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of Internal Medicine

Reform and Competency-based Medicine Education: Changing Forces and Realities

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Disclosures

- Employed by the American Board of Internal Medicine
- I receive royalties from Mosby-Elsevier for a textbook on assessment
- I am a member of the board of NBME and Medbiquitous
- I serve on committees at the AAMC, ABMS, ACGME and NBME

Outline

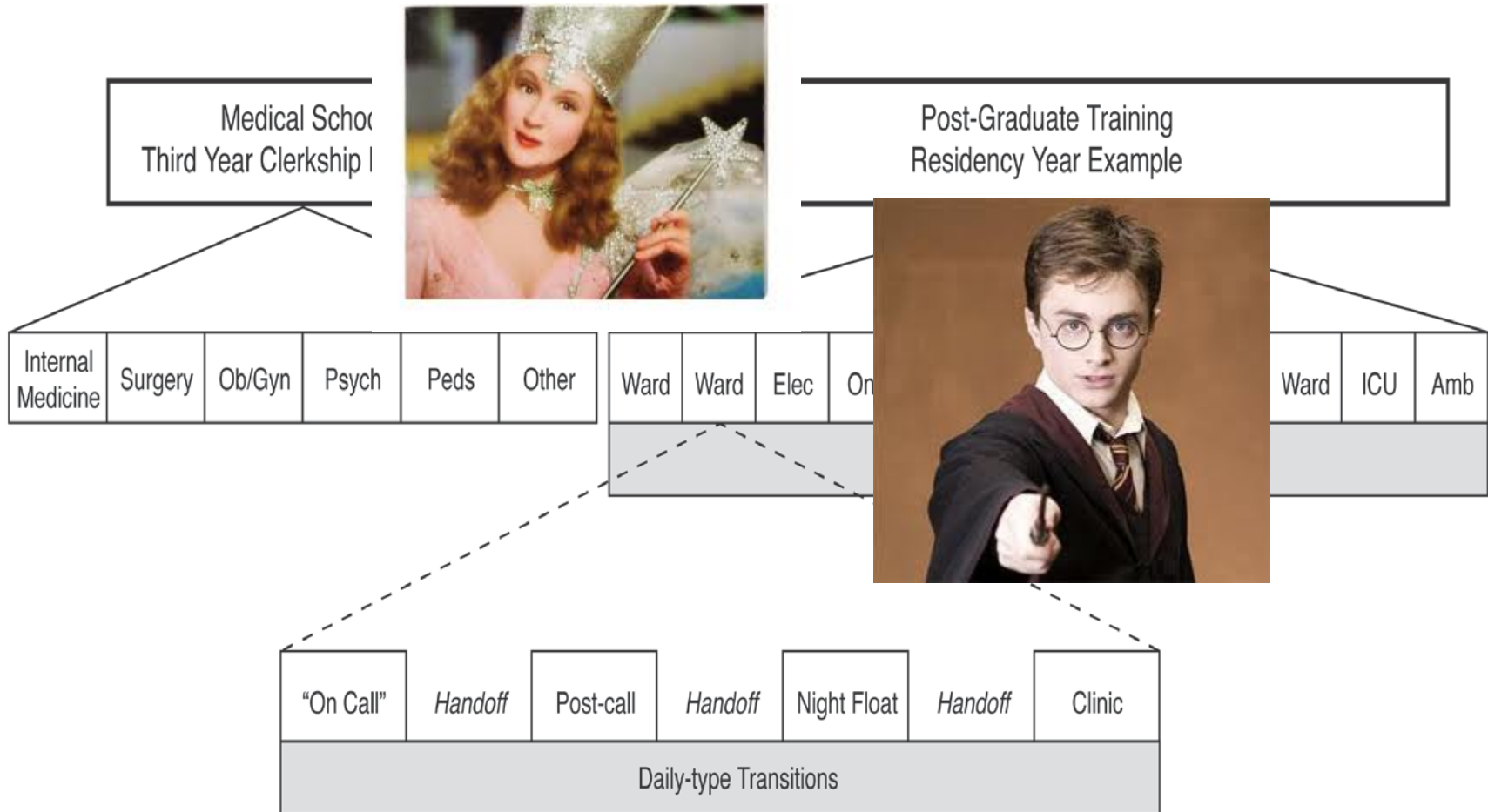
- Historical and current forces in medicine and education
- External forces driving change
- Reform and implications of CBME
- Moving forward

The “Big Assumption as Truth”

- We operate on many assumptions that over time become “truth” without our testing or questioning the veracity of those assumptions
 - Test assumptions *as assumptions*
- Immunity to change
 - Preservation of status quo through fear
 - More comfortable to stay with familiar even when status quo isn't effective

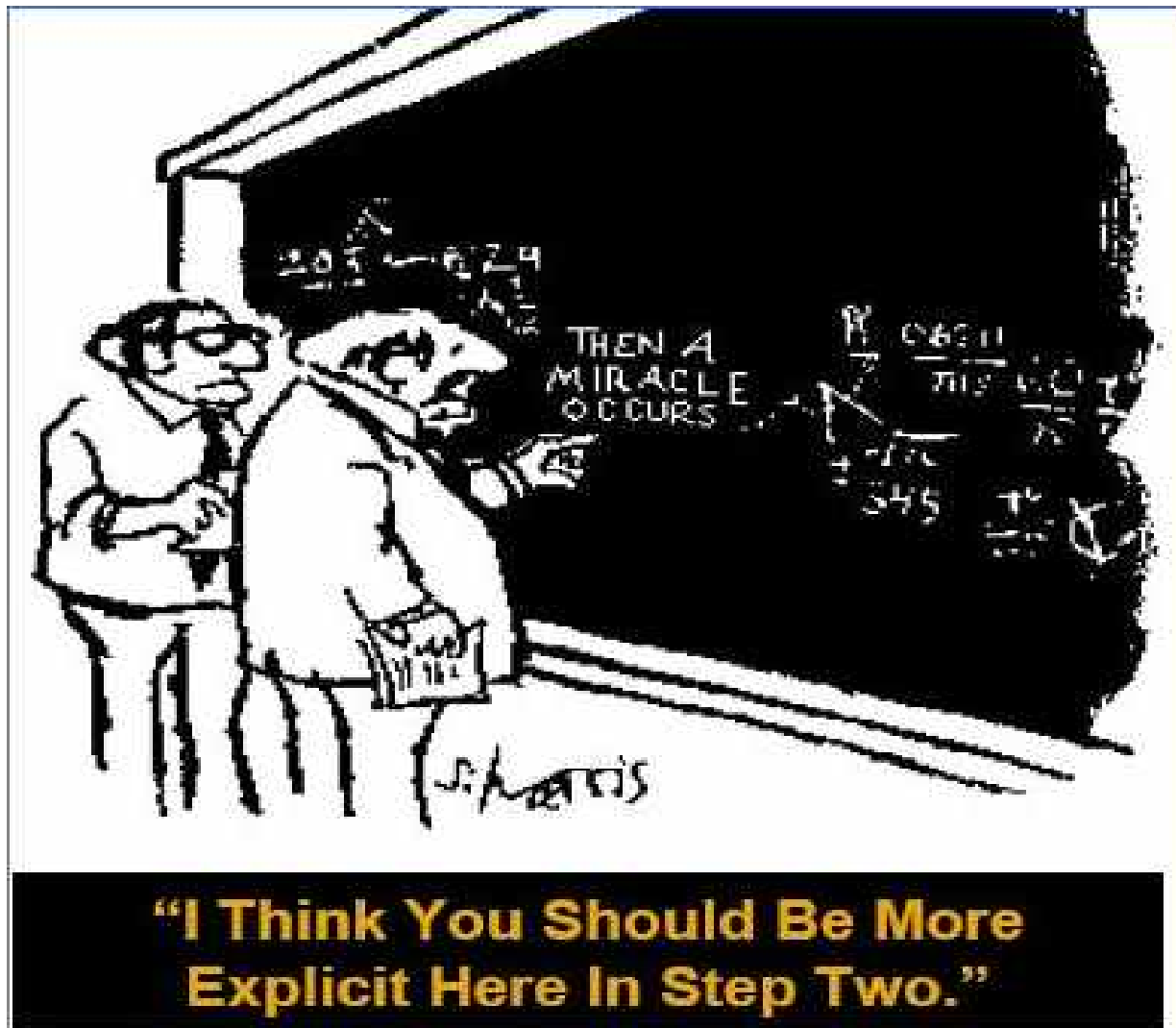
Kegan and Lahey. *The Way We Talk Can Change the Way We Work; Immunity to Change.*

Medical Education Architecture



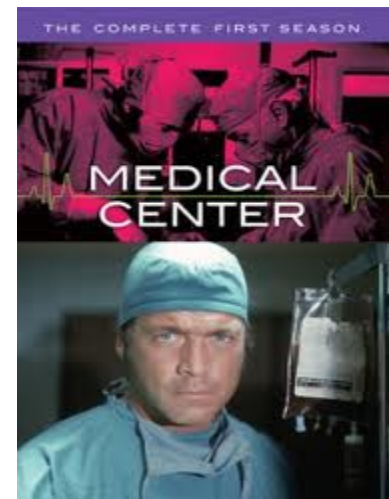
Holmboe E, Ginsburg S, Bernabeo E. The rotational approach to medical education: time to confront our assumptions. *Med Educ.* 2011; 45(1):69-80.

The “Miracle” of Medical Education



Nostalgialitis Imperfecta

- Syndrome characterized by the following signs and symptoms:
 - “When I was an intern...<insert superlative>”
 - “Medicine was so much better 25 years ago”
 - Reality: *Not really...*
 - “Younger physicians today are less professional, skilled, etc. because of <insert favorite complaint>”



Faculty and Clinical Skills

“Evidently it is not deemed necessary to assay students’ and residents’ clinical performance once they have entered the clinical years. Nor do clinical instructors more than occasionally show how they themselves elicit and check the reliability of the clinical data...”

Faculty and Clinical Skills

To a degree that is often at variance with their own professed scientific standards, attending staff all too often accept and use as the basis for discussion, if not recommendations, findings reported by students and residents without ever evaluating the reporter's mastery of the clinical methods utilized or the reliability of the data obtained.”

Faculty and Clinical Skills

*From **George Engel***

*1976 editorial on JAMA paper highlighting
deficiencies in student and resident basic
clinical skills*

Harvard Medical Practice Study

- **Methods:**
 - Investigated prevalence of adverse events due to medical management
 - Review of 30,121 medical records from 51 randomly selected acute care hospitals
- **Results:**
 - Adverse events occurred in 3.7% of hospitalizations
 - 27.6% due to medical negligence
 - 13.6% resulted in death

Harvard Medical Practice Study

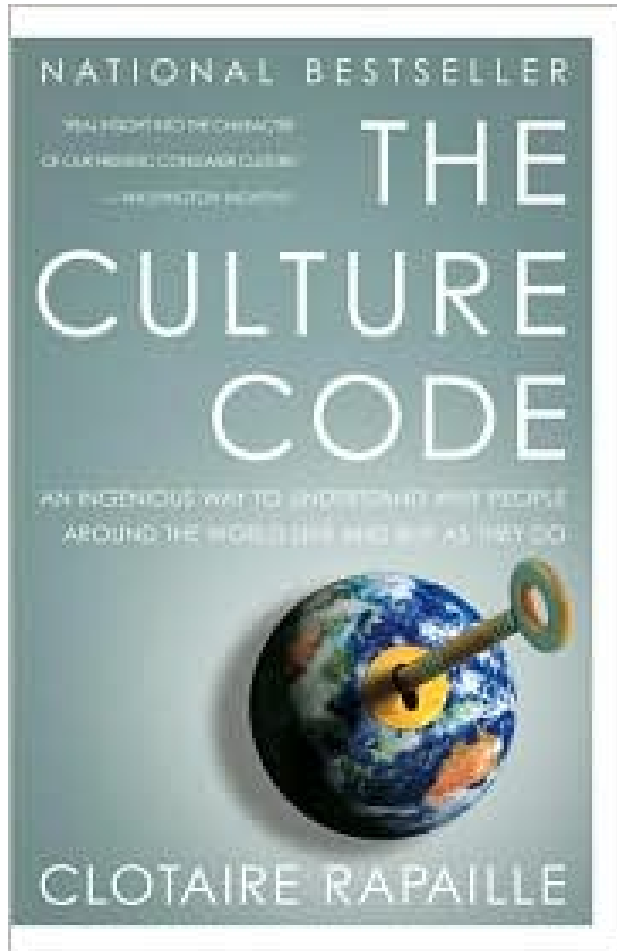
- Study conducted in 1984 in the state of New York
 - My senior year (1984-85) as a medical student at the University of Rochester

Autonomy

- Professional autonomy has traditionally meant the individual has substantial control over their professional practice and judgment.
- Two key aspects¹:
 - Capacity for self-governance
 - Non-interference with the professional's control over their lives and actions.

¹*MacDonald C. Nurse autonomy as relational. Nursing Ethics. 2002; 9: 194-201*

Culture in the United States



American culture developmentally still in adolescent phase

- Strong streaks of independence
- Rebellious
- Optimistic (usually)
- Power of dreams

Codes for Health and Medicine

- Health and wellness = ***Movement***
- Doctors = ***Hero***
 - *Remember the GE commercial during the Winter Olympics in Vancouver?*
- Nurses = ***Mother***
- Hospitals = ***Processing Plant***

C. Rapaille. The Culture Code. An Ingenious Way to Understand Why People Around the World Live and Buy as They Do. Broadway Books, NY, NY. 2006.

Physicians: *Knights, Knaves or Pawns?*¹

Julian LeGrand (British Sociologist)

- Knights (virtue)

- *“Trusted to wisely use and deploy resources, minimize waste, and look beyond their narrow individual and specialty interests to protect the system as a whole. Individual physician decision-making and autonomy are preserved as the highest-end. It is the physician who is the ultimate champion of the patient and policies are structured to support the physician’s work.”*

¹**Jain S and Cassel CK. Physicians: Knights, Knaves, or Pawns? JAMA. 2010.**

Physicians: *Knights, Knaves or Pawns?*¹

- Knaves (rigid self-interest)
 - *“Fraud, abuse, and waste are the behaviors that come most naturally to the knave—and it the role of society to monitor for these behaviors and impose stiff personal and financial penalties to deter them.”*
- Pawns (passive victims)
 - *“The pawn physician is merely a function of the environment and incentives he or she is given; accordingly, physicians must be given guidelines to follow and policymakers and regulators must decide clinical priorities.”*

¹Jain S and Cassel CK. *Physicians: Knights, Knaves, or Pawns?* JAMA. 2010.



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Our Reality and External Forces

AHRQ Report 2010

- **Quality is improving slowly**

- Across all **179** measures of health care quality tracked in the reports, almost two-thirds showed improvement. However, median rate of change was only **2.3%** per year, with the median rate of change in outcomes was only **1.6%** per year.

- **Disparities remain persistent**

- Fewer than **20%** of disparities faced by Blacks, American Indians and Alaska Natives, Hispanics, and poor people showed evidence of narrowing.

Exhibit ES-1. Overall Ranking

Country Rankings	
	1.00–2.33
	2.34–4.66
	4.67–7.00



AUS CAN GER NETH NZ UK US

OVERALL RANKING (2010)	3	6	4	1	5	2	7
Quality Care	4	7	5	2	1	3	6
Effective Care	2	7	6	3	5	1	4
Safe Care	6	5	3	1	4	2	7
Coordinated Care	4	5	7	2	1	3	6
Patient-Centered Care	2	5	3	6	1	7	4
Access	6.5	5	3	1	4	2	6.5
Cost-Related Problem	6	3.5	3.5	2	5	1	7
Timeliness of Care	6	7	2	1	3	4	5
Efficiency	2	6	5	3	4	1	7
Equity	4	5	3	1	6	2	7
Long, Healthy, Productive Lives	1	2	3	4	5	6	7
Health Expenditures/Capita, 2007	\$3,357	\$3,895	\$3,588	\$3,837*	\$2,454	\$2,992	\$7,290

Note: * Estimate. Expenditures shown in \$US PPP (purchasing power parity).

Source: Calculated by The Commonwealth Fund based on 2007 International Health Policy Survey; 2008 International Health Policy Survey of Sicker Adults; 2009 International Health Policy Survey of Primary Care Physicians; Commonwealth Fund Commission on a High Performance Health System National Scorecard; and Organization for Economic Cooperation and Development, *OECD Health Data, 2009* (Paris: OECD, Nov. 2009).

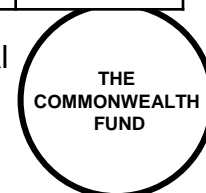
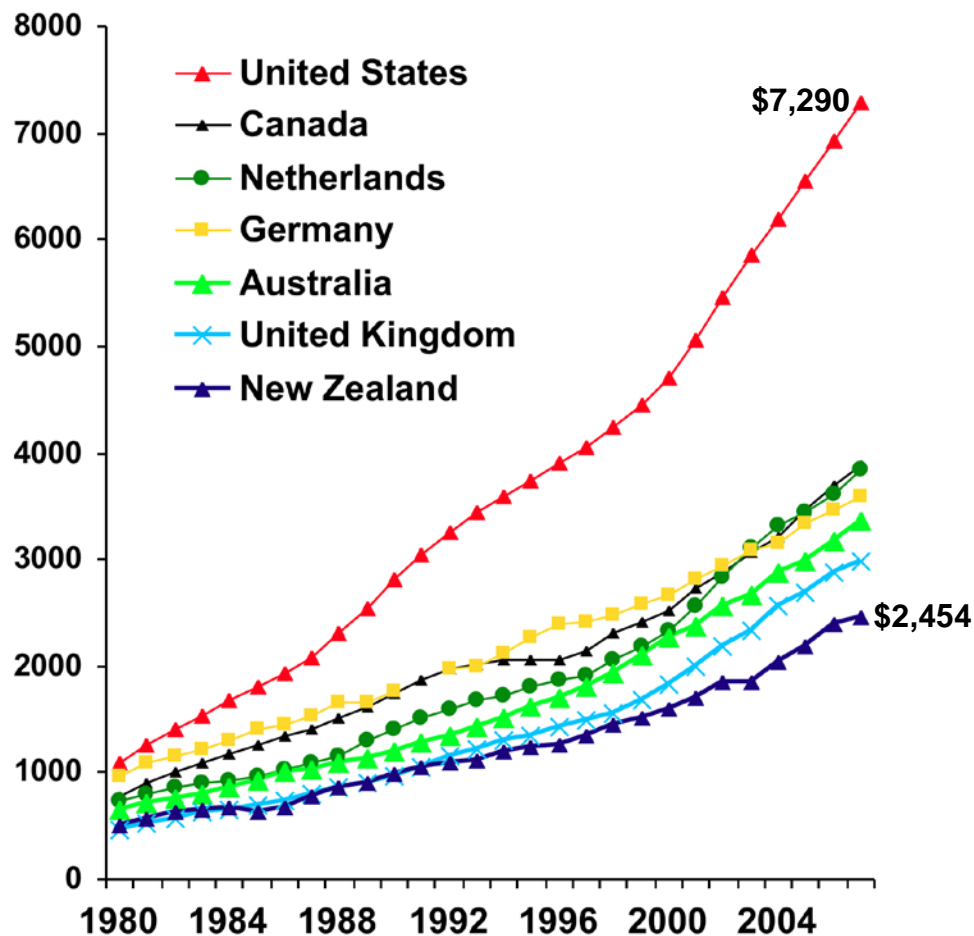
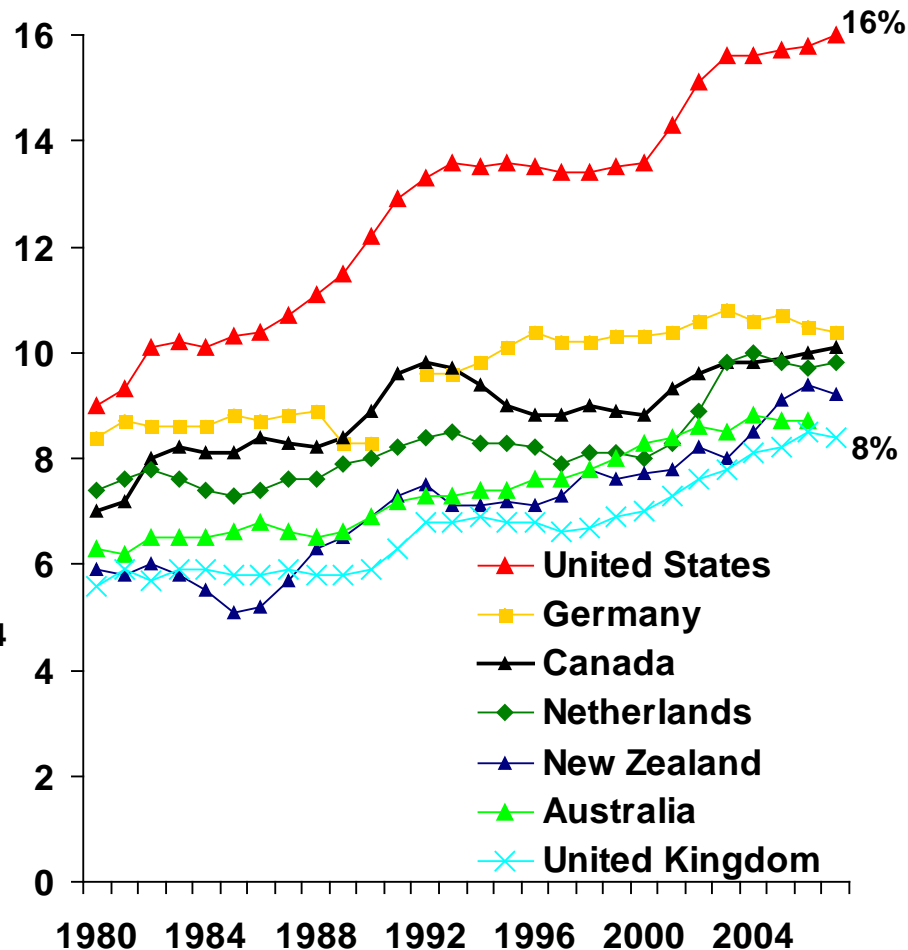


Exhibit 1. International Comparison of Spending on Health, 1980–2007

Average spending on health per capita (\$US PPP)



Total expenditures on health as percent of GDP



Note: \$US PPP = purchasing power parity.

Source: Organization for Economic Cooperation and Development, *OECD Health Data, 2009* (Paris: OECD, Nov. 2009).

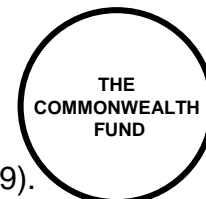
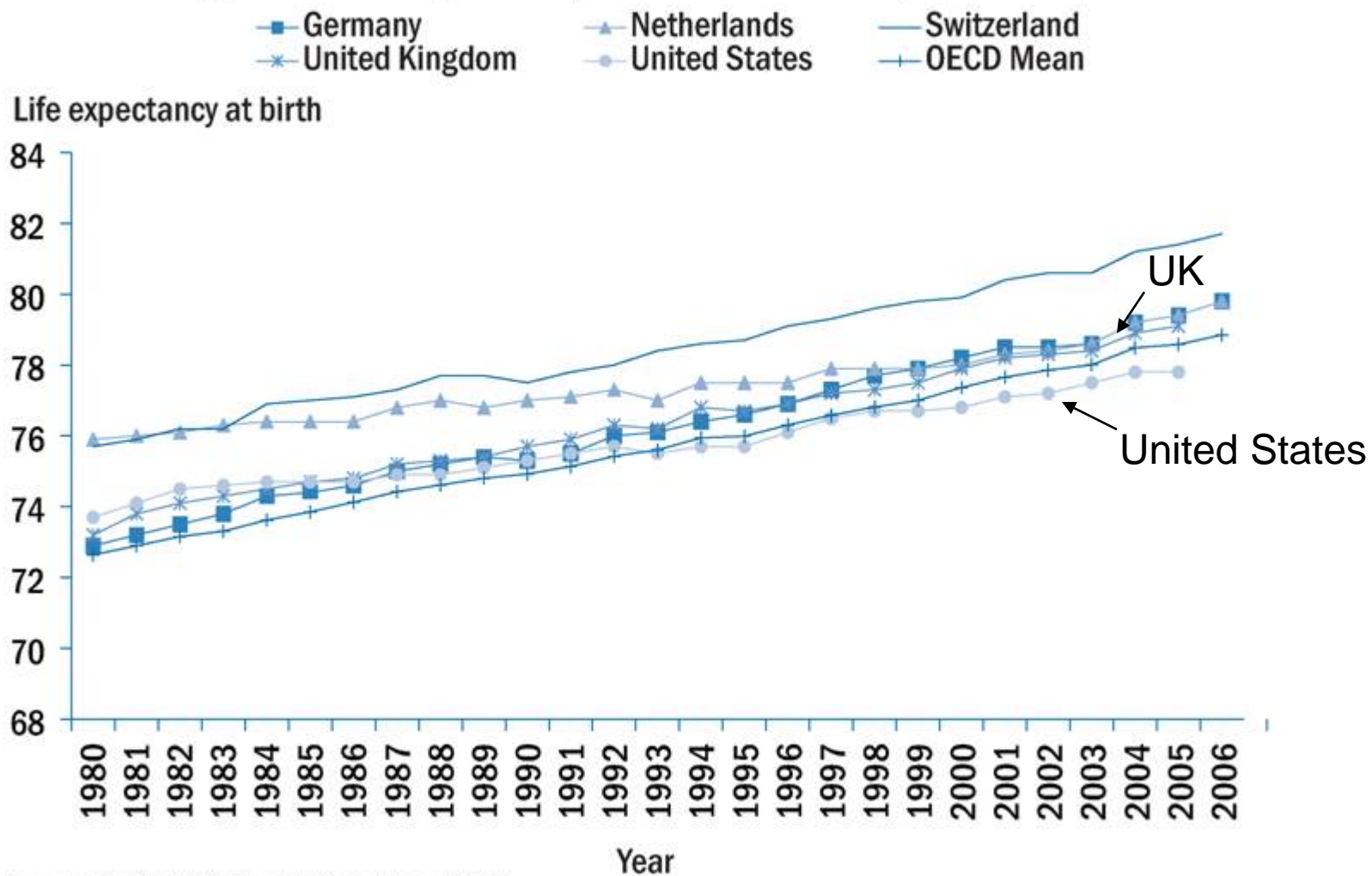


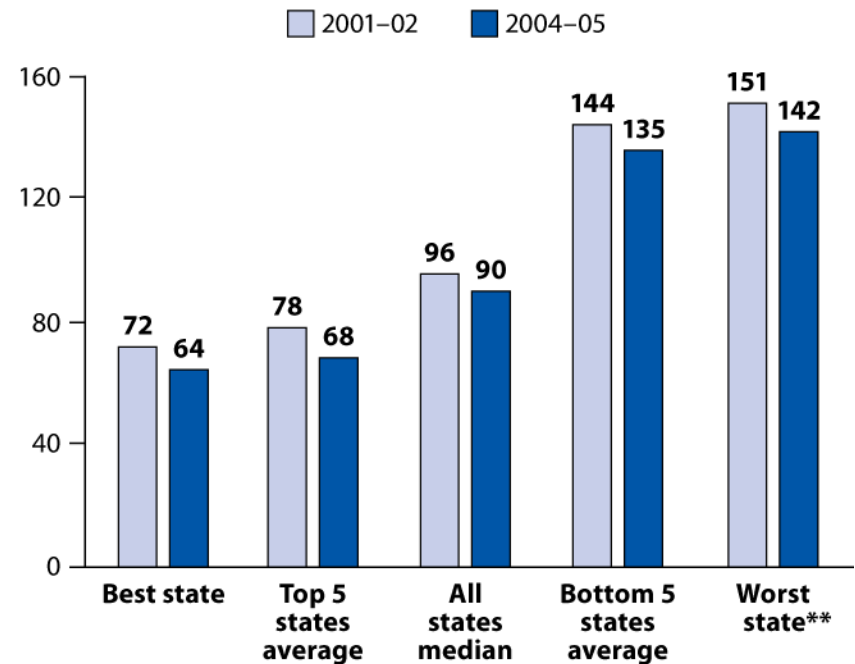
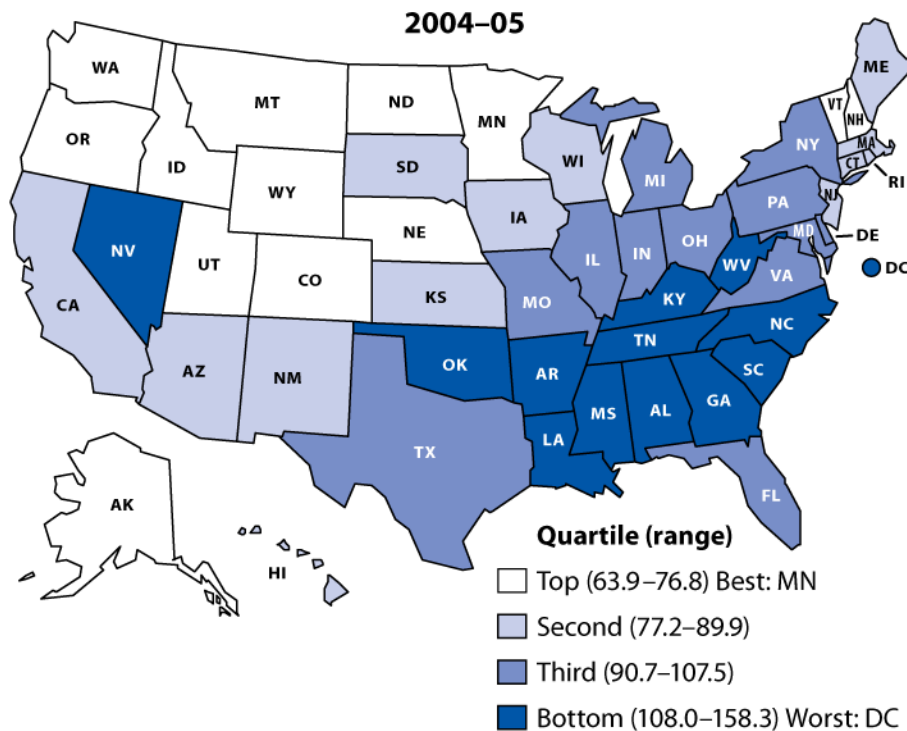
Figure 6. Life Expectancy at Birth over Time, 1980–2006



Source: OECD 2008 Health Data (June 2008).

Mortality Amenable to Health Care by State

Deaths* per 100,000 Population



* Age-standardized deaths before age 75 from select causes; includes ischemic heart disease.

** Excludes District of Columbia.

DATA: Analysis of 2001-02 and 2004-05 CDC Multiple Cause-of-Death data files using Nolte and McKee methodology, *BMJ* 2003

SOURCE: Commonwealth Fund State Scorecard on Health System Performance, 2009



What's New: Substantial External Pressure

- Institute of Medicine (2008)
 - Resident Duty Hours: Enhancing Sleep, Supervision, and Safety
 - Retooling for an Aging America
- MedPAC
 - June 2009 Report
 - October 2009 Hearing
 - June 2010 Report
- Congress (2011)
 - Reductions in GME funding

2008 IOM Work Hours Report

- Recommendation: To increase patient safety and enhance education for residents, the ACGME should ensure that programs provide adequate, direct, onsite supervision for residents.

Traditional Approach to Supervision

- Execution of trainee clinical decisions and actions and subsequent review by faculty separated by variable time and space
 - The late night phone call with subsequent visit by the attending hours later during morning rounds (time and space)
 - Precepting in clinic without seeing the patient (space)



Underlying Beliefs and Assumptions

- Physician autonomy
- Graduated independence
 - Trainees have to make and execute decisions on their own, without interference, in order to “learn” (including mistakes)
- Supervision = “taking over” for the trainee; interference; dependence.

Problems with Traditional View

- Faculty inaccuracy in knowing trainee's ability in key clinical skills
 - Multiple studies highlighting deficits
- Discordance between trainee and faculty judgment
 - Implications for patient care and safety
- Delayed feedback and learning

Effective Supervision

AMEE Guide (Kilminster; *Med Teach*, 2007)

- Empirical evidence supports:
 - Direct supervision helps trainees gain skills faster, and behavior changes more quickly
 - Quality of relationship affects effectiveness of supervision
 - Continuity and reflection
 - Self supervision not effective
 - Better supervision associated with improved patient safety and quality of care.

MedPAC Report: June 2009

- Rationale: CMS and Public not getting appropriate ROI on 9+ billion dollar investment
- Findings: residencies fall far short in
 - Outpatient care coordination
 - Multi-disciplinary teamwork
 - Awareness of health cost
 - Comprehensive health IT
 - Pt care in non-hospital setting
- Plans: MedPAC to explore how changes to current GME payment policies can be leveraged to accelerate change

MedPAC October 2009 Hearing

- MedPAC Chair:
 - *“The system is on the wrong track and is not self-correcting – to me that cries out for a policy intervention”.*
- Potential focus of 2010 report
 - Fund teaching program demonstration projects
 - Shift portion of IME from hospital to program
 - Provide greater support to other federal programs to address pipeline issues

MedPAC June 2010

- The Congress should authorize the Secretary to change Medicare's funding of graduate medical education (GME) to support the workforce skills needed in a delivery system that reduces cost growth while maintaining or improving quality.
- The indirect medical education (IME) payments above the empirically justified amount should be removed from the IME adjustment and that sum would be used to fund the new performance-based GME program.



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Educating Physicians: **The “2010 Flexner Report”**

Cooke, Irby and O’Brien

*Educating Physicians*¹

- *“Can medical education’s illustrious past serve as an adequate guide to a future of excellence? Flexner asserted that scientific inquiry and discovery, not past traditions and practices, should point the way to the future in both medicine and medical education...”*

*¹Cooke M, Irby DM and O’Brien BC.
Educating Physicians. 2010.*

Educating Physicians

- *“...Medical training is inflexible, excessively long, and not learner-centered. We found that clinical education is overly focused on inpatient clinical experience, supervised by clinical faculty who have less and less time to teach and who have ceded much of their teaching responsibilities to residents, and situated in hospitals with marginal capacity to support their teaching mission.”*

Recommendations

- Standardize learning *outcomes* through assessment of competencies
- Individualize learning *process* within and across levels
- Incorporate interprofessional education and teamwork into curriculum
- Prepare learners to attain both routine and adaptive forms of expertise

Recommendations

- Engage learners in initiatives focused on population health, quality improvement and patient safety
- Locate clinical education in settings where quality patient care is delivered, not just in university teaching hospitals
- Address the underlying messages expressed in the hidden curriculum

Francisco Varela (1946-2001)

- *“The blind spot of contemporary science (and education) is experience”*
 - How can we hold the paradox of learning from past experience and the need to let go?



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Competency-based Medical Education

Early Principles: CBME

- 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.”*

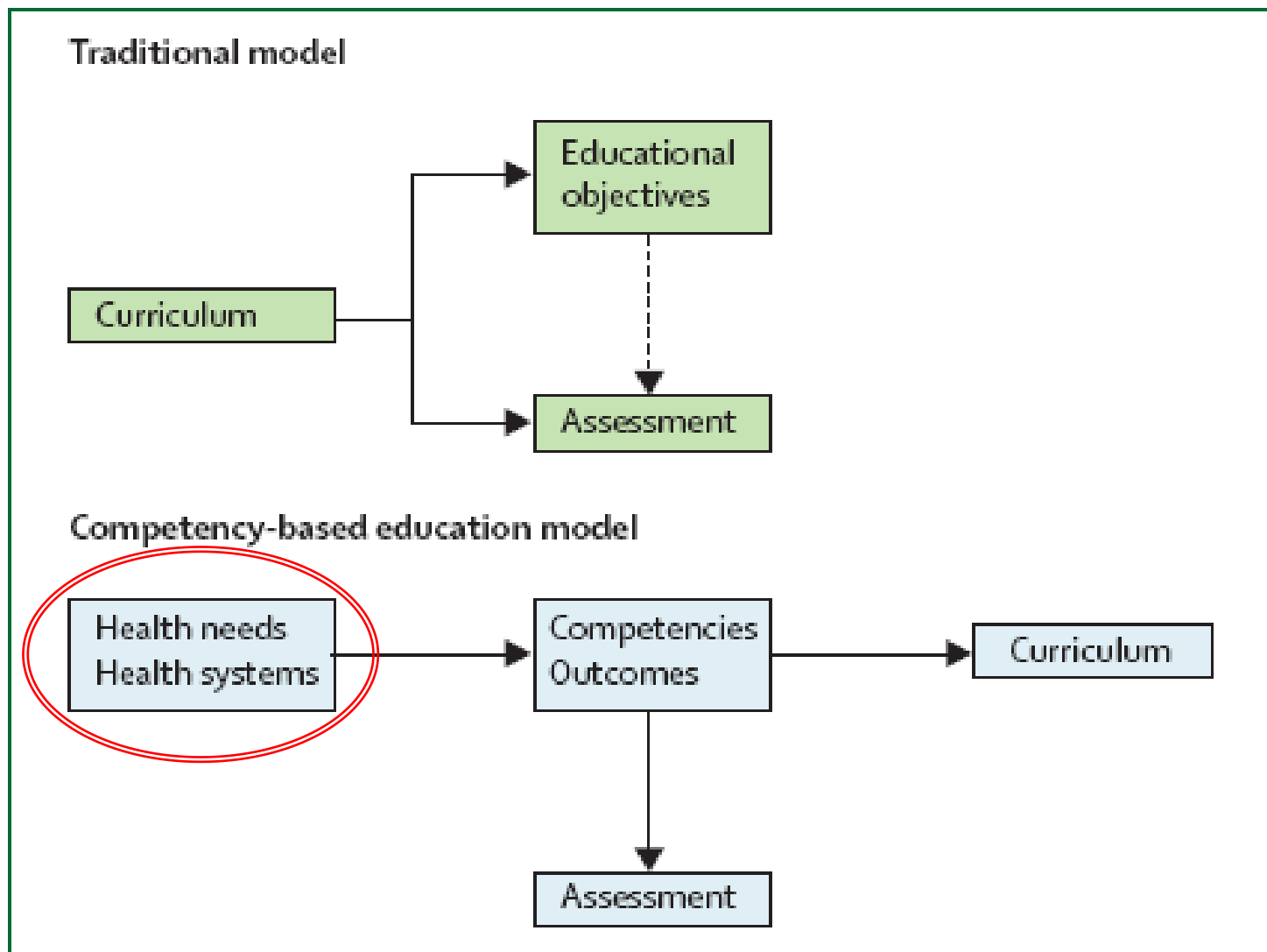
**McGaghie WC, Miller GE, Sajid AW, Telder TV.
Competency-based Curriculum Development in Medical
Education. World Health Organization, Switzerland, 1978.**



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Traditional versus CBME: Start with System Needs



Frenk J. Health professionals for a new century: transforming education to strengthen health systems in an interdependent world. Lancet. 2010



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Competency-Based Medical Education

...is an outcomes-based approach to the design, implementation, assessment and evaluation of a medical education program using an organizing framework of competencies¹

¹Frank, JR, Snell LS, ten Cate O, et. al. Competency-based medical education: theory to practice. Med Teach. 2010; 32: 638–645

Mandates of Outcomes-based Training

- Programs must be able to demonstrate that students, residents and fellows graduate with high levels of knowledge, skills and attitudes.
 - Must also be able to determine with high degree of accuracy that trainee is ready to advance
 - Exposure and dwell time are not sufficient proxies for competence
 - Not shooting for “the floor” of competence

	Educational Program	
Variable	Structure/Process	<i>Competency-based</i>
Driving force: curriculum	Content-knowledge acquisition	<i>Outcome-knowledge application</i>
Driving force: process	Teacher	<i>Learner</i>
Path of learning	Hierarchical (Teacher→student)	<i>Non-hierarchical (Teacher↔student)</i>
Responsibility: content	Teacher	<i>Student and Teacher</i>
Goal of educ. encounter	Knowledge acquisition	<i>Knowledge application</i>
Typical assessment tool	Single subject measure	<i>Multiple objective measures</i>
Assessment tool	Proxy	<i>Authentic (mimics real tasks of profession)</i>
Setting for evaluation	Removed (gestalt)	<i>Direct observation</i>
Evaluation	Norm-referenced	<i>Criterion-referenced</i>
Timing of assessment	Emphasis on summative	<i>Emphasis on formative</i>
Program completion	Fixed time	<i>Variable time</i>

Carraccio, et al. 2002.

State of Clinical Skills

Vukanovic-Criley (2006)

- Study of cardiac examination skills
 - Computer-based, 50 question exam
 - Integrated visual and auditory skills
 - Med students (Y1-4), FP and IM residents, full time faculty, volunteer faculty, cardiac fellows (N=860)
- Results
 - No improvement after MS3 year except cardiac fellows
 - Range of mean scores:
 - 58.5% (MS3) – 60.2% (Faculty)
 - Cardiac fellows: 71.75%

Vukanovic-Criley JM, Criley S, Warde CM, et. al. Competency in cardiac examination skills in medical students, trainees, physicians and faculty: a multicenter study. Arch Intern Med. 2006;166(6):610-6

Faculty Clinical Skills - OSCE

(N=44)

<u>Competency</u>	<u>Mean (SD)</u>	<u>Range</u>	<u>Generalizability</u>
History Taking	65.5% (9.6%)	34% - 79%	0.80
Physical Exam	78.9% (13.6%)	36% - 100%	0.52
Counseling	77.1% (7.8%)	60% - 93%	0.33
Patient Satisfaction ¹	5.62 (0.48)	4.43 – 6.63	0.60

¹On 7-point scale



Kogan JR, Hess BJ, Conforti LN, Holmboe ES. What Drives Faculty Ratings of Residents' Clinical Skills? The Impact of Faculty's Own Clinical Skills. *Acad Med.* 2010;85(10 Suppl):S25-8



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Deliberate Practice

Ericsson & Lehmann, 1996:

- “Individualized training activities especially designed by a coach or teacher to improve specific aspects of an individual's performance through repetition and successive refinement.
 - To receive maximal benefit from feedback, individuals have to monitor their training with full concentration, which is effortful and limits the duration of daily training”.

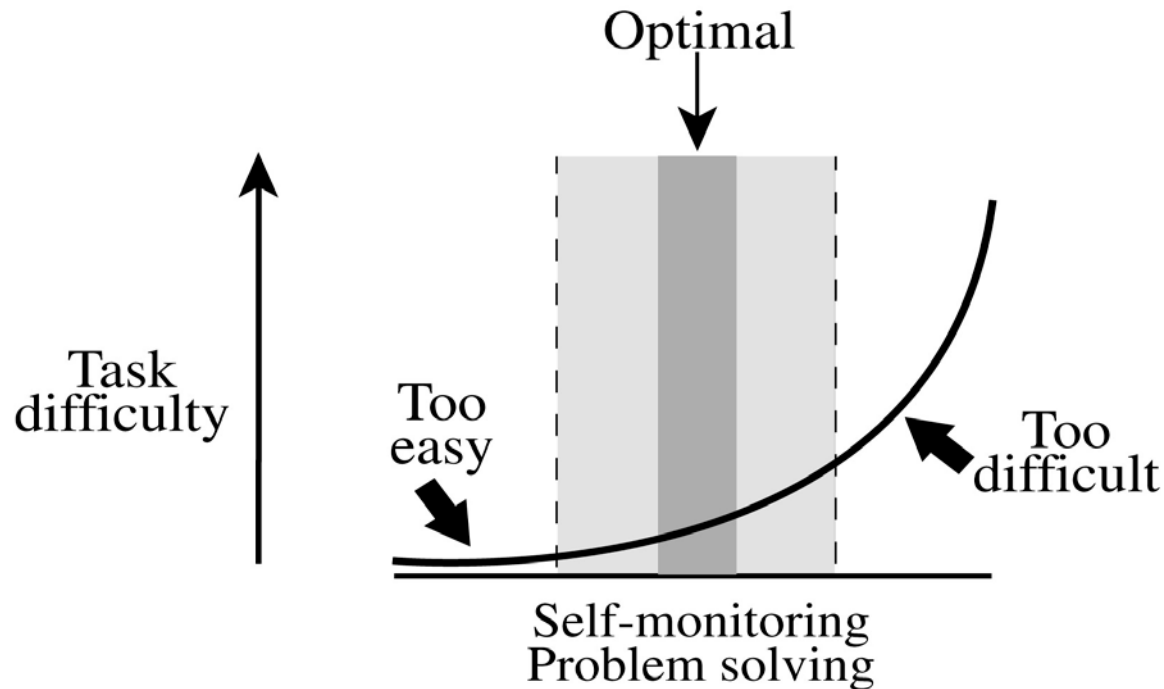


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Deliberate Practice and Expertise

The Challenge of Deliberate Practice

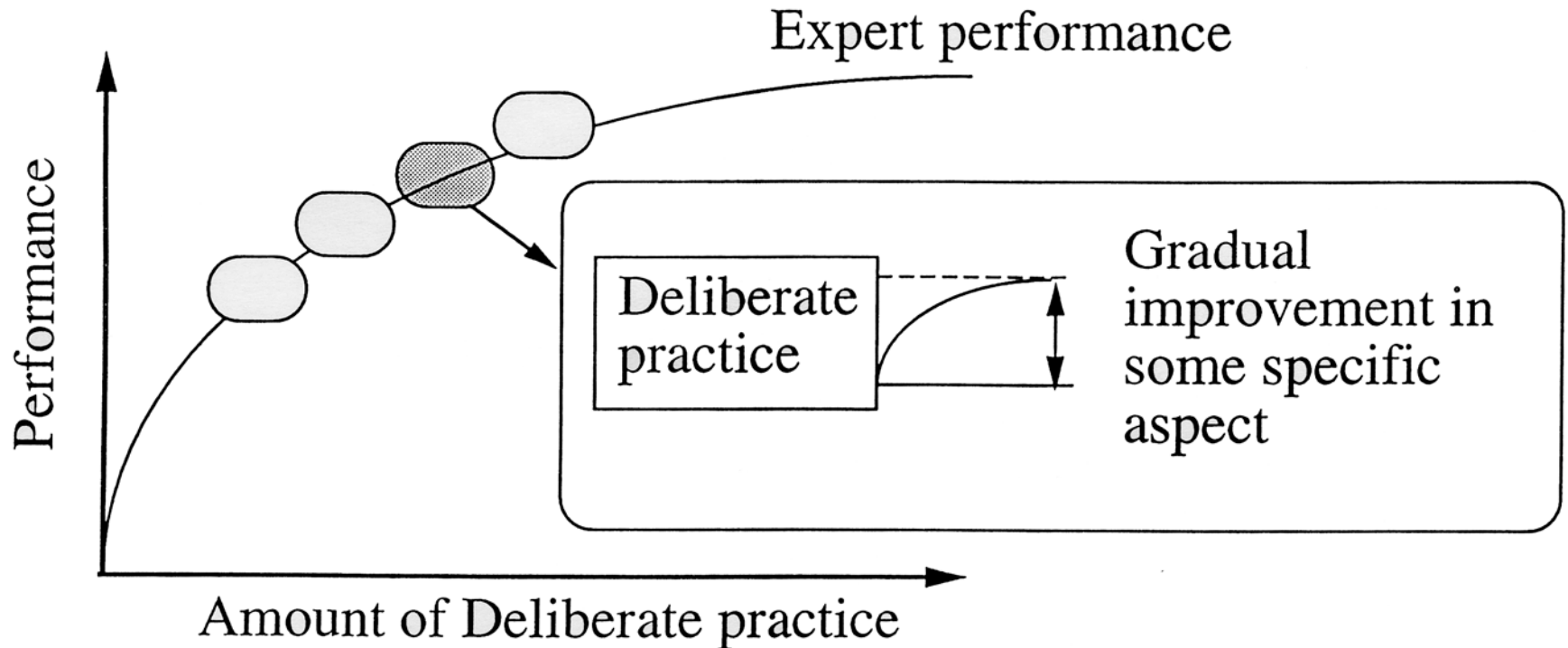


4-5 Hour Limit of full concentration

From Anders Ericsson: Used by Permission

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

The Impact and Experience of Frequent Transitions

- Qualitative design; 12 focus groups with residents, faculty, nurses, and mixed group.
 - 3 sites purposefully chosen
 - N=97 participants
 - Grounded theory
- Goals to better understand:
 - How trainees transition between systems,
 - Barriers and facilitators to transitions,
 - Strategies trainees use to transition, and
 - The impact of transitions on patients.

Bernabeo, E., Holtman, M., Ginsburg, S., Rosenbaum, J., & Holmboe, E. (2010). Lost in Transition: The Experience and Impact of Frequent Changes in the Learning Environment. Acad Med. 2011; 86: 591-8

Impact of Transitions on Patient Care

- Some examples of positives (e.g. ‘*fresh eyes theory*’).
- Mostly negative implications:
 - “*putting patients last*”,
 - Inefficient, burdensome, redundant care,
 - Faulty communication processes, often due to complicated rotation schedule (e.g. paging trainees no longer in hospital),
 - Delayed or omitted treatment or interventions.

Faculty Involvement

- Participants, including the faculty themselves, described an extremely low level of involvement in supporting residents through transitions.
- **1 to 4** *different* attendings per 4 week block common
- Many faculty disclosed that they didn't explicitly teach goals and expectations
 - *“it is much more time-efficient to tell [residents] what you want them to do than it is to ask them what they think is going on”*
- Faculty acknowledged they often hold residents to *“standards that may not exist”*

QoL, Burnout, Debt and Competence¹

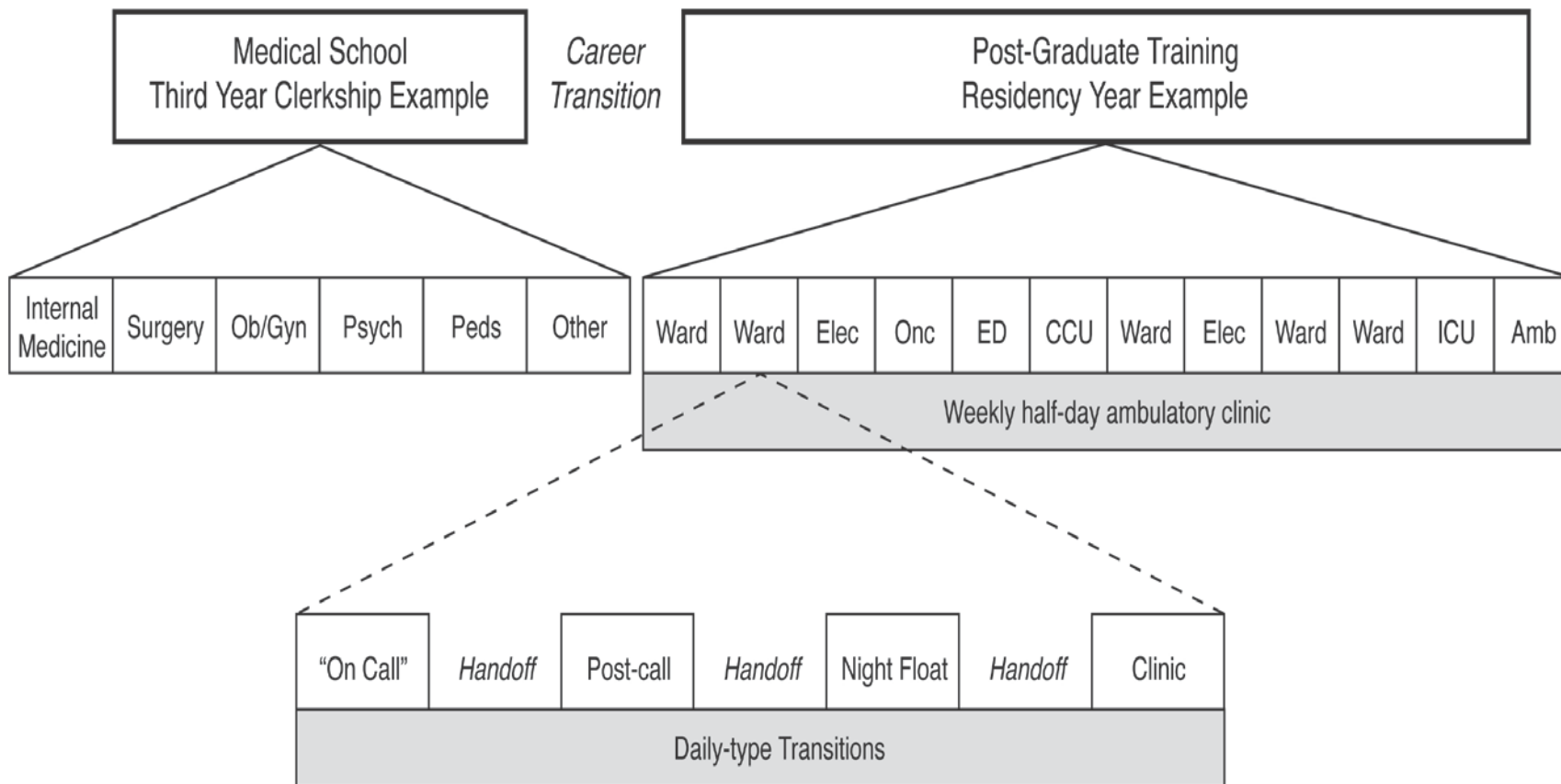
	High emotional exhaustion	High depersonalization	High in either domain
	% with Symptoms		
PGY -1	52%	27%	55%
PGY-2	46%	30%	52%
PGY-3	41%	30%	49%
Δ IM-ITE score (Top-bottom of scale)	- 4.2% (Absolute % correct)	+1.2 (Absolute % correct)	N/A

Δ IM-ITE score for QoL = **- 2.7%**; Δ IM-ITE score for work-life balance = **- 2.2%**;

Δ IM-ITE score for debt = - 5.0%

¹West CP, Shanafelt TD, Kolars JC. Quality of life, burnout, educational debt, and medical knowledge among internal medicine residents. JAMA. 2011; 306: 952-60

Medical Education “Architecture”



Is this still the best educational model?



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“Every system is perfectly designed to achieve the results it generates.”

Paul Batalden



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***“If you want to make enemies,
try to change something.”***

Woodrow Wilson

Change and the Grief Reaction

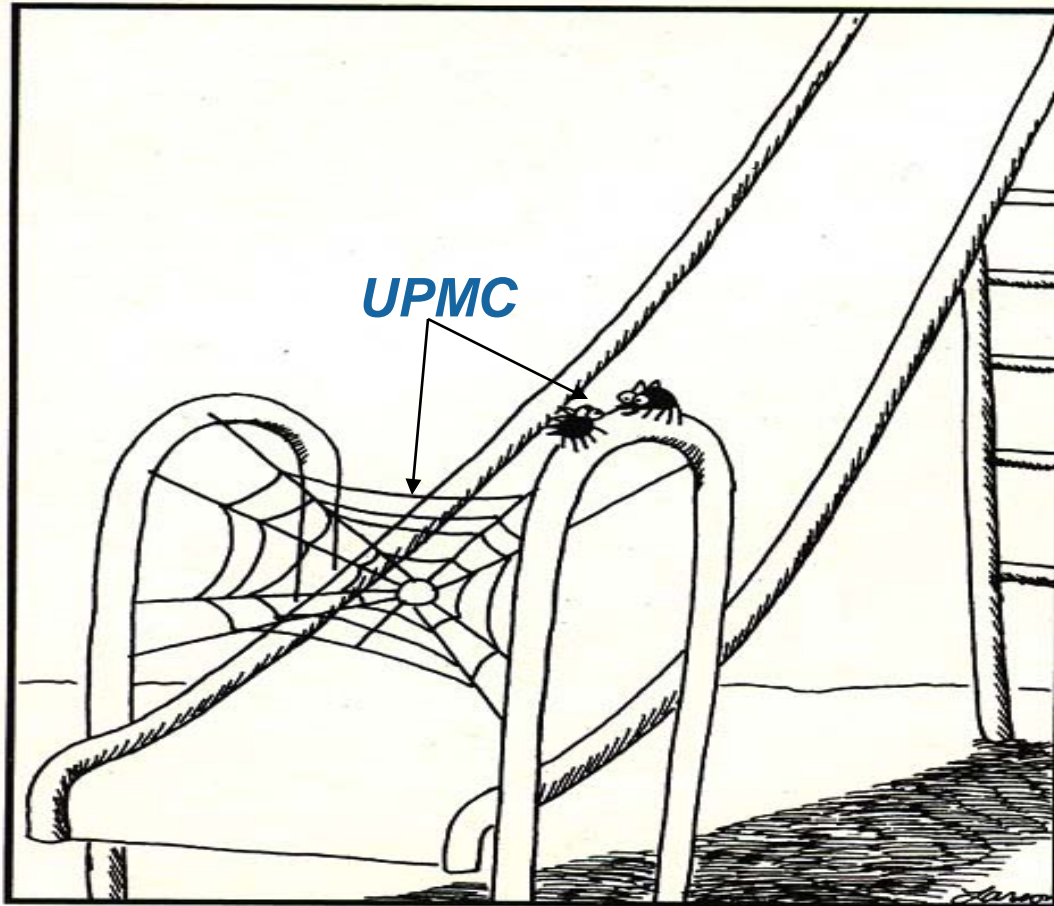


Leadership is Dangerous

“ People do not resist change per se. People resist loss. You appear dangerous to people when you question their values, beliefs or values of a lifetime. You place yourself on the line when you tell people what they need to hear rather than what they want to hear. Although you may see with clarity and passion a promising future of promise and gain, people will see with equal passion the losses you are asking them to sustain.”

**Heifetz R, Linsky M. Leadership on the Line.
Boston, Mass: Harvard Business Press; 2002.
Pgs. 11-12.**

Moving Forward



“If we pull this off, we’ll eat like kings.”

Questions