Transforming Perinatal Care to High Reliability: Challenges and Opportunity

Paul A. Gluck, MD
Immediate Past Chair of the Board
National Patient Safety Foundation
Associate Clinical Professor OB/Gyn
Fellow JMH-UM Center for Patient Safety
University of Miami Miller School of Medicine

Disclosure Statement

The presenter has no conflict of interest relative to the content of this presentation

Learning Objectives

- At the conclusion of this presentation the participant will be able to :
  - List the 4 root causes of medical errors in healthcare
  - Define High Reliability Organizations (HRO)
  - List the most important barriers to transforming obstetrical care to an HRO
  - List 2 interventions needed to improve safety in obstetrical care

“There are some patients we cannot help;
there are none we cannot harm.”

Arthur Bloomfield,MD

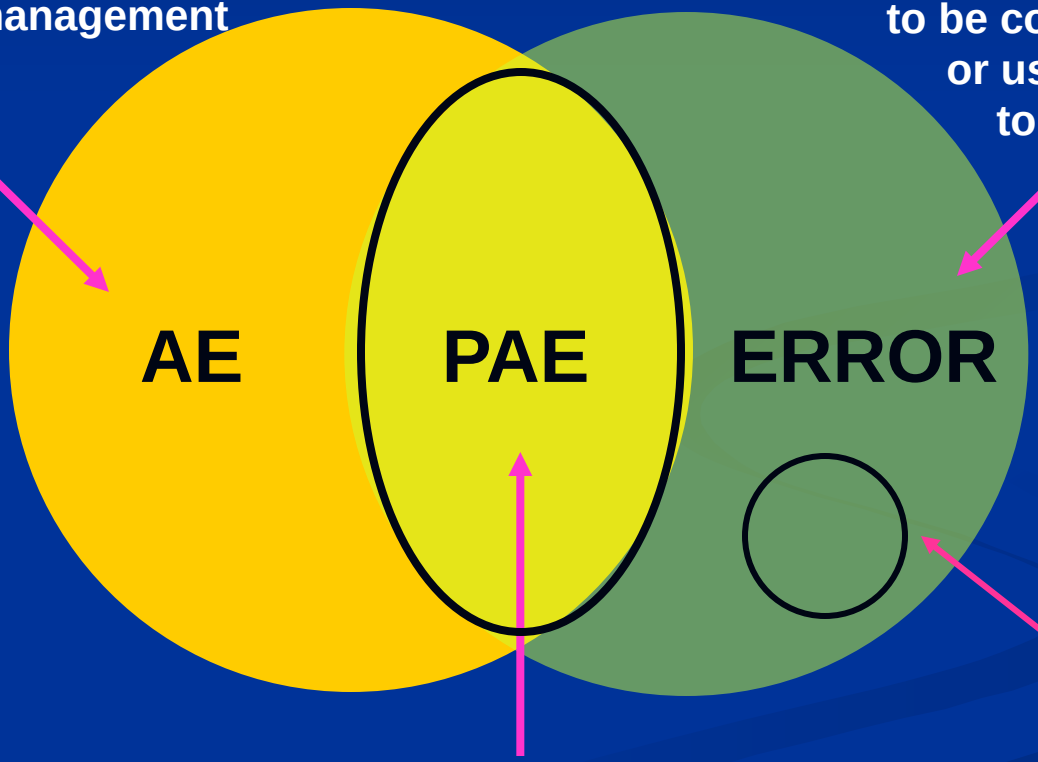
Discussion Outline

1. Incidence of Medical Errors
2. Reasons for Medical Errors
3. Transforming Healthcare to a Culture of Safety
   A. Definition
   B. Barriers
   C. Solutions
   D. Leadership-(Teams)
4. Conclusion

Key Definitions

ADVERSE EVENT
an injury caused by medical management

ERROR
failure of a planned action to be completed as intended or use of a wrong plan to achieve an aim



NEAR MISS

PREVENTABLE ADVERSE EVENT
an adverse event caused by error

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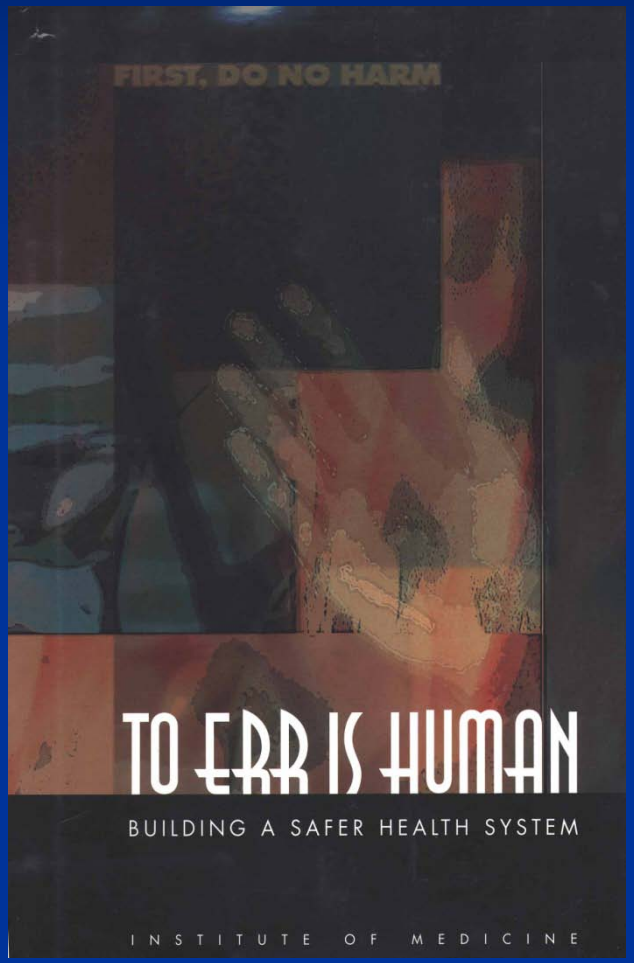
IOM – November, 1999



44,000-98,000 (3.7% error rate) deaths annually (more die each year than the entire Vietnam War, or motor vehicle accidents or breast cancer).

Lucian Leape, MD

Leading Cause of Death 1999

1. Cancer — 156,485
2. Heart disease — 115,827
3. Medical errors 98,000
4. Injuries — 46,045
5. Suicide — 19,549
6. Cerebrovascular disease — 18,369
7. Diabetes — 16,156
8. Respiratory disease — 15,809
9. Chronic liver disease and cirrhosis — 15,714
10. HIV/AIDS — 14,017

Sources: U.S. Department of Health and Human Services, National Center for Health Statistics, *Health, United States, 2002,* Table 33, p. 132 — deaths for causes;

"Patient Safety in American Hospitals"

As many as 195,000 people a year could be dying in U.S. hospitals because of easily prevented errors …there is little evidence that patient safety has improved in the last five years.

Samantha Collier

Health Grades

July, 2004

To Err is Human – To Delay is Deadly

Consumer Reports, SafePatientProject.org 2009

"Despite a decade of work, we have no reliable evidence that we are any better of today. More than 100,000 patients still needlessly die every year… We have failed to make the systemic changes in health care needed to end preventable medical harm."

Jim Guest, President

Consumers Union

Costs of medical error estimates $17,000,000,000-29,000,000,000.

Each adverse event average cost $2000-2600 and increased LOS 1.9-2.2 days.

Preventable adverse events cost $4685 each and increase LOS 4.6 days.

A million deaths is a statistic;
A single death is a tragedy.

Joseph Stalin

Betsy Lehman

Died:

December1994

Age:

39 years old

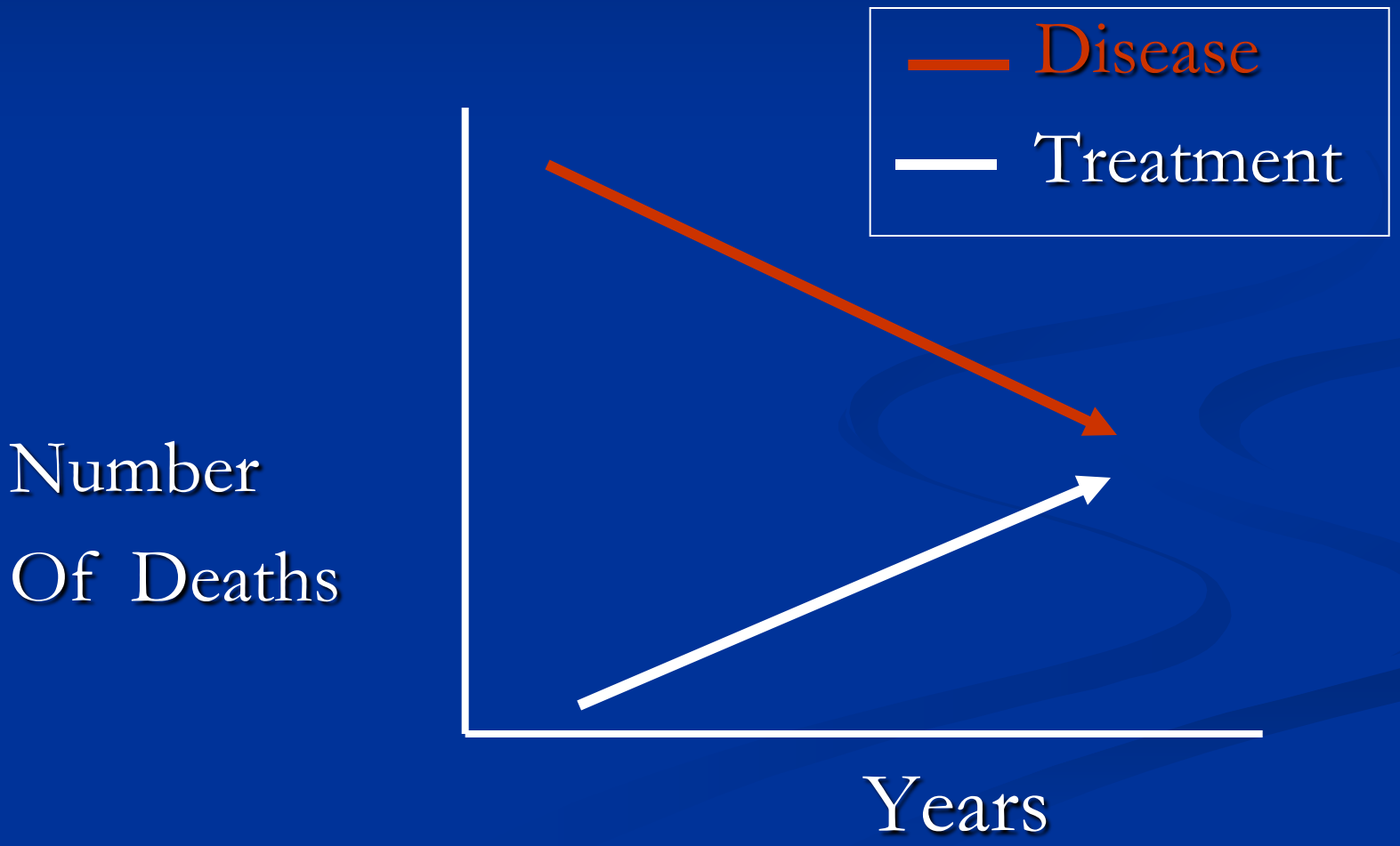
Place:

Boston, USA

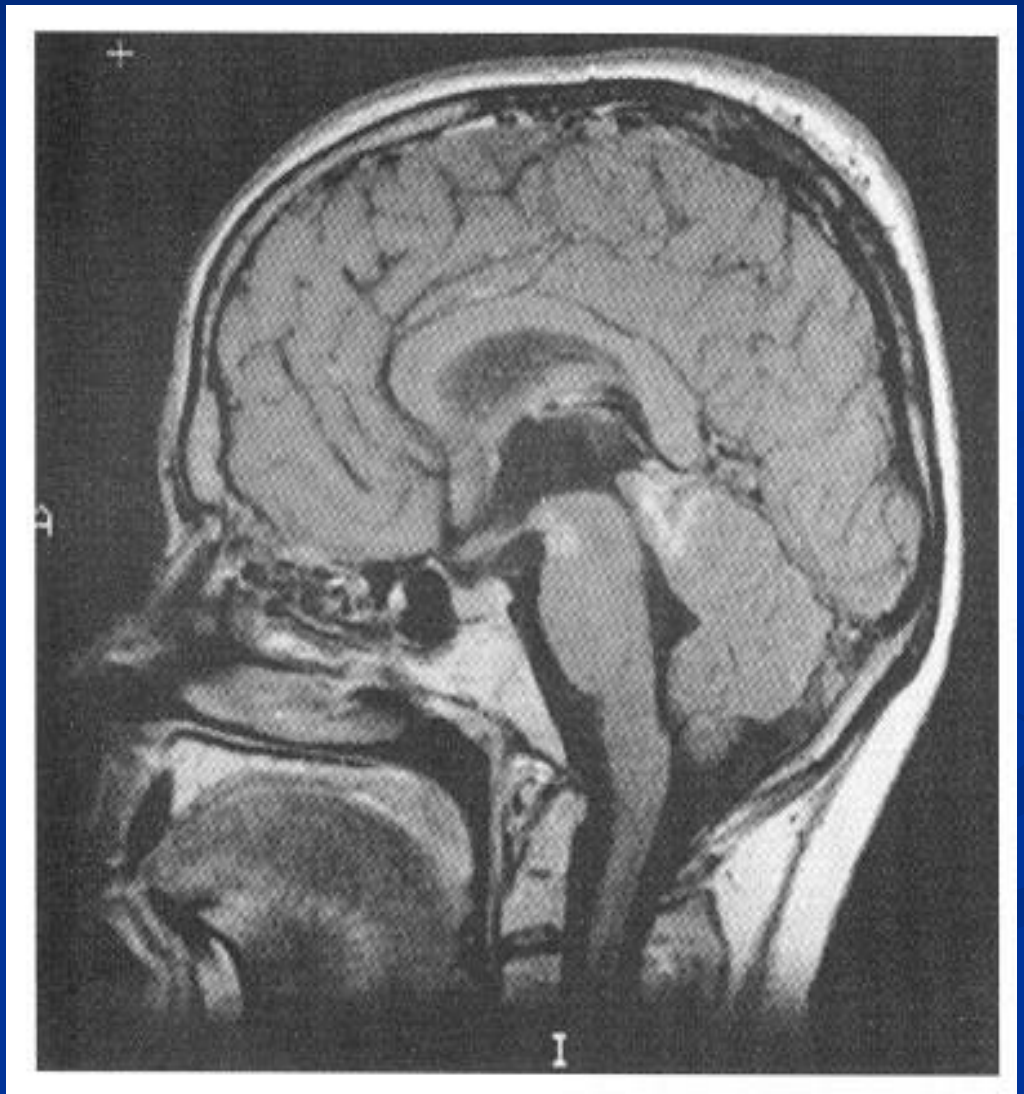
Cause of death:

Administered with four times the prescribed dose of a chemotherapy drug, resulting in heart failure.

How Did Healthcare Become So Unsafe?



MRI



Deadly Projectiles

Medicine used to be simple, ineffective and relatively safe.

Now it is complex, effective and potentially dangerous.

Cyril Chantler, MD

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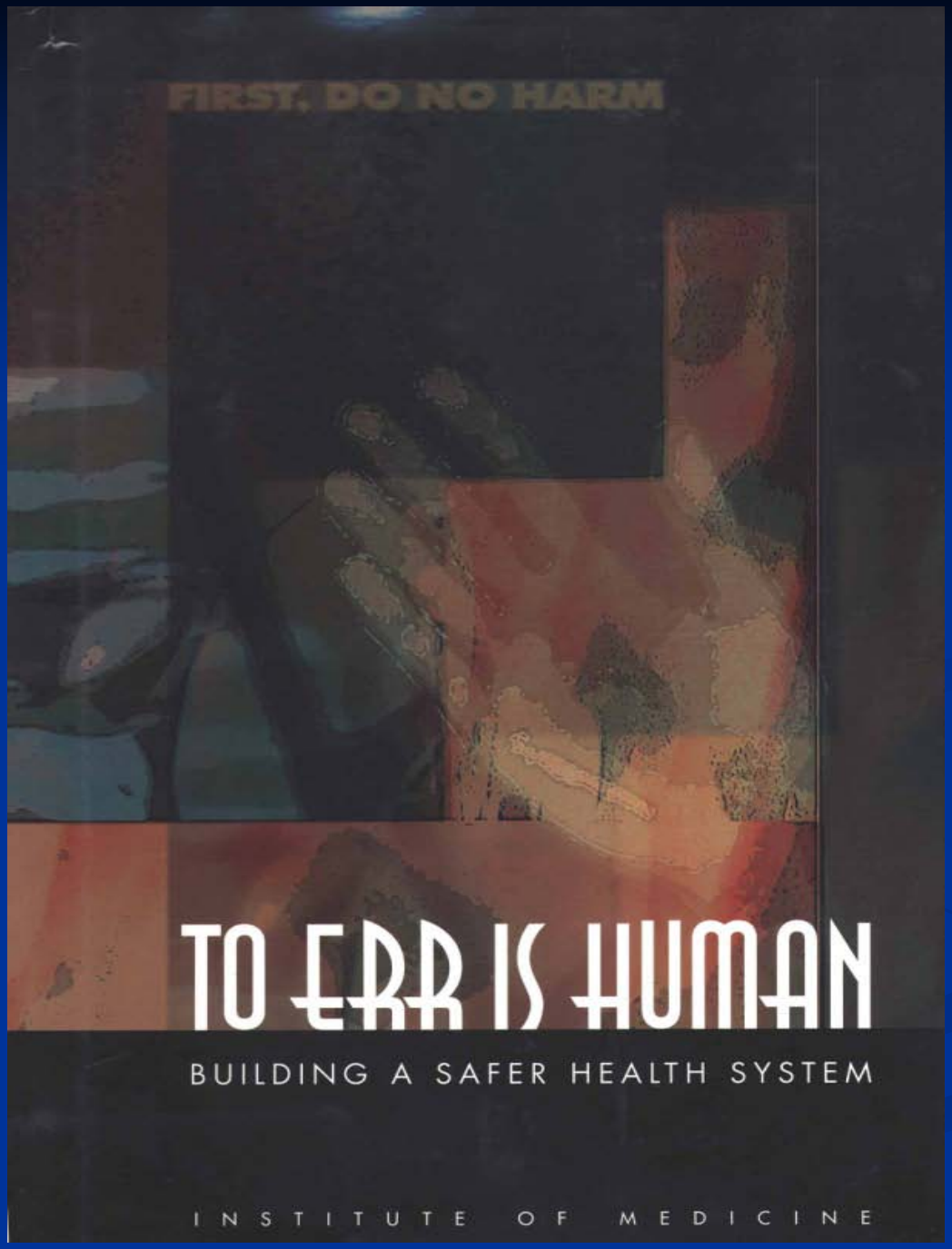
REASONS FOR ERRORS

- HUMAN FALLIBILITY
- COMPLEXITY OF MEDICINE
- SYSTEM DEFICIENCES
- VUNERABILITY OF DEFENSE BARRIERS

Human Fallibility

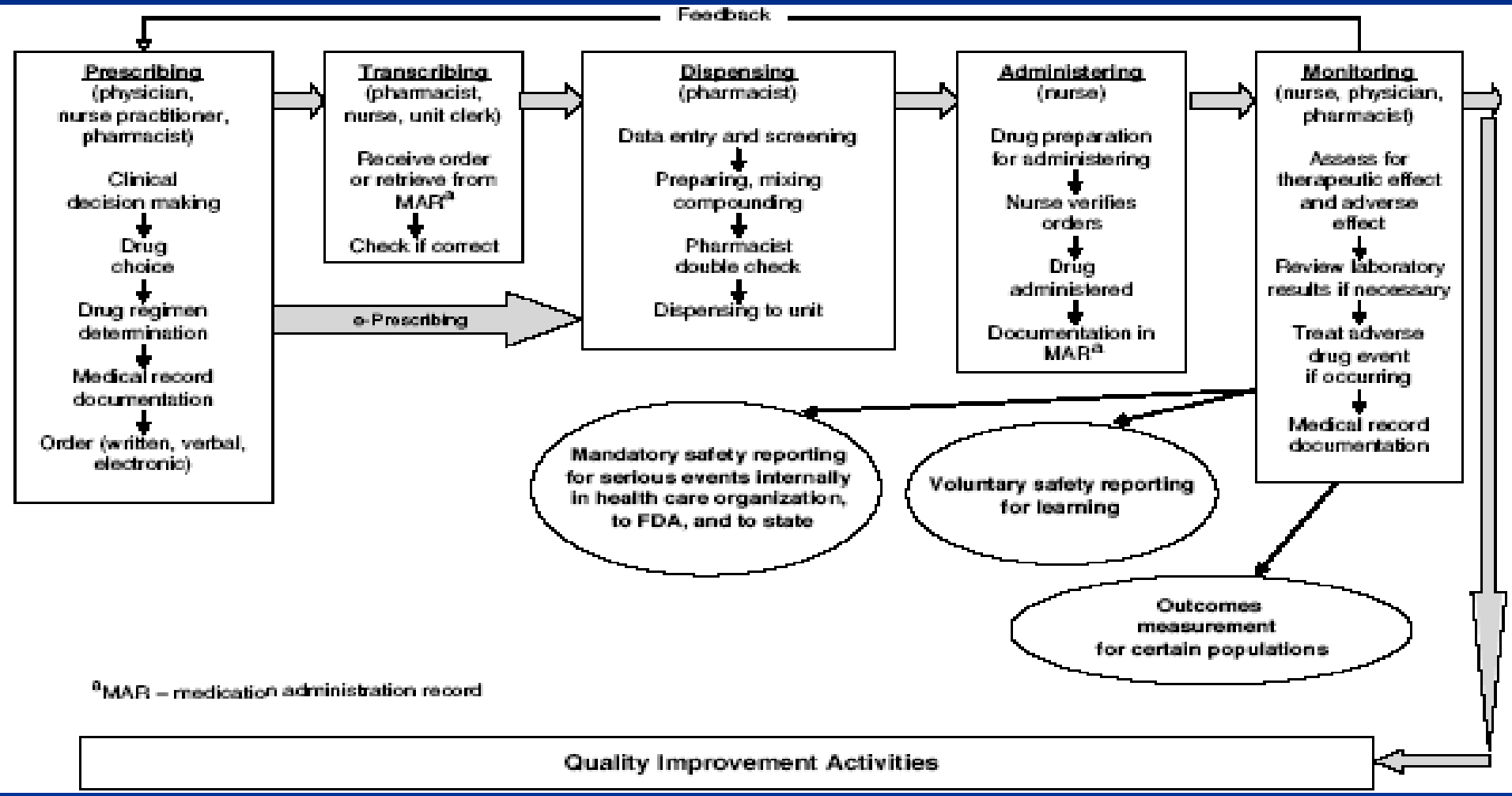

FIRST, DO NO HARM
TO ERR IS HUMAN
BUILDING A SAFER HEALTH SYSTEM
INSTITUTE OF MEDICINE

COMPLEXITY

"…modern health care is the most complex activity ever undertaken by human beings." *Ken Kizer*

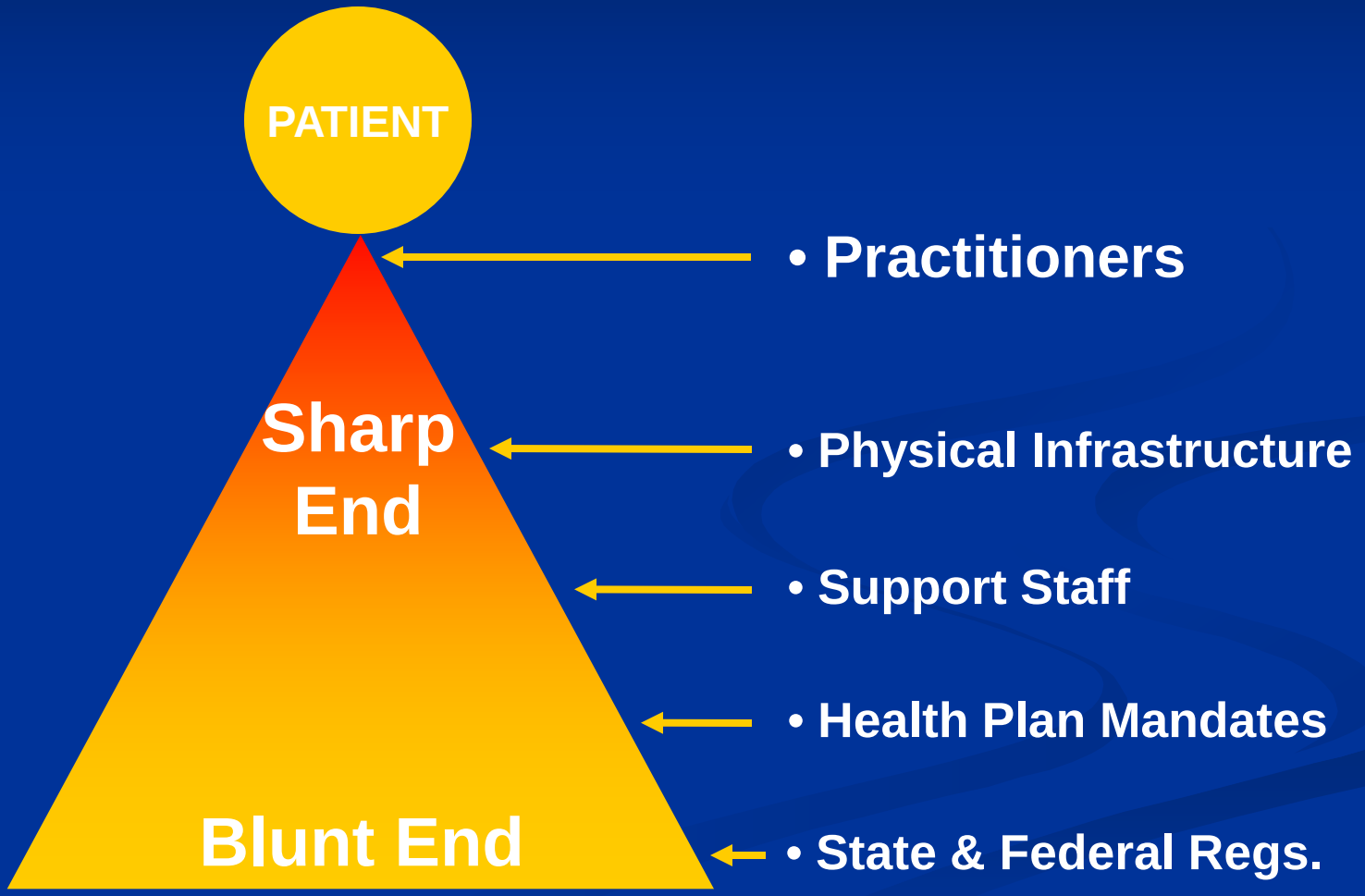
- Highly complicated technologies
- Panopoly of powerful drugs
- Widely differing professional backgrounds
- Unclear lines of authority
- Highly variable physical settings
- Unique combinations of diverse patients
- Communication barriers
- Care processes widely vary
- Time pressured environment

Medication Process - Hospital



SYSTEM DEFICIENCIES

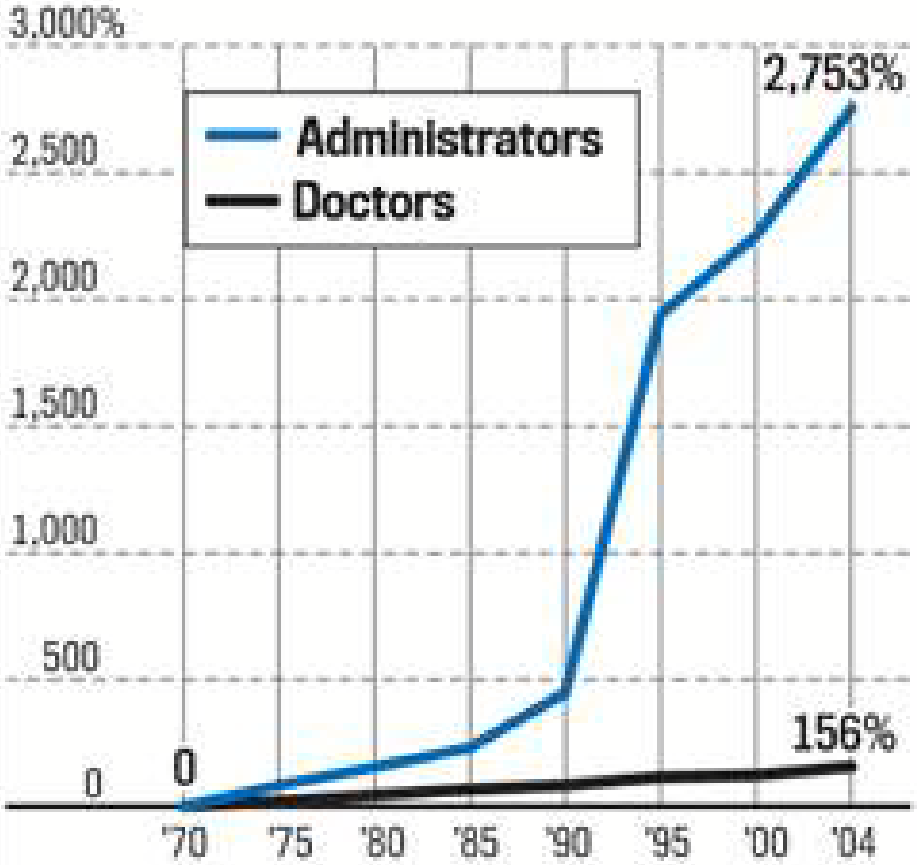
Working at the Sharp End



Paper-pushing explosion

The number of health care administrators needed to handle the burgeoning bureaucracy of the U.S. medical system has grown 27-fold since 1970.

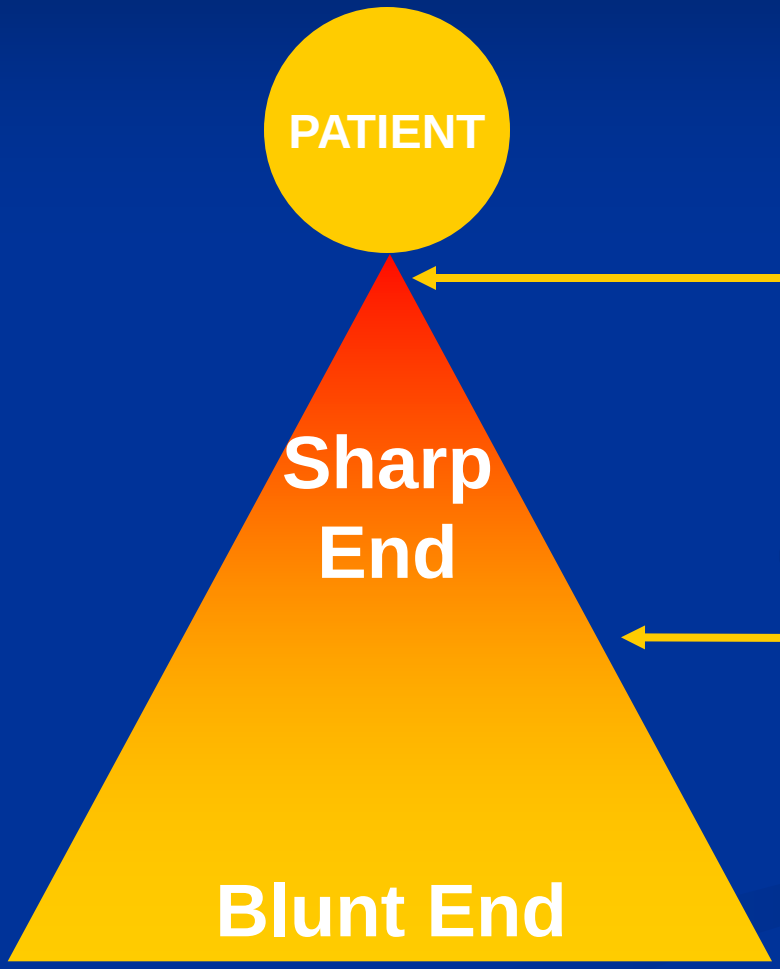
Percentage growth of doctors and medical administrators since 1970



Source: U.S. Bureau of Labor Statistics

The Detroit News

Working at the Sharp End



ACTIVE Errors -
Unpredictable,
Effects immediate

LATENT Errors-
Dormant
Intervention prevents harm

Examples of Latent Errors

- Staffing ratios
- Communication
- Engineering
- Purchasing
- Accounting
- Laboratory
- Pharmacy
- Telephone
- Credentialing
- Peer review
- Security
- RN&MD competency
- CME
- Medical records
- Paging systems
- Information services

Complications Associated with Decreased RN Staffing

- Urinary Tract Infection
- Pneumonia
- Gastrointestinal Bleeding
- Shock
- Deep Vein Thrombosis
- Sepsis

NEJM 2002

Correlation of Staffing Ratios to Risk of Death

1:4……..Ideal Staffing

1:5 ……7% Increase

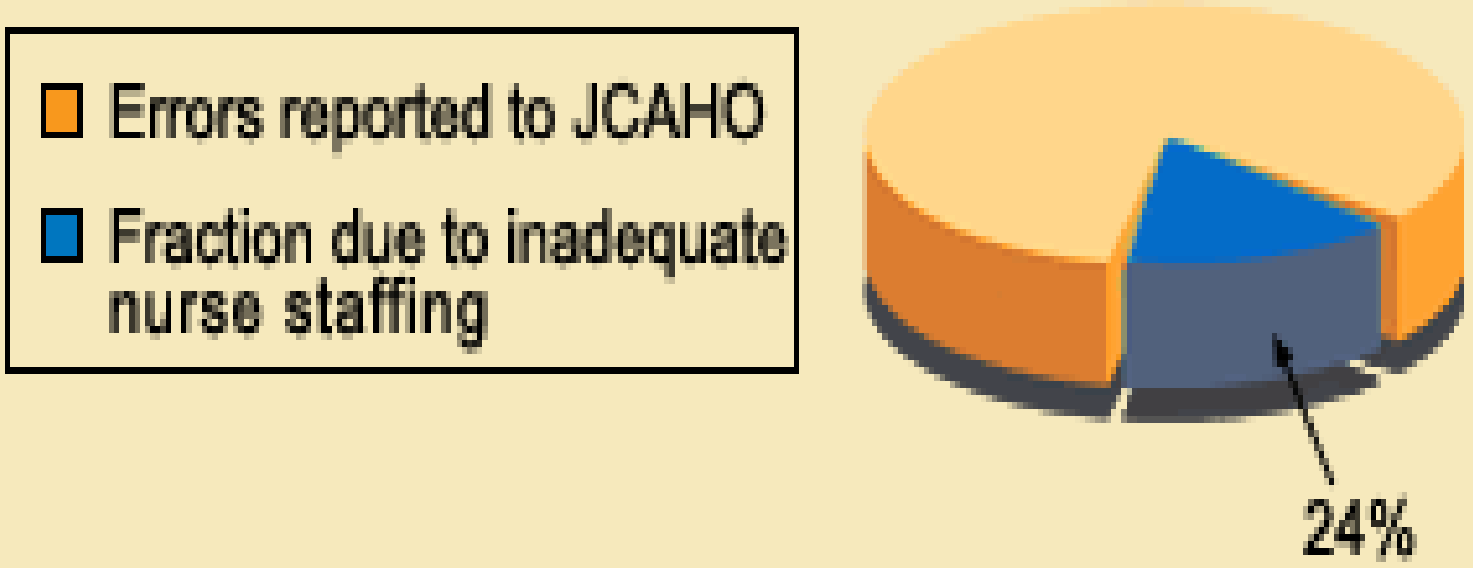
1:6……14% Increase

1:7……23% Increase

1:8……31% Increase

JAMA 2002

Many adverse events attributed to inadequate nurse staffing.



Source: JCAHO, 2002

RF Tracking of Nurses

"Nurses spend only 20% of their time in direct patient care."

Ann Hendrich, Ascension Health

Balancing personal accountability with system failures

Latent system errors do not absolve the individual but makes error recognition and mitigation ***everyone's*** responsibility!

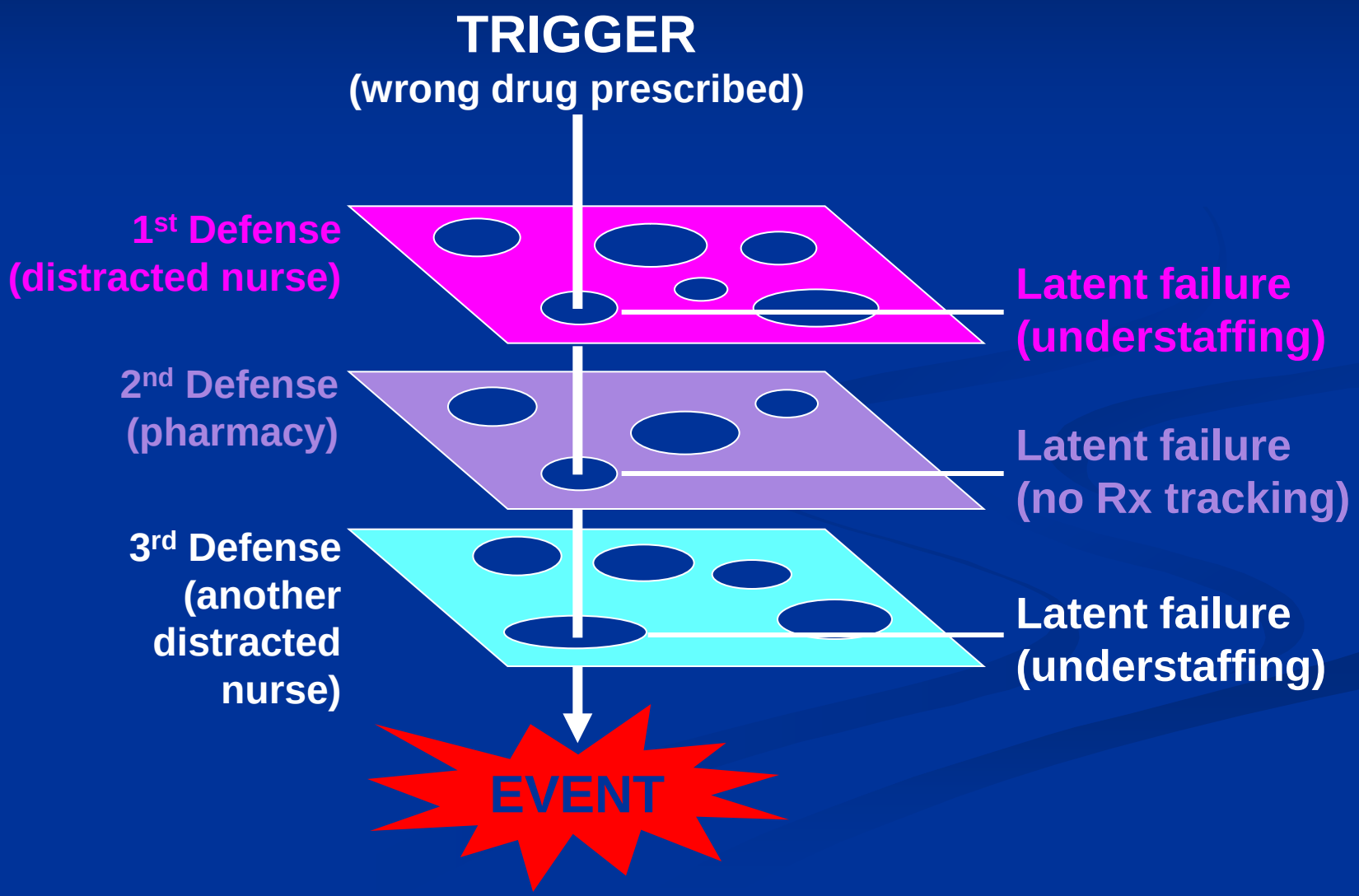
"Ritz Carlton Credo"

"Just Culture"

DEFENSIVE BARRIERS

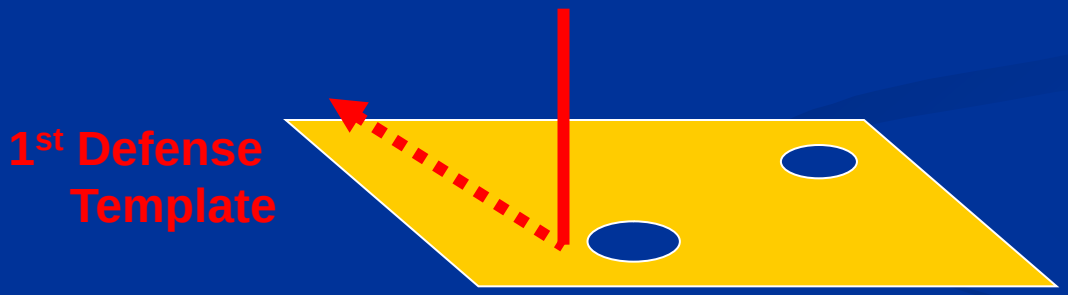
"SWISS CHEESE" THEORY

Defensive Barriers



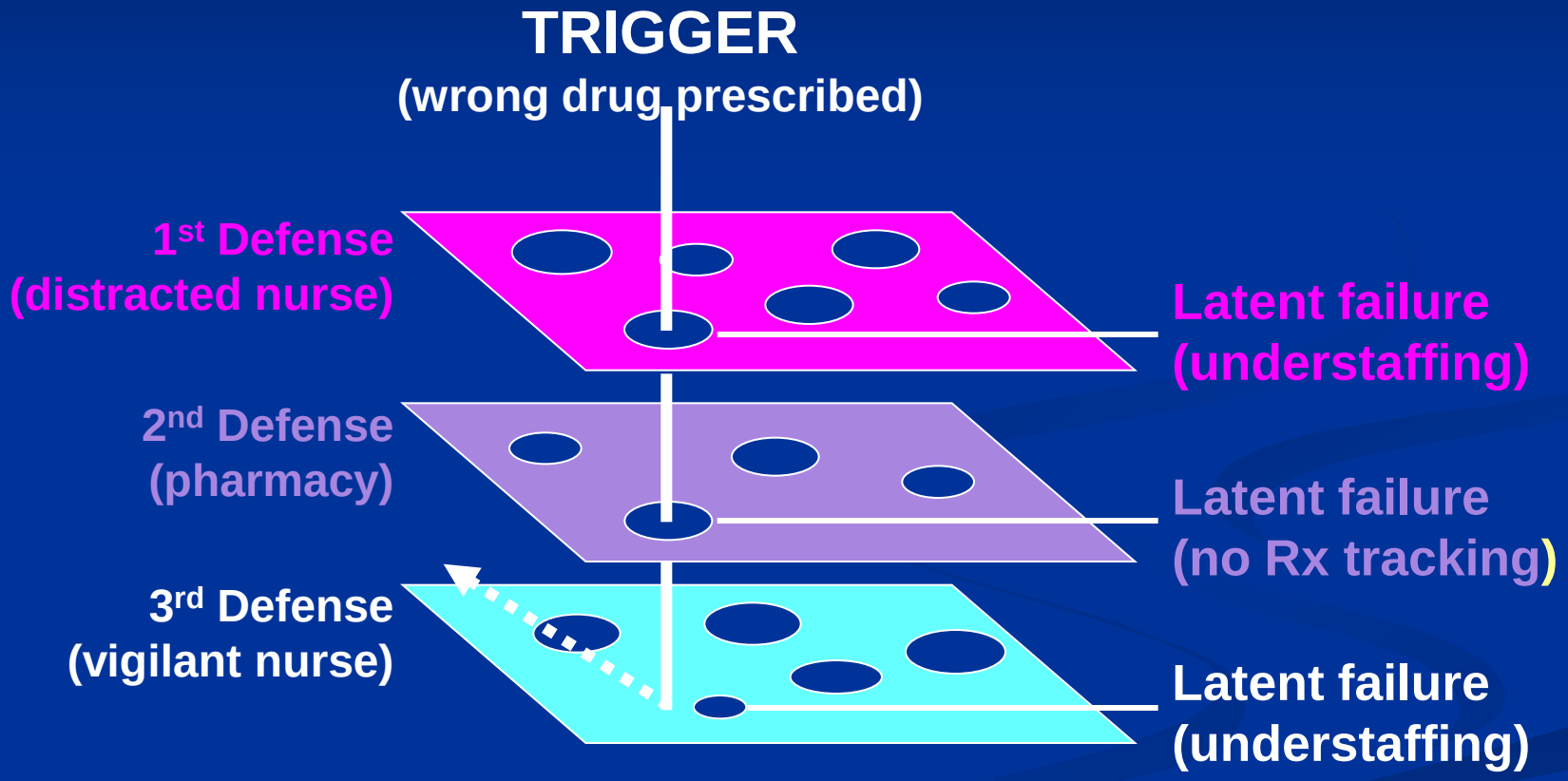
Defensive Barriers

Standardized approaches can reduce variability and improve system efficiency



Adverse Event Averted

Defensive Barriers



Reason J Human error: Models and Management, *BMJ,* 18 March 2000.

Defense Barriers

- Professional Communication
- Training
- Quality Management
- Knowledge
- Information technology
- Credentialing
- Peer review
- Protocols, pathways, policies
- Redundancy
- Forcing functions

Strategies to Improve Patient Safety

Individual Focus

- ~~Try harder – Punishments and Rewards~~

System Focus

- Forcing Functions, Reminders at the POC
- Reduce Complexity
- Eliminate Latent Errors
- Decrease vulnerability of defensive barriers

ASK “WHAT HAPPENED” *NOT* “WHO DID IT”

“Adverse outcomes are *system deficiencies*, not human error. Most medical errors are not committed by incompetent or negligent practitioners.”

David Shapiro, MD, JD

" What we have right now is the best medical talent, technology and facilities in the world – but the system that delivers our care is badly broken"

Newt Gingrich (R) Patrick Kennedy (D)
Center for Health Transformation
NY Times, May 3, 2004

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Safe Culture -Definition

ACSNI*, UK 1993

The safety culture of an organization is the product of individual and group values, attitudes, perceptions, competencies, and patterns of behavior that determine the commitment to, and the style and proficiency of, an organization's health and safety management.

*Advisory Committee on the Safety of Nuclear Installations

Safe Culture -Definition

ACSNI*, UK 1993

Organizations with a positive safety culture are characterized by communications founded on mutual trust, by shared perceptions of the importance of safety, and by confidence in the efficacy of preventive measures.

*Advisory Committee on the Safety of Nuclear Installations

Organizational Culture

R Westrum, 1992

Pathologic	Bureaucratic	Safe
Don't want to know errors	May not find out about errors	Actively seek errors
Shoot the messenger	Messengers heard if arrive	Train & reward messengers
Responsibility shirked	Responsibility compartmentalize	Responsibility shared
Punish or hide failures	Local repair of failures	Failures→ system change, celebrate
New ideas discouraged	New ideas problematic	New ideas welcomed

HIGH RELIABILITY ORGANIZATIONS

Safety is one of their core values

- Prevent errors
- Make errors visible
- Recognize and mitigate effects of error to prevent harm
- Constantly training - drills
- Never Satisfied; Obsessed with Safety
  - Always willing to change to improve safety
  - Not afraid of failure


CVW

Safety Culture - Aircraft Carriers

Karlene Roberts

- Raise expectations
- Explicit Priority
- Change in command and control
- “Stop the Line”
- Teams

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Barriers to Establish Safe Culture

- **LEADERSHIP**
- **Resistance to change; physician engagement**
- **Lack of team work**
- Inadequate Resources – staffing & infrastructure
- Culture of individual blame (vs. Just Culture)
- Competing priorities; unclear values
- Inadequate reporting systems and analysis

Results of Barriers

CDC

- Nosocomial infections-
  2,000,000 / year
  90,000 deaths / year
  $4.5-5.7 billion / year

Reasons for Lack of HH

Measuring Hand Hygiene Adherence, TJC, 2009

- Availability of HH products
- Engagement of Leadership
- Accountability for non-adherent staff
- Engagement of staff and patients in HH efforts
- Lack of a culture of safety
- Unclear policy for HH

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PRINCIPLES FOR DESIGN OF SAFE SYSTEMS IN HEALTHCARE

⇒ Principle 1. Provide leadership

⇒ Principle 2. Respect human limits in process design

⇒ Principle 3. Effective team functioning

⇒ Principle 4. Create a learning environment

⇒ Principle 5. Anticipate the unexpected

Which dial turns on the burner?

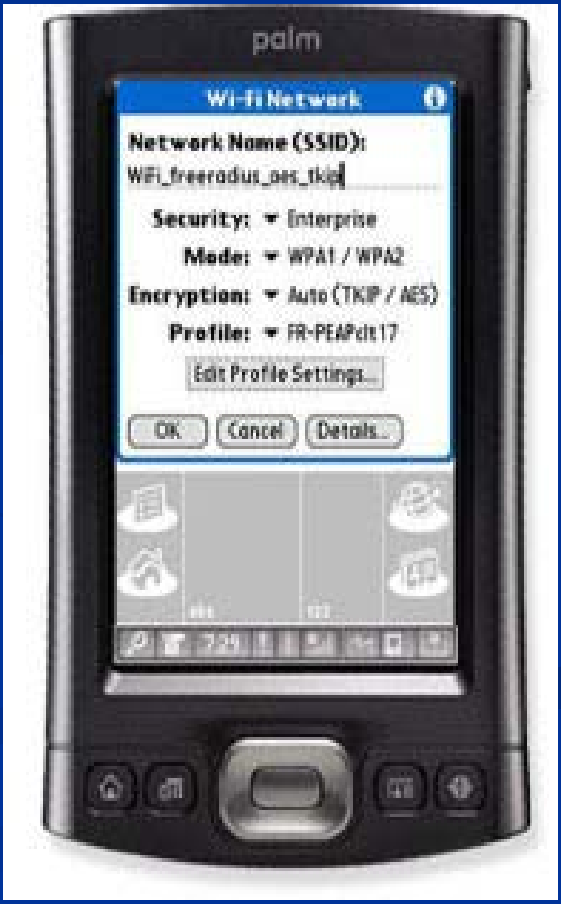
Stove A

Stove B

Cognitive Mapping

Avoid reliance on memory (Mental and visual prompts) "Reminders at the Sharp End"

- Patient Specific Information
- Protocols & Guidelines
- Clinical Decision Support
  - On line, pocket guides, PDA
  - CPOE
- Medication Unit Dosing



Forcing Function – Process Change

- Insert Card
- PIN number
- How much?
- Remove Money
- Remove Card

Forcing Function – Process Change

- Insert Card
- PIN number
- How much?
- Remove Card
- Remove Money

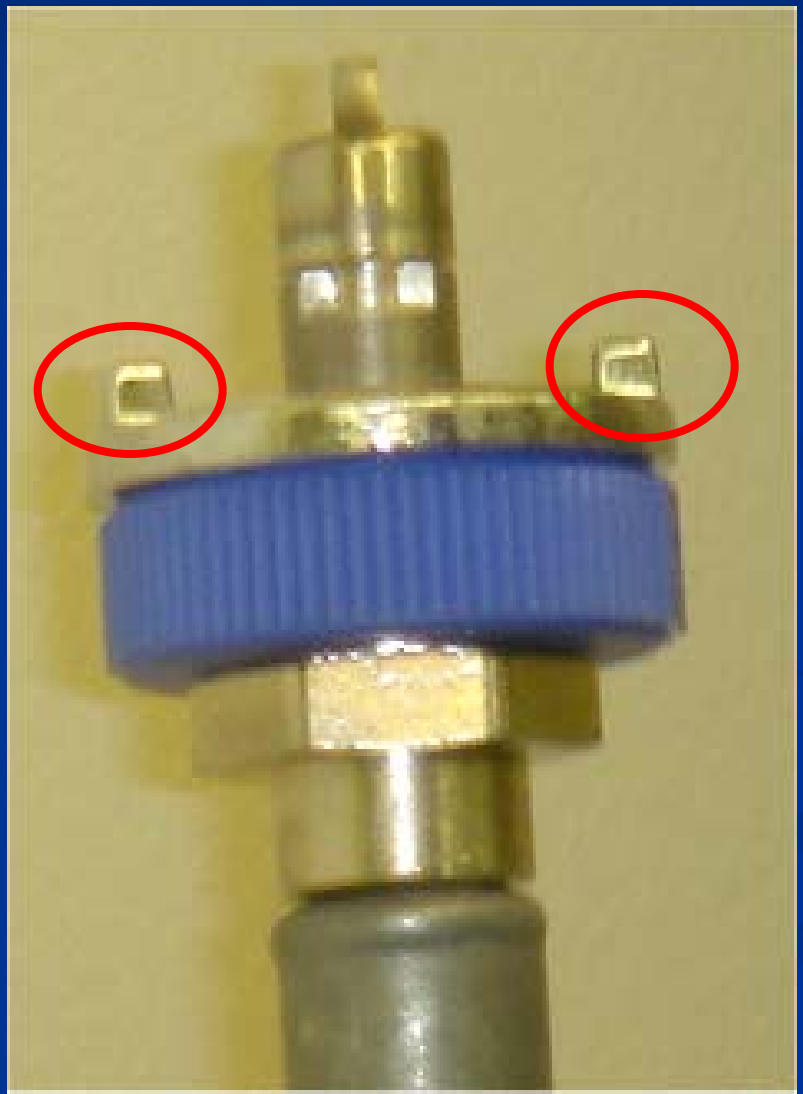
Constraints and Forcing Functions

- Equipment prompts and interface
  - Infusion pumps
  - Incompatible connections (PISS)
- Processes
  - Remove KCl from floors
  - Allergy history required before meds dispensed
  - No Elective Induction or C/S before 39 wks

“Smart” Pumps

Pin Insertion Safety System

Pin Insertion Safety System



Standardization

Sign In - Prior to induction of anaesthesia, verify:

□ Patient confirmed identity, site, procedure and consent
□ Site marked/not applicable

□ Anaesthesia safety check completed
□ Pulse oximeter on patient and functioning

Does patient have a:

known allergy
□ No □ Yes

difficult airway/aspiration risk
□ No □ Yes, and needed equipment and assistance available

risk of >500cc blood loss (7cc/kg in children)
□ No □ Yes, and adequate IV access and fluids planned

Time Out - Prior to skin incision:

□ Confirm all team members have introduced themselves by name and role

□ Surgeon, Anaesthesia professional and Nurse verbally confirm patient, site, procedure, position

Anticipated critical events
□ Surgeon reviews: what are the critical or unexpected steps, operative duration, anticipated blood loss?
□ Anaesthesia team reviews: what are critical resuscitation plans, patient-specific concerns, if any?
□ Nursing team reviews: what are the sterility indicator results, equipment issues, other patient concerns?

Antibiotic prophylaxis given in last 60 minutes
□ Yes □ Not applicable

Essential imaging displayed
□ Yes □ Not applicable

□ Other checks: _____

Sign Out - Prior to the patient leaving the operating theatre:

Nurse verbally confirms with the team:

□ What procedure was performed?

□ Are the instrument, sponge and needle counts correct?

□ How is the specimen labelled (including patient name)?

□ Are there any equipment malfunctions or issues to be addressed?

Surgeon, Anaesthesia Professional and Nurse Review:

□ What are the key concerns for recovery and management of this patient?

Surgical checklist to reduce morbidity and mortality

Haynes AB, et al, NEJM 2009

	Before Checklist (3733 cases)	After Checklist (3955 cases)
Death Rate	1.5%	0.8%
Inpatient Compl.	11 %	7%

Standardization
Induction of Labor

- No scheduled repeat cesarean section or elective induction of labor before 39 weeks
- Standardized protocol for labor induction
  - ACOG Guidelines
  - HCA Protocol - Steven Clark, MD

Oxytocin Labor Induction

ACOG Practice Bulletin #10 Nov. 1999

Regimen	Starting Dose	Incremental Increase (mU/min)	Dosage Interval (min)
Low Dose	0.5 -1	1	30 – 40
	1-2	2	15
High Dose	~6	~6	15
	6	6, 3, 1	20-40

Oxytocin Labor Induction
ACOG Practice Bulletin #10 Nov. 1999

- "Each hospital's obstetric and gynecologic department should develop guidelines for the preparation and administration of oxytocin."

William Rayburn, MD, MBA

ACOG, ACM 2009 Clinical Seminar

- "Induction of labor rates have more than doubled in the last 20 years…inductions for marginal or elective reasons rose more rapidly"

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KLM Co-Pilot
“Is he not clear then?”

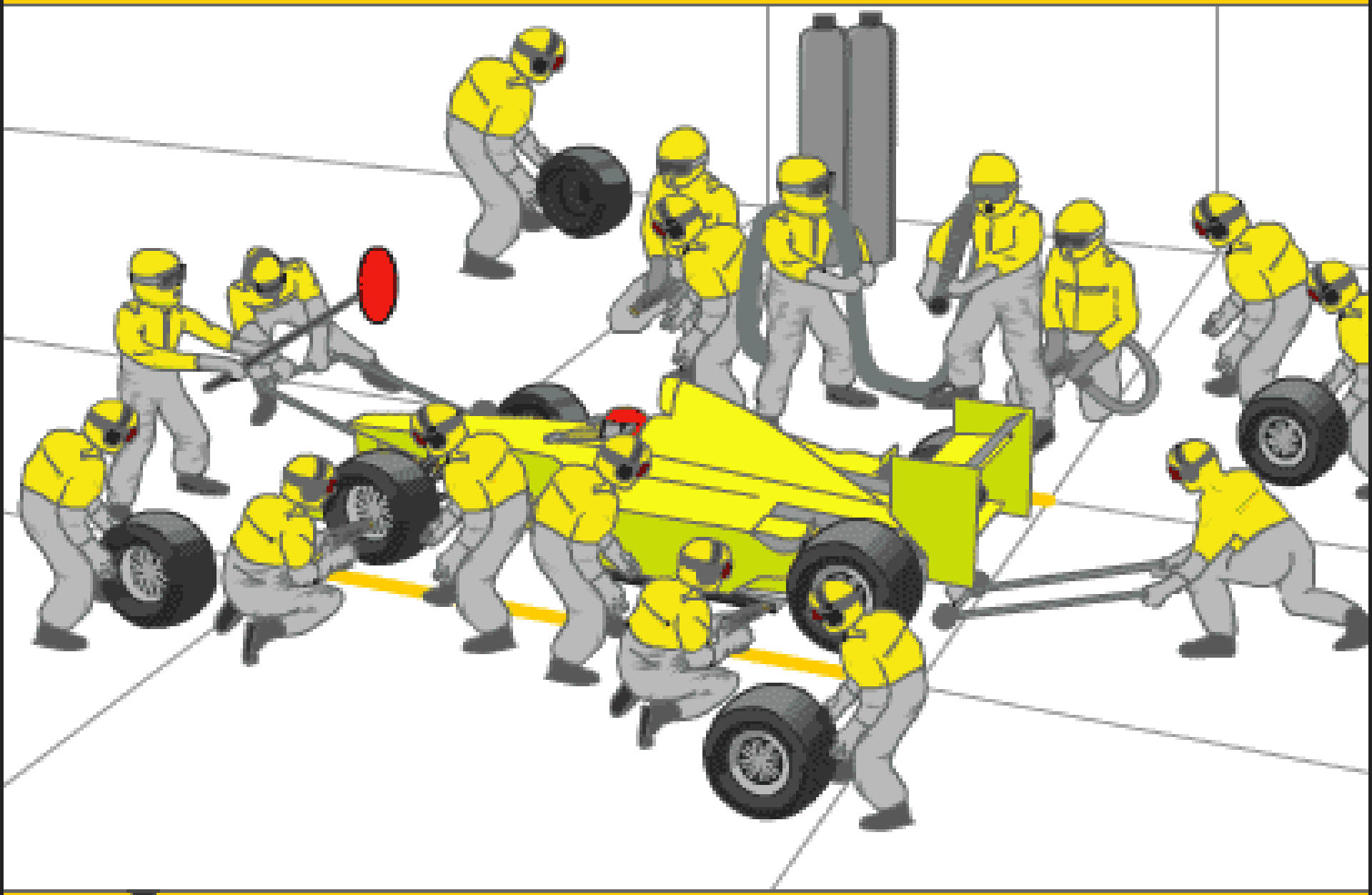
The largest loss of life in aviation history -

2 Boeing 747s collided **582 Deaths**

“Hospitals race to learn lessons of Ferrari pit stop”

Great Ormand Street Hosp. WSJ 11/14/06

PITSTOP GUIDE



STEP1 STEP2 STEP3 STEP4 STEP5 STEP6

TEAM FUNCTION & SAFETY

BEST TEAM

- Least Experience Surgeon
- Cohesive Team
- Simulation
- Pre case planning
- Debriefing
- Results tracked
- Removed hierarchy

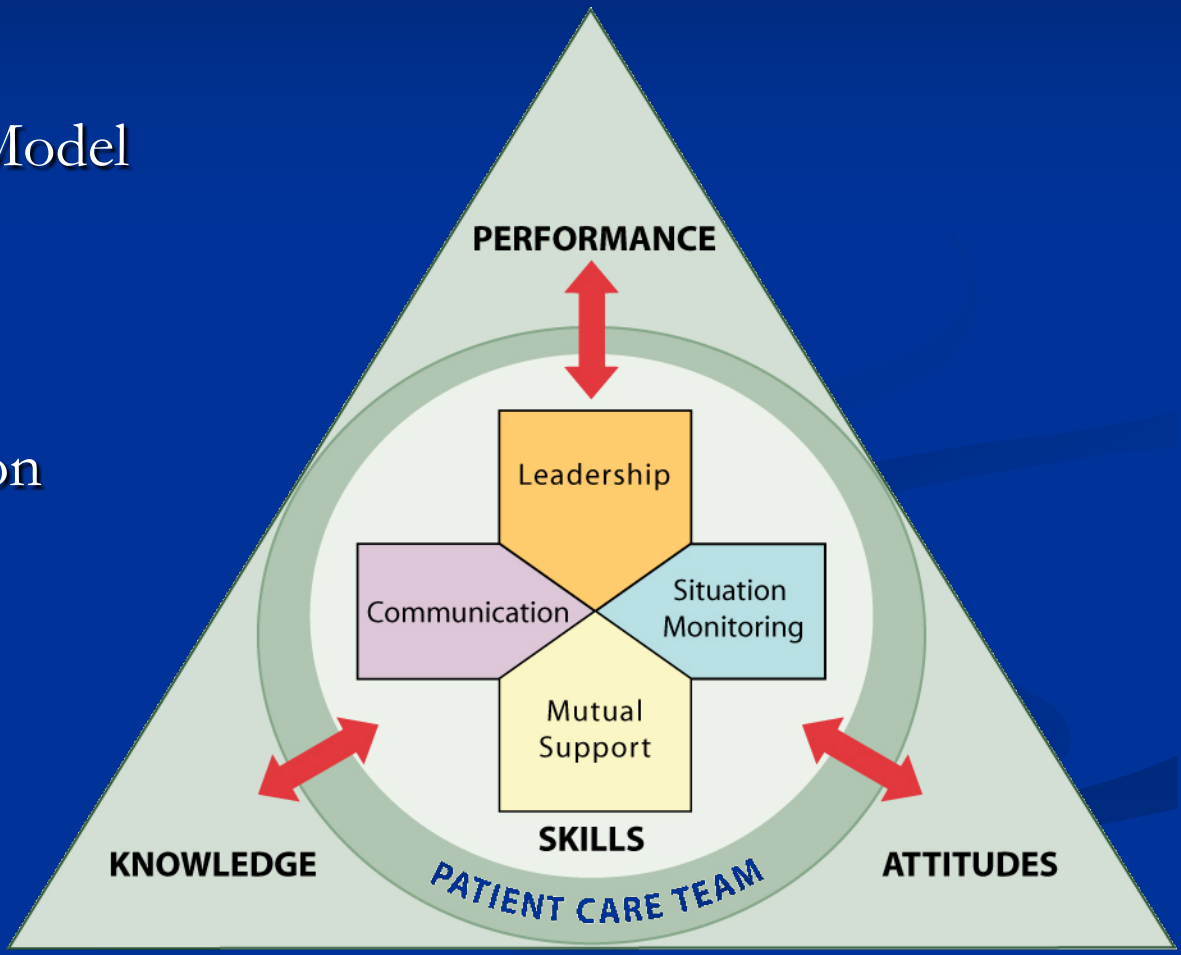
WORST TEAM

- Most experienced surgeon
- Team members changed
- No debriefing
- No tracking of results
- No preplanning
- Hierarchical

Bohmer, R. Harvard Bus.School

Outcomes of Team Competencies

- **Knowledge**
  - Shared Mental Model
- **Attitudes**
  - Mutual Trust
  - Team Orientation
- **Performance**
  - Adaptability
  - Accuracy
  - Productivity
  - Efficiency
  - Safety



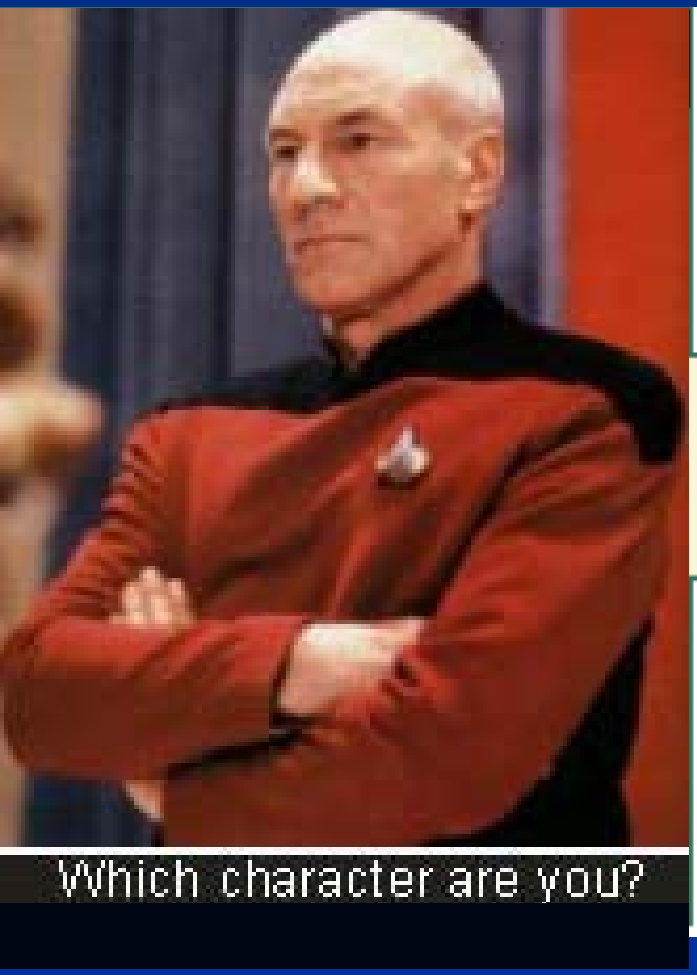
Leadership & Teamwork: Lessons from Star trek

Captain James T. Kirk

"One of the advantages of being a Captain is being able to ask for advice without having to take it."

Paradigm Shift to Team Approach

Captain James T. Kirk vs Jean-Luc Picard



Jean-Luc Picard

"Make it so!"

Leadership vs Management*

Management

- Functional
- Tactics
- Job focused →
  - Objectives →
  - Tasks →
  - Procedures →

Behaviors and Attitudes

Leadership

- Cultural
- Strategy
- People Focused →
  - Vision and Values →
  - How and Why →
  - Practices →

Behaviors and Attitudes

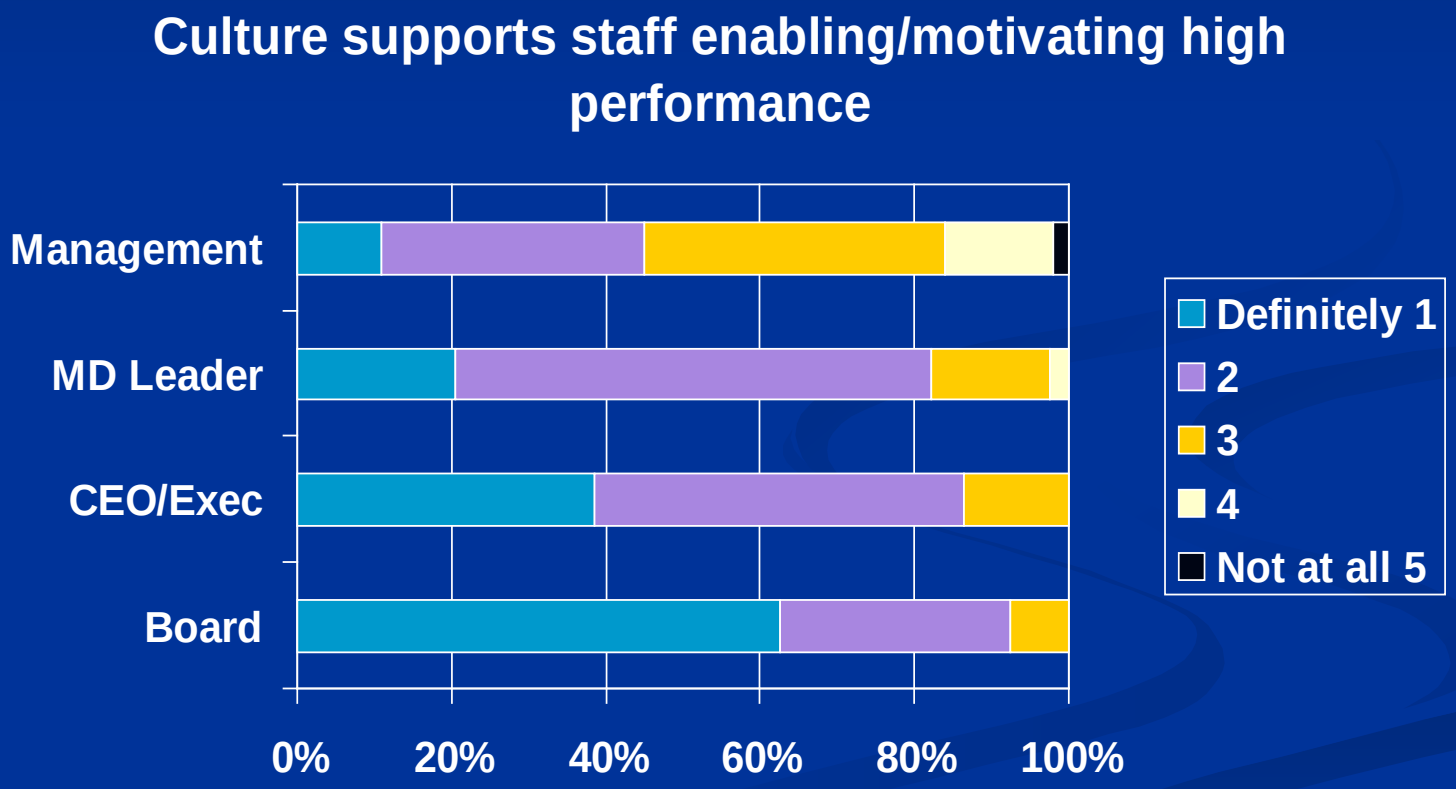
*Krause & Hidley, *Taking the Lead n Patient Safety*, 2009

NPSF/AIG Leadership Sessions

Survey participants:

- Obtained from mid-level management participants at each NPSF/AIG session (N=293)
- C-Suite findings obtained from Estes Park Institute Hospital Participant CEO's, Board Chairs, and Chief Medical Officers (N=193)
- Compared findings from the groups to identify gaps

Alignment and Environmental Culture to Support Safety



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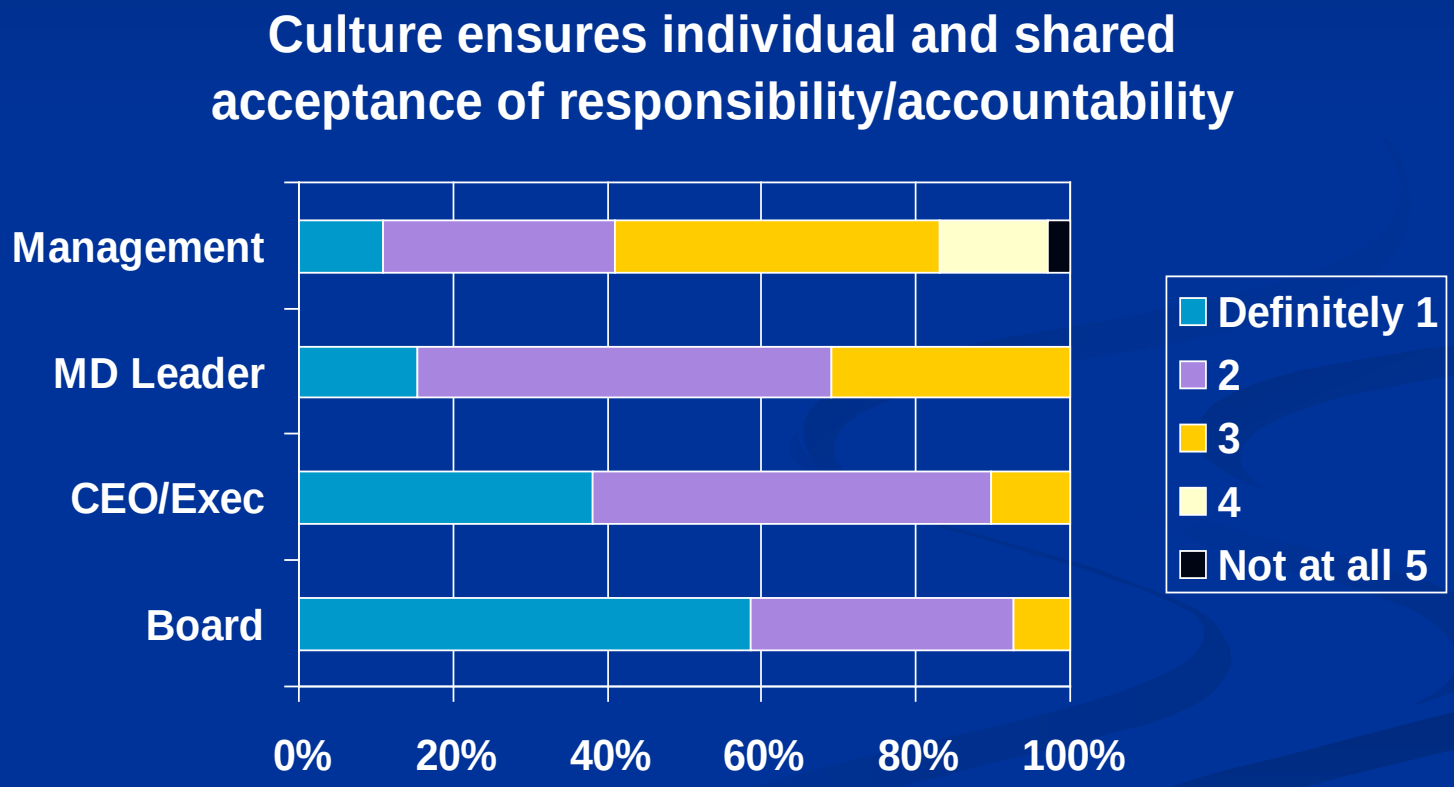

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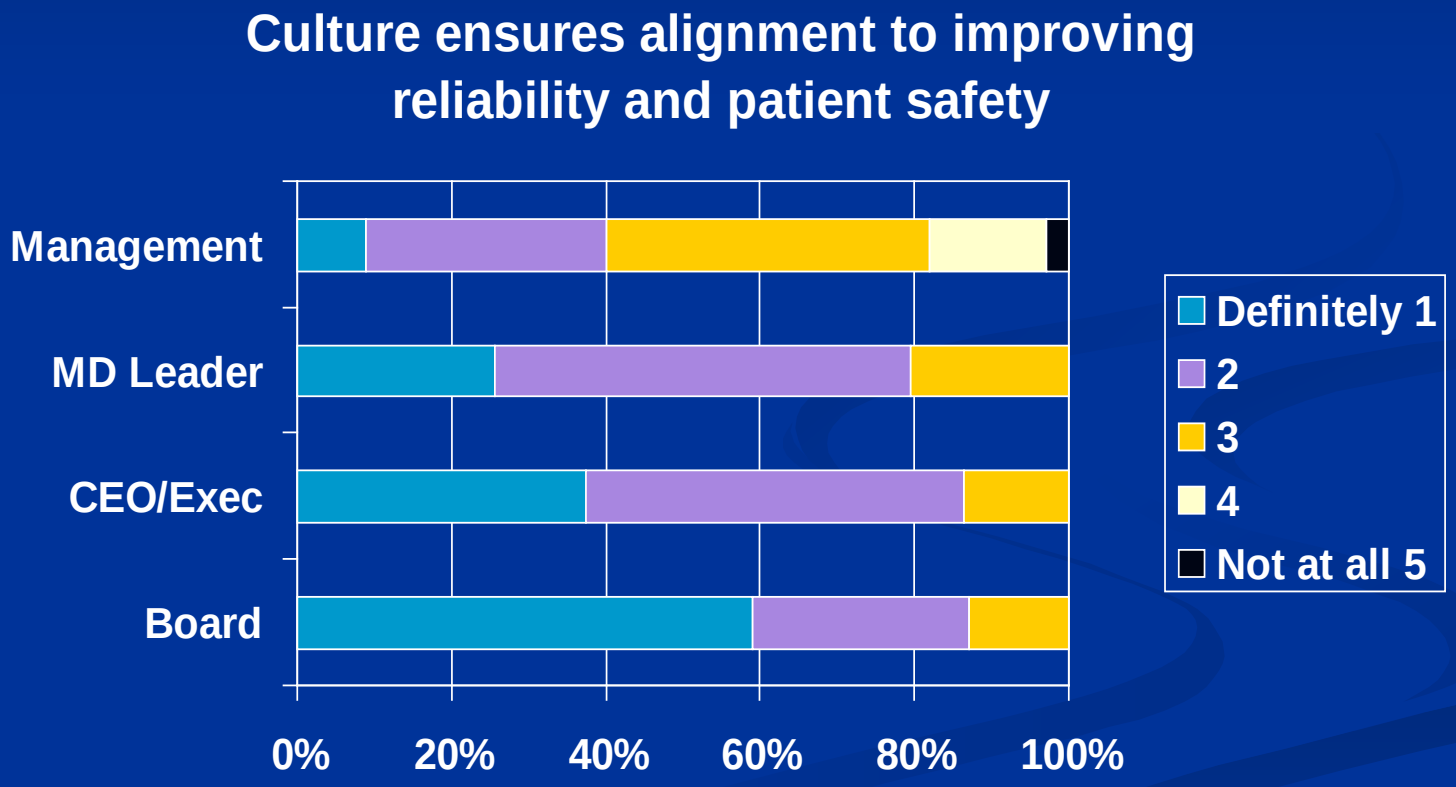
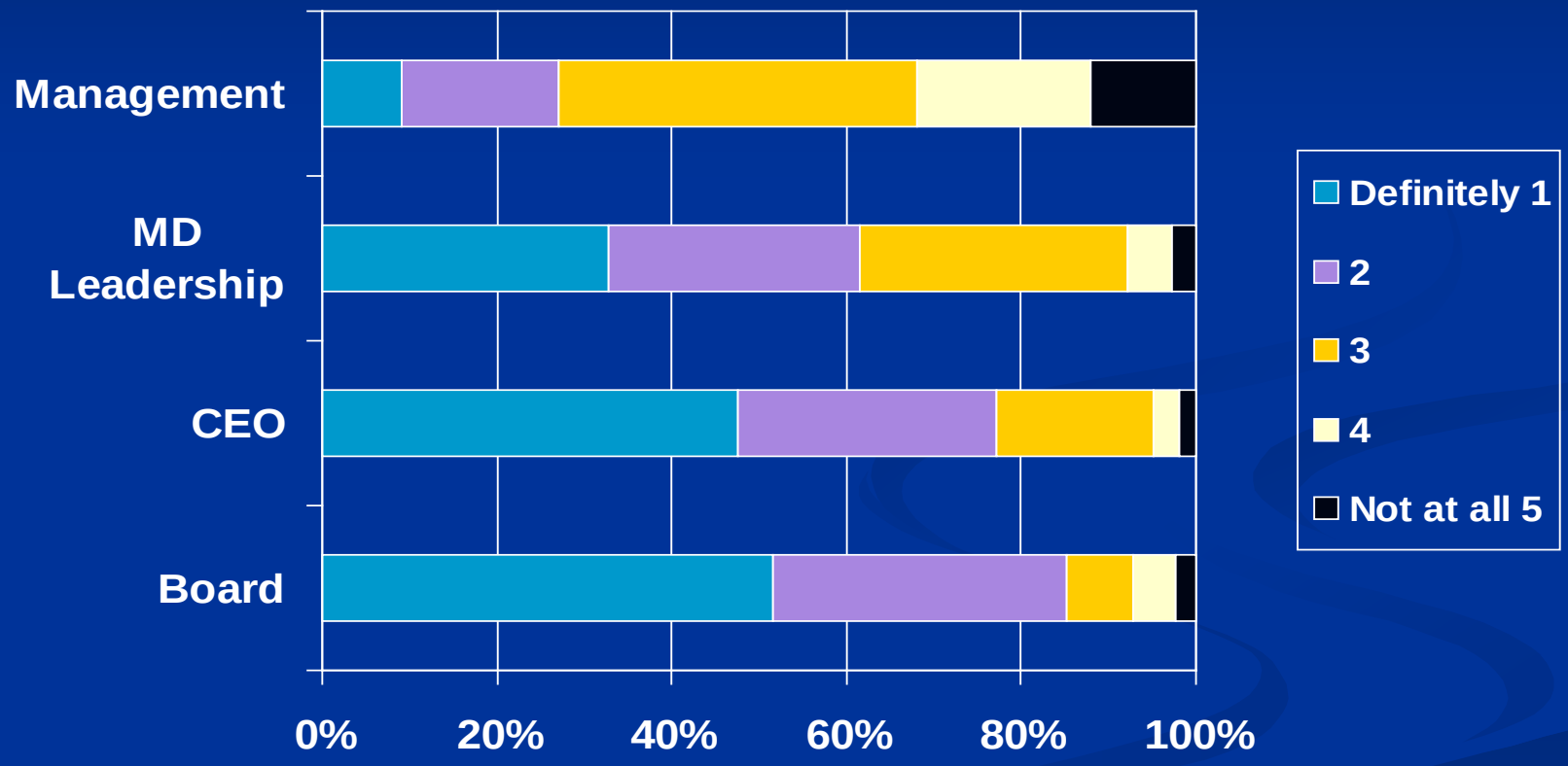
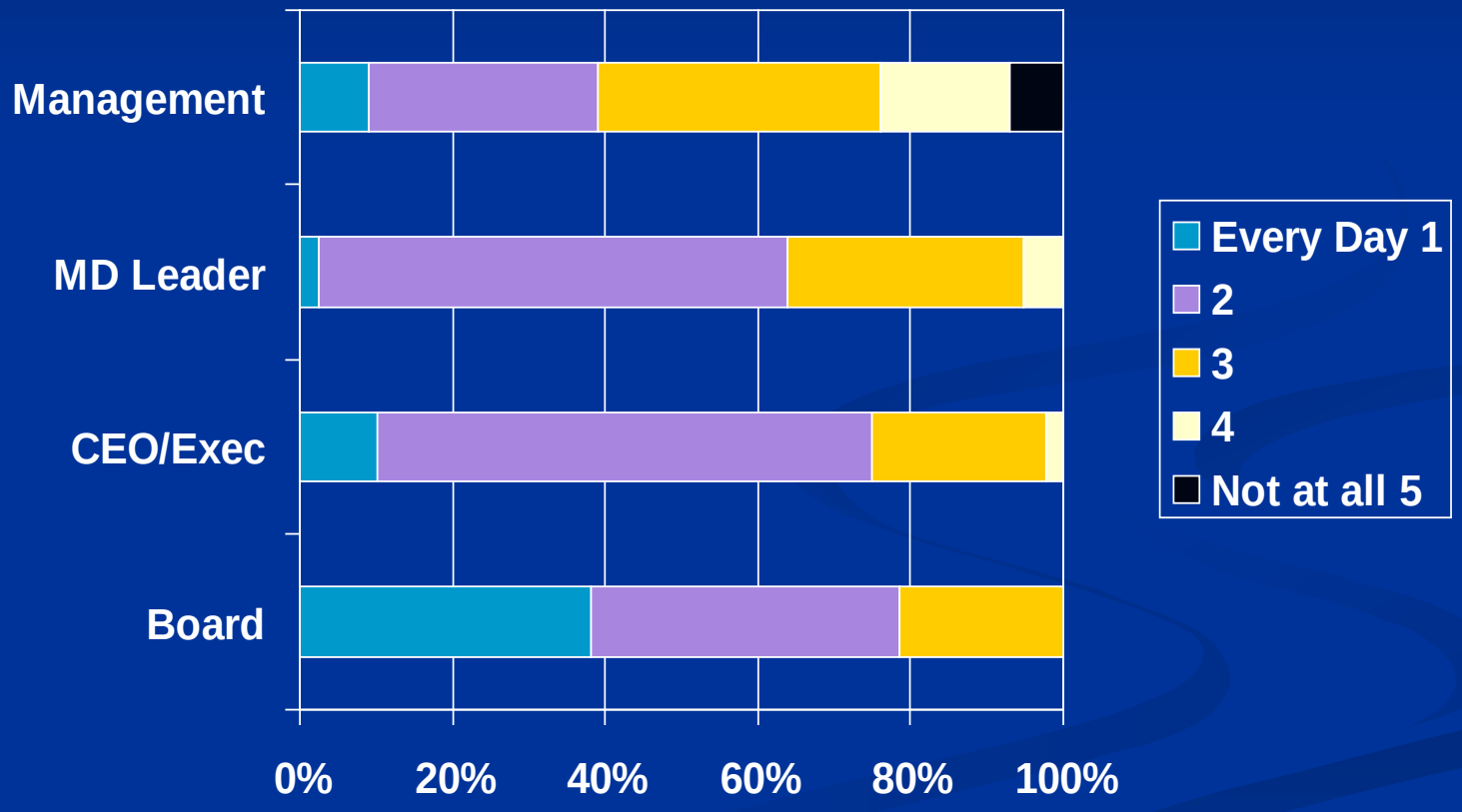


Does Patient Safety Trump Productivity?



Middle Management and MD Leadership perceive/experience more challenges in keeping safety a priority over production goals.

Executive Leadership Provides Tools and Training to be Effective



CONCLUSION

Establishing A Culture of Safety

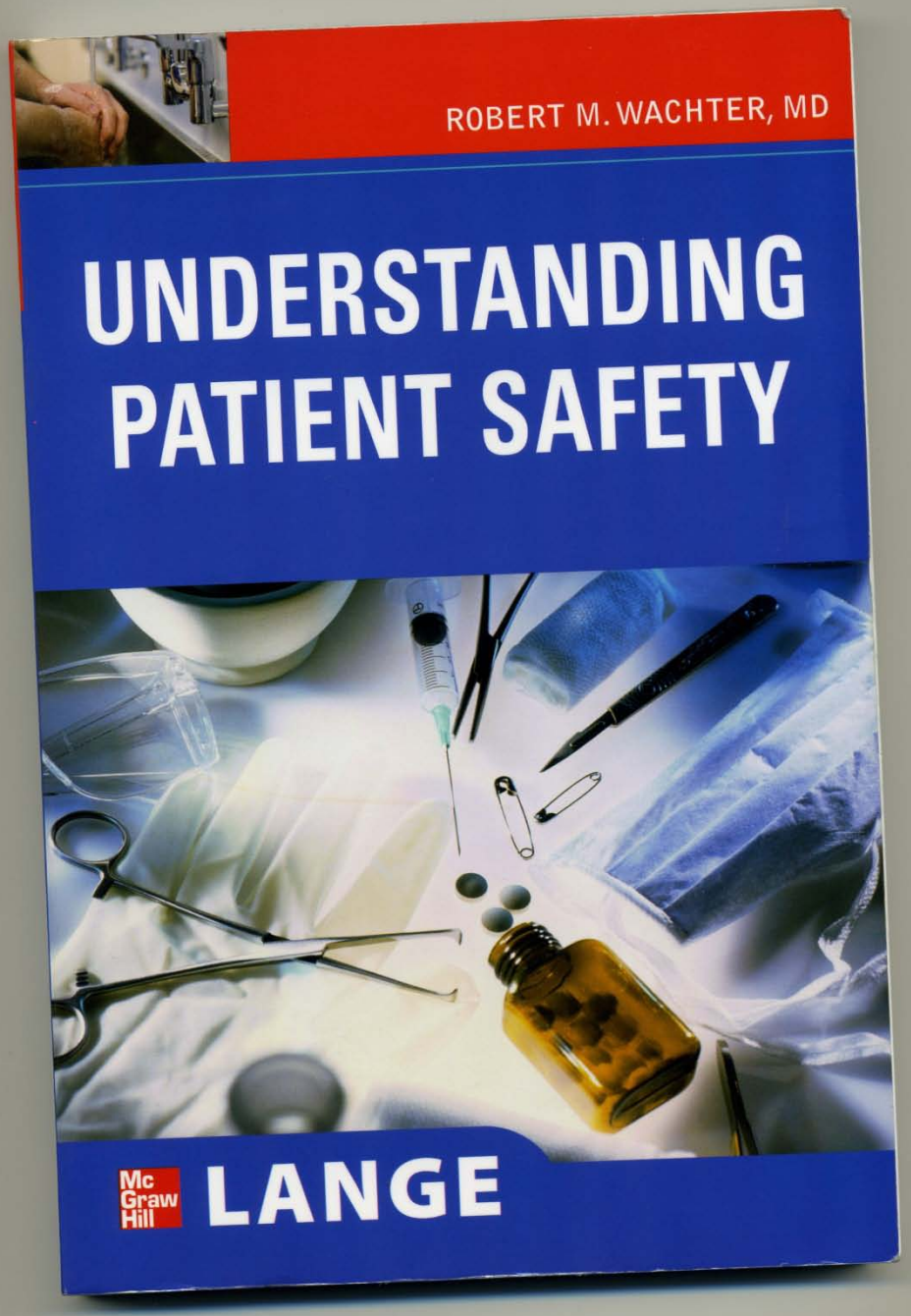
1. Leadership is critical
2. Safety is the first priority
3. Transparency and honesty are core values
4. There must be physician buy in
5. Everyone is accountable
6. Mutual respect and teamwork are prized

The problem with patient safety is not aiming too high and failing;

The problem is aiming too low and succeeding

NATIONAL PATIENT SAFETY FOUNDATION

WWW.NPSF.ORG (617-391-9900)


ROBERT M. WACHTER, MD
UNDERSTANDING PATIENT SAFETY
Mc Graw Hill
LANGE

ELSEVIER SAUNDERS

Patient Safety in Obstetrics and Gynecology: Improving Outcomes, Reducing Risks

OBSTETRICS AND GYNECOLOGY CLINICS
OF NORTH AMERICA

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Paul A. Gluck, MD
CONSULTING EDITOR
William F. Rayburn, MD, MBA