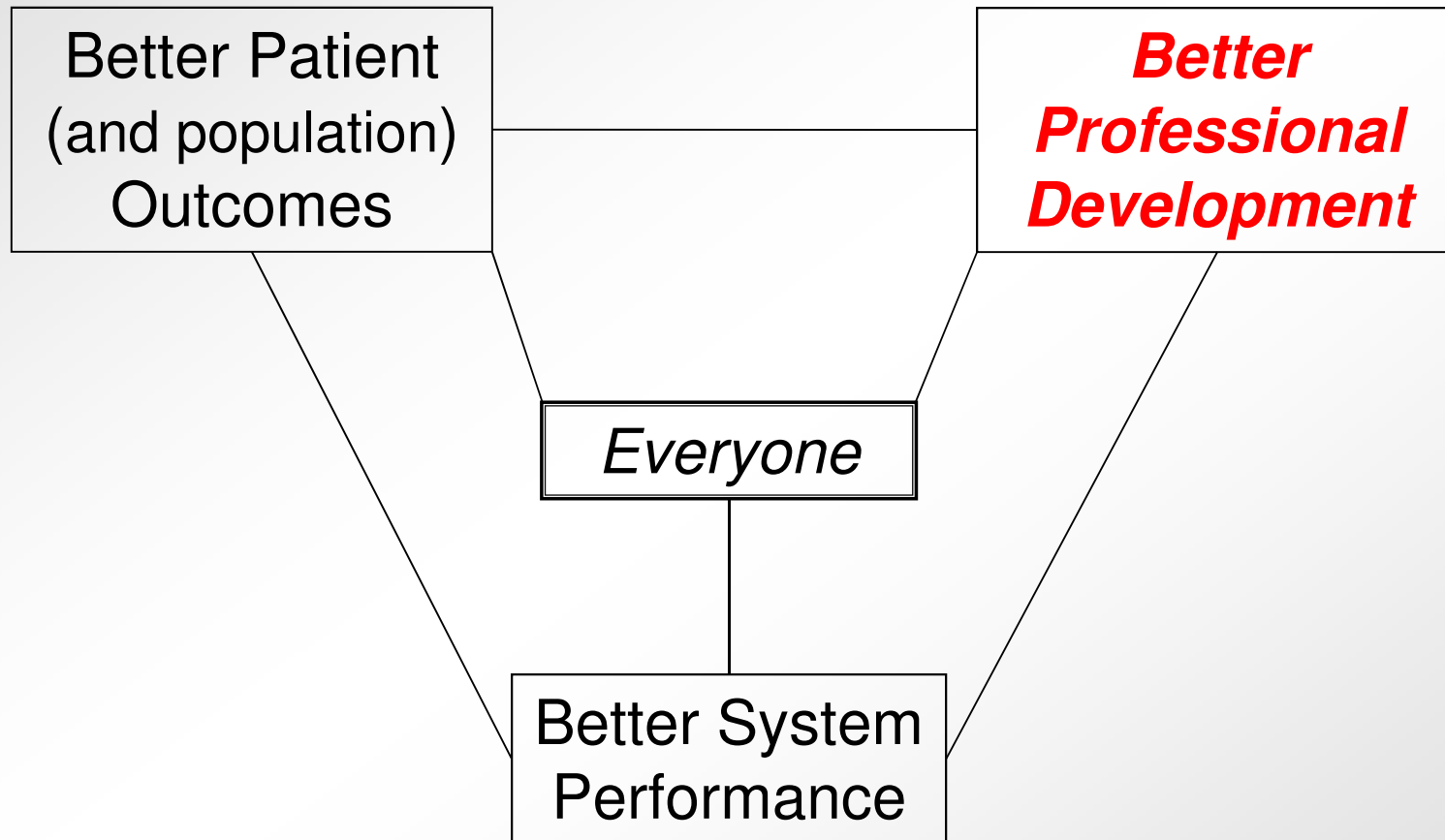
What is a "System?"

- Deming:
  - "Two or more parts that work together to accomplish a shared aim."
- Key concepts:
  - Working together, interactional and interdependent.
  - CBME as a system is not simply the sum or average of the curricular and assessment components, but the product of all the interactions among the components.

Linked Aims of Improvement

Better Patient (and population) Outcomes		Better Professional Development

Everyone

Better System Performance

Batalden PB and Davidoff F. Qual Saf Health Care. 2007;16:2–3.

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Linked Aims of Improvement

Better Patient (and population) Outcomes — Better Professional Development — Everyone — Better System Performance

Batalden PB and Davidoff F. Qual Saf Health Care. 2007;16:2–3.

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Norcini: How do we train faculty?

Faculty development

- Methods of assessment will need to be based largely on observation
  - Faculty are the <u>measurement instrument</u> and they need training
- Frames of reference (e.g. EPAs) make training easier but they are not a substitute for it
  - 2-4 hour training exercise with periodic follow-up important (deliberate practice)

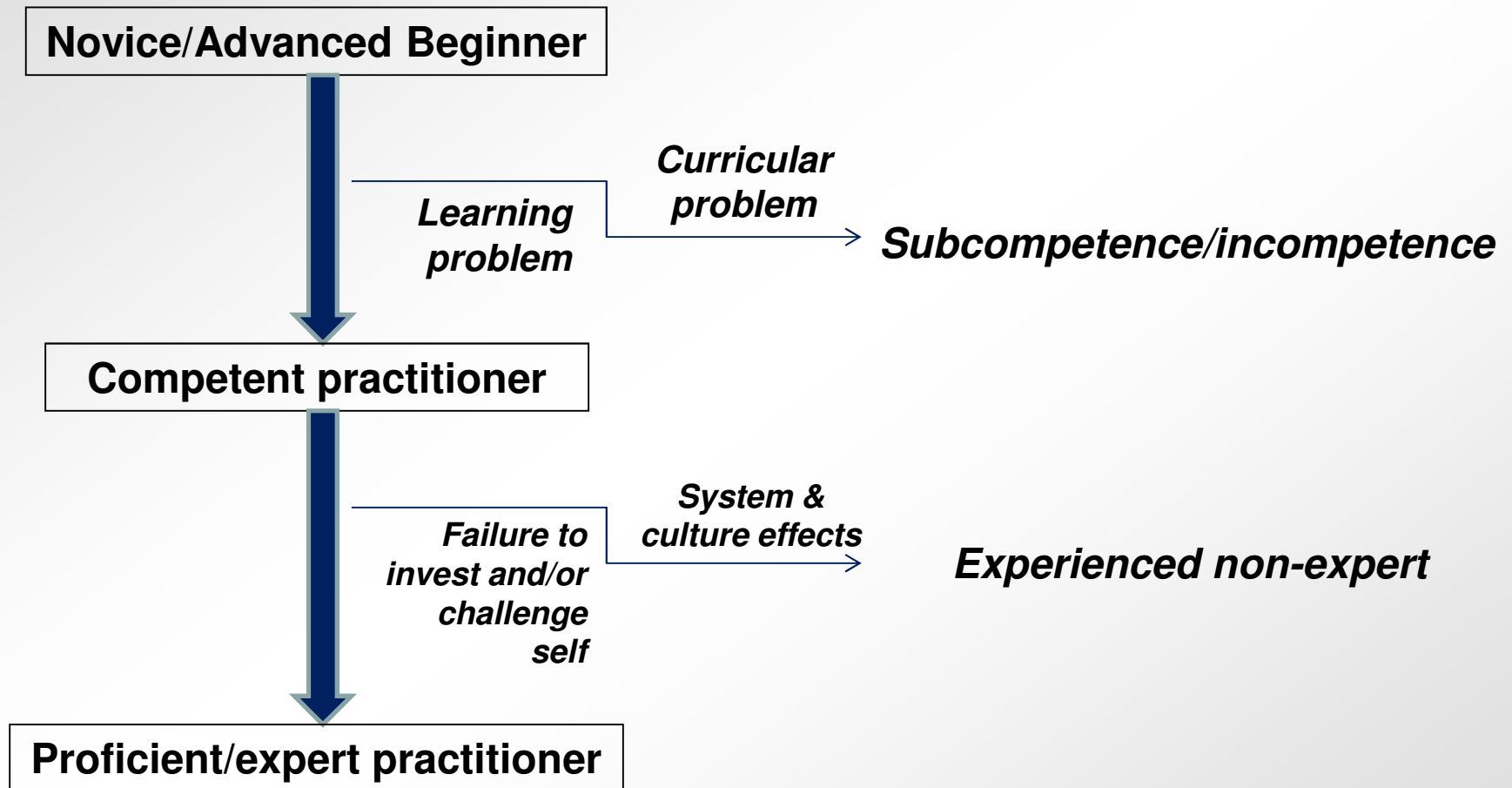*From J. Norcini; AMEE 2013; FAIMER*

Faculty Development: Definition

"Any planned activity to improve an individual's knowledge and skills in areas considered essential to the performance of a faculty member in a department or a residency programme (e.g. teaching skills, administrative skills, research skills, clinical skills)".

Sheets and Schwenk (1990)

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A C G M E

MCLEAN, CILLIERS and VAN WYK

- Faculty development is not a luxury. It is an *imperative* for every medical school.

- Sustainable faculty development requires a medical education unit/department staffed with respected faculty developers who are academic role models.

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Problems in the Progression

Novice/Advanced Beginner

Learning problem   *Curricular problem*

→ *Subcompetence/incompetence*

Competent practitioner

Failure to invest and/or challenge self   *System & culture effects*

→ *Experienced non-expert*

Proficient/expert practitioner
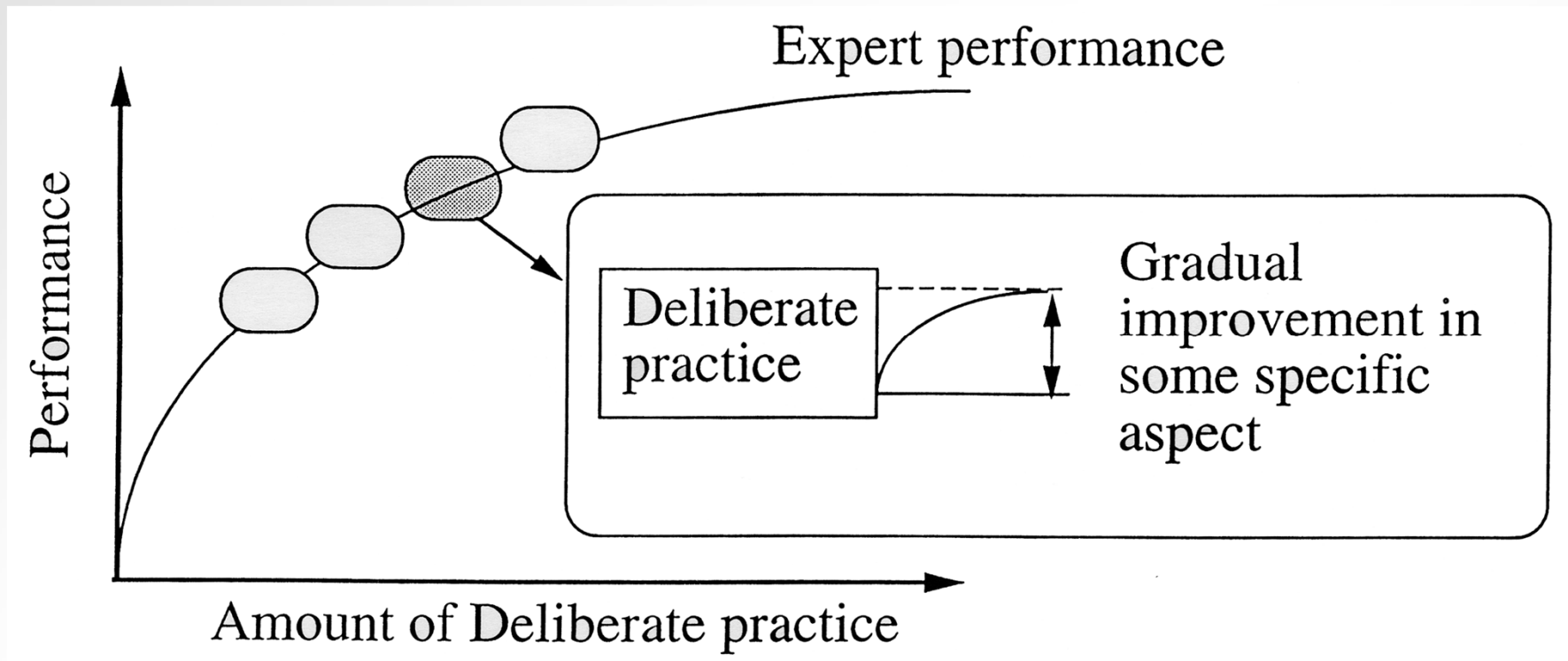
Adapted from Hodges and Holmboe

Design and Sequencing of Training Activities

* Monitor students' development
* Design and select training tasks for individual students

Professional teachers and coaches

From Anders Ericsson: Used by Permission

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Effective Features of FD

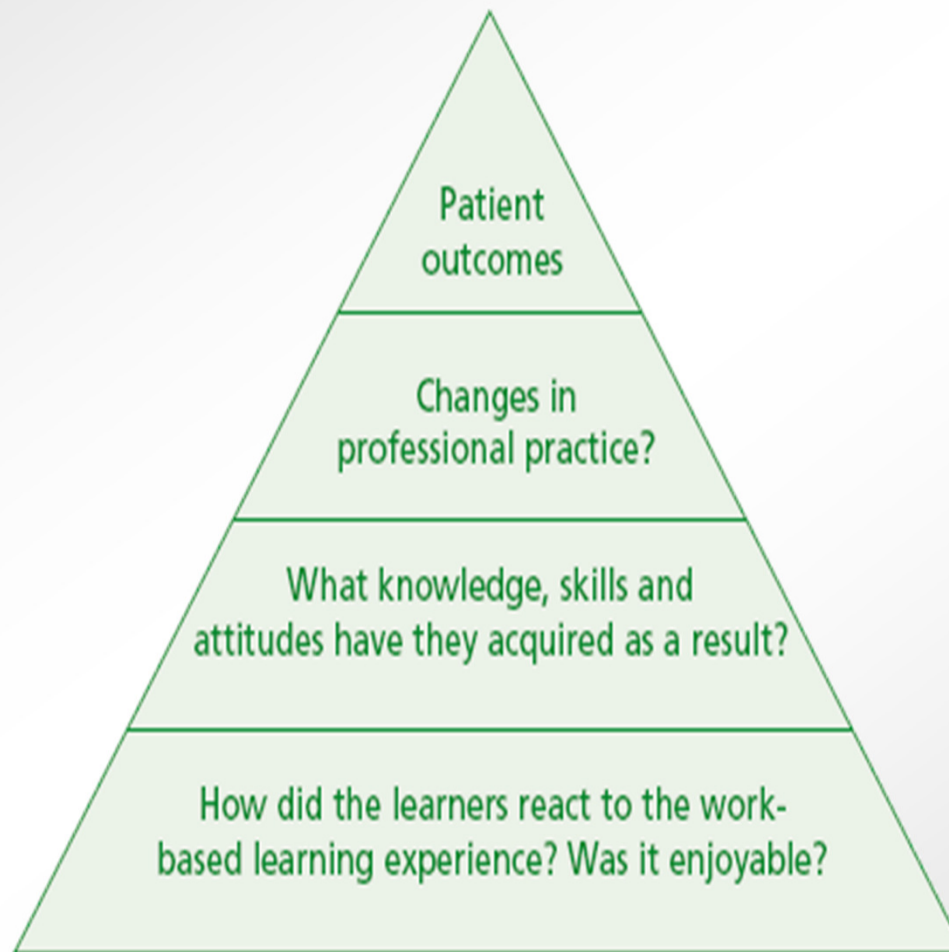| |
|---|
| **Include experiential learning** |
| **Allow opportunities for practice and feedback** |
| **Incorporate peer role modeling to promote exchange of information and ideas** |
| **Use a mix of instructional methods (both interactive and didactic)** |
| **Create a longitudinal program whenever possible** |
| **Try to build and enhance social networks; build and maintain communities of practice** |
| **Present new knowledge/skills in the context of applying them to real life situations** |
| **Create informal, comfortable, flexible, non-threatening settings for faculty development** |

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Kirkpatrick Model:
Medical Program Perspective

Patient
outcomes

Changes in
professional practice?

What knowledge, skills and
attitudes have they acquired as a result?

How did the learners react to the work-
based learning experience? Was it enjoyable?

National Health Service – UK.
http://www.wipp.nhs.uk/tools_gpn/unit6_education.php

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Effective Assessment Process

- Clarity on right outcomes linked to curriculum

- Right combination and *synthesis* of assessment methods

- Critical importance of shared understanding & mental models of competence
  - Competencies, milestones, entrustable professional activities (EPAs)

Assessment and Safe Patient Care

➢ Importance of appropriate supervision
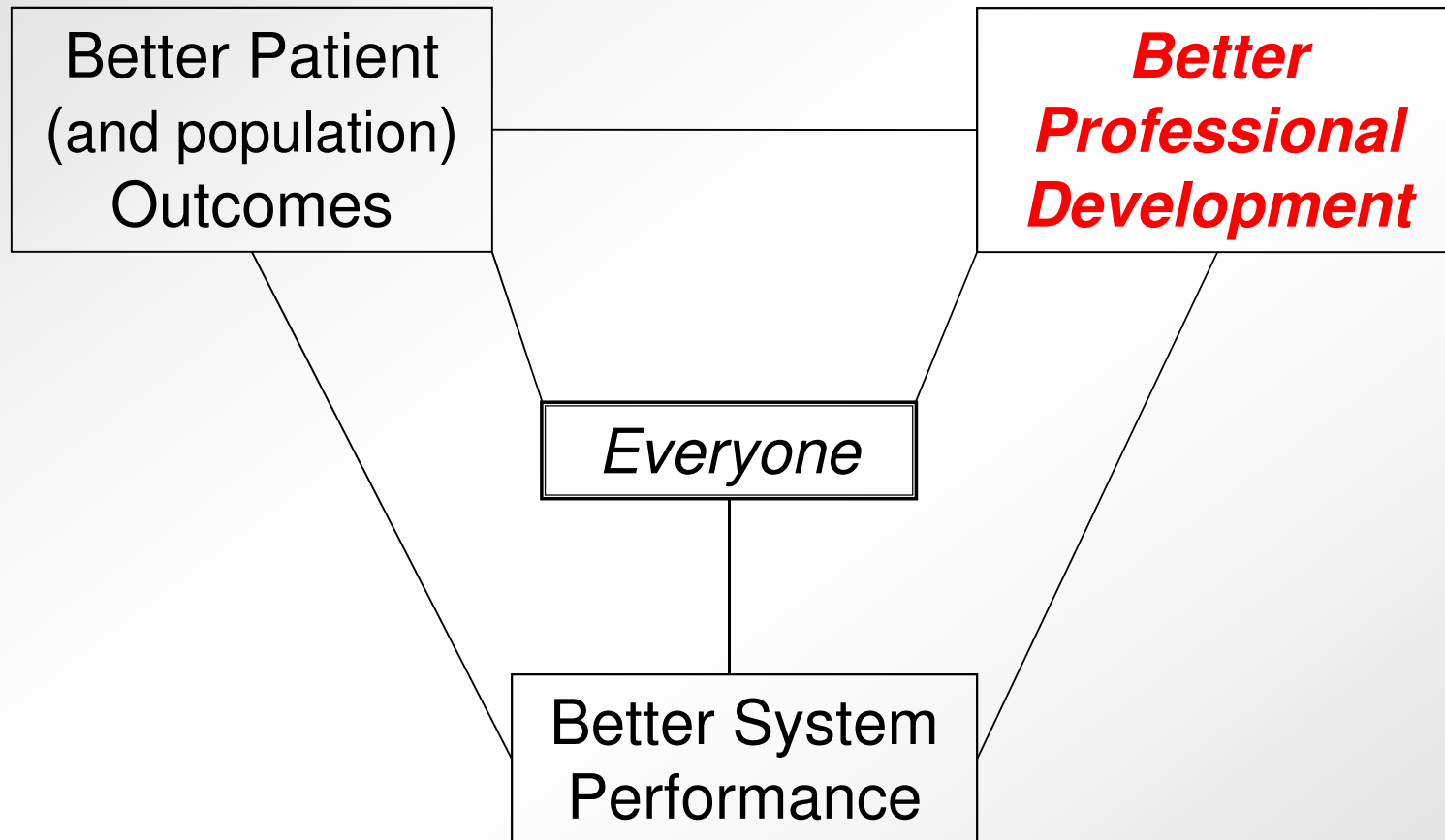➢ Entrustment

Trainee performance* X

Appropriate level of supervision**

Must = Safe, effective patient-centered care

* a function of level of competence in context

**a function of attending competence in context

Discussion: Your Efforts FD

Better Patient (and population) Outcomes

Better Professional Development

Everyone

Better System Performance

Batalden PB and Davidoff F. Qual Saf Health Care. 2007;16:2–3.

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System "Structure"

Assessment During Training: Structures

Clinical Competency Committee
- Periodic review – professional growth opportunities for all
- Early warning systems

Advisor

Trainee
- Review portfolio
- Reflect on contents
- Contribute to portfolio

Structured Portfolio
- ITE (formative only)
- Monthly Evaluations
- MiniCEX
- Medical record audit/QI project
- Clinical question log
- Multisource feedback
- Trainee contributions (personal portfolio)
  ○ Research project

Program Leaders
- Review portfolio periodically and systematically
- Develop early warning system
- Encourage reflection and self-assessment

Program Summative Assessment Process

Licensing and Certification

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Portfolios as the System's Interactive Information "Hub"

Portfolio Definition

"A **purposeful** collection of learner work that exhibits to the learner (and/or other) the learner's efforts, progress, or achievement in (a) given area(s). This collection must include **learner participation** in selection of portfolio content; the **criteria for selection**; the **criteria for judging merit**, and evidence of **learner reflection**. (p. 12)."

Reckase, M.D. (1995). Portfolio assessment: a theoretical estimate of score reliability. *Educational Measurement: Issues and Practice* **14**: 12-31.

Key Portfolio Features

- Formative and summative components
- Qualitative and quantitative components
- Personalized components
  - Reflection
  - Self-assessment
  - Learner driven creative component
  - Reflective of actual practice
- Defensible degree of standardization

Freidman 2001 Med Teach

A C G M E

A <u>Structured</u> Portfolio

- Structure can improve the reliability of the assessment process.
  - Clear guidelines and instructions
  - Universal assessments
  - Defined number of assessments with known reliability and validity (mini-CEX)
  - Criteria and processes for assessment are clearly defined and transparent
  - Training of evaluators (PDT or FoRT)

Freidman 2001 Med Teach
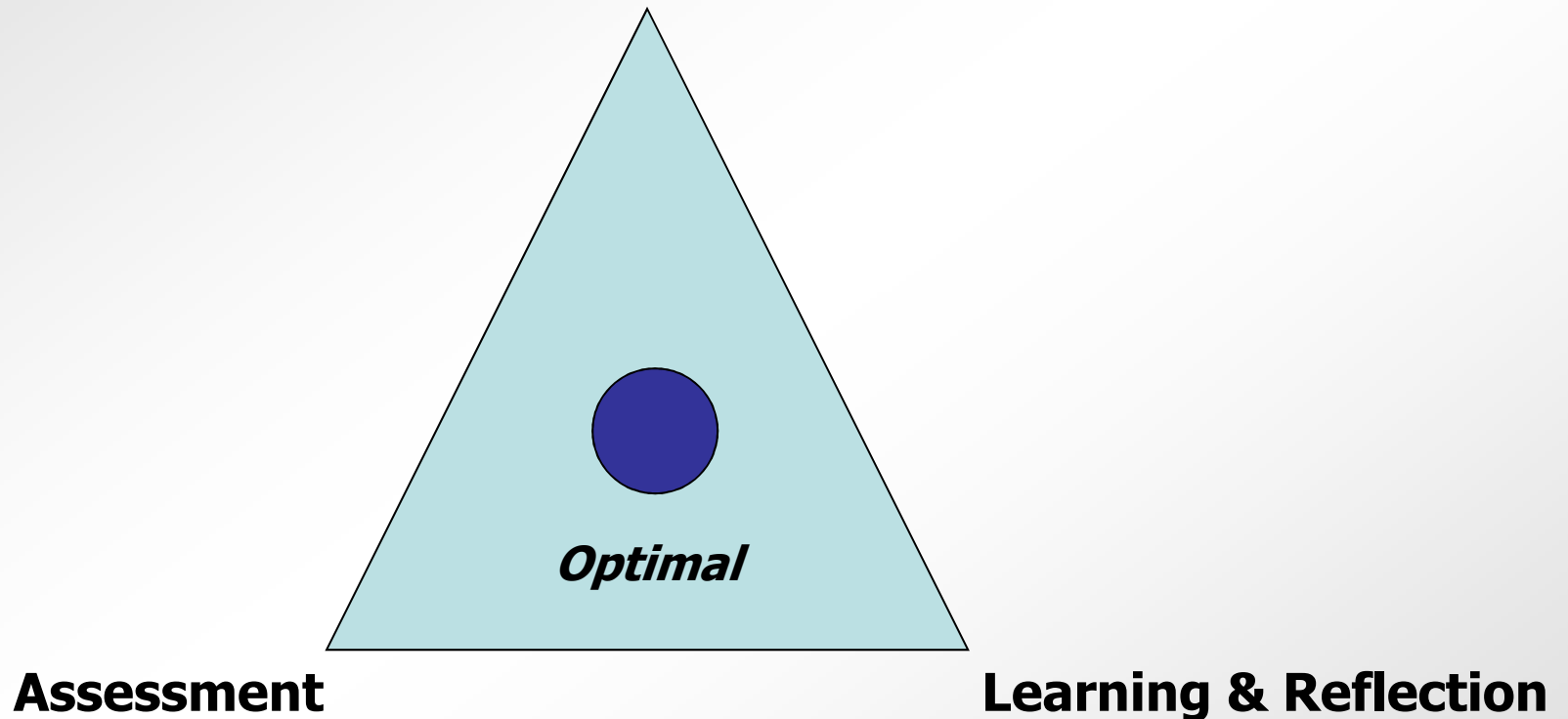
A C G M E

Portfolios and Reflective Practice

- Systematic approach to review one's clinical practice, including errors, seek answers to problems, and make changes in practice habits, styles, and approaches based on self-reflection and review

- Incorporates self-assessment into behavior change

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Review of Portfolio Steps

Portfolio Step	Responsible party
1. Collect Evidence	Program/trainee
2. Reflection	Trainee
3. Evaluation ▪ Evidence/reflection	Mentor Program
4. Defense	Trainee to program
5. Decision	Program

Portfolio Purpose

Monitoring and Planning

Optimal

Assessment

Learning & Reflection

Dreissen, Maastrict

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Current Debate: BMJ Head to Head

Are learning portfolios worth the effort? *No*

- Its versatility makes it hard to judge whether a portfolio is good or bad

- Limited evidence; much obtained from self-report

- Not clear effort is rewarded

- Benefit may be in a side-effect:
  - force students to write something and teachers to spend some time with students

Norman, G. BMJ 2008:3337:a514

On a Positive Note
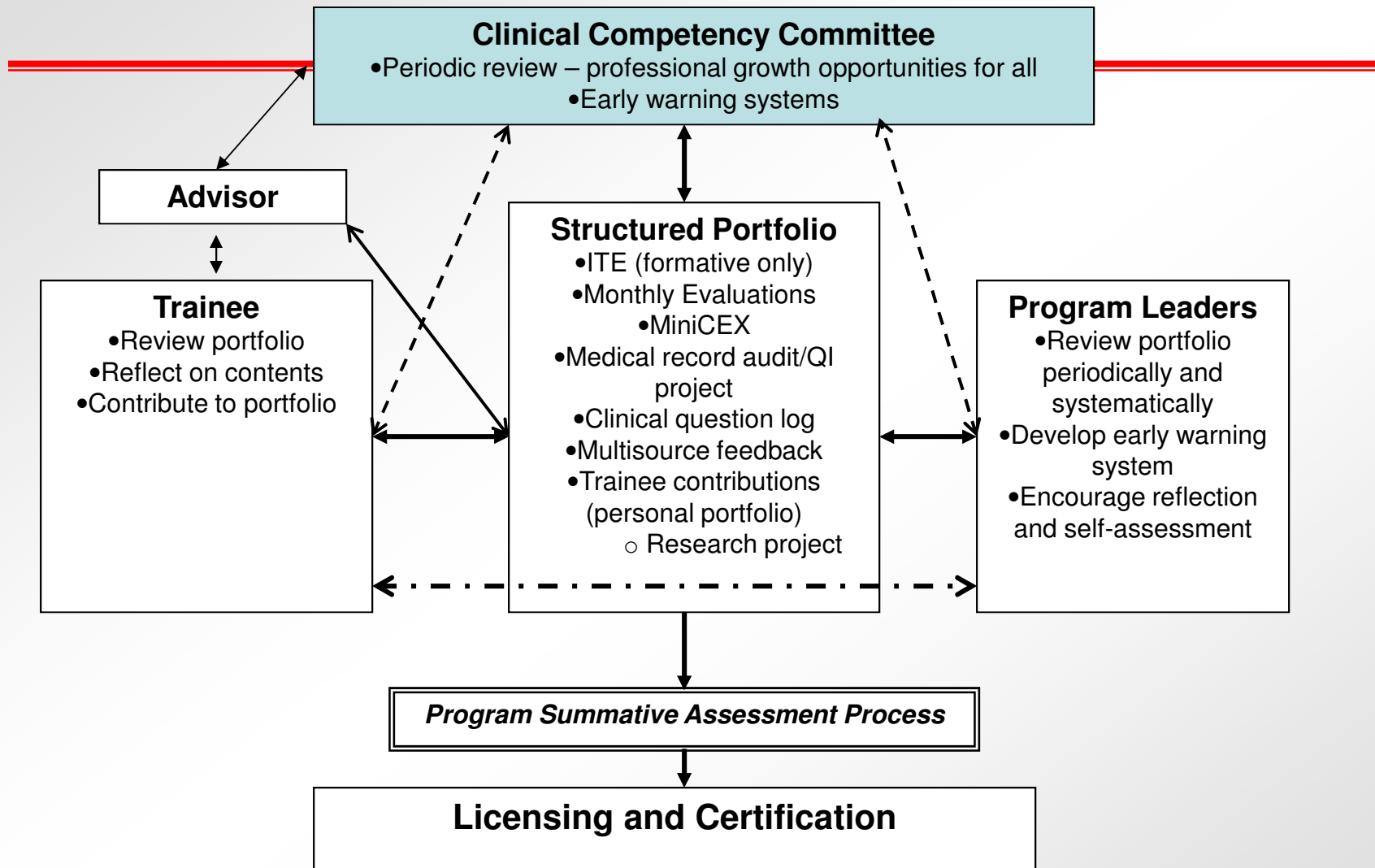
Are learning portfolios worth the effort? *Yes*

- Portfolio is best solution since it allows the collation and integration of evidence
- Portfolios can guide and coach professional development
- Flexibility is advantage when carefully developed
- Mentoring is the single most decisive success factors
- Portfolios much be smart and lean
- Careful implementation is crucial

Driessen, E. BMJ 2008:337:a513

**Accreditation Council for Graduate Medical Education**
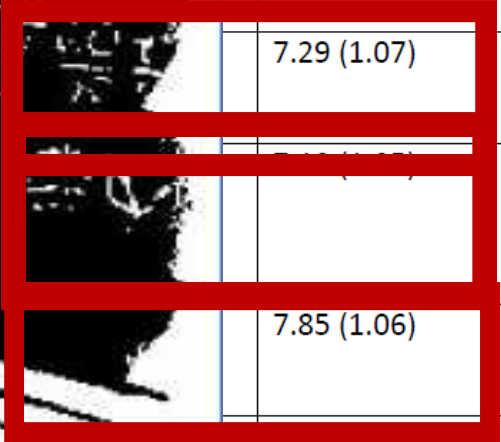
Group Decision Making

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Assessment During Training: Structures

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   o Research project

Program Leaders
•Review portfolio periodically and systematically
•Develop early warning system
•Encourage reflection and self-assessment

Program Summative Assessment Process

Licensing and Certification

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PGY-3 Resident: [obscured]
Evaluation Period: July 2[obscured]
Rotations: Cardiology, Un[obscured]

	N/A									[obscured]	Avg Peers (STD)
Patient Care	6.8%										7.32 (1.05)
Medical Knowledge	4.9%										7.29 (1.07)
Practice-Based Learning & Improvement	16.9%										
Professionalism	2.3%										7.85 (1.06)
Interpersonal & Comm Skills	1.5%										
Systems-Based Practice	11.5%										7.23 (1.08)
Overall Clinical Competence	0.8%				2.1%	10.5%	49.7%	28.9%	7.5%	7.35(0.8)	7.68 (1.06)

THEN A MIRACLE OCCURS
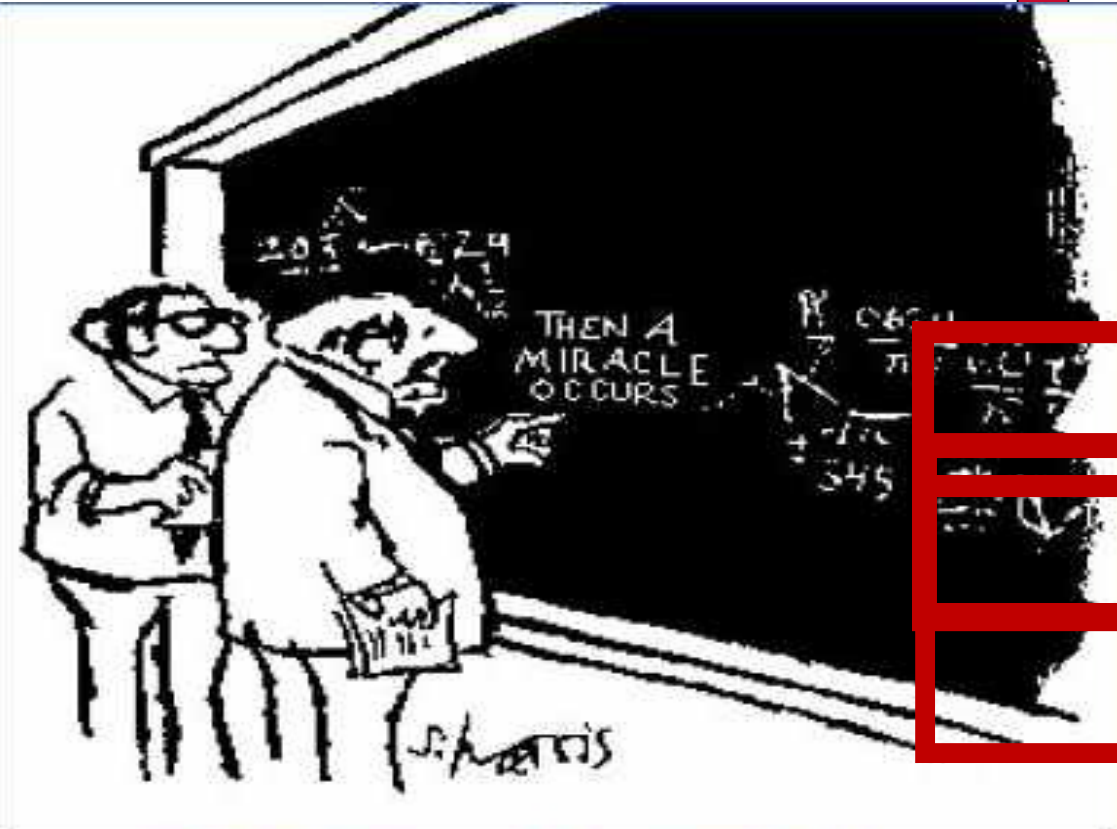
"I Think You Should Be More Explicit Here In Step Two."

Information Current as of December 2, 2013
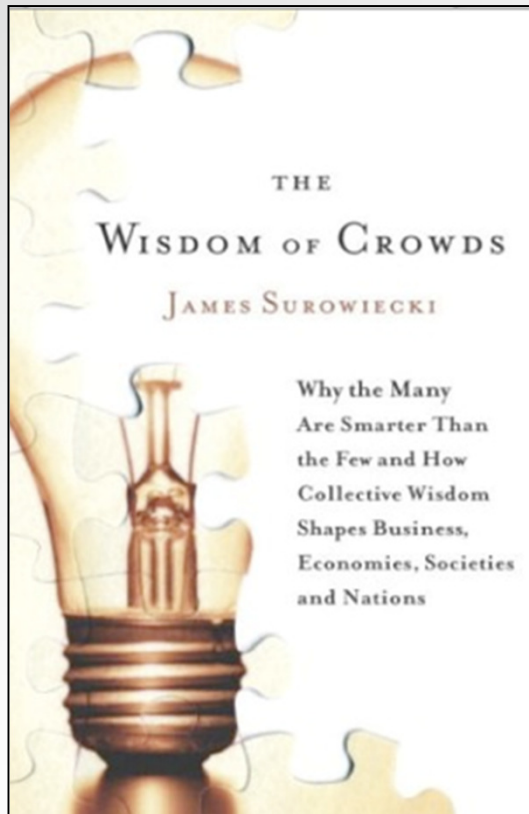
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Use Old Assessment Approaches?
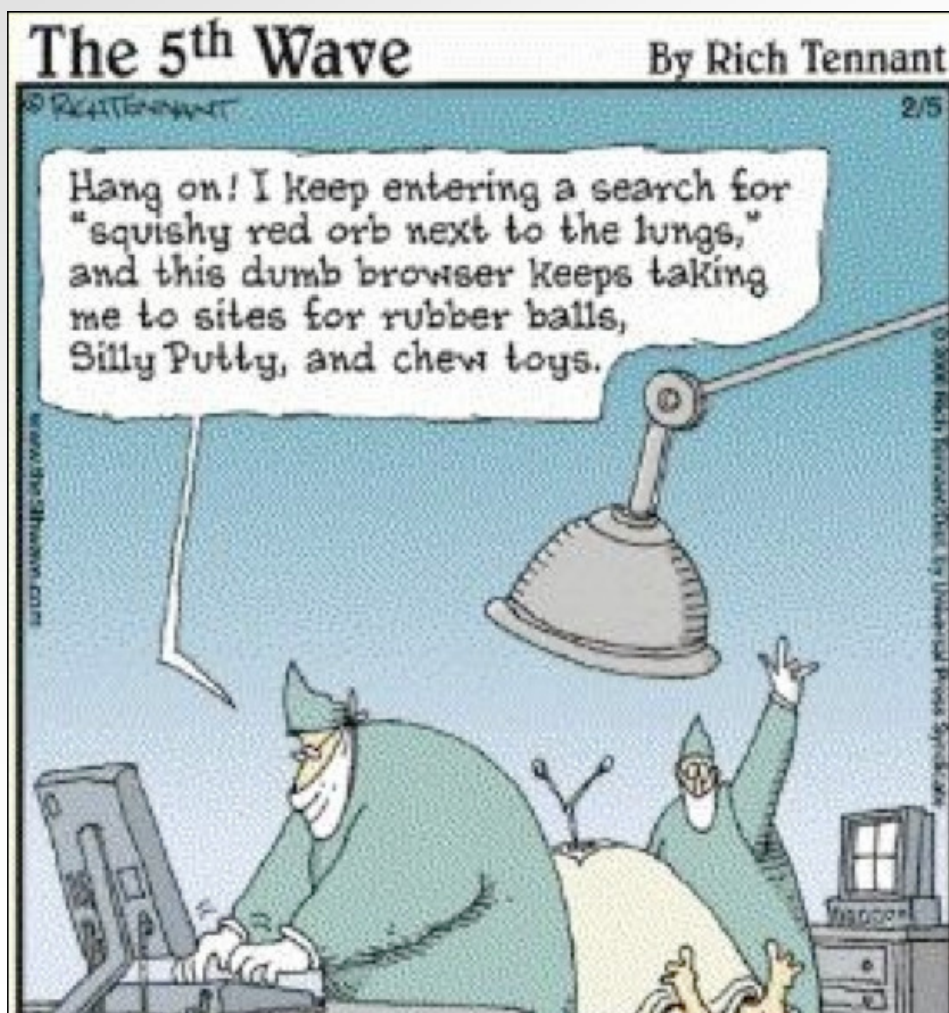
- "Garbage In: Garbage Out"

- Output is only as good as the data that is entered into the system.

- Committee may struggle in their assigned role.

Group Decision Making

➤ Key Issues

   ➤ What is the environment in which the committee performs its work?

      ➤ What is the local culture?

         ➤ Groups within groups

      ➤ What is the medical culture of Abu Dhabi?

   ➤ What are the effects of hierarchy on group decision making?

      ➤ Berg: Medicine one of the most hierarchical of all professions

   ➤ Single variable of effectiveness: extent to which people are willing to say "positive" and "negative" comments and observations in a group

The Wisdom of Crowds

THE
WISDOM OF CROWDS
JAMES SUROWIECKI

Why the Many
Are Smarter Than
the Few and How
Collective Wisdom
Shapes Business,
Economies, Societies
and Nations

- The wisdom of many is often better than the wisdom of the few
- To maximize the probability of good judgments:
  - Sample
  - "Independence"
  - Diversity

  are important…

Basic Committee Principles

- Evidence-based versus verdict-based "jury"
  - Start and review all evidence *before* a decision
    - *Do not start* with a conclusion/decision
  - Confirmation bias
- Be careful not to emphasize consensus over dissent
  - Minority opinions, even if "wrong", still helpful
  - Be sure all voices are "heard" and watch carefully for negative effects of hierarchy

Committee Benefits

- Develop group goals and shared mental models

- "Real-time" faculty development

- Key for dealing with difficult trainees

- Share and calibrate strengths and weaknesses of multiple faculty assessments ("observations")

- Key "receptor site" for frameworks/milestones
  - Synthesis and integration of multiple assessments

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"Wisdom of the Crowd"

- Hemmer (2001) – Group conversations more likely to uncover deficiencies in professionalism among students

- Schwind, Acad. Med. (2004) –
  - 18% of resident deficiencies requiring active remediation became apparent only via group discussion.
    - Average discussion 5 minutes/resident (range 1 – 30 minutes)

Narratives and Judgments

- Pangaro (1999) – matching students to a "synthetic" descriptive framework (RIME) reliable and valid across multiple clerkships
  - <u>Key component</u>: good *process* with facilitation

- Regehr (2012) – Faculty created narrative "profiles" (16 in all) found to produce consistent rankings of excellent, competent and problematic performance.

Small Group Exercise

How Does or Might Group Process Help You Here in Denmark with CBME?

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Thank You and Questions

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