Challenges to Normalizing Healthcare Simulation

Mary D Patterson MD, MEd
Associate Dean and Professor
Lou Oberndorf Professor in Healthcare Technology
Center for Experiential Learning and Simulation
Department of Emergency Medicine
College of Medicine
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UFHealth
UNIVERSITY OF FLORIDA HEALTH

Goals: At the conclusion of this presentation, participants will be able to describe :

1. Current state of healthcare simulation

2. Challenges to implementing healthcare simulation on a large scale

3. Potential opportunities to incentivize simulation implementation

Simulation in Practice

- Most industries that have the risk of losing lives or valuable assets have adopted simulation into their basic business practices
  - Military: training simulations
  - Airlines: flight simulators
  - Financial Planning: computer simulations
  - Nuclear Power: reactor simulators

- Our patients are more complex and more ill than in years past

- Healthcare providers have less experience
  – Work hour restrictions
  – New Graduates

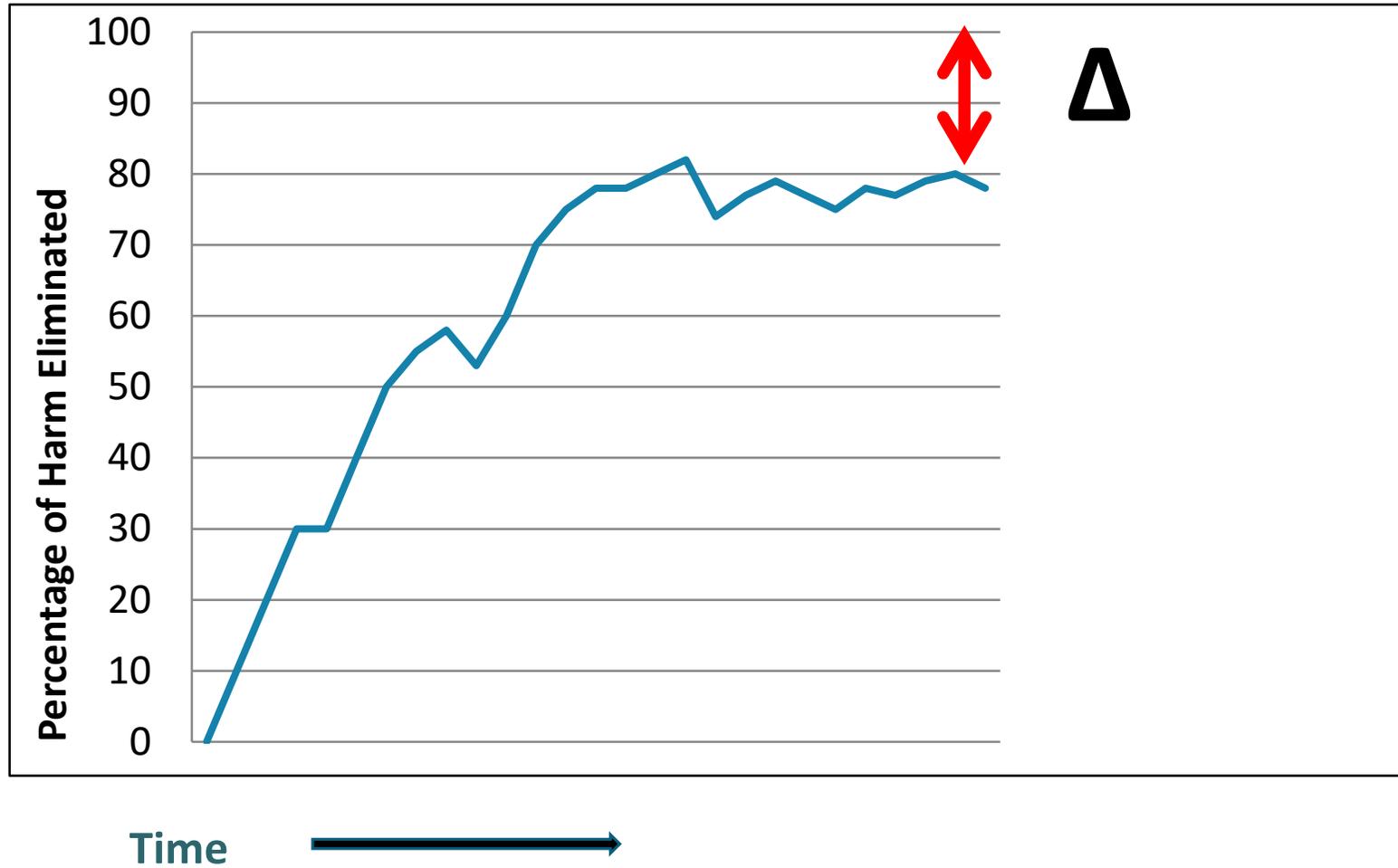- Limited time dedicated to hands on training

In practice….

- Daily work is not practice

- Can't take same risks that occur with deliberate practice
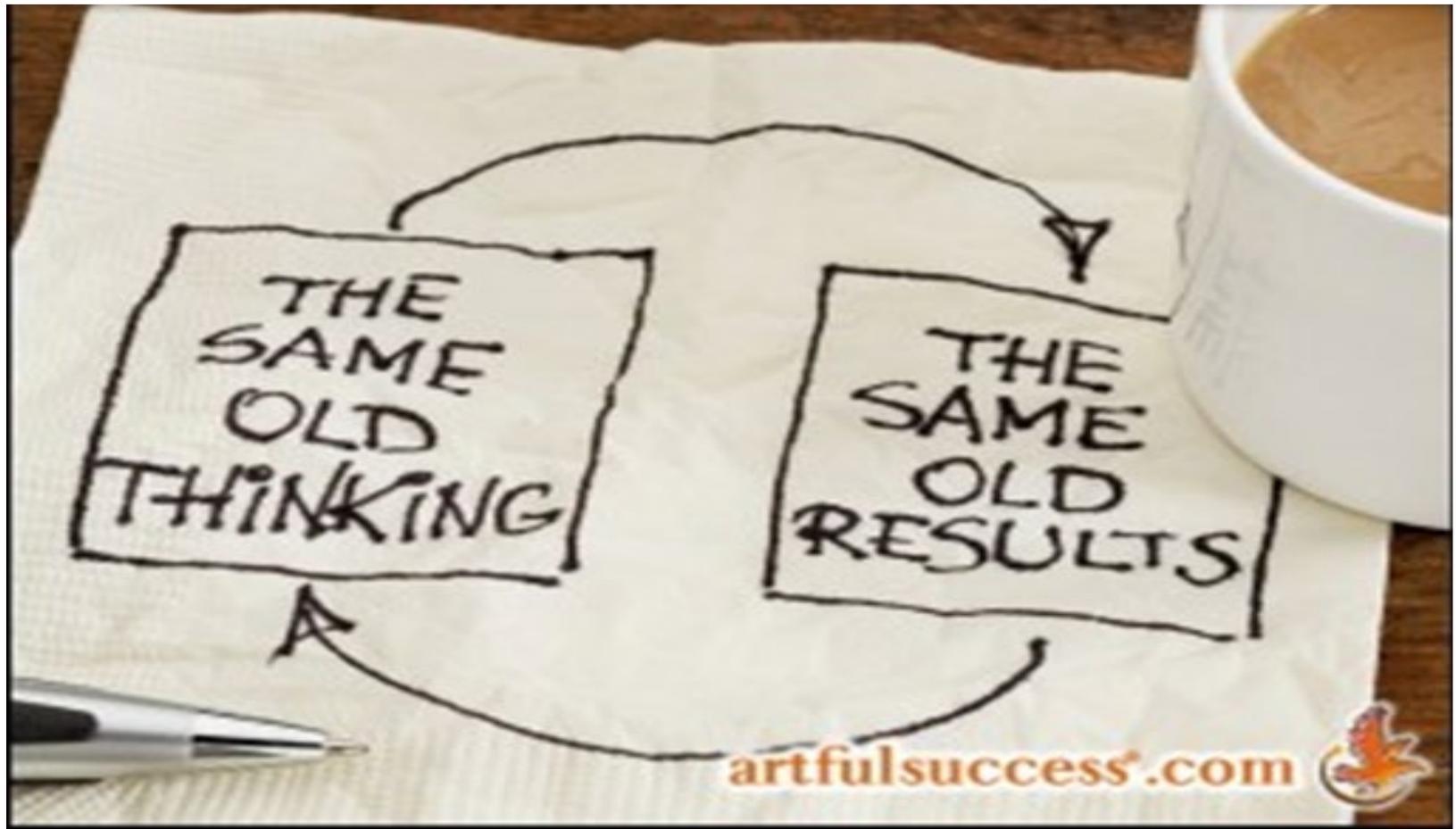
- Feedback may be missing

Elimination of Preventable Harm

Current Status Quo in Healthcare

- Professional silos
- Weak or absent safety culture
- Poor concept of system
- Inefficiency in practice and design

Think Differently

Healthcare is a Complex Adaptive System

Fluid, dynamic changes (similar to biologic systems)

Networks of many agents each of whom constantly act and react to each other

Non-Linear

Control is highly dispersed and decentralized

-Charles Vincent, Patient Safety, also referencing Holland, Mann, Plesk

http://3.bp.blogspot.com/-HIRIBNAIwq4/VHXhZKqaxVI/AAAAAAAAQB8/CeCNVYQpUQw/s1600/coral-reef.png

Risk is constant in our healthcare systems. Goal is to manage risk

- **Work as imagined is different than work as done**
  - Agency influences adaptive capacity

- **Need to make constraints and affordances visible**
  - Increasing policies, procedures, rules limits agency of Frontline Healthcare Workers

- **The tools we use must be suited to our purpose**
  - Standard tools need to be adapted to the context as well as the current state of a system
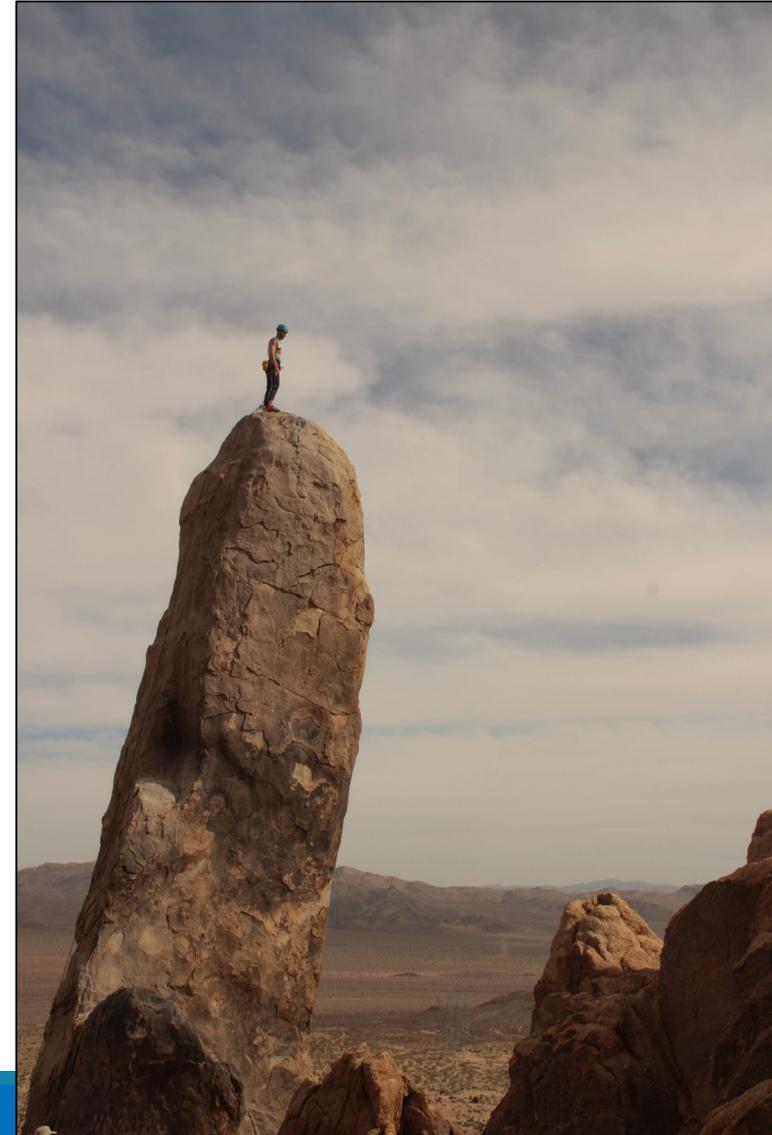
Simulations provide the opportunity for Deliberate Practice of:

• Asking clarifying questions, crosschecking

• Assertive statements, shared mental models, challenging authority gradients,

• High risk/infrequent scenarios

• Managing unexpected events

Simulation Helps us understand risk and how we manage disruptions

- Simulation allows us to see how different individuals, teams respond to and manage the same event

- Identifies system issues but also successful strategies for responding to unexpected demands

Can certain communication techniques, strategies or team behaviors be trained to develop, support and expand adaptive capacity

Simulation is a tool which can:

- Improve the adaptive capacity of
  - Individuals
  - Teams
  - Sociotechnical systems

- Support
  - Decreased cognitive load
  - Improved adaptive capacity
  - Increased margin
    for maneuver

Evidence

Original research

In situ simulation: detection of safety threats and teamwork training in a high risk emergency department

Mary D Patterson,[1,2] Gary Lee Geis,[1,3,4] Richard A Falcone,[5] Thomas LeMaster,[1] Robert L Wears[6,7]

Interdisciplinary ICU Cardiac Arrest Debriefing Improves Survival Outcomes

Heather Wolfe, MD[1]; Carleen Zebuhr, MD[2]; Alexis A. Topjian, MD, MSCE[1];
Akira Nishisaki, MD, MSCE[1]; Dana E. Niles, MS[1]; Peter A. Meaney, MD, MPH[1];
Lori Boyle, RN, BSN, CCRN[1]; Rita T. Giordano, RRT-NPS[1]; Daniela Davis, MD, MSCE[1];
Margaret Priestley, MD[1]; Michael Apkon, MD[1]; Robert A. Berg, MD[1]; Vinay M. Nad... MD MSC...
Robert M. Sutton, MD, MSCE[1]

Simulation to Assess the Safety of New Healthcare Teams and New Facilities

Gary L. Geis, MD;
Brian Pio, BA, EMT-P;
Tiffany L. Pendergrass, RN, BSN;
Michael R. Moyer, MS;
Mary D. Patterson, MD, MEd

Introduction: Our institution recently opened a satellite hospital including a pediatric emergency department. The staffing model at this facility does not include residents or subspecialists, a substantial difference from our main hospital. Our previous work and published reports demonstrate that simulation can identify latent safety threats (LSTs) in both new and established settings. Using simulation, our objective was to define optimal staff roles, refine scope of practice, and identify LSTs before facility opening. **Methods:** Laboratory simulations were used to define roles and scope of practice. After each simulation, teams were debriefed using video recordings. The National Aeronautics and Space Administration-Task Load Index was completed by each participant to measure perceived workload. Simulations were scored for team behaviors by video reviewers using the Mayo High Performance Team Scale. Subsequent in situ simulations focused on identifying LSTs and monitoring for unintended consequences from changes made.

High-reliability emergency response teams in the hospital: improving quality and safety using in situ simulation training

Derek S Wheeler,[1,2,3] Gary Geis,[2,4,5] Elizabeth H Mack,[6] Tom LeMaster,[5]
Mary D Patterson[7,8]

The Joint Commission Journal on Quality and Patient Safety

Teamwork and Communication

Didactic and Simulation Nontechnical Skills Team Training to Improve Perinatal Patient Outcomes in a Community Hospital

William Riley, Ph.D.; Stanley Davis, M.D.; Kristi Miller, R.N., M.S.; Helen Hansen, Ph.D., R.N.; Francois Sainfort, Ph.D.; Robert Sweet, M.D.

Simulation-based mock codes significantly correlate with improved pediatric patient cardiopulmonary arrest survival rates*

Pamela Andreatta, PhD; Ernest Saxton, BSN; Maureen Thompson, MSN; Gail Annich, MD

Objective: To evaluate the viability and effectiveness of a simulation-based pediatric mock code program on patient outcomes, as well as residents' confidence in performing resuscitations. A resident's leadership ability is integral to accurate and efficient clinical response in the successful management of cardiopulmonary arrest (CPA). Direct experience is a contributing factor to a resident's code team leadership ability; however, opportunities to gain experience are limited by relative infrequency of pediatric arrests and code occurrences when residents are on service.

Results: Survival rates increased to approximate... correlating with the increased number of mock cod... results are significantly above the average national vival rates and held steady for 3 consecutive years, stability of the program's outcomes. *Conclusions:* This study suggests that a simul... code program may significantly benefit pediatric comes—applied clinical outcomes—not simply value, increased confidence, or simulation-based e...

Original research

Impact of multidisciplinary simulation-based training on patient safety in a paediatric emergency department

Mary D Patterson,[1,2] Gary L Geis,[1,3,4] Thomas LeMaster,[1] Robert L Wears[5,6]

One size does not fit all: Tools need to be context specific
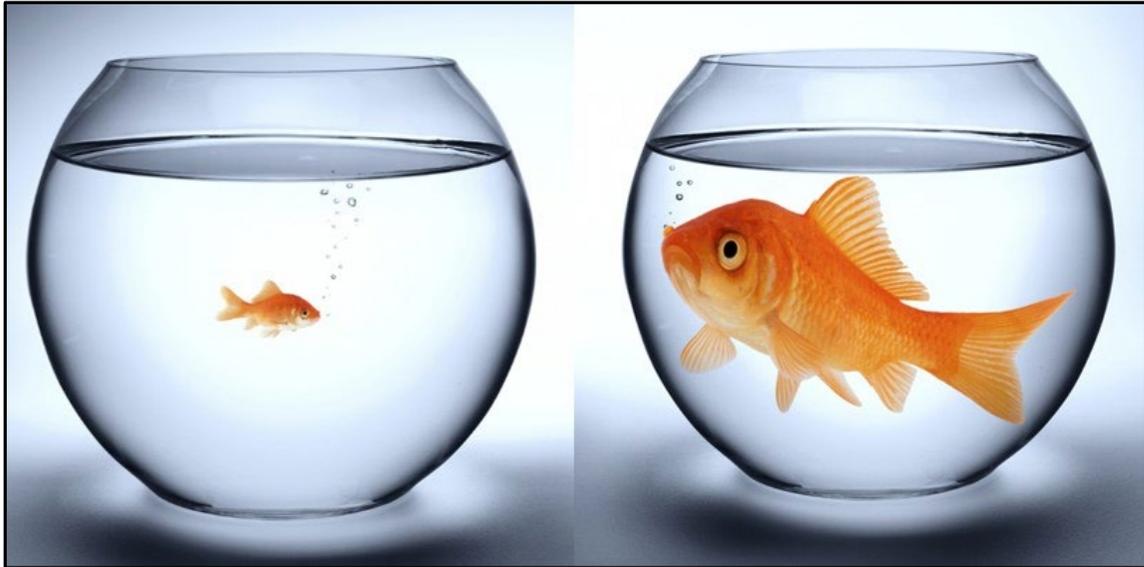
- The tools and strategies that we use, need to be adapted to our purpose and our work

- Standard tools (including standard safety tools) need to be adapted to the particular context in which they are used

In Situ Simulations: "Crash testing the dummy"

Identification of latent hazards/systems issues

New and existing environments

Equipment/Resources

Teams

WORK AS IMAGINED

How rules dictate work is done

GAP

WORK AS DONE

Everyday work: How work IS being done

*Adapted from: Ivan Pupulidy*

Work as imagined
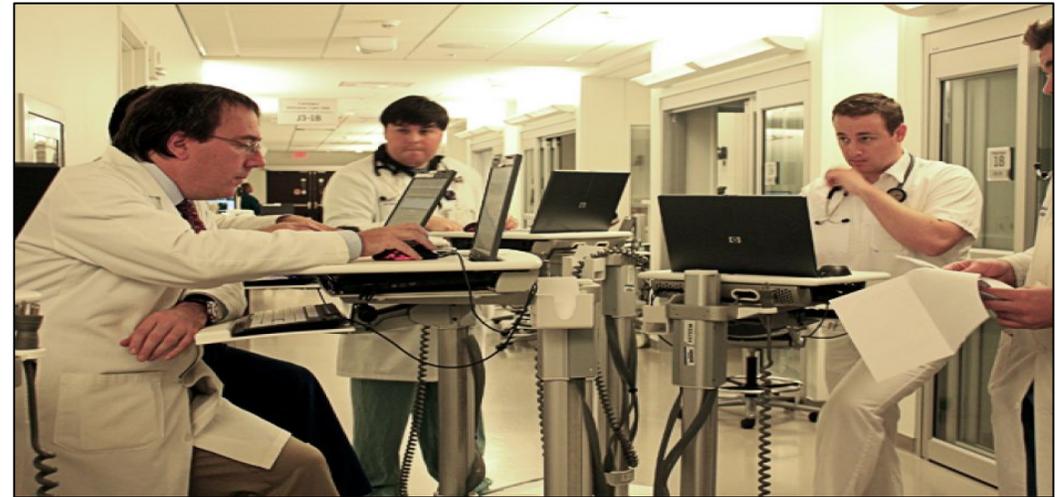
VS

Work as done

Debriefing uncovers the knowledge and skills of team members

- May be previously unknown to other team members
  -Often segregated by role

- Surfaces during the simulation and debriefing

- Emergence of previously unknown information enhanced by psychological safety

- Understanding team members' knowledge and skills provides insight into system capabilities and limitations

How do different teams handle the same event?

- Simulation allows us to see how different individuals, teams respond to and manage the same event

- Identifies poor design, system issues

- We need to understand why it made sense to them, because if it made sense to them it may well make sense to others

Dekker, Field Guide to Understanding Human Error, 2006
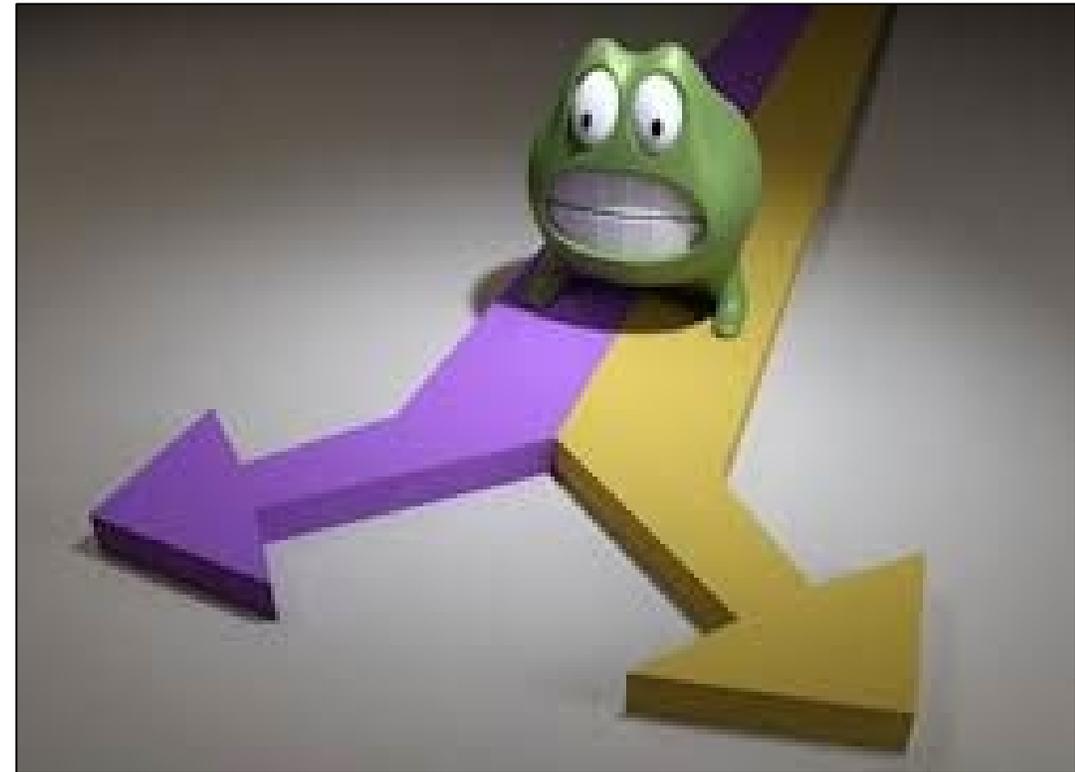
Paradigm shift

- Easiest to react to bad outcomes

- How do we replace complacency with urgency?
  - Proactive Approach

- How can we integrate this approach into the fabric of hospital structure and system?
  - **Not a one and done-but ongoing deliberate practice requirements**
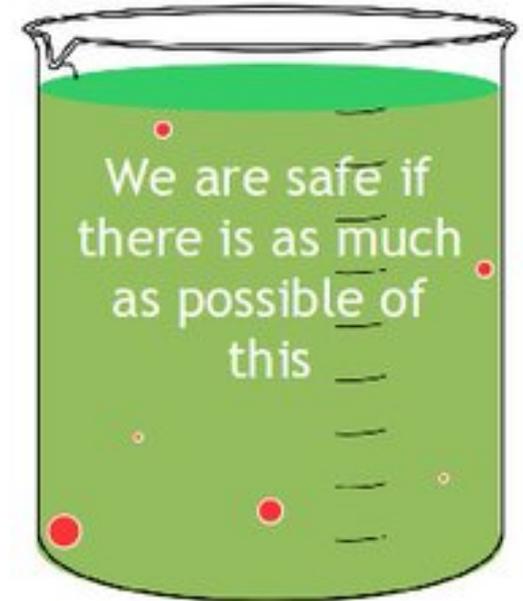
OH WOW!
PARADIGM SHIFT!

Opportunities

- Detect errors, reduce the negative consequences of errors and recover from errors,

- Systematically reproduce good performance under varying conditions

- Consider variations as a necessary part of any socio-technical system.

Safety-II:
Productive safety

We are safe if there is as much as possible of this

Support, augment, facilitate. Safety, quality, etc. are inseparable and need matching measures and methods.

How and what we train, at least in part, (should be) determined by frontline experts.   Examples:

- During simulation training for critical cases, the medical team leader was trained to explicitly share the mental model of the patient's condition and next steps and to update the mental model every 3-5 minutes

- Nurses voiced that this was extremely helpful to them as it enabled them to anticipate what medications, resources, procedures were likely to be needed in the next few minutes

- Incorporated as common behavioral expectation

How do we normalize the use of simulation in Healthcare?

Simulation Training Provides a High Return on Investment

University of Pittsburgh noted a substantial decrease in claims for airway mishaps after instituting their simulation courses for all personnel who manage airways in their system.

Claims have decreased from approximately two dozen a year to less than ten claims since.
- Michael DeVita, University of Pittsburgh

Simulation Training Provides a High Return on Investment

Harvard noted a 50% decrease in malpractice claims for anesthesiologists that have attended a simulation-based risk reduction course.

◦ Luke Sato, Harvard Risk Management Foundation

Beth Israel in Boston decreased the number of adverse events in obstetrics by 50% since they instituted a simulation-based risk reduction program.

◦ Luke Sato, Harvard Risk Management Foundation

Despite increased and increasing evidence for the effectiveness of Simulation

- AHRQ eliminated funding for the program focused on Simulation and Safety in December 2018

- Termination of the only non-DoD source of federal multiyear funding for simulation research is a major blow to our community

Prepublication Requirements

The Joint Commission

• Issued August 21, 2019 •

New Standards for Perinatal Safety

The Joint Commission has approved the following revisions for prepublication. While revised requirements are published in the semiannual updates to the print manuals (as well as in the online E-dition®), accredited organizations and paid subscribers can also view them in the monthly periodical The Joint Commission Perspectives®. To begin your subscription, call 800-746-6578 or visit http://www.jcrinc.com.

Please note: Where applicable, this report shows current standards and EPs first, with deleted language struck-through. Then, the revised requirement follows in bold text, with new language underlined.

APPLICABLE TO THE HOSPITAL ACCREDITATION PROGRAM

Effective July 1, 2020

Provision of Care, Treatment, and Services (PC) Chapter

Joint Commission requirement for Obstetric "drills"

A Few Modest Proposals

Center for Medicare and Medicaid Services
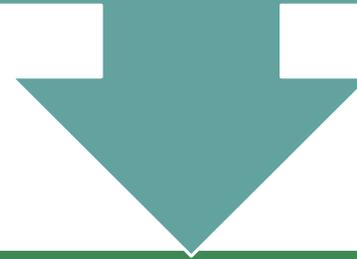
- Resident Training subsidy

- Higher subsidies for programs that integrate simulation training

- Link to performance, process, outcomes

Commercial Insurance

Already negotiate reimbursement rates with Healthcare organizations

Propose: More favorable reimbursement rates for Healthcare Organizations that integrate ongoing simulation training
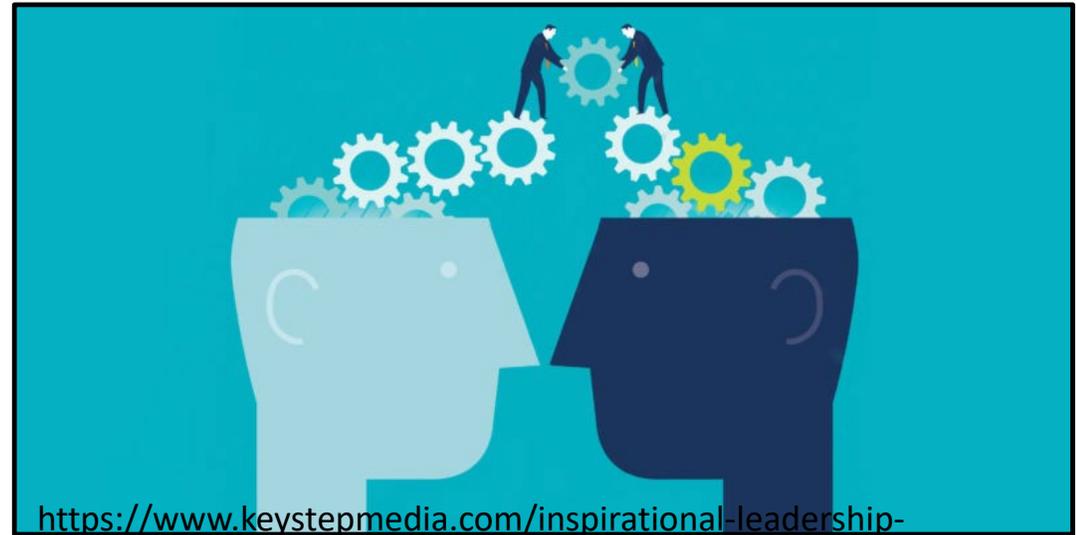
Process, Behavior, Patient Outcomes

Simulation Community Responsibilities

- Excellence in Simulation training development and delivery

- Training that is valid, relevant and delivered in psychologically safe environment

- Robust evaluations of effectiveness

To Make Patient Care Safer

We need to move from the 'whack-a-mole', approach which reacts to each adverse event, to one built on an understanding of how care is delivered under difficult and varying conditions.

https://www.keystepmedia.com/inspirational-leadership-understanding-esi/

Resilient health care: turning patient safety on its head. JEFFREY BRAITHWAITE1, ROBERT L. WEARS2,3, and ERIK HOLLNAGEL International Journal for Quality in Health Care, 2015, 1–3

HEALTHCARE WORKERS ARE NOT THE PROBLEM

◦People in Safety Critical Jobs are generally motivated to stay alive, to keep their passengers, patients and customers alive

◦They do not go out of their way to deliver overdoses or fly into mountainsides

◦In the end what they are doing makes sense to them at that time.

Dekker, Field Guide to Understanding Human Error, 2006
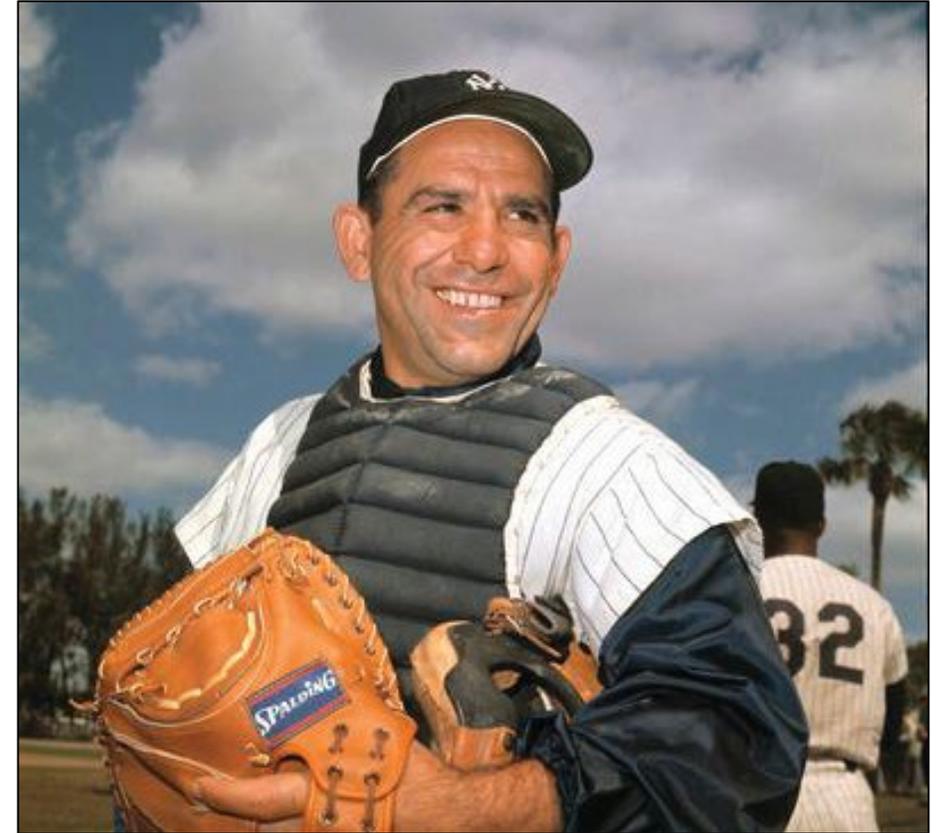
To Make Patient Care Safer

There is a need to move away from the healthcare worker as superhero and towards a perspective that supports the actual work we do everyday
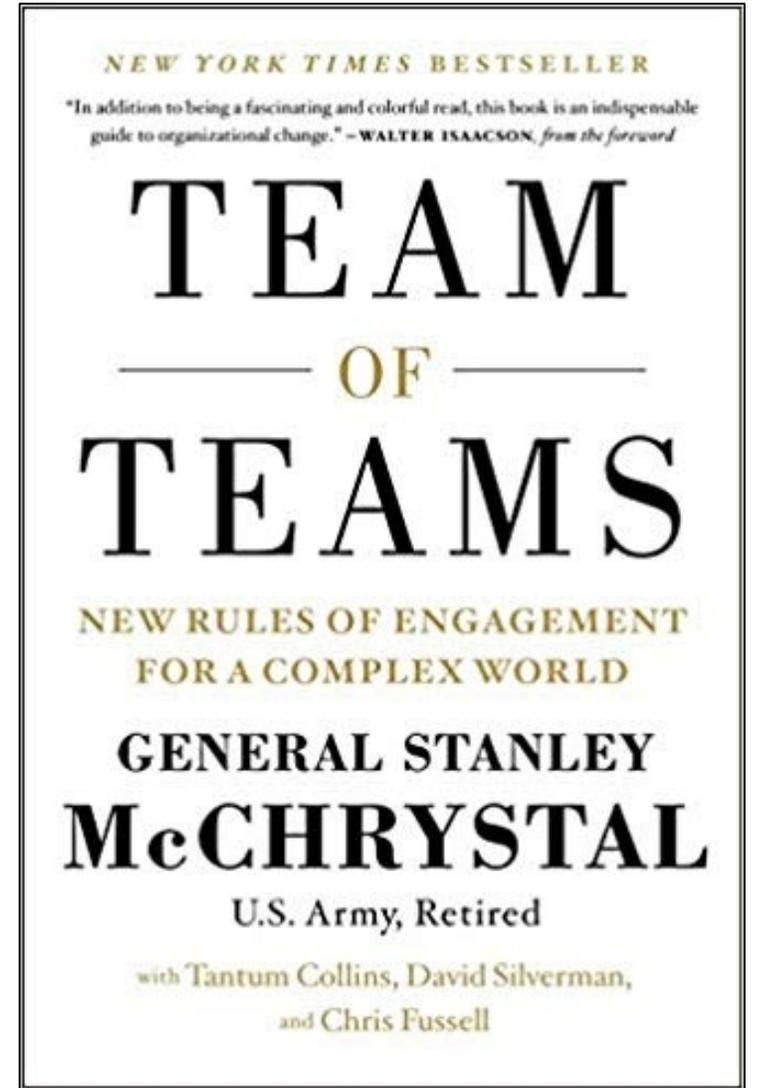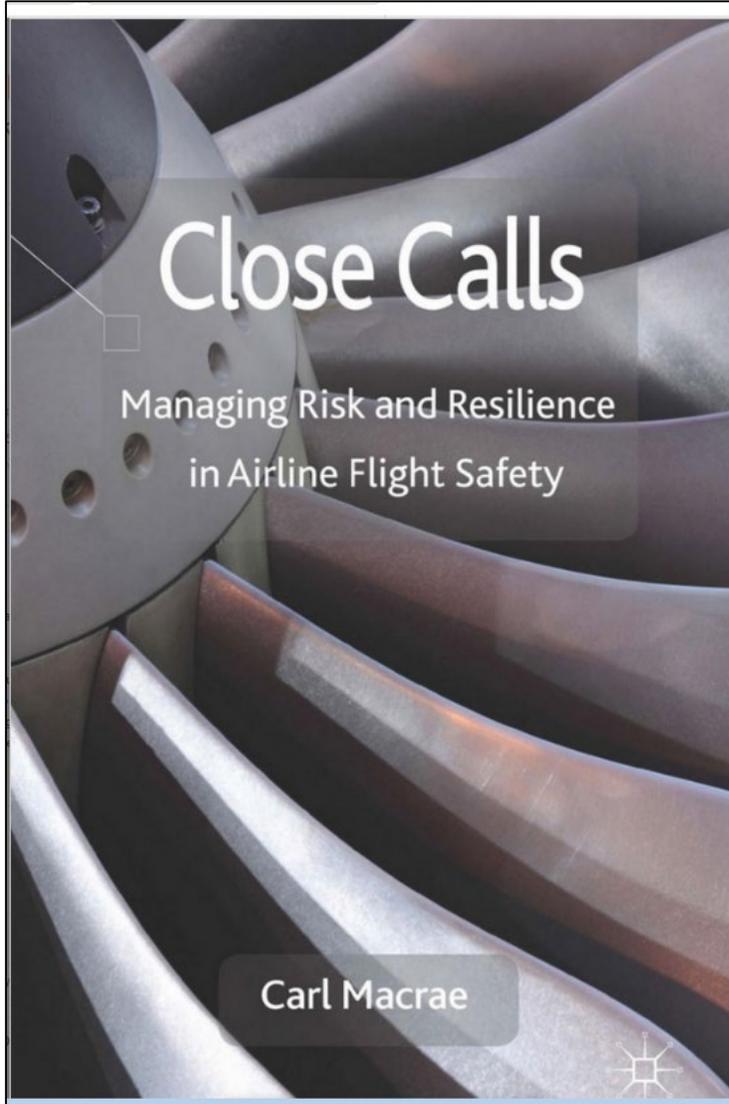
Thank you for your attention

"In theory there's no difference between theory and practice.
In practice there is."
                                    -Yogi Berra

Close Calls

Managing Risk and Resilience in Airline Flight Safety

Carl Macrae

"In addition to being a fascinating and colorful read, this book is an indispensable guide to organizational change." —WALTER ISAACSON, *from the foreword*

TEAM
— OF —
TEAMS

NEW RULES OF ENGAGEMENT FOR A COMPLEX WORLD

GENERAL STANLEY McCHRYSTAL

U.S. Army, Retired

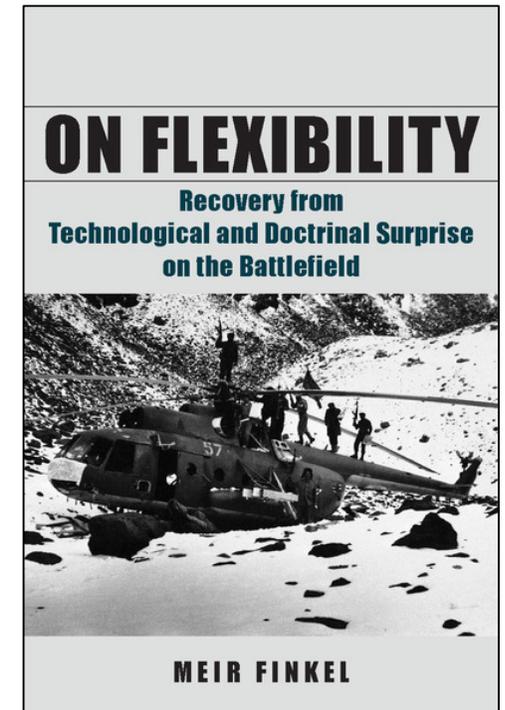with Tantum Collins, David Silverman, and Chris Fussell

To square training with the reality of war, it becomes a necessary part of ...training to install in him the full realization that ...many things will go wrong without it being anyone's fault in particular

It therefore follows that the far object of a training system is to prepare the officer mentally so that he can cope with the unusual and the unexpected as if it were altogether normal and give him poise in a situation where all else is in disequilibrium

-SLA Marshall. Men Against Fire. 1947

ON FLEXIBILITY
Recovery from Technological and Doctrinal Surprise on the Battlefield

MEIR FINKEL

Debriefing uncovers the knowledge and skills of team members

• May be previously unknown to other team members

   -Often segregated by role

• Surfaces during the simulation and debriefing

• Emergence of previously unknown information enhanced by psychological safety

• Understanding team members' knowledge and skills provides insight into system capabilities and limitations

Source: ACHE/NPSF

VIEWPOINT

Managing risk in hazardous conditions: improvisation is not enough
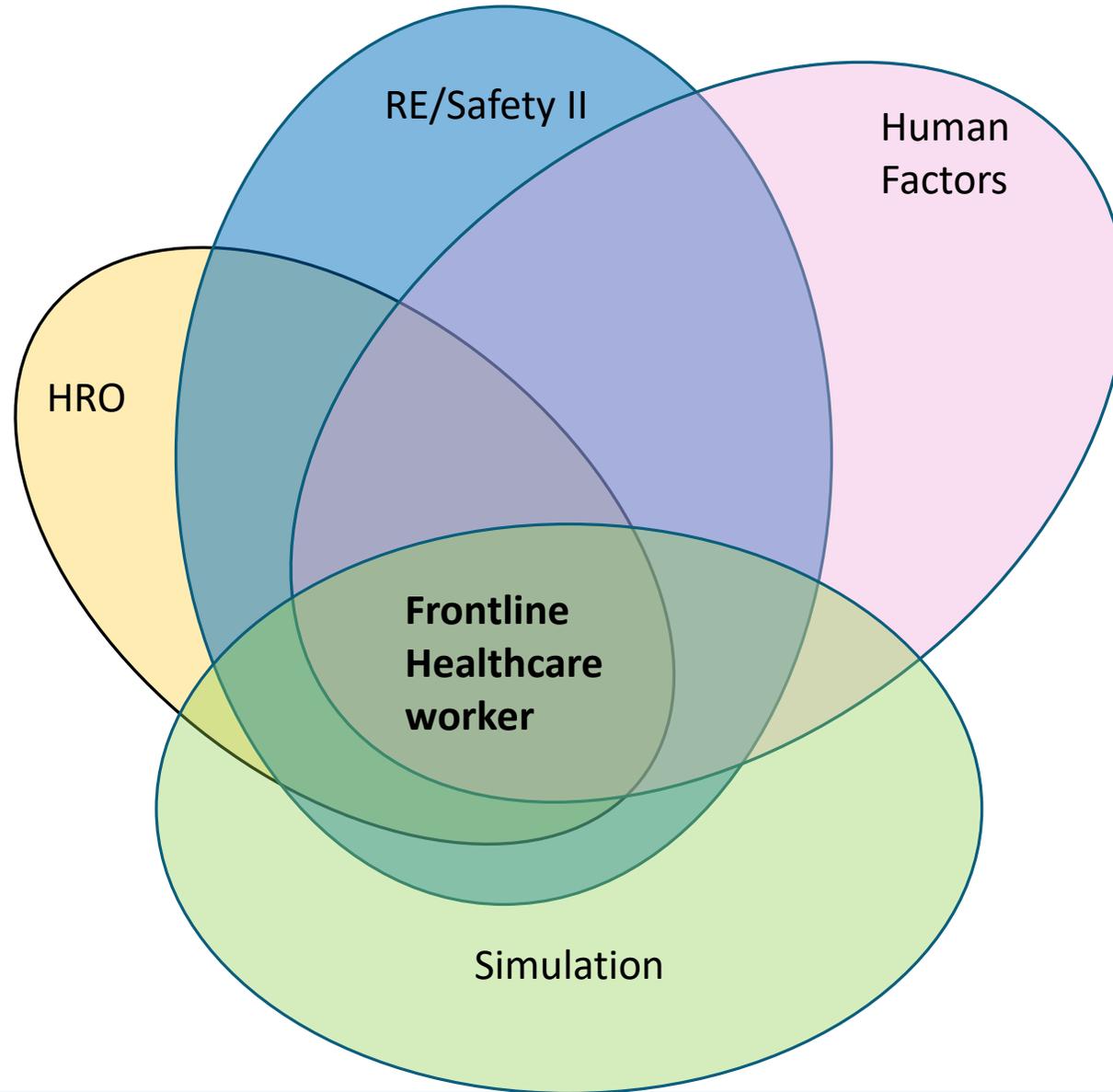
Rene Amalberti,[1] Charles Vincent[2]

EDITORIAL

The harms of promoting 'Zero Harm'

Eric J Thomas

Safety I and Safety II

Safety I
What goes wrong

Defined by failure
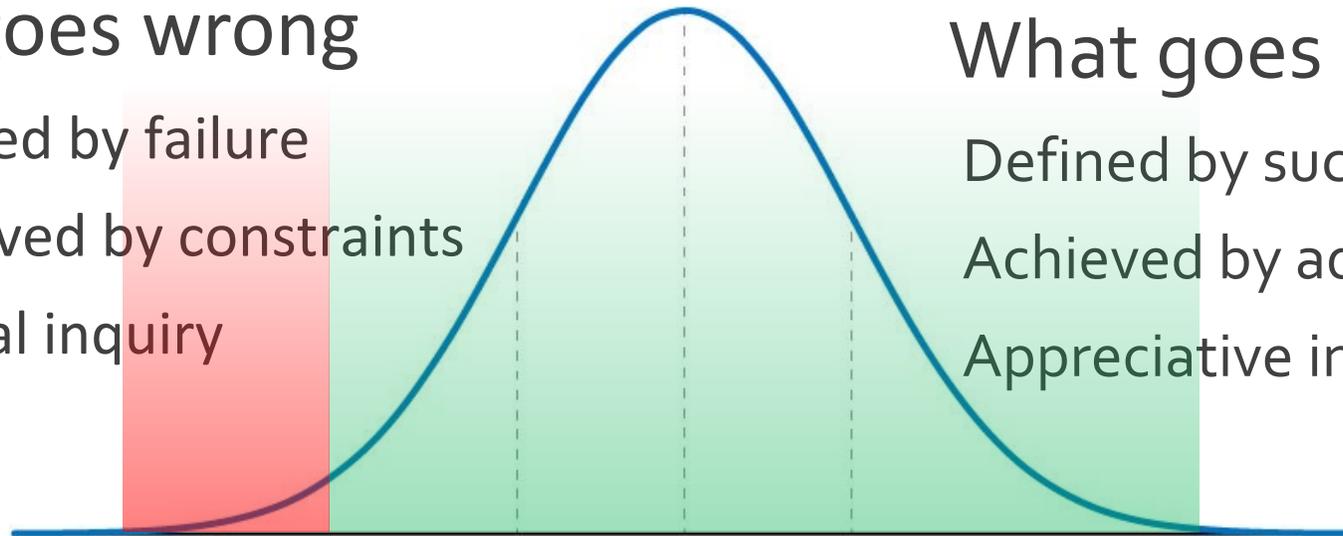
Achieved by constraints

Critical inquiry

Safety II
What goes right

Defined by success

Achieved by adaptability

Appreciative inquiry

*Hollnagel, Wears,
Braithwaite, 2015*
Graphic: ©2016 ECRI Institute

Examples

- What enhances team performance or enhanced your team's performance

- Have you seen examples of graceful degradation, graceful extensibility,

- Reflection on the particular factors, conditions, resources that enabled a good performance – composition of team, resources, skills

- Can these conditions be recreated reliably; how would you create these conditions reliably

Variation and adaptation: learning from success in patient safety-oriented simulation training

Peter Dieckmann[1*], Mary Patterson[2], Saadi Lahlou[3], Jessica Mesman[4], Patrik Nyström[5] and Ralf Krage[6]

In Situ Simulations :
"Crash testing the dummy"

- Identification of latent hazards/systems issues

- New and existing environments

- Systems

- Equipment/Resources

- Teams

- Acute Care Teams and systems constantly adapt to times of increased census and high acuity

- Adaptations vary widely depending on team leader and team present

- Emergency teams and systems may have well rehearsed and adaptable routines for "normal stressors"

How can risk be managed in essentially "risky" conditions?

http://a.scpr.org/i/6a6ae29e4ee6038beb2ba1fe797c0513/87419-full.jpg

Vigilance is not a reliable strategy

Local Rationality:

◦ People in Safety Critical Jobs are generally motivated to stay alive, to keep their passengers, patients and customers alive

◦ They do not go out of their way to deliver overdoses or fly into mountainsides

◦ In the end what they are doing makes sense to them at that time.

Acknowledgements

- Carl Horsley
- Bob Wears
- Ellen Deutsch
- Terry Fairbanks
- Richard Cook
- Erik Hollnagel
- Jeffrey Braithwaite
- David Woods
- Robyn Clay-Williams
- Shawna Perry

http://www.resilienthealthcare.net