


TRANSFORMING HEALTHCARE:
Educating the Healthcare Workforce For Quality and Safety Practice and Innovation

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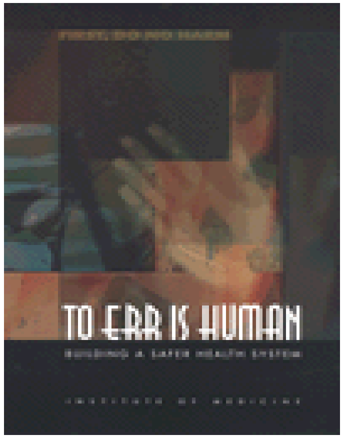
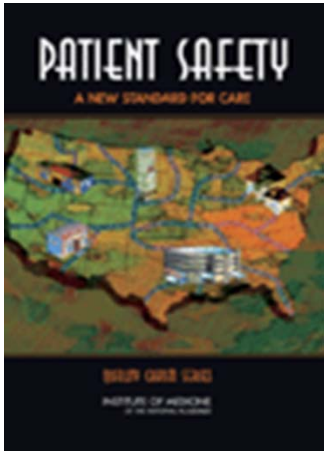
Overview

- The Quality and Safety Problem
  - The Performance Gap
- The Educational Gap
- The Glass is Half Empty and Half Full
- What is needed
  - Who?, What?, When? and How?
- Opportunities and Examples
- Discussion

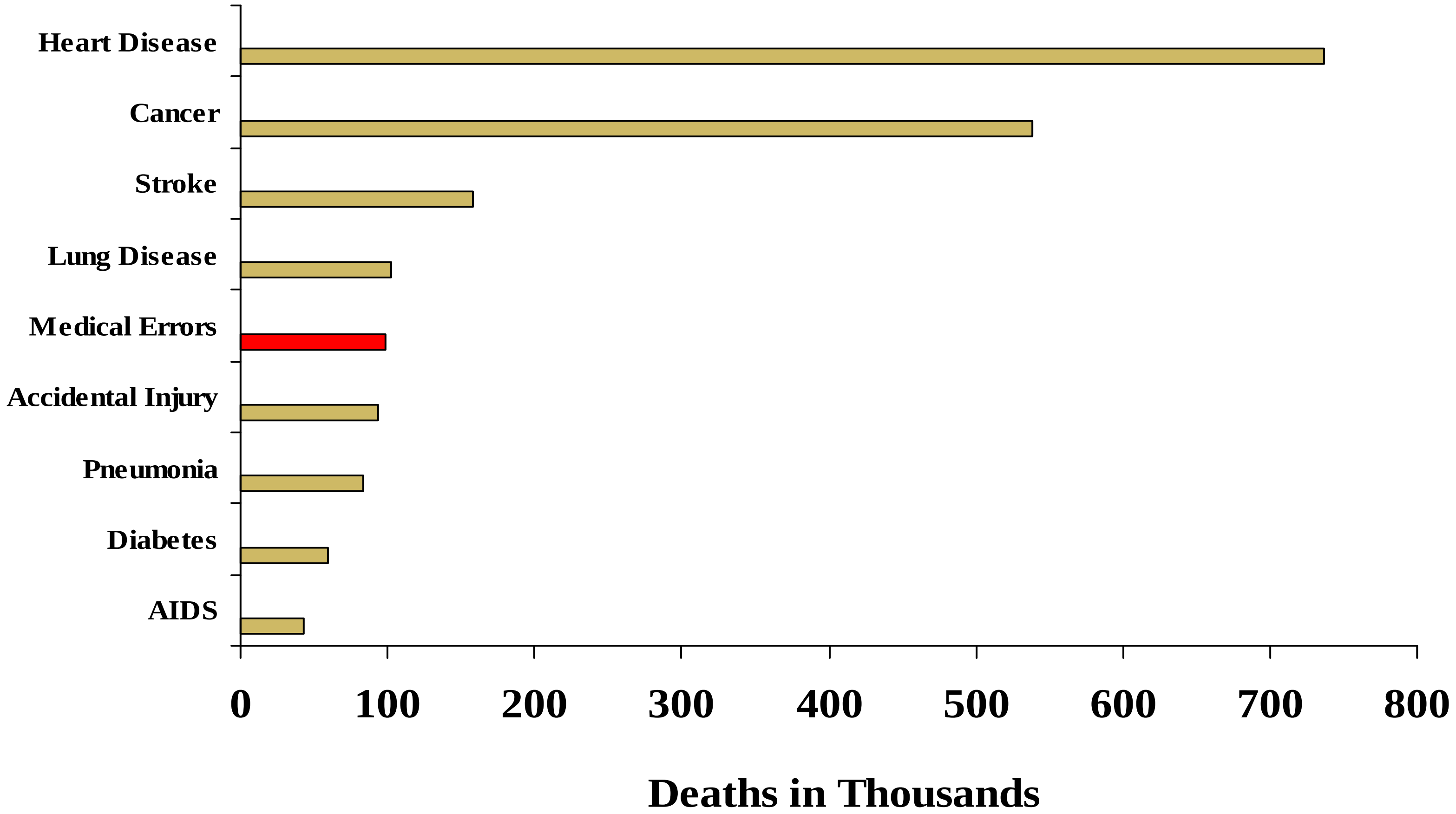


Background



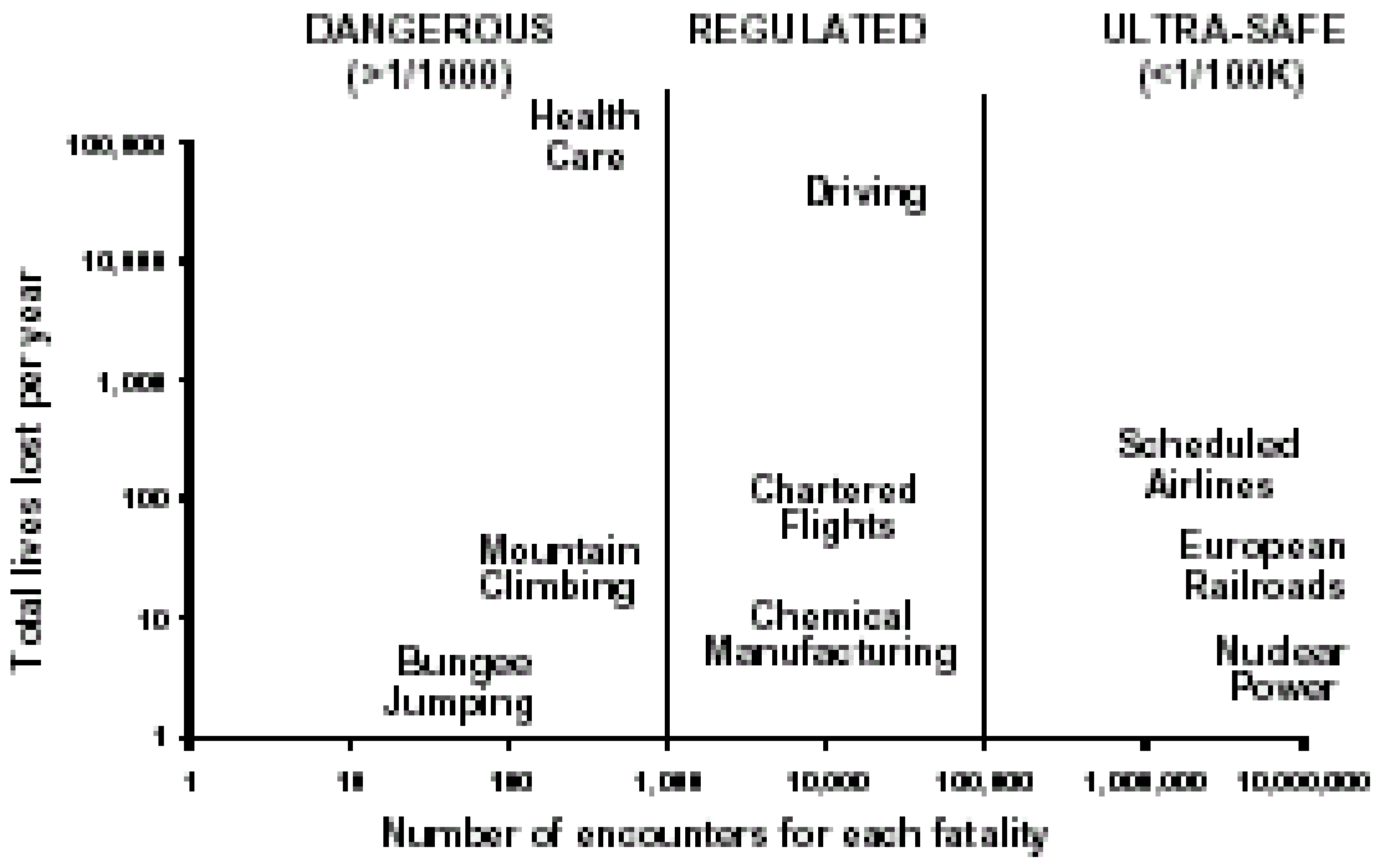
- IOM report estimated that 48,000-96,000 adult preventable adverse events occur each year in the United States (2.9% – 3.8% of patients).
- More adverse event deaths occur than the number of deaths from all unintentional accidents or from diabetes.
- Estimated costs of $37.6 – $50 Billion for adverse events representing about 4% of health care costs.
- Now it is understood that 90,000 people die annually from hospital infections alone.
- An important public health issue.

An Epidemic of Medical Error



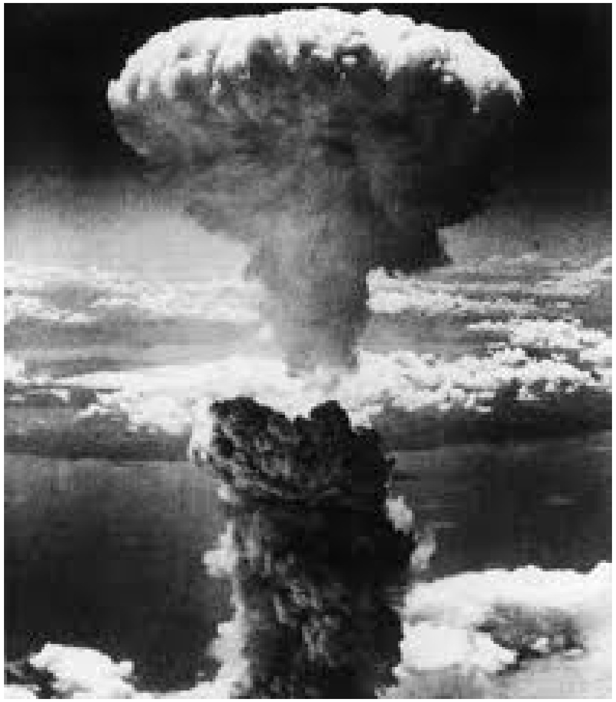
Source: US Mortality Data 1997 / CDC / IOM

How hazardous is health care?



Note: both dimensions are logarithmic scales

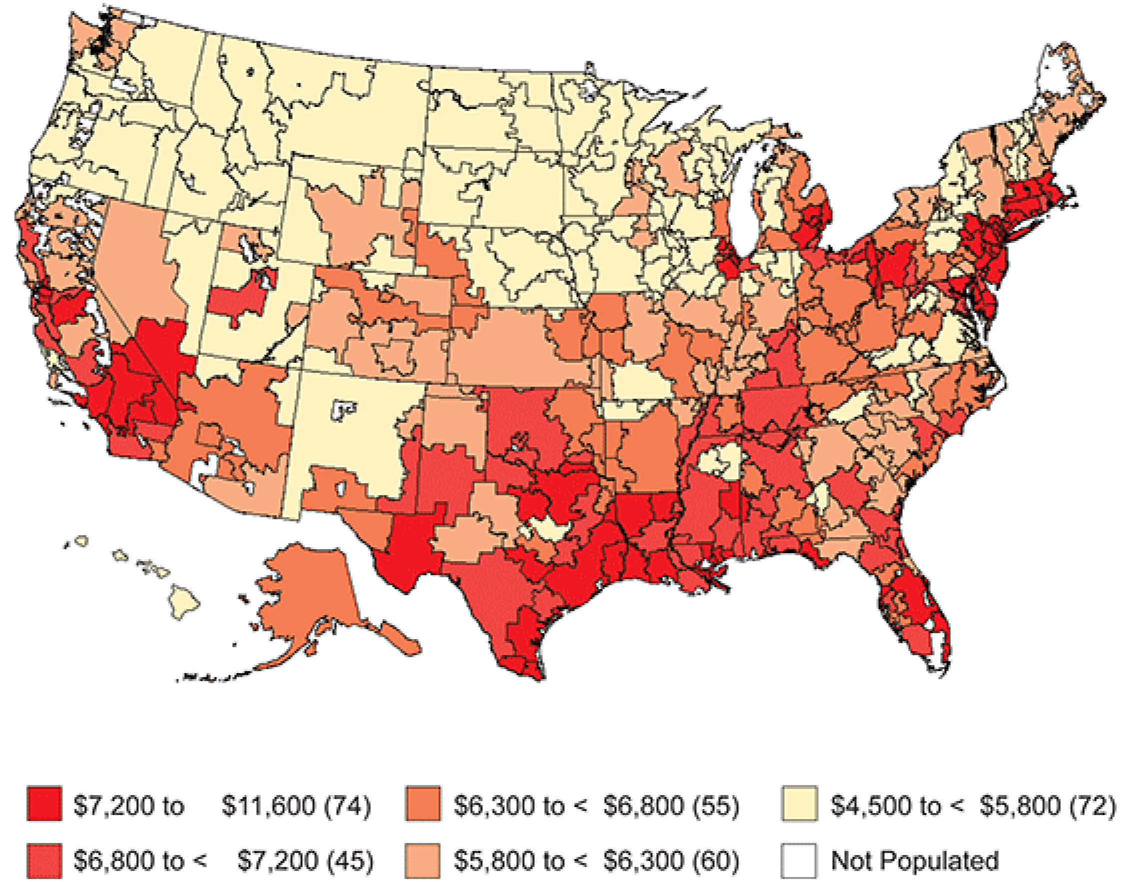
c/o Dr. Rene Amalberti



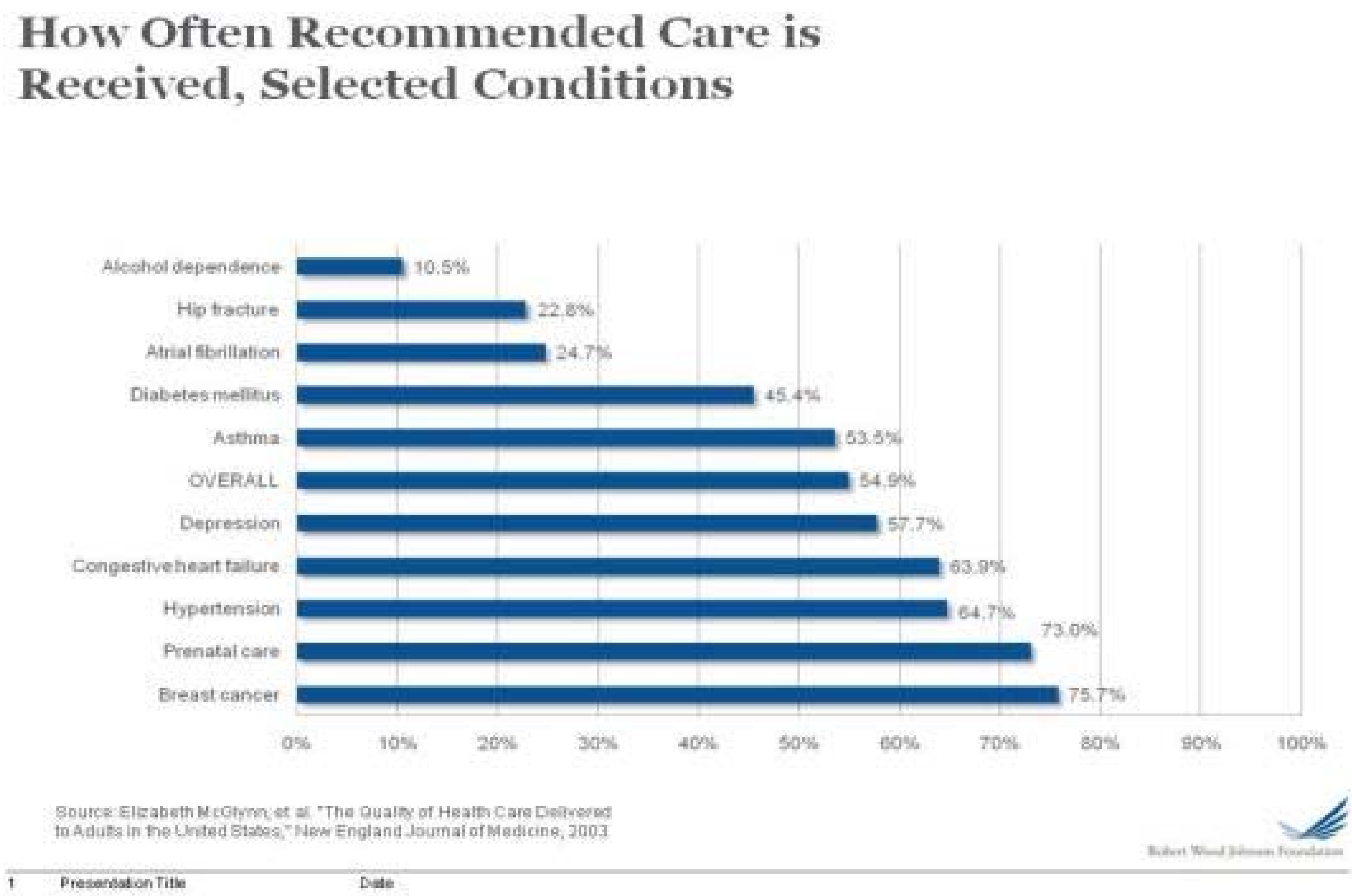
There is an explosion of new information and knowledge

Significant Variation in Delivery and Cost of Healthcare

The Dartmouth Atlas



The Quality Gap



Mirror, Mirror on the Wall: How the Performance of the U.S. Health Care System Compares Internationally, 2010 Update

Country Rankings	
green	1.00–2.33
yellow	2.34–4.66
red	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).

www.cmwf.org

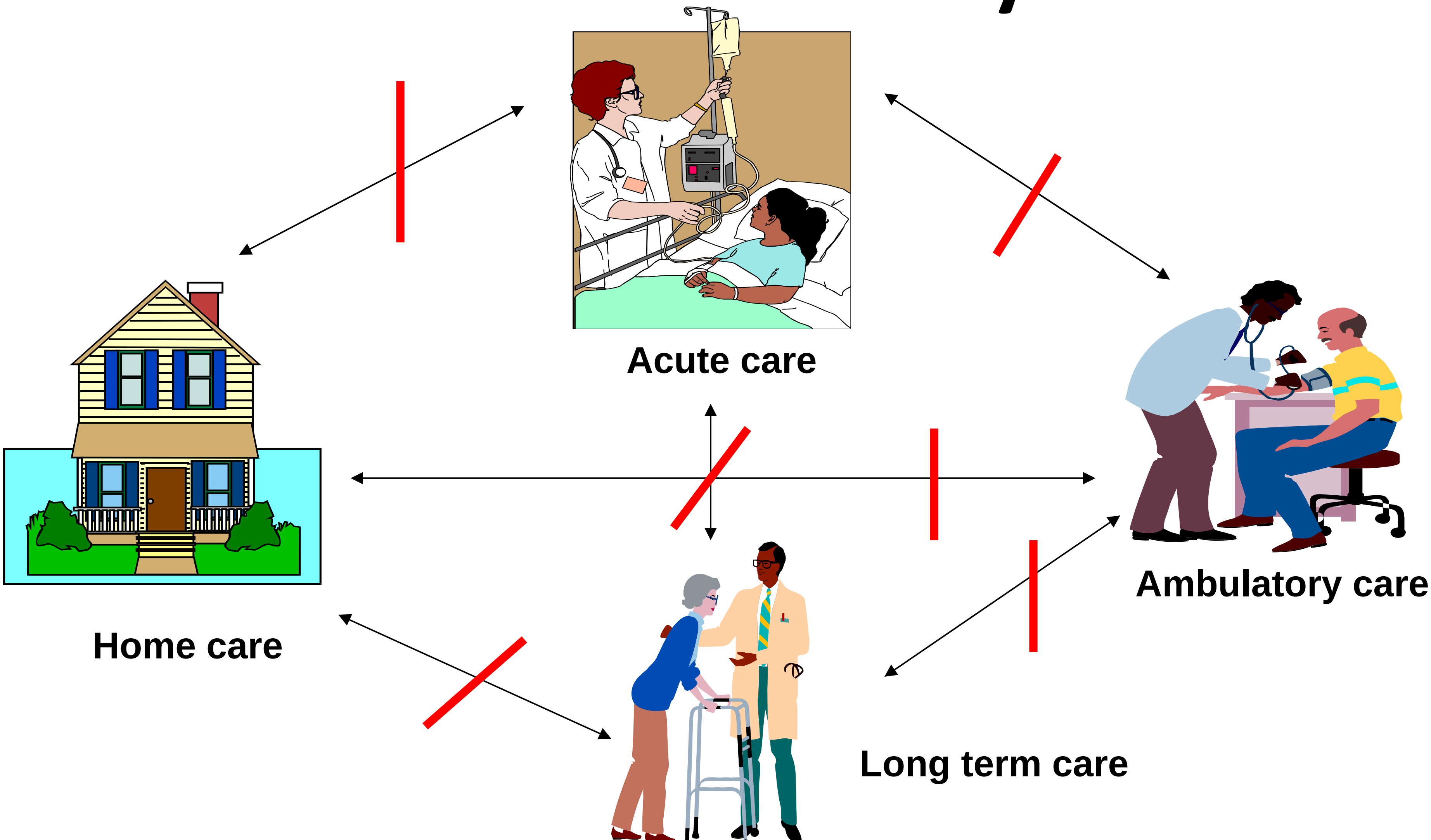
Anatomy of a Medication Error

Leadership and administrative systems are disconnected from front line care givers.

Assessment of impact is rarely conducted prior to instituting new processes, adding new equipment.

"Human beings make mistakes because the systems, tasks, and processes they work in are poorly designed."
Lucian Leape

Current Healthcare System



Clinician Communication in Healthcare

Clinician communication identified as a contributing factor in

- **65% of Joint Commission sentinel events**
- **91% of medical errors reported by residents***
- **Predicts greater job satisfaction for nurses****

*Sutcliffe KM, Lewton E, Rosenthal MM. (2004). Communication failures. *Acad Med*, *79*, 186-194.

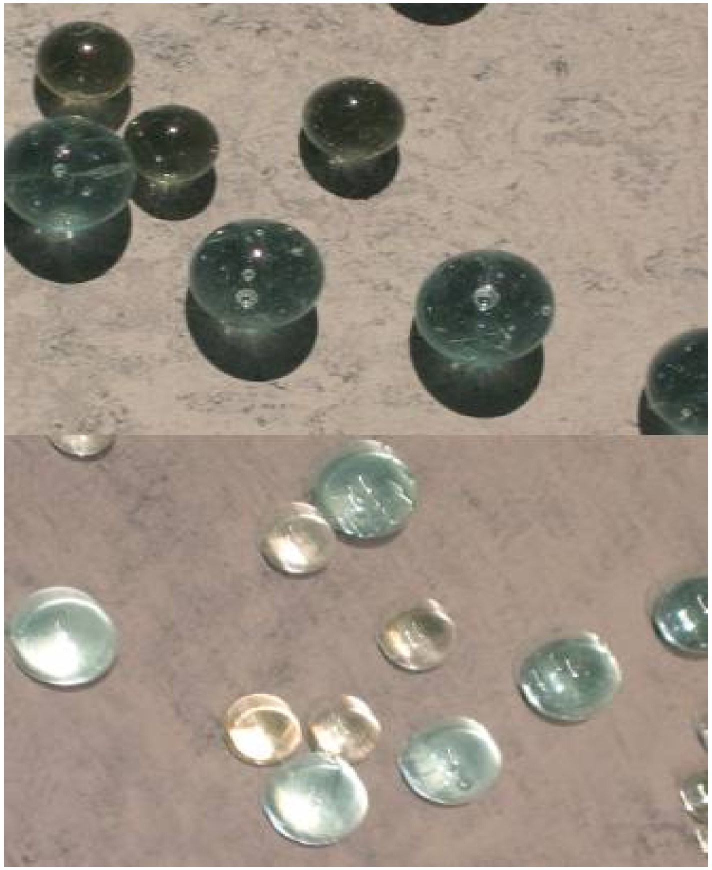
**Larrabee JH, Janney MA, Ostrow CL, et al. (2003). Predicting registered nurse job satisfaction and intent to leave. *Journal of Nursing Administration*, *33*, 271-283.

Institute of Medicine: To Err is Human

Key Messages

- Systems are primarily at fault, not individual competence;
- There has been inadequate attention to systems design (compared to aviation, nuclear power)
- Our healthcare system is antiquated with respect to safety, relying too often on “vigilance” and “rescue and recovery”

Patient Safety Risks and Medical Errors



Theory and empirical data supports systemic source of risk

Systemic Safety Problems

1. **Navigate around the risks**

OR

2. **Identify and eliminate risks**

Attitudes and Beliefs

- If I exercise sufficient professional judgment and caution my patients' care will be safe and accurate.
- Mistakes occur because staff are careless, fatigued, or too busy.
- Professionals need to use judgment about when to follow or ignore policies.
- An experienced person is less likely to make an error.
- I am careful.

How have we responded?

Improving Healthcare

- The Joint Commission the healthcare accreditation organization developed National Patient Safety Goals
- AHRQ funded research, developed tools and cases
- The NQF developed standards by endorsing never events, practices, and measures
- IHI developed bundles, tools, coordinated campaigns and the Breakthrough Collaboratives to assist with implementation
- CMS prioritized high risk, high frequency, high cost Healthcare Acquired Conditions for Non-Payment

Re-envisioning Medical Education

- Six Core Competencies (1999)
  - Patient Care
  - Medical Knowledge
  - Practice Based Learning and Improvement
  - Interpersonal and Communication Skills
  - Professionalism
  - Systems-Based Practice

DATAWATCH

EXHIBIT 1

An Assessment Of Our Progress In Ten Key Patient-Safety Domains, 1999–2004 And 2004–2009

Safety category	2004 grade	2009 grade	Comments
Regulation/accreditation	A–	B+	An important early driver, but much of the low-hanging fruit has now been picked
Reporting systems	C	B+	Key intervention was the adoption of the NQF list to support error reporting; some improvement in analytical abilities at provider organization and state/national levels
Health information technology	B–	C+	Surprisingly low uptake over past 5 years; increasing evidence of health IT–related safety hazards and implementation challenges; new infusion of federal dollars should promote health IT adoption
Malpractice system and accountability	D+	C+	Increased pressure for accountability has led to more emphasis on "Just Culture"; more accountability at leadership level as well; practical approaches for balancing "no blame" and accountability still lagging
Workforce and training issues	B	B–	Limited but increased engagement by providers; evidence regarding impact of residency duty-hour limits mixed; nurse shortage eased but primary care shortage worse; few organizations adopting robust teamwork, culture change, or simulation programs
Research	–[a]	B–	Stronger methods are emerging; moderate, but insufficient, increase in funding; still limited data on what works; field still debating fundamental questions regarding evidence standards for safety studies
Patient engagement and involvement	–[a]	C+	Patient advocacy movements small; impact of "how can patients protect themselves?" efforts uncertain; significant progress on disclosure policies and practices
Provider organization leadership engagement	–[a]	B	Stronger focus on safety by boards, "C-suite," as business case becomes more robust; uptake of strong leadership interventions (root-cause analyses, Executive Walk Rounds) improved but spotty
National and international organizational interventions	–[a]	A–	Much stronger engagement by AHRQ, NQF, Joint Commission, ACGME, WHO, IHI, and others; better dissemination of tools, training, and requirements; some wide-scale change efforts (IHI campaigns, Michigan and WHO checklist studies) have illustrated capacity for broad engagement and measurable progress
Payment system interventions	–[a]	C+	Impact of P4P in quality uncertain; P4P not yet applied to safety because of measurement challenges; Medicare's "no pay for errors" is a provocative initiative; no evidence yet about impact and concerns regarding unintended consequences
Overall grade for progress in patient safety	**C+**	**B–**	**Most striking improvements in reporting and leadership; gaps in IT and accountability are most concerning, but both areas should see significant progress, driven by new funding (IT) and emerging consensus (accountability)**

SOURCE Author's analysis. NOTES NQF is National Quality Forum. AHRQ is Agency for Healthcare Research and Quality. ACGME is Accreditation Council for Graduate Medical Education. WHO is World Health Organization. IHI is Institute for Healthcare Improvement. P4P is pay-for-performance. [a]Not ranked in 2004.

”If you think ‘quality and safety’ education is expensive try ‘quality and safety’ ignorance….”

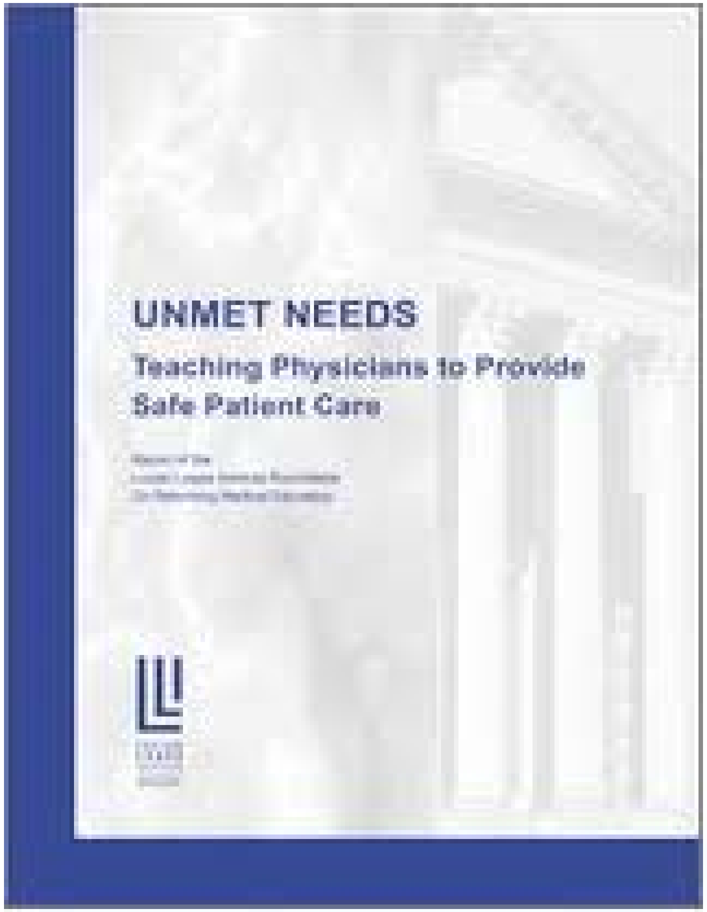
- John Dent, MD,
adapted from Derek Bok, former President of Harvard University

Improving Healthcare

- The Solutions exist in theory and practices outside of medicine
  - Engineering
    - Human Factors Design
    - Industrial Engineering
    - Computer Science
  - Error Science and Cognitive Psychology
  - Management
    - Operations
    - Quality Processes
    - Change Management
    - Leadership

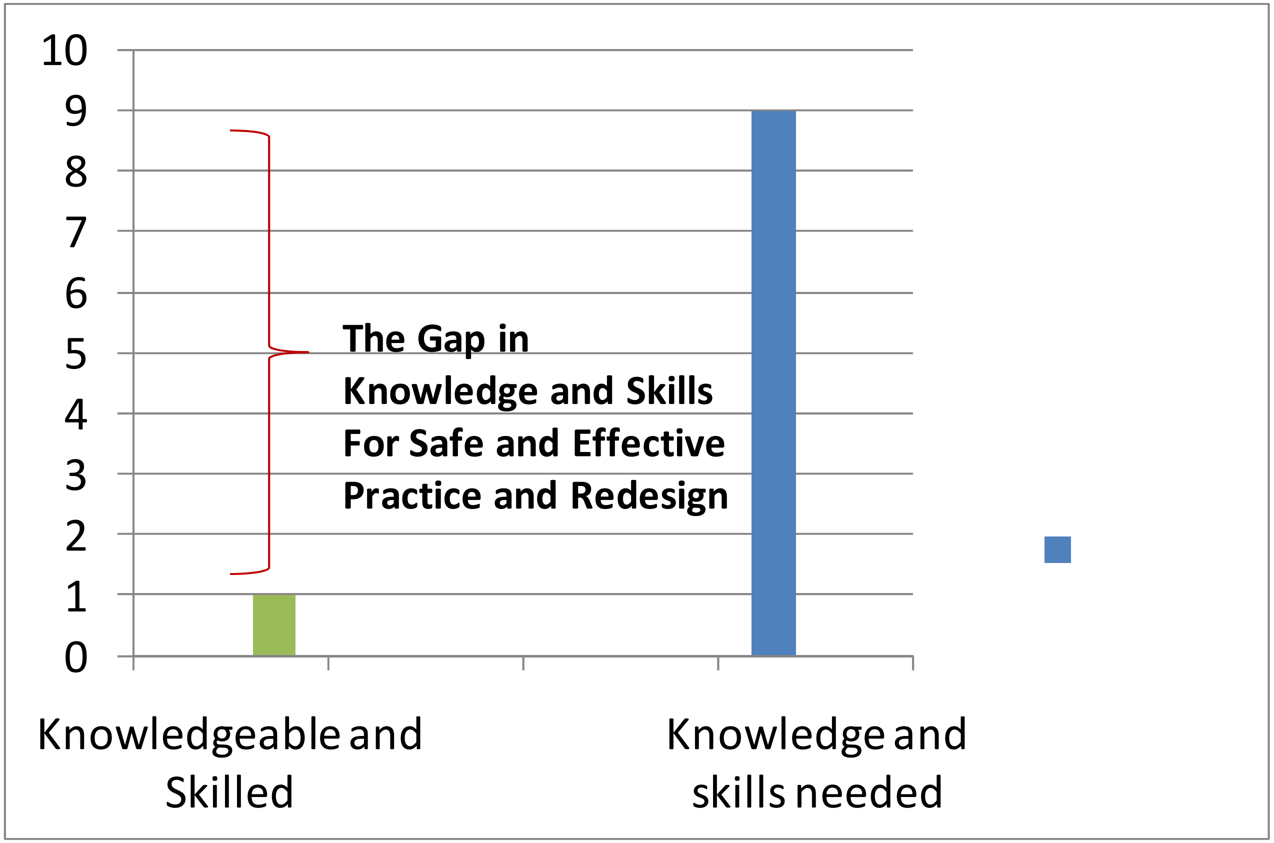
Learning From Other High Risk Industries

“Missing from the typical medical school curriculum is substantive attention to safety science, systems thinking, the science of improvement, human factors, and teamwork.”



There is a Significant Educational Gap

- We do not have a workforce sufficiently educated to address the magnitude of the problem.



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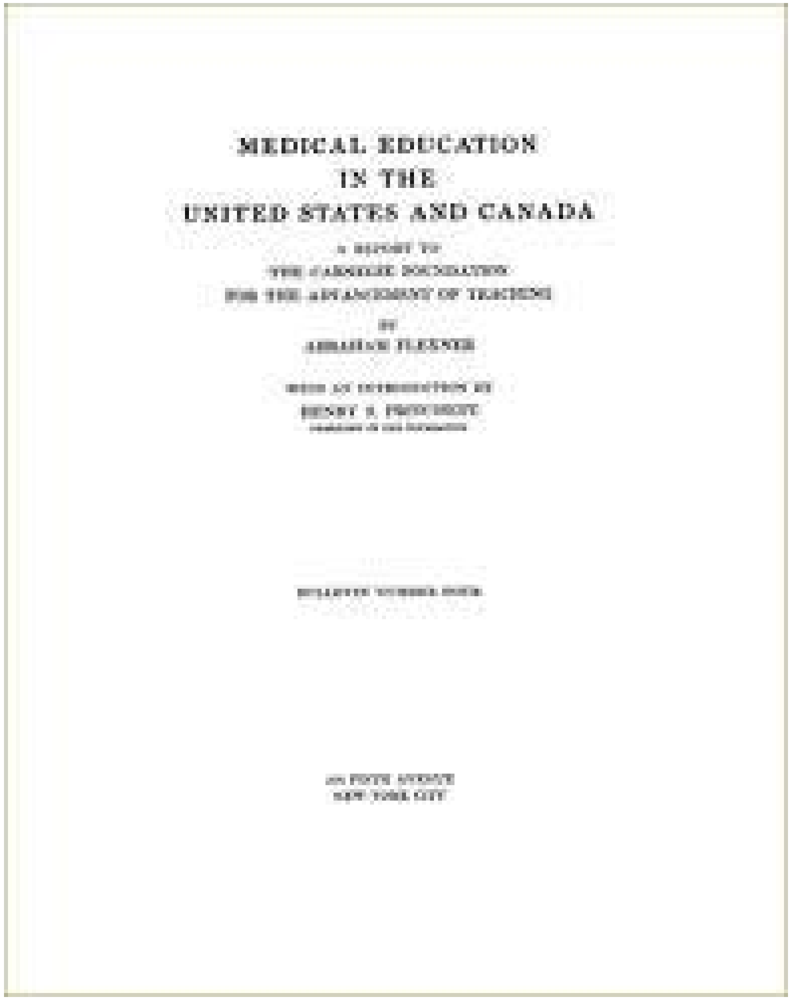
100 Year Anniversary of the Flexner Report


MEDICAL EDUCATION
IN THE
UNITED STATES AND CANADA

Innovations in Education

- Integration into Healthcare Education
  - Training required for every physician, nurse, pharmacist, allied health
    - UME, GME, CME
- Graduate level formal training (e.g., Public Health)
  - Training the Master Class – Interdisciplinary education
    - The Champions,
    - Leaders,
    - Teachers,
    - Innovators

Innovations in Education

- We have many questions
  - What should be included in a quality safety education?
  - When in the curriculum?
  - What ought to be the tools and methods for education?
  - How should we assess?
  - What constitutes competence in quality and safety?
  - And for whom?

Innovations in Education

- There are exciting new curricular elements being developed in medical schools across the country
  - Quality and Safety Measurement, Epidemiology, and the System
  - Human Factors Education
  - Safety Boot Camp at the start of medical school
  - Simulation practice of safety practices
  - Logging safety practice: observed performed, observed not preformed, student /resident performed
  - Curriculum for students and/or residents to conduct mentored Quality Improvement Projects
  - Students/residents conducting risk assessments
  - Students reporting events and learning about event disclosure
  - Safety Learning Cases review and development
  - Interdisciplinary Teamwork and Communication

Innovations in Education

Pediatrics Patient Safety Log

Northwestern University Feinberg School of Medicine
Department of Pediatrics

Pediatric Clerkship
Patient Safety Log

NORTHWESTERN UNIVERSITY FEINBERG SCHOOL OF MEDICINE

Block:_______________________

Student Name:_____________________________

Funded by an Augusta Webster Grant for Educational Innovation

Instructions

Each student must complete this form and turn it in at the conclusion of the clerkship.

Patient Safety Competencies

Each student must demonstrate a basic level of competency in the areas listed by the conclusion of the clerkship. An attending must sign off and attest to your knowledge of the practice and its purpose and to your ability to perform each of the listed safety practices.

Patient Safety Context – Situational Awareness

Please become aware of your clinical environment and keep track of the listed patient safety practices. Each listed practice should be counted once (either as observed, performed, or observed necessary but not done). We expect that a student will have the opportunity to observe and perform the identified minimum number of listed safety practices. We do expect you to keep an accurate count until you reach this minimum. The large box under each heading is for keeping a running tally. Please list the total practices you observed, observed not performed, or performed in the shaded box.

"Observed" means that you saw someone other than yourself perform the practice. "Observed not performed" means that in a context in which you know that the specific safety behavior should be performed, you observed that it was not performed. "Performed" means that in a context in which you know that the specific safety behavior should be performed, you performed the practice for yourself or for the team.

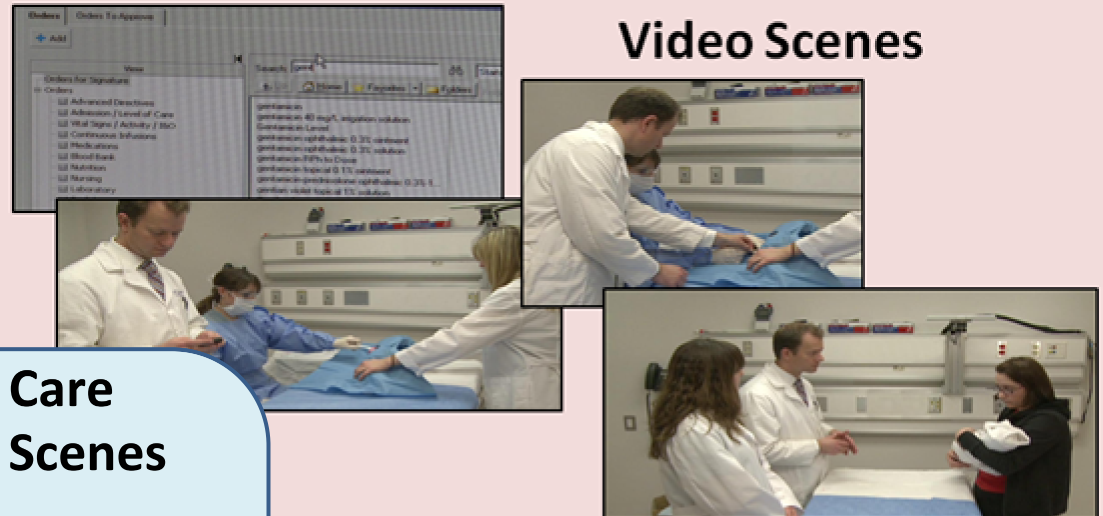
Safety Behaviors	Observed (2 minimum*)		Observed Not Performed (2 minimum*)		Performed (2 minimum*)	
Example: BMI Assessment	|||	3	||	2	||||	4
Use of patient identification marker (e.g., bracelet)						
Placement of documentation in correct patient chart						
Hand hygiene practiced						
Use of appropriate infection control measure for patient (e.g. gown, glove, and/or mask)						
No medication abbreviations used						
Medication dosage calculated correctly						
Medication allergy information documented accurately in patient record						
Immunization status documented accurately in patient record						
Hand-off: Read-back practiced with opportunity for asking questions **Minimum: 1 each column**						
Bed rails placed up and secured						

* Unless otherwise noted

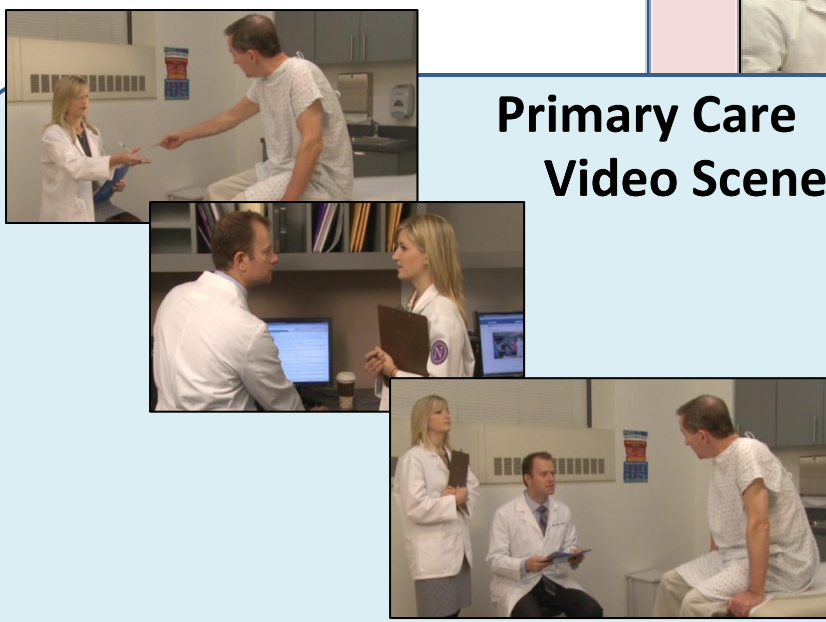
Faculty Review and Sign-off:_______________________________

Innovations in Education

Pediatrics Video Scenes



Primary Care Video Scenes



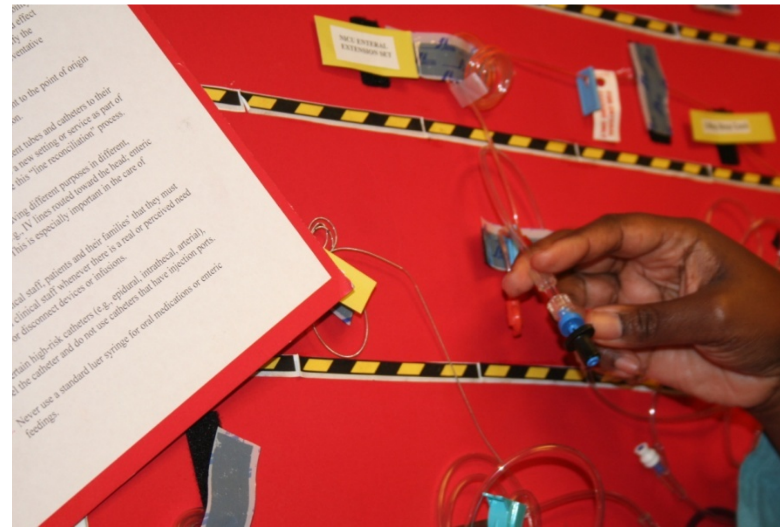
Patient Safety Video Assessment Form

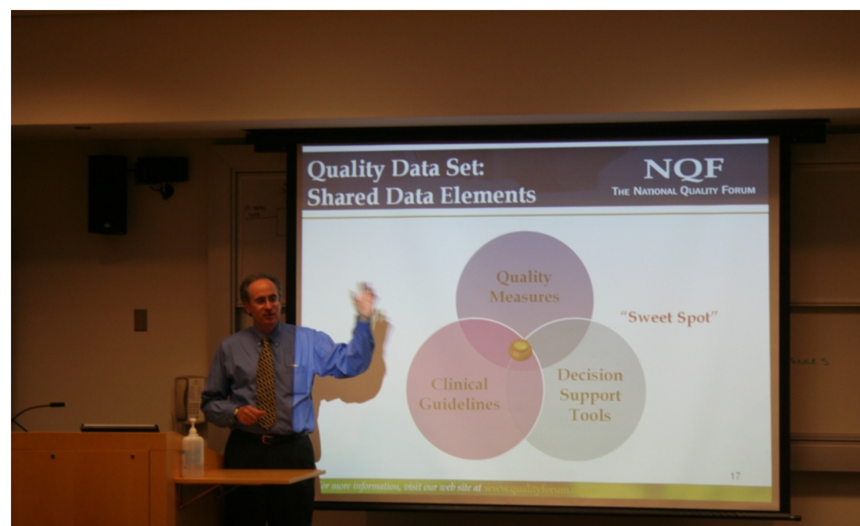
Patient Safety Practices You Observed Done or Not Done In the Video	What is the ri[illegible] when this patient safety practice is not performed?	What could be implemented to prevent this risk in the future?
Example Specimen labeling not performed	**Example** Mis-identified blood specimens which could lead to inaccurate blood typing and the patient receiving the wrong type of blood	**Example** Blood specimens should be labeled in the patient's presence

Read the Label

Aoccdrnig to a rscheearch at Cmabrigde Uinervtisy, it deosn't mttaer in what oredr the ltteers in a wrod are, the olny iprmoetnt tihng is that the frist and lsat ltteer be at the rghit pclae. The rset can be a toatl mses and you can sitll raed it wouthit porbelm. Tihs is bcuseae the huamn mnid deos not raed ervey lteter by istlef, but the wrod as a wlohe.

Innovations in Education





Innovations in Education

Metrics: What do they really measure?

	Public / transparency challenges	Reg/ Accred pressures	Actual harm	High risk processes	High volume errors
CMS Hospital, Nursing Home, HH	✓	✓			
CMS HCAHPS	✓				
CMS HAC			✓	✓	
AHRQ PSI , QI, ***Culture Survey***	✓		?	✓	
TJC Core Measures and ***NPSG***	✓	✓			
NCQA HEDIS	✓				
IHI bundles and outcomes, e.g., ***Mortality Rate***	?		?	✓	
NQF Never Events	✓		✓		
NQF / Leapfrog Safe Practices	✓			✓	
CDC HAI			?		
Internal Event Reports			✓	?	?
Claims and Litigation			✓	?	?
Internal Surveillance			?	?	?

Innovations in Education

We seek design based solutions

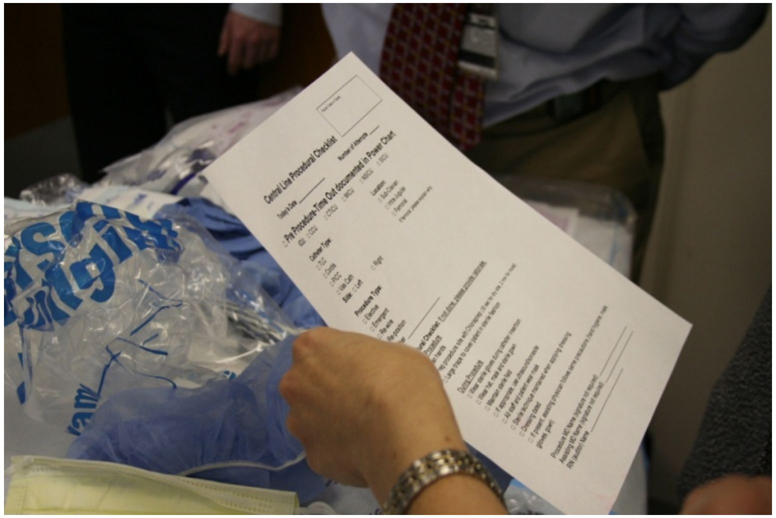
Effectiveness

Eliminate the possibility for the failure (change the process to eliminate the activity or equipment that is postulated to fail)
Prevention over mitigation (change to reduce the likelihood of the failure rather than mitigate the consequences)
Engineered intervention over administrative intervention (design a process feature to address the failure rather than add a process step to check on the failure)
Passive intervention over active intervention (have an inherent safe state of a proves step rather than require an activity to make a process safe)
Intervention closest to the failure (provide a check or correction as soon after the failure could occur rather than at the end of a process)

This hierarchy of levels of intervention can be applied to achieve the greatest impact and to develop risk informed interventions.

Innovations in Education

Innovations in Education
Simulation: Teamwork and Safety Practices



The New Paradigm For Training

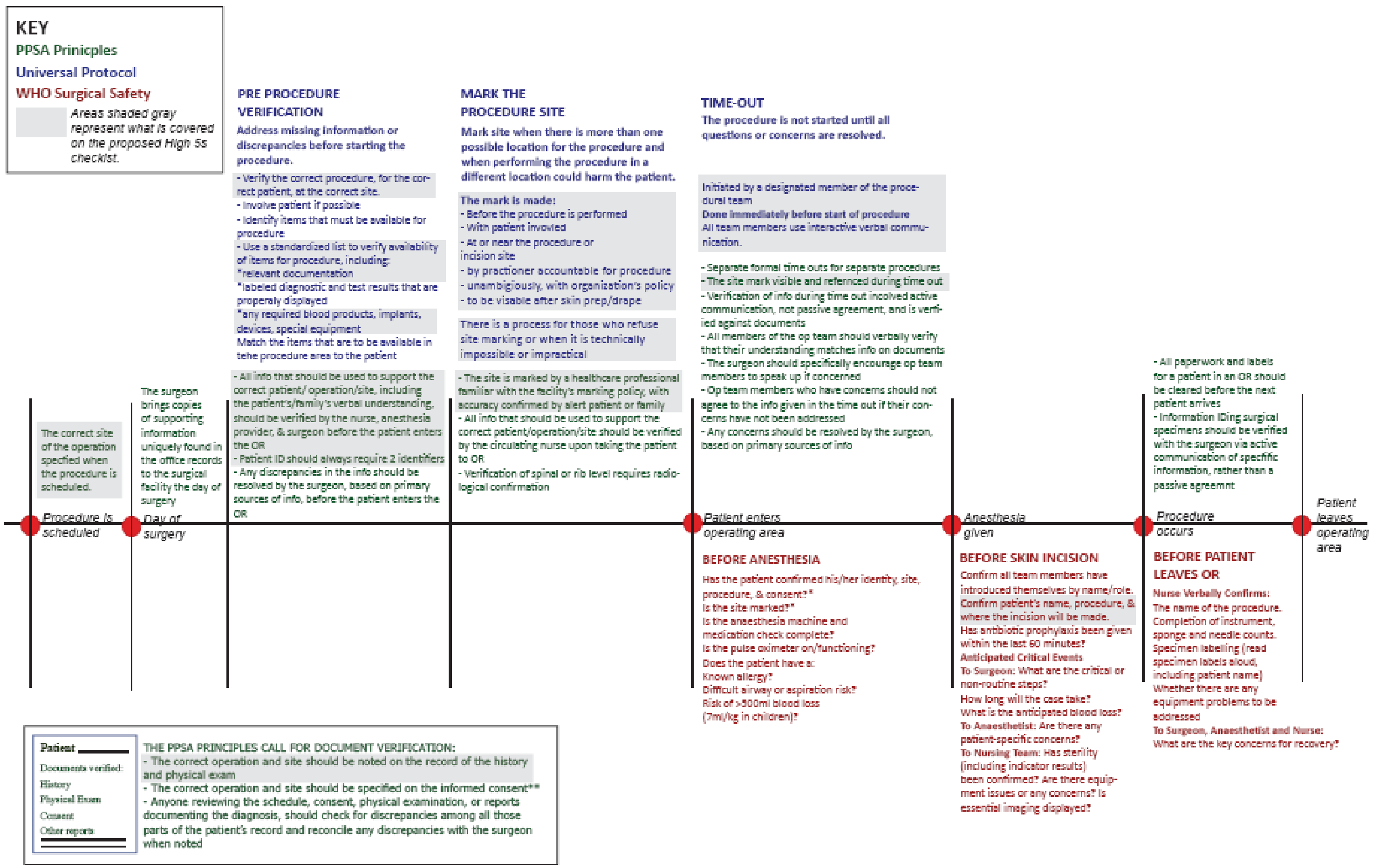
- “See one, Do one, Teach one.”

transformed to

- “See one, Simulate Many, Teach to Mastery.”

- John Vosenilek, MD

Innovations in Education



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Innovations in Education

- How Can We Assessments Quality and Safety Learning?
- There are also creative examples of assessments
  - Multiple Choice Questions
  - Analysis of High Reliability Organization Practices and their application to healthcare
  - Simulation practice of safety practices for formative and summative evaluation
  - Assessing safety risks in the “situation Room” or in videos of clinical scenarios
  - Quality Improvement Projects Evaluation
  - Students/residents conducting risk assessments – RCA, FMEA, PRA
  - Students reporting events and learning about event disclosure
  - Safety Learning Case development
  - Simulation-based and real time Interdisciplinary Teamwork and Communication Role and Skills Assessment

A Time of Challenge and Great Creativity

Half Empty

&

Half Full

What is Holding Us Back?
The Work Ahead

- The Problem has not been formulated as developing a workforce
  - Ad hoc, informal, voluntary learning vs. formal education
- A new set of domains
  - We have not agreed on
    - ***What*** content and skills ought to be included
    - For ***whom***
    - ***Where*** and ***how*** these should be incorporated into the curriculum
- Who are the teachers
  - Faculty did not learn the content or skills of these fields
  - The Formal Curriculum VS the Informal Curriculum
  - It is being built as we teach – continuous innovation
- The Challenge of Interdisciplinary Education
  - Teamwork

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In Conclusion

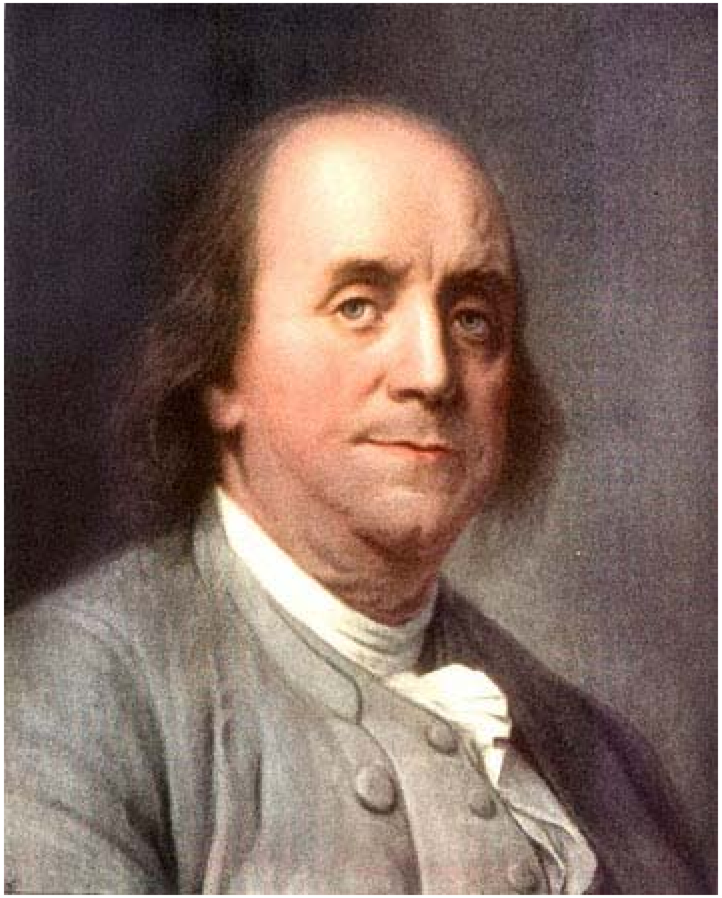
- These disciplines of healthcare quality and patient safety have emerged as central safe and effective healthcare delivery.
- The knowledge and skills required not currently included in the standard curriculum.
- The informal educational strategy of ad-hoc individual educational efforts to fill the knowledge and skill gaps in healthcare quality and patient safety will no longer suffice.

Principles of Education

Tell me and I forget.

Teach me and I remember.

Involve me and I learn.



Thank you!

Questions & Discussion

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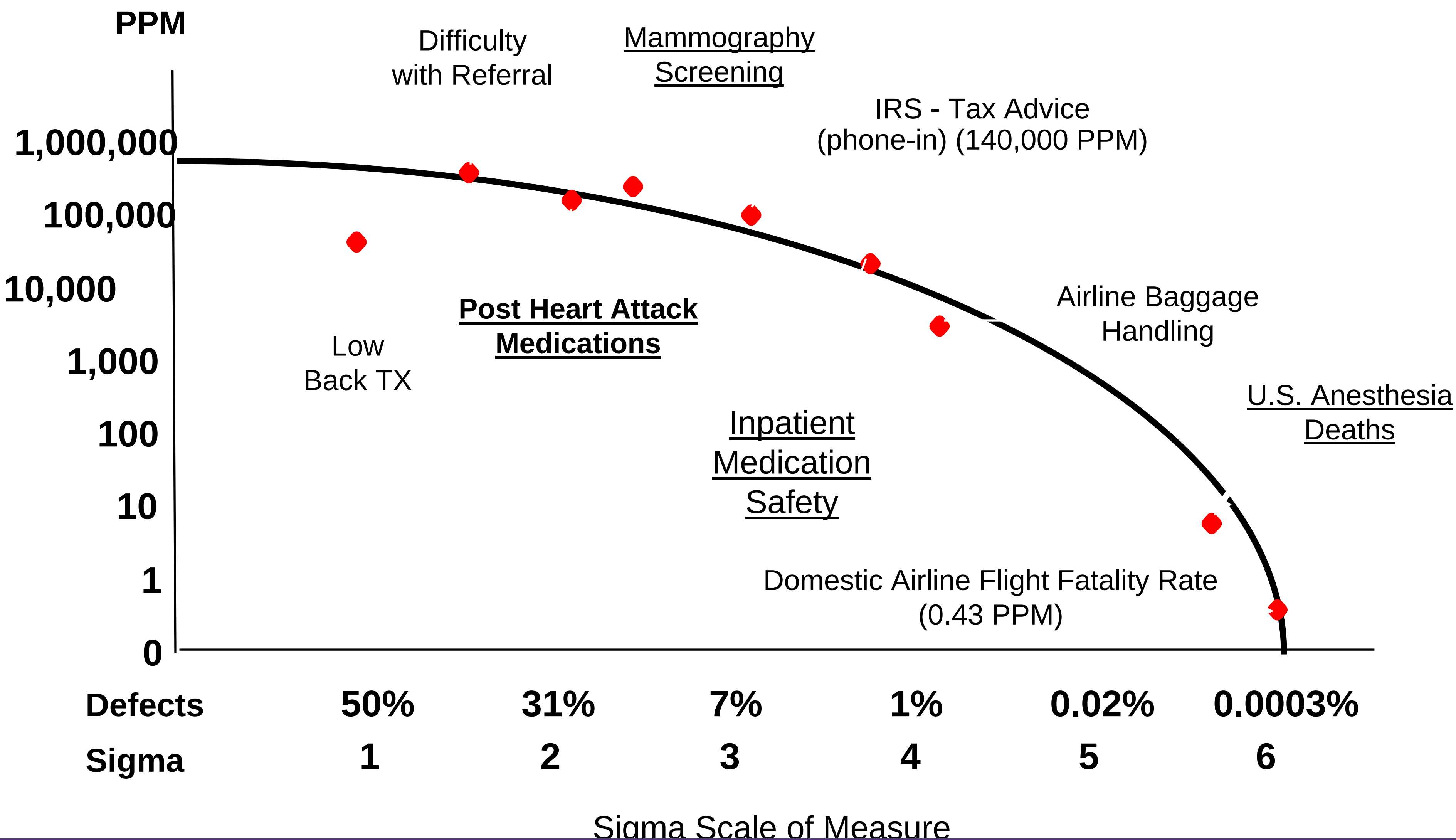
Comparative Reliability Between Industries



Innovators, Faculty Development, Champions and the Master Class

Interdisciplinary Learning

2010 Hospital National Patient Safety Goals

The purpose of the National Patient Safety Goals is to improve patient safety. The Goals focus on problems in health care safety and how to solve them.

Identify patients correctly	Use at least two ways to identify patients. For example, use the patient's name and date of birth. This is done to make sure that each patient gets the medicine and treatment meant for them. Make sure that the correct patient gets the correct blood type when they get a blood transfusion.
Improve staff communication	Quickly get important test results to the right staff person.
Use medicines safely	Label all medicines that are not already labeled. For example, medicines in syringes, cups and basins. Take extra care with patients who take medicines to thin their blood.
Prevent infection	Use the hand cleaning guidelines from the Centers for Disease Control and Prevention or the World Health Organization. Use proven guidelines to prevent infections that are difficult to treat. Use proven guidelines to prevent infection of the blood from central lines. Use safe practices to treat the part of the body where surgery was done.
Check patient medicines	Find out what medicines each patient is taking. Make sure that it is OK for the patient to take any new medicines with their current medicines. Give a list of the patient's medicines to their next caregiver or to their regular doctor before the patient goes home. Give a list of the patient's medicines to the patient and their family before they go home. Explain the list. Some patients may get medicine in small amounts or for a short time. Make sure that it is OK for those patients to take those medicines with their current medicines.
Identify patient safety risks	Find out which patients are most likely to try to kill themselves.

The Joint Commission
Accreditation
Hospital

This is an easy-to-read document. It has been created for the public. The exact language of the Goals can be found at www.jointcommission.org.

CMS Non-payment measures

Hospital-Acquired Condition	FY 2007 Volume*	Average Cost Per Case*
Foreign object retained after surgery	750	$63,631
Air embolism	57	$71,636
Blood incompatibility	24	$50,455
Stage III & IV pressure ulcers	257,412	$43,180
Falls, traumas, and other injuries	193,566	$33,984
Catheter-associated urinary tract infections	12,185	$44,043
Vascular catheter-associated infection	29,536	$103,027
Surgical site infection		
Mediastinitis after coronary artery bypass graft	69	$299,237
Certain orthopedic surgeries	269	$148,172
Bariatric surgery for obesity	37	$233,614
Glycemic control		
Diabetic ketoacidosis	11,469	$42,974
Hypoglycemic coma	3,248	$35,215
Nonketotic hyperosmolar coma	212	$36,581
Deep vein thrombosis/pulmonary embolism following total knee replacement and hip replacement	4,250	$58,625

* Volume based on secondary diagnosis codes on HAC list from MedPAR database; Medicare patients only.
SOURCE: CMS, 2008.

Medscape Source: Nurs Econ © 2009 Jannetti Publications, Inc.