



# Preventing Errors in Emergency Medicine

## ACEP EDDA Phase I

Matthew Silver, MD, FACEP

Program Director, KPEM Residency

Associate Professor

Director of Educational Informatics

Kaiser Permanente Bernard J Tyson School of Medicine

# Learning Objectives

- Describe the magnitude of medical errors in medicine.
- Define safety and error in medicine.
- Discuss theories of error.
- Identify high risk factors for common medical errors.
- Describe system-based solutions to decrease error.
- Discuss the development and implementation of safety standards/policies in the ED.

# Who Killed Libby Zion?

Since his teenage daughter checked into New York Hospital with a fever and died mysteriously, Libby Zion has created a media blitz, accusing doctors of killing her. Now, after seven thousand pages of new testimony, it's 50,000 pages together what really happened that night—and how that the story of Libby Zion is very different from the one her grandfather's father portrayed.

I was on a cold February night, right after the ink—on the paper Libby Zion wrote in a notebook and the letters she sent to her mother, Libby, at Barnard College. The letters were full of love and joy and she said she was going to be a doctor like her mother.

Libby Zion was a brilliant student. She was a doctor. "What happened to her?" "I don't know," said her mother, "but I'm going to be a doctor."

"She was like a child and her mother," said her mother. "She was like a child and her mother."



## Dennis Quaid's Medical Nightmare

By Dr. Mehmet Oz



FILE

CONTINUING COVERAGE

**TRIAL BEGINS TUESDAY FOR FORMER VANDERBILT NURSE**

RADONDA VAUGHT CHARGED FOR GIVING PATIENT WRONG MEDICINE THAT KILLED HER

6:07 71°

4

ASHLEY FORECAST PORTLAND TUE 74°/56° WED 67°/41° THU 57°/40°



## The Elaine Bromiley Case

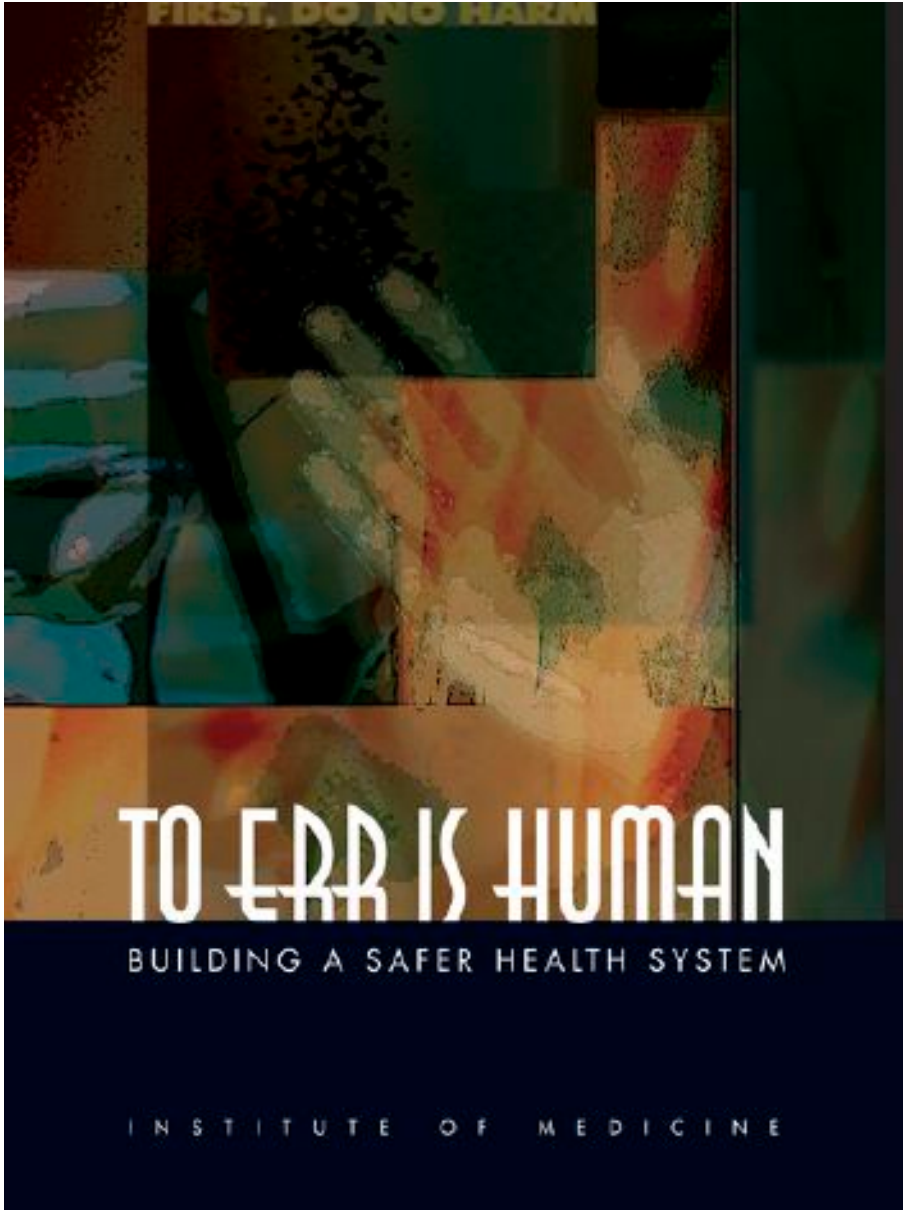
DAILY NEWS

**Joan Rivers had surprise throat biopsy that cut off her air supply, source claims**

**EXCLUSIVE:** The late comedian went to Yorkville Endoscopy for a routine endoscopy on Aug. 28, but a doctor — who arrived with Rivers' entourage — offered to perform a biopsy after another doctor noticed 'something' on the entertainer's vocal chords, a medical source told the Daily News.

BY DON KAPLAN [Follow](#) / NEW YORK DAILY NEWS / Tuesday, September 9, 2014, 9:27 PM



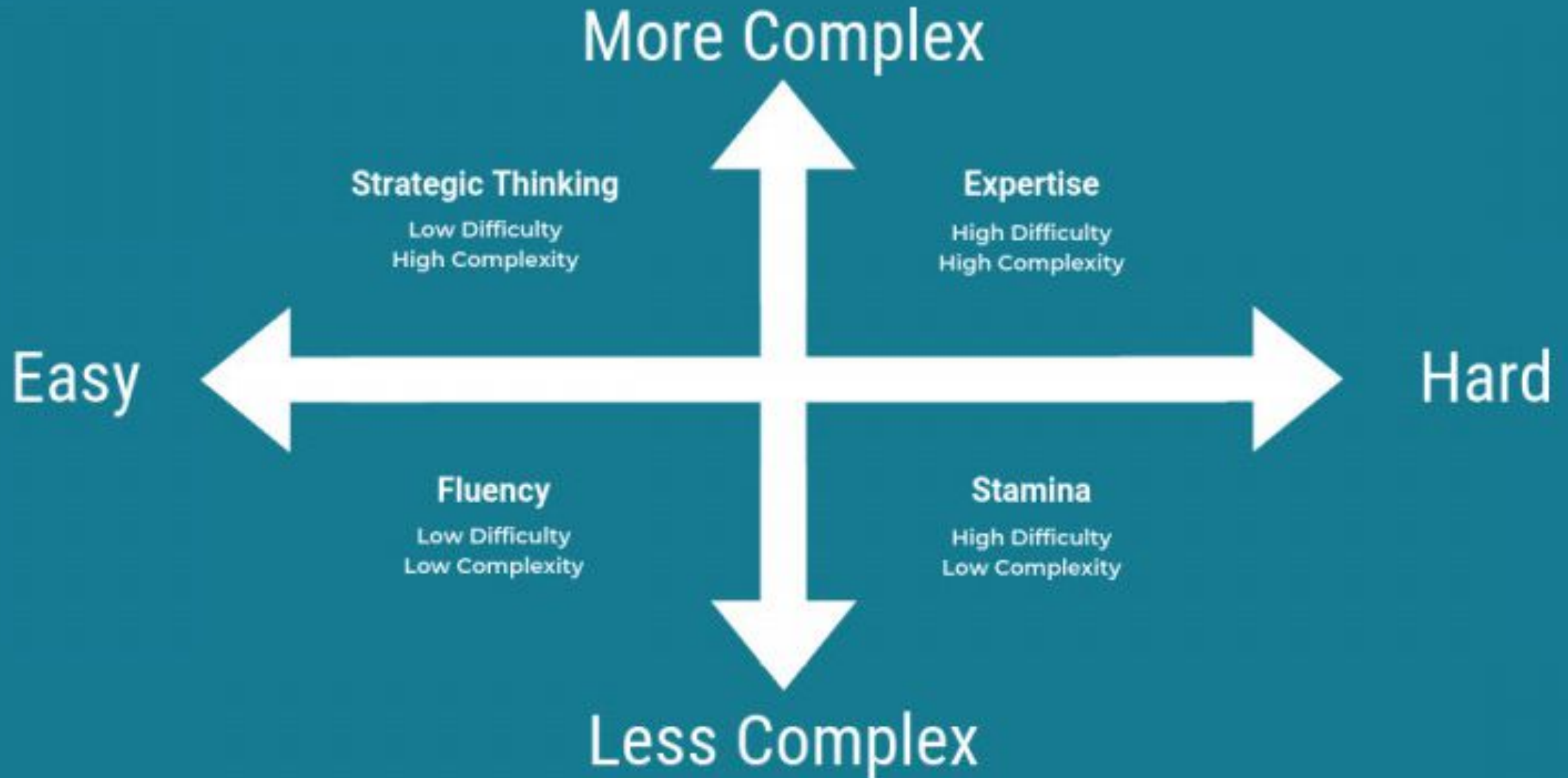


HOSPITAL MEDICAL ERRORS KILL 98,000 AMERICANS EACH YEAR. -- HEARST NEWS INVESTI





# Complexity and Error



# Probability of Performing Perfectly

No. Elements	Probability of Success, Each Element			
	0.95	0.99	0.999	0.9999999
1	0.95	0.99	0.999	0.9999999
25	0.28	0.78	0.98	0.998
50	0.08	0.61	0.95	0.995
100	0.006	0.37	0.90	0.99

**\*\*More steps = More Variation & Error\*\***





## **Perspective-Living with 99.9%**

- 84 unsafe landings/day
- 1 major plane crash every 3 days
- 16,000 items of lost mail/hr
- 37,000 ATM errors/hr
- Healthcare related errors?





## KLM. From the people who made punctuality possible.

Building an airline of KLM's standing requires a special kind of dedication. Like making a point of being punctual. A quality that's very much part of the Dutch.

It was Christiaan Huygens after all, who gave it real significance - when he invented the spring balance that made timepieces transportable. A creation without which life is inconceivable. Or air travel, for that matter. And one that illustrates that singular Dutch ability for doing things well. As you'll discover when you fly KLM. You'll find your trust sincerely reciprocated. With efficiency, punctuality and friendly understanding.

For that is the way the people of Holland are. People whose involvement make KLM a big, reliable, international airline. As your travel agent will confirm.



Visit any of Holland's clog-makers and watch Dutch craftsmanship and precision in the old tradition, in this time-honored process, legs are split, hollowed, shaped, smoothed and ultimately transformed into the article still worn in many parts of the country.

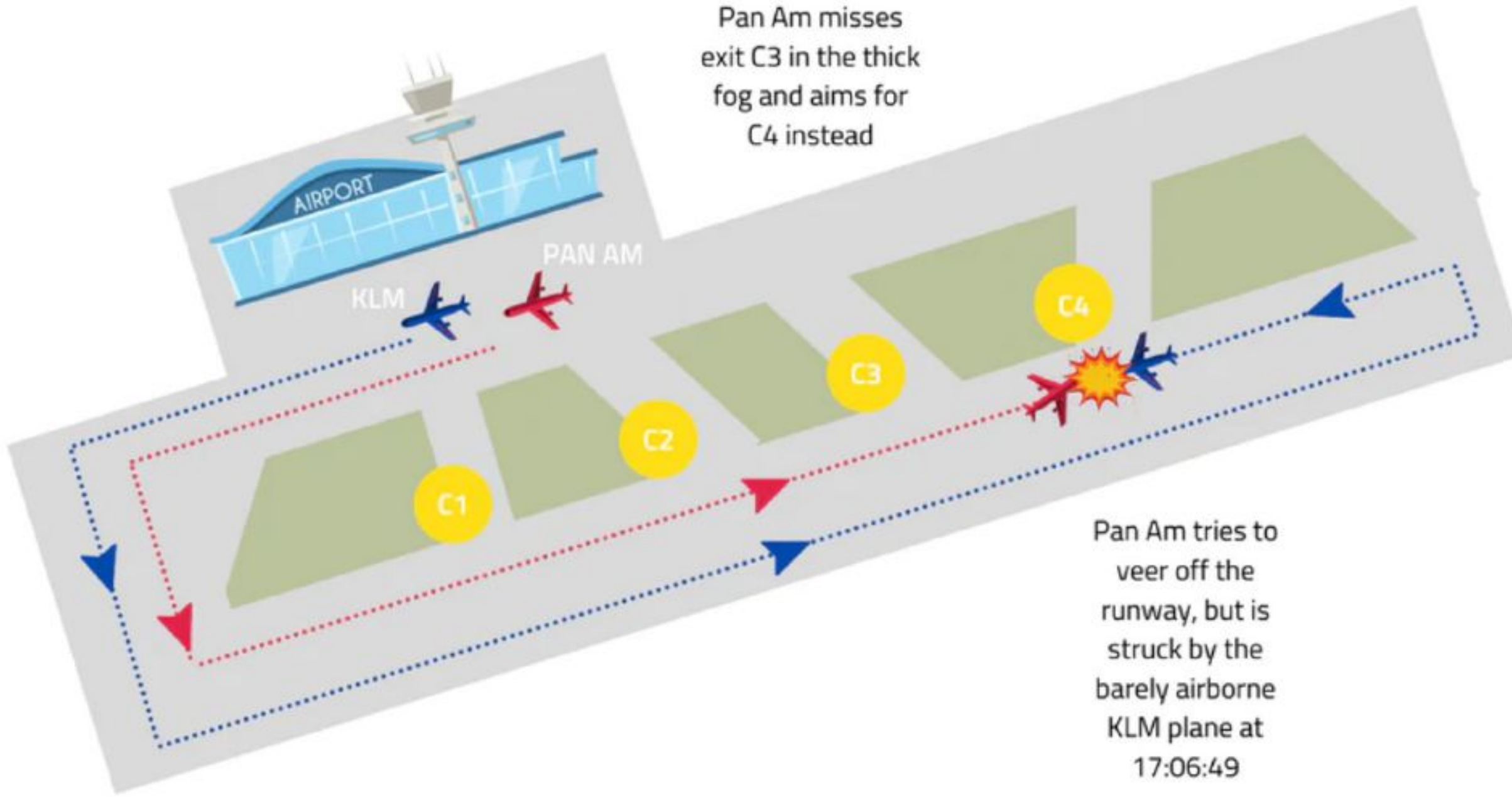


A right royal time is what you have in KLM's Royal Class Service is punctual and princely. Dinner for instance, is always rounded off with a choice of seven different coffees. But then, it's only in keeping with that stylish class far too good to be called just first.



**KLM**  
The reliable airline of those surprising Dutch.

Pan Am misses exit C3 in the thick fog and aims for C4 instead



Pan Am tries to veer off the runway, but is struck by the barely airborne KLM plane at 17:06:49







582 lost, 61 survivors



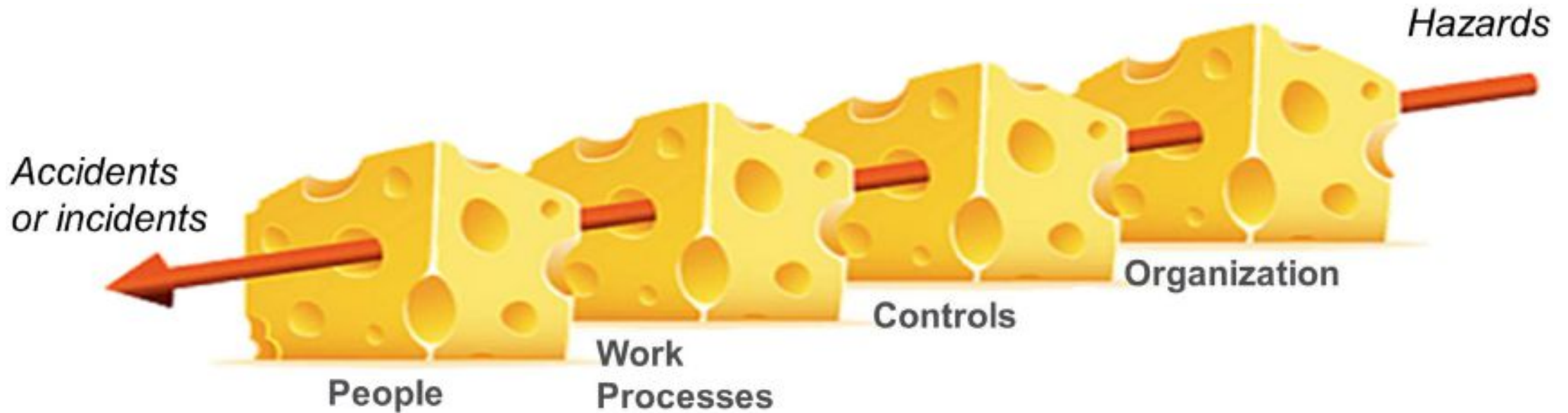


Delays, operational constraints, re-routed

Unfamiliar airport

Airport not designed to handle 747s

Environment—cloudy/overcast

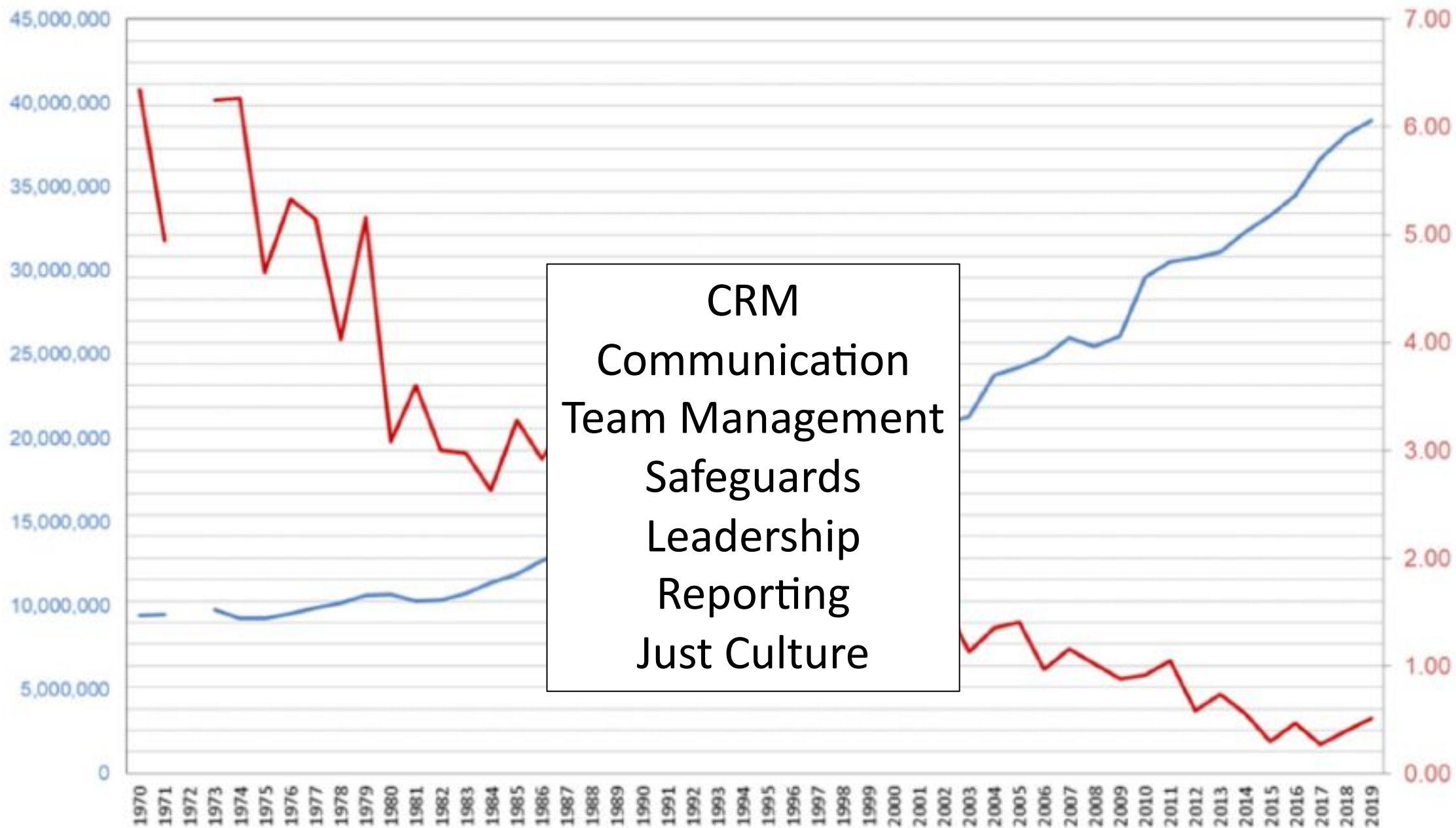


Unclear and vague communication

Deference to authority-> poor speak up culture

Rushing: "Always on Time"

# Fatal accidents per million flights



— Number of flight departures

— Fatal accidents per million flights





# Aviation

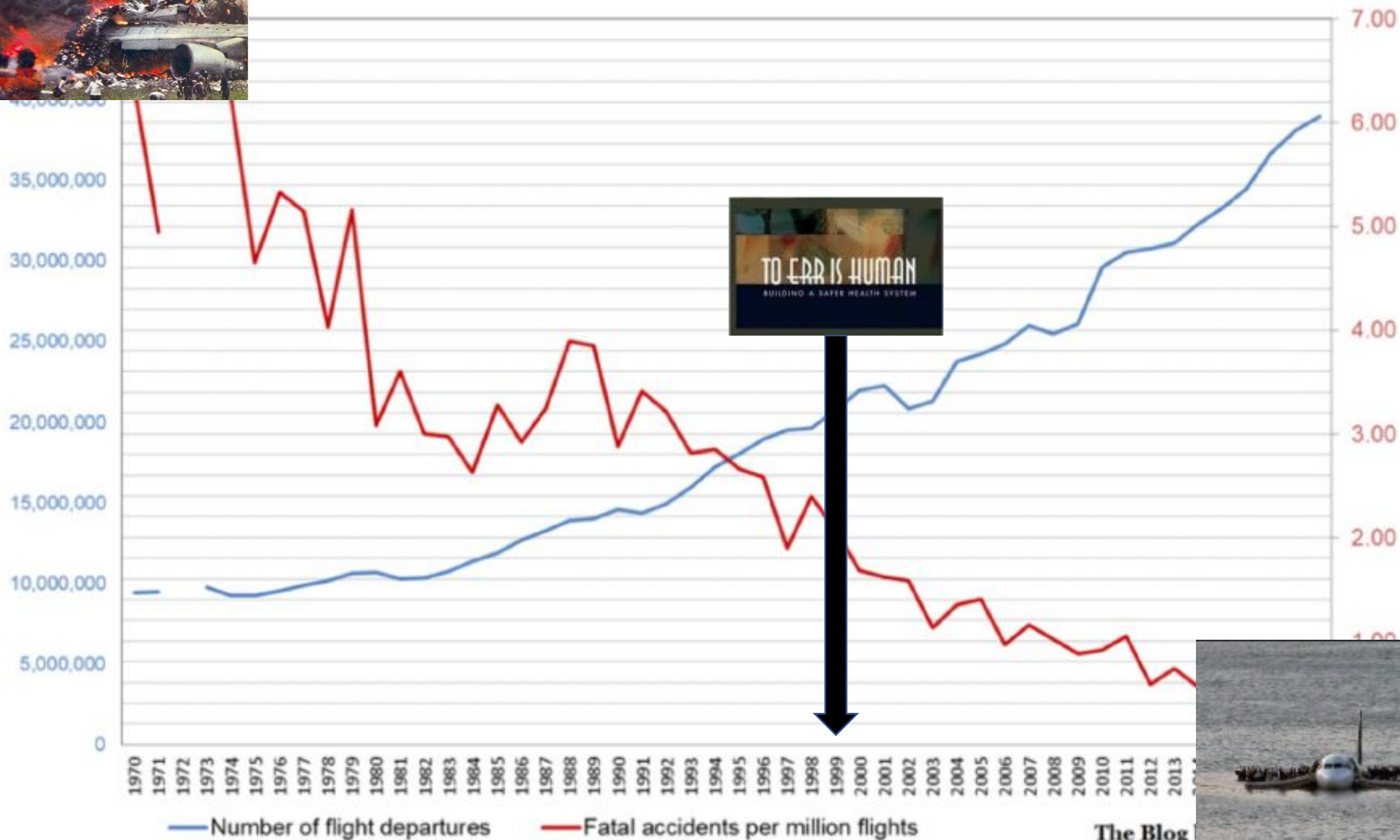
- Aircraft: < 30 years old
- Well maintained / serviced
- Pilots manage 1-2 types of aircraft
- The same crew on a flight with defined roles
- Many safeguards, automatization and computerized support
- Safety = for all
- Events are investigated by a national body
- Learning shared widely

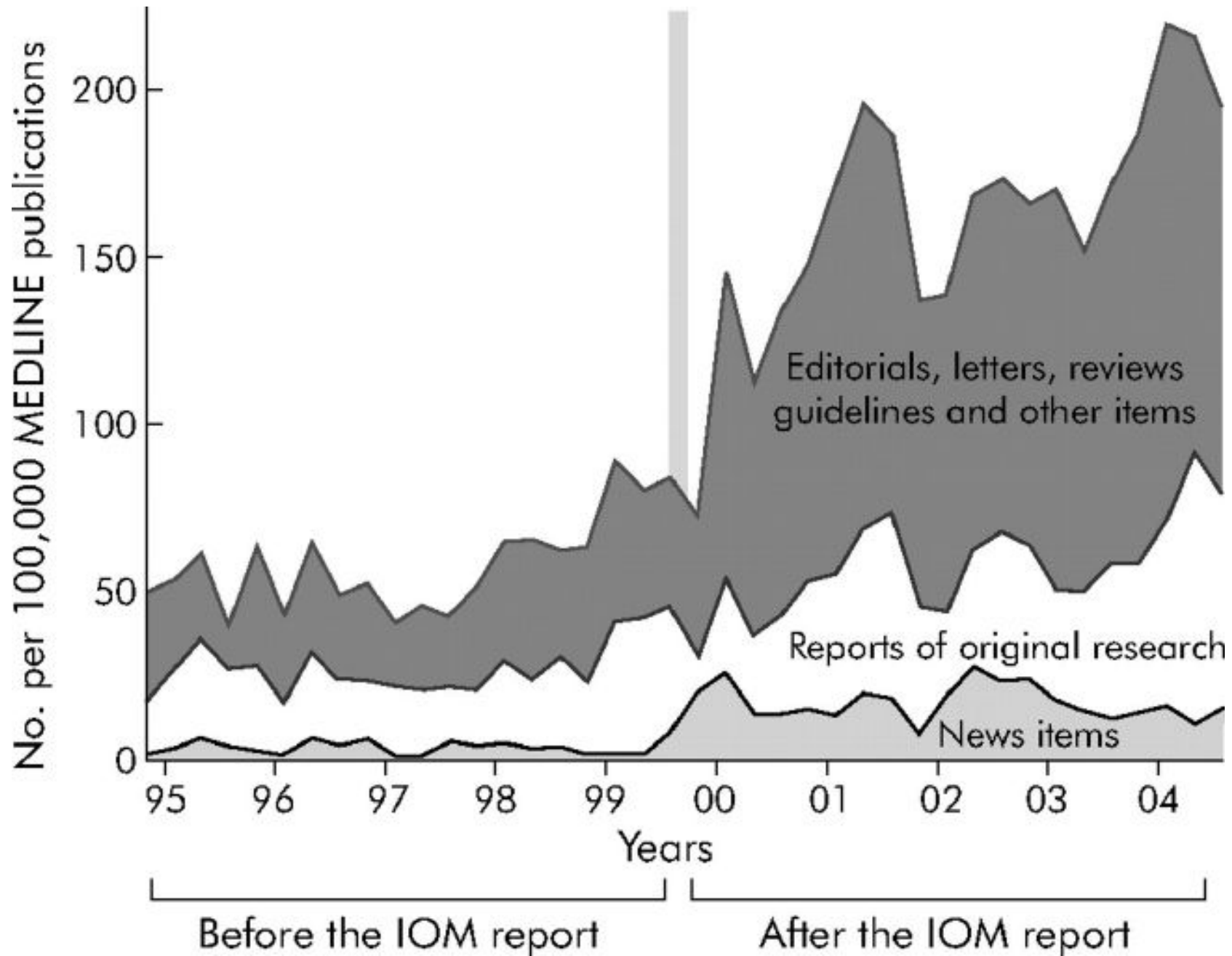


# Healthcare

- Human bodies: 73 years old
- Poorly maintained / serviced
- Doctors manage wide variety of equipment, diseases and presentations
- Many team members/specialties involved (patients)
- Few safeguards, automatization and computerized support
- Safety relative to acuity/complexity
- Events investigated locally
- Learning shared locally (if at all)

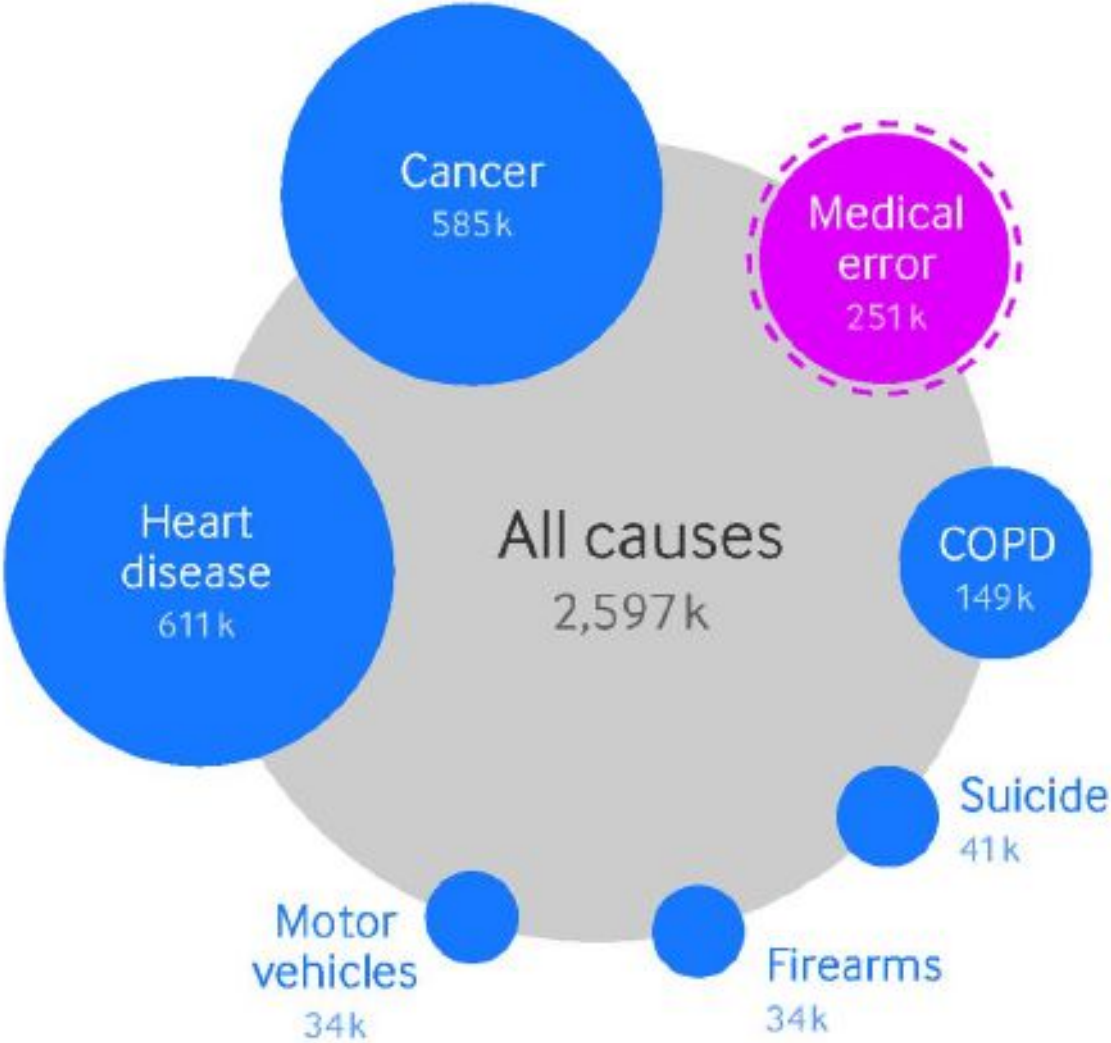
# Fatal accidents per million flights







# Medical error- the third leading cause of death in the US



Makary MA. *BMJ*. 2016. PMID: 27143499





9 March 2019

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Patient safety is a serious global public health concern. There is a 1 in a million chance of a person being harmed while travelling by plane. In comparison, there is a 1 in 300 chance of a patient being harmed during health care. Industries with a perceived higher risk such as the aviation and nuclear industries have a much better safety record than health care.

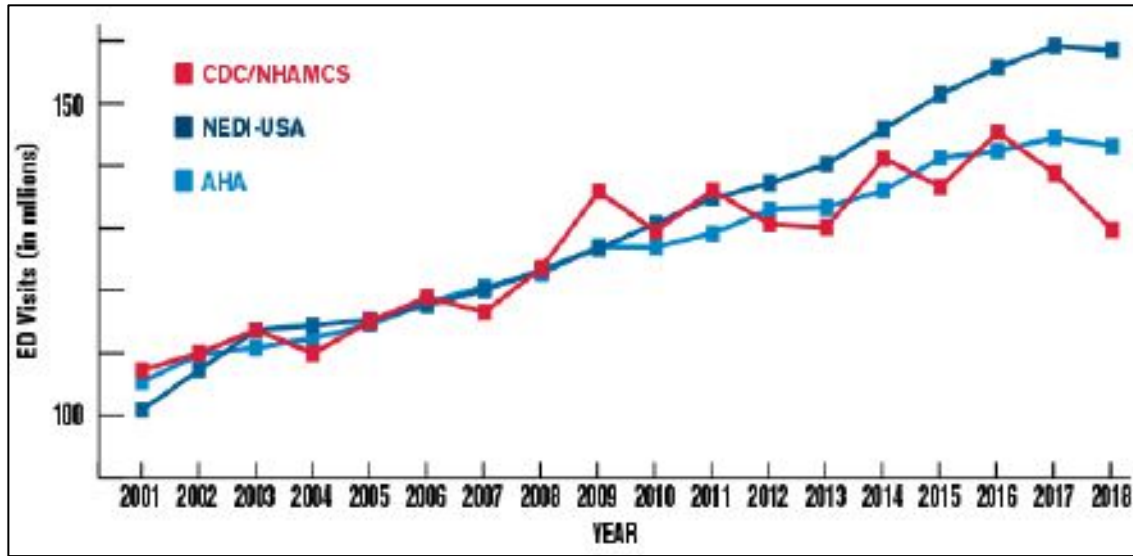


# EMERGENCY DEPARTMENT

SCITATION



# Quality, Safety And Service Have Always Been Core Drivers Of Our Mission...



SAEM Academic Emergency Medicine  
Official Journal of the Society for Academic Emergency Medicine

**ORIGINAL RESEARCH CONTRIBUTION**

## The Association Between Length of Emergency Department Boarding and Mortality

Adam J. Singer, MD, Henry C. Thode Jr., PhD, Peter Viccellio, MD, and Jesse M. Pines, MD, MBA, MSCE

## The Financial Impact of Ambulance Diversions and Patient Elopements

Thomas Fahn, DO, Lance Grove, RT, EMT-P, Ruth Stachura, RN, William Zirkin, MD

### Abstract

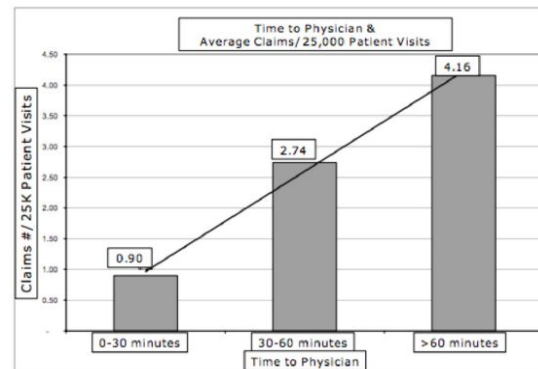
**Objectives:** Admission process delays and other throughput inefficiencies are a leading cause of emergency department (ED) overcrowding, ambulance diversion, and patient elopements. Hospital capacity constraints reduce the number of treatment beds available to provide revenue-generating patient services. The objective of this study was to develop a practical method for quantifying the revenues that are potentially lost as a result of patient elopements and ambulance diversion.

**Methods:** Historical data from 62,500 patient visits to the ED of a 430-bed nonprofit community teaching hospital in central Pennsylvania between July 2004 and June 2005 were used to estimate the value of potential patient visits forgone as a result of ambulance diversions and patients leaving the ED without treatment.

**Results:** The study hospital may have lost \$1,001,508 in net revenue as a result of ambulance diversions and patient elopements from the ED during a 12-month period.

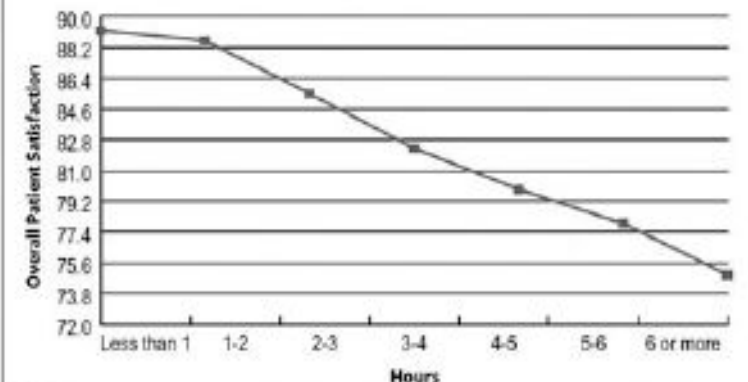
**Conclusions:** Significant revenue may be forgone as a result of throughput delays that prevent the ED from utilizing its existing bed capacity for additional patient visits.

## Time to Doc/Malpractice Claims



Courtesy CEP America Physician Partners, Emeryville, CA, 2006

## Patient Satisfaction by Time Spent in ED



Malpractice

Source: Annals of Emergency Medicine © 2012 American Academy of Emergency Medicine







Jepson et al. *BMC Emergency Medicine* 2014, **14**:20  
<http://www.biomedcentral.com/1471-227X/14/20>



## Emergency department patient safety incident characterization: an observational analysis of the findings of a standardized peer review process

Zach K Jepson, Chad E Darling, Kevin A Kotkowski, Steven B Bird, Michael W Arce, Gregory A Volturo and Martin A Reznick\*

PATIENT SAFETY/ORIGINAL RESEARCH

## Safety Climate and Medical Errors in 62 US Emergency Departments

Carlos A. Camargo, Jr, MD, DrPH, Chu-Lin Tsal, MD, ScD, Ashley F. Sullivan, MS, MPH, Paul D. Cleary, PhD, MPH, James A. Gordon, MD, MPA, Edward Guadagnoli, PhD, Rainu Kaushal, MD, MPH, David J. Magid, MD, MPH, Sowmya R. Rao, PhD, David Blumenthal, MD, MPP\*

ORIGINAL RESEARCH

**BMJ**  
**QUALITY**  
**& SAFETY**

## Adverse events in patients with return emergency department visits

Lisa Calder,<sup>1,2</sup> Anita Pozgay,<sup>1</sup> Shena Riff,<sup>3</sup> David Rothwell,<sup>2</sup> Erik Youngson,<sup>2</sup> Naghmeh Mojaverian,<sup>2</sup> Adam Cwinn,<sup>1</sup> Alan Forster<sup>4</sup>

# Patient Safety Challenges in EM

- Unbounded demand
- Diagnostic uncertainty
- Decision density & cognitive load
- Acuity & error prone conditions
- Time constraints
- Resource constraints
- Care transitions
- Interruptions / Distractions
- Fatigue
- Socio-cultural factors

Patient Safety in Emergency Medicine. Croskerry, et al. 2009.





# Emergency department patient safety incident characterization: an observational analysis of the findings of a standardized peer review process

Zach K Jepson, Chad E Darling, Kevin A Kotkowski, Steven B Bird, Michael W Arce, Gregory A Volturo and Martin A Reznick\*

**Table 2 Systems failures and practitioner-based errors identified by the peer review process**

<b>Systems failures (n = 188)</b>	<b>N (%)</b>	<b>152 cases</b>	<b>Practitioner-based errors (n = 96)</b>	<b>N (%)</b>
ED teamwork failures	79 (42)		Cognitive errors	65 (68)
Hospital teamwork failures	59 (31)		Major cognitive errors	24 (25)
Boarded patients	26 (14)		Missed radiographic findings	4 (4)
ED work environment failures	14 (7)		Policy deviations	3 (3)
Hospital work environment failures	6 (3)		Procedural errors	0 (0)
Triage failures	4 (2)			



# Missed and Delayed Diagnoses in the Emergency Department: A Study of Closed Malpractice Claims From 4 Liability Insurers

Kachalia A, et al. Ann Emerg Med. PMID: 16997424

## Cognitive factors (96%)

Judgment

Knowledge

Vigilance or memory

## Systems factors (37%)

Supervision

Workload

Interruptions

Fatigue

**\*\*Median # factors involved=3**

## Communication factors (35%)

Handoffs

Role clarity

Conflict

## Patient-related factors (34%)

Nonadherence

Atypical presentations

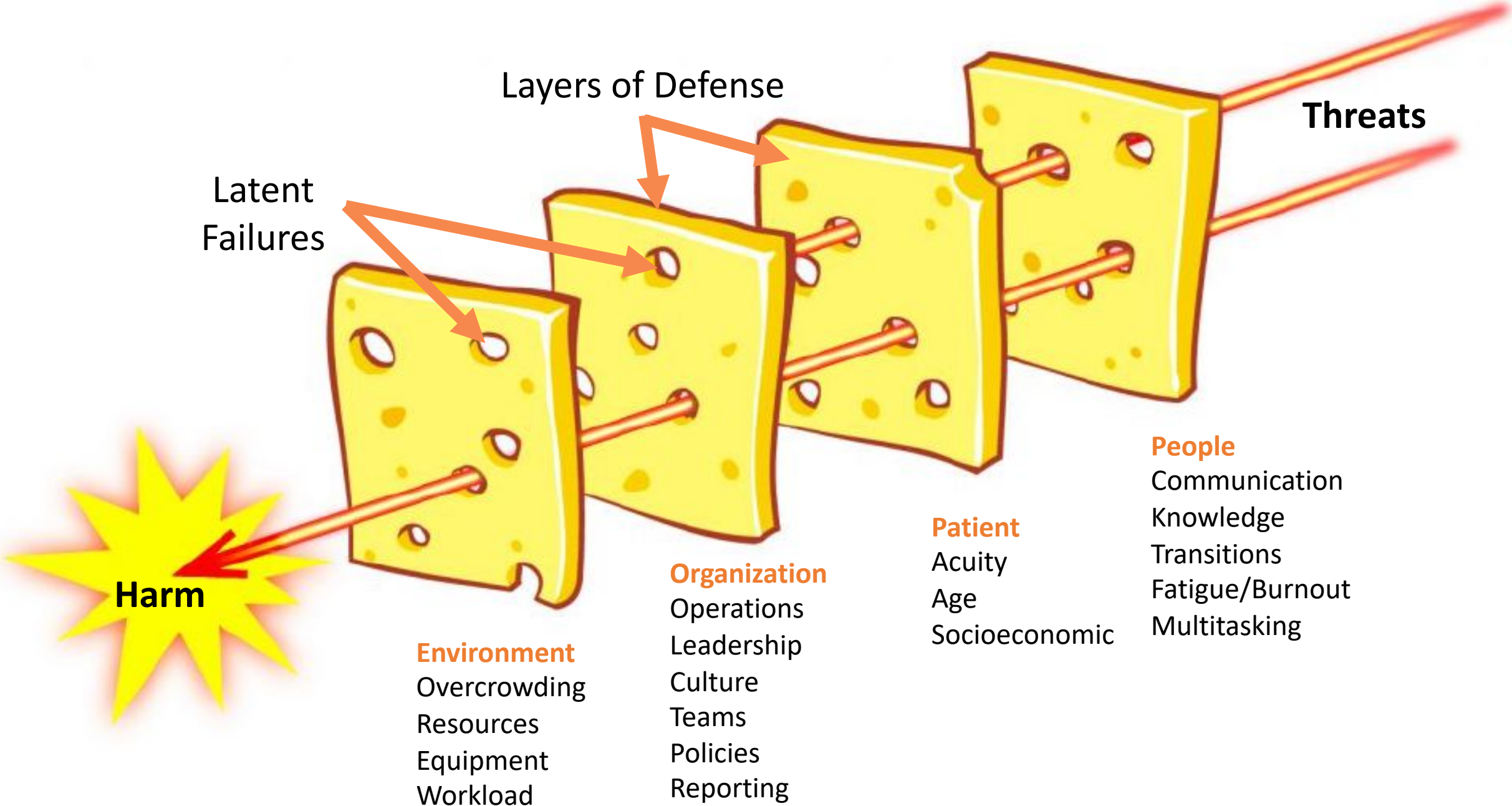
Complicated history

Other (historian, psych, language)



- Fracture
- Myocardial Infarction
- Intracranial Bleed
- Stroke
- Acute Abdomen
- Pulmonary Embolism
- Ectopic Pregnancy
- Appendicitis
- Ischemic Limb
- DVT
- Meningitis
- Pneumonia

# Reason's 'Swiss Cheese' Model





“Every system is perfectly designed  
to get the results it gets.”

*~Don Berwick, W. Edwards Deming, and/or Dr. Paul Batalden*



A graphic of a target with a dart hitting the bullseye. The target has concentric rings of grey, black, blue, red, and yellow. The dart is silver with a red and yellow fletching. The background is a blue sky with white clouds.

# Highly Reliable Organizations

- Obsession with operations
- Preoccupation with failure
- Reluctance to simplify interpretations
- Commitment to resilience
- Deference to expertise



PEOPLE

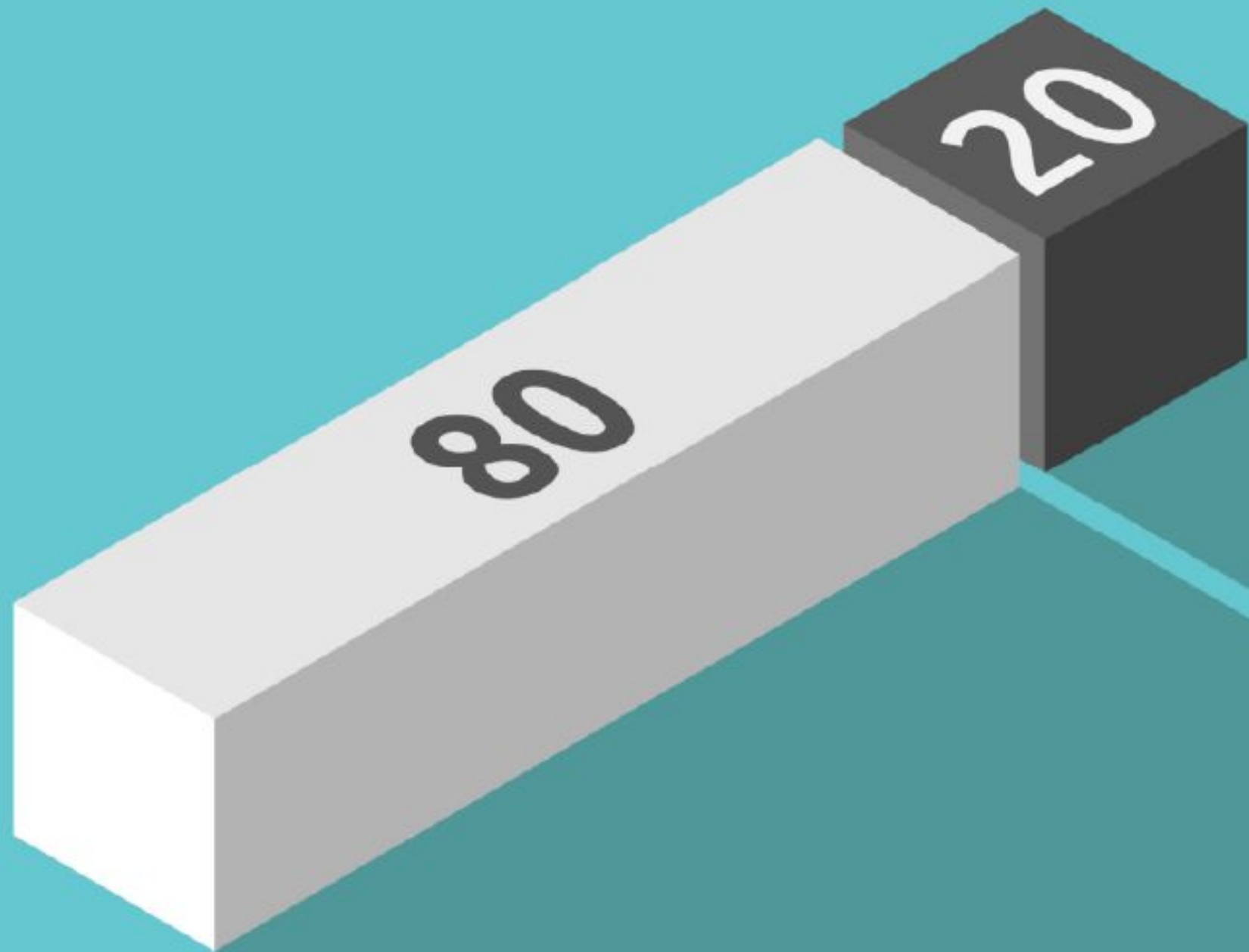


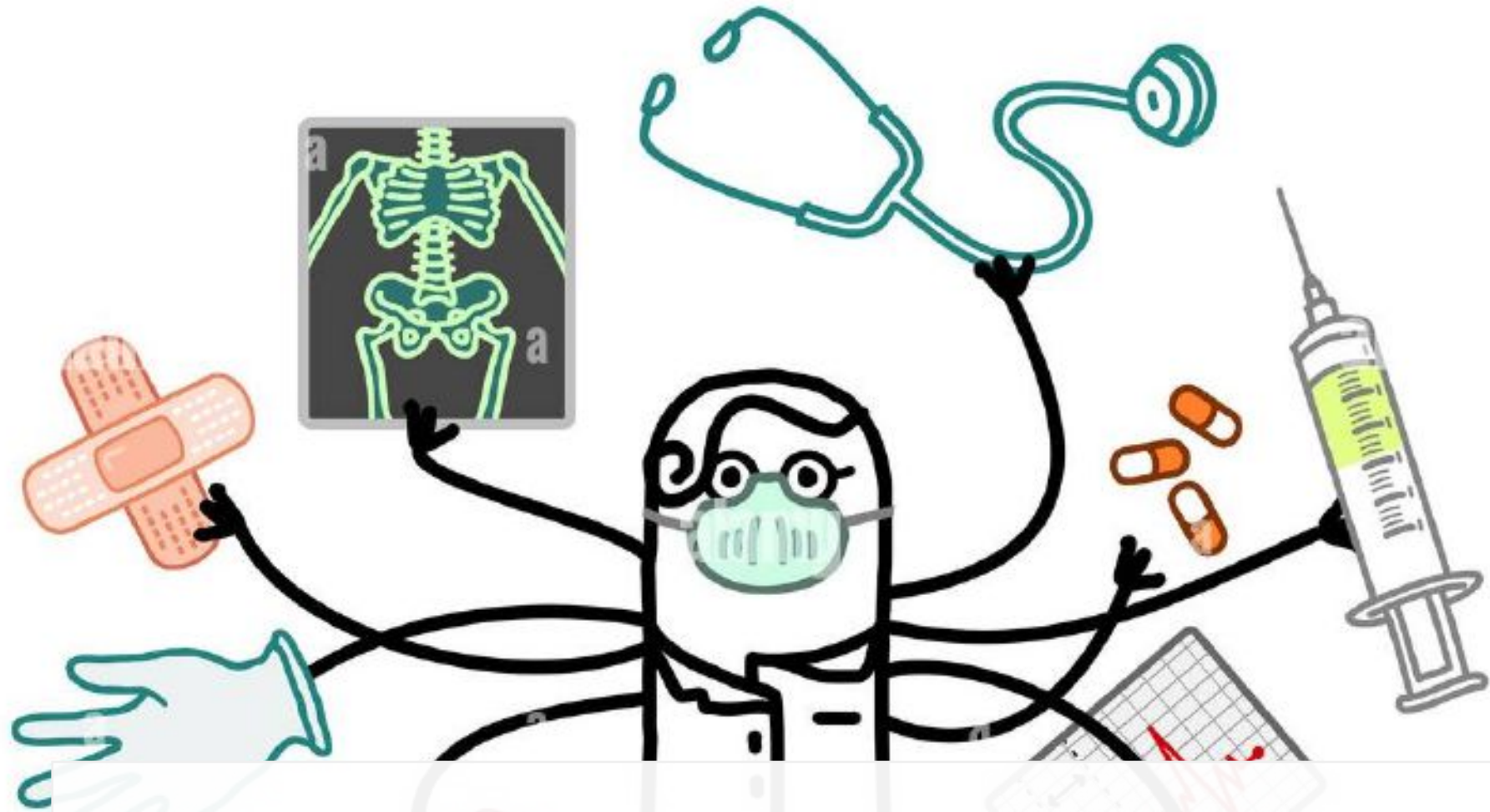




Hire Right







Multitasking: Harms Patients?



## Executive Control of Cognitive Processes in Task Switching


Joshua S. Rubinstein  
Federal Aviation Administration

## The Effects of Interruptions on Task Performance, Annoyance, and Anxiety in the User Interface

**Brian P. Bailey, Joseph A. Konstan, and John V. Carlis**

University of Minnesota

- Productivity dropped as much as 40% when subjects tried to do  $\geq 2$  things at once.
- Sleeve-tugging triggered 2x the number of errors
- 31% - 106%  $\uparrow$  levels of annoyance



## Emergency Department Workplace Interruptions: Are Emergency Physicians “Interrupt-driven” and “Multitasking”?

CAREY D. CHISHOLM, MD, EDGAR K. COLLISON, BA,  
DAVID R. NELSON, MS, WILLIAM H. CORDELL, MD

- Decrease efficiency
- Critical thinking interrupted
- Prescribing errors
- Decreased situational awareness
- Task saturation
- Mental fatigue
- Interrupted patient communication

**Statement Collaboration: AAEM Clinical Practice and Wellness Committees**

**INTERRUPTIONS IN THE EMERGENCY DEPARTMENT – A COLLABORATIVE STATEMENT**

(4/23/2022)

Chairs: Michael Abraham, MD FAAEM (Co-Chair, Clinical Practice Committee)  
Al'ai Alvarez, MD FAAEM (Vice Chair, Wellness Committee)  
Allie Min, MD FAAEM (Chair, Wellness Committee)  
Robert Sherwin, MD FAAEM (Vice Chair, Clinical Practice Committee)  
Grzegorz Waligora, MD FAAEM (Co-Chair, Clinical Practice Committee)

- Anticipate certain interruptions and adjust workflow
- Protocols on contacting physicians about diagnostic results
- Create a culture of proactive rounding or huddles
- Recognize that not all interruptions are bad



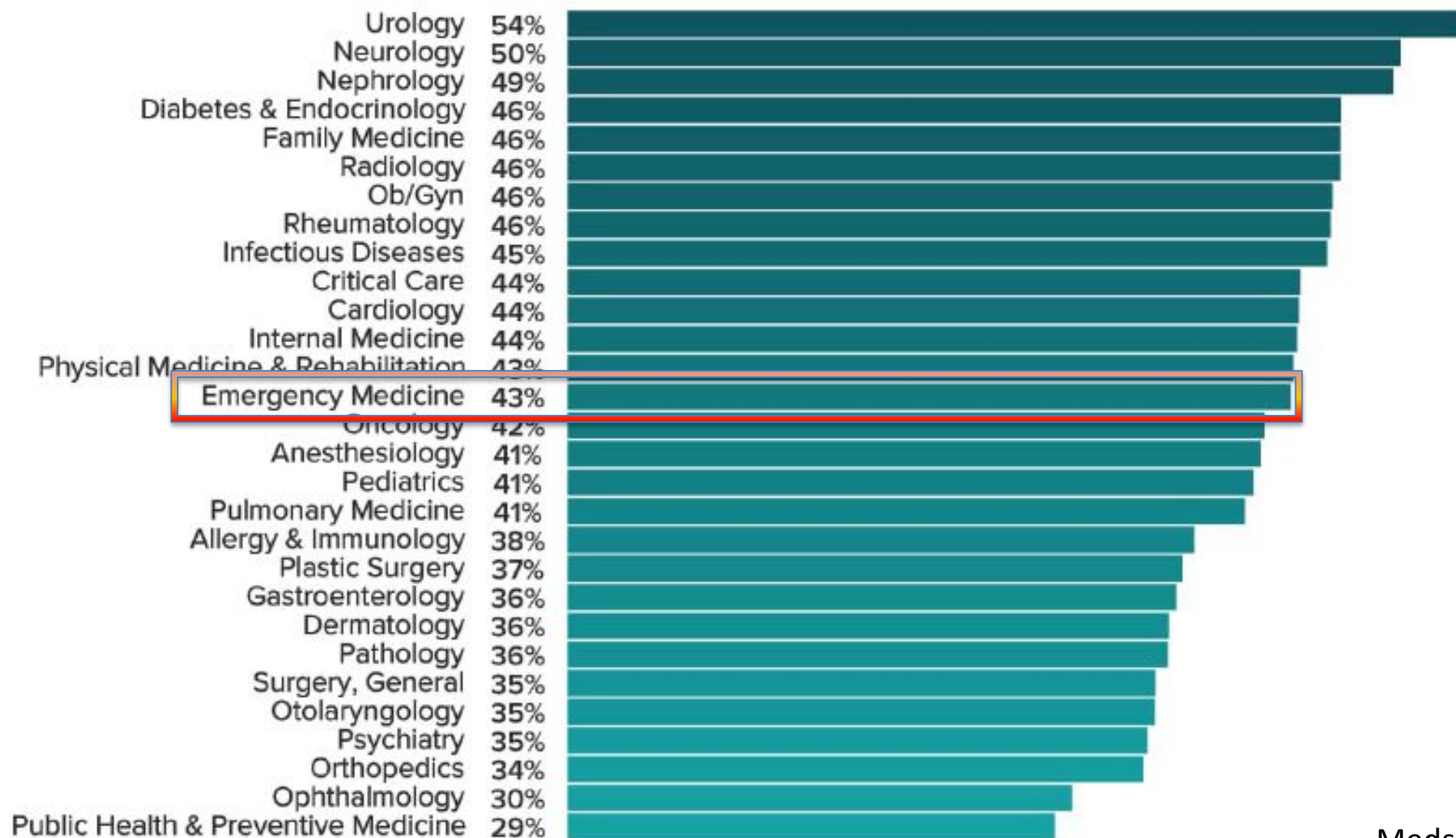


If the oxygen masks drop down, **put your own mask on first**, and then help the person next to you.

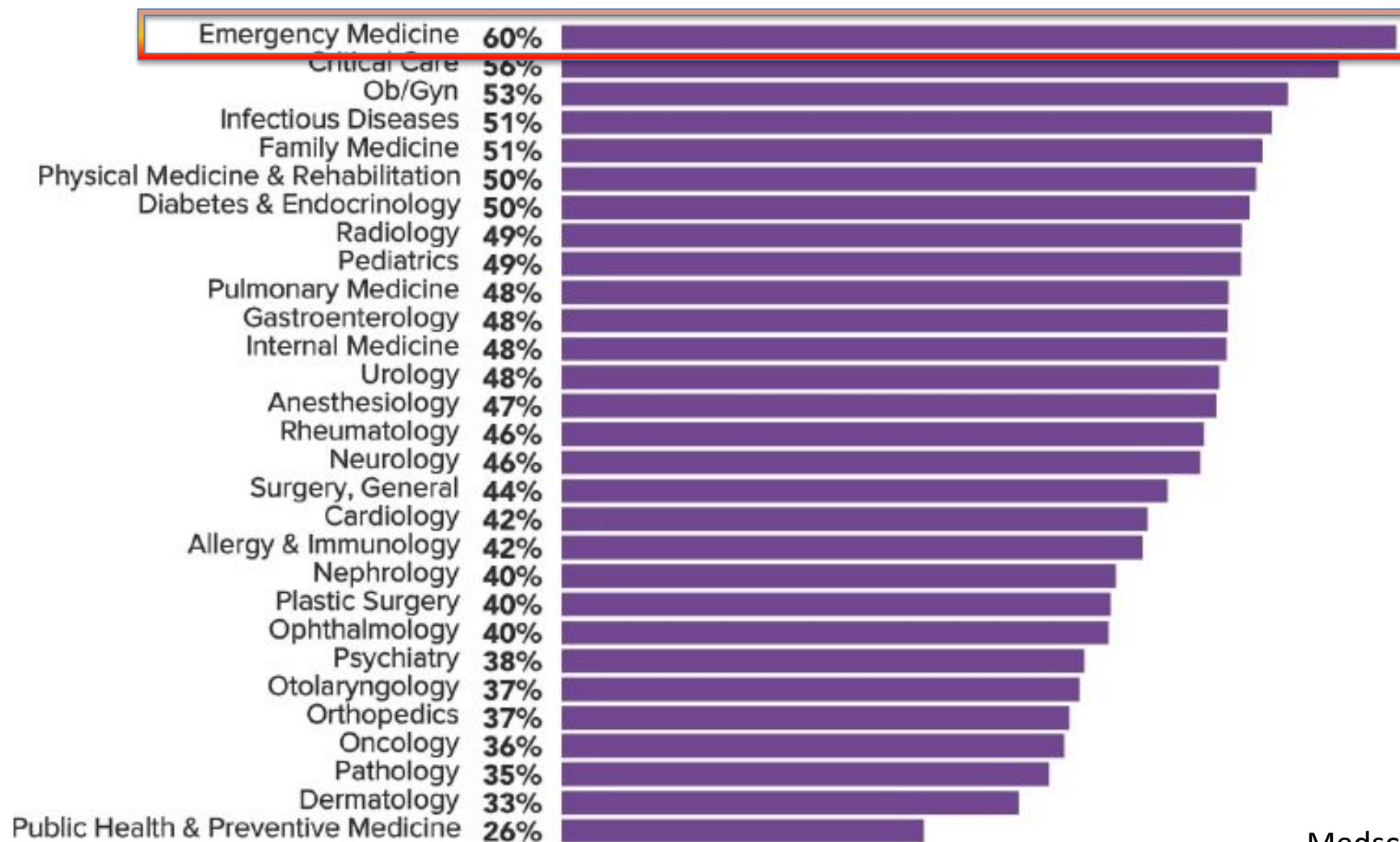
Physician Burnout: Harms Patients?



# Which Physicians Are Most Burned Out?



# Which Physicians Are Most Burned Out?





REVIEW

# Physician Stress and Burnout

Scott W. Yates, MD, MBA, MS, FACP

Center for Executive Medicine, Plano, Tex.

THE AMERICAN  
JOURNAL of  
MEDICINE®

Mangory et al. BMC Health Services Research (2021) 21:369  
<https://doi.org/10.1186/s12913-021-06371-x>

BMC Health Services Research

REVIEW

Open Access

## Effect of burnout among physicians on observed adverse patient outcomes: a literature review

Kashan Yasin Mangory<sup>1†</sup>, Lavin Yadgar Ali<sup>1†</sup>, Karin Isaksson Rø<sup>2</sup> and Reidar Tyssen<sup>3\*</sup>

ORIGINAL STUDIES

## Association Between Physician Burnout and Self-reported Errors: Meta-analysis

Owoc, Jakub PhD<sup>1</sup>; Mańczak, Małgorzata MSc<sup>2</sup>; Jabłońska, Magdalena MA<sup>1†</sup>; Tombarkiewicz, Marek MD, PhD<sup>3</sup>; Olszewski, Robert MD, PhD<sup>4,5</sup>

AHRQ Agency for Healthcare Research and Quality

PSNet  
PATIENT SAFETY NETWORK

Search PSNet Content

ANNUAL PERSPECTIVE

## Burnout Among Health Professionals and Its Effect on Patient Safety

Audrey Lyndon, PhD | January 1, 2015



*BMJ* 2022;378:e070442

[http://dx.doi.org/10.1136/](http://dx.doi.org/10.1136/bmj-2022-070442)

[bmj-2022-070442](http://dx.doi.org/10.1136/bmj-2022-070442)

## Associations of physician burnout with career engagement and quality of patient care: systematic review and meta-analysis

Alexander Hodkinson,<sup>1,9</sup> Anli Zhou,<sup>1</sup> Judith Johnson,<sup>2,3</sup> Keith Geraghty,<sup>1</sup> Ruth Riley,<sup>4</sup> Andrew Zhou,<sup>5</sup> Efharis Panagopoulou,<sup>6</sup> Carolyn A Chew-Graham,<sup>7</sup> David Peters,<sup>8</sup> Aneez Esmail,<sup>1</sup> Maria Panagioti<sup>1,9</sup>

### Burnout associated with:

- Lower job satisfaction
- Career choice regret
- Employment turnover
- Reduced productivity
- Lower professionalism
- Lower patient satisfaction
- **Doubled odds of safety incidents**



Improve Health  
Outcomes



Improve Physician  
Satisfaction



Lower Costs



Better Patient  
Experience

# Quadruple Aim





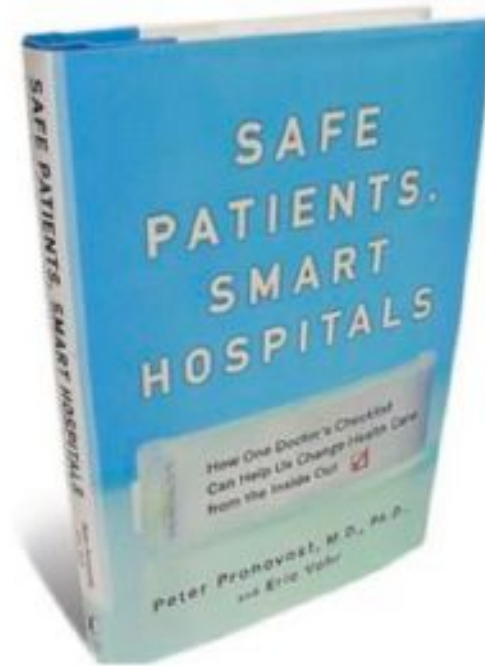




POOR TEAMWORK & COMMUNICATION...

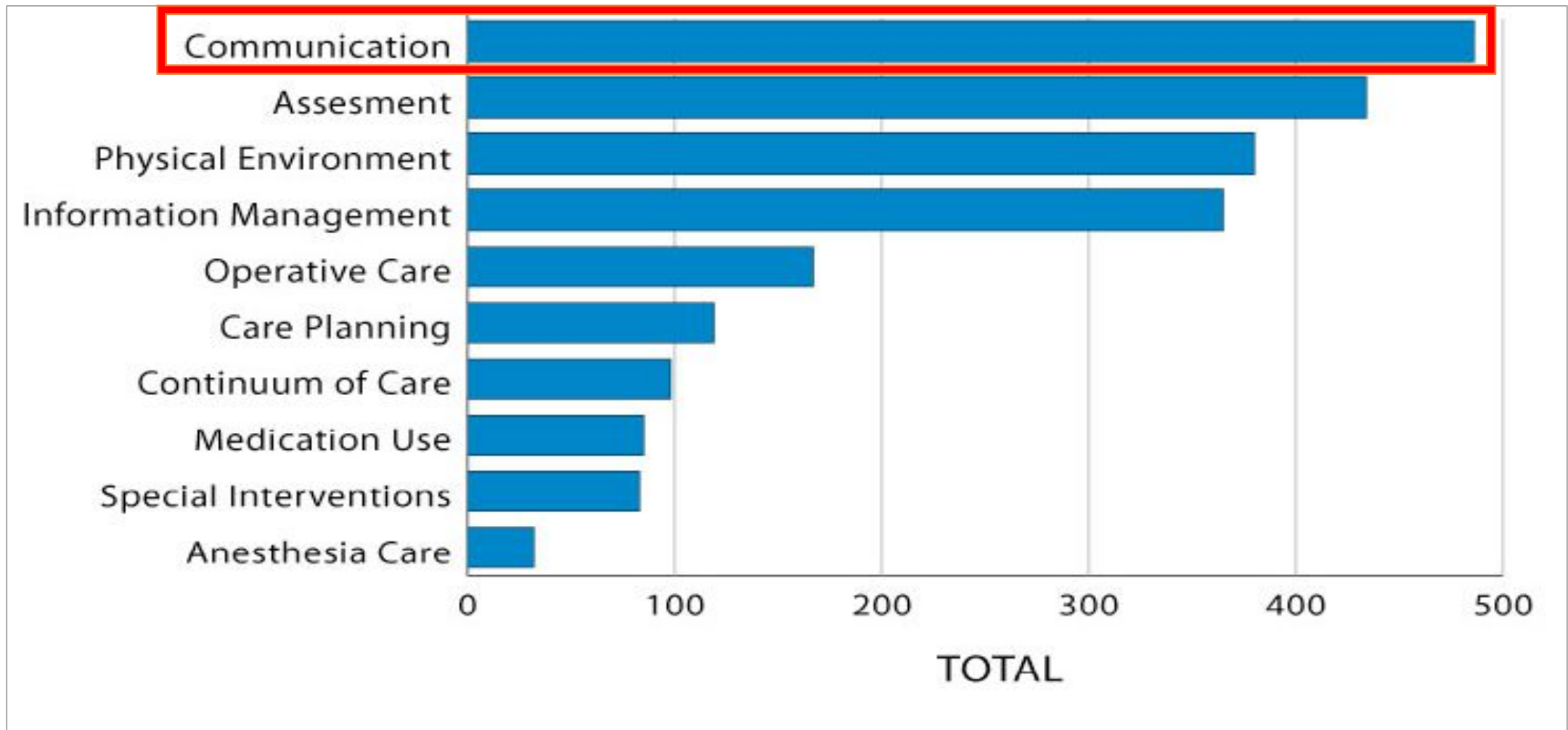
"When I was in medical school I spent hundreds of hours looking into a microscope—a skill I never needed to know or ever use. Yet I didn't have a single class that taught me communication or teamwork skills-something I need every day I walk into the hospital."

**Dr. Peter Pronovost**  
***Safe Patients, Smart Hospitals***





# Root Causes of Sentinel Events



Joint Commission. (2011). Sentinel Event Statistics Data - Root Causes by Event Type (2004 - Third Quarter 2011)<sup>4</sup>

# Aviation

- 1984-1989 Army Aviation experienced 147 fatalities and \$292,000,000 of lost and damaged equipment.
- Errors resulted from problems in:
  - 1) **Communication**
  - 2) Workload management
  - 3) Task prioritization
- Developed a training program
  - Reduced flight related errors, deaths, equipment loss.

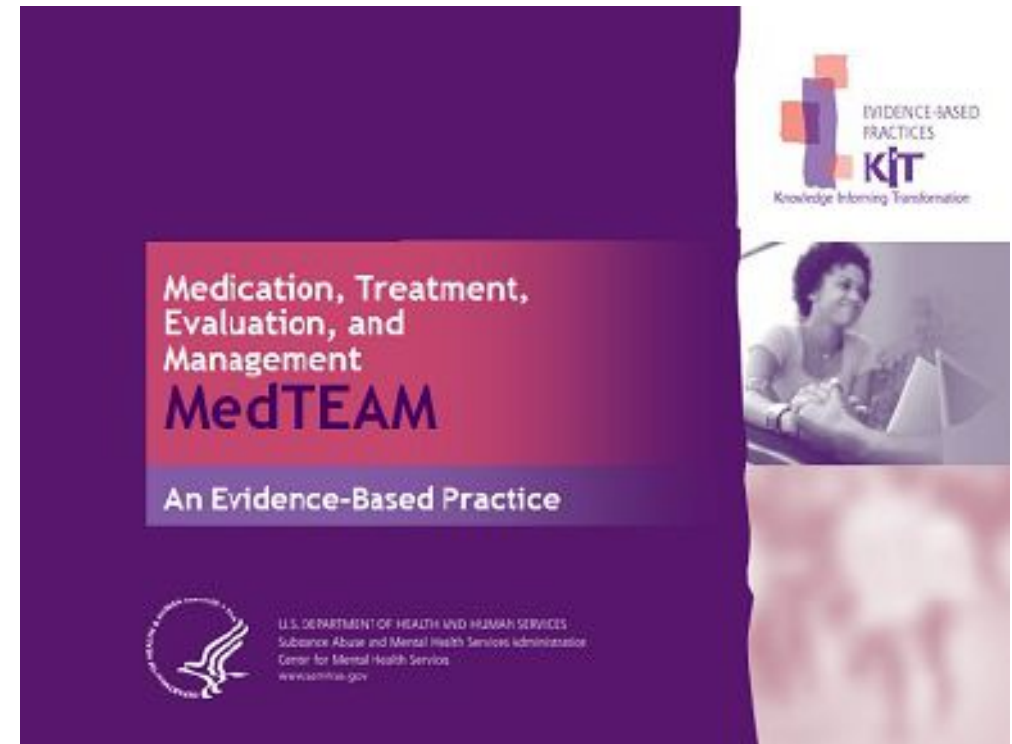






# MedTeams:

- Increase communication between physicians and nurses.
- Acknowledge the frequency of error
- Encourage reporting human
- Identify and break error chains
- Structured communication:
  - Check-back
  - Two challenge rule
  - Cross monitoring



## CONCEPTS

  
Daniel T Risser, PhD\*  
Matthew M Rice, MD, JD<sup>2</sup>  
Mary L Salisbury, RN, MSN<sup>11</sup>  
Robert Simon, EdD\*  
Gregory D Jay, MD, PhD<sup>11</sup>  
Scott D Berns, MD, MPH<sup>2</sup>  
The MedTeams Research  
Consortium

# The Potential for Improved Teamwork to Reduce Medical Errors in the Emergency Department

Risser DT, et al. *Ann Emerg Med*. 1999. PMID: 10459096

- Review of 54 safety incidents/10 years.
- **Findings:**
  - An average of 8.8 teamwork failures per case.
  - Preventable:
    - 8 of 12 deaths
    - 5 of 8 errors leading to significant harm.
- **Estimates if MedTeams implemented:**
  - \$16 million savings legal fees (\$345,000/100,000 patients)
  - 80% drop in errors.
  - 50% reduction in risk management cases.

# TeamSTEPPS

## LEADING TEAMS

Direct and coordinate, assign tasks, motivate team members, facilitate optimal performance.

- Brief
- Huddle
- Debrief

## SITUATION MONITORING

Develop common understandings of team environment, apply strategies to monitor team members' performance, maintain a shared mental model.

- STEP
- I'M SAFE checklist
- Cross-monitoring

## MUTUAL SUPPORT

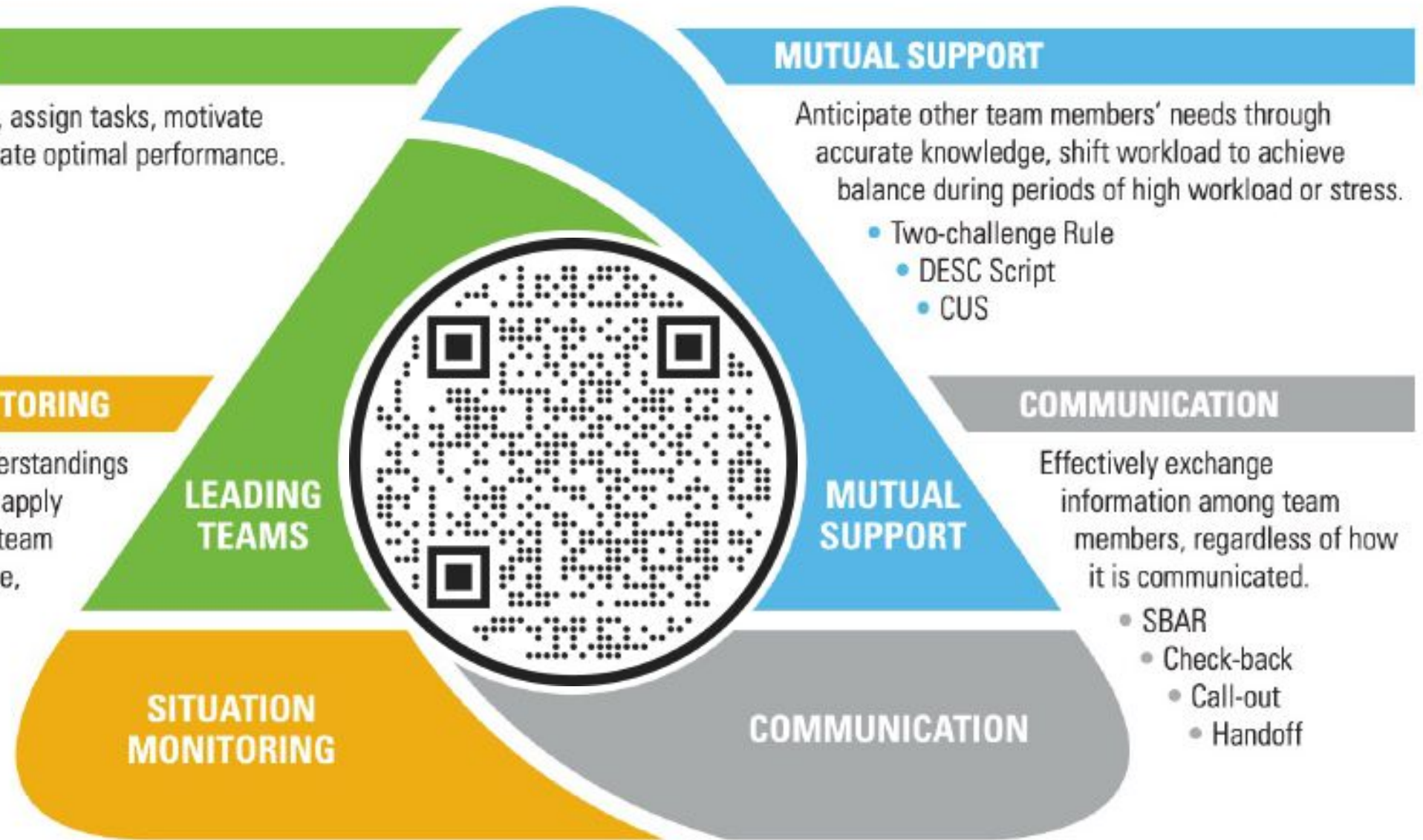
Anticipate other team members' needs through accurate knowledge, shift workload to achieve balance during periods of high workload or stress.

- Two-challenge Rule
- DESC Script
- CUS

## COMMUNICATION

Effectively exchange information among team members, regardless of how it is communicated.

- SBAR
- Check-back
- Call-out
- Handoff





## Implementation of TeamSTEPPS at a Level-1 Military Trauma Center: The San Antonio Military Medical Center Experience

Michelle M. Fischer  
LTC(P) Creighton C. Tubb, MC, USA  
Col Joseph A. Brennan, MC, USAF  
COL Douglas W. Soderdahl, MC, USA  
LTC(P) Anthony E. Johnson, MC, USA

Article

## Improved Knowledge, Attitudes, and Behaviors After Implementation of TeamSTEPPS Training in an Academic Emergency Department: A Pilot Report

David Lisbon, MD<sup>1</sup>, Dennis Allen, MD<sup>1</sup>, Carol Cleek, RN<sup>2</sup>, Lori Roop, MBA<sup>1</sup>, Michael Brimacombe, PhD<sup>1</sup>, Courtney Downes, MD<sup>1</sup>, and Susan K. Pingleton, MD<sup>2</sup>

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sagepub.com/journalsPermissions.nav  
DOI: 10.1177/1549980114549122  
jps.sagepub.com  
SAGE

Article

## TeamSTEPPS Improves Operating Room Efficiency and Patient Safety

Lancaster R. Weld<sup>1</sup>, Matthew T. Stringer, DO<sup>1</sup>, James S. Ebertowski, MD<sup>2</sup>, Timothy S. Baumgartner, MD<sup>3</sup>, Matthew C. Kasprenski, MD<sup>1</sup>, Jeremy C. Kelley, DO<sup>2</sup>, Doug S. Cho, MD<sup>1</sup>, Erwin A. Tierra, MD<sup>1</sup>, and Thomas E. Novak, MD<sup>1</sup>

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Orth Care, Year 0  
Vol. 35, No. 5, pp. 286-293  
Copyright © 2012 Wolters Kluwer Health | Lippincott Williams & Wilkins

## Implementation of TeamSTEPPS in the Emergency Department

Pamela Turner, RN, BSN

Team training and practice is an essential part of emergency department workflow. TeamSTEPPS (Team Strategies and Tools to Enhance Performance and Patient Safety) is a teamwork and com-



International Journal for Quality in Health Care 35(5): 416-424  
doi: 10.1093/ijq/hwz082  
Advance Access Publication Date: 11 July 2015  
Article



## Impact of TeamSTEPPS on patient safety culture in a Swiss maternity ward

ANTHONY STAINES<sup>1,2</sup>, ESTELLE LÉCUREUX<sup>3</sup>, PASCAL RUBIN<sup>4</sup>, CHRISTIAN BARALON<sup>1</sup>, and ALEXANDRE FARIN<sup>1,5</sup>

## Clinical Risk Management

## TeamSTEPPS<sup>®</sup>: An evidence-based approach to reduce clinical errors threatening safety in outpatient settings: An integrative review



TRANSITIONS OF CARE...









## Consequences of Inadequate Sign-out for Patient Care

Leora I. Horwitz, MD, MHS; Tannaz Moin, MD, MBA; Harlan M. Krumholz, MD, SM; Lillian Wang, MD; Elizabeth H. Bradley, PhD

88 sign-out sessions. 503 sign-outs.

- 24 sign-out related errors
- 5 delays in diagnosis or treatment
- 1 ICU transfer
- 4 near misses
- 15 redundancies in work

## Dropping the Baton: A Qualitative Analysis of Failures During the Transition From Emergency Department to Inpatient Care

Leora I. Horwitz, MD, MHS  
Thom Meredith, MD  
Jeremiah D. Schuur, MD, MHS  
Nidhi R. Shah, MD, MPH  
Raghavendra G. Kulkarni, MD  
Grace Y. Jenq, MD

From the Center for Outcomes Research and Evaluation (Horwitz) and Hospitalist Service (Shah), Yale–New Haven Hospital, New Haven, CT; The Section of General Internal Medicine, Department of Medicine (Horwitz), Section of Emergency Medicine, Department of Surgery (Meredith, Kulkarni), and Section of Geriatrics, Department of Medicine (Jenq), Yale University School of Medicine, New Haven, CT; The Department of Emergency Medicine, Brigham and Women’s Hospital, Boston, MA (Schuur); and The Department of Medicine, Harvard Medical School, Boston, MA (Schuur).

- 1/3 reported AE’s/ near miss after ED → IP transfer.
- 1/6 required upgrade from the floor → ICU

# Morning Handover of On-Call Issues Opportunities for Improvement

Megan K. Devlin, MD; Nat...

**IMPORTANCE** Handover of clinical responsibility during morning handover from the on-call physician to the inpatient team.

**OBJECTIVE** To characterize morning handover at academic medical centers by assessing the quality of handover during morning handovers and identifying omissions.

## ORIGINAL RESEARCH

### Interunit Handoffs From Emergency Department to Inpatient Care: A Cross-Sectional Survey of Physicians at a University Medical Center

Christopher J. Smith, MD<sup>1\*</sup>, Denise H. Britigan, PhD, MA, CHES<sup>2</sup>, Elizabeth Lyden, MS<sup>3</sup>, Nathan Anderson, MD<sup>4</sup>, Ted J. Welniak, MD<sup>5</sup>, Michael C. Wadman, MD<sup>6</sup>

<sup>1</sup>Department of Internal Medicine, Division of General Internal Medicine, University of Nebraska Medical Center College of Medicine, Omaha, Nebraska; <sup>2</sup>Department of Health Promotion, Social, and Behavioral Health, University of Nebraska Medical Center College of Public Health, Omaha, Nebraska; <sup>3</sup>Department of Health, Behavior, and Society, Johns Hopkins University, Baltimore, Maryland; <sup>4</sup>Department of Medicine, University of California, San Francisco, San Francisco, California; <sup>5</sup>Department of Medicine, University of California, San Francisco, San Francisco, California; <sup>6</sup>University of Nebraska Medical Center, Omaha, Nebraska

**BACKGROUND** Handover of patient care from one physician to another is a critical component of patient care. However, physician handovers are often incomplete, and this may result in patient harm. We assessed physician handovers at a university medical center to identify omissions and opportunities for improvement in the handoff process and patient care.

**METHODS:** We conducted a cross-sectional survey of physicians at a university medical center to assess the quality of handovers during morning handovers and identify omissions.

## The Joint Commission Journal on Quality and Patient Safety

### Continuity of Care

# Handoffs Causing Patient Harm: A Survey of Medical and Surgical House Staff

*Barrett T. Kitch, M.D., M.P.H.; Jeffrey B. Cooper, Ph.D.; Warren M. Zapol, M.D.; Jessica E. Marder; Andrew Karson, M.D., M.P.H.; Matt Hutter, M.D.; Eric G. Campbell, Ph.D.*

**T**ransfers of the care of a hospitalized patient from one clinician to another require a handoff of that patient's important clinical information. Although such transi-

### Article-at-a-Glance

**Background:** Communication lapses at the time of patient



# Sign out: Take Your Pick

- “Wing it”
- SBAR
- SBAR+
- IPASS
- IPASS the Baton
- Safer Sign-Out



- Protected time and space
- Clear transfer of info & responsibility
- Structured & organized
- Shared mental model
- Contingency planning



**I-PASS**  
BETTER HANDOFFS. SAFER CARE.

- I** **Illness Severity**
- P** **Patient Summary**
- A** **Action List**
- S** **Situation Awareness & Contingency Planning**
- S** **Synthesis by Receiver**

SPECIAL ARTICLE

## Changes in Medical Errors after Implementation of a Handoff Program

A.J. Starmer, N.D. Spector, R. Srivastava, D.C. West, G. Rosenbluth, A.D. Allen, E.L. Noble, L.L. Tse, A.K. Dalal, C.A. Keohane, S.R. Lipsitz, J.M. Rothschild, M.F. Wien, C.S. Yoon, K.R. Zigmont, K.M. Wilson, J.K. O'Toole, L.G. Solan, M. Aylor, Z. Bismilla, M. Coffey, S. Mahant, R.L. Blankenburg, L.A. Destino, J.L. Everhart, S.J. Patel, J.F. Bale, Jr., J.B. Spackman, A.T. Stevenson, S. Calaman, F.S. Cole, D.F. Balmer, J.H. Hepps, J.O. Lopreiato, C.E. Yu, T.C. Sectish, and C.P. Landrigan, for the I-PASS Study Group\*

10,740 inpatient admissions:

->Medical error rate ↓ by 23%

->Preventable adverse events ↓ by 30%



## Nurse Knowledge Exchange*Plus*: Human-Centered Implementation for Spread and Sustainability

**Table 1. KP SMILE Standardized Shift Report**

<b>K</b> now the patient: manage up by helping staff succeed at providing excellent care.
<b>P</b> rofessional exchange report: review outstanding orders and other important information.
<b>S</b> napshot report: review of systems
<b>M</b> edication administration record: review new and outstanding medications.
<b>I</b> ntake and output: IV fluids, prescribed diet, urinary output, and bowel movements
<b>L</b> abs: critical lab results and new orders
<b>E</b> ducation: patient learning needs and goals

**NKE*plus*—Critical Care**

High Alert	Isolation, HH, PCA, Insulin, Narcotics, Hypertonic Saline, Vasopres
Equipment	SCD, Beds, Bipap, Feeding, Suction, Restraints, Ambubag, Ventilator, Pacemaker & Environmental chk
Alarms	Beds, Pumps, Sign over Bed, Bed Alarm, Ventilator & Philips Monitor
Line	IV, Stickers, NGT, O <sub>2</sub> , F/C, Tubing, Central Lines, Art Lines, Flotrac, Presep, Foley & Labels



LACK OF  
PATIENT COMMUNICATION...

# *The Talking Cure for Health Care*

WSJ 4.2013

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- **18% to 45%** of patients are unable to recall **major risks** of treatment.
- **60% to 68%** of patients **don't read or understand** info in a consent.
- **80%** of what we tell patients is **forgotten** as soon as they leave
- **50%** of what is **recalled** is incorrect.







## Older Patients' Understanding of Emergency Department Discharge Information and Its Relationship With Adverse Outcomes

*Susan N. Hastings, MD, MHS,\*†‡§ Amanda Barrett, MD,|| Morris Weinberger, PhD,\*¶  
Eugene Z. Oddone, MD, MHS,\* Luna Ragsdale, MD,|| Michael Hocker, MD,||  
and Kenneth E. Schmader, MD†‡§*

THE PRACTICE OF EMERGENCY MEDICINE/ORIGINAL RESEARCH

### “Sign Right Here and You’re Good to Go”: A Content Analysis of Audiotaped Emergency Department Discharge Instructions

Anita Vashi, MD, MPH, Karin V. Rhodes, MD, MS

*From the Department of Emergency Medicine, Mount Sinai School of Medicine, New York, NY (Vashi); and the Department of Emergency Medicine, University of Pennsylvania School of Medicine, Philadelphia, PA (Rhodes).*

ED ADMINISTRATION • L'ADMINISTRATION DE LA MU

### Emergency department discharge instructions comprehension and compliance study

Collin Clarke, BSc;\* Steven Marc Friedman, MD, MPH;† Kevin Shi, MD;‡ Tamara Arenovich, MSc;§  
Jose Monzon, PhD;\* Christopher Culligan, MSc, MD<sup>¶</sup>



**NIH Public Access**

**Author Manuscript**

*Med Care.* Author manuscript; available in PMC 2010 August 1.

Published in final edited form as:

*Med Care.* 2009 August ; 47(8): 826–834. doi:10.1097/MLR.0b013e31819a5acc.

## **Physician Communication and Patient Adherence to Treatment: A**

**Meta-analysis**

**Kelly B. Haskard Zolnierak and**  
Texas State University, San Marcos

**M. Robin DiMatteo**  
University of California, Riverside

- **19% higher risk of non-adherence** among patients whose physician communicates poorly vs those whose physician communicates well.
- **Odds of patient adherence** are 1.6 times higher in physicians who receive communication training.



TRIBALISM & PHYSICIAN COMMUNICATION...





WITH A NEW INTRODUCTION BY TONY HSIEH,  
bestselling author of *Delivering Happiness* and CEO of Zappos.com

# TRIBAL LEADERSHIP

Leveraging Natural Groups  
to Build a Thriving Organization



DAVE LOGAN, JOHN KING  
& HALEE FISCHER-WRIGHT

Foreword by Warren Bennis



## THE 5 STAGES OF TRIBAL CULTURE

RELATIONSHIP  
TO PEOPLE

BEHAVIOR

% OF  
ORGS

Team

STAGE  
5

"LIFE IS GREAT"

Innocent Wonderment

2%

the language revolves around infinite potential and how the group is going to make history - not to beat a competitor, but because doing so will make a global impact. this group is in competition with what's possible, not with another tribe

Stable Partnership

"WE'RE GREAT"

Tribal Pride

22%

people are fully themselves, & everyone seems happy, inspired, & genuine; the culture emphasizes shared core values and interdependent strategies; a 'we're great' tribe always has an adversary, & the bigger the foe, the more powerful the tribe

Personal Domination

"I'M GREAT  
(AND YOU'RE NOT)"

Lone Warrior

49%

knowledge is power, so people hoard it; they have to win, and winning is personal; the mood is one of wanting help and support, yet being continually disappointed that others "don't have their ambition or skill"

Separate

"MY\* LIFE SUCKS"

STAGE  
2

Apathetic Victim

25%

people are passively antagonistic; seen it all before and watched it fail; quietly sarcastic and resigned; judging, yet never interested enough to spark any passion

Alienated

STAGE  
1

"<ALL> LIFE SUCKS"

Undermining

2%

people are despairingly hostile, banding together to get ahead in a violent and unfair world

from Tribal Leadership, Logan, King & Fischer-Wright, 2008, HarperCollins

## Rudeness and Medical Team Performance 🛒

Arieh Riskin, MD ✉; Amir Erez, PhD; Trevor A. Foulk, BBA; Kinneret S. Riskin-Geuz, BSc; Amitai Ziv, MD; Rina Sela, CCRN;

Clinical Medicine 2015 Vol 15, No 6: 541–5

ORIGINAL RESEARCH 

## Sticks and stones: investigating rude, dismissive and aggressive communication between doctors

Authors: Victoria Bradley,<sup>A</sup> Samuel Liddle,<sup>B</sup> Robert Shaw,<sup>C</sup> Emily Savage,<sup>D</sup> Roberta Rabbitts,<sup>E</sup> Corinne Trim,<sup>F</sup> Tunji A L

### ON MY MIND

Rebekah Mannix, MD,  
MPH  
Division of Emergency  
Medicine, Boston  
Children's Hospital,  
Boston, Massachusetts.

## Tribalism in Medicine—Us vs Them

Today, while having lunch in the cafeteria, it happened. In pediatric emergency medicine, we are keenly

The NEW ENGLAND JOURNAL of MEDICINE

MEDICINE AND SOCIETY

TEAMWORK — PART 1

Debra Malina, Ph.D., Editor

## Divided We Fall

Lisa Rosenbaum, M.D.



# Tribalism...

**"Curse of knowledge": Rude, Dismissive, Aggressive (RDA) communication**

**Consequences are wide-ranging: bad for patients & staff, \$, time, pain, suffering.**

**House staff are vulnerable and sensitive to mistreatment**





# Teams, tribes and patient safety: overcoming barriers to effective teamwork in healthcare

Jennifer Weller, Matt Boyd, David Cumin

## Actions to overcome barriers to team communication in healthcare

1. Teach effective communication strategies
2. Train teams together
3. Train teams using simulation
4. Create democratic/inclusive teams
5. Support teamwork with process, protocols and procedures.
6. Develop an organizational culture supporting healthcare teams.

# Survey:

- **Question 1:** In general, my working relationship with other physicians within my department is...
- **Question 2:** In general, the quality of my working relationship with physicians in the department of \_\_\_\_\_ is...
- **Question 3:** The physicians in the department of \_\_\_\_\_ respond in a timely manner to pages and/ or phone calls.
- **Question 4:** The physicians in department \_\_\_\_\_ teach and provide assistance to colleagues, when feasible.
- **Question 5:** I am treated with respect by the physicians in department \_\_\_\_\_.

**Please provide any additional comments:**

STRAUSS AND MAYER'S  
**EMERGENCY  
DEPARTMENT  
MANAGEMENT**



**ED OPERATIONS**

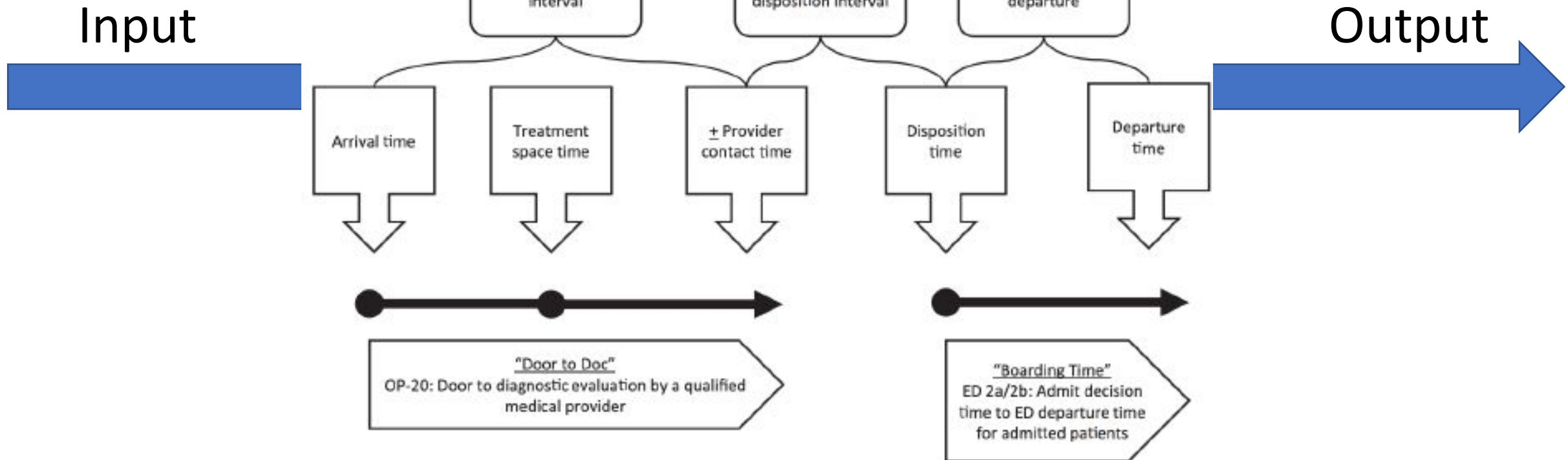


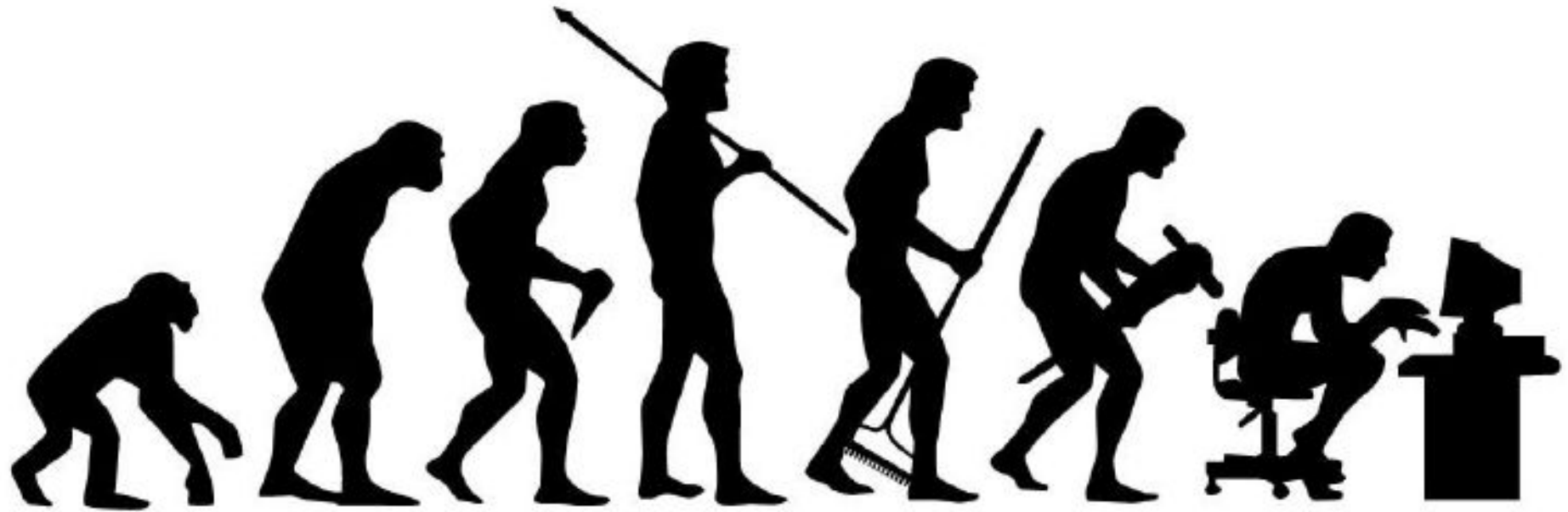




# EDBA

Emergency Department Benchmarking Alliance





DATA







*the plural of*  
**ANECDOTE**  
*is not*  
**DATA**

Volume and Staffing

Total Visits	9,077	5,046	4,347	3,530	6,715	6,515	5,851	4,038	9,901	7,913	9,059	5,966	5,885	3,957	87,800	
Member Visits per 1000 Members	16.7	24.9	12.0	29.7	15.5	23.3	17.0	16.5	15.8	21.8	21.5	21.1	19.7	18.4	19.6	
% Admits	12.3	13.7	16.0	7.0	17.8	11.7	15.4	19.8	18.2	14.2	14.3	15.8	14.4	10.2	14.0	
% Fast Track Patients <sup>1</sup>	36.8	32.5	37.6	41.4	26.3	30.8	27.9	28.2	22.5	36.3	21.3	22.3	27.4	23.6	29.8	
% Non-Member Visit Rate	37.4	21.0	20.0	49.1	7.7	31.0	11.7	11.9	7.9	28.9	20.7	20.8	25.8	10.9	23.8	
% Non-Member Admit Rate	18.4	11.9	9.8	25.5	1.9	8.9	8.0	5.0	3.4	7.5					10.3	
Capacity (# Patients/ED Treatment Bay Annualized)	2,055	1,808	1,599	1,447	1,447	1,914	1,285	1,943	2,389						1,913	
Adjusted MD & Extender FTEs per 1000 visits <sup>2,3</sup>	4.2	3.5	3.1	3.9	4.0	6.1	4.8								4.7	
Direct MD & Extender FTEs per 1000 visits	3.5	3.1	2.7	3.3	4.6	3.7									3.8	
Patients per provider-hour (direct hours only)	1.79	2.0	2.0	1.89	1.37	1.89									1.67	
RN FTEs per 1000 visits <sup>3</sup>	12.8	13.0	10.3	12.2	14.0	11.4									13.0	
Ancillary FTEs per 1000 visits <sup>3</sup>	6.3	7.4	5.4	6.1											6.6	
% Patients with Arrival to Provider <= 30 min	50.0				58.9	60.2	36.7								50.4	
% Patients with Arrival to Provider <= 45 min	70.5				69.7	70.1	52.1								66.3	
Door to Provider all Patients	0:45	0:40	0:38	0:37	0:55	0:39	0:45	0:57							0:46	
Door to Roomed all Patients	0:51	0:38	0:37	0:37	0:37	0:28	1:11	0:48							0:43	
ED LOS for non-admits (Door to Discharge)	4:11	3:49	3:49	3:12	3:02	5:24	3:21								3:49	
Disposition Home to RN Discharge for non-admits	0:35	0:32	0:32	0:10	0:09	0:41	0:30								0:30	
Door to Decision-to-Admit	5:22	4:41	4:41	4:14	3:52	6:46	5:08								5:10	
ED LOS for Category 4 & 5 (Fast Track Patients)	2:09	1:51	1:51	1:51	1:41	2:53	2:10								2:03	
Total % Patients LWBS & ELOP, and AMA	9.6	4.1	4.1	4.1	2.4	5.0	3.3								4.5	
Divert Hours					106:50	84:00	232:30									
% ASQ overall ED Satisfaction Results (>= 9)	73.3	67.8	67.8	73.9	72.5	67.5										
% ASQ overall ED Satisfaction Results (>= 8)	77.8	77.4	77.4	82.4	79.4	78.5									84.0	
% ASQ Consistent Messaging Results (patient kept informed of how long the treatment would take)	64.9	65.3	65.3	68.9	70.2	60.5	68.5								67.0	
Input																
Medicine Consult Turnaround Time	1:54	1:41	1:41	1:17	1:17	2:54	2:43								1:56	
Admits Median Time from Admit Order to ED Depart	3:27	2:14	2:14	2:00	2:01	2:57	3:00	3:52							2:32	
Admits Median Time from Door To ED Depart	9:04	6:58	6:58	6:48	6:16	9:34	7:07	9:40							7:36	
Average Daily Boarding Time	150:05	48:12	48:12	80:54	70:25	157:23	63:54	168:45							112:38	
Turnaround Time																
CBC w diff (Average min)	52	52	46	35	36	50	42	38	55	45	59	40	41	40	44	
Electrolytes (Average min)	65	58	51	46	51	58	49	47	60	49	68	56	40	50	51	
Troponin (Average min)	83	73	86	59	58	89	57	82	72	65	77	57	54	83	64	
Portable Chest X-Ray Exams/1000 visits	170.2	195.0	219.5	120.1	137.6	196.2	178.8	201.3	202.3	149.2	256.4	267.3	140.5	245.6	165.8	
Portable Chest X-Ray (Median min)	32	23	20	18	29	28	25	24	33	29	30	28	29	20	28	
CT Head Exams/1000 visits	79.0	71.3	80.7	74.5	79.8	77.1	74.3	79.0	98.0	73.9	90.3	67.9	68.5	97.0	78.0	
CT Head (Median min)	43	37	39	27	57	43	44	46	71	43	53	72	40	54	44	

		Volume	Admits	LWOTs	Door to Room	Door to Doc
Fri	Sep 9	194	29	25	141	151
Sat	Sep 10	170	15	7	111	121
Sun	Sep 11	185	26	8	51	88
Mon	Sep 12	216	26	35	139	140
Tue	Sep 13	203	30	40	174	189
Wed	Sep 14	194	24	32	193	207
Thu	Sep 15	185	24	21	156	167
Fri	Sep 16	171	17	24	177	192
Sat	Sep 17	139	24	5	75	89
Sun	Sep 18	163	22	1	23	35
Mon	Sep 19	221	27	3	59	60
Tue	Sep 20	197	26	23	103	112
Wed	Sep 21	168	29	30	156	164
Thu	Sep 22	175	20	39	210	217
Fri	Sep 23	160	18	27	168	177
Sat	Sep 24	174	18	23	104	114
Sun	Sep 25	179	23	3	50	61
Mon	Sep 26	235	28	6	45	50
Tue	Sep 27	202	28	38	121	132
Wed	Sep 28	175	19	8	112	122
Thu	Sep 29	190	19	13	94	104
Fri	Sep 30	187	14	16	129	140
Sat	Oct 1	170	22	8	64	81
Sun	Oct 2	190	22	3	42	62
Mon	Oct 3	203	38	18	97	109
Tue	Oct 4	226	38	38	185	202
Wed	Oct 5	171	21	7	145	159
Thu	Oct 6	183	21	6	82	89
Overall		187	24			

All visits  
(totals / mean minutes)

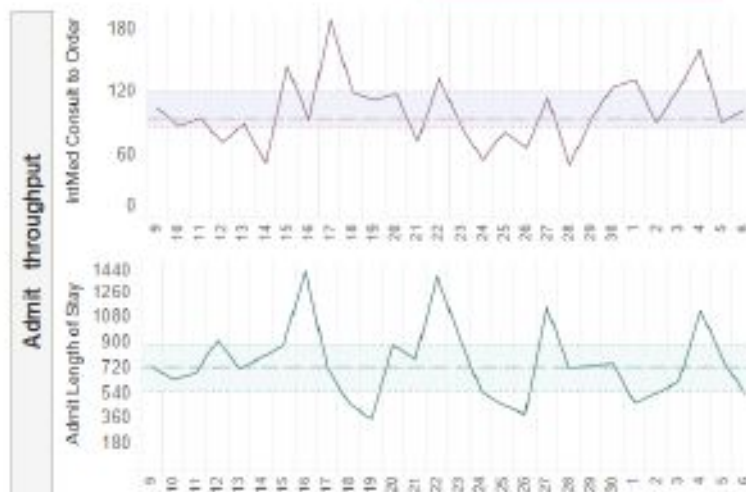
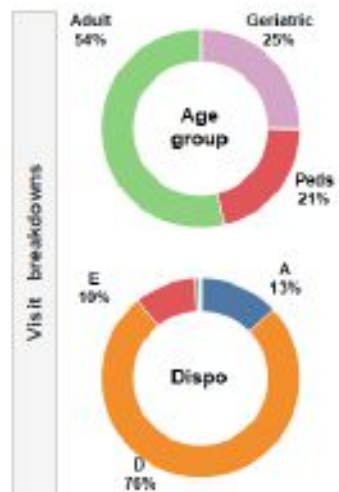
Admits only  
(median minutes)

The purpose of this document is to provide a simple snapshot of ED volumes and throughput. Operational definitions and other notes are available on demand.

Caution! New data is always dirty. Confidence in yesterday's figures:

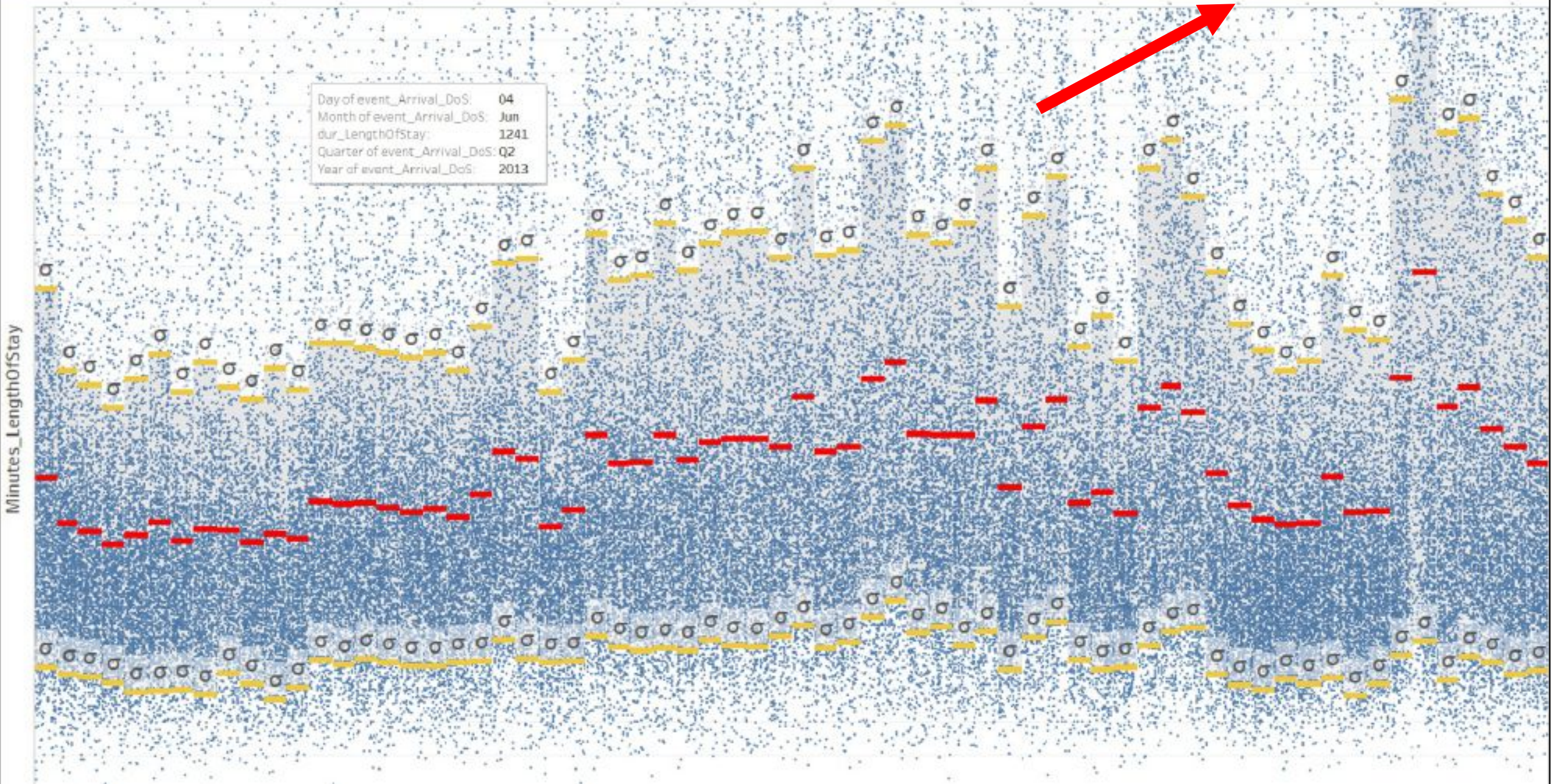
78%

	Door to IntMed Consult	IntMed Consult to Admit Order	Admit Length of Stay
Sep 9	236	106	734
Sep 10	304	87	638
Sep 11	177	95	687
Sep 12	232	72	920
Sep 13	261	88	721
Sep 14	341	53	795
Sep 15	282	145	884
Sep 16	367	94	1,411
Sep 17	217	189	724
Sep 18	122	120	467
Sep 19	149	112	364
Sep 20	304	116	885
Sep 21	239	73	782
Sep 22	222	133	1,374
Sep 23	264	88	946
Sep 24	248	55	559
Sep 25	197	82	458
Sep 26	140	67	396
Sep 27	238	114	1,100
Sep 28	158	50	723
Sep 29	164	95	742
Sep 30	266	125	758
Oct 1	175	132	472
Oct 2	199	92	547
Oct 3	184	122	623
Oct 4	297	161	1,132
Oct 5	216	91	784
Oct 6	186	103	542
Overall	210	98	682

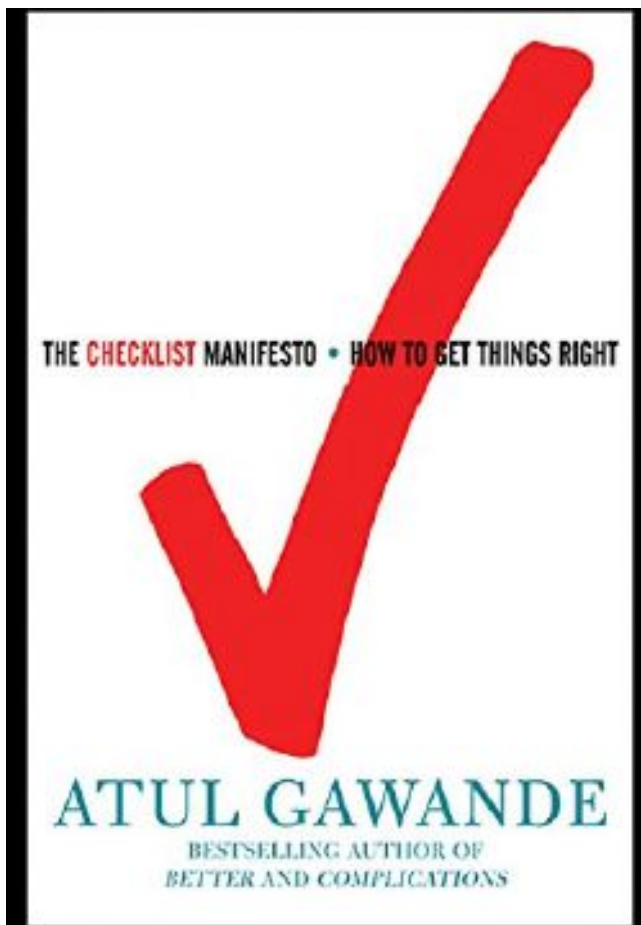




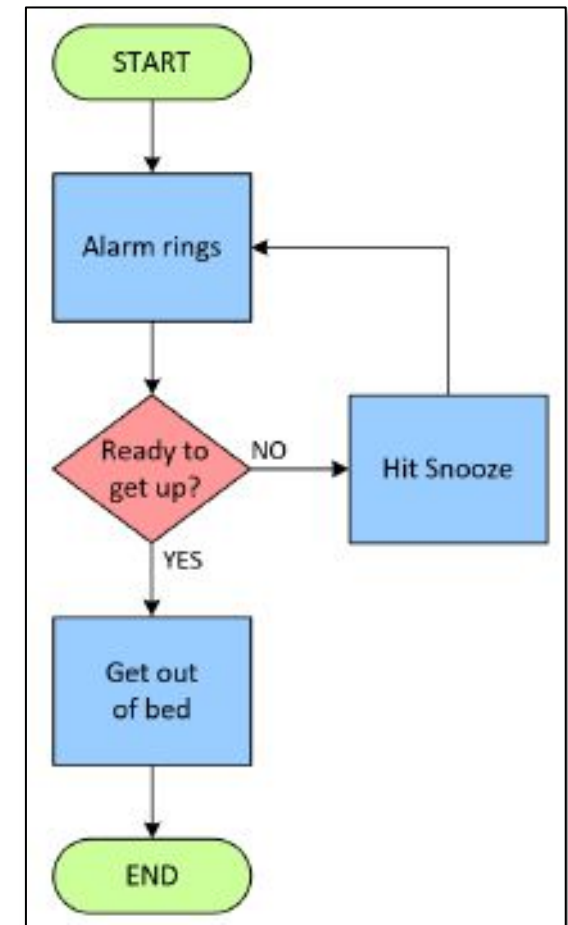
# Admission ED Length of Stay





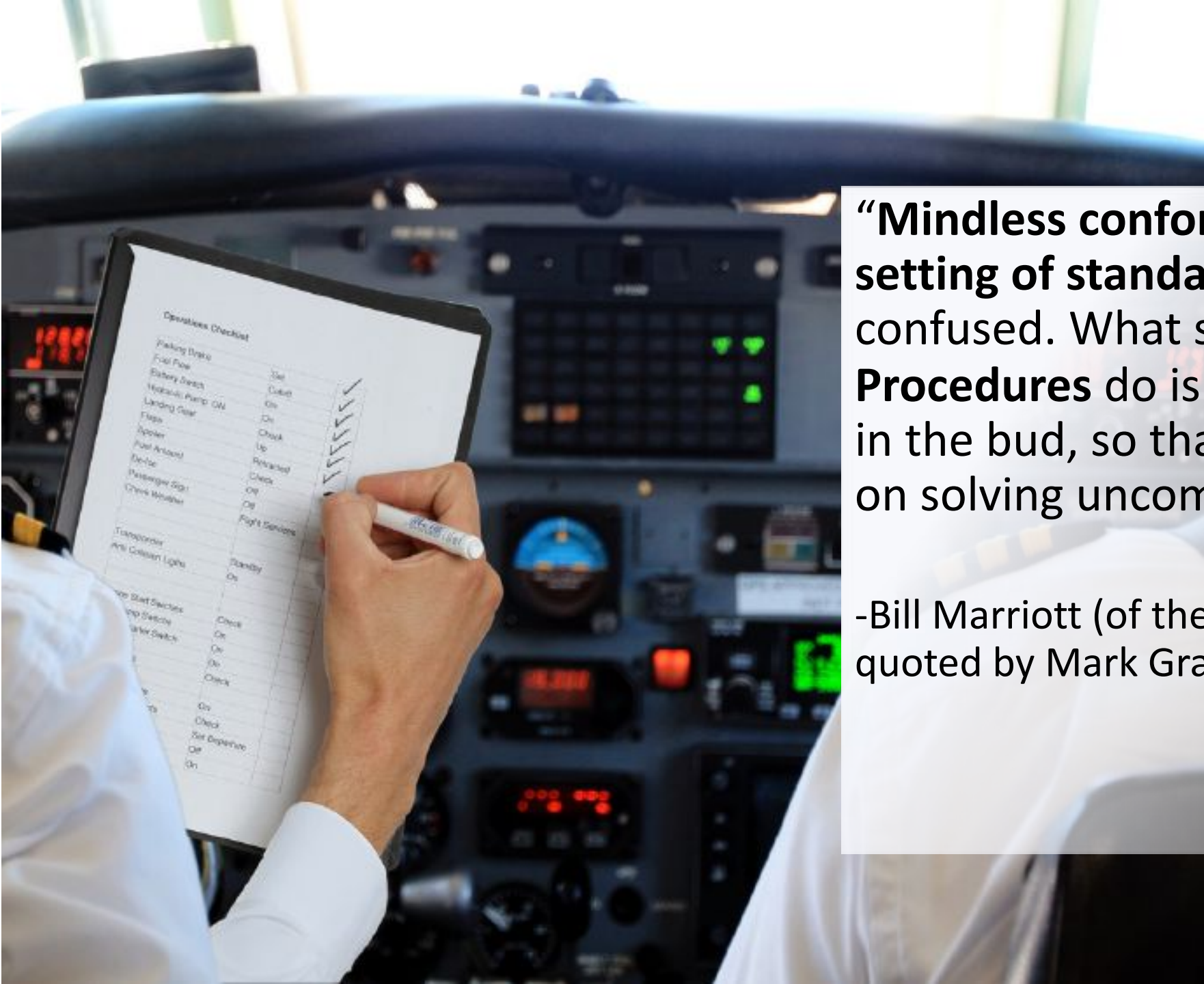


Surgical Safety Checklist		
Before induction of anaesthesia	Before skin incision	Before patient leaves operating room
<p><i>(with at least nurse and anaesthetist)</i></p> <p>Has the patient confirmed his/her identity, A/S, procedure, and consent?</p> <ul style="list-style-type: none"> <li>• Yes</li> <li>• No</li> </ul> <p>Is the site marked?</p> <ul style="list-style-type: none"> <li>• Yes</li> <li>• Not applicable</li> </ul> <p>Is the anaesthesia machine and medication check complete?</p> <ul style="list-style-type: none"> <li>• Yes</li> <li>• No</li> </ul> <p>Is the pulse oximeter on the patient and functioning?</p> <ul style="list-style-type: none"> <li>• Yes</li> <li>• No</li> </ul> <p>Does the patient have a:</p> <p>Known allergy?</p> <ul style="list-style-type: none"> <li>• No</li> <li>• Yes</li> </ul> <p>Difficult airway or respiratory risk?</p> <ul style="list-style-type: none"> <li>• No</li> <li>• Yes, and equipment/resources available</li> </ul> <p>Risk of &gt;100ml blood loss (7ml/kg in children)?</p> <ul style="list-style-type: none"> <li>• No</li> <li>• Yes, and two 16-gauge access and fluids planned</li> </ul>	<p><i>(with nurse, anaesthetist and surgeon)</i></p> <p>Confirm all team members have introduced themselves by name and role.</p> <p>Confirm the patient's name, procedure, and where the incision will be made.</p> <p>Has antibiotic prophylaxis been given within the last 60 minutes?</p> <ul style="list-style-type: none"> <li>• Yes</li> <li>• Not applicable</li> </ul> <p>Anticipated Critical Events</p> <p>To Surgeon:</p> <ul style="list-style-type: none"> <li>• What are the critical or non-routine steps?</li> <li>• How long will the case take?</li> <li>• What is the anticipated blood loss?</li> </ul> <p>To Anaesthetist:</p> <ul style="list-style-type: none"> <li>• Are there any patient-specific concerns?</li> </ul> <p>To Nursing Team:</p> <ul style="list-style-type: none"> <li>• Has sterility (including indicator results) been confirmed?</li> <li>• Are there equipment issues or any concerns?</li> </ul> <p>Is essential imaging deployed?</p> <ul style="list-style-type: none"> <li>• Yes</li> <li>• Not applicable</li> </ul>	<p><i>(with nurse, anaesthetist and surgeon)</i></p> <p>Nurse Verbally Confirmed:</p> <ul style="list-style-type: none"> <li>• The name of the procedure</li> <li>• Completion of instrument, sponge and tender counts</li> <li>• Specimen labelling (read specimen labels aloud, including patient name)</li> <li>• Whether there are any equipment problems to be addressed?</li> </ul> <p>To Surgeon, Anaesthetist and Nurse:</p> <ul style="list-style-type: none"> <li>• What are the key concerns for recovery and management of this patient?</li> </ul>



## CHECKLISTS, FLOWCHARTS AND SLA'S





“**Mindless conformity** and the thoughtful **setting of standards** should never be confused. What solid **Standard Operating Procedures** do is nip common problems in the bud, so that staff can focus instead on solving uncommon problems.”

-Bill Marriott (of the Marriott hotel chain) as quoted by Mark Graban in Lean Hospitals.



# The NEW ENGLAND JOURNAL of MEDICINE

ESTABLISHED IN 1812

DECEMBER 28, 2006

VOL. 355 NO. 26

## An Intervention to Decrease Catheter-Related Bloodstream Infections in the ICU

Peter Pronovost, M.D., Ph.D., Dale Needham, M.D., Ph.D., Sean Berenholtz, M.D., David Sinopoli, M.P.H., M.B.A.,



- 1,981 ICU-months of data = 375,757 catheter-days.
- Median rate of CLASBI per 1000 catheter-days
  - **2.7 infections --> 0** at 3 months of checklist use ( $P \leq 0.002$ )!
- ~1,500 lives saved and \$200 million over 15 mos.

- Neonatal Resus
- Airway Management
- Central Lines
- Procedural Sedation
- Cardioversion

### Cardioversion Checklist

MD & RN Responsibilities for Cardioversion with Deep Sedation	✓
Consent for Deep Sedation and Cardioversion	
Procedural sedation documentation form - complete	
Prepare room and do equipment check / Print rhythm strip	
Patient Supine with no pillow under head or neck (open airway)	
Pulse oximeter on same arm as IV access	
B/P cuff on opposite arm than IV access	
Patent IV access (20g or larger) with NS at 100cc/hr	
Propofol 200mg vial with a 12 cc syringe for MD administration	
15 Liters Oxygen via Non-rebreater	
Suction set up at bedside –verified	
Ambu bag, oral airway, and mask	
Patient on ET CO2 monitor	
Crash cart and defibrillator in room	
Patient attached to defibrillator or monitor	
Anterior / Posterior pad placement	
Respiratory Therapist at bedside	
Magnet over pacemaker (if present)	
Cardioversion at 200 joules in SV	
Post Procedure:	
12 Lead EKG and Rhythm Strip	
Reevaluation by physician after re-sedation	
Sedation specific discharge instructions	

### SCAL EMERGENCY OB NEONATAL CHECKLIST v8.71

Summarized from 2018 NRP Guidelines

**AT TIME OF DELIVERY:**

- Appar clock should have been started. Start the clock if not already running!
- Rapid evaluation: (Tone, Tone, Breathing, Cry/ing) - If depressed, clamp/cut the cord & transfer directly to warmer.

**STEP 1 (15-30 sec) DRY & STIMULATE**

**ACT**

- Warm/dry and remove wet towels
- Clear secretions (mouth first then nose) and position airway
- Stimulate baby
- Be prepared to start PPV if needed.

**PPV Settings**

- Flowmeter at 10L/min
- FiO2 21% (>35 wks)
- Set PEEP - 5 cm H2O
- Set PIP 25 cm H2O

**REASSESS AFTER 15-30 SEC**

- Is the baby breathing?
- If not breathing well OR HR is <100, start PPV immediately (Step 2)
- Are there retractions, grunting, or tachypnea? IF YES, give mask CPAP

**STEP 2 (30sec) START POSITIVE PRESSURE VENTILATION - PPV#1**

**ACT**

**Plan**

- Cover mouth & nose w/ mask
- Ventilation rate: 40-60/min
- "Head-to, 2, 3"

**How to Provide PPV**

**ACTIVE PPV**

• Cover mouth & nose w/ mask

• Ventilation rate: 40-60/min

• "Head-to, 2, 3"

**Plan**

• Consider performing awake intubation for patients predicted to be difficult airway/ventilator and will allow 1-2 minutes preparatory time

• Consider Delayed Sequence Intubation in patients not tolerating preoxygenation/low-flow oxygenation/ventilator or respiratory assistance as procedures

• Consider Rapid Sequence Intubation (induce premed and paralytic, place ETT) in patients who will need to be bagged during apnea period

• Consider an ETT/Intubation Intubation in non-intubated/rapid-breathers patients at risk from intubation in asymptomatic low-MAP

**Are the pre-intubation medications ready?**

- Full possible dose of induction agent with dosing labeling
- Full possible dose of muscle relaxant with dosing labeling
- If pt has potential for BP decrease, push-dose protocol should be drawn up and at bedside in a syringe marked with dosing labeling

**What is the plan for unexpected difficult or failed airway?**

- The team must follow the extra intubation of the failed airway plan including who will perform each step
- Would this patient benefit from the presence of a 2<sup>nd</sup> ETT standing or a consultant?

**Can the cricoid/thyroid membrane be palpated?**

- Consider marking, consider ultrasound-guided marking, consider pre-intubation prep with lidocaine 2% with epinephrine

**What is the plan for post-intubation sedation?**

- A plan for an analgesic and a sedative should be verbalized and preparation should start during the intubation preparation, if there are available personnel

**Have we desaturated?**

- 80% on maximal flow MB or 2 minutes of total volume breathing
- Be not remove the NIM/Head until pt is asleep

**Have we preoxygenated?**

- Set 100% on MB or switch to CPAP Flow. Should achieve a saturation of 90% or give flow out on PEEP 10-15/MB

**Intubation?**

- Is the patient looked up to BP set to cycle 30 minutes, EKG, and a pulse oximeter to cycle leader & intubator or 1 minute to watch assigned?

**Is the patient positioned adequately?**

- Eye to elevated notch and face plane parallel to ceiling unless spinal precautions
- If spinal precautions, how plan for collar removal and when established
- Is the head of bed at 30° or in reverse Trendelenburg?

**Is there reliable access?**

- At least one, preferably two, if there is one-drug, please!

**Is the patient prepared for ApOx (No-DESA)?**

- Is a nasal cannula on the patient for oxygen supplementation?
- Is a plan verbalized for who will remove the patient's MB from O2, port and switch to NC @ 21% after machine is pulled or is NC once reliable oxygen obtained?

**Would the patient benefit from pre-intubation NGT?**

**Patient**

**Equipment**

**Do you have a table?**

- All equipment must be on a procedure table, not on the bed or on the patient.

**Is there a BVM hooked up to oxygen set to maximal flow?**

- Is there a PEEP valve if intubation on high-flow is <30%?

**Is waveform capnograph prepared?**

- Tested by blowing and fixed flow for the NIM. Qualitative should be within 5% (even if in its package)

**Is the video laryngoscope set up?**

- All intubations should be performed with a video device if OMAC (inside if resident wants to look at screen), otherwise should be present at bedside

**Is intubation equipment prepared and ready?**

- Two functional laryngoscopes – stored and checked, properly sized and ready. ETT tube with stylet bent in both ends in hooded stick configuration, with syringe attached – lumen checked, 2<sup>nd</sup> tube in package within syringe, tube 35 at syringe, tube-securing device

**Is failed airway equipment prepared and ready?**

- All equipment necessary to effect the failed airway protocol is at bedside. Usually this consists of 2 NPs, a baggie, an appropriate sized A/C/O2, sunglasses and a control of all in their packages

**Is the suction equipment prepared?**

- 2 suction lines on, one at intubator's right hand – tubes to each. Pull on tubing to make sure it's attached to the wall-mounted equipment. All intubator to remember that if suction is needed, they will need to put their finger over the hole

**ACTIVE PPV**

• Cover mouth & nose w/ mask

• Ventilation rate: 40-60/min

• "Head-to, 2, 3"

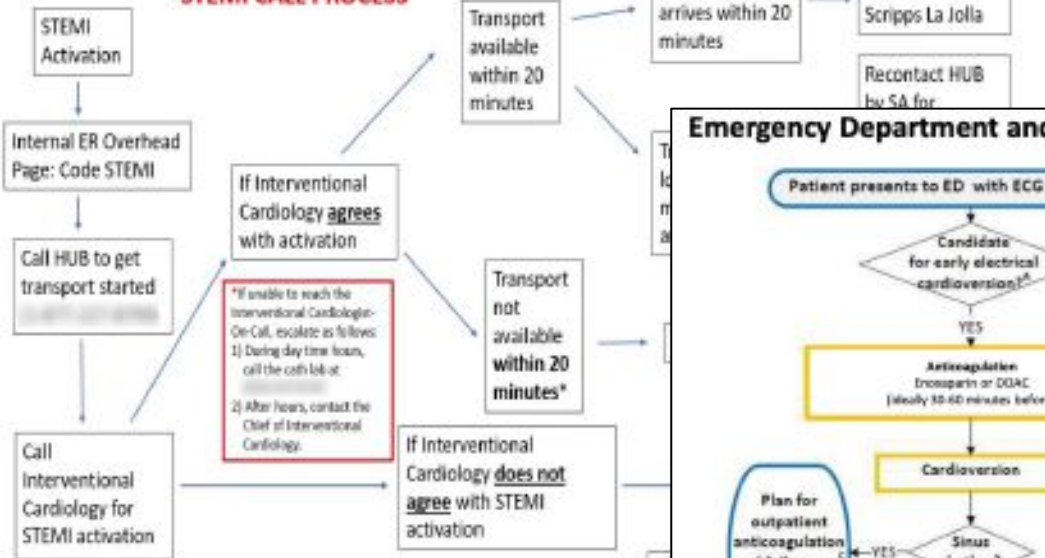
**POSITIVE PRESSURE VENTILATION PPV #2**

**CONTINUING PPV**

• respiratory support as needed (PPV)

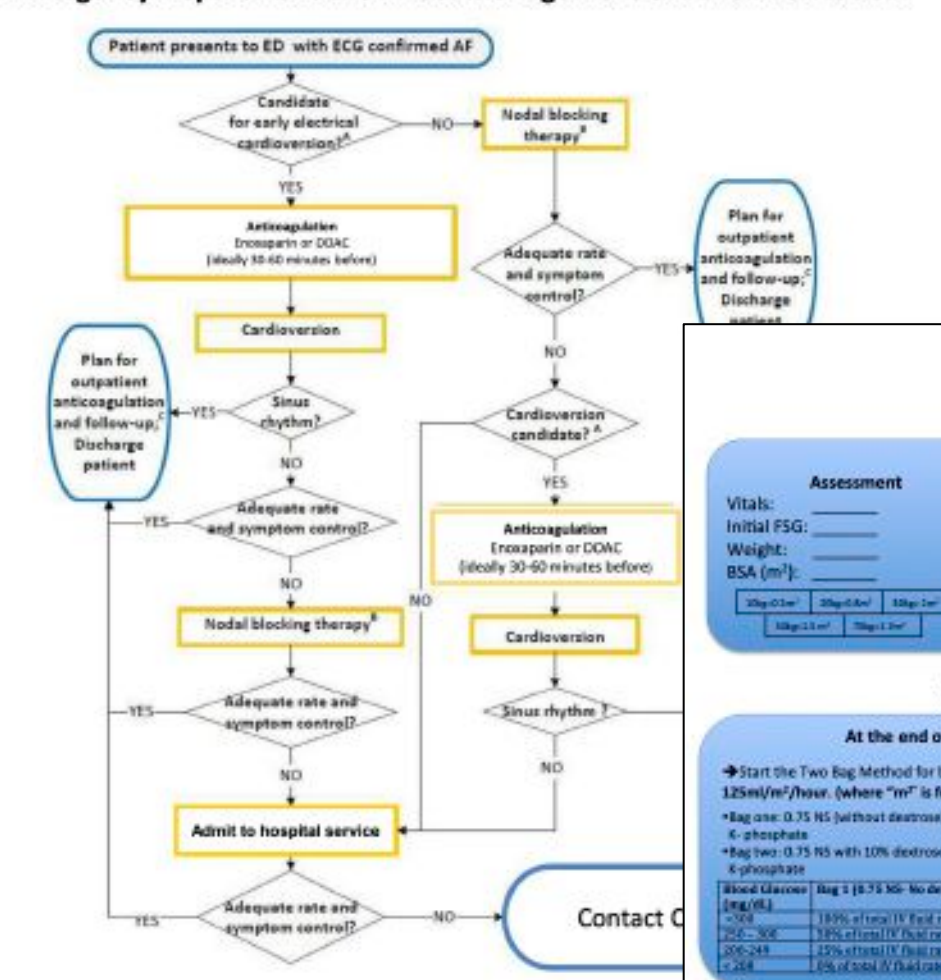
• prepare to give SBAR to NICU team

### STEMI CALL PROCESS

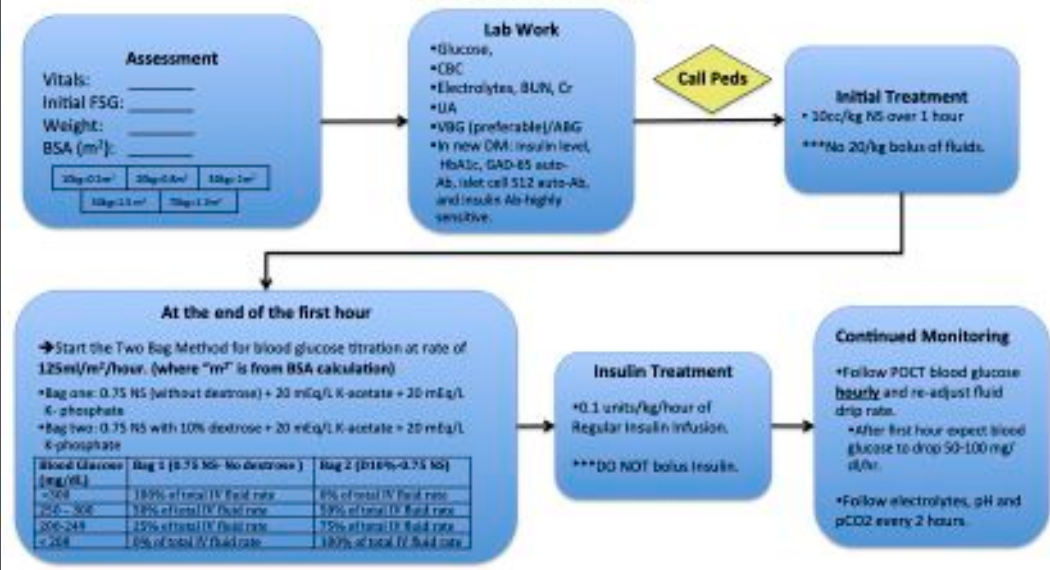


Please see other side for roles details

### Emergency Department and Initial Management of Atrial Fibrillation




### Quick Reference



- The goal of therapy is to have the blood glucose gradually fall to a level of about 200 – 250 mg/dL and then be maintained in this range while the ketoacidosis is resolving as measured by a return to normal of both pH and CO<sub>2</sub> content.
- If D-30 does not maintain blood glucose greater than 200, one may increase the IV dextrose to D 12.5 in bag #2 and then, if necessary, decrease insulin first to 0.05 units/kg/hr, then, if necessary, to 0.03 units/kg/hr. Do not go below this dose of insulin until acidosis is cleared.
- If patient is a newly diagnosed diabetic and not in DKA, IV fluid or IV insulin may not be needed. For these patients, consider starting with a SUBCUTANEOUS regimen. Please call pediatrics and/or pediatric endocrinology (if available) for recommendations.

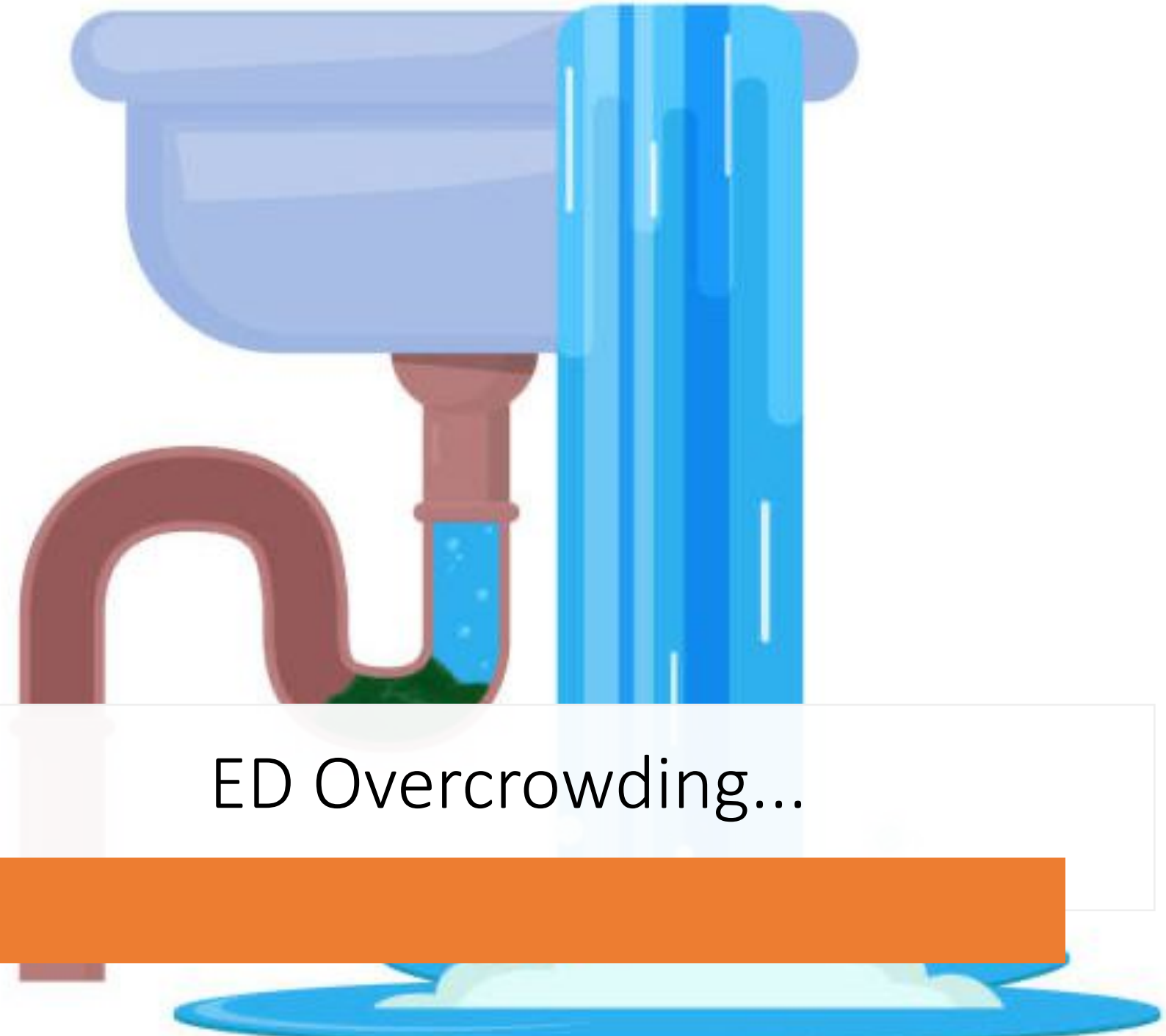




## Kaiser Permanente San Diego Service Level Agreement (SLA)

Title: <b>Management of Intracranial Hemorrhage</b>	Service Level Agreement Number: 24	
Departments Involved: <b>Emergency Medicine, Hospital Medicine, Neurosurgery, Neurology, Neurointerventional Radiology</b>	Effective Date: 12/8/15	Page 1 of 3
Approved by: Inpatient Quality Management Committee	Review Date: Revision Date:	

### Agreement Objective:



ED Overcrowding...



## Sentinel Event Alert

Issue 26 - June 17, 2002  
Delays in treatment

While hospital Emergency Departments (EDs) are the source of just over one-half of all reported sentinel event cases of patient death or permanent injury due to delays in treatment, Joint Commission sentinel event data reveal that such serious problems can occur in any hospital unit, as well as in other health care settings. Of the 55 reported cases of delays in treatment, 29 were ED-related, while 26 cases originated in hospital intensive care units, medical-surgical units, inpatient psychiatric hospitals, freestanding and hospital-based ambulatory care services, the operating room and in the home care setting. Of the 55 cases of delays in treatment, 52 resulted in patient death.



June 17, 2002

50% of sentinel events  
occur in the ED

1/3 related to  
overcrowding



## A Pilot Study Examining Undesirable Events Among Emergency Department–Boarded Patients Awaiting Inpatient Beds

Shan W. Liu, MD, MPH

Stephen H. Thomas, MD, MPH

James A. Gordon, MD, MPA

Azita G. Hamedani, MD, MPH

Joel S. Weissman, PhD

From the Department of Surgery (Liu, Thomas) and Department of Medicine (Gordon), Harvard Medical School, Boston, MA; the Department of Emergency Services, Massachusetts General Hospital, Boston, MA (Liu, Thomas, Gordon); the Division of Emergency Medicine, Department of Medicine, University of Wisconsin School of Medicine and Public Health, Madison, WI (Hamedani); and the Department of Family and Community Medicine, University of Massachusetts, Boston, MA (Weissman).

27.8% had an undesirable event

17.9% missed a relevant home medication

3.3% had a preventable adverse event

ORIGINAL RESEARCH CONTRIBUTION

## The Association Between Length of Emergency Department Boarding and Mortality

### Boarding Time

- <2hrs- 2.5% mortality
- >12 hours- 4.5% mortality

Singer AJ, et al. *Acad Emerg Med*. 2011. PMID: 22168198

Association between waiting times and short term mortality  
and hospital admission after departure from emergency  
department: population based cohort study from Ontario,  
Canada

LOS  $\geq 6$  v  $< 1$  hour:

Adjusted OR for death = 1.79.

Guttmann A, et al. *BMJ*. 2011. PMID: 21632665.

**The association between hospital overcrowding and mortality among patients admitted via Western Australian emergency departments**

Peter C Sprivulis, Julie-Ann Da Silva, Ian G Jacobs, Amanda RL Frazer and George A Jelinek

**The Effect of Emergency Department Crowding on Clinically Oriented Outcomes**

Steven L. Bernstein, MD, Dominik Aronsky, MD, Reena Duseja, MD, Stephen Epstein, MD,

D  
J  
M  
E

**Increase in patient mortality at 10 days associated with emergency department overcrowding**

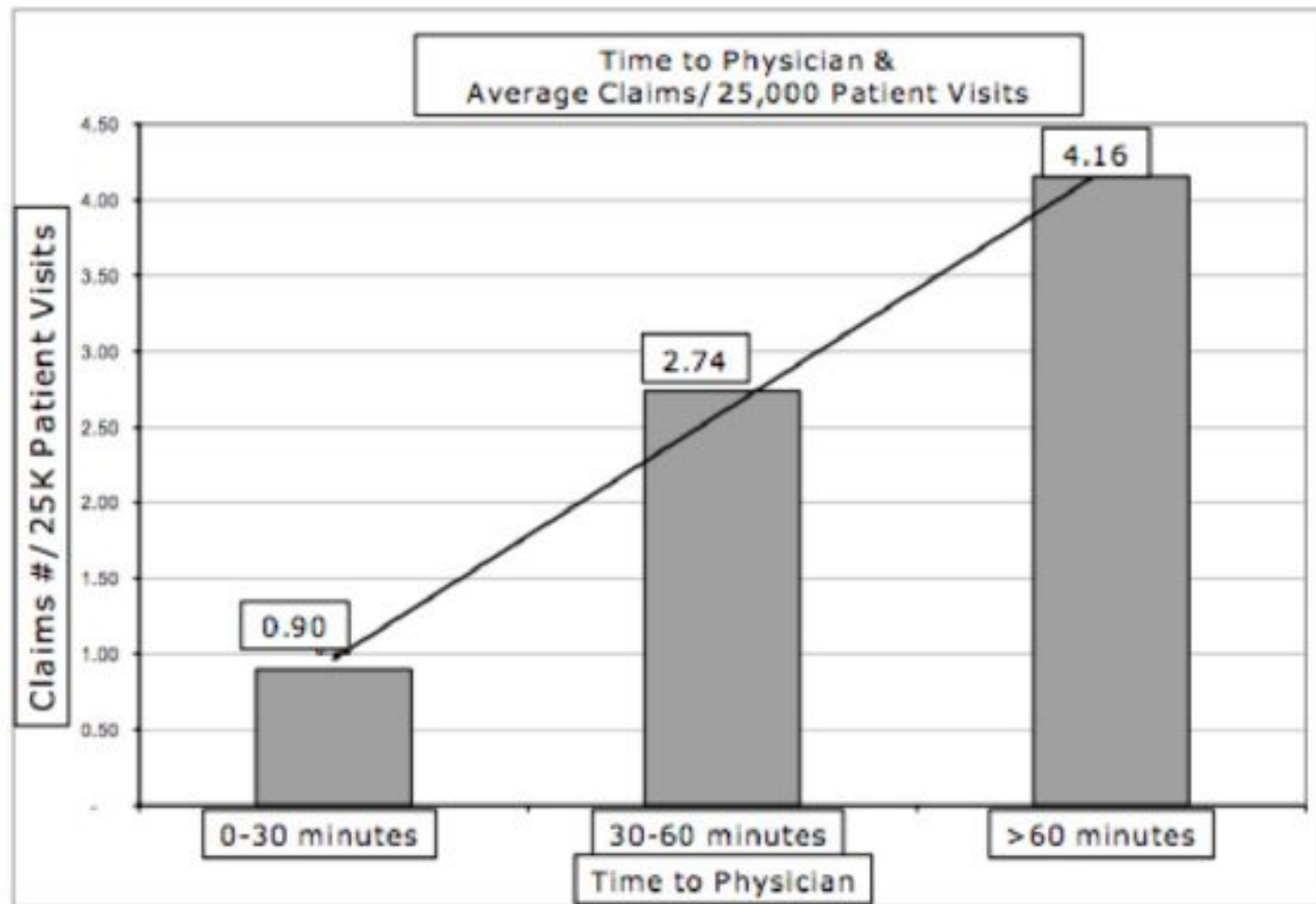
Drew B Richardson

**Impact of delayed transfer of critically ill patients from the emergency department to the intensive care unit\***

Donald B. Chalfin, MD, MS, FCCM; Stephen Trzeciak, MD, MPH; Antonios Likourezos, MA, MPH; Brigitte M. Baumann, MD, MSCE; R. Phillip Dellinger, MD, FCCM; for the DELAY-ED study group



# Time to Doc/Malpractice Claims



Courtesy CEP America Physician Partners, Emeryville, CA, 2006

# ED Solutions



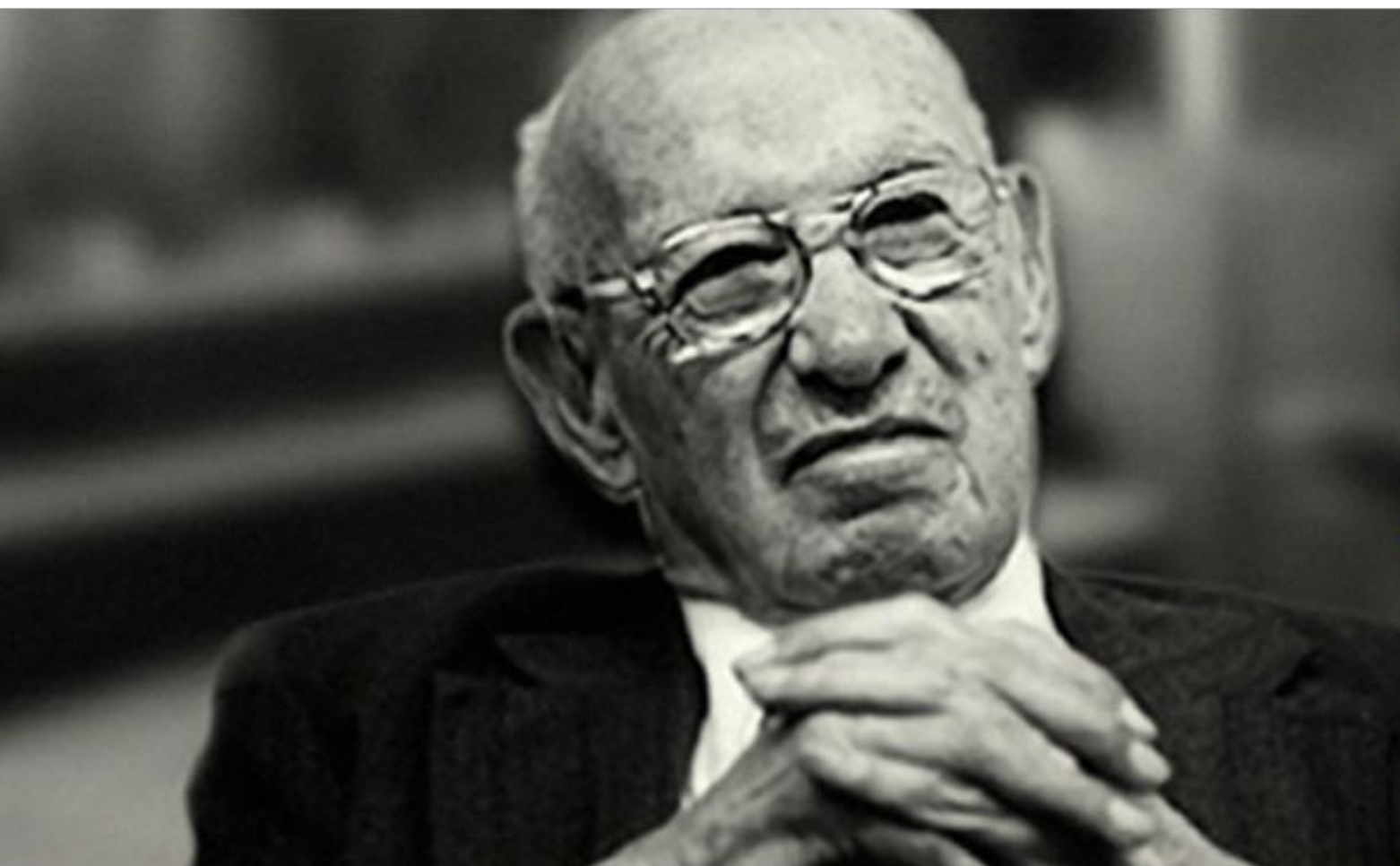
# Hospital Wide Solutions

<b>Strategy</b>	<b>Rationale/effect</b>
<b>Moving boarders to inpatient halls</b>	Places boarders in quieter, less crowded, safer (lower patient-to-nurse ratio) setting while freeing emergency department beds; may actually expedite placement into rooms; demonstrated to be safe
<b>Surgical Smoothing</b>	Distributes procedures evenly over the week to decrease peaks in demand for inpatient beds and need for procedure cancellations; shown to nearly eliminate boarding at Boston Medical Center and elsewhere
<b>Active bed management</b>	“Bed czar” to closely track bed use and address bottlenecks in flow into and out of beds; computerized systems can also often employed
<b>Prioritization by ancillary services</b>	Lab, radiology and housekeeping move ED-related tasks to the top of the list.



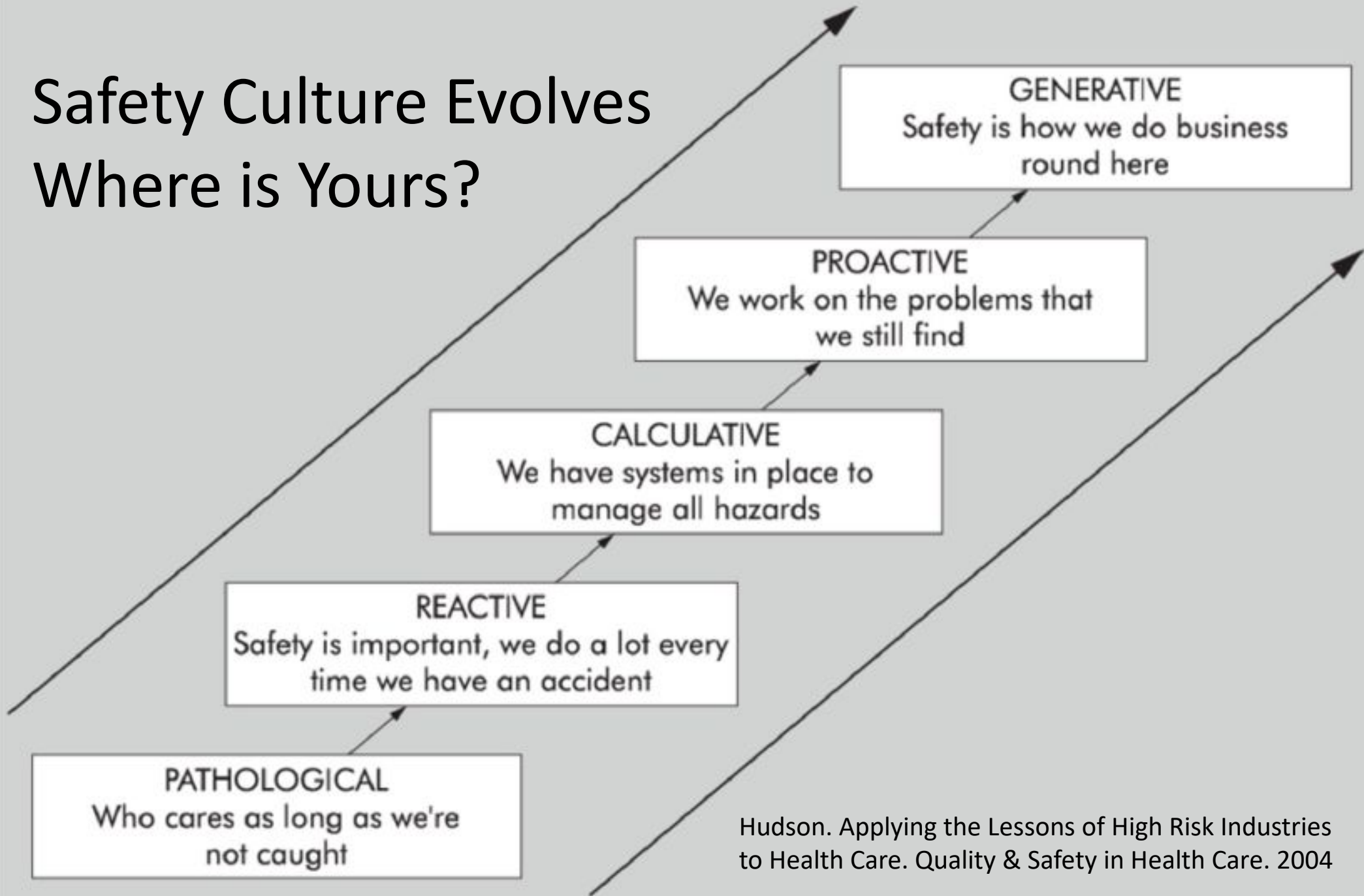
# Hospital Wide Solutions

<b>Strategy</b>	<b>Rationale/effect</b>
<b>Registry Nurses</b>	Staff open beds / sick calls / boarders with registry nurses
<b>Discharge lounge</b>	Often moves to a lounge patients awaiting discharge who no longer need to be in a bed, freeing up beds
<b>Expediting of inpatient discharges</b>	Increases attention to discharge planning from time of admission so that arrangements for home services or outpatient placement are more likely to be in place when the patient is medically ready for discharge
<b>Monitoring of bed-cleaning turnaround time</b>	Improves flow by simple monitoring and accountability



Culture eats  
strategy for  
breakfast.  
- Peter Drucker

# Safety Culture Evolves Where is Yours?



Hudson. Applying the Lessons of High Risk Industries to Health Care. Quality & Safety in Health Care. 2004



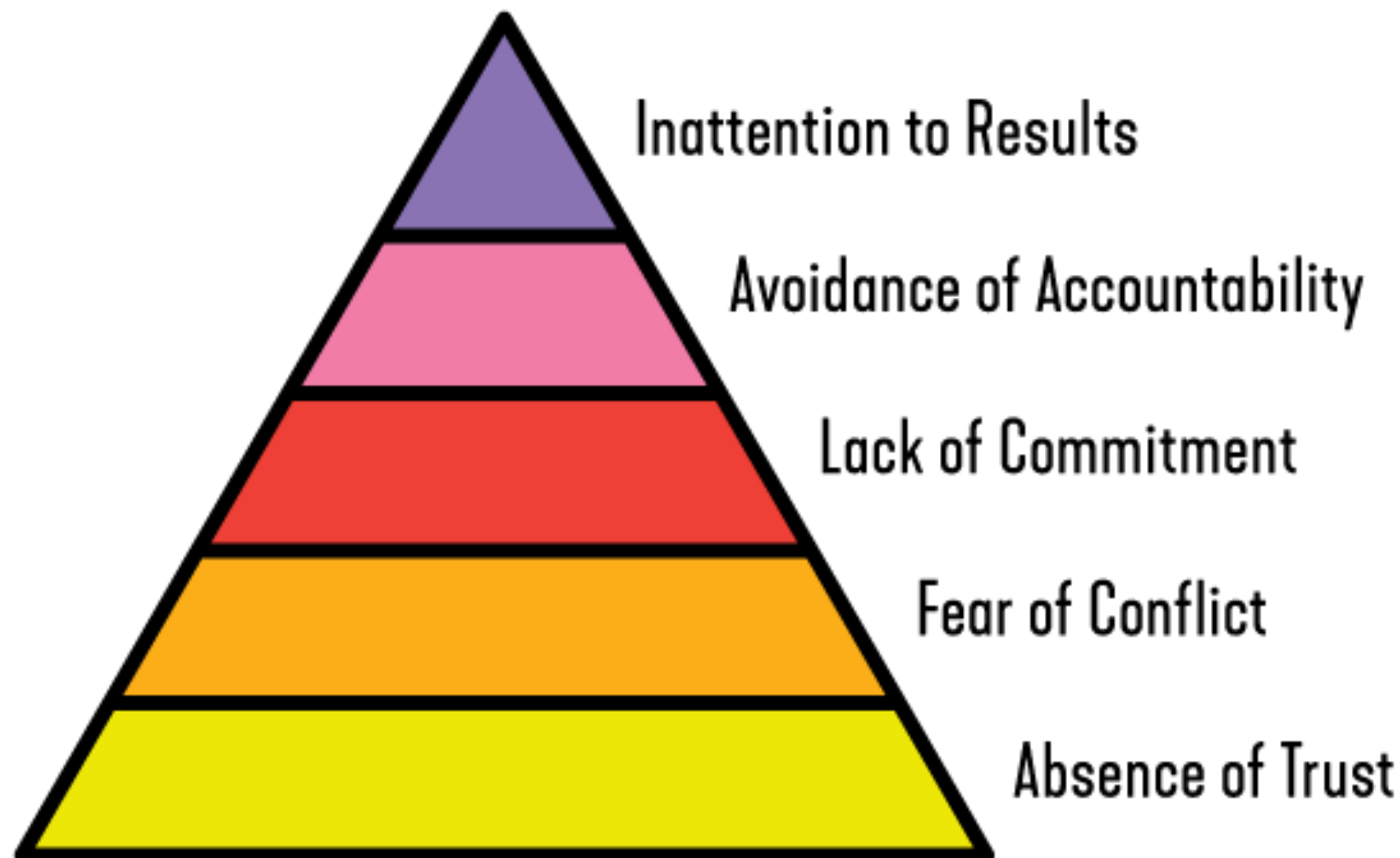
When a plane crashes they ask, 'What happened?'

In medicine they ask: 'Whose fault was it?'

*-James Bagian, M.D. and former astronaut*



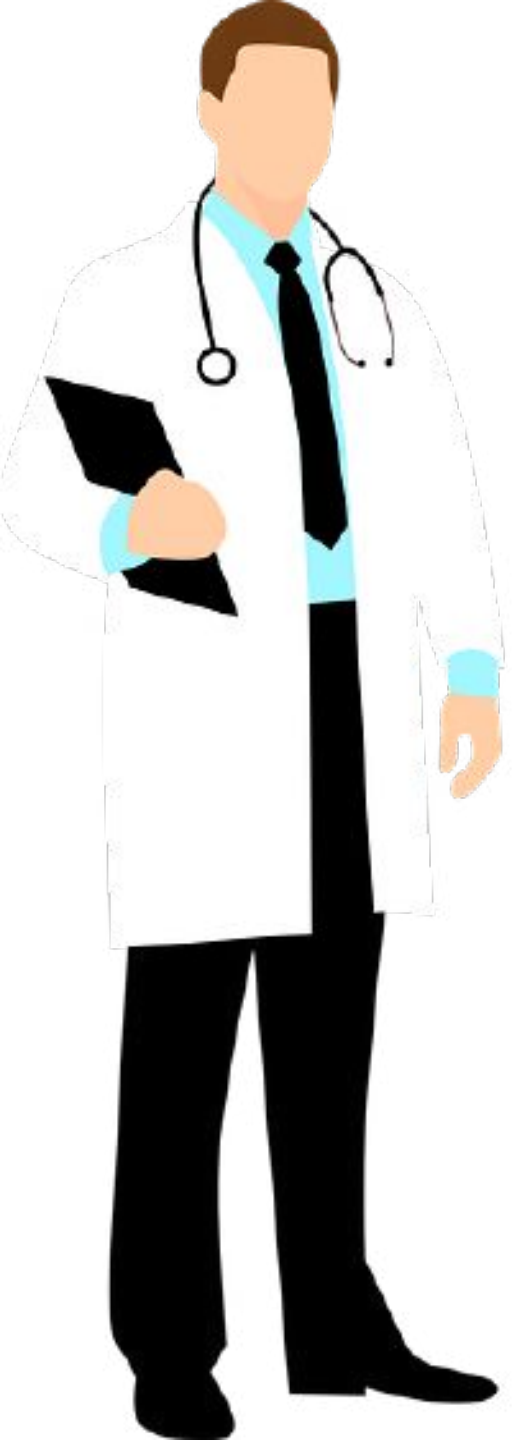
# THE FIVE DYSFUNCTIONS OF A TEAM



based on The Five Dysfunctions of a Team by Patrick Lencioni







## ➤ Patient Safety Leadership WalkRounds™

By using Patient Safety Leadership WalkRounds™ weekly, senior leaders of health care organizations can demonstrate to staff the organization's commitment to building a culture of safety.

- “Can you think of any events that have resulted in **prolonged LOS** for a patient?”
- “Have there been any **near misses**?”
- “Have there been any incidents lately where a **patient was harmed**?”
- “What aspects of the **environment/system** are likely to lead to patient harm?”
- “Is there anything we could do to **prevent** the next adverse event?”
- “How are we actively promoting a **blame-free** culture and working on the development of a blame-free reporting policy?”

## Safety Culture and Workforce Well-Being Associations with Positive Leadership WalkRounds

*J. Bryan Sexton, PhD; Kathryn C. Adair, PhD; Jochen Profit, MD; Jonathan Bae, MD; Kyle J. Rehder, MD; Tracy Gosselin, PhD, RN; Judy Milne, RN; Michael Leonard, MD; Allan Frankel, MD*

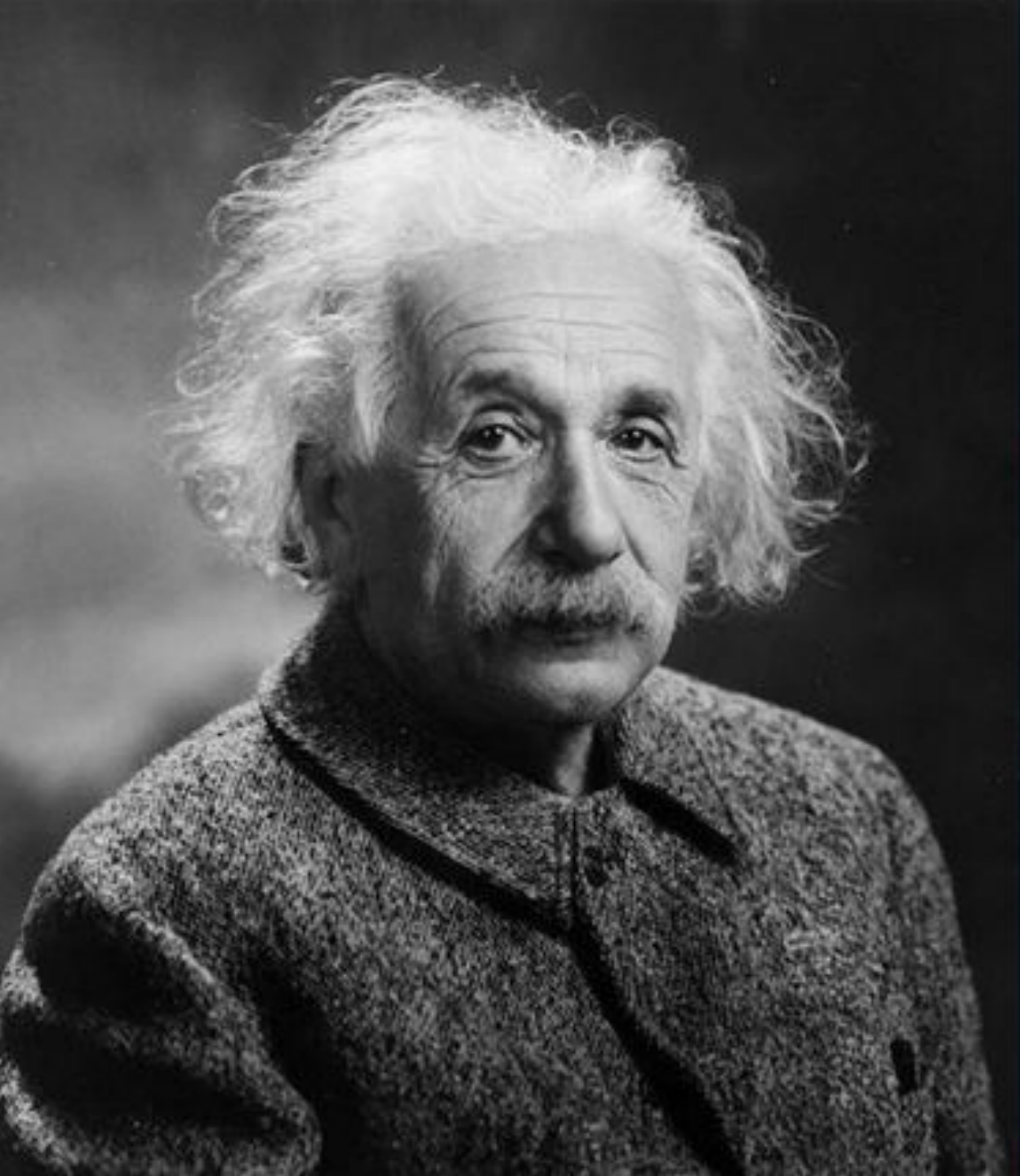
ORIGINAL RESEARCH

**BMJ**  
**QUALITY**  
**& SAFETY**

Providing feedback following Leadership WalkRounds is associated with better patient safety culture, higher employee engagement and lower burnout

J Bryan Sexton, Kathryn C Adair, Michael W Leonard

- Improved safety culture
- Better engagement
- Identify gaps
- Readiness to engage in PI activities
- Improved perception of leadership

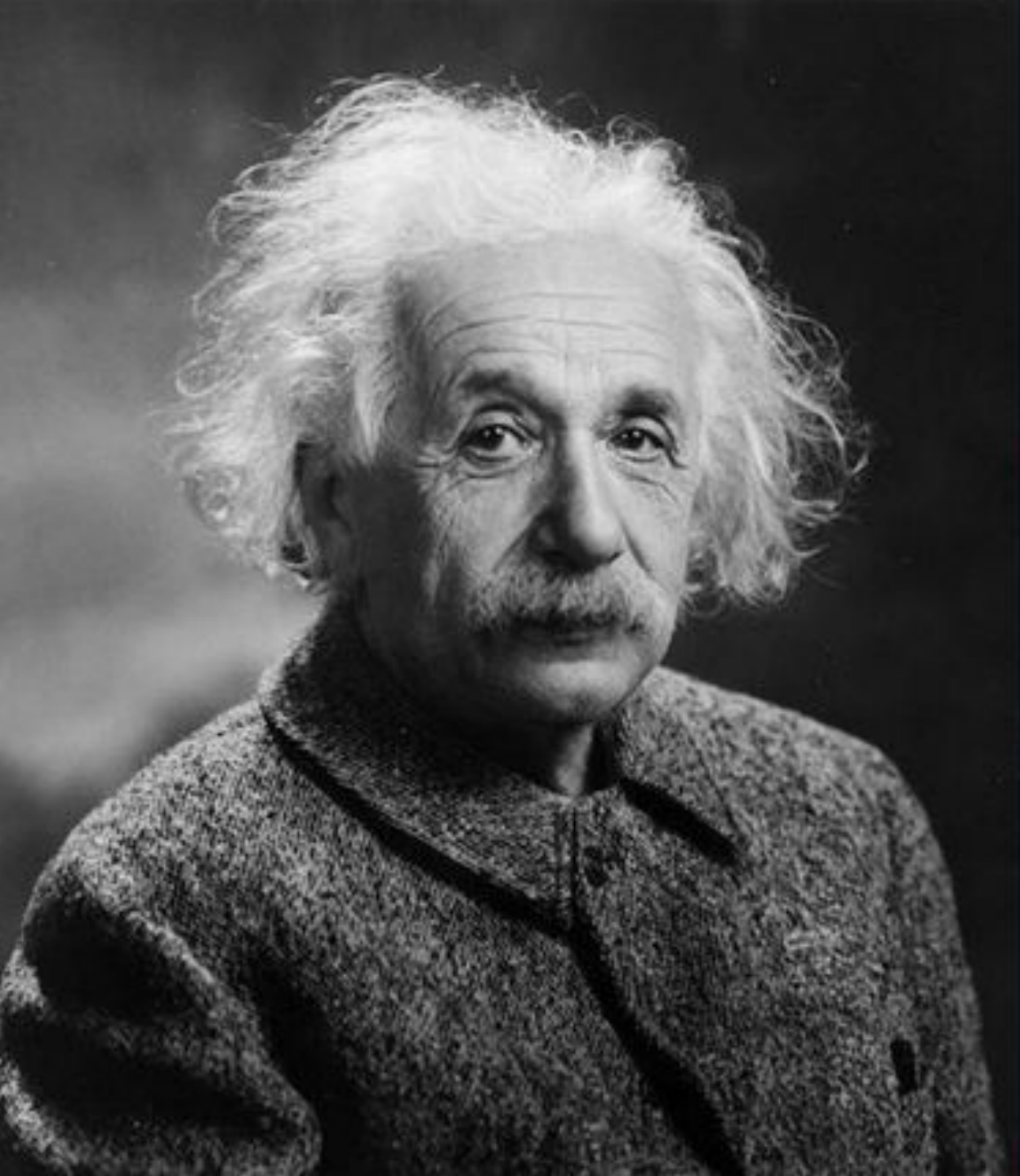


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“Once you stop  
learning, you start  
dying”

~Albert Einstein



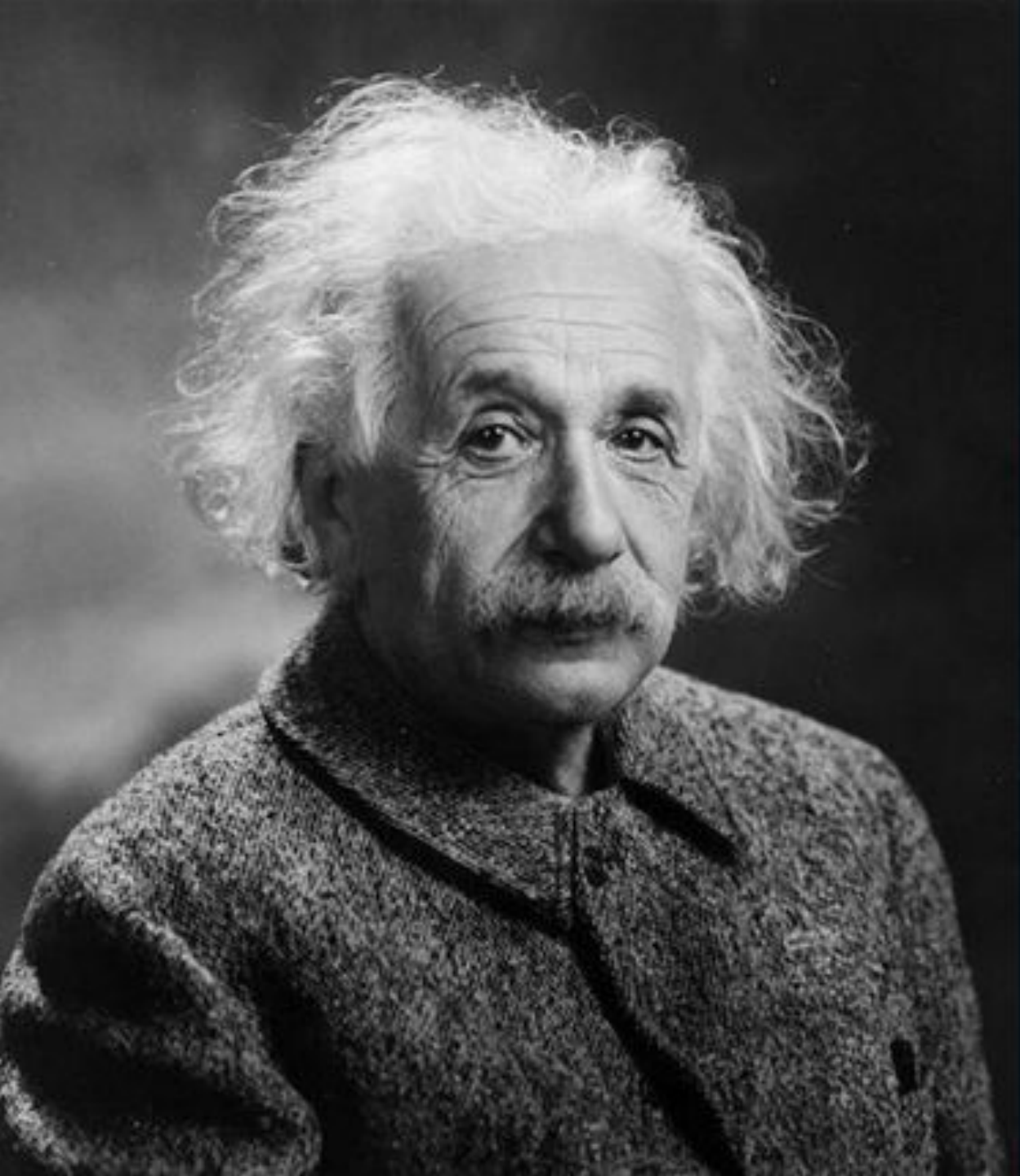


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# CQI and Learning

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- Audit/feedback
- Quality reviews for high-risk diagnoses / procedures:
  - Sedation
  - Stroke
  - Sepsis
  - STEMI
- Peer-review COMMITTEE



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“Once you stop  
learning... your  
patients start  
dying”

~Matt Silver

# Take Home Points

- Given the complex and dynamic environment of the ED, there are many latent failures that exist that can lead to error and harm.
- Overcrowding, gaps in communication, frequent transitions of care, fatigue and burnout and lack of collegiality can undermine safety and lead to error in the Emergency Department.
- Creating a safe and highly reliable organization requires a focus on people, teamwork, communication operations and most importantly culture.