

Using Simulation to Improve Patient Safety in Hospitals

Paul E. Phrampus, MD, CPE, FACEP, FSSH, CPPS

Director, Winter Institute for Simulation, Education and Research (WISER)

Medical Director, Patient Safety, UPMC Health System

University of Pittsburgh, USA

Past President, Society for Simulation in Healthcare

THANK YOU!

CONGRESSO DE SIMULAÇÃO CLÍNICA



Laerdal
helping save lives

Where are we Going?



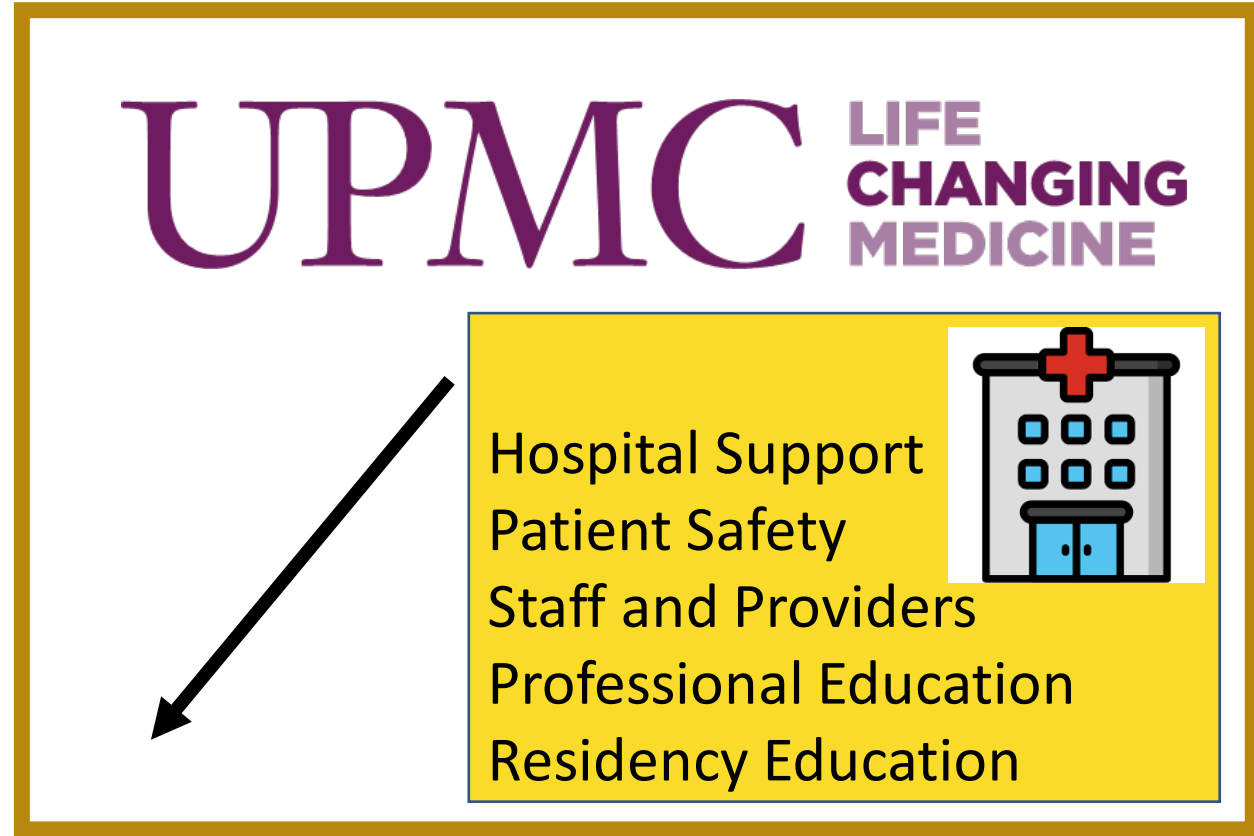
- WISER
- What is Patient Safety?
- Scope of the Problem
- Identifying Simulation Opportunities in Patient Safety
- Integration of Simulation Targeting Patient Safety

My Role(s)

- Practicing Emergency Physician
- Director, WISER (Simulation Program)
- Medical Director, Patient Safety, UPMC Health System



Overview of WISER



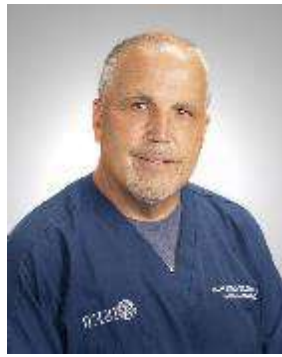


- Accredited in **All Five Areas** of Specialization

- Teaching/Education
- Assessment
- Research
- **Systems Integration**
- Fellowship Program

Initial Accreditation 2012

- *Third Center Endorsed by the ASA*



Brendan Muldoon

Kim Mitchell

Jim Lightner

Tom Dongilli

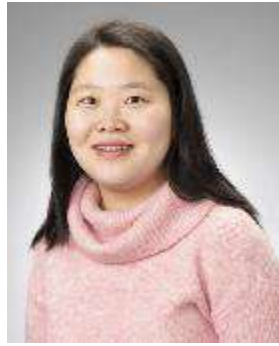
Thomas Lalor

Clinton Clegg

Jon Mazur

Heather Donovan

The Real WISER



Jim Christman

Bianca Caruso

Michelle Franco

John Lutz

Aisha Mariner

Loyal Houston

Ying Zhang



Marty Mayer

Francesca Giacchino

Kaylee Penden

Gwen Stonesifer

Matt Murphy

Emily Kane

Dan Spanner



Clint McElroy

Scope of Patient Safety Issues

To Your Health

Researchers: Medical errors now third leading cause of death in United States

By Ariana Eunjung Cha May 9



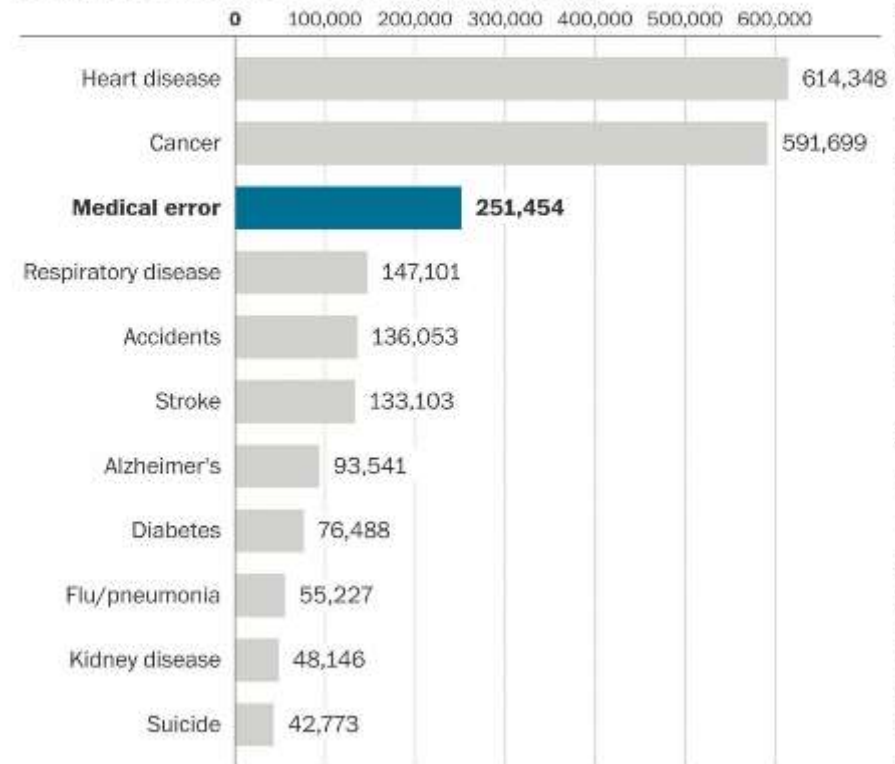
A new study by patient safety researchers shows common medical errors may be the third leading cause of death in the U.S., after heart disease and cancer. (Dorinda O'Regan/The Washington Post)

Nightmare stories of nurses giving potent drugs meant for one patient to another and surgeons removing the wrong body parts have dominated recent headlines about medical care. Let's not assume those cases are the exceptions, a new study by patient-safety researchers provides some context.

Their analysis, published in the BMJ on Tuesday, shows that "medical errors" in hospitals and other health-care facilities are incredibly common and may now be the third leading cause of death in the United States.

Death in the United States

Johns Hopkins University researchers estimate that medical error is now the third leading cause of death. Here's a ranking by yearly deaths.



Source: National Center for Health Statistics, BMJ

THE WASHINGTON POST

Scope

- **One in three** hospitalized patients experiences an adverse event
- **6%** of cases the adverse event is severe enough to prolong the patient's hospitalization and send him or her home with a permanent or temporary disability.
 - [David C. Classen](#) et al 2011.

Healthcare is a Risky Business (for Patients)

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“Despite this, there has NOT been widespread systematic, consistent adoption of simulation into the patient safety efforts of hospitals and health systems.....”

P. Phrampus; Simulation in Healthcare (2018)



Harvard Business Review April 2022

In the 21 years since the National Academy of Medicine published [To Err is Human](#), there has been significant effort to improve safety

..... Still, an estimated 1.2 million are harmed each year by [medical errors](#) made in U.S. hospitals.

SPECIAL ARTICLE

The Safety of Inpatient Health Care

David W. Bates, M.D., David M. Levine, M.D., M.P.H.,
Hojjat Salmasian, M.D., Ph.D., M.P.H., Ania Syrowatka, Ph.D., David M. Shahian, M.D.,
Stuart Lipsitz, Sc.D., Jonathan P. Zebrowski, M.D., M.H.Q.S.,
Laura C. Myers, M.D., M.P.H., Merranda S. Logan, M.D., M.P.H.,
Christopher G. Roy, M.D., M.P.H., Christine Iannaccone, M.P.H., Michelle L. Frits, B.A.,
Lynn A. Volk, M.H.S., Sevan Dulgarian, B.S., B.A., Mary G. Amato, Pharm.D., M.P.H.,
Heba H. Edrees, Pharm.D., Luke Sato, M.D., Patricia Folcarelli, Ph.D., R.N.,
Jonathan S. Einbinder, M.D., M.P.H., Mark E. Reynolds, B.A.,
and Elizabeth Mort, M.D., M.P.H.

N ENGL J MED 388;2 NEJM.ORG JANUARY 12, 2023

2809 Admissions
11 Hospitals

23.6% At least One Adverse Event

32.3% Serious or Higher.

39% Adverse Drug Events

30.4% Surgical or Other Procedures

15% Other Nursing Care

patient-care events (defined as events associated with nursing care, including falls and pressure ulcers)

How Can This Be?

- **Hospitals/Health System**

- *Think of Simulation as an Education Tool*
- Do Not Fully Understand the Capabilities/Limitations of Simulation
- Know that Simulation is Expensive (On the Surface)
- Do Not Routinely Have Partners in Simulation Helping With Decisions
- No Mandate to Use Simulation
- Do Not Have Convincing Data That Simulation Can Save Money
 - *Unclear Return on Investment*

How Can This Be?

- **Simulation Programs:**

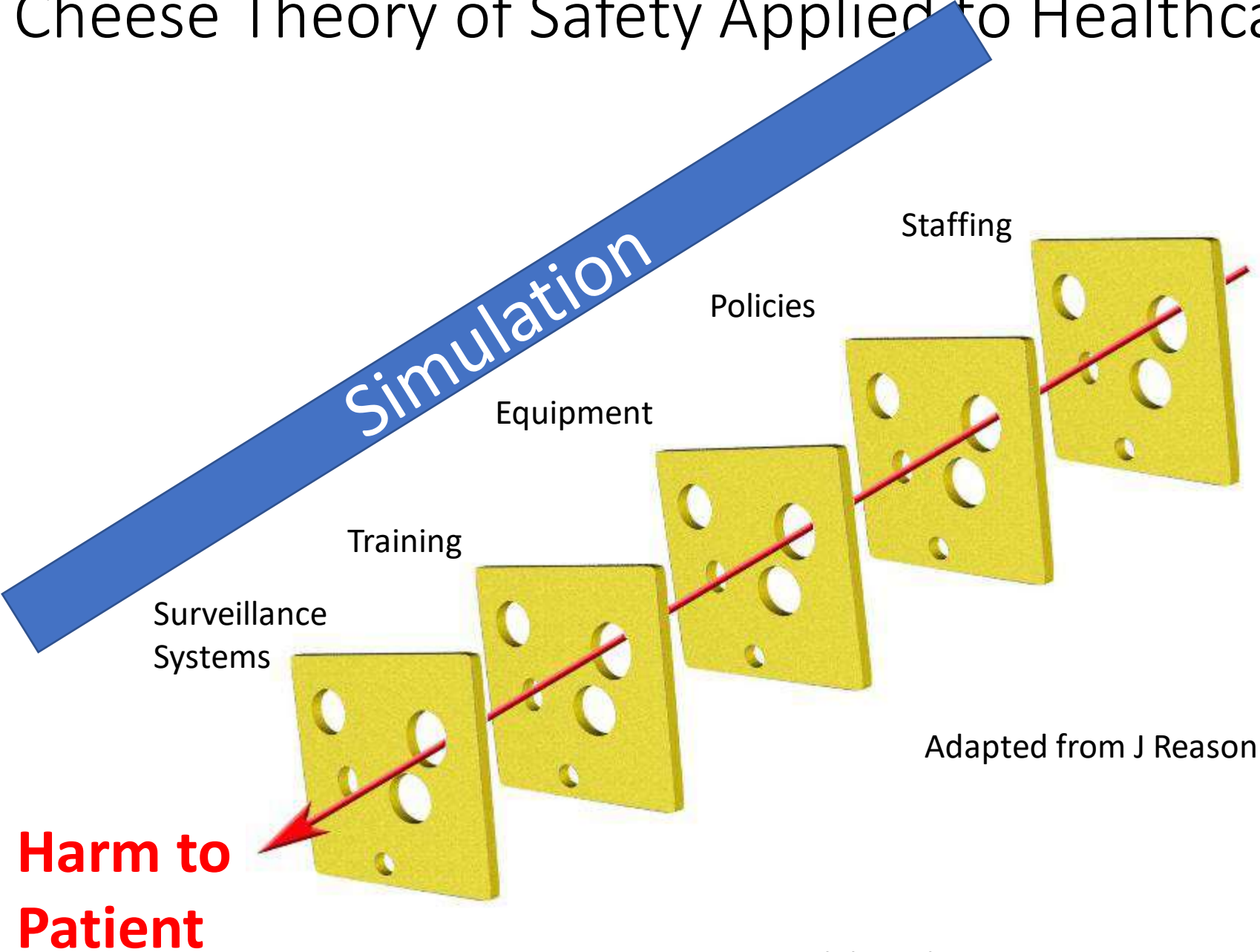
- **Not aware of “true” Patient Safety Issues (Big Picture) (or just one)**
- Simulation programs immersed in education as a primary role
 - Realism
 - Debriefing
 - Safe Learning Environment
- Simulate what they can, NOT what they SHOULD
- Not viewed as true partner in quality / patient safety
- Unclear Return on Investment as a Community
 - One Center Focus

A group of diverse hands of various skin tones are raised and held together in a circle, framing a central graphic. The graphic consists of five stylized human figures in orange, yellow, red, and dark blue, standing together with arms raised. The background is a soft, light beige color.

What is the goal of Patient Safety?

Reducing unexpected patient harm that occurs during the delivery of healthcare

Swiss Cheese Theory of Safety Applied to Healthcare









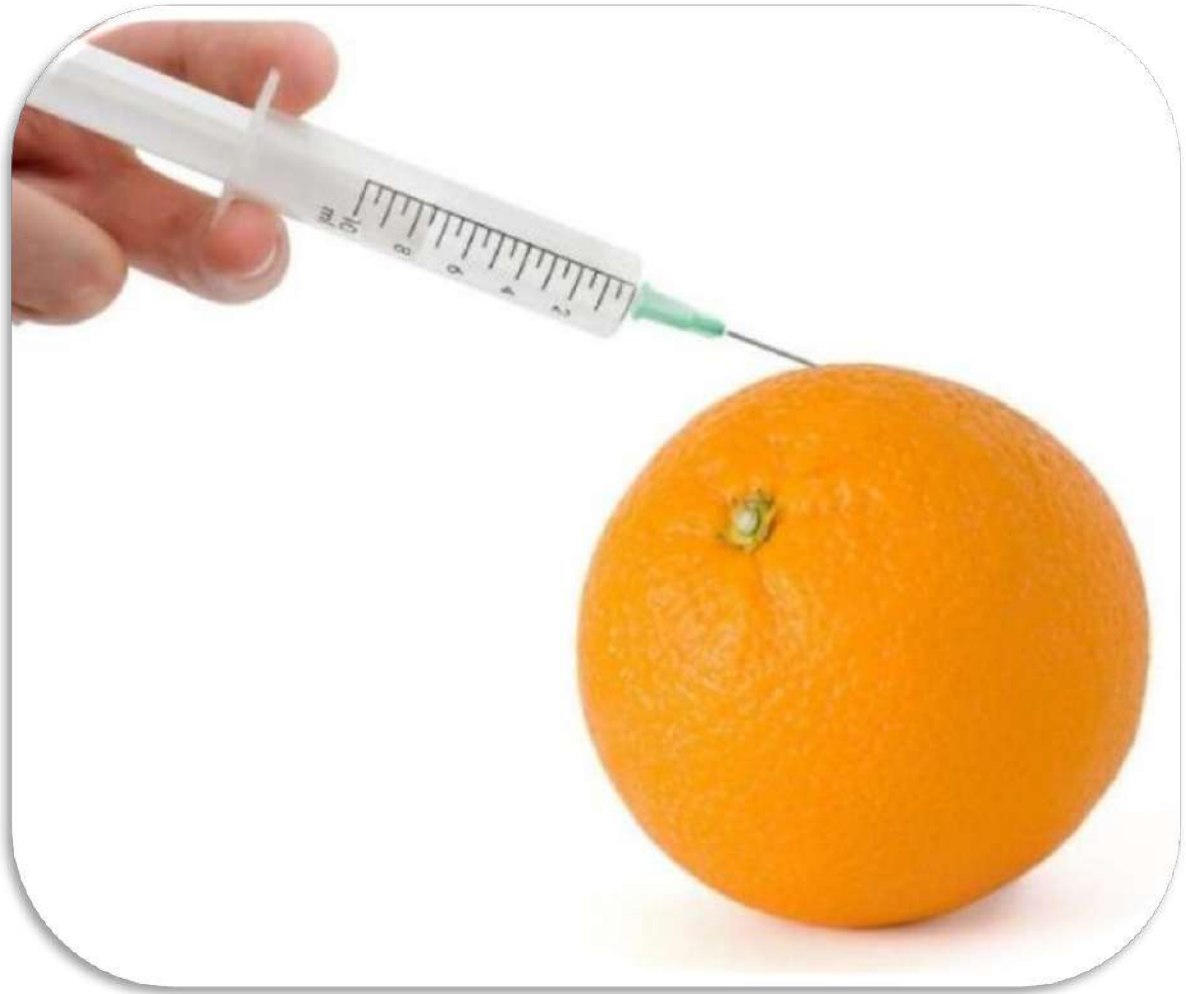
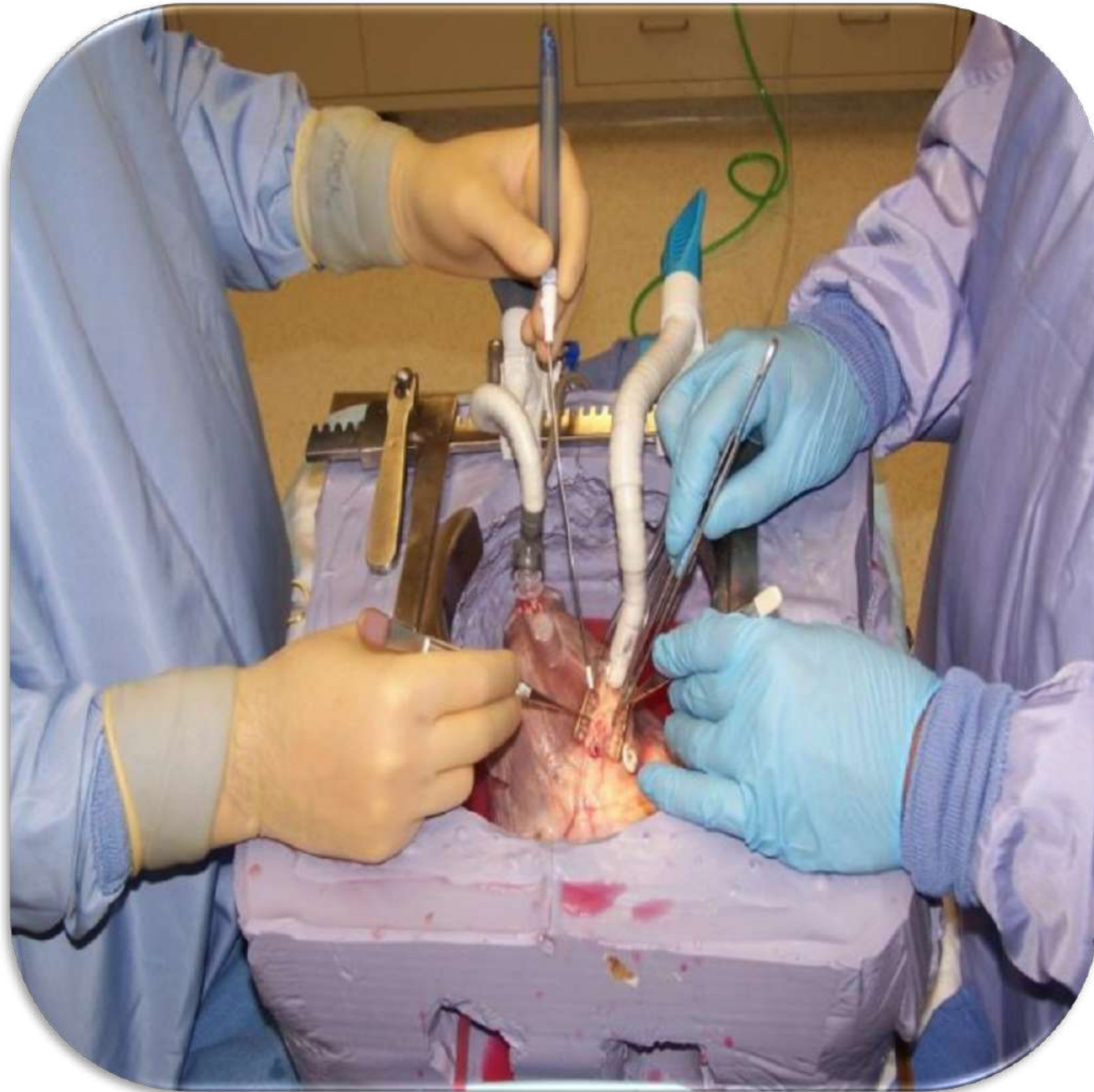






Photo Credit: Korean Armed Forces Nursing Academy



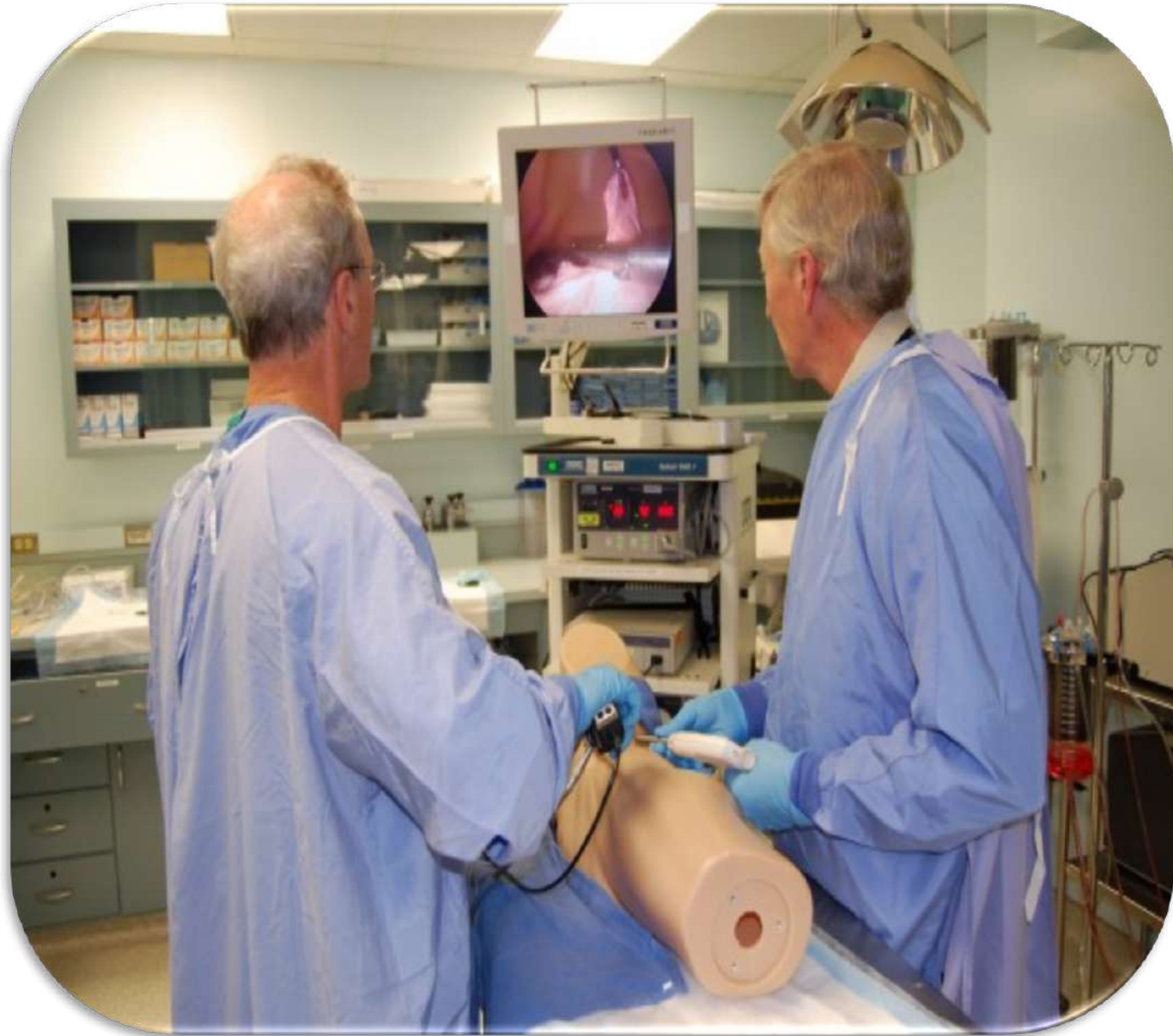






Photo Credit: Taipei Medical University







Photo Credit: Queen Elizabeth Hospital, Hong Kong

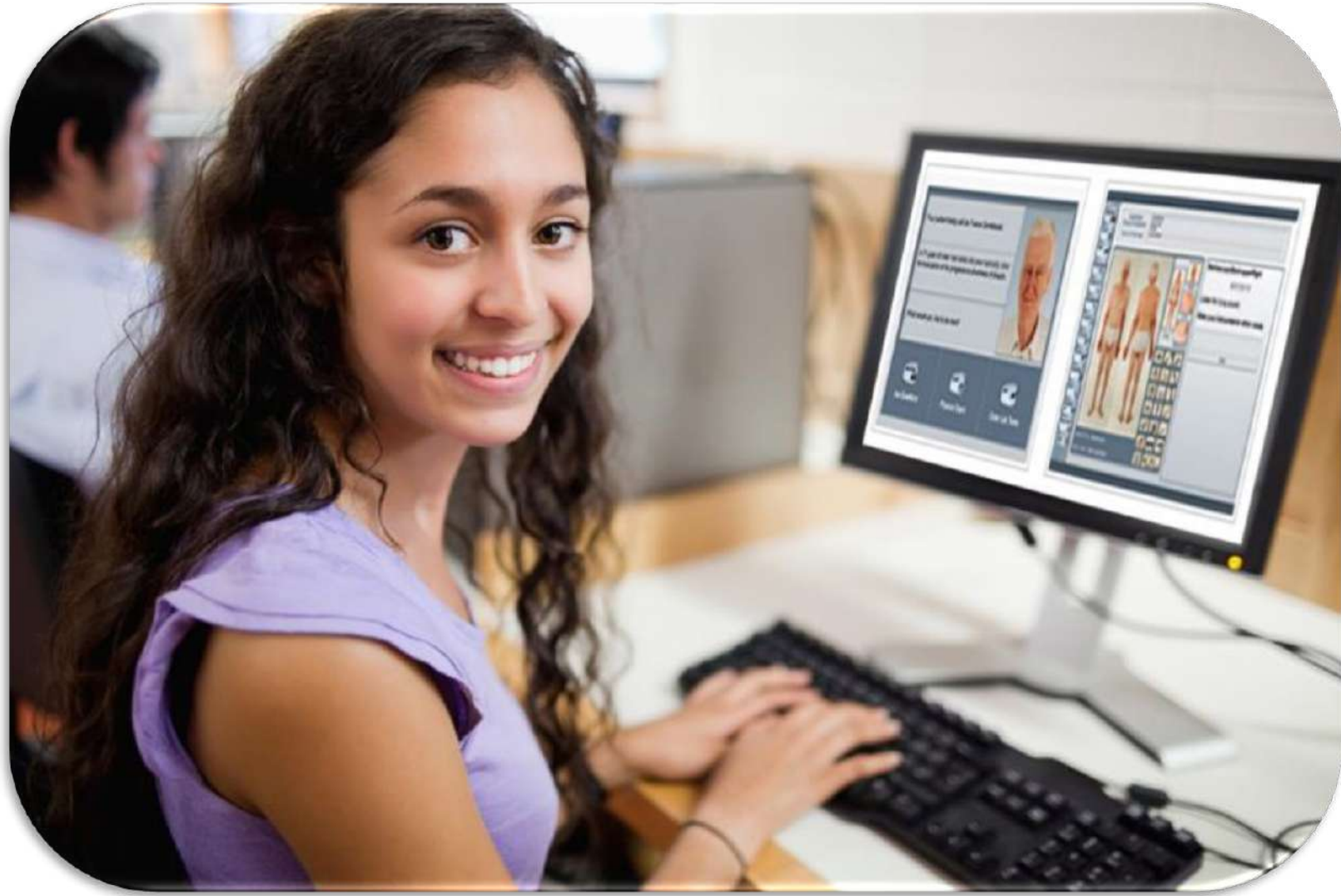


Photo Credit: Taipei Medical University



How Do We Know If We Are
Doing The Right Simulation
Interventions?



**MONITOR
THE PULSE
OF THE ORGANIZATION**

The Future Vision of Simulation in Healthcare

David M. Gaba, MD

Simulation is a technique—not a technology—to replace or amplify real-world experiences that evoke or replicate substantial aspects of a real-world in a fully interactive manner. The diverse applications of simulation in healthcare are categorized by 11 dimensions: aims and purposes of the simulation; level of participation; experience level of participants; healthcare domain; discipline of participants; type of knowledge, skill, attitudes, or behaviors; simulated patient's age; technology used; level of direct participation; and method of evaluation. Full integration of simulation into healthcare will require full integration of its applications into the routine structures and practices of healthcare. The costs and benefits of simulation are the most challenging applications of simulation. The driving forces and implementation of simulation forward, including professional education, patient safety, and ultimately the public. The future of simulation and ingenuity of the healthcare profession. The safety using this tool becomes a reality. (Sim Healthcare 2:126-135, 2007)

The past 2 decades—and especially the last 5 years—have seen rapidly growing interest in using simulation for purposes of improving patient safety and patient care through a variety of

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“The costs and benefits of simulation are difficult to quantify, but the most challenging applications of simulation are driving forces and implementation forward, including professional education, patient safety, and ultimately the public. The future of simulation and ingenuity of the healthcare profession. The safety using this tool becomes a reality.”

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Simulation in Healthcare

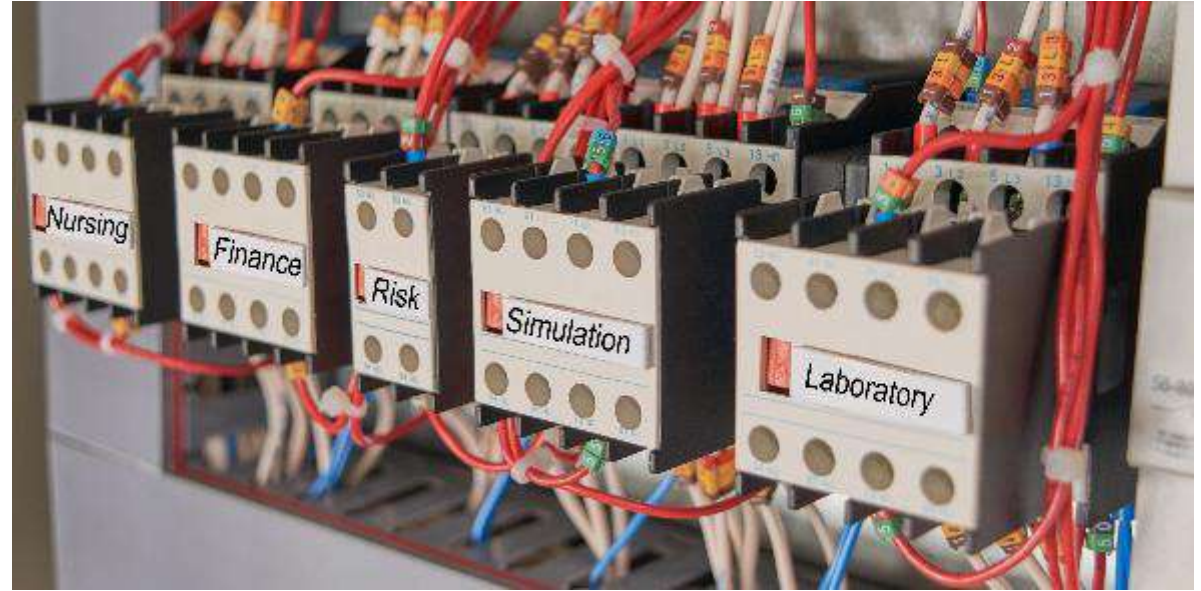
Vol. 2, No. 2, Summer 2007

Simulation and Integration Into Patient Safety Systems

Paul E. Phrampus, MD,
FACEP, FSSH, CPPS

“Partnering with the quality and safety experts of affiliated systems [Hospitals] will catalyze deeper involvement with and shared learning with respect to existing problems and simulation opportunities”

Simulation Programs
Need To Be
Hard-Wired
Into The System To
Function At Max
Effectiveness For
Patient Safety

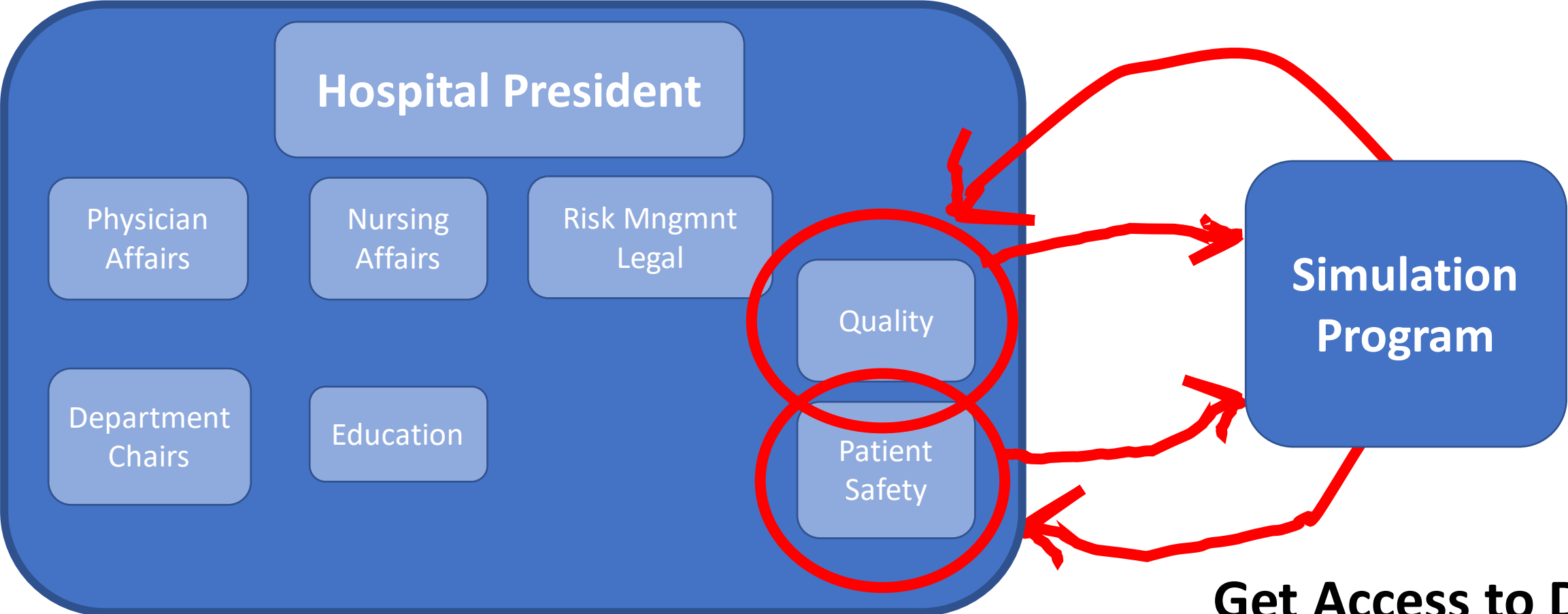


Where Do We Find Opportunities ?

- Connect with Institutional **DATA**
 - Errors / Harm (Patient Safety)
 - Quality Problems
 - Lawsuits (Risk)
- Look for them (Latent Threat)
- External Agency Mandates
- Networking
- Professional Associations



Alignment Strategies – Communications



Get Access to Data
Generate Data

Let's hear from you!




- Do you meet with your chief safety officer more than twice per year?


What Makes Simulation a Good Solution?


Or part of a solution?



Get Access to Data

✓ Confidential and Peer Review Protected - Weekly Serious Event Report for May 14-20, 2020: 1 item(s)
 Phrampus, Paul Thu 5/28/2020 3:38 PM Confidential and Peer Review Protected - Weekly Serious Event Report for May 14-20... 205 KB
Attached is the UPMC Weekly Safety Report for the time period of May 14-20, 2020. Included in this Safety Report are events that have been classified as serious events after the investigation. A serious event is defined as an
✓ Confidential and Peer Review Protected - Weekly Serious Event Report for May 21-27, 2020: 1 item(s)
 Phrampus, Paul Tue 6/2/2020 4:03 PM Confidential and Peer Review Protected - Weekly Serious Event Report for May 21-27... 195 KB
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✓ Confidential and Peer Review Protected - Weekly Serious Event Report for May 28-June 3, 2020: 1 item(s)
 Phrampus, Paul Wed 6/10/2020 1:55 PM Confidential and Peer Review Protected - Weekly Serious Event Report for May 28-Ju... 201 KB
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 5-28-6-3-2020 - Serious Event Report.pdf
100 KB

 Open PDFs in Adobe Acrobat

Attached is the UPMC Weekly Safety Report for the time period of **May 28-June 3, 2020**.

Included in this Safety Report are events that have been classified as serious events after the investigation. A serious event is defined as an event, occurrence or situation involving the clinical care of a patient in a medical facility that results in death or compromises patient safety and results in an unanticipated injury requiring the delivery of additional health care services to the patient. The term does not include an incident.

If you would like additional information on any of the events, please feel free to reach out – my number is listed below.

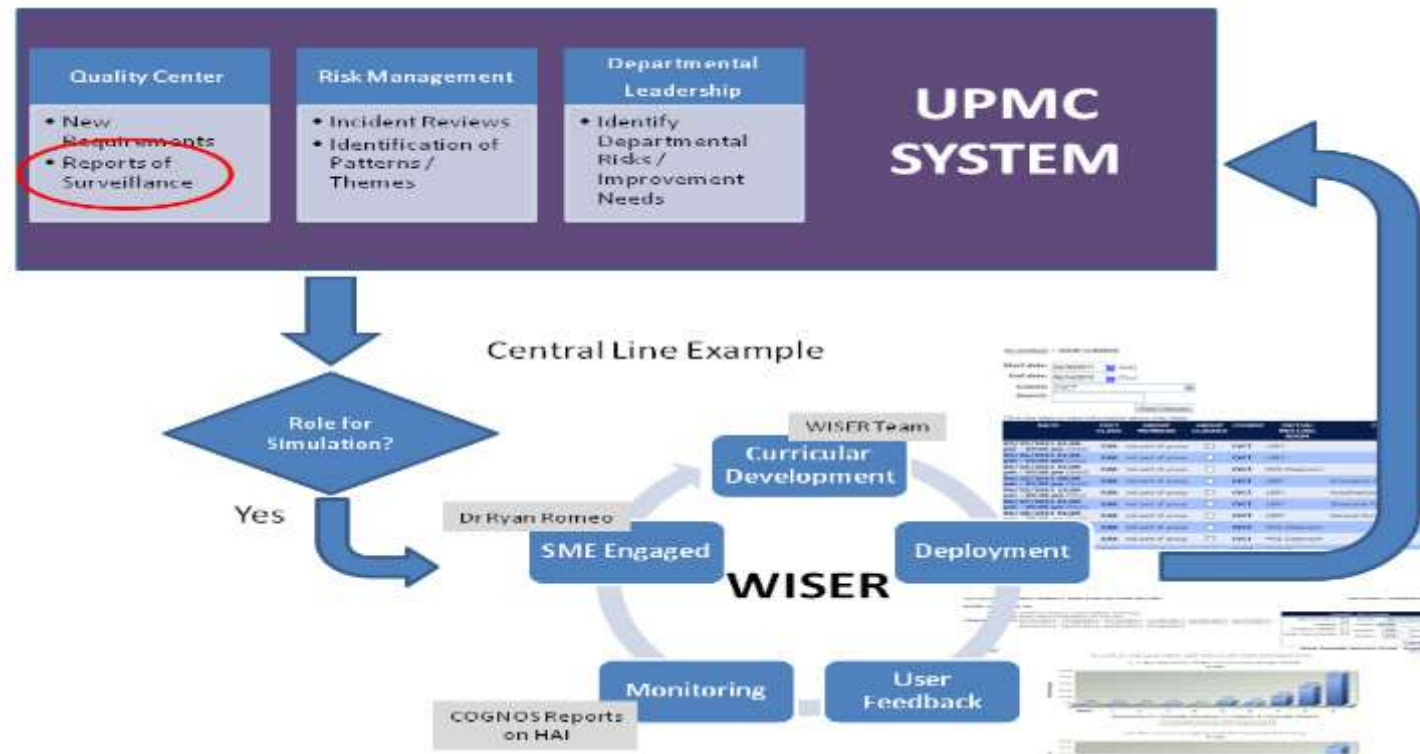
Also, if you have ideas for feedback or improvement, please let me know.

Thank you,

Paul Phrampus, MD
Medical Director, Patient Safety, UPMC
412-648-6073

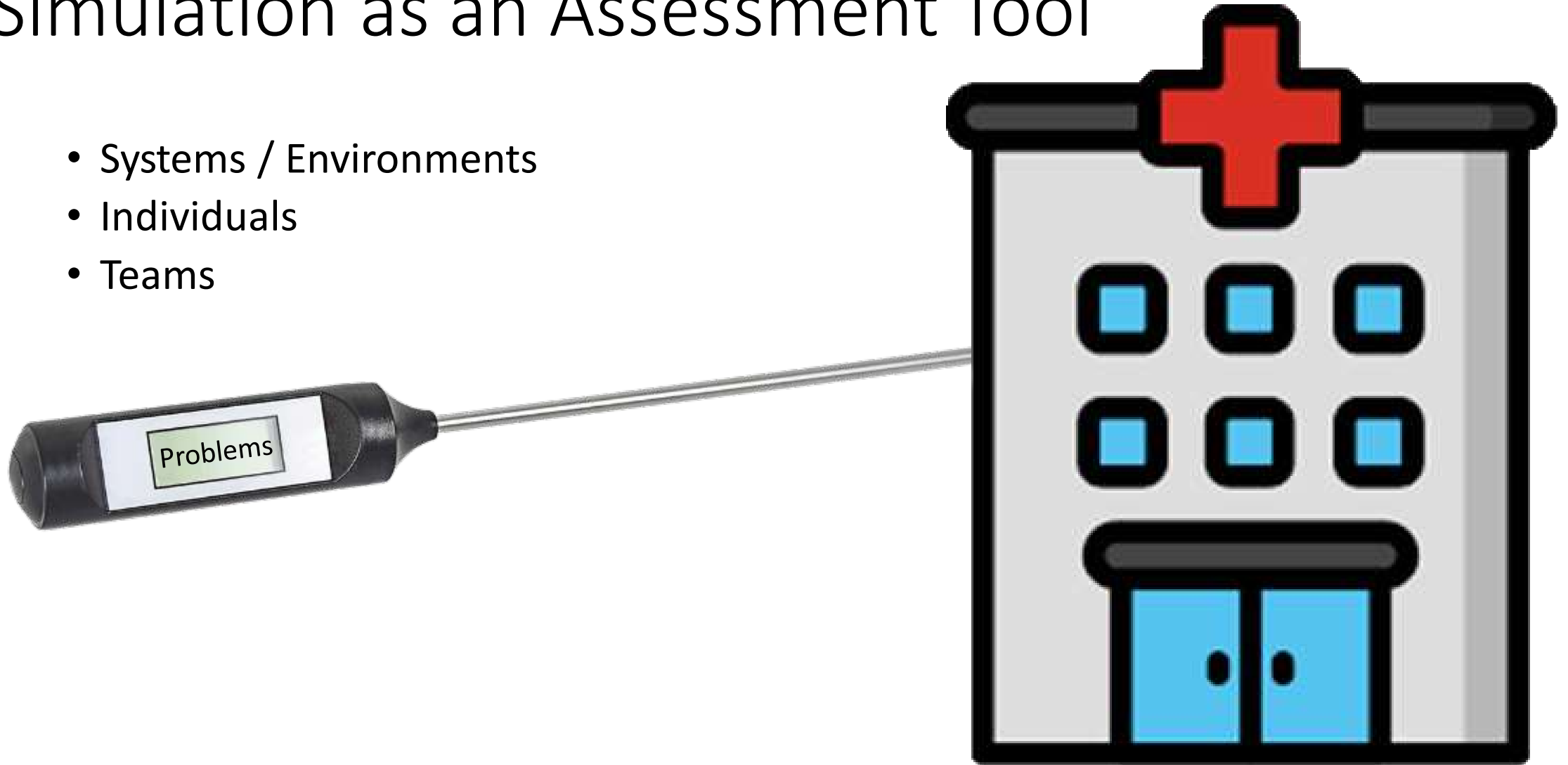
Data and Surveillance

- Align With Institutional Goals and Available Data
- Engage in Safety Solutions and **Report Your Efforts**



Simulation as an Assessment Tool

- Systems / Environments
- Individuals
- Teams



Sim for Latent Threats – Needs Analysis

- InSitu Simulation Events
- Identify Latent Threats
- Training Functionality is Minimum
- System to Inform Leadership
- Allow Informed Investment/Changes



On-Site Debriefing

- Thank People for Participation
- Brief Explanation of Importance
- High Level Feedback on Performance
- Brief to Minimize Impact to Clinical Operations

Dear Participant,

Thank you for participating in this important quality and patient safety evaluation that has been initiated by your hospital leadership. The information from today's event will be utilized to improve equipment, processes and policies pertaining to critical medical responses in our facilities. This event is designed to look at the entire system response and gather information, be able to help your hospital leadership focus on areas of improvement. Your participation is critical to the success of this program. Should you have any questions about the event or would like additional information, or have ideas for potential improvements please contact Thomas Dongilli AT, CHSOS (Director of Inpatient Crisis Response System Evaluation Program) at tdongia@upmc.edu or myself at phrampuspe@upmc.edu.

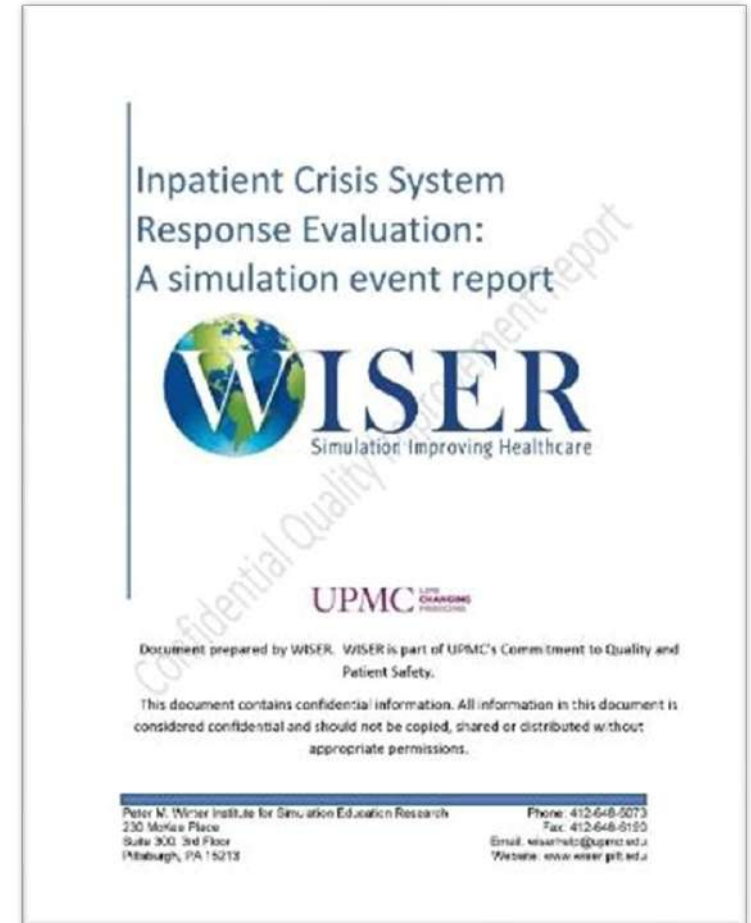
Thank you for your continued support, hard work and ideas,
Paul E. Phrampus MD
Medical Director, Patient Safety UPMC

UPMC LIFE
CHANGING
MEDICINE

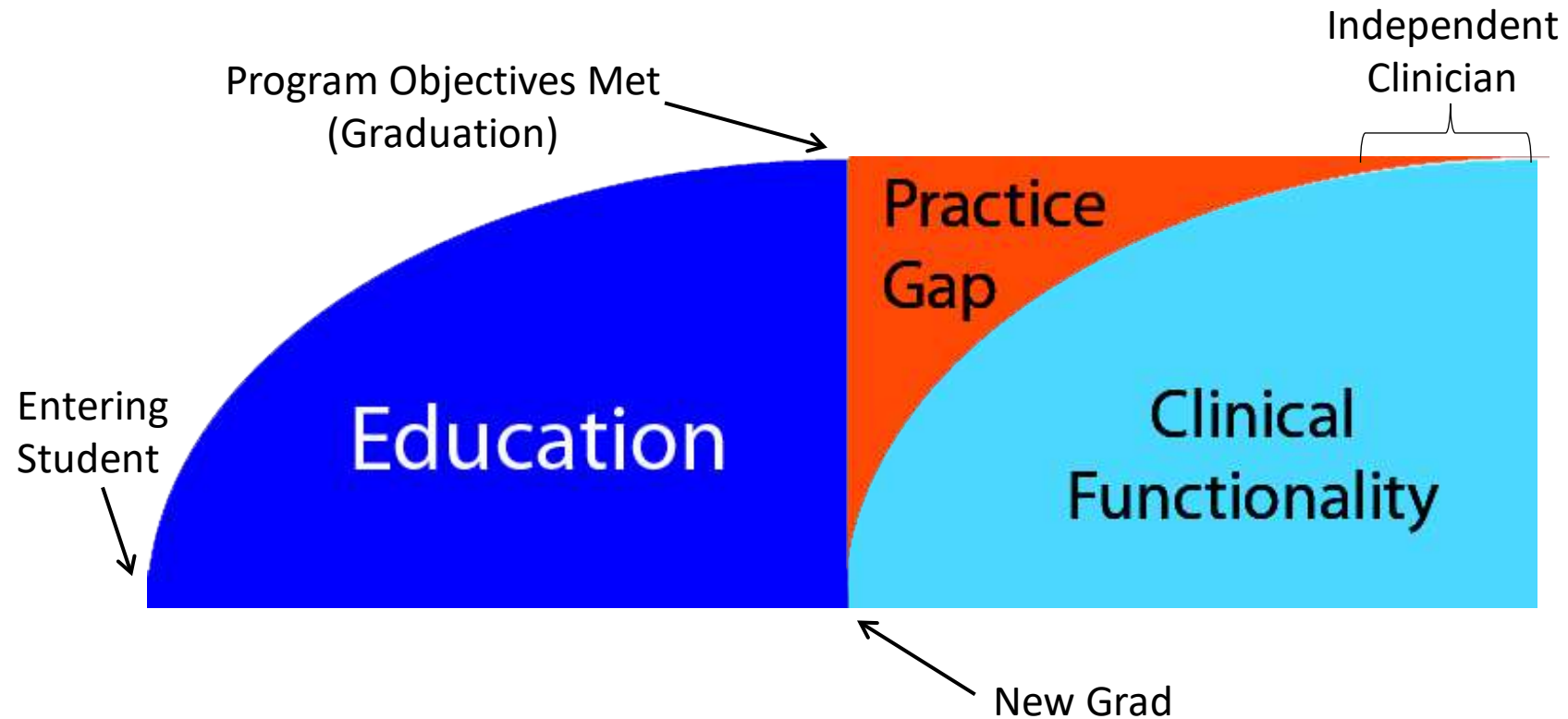


Video Analysis & Reporting

- Find Critical Times and Indicators
- Focus on System / Local Problems
- Summarize Major Findings
- Make Recommendations
- Track Progress
- **Be a PARTNER!**



Simulation for Bridging Gaps?





Recommendations for embedding simulation in health services

Ellen Davies^{1*} , Adam Montagu¹ and Victoria Brazil^{2,3}

Abstract

Aspirations to achieve quality and safety goals in simulation equipment, space and faculty. However, the optimal governance and operational models through which these resources are expertly applied in health services are not known. There is growing evidence sup-

Davies *et al.* *Advances in Simulation* (2023) 8:23

<https://doi.org/10.1186/s41077-023-00262-3>

Recommendations for implementing an organisational simulation consultancy service in tertiary healthcare



Fig. 1 Overview of recommendations

Recommendations for embedding simulation in health services

Fiona Davies¹, Adam Montagu¹ and Victoria Brazil¹

Abstract

Applications of simulation in health services are growing rapidly. Embedding simulation in health services requires a range of resources, including staff, equipment, and space. This paper provides a framework for embedding simulation in health services, based on the recommendations of the authors.

Davies et al. *Advances in Simulation* (2023) 8:23
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Where do we go from here? A Maturity Model for Value-based Simulation in Healthcare

Lisa Barker, Jared W. Henricksen, Connie Lopez, Paul E. Phrampus
Pre-Publication Data

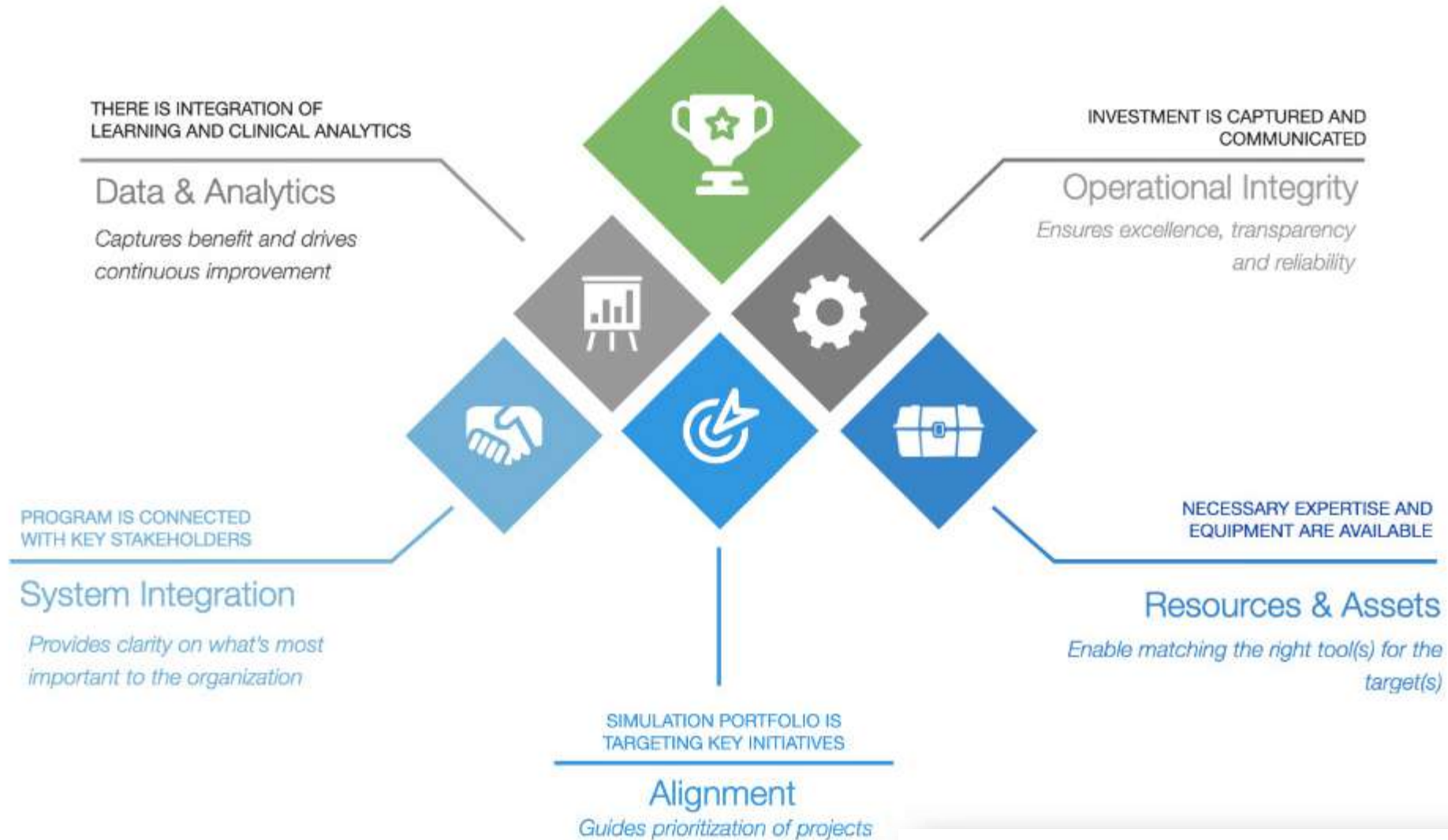
Value-Based Simulation Maturity Model



Lisa Barker, Jared W. Henricksen, Connie Lopez, Paul E. Phrampus
Pre-Publication Data

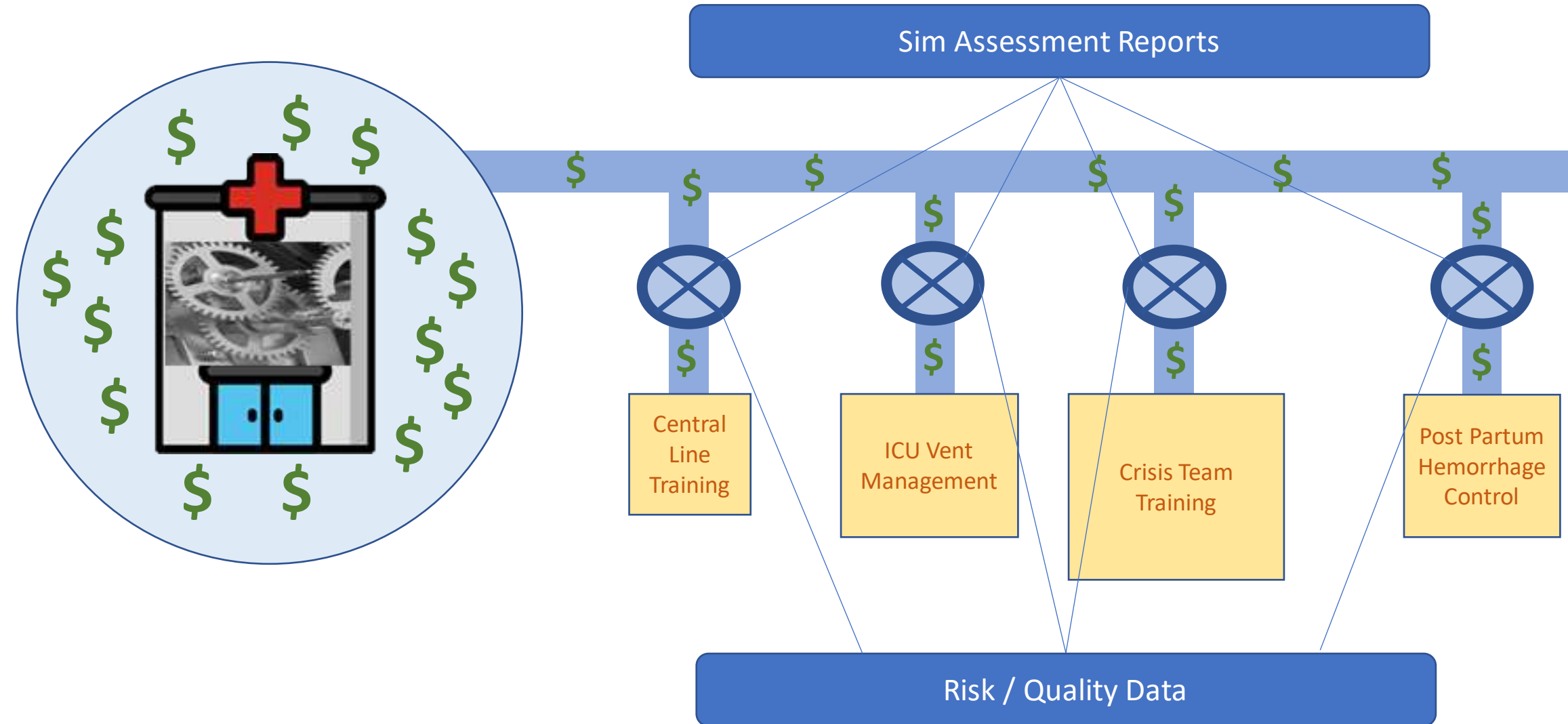
Value-Based Healthcare Simulation Maturity Domains

Connecting healthcare organization targets to simulation investment and sharing the results



Lisa Barker, Jared W. Henricksen, Connie Lopez, Paul E. Phrampus
Pre-Publication Data

Using Simulation to Help Prioritize Spending



What do we Need?

- Meaningful Relationship with C-Suite Quality / Safety / Operations
 - Access to Data
- (re)Focus on Simulation Efforts That Solve True, Definable Problems
- Be Good Stewards of the Investments in Simulation

Summary

- Become a **True Partner** in Patient Safety
- Develop the Sources of Information for YOUR Safety Opportunities
- Simulation is not Just About Education
- Is Simulation Part of the Solution?
 - Create
 - Evaluate
 - Report
- Tell Your Story



Thank You!

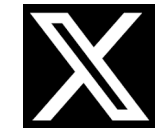
Using Simulation to Improve
Patient Safety in Hospitals



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Paul Phrampus



SimulatingHealthcare.NET



www.wisersimulation.org

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