2017 Hospital Quality Symposium

August 8, 2017 - American Canyon
August 10, 2017 - Anderson
HOUSEKEEPING

- Restroom Locations
- Electronic Devices
- Wi-Fi Code
- Evaluation
- CE/CME – must sign in
- Materials
All presenters have signed a conflict of interest form and have declared that there is no conflict of interest and nothing to disclose for this presentation.
GROUND RULES

- Begin and end on time
- Be open-minded – respect all ideas and opinions
- Use technology sparingly and place on silent
  - If you must take a call, please step out of the room
- Be engaged – participate
- Share & Learn!!
Welcome and Introductions from Partnership HealthPlan of California

Dr. Robert Moore, MD, MPH, MBA
Chief Medical Officer
Partnership HealthPlan of California
Mission:
To help our members, and the communities we serve, be healthy.

Vision:
To be the most highly regarded managed care plan in California.
Our Growth

1988: Coalition gathers to improve Medi-Cal access in Solano County

1994

1998: NAPA

2001: PHC launches Healthy Kids

2005: VOLO

2007: PHC offers Partnership Advantage

2009

2010: Began Healthy Families program (Healthy Families transitioned into Medi-Cal on Jan. 2014)

2011

2013

2014: PHC offers mental health services through Beacon Mental Health

Future
PHC is a County Organized Health Systems (COHS) Plan

Non-Profit Public Plan
Low administrative Rate (less than 4 percent) allows for PHC to have a higher provider reimbursement rate and support community initiatives

Local Control and Autonomy
A local governance that is sensitive and responsive to the area’s healthcare needs

Community Involvement
Advisory boards that participate in collective decision making regarding the direction of the plan
Provider Benefits
- Reimbursement
- Efficient claims payment process (about 30 days)
- Customer Service – Satisfied Providers

Member Benefits
- Better Health Outcomes of Individuals
- Meetings with Member Participation
- Customer Service - Satisfied Members
- And More

State and Community Benefits
- Saves California 10% compared to traditional Medi-Cal
- Improved access and quality of care
- Community responsiveness and collaboration
- Assist safety net providers
- Care back into the county
Hospital Quality Improvement Program

• Pay-for-performance program started to support hospitals serving PHC members to improve quality and health outcomes.

• Substantial Financial Incentives; approximately $12.4 million awarded among 10 hospital systems in 2015-16

• Five domains: Readmissions, Advance Care Planning, Clinical Quality: OB/Newborn/Pediatrics, Patient Safety, and Operations and Efficiency
Guiding Principles

1. Where possible, pay for outcomes instead of processes
2. Actionable measures
3. Feasible data collection
4. Collaboration with providers in measure development
5. Simplicity in the number of measures
6. Representation of different domains of care
7. Align measures that are meaningful
8. Stable measures
2017-18 Hospital QIP

• For 2017-18, we have outreached to 27 hospitals (increased from 23 in 2016-17)

• Hospitals located in: Humboldt, Lake, Lassen, Marin, Mendocino, Modoc, Napa, Shasta, Siskiyou, Solano, Sonoma, Tehama, and Trinity counties
Challenges to supporting hospital quality

- Accessing + disseminating new and current information
- Developing platforms for hospital-hospital collaboration
- Finding ways to support small + rural hospitals in PHC network
For More Information about HQIP…

• Visit our website: www.partnershipphp.org

• Email us: HQIP@partnershipphp.org

• See handout to learn more!
Quality Improvement through High Reliability

Mark Crafton, MPA, MT(ASCP)
Executive Director, State & External Relations
The Joint Commission
Quality Improvement through High Reliability

Partnership HealthPlan of California
2017 Hospital Quality Symposium

August 8, 2017 (American Canyon, CA)
August 10, 2017 (Redding, CA)

Mark A. Crafton, MPA, MT(ASCP)
Executive Director,
State & External Relations
The Joint Commission
Topics for Discussion

1. High Reliability
   • What is it?
   • How far away is it?
   • How do we get there?

2. Latest Issues of Interest at The Joint Commission
   • Distinct naming of newborns
   • Concurrent surgery
   • Hair covering in the operating room
   • Scribes
   • Measuring children’s weight in kilograms
   • Suicide prevention
Our Challenge
Any Healthcare Organization USA: 2-3 Sigma
Health Care is Not Highly Reliable

• On any given day, 1 in 25 hospital patients has at least one healthcare associated infection
  - 650,000 hospital patients contract a HAI annually
• HAI-related deaths
• Hospital-acquired conditions per 1,000 discharges
• Wrong-site surgeries in U.S. (MN extrapolation)
  • 77,000
  • 115
  • 2,063
  Annually

Sources: CDC, AHRQ, Minnesota DOH
Technical and procedural improvements have made surgery safer, but future innovations will focus on reliably organizing the work of patient care.

Your life is a lot safer because of HROs:

- Commercial Air Transportation
- Banking
- Defense
- Energy – Nuclear Power
- Theme Parks
High Reliability Organization (HRO) Defined

- An organization that could have failed many times with catastrophic consequences but has not
  - Nuclear power plants
  - Air traffic control
  - Aircraft carriers
  - Commercial airlines
  - Banking
  - Wildland Fire Control
  - Theme Parks
- HRO theory focuses on system-level processes
  - In complex, dynamic organizations
  - That deal with uncertainty
  - That make decisions under pressure
  - Often with inadequate information
  - In high-risk situations
- Sounds like your day?
Universal Studios - Orlando

- A small city
- Attractions, food, entertainment
- 15,000 team members
- 50,000 – 60,000 guests every day
- 800 characters, 300 managers
- Goal: Ensure safety of staff and visitors
- Result: Six Sigma level performance with very few adverse events
Universal Studios – Orlando (cont.)

- Have an “Assumption to Failure”
- Design stunts to be highly reliable
- Simplify and standardize processes
- Entire park and each stunt under constant video surveillance
- “Danger is in the routine”
- Repetition of doing things over and over can lead to complacency and mistakes
- Former stunt men run the safety program
- Safety Teams review error information monthly
- Encourage and reward reporting (Safety Bucks, Safety Man)
- Engineer safety into all operations
- Meet with competition (Disney, Sea World, Busch Gardens) every year on safety issues
Is Health Care Different?

- Healthcare professionals care for patients not machines.
- Often little is known about the patient and the patient’s condition and behavior varies over time.
- Errors in health care usually only affect one patient at a time.
- Higher workforce mobility and team member changes.
- Distinguishing between iatrogenic injury and normal disease progression not always easy.
Self-Check Using STAR*  
(Stop, Think, Act, & Review)

“Stop and Think”

It sort of makes you stop & think, doesn't it?"

Vigilance Tests

Seconds Paused in Thought

Probability of Error

• Jefferson Center for Character Education
• Source: Memorial Hermann
Red Rules: Absolute Compliance

1. Patient Identification - Verify with two patient identifiers before acting

2. ‘Time Out’ before invasive and high-risk procedures

3. ‘Two-Provider Check’ before administration of blood, blood products and high-risk medication

Source: Memorial Hermann Health System
Red Rules Absolute Compliance

• Red Rules *focus our attention* on acts most critical to patient and employee safety

• Red Rules *align our values and beliefs* around these acts and motivate us to make Red Rule behaviors our consistent work habits

• “Red” indicates the *highest priority for exact compliance* - compliance must come before any other consideration, including revenue and personal desire

• Red Rules is *NOT a “discipline program”*

Source: Memorial Hermann Health System
High Reliability in Health Care Requires

- **Leadership**
  - Commitment to Zero Patient Harm

- **Safety Culture**
  - Empowering staff to speak up about patient risks

- **RPI**
  - Systematic data-driven approach to solving complex problems
High Reliability Maturity Model

Leadership Commitment
- Board
- CEO/Management
- Physicians
- Quality Strategy
- Quality Measures
- Safe Adoption of IT

Adoption of Safety Culture
- Trust
- Accountability
- Identifying Unsafe Conditions
- Strengthening Systems
- Assessment

Robust Process Improvement®
- Methods
- Training
- Spread

Stages of maturity
Beginning ➔ Developing ➔ Advancing ➔ Approaching
“The single greatest impediment to error prevention in the medical industry is that we punish people for making mistakes.”

- Lucian Leape MD, member of the Quality of Health Care in America Committee at the Institute of Medicine and adjunct professor of the Harvard School of Public Health
Safety Culture

• Aim is not a “blame-free” culture

• HROs separate blameless errors (for learning) from blameworthy ones (for discipline, equitably applied)

• HROs balance learning & accountability

• Eliminate intimidating behaviors

• Hold everyone accountable for consistent adherence to safe practices

• Assess errors and patterns uniformly
Safety Culture Maturation

**Beginning**

- Trust and intimidating behavior are not assessed
- Emphasis is on blame; inequitable application of discipline
- Root cause analysis is limited to adverse events
- Limited or no efforts to assess system defenses against quality failures and remedy weaknesses
- No measures of safety culture exist

**Approaching**

- High levels of (measured) trust exist in all clinical areas
- All staff recognize/act on personal accountability; equitable disciplinary procedures
- Close calls/unsafe conditions routinely reported with early problem resolution
- System defenses proactively assessed; weaknesses proactively repaired
- Safety culture measures results routinely reported to the board; system improvement initiatives under way
Some Barriers To Safety Culture

- Blaming
- Denial
- Silence
- Temporary fixes
- Trade-offs
What Behaviors Are Intimidating?

Wide range: from hanging up the phone instead of answering a question to verbal abuse (cursing, yelling) or physical abuse

Most common?
Refusal to answer questions or to return phone calls or pages; condescending tone or language; impatience with questions

Have we improved?
• **Organizational Assessment & Resource Library**
  - 49 questions with branching logic for hospital senior leadership
  - Evaluates level of maturity in 14 components within Leadership Commitment, Safety Culture, Performance Improvement
• Provides leading indicator information about strengths, opportunities, and potential investment strategies for achieving performance

*Alignment is critical for the high reliability journey*
Q. How would you describe the frequency with which physicians play leadership roles in your organization’s quality improvement initiatives?

High Reliability: Stages of Organizational Maturity

<table>
<thead>
<tr>
<th>Leadership</th>
<th>Beginning</th>
<th>Developing</th>
<th>Advancing</th>
<th>Approaching</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physicians</td>
<td>Physicians rarely lead quality improvement activities</td>
<td>Physicians champion some quality improvement activities</td>
<td>Physicians often lead quality improvement activities</td>
<td>Physicians routinely lead clinical quality improvement activities and accept leadership of other appropriate clinicians</td>
</tr>
</tbody>
</table>

Routinely
Do physicians in your organization readily accept the leadership of other clinicians (e.g., nurses, pharmacists) when they participate in quality improvement initiatives?

No

Yes
High Reliability Self-assessment Tool™

Q1 Who in your organization receives training in process improvement methods?

- Some training outside quality or compliance departments

Q2 How would you describe your organization’s approach to training in process improvement methods?

- Only quality improvement or compliance staff
- Don’t know
- Recognize more training is needed but no plan
- If broad use of RPI tools
  Have begun training in clinical & operational areas & have a plan to broaden further
- Training is mandatory for all staff

<table>
<thead>
<tr>
<th>Performance Improvement</th>
<th>Beginning</th>
<th>Developing</th>
<th>Advancing</th>
<th>Approaching</th>
</tr>
</thead>
<tbody>
<tr>
<td>Training</td>
<td>Limited to compliance personnel or to quality department</td>
<td>Recognition that training in PI tools outside quality department is critical to success</td>
<td>Training of selected staff in RPI underway; plan in place to broaden training</td>
<td>Training in RPI is mandatory for all staff, as appropriate for their jobs</td>
</tr>
</tbody>
</table>
**Q1** Under what circumstances does your organization conduct a root cause analysis?

- In cases of significant harm and some non-harm events

**Q2** Which of the following best describes your organization’s approach to close call and near misses?

- Staff in many areas report close calls routinely

**Q3** What do you do with close call reports?

- Commend the reporter
- Investigate a small number of close calls
- Use reports primarily for trending
- Have remedied many unsafe conditions before patient was harmed

<table>
<thead>
<tr>
<th>Safety Culture</th>
<th>Beginning</th>
<th>Developing</th>
<th>Advancing</th>
<th>Approaching</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Identifying Unsafe Conditions</strong></td>
<td>Root cause analysis limited to adverse events; close calls (“early warnings”) not recognized or evaluated</td>
<td>Pilot “close call” reporting programs begin in few areas; some examples of early intervention to prevent harm</td>
<td>Staff in many areas begin to recognize and report unsafe conditions and practices before they harm patients</td>
<td>Close calls and unsafe conditions routinely reported, leading to early problem resolution, before patients are harmed; results routinely communicated</td>
</tr>
</tbody>
</table>
Executive Summary

"Who said what?" – Select Assessment Reports to view different report options for your individual and/or Consensus Assessment results.

The Executive Summary outlines your organization’s Consensus Assessment results by maturity stage. Embedded links direct you to Resource Library materials for a specific component.

<table>
<thead>
<tr>
<th>Leadership</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Board</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CEO/management</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physicians</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality strategy</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality measures</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Information technology</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Safety Culture</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Trust</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accountability</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Identifying unsafe conditions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strengthening systems</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assessment</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Performance Improvement</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Methods</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Training</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spread</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Latest Issues of Interest at The Joint Commission
Distinct Naming of Newborns
Quality and Safety Issues

• 80% of hospitals use non-distinct naming conventions for newborns ("BabyGirl Smith")
  – This results in a large number of patients with identical names, birthdates, and gender

• One half of infants in the NICU are at risk of misidentification

• Unintended procedures are common
  – Ten Sentinel Event reports to us of wrong patient circumcision in 2010
Reported Consequences

• Feeding a mother’s expressed breast milk to the wrong infant
• Reading imaging tests or pathology specimens for the wrong patient
• Administering blood products to the wrong patient
• Collecting lab specimens from the wrong patient
• Wrong person surgery
Example of Alternative

• One naming convention used the mother’s first name, followed by the letter “s” and the baby’s gender, then the parent’s last name
  – Judysgirl Smith

• In the case of multiple births, the hospital adds a number in front of the mother’s first name (ex: 1Judysgirl and 2Judysgirl)
Concurrent Surgery

Star surgeon is scrutinized on concurrent procedures

By Jonathan Saltzman and Jean Abraham, Globe Staff March 12, 2017
QUANTITY OF CARE | A SPECIAL INVESTIGATION

HIGH VOLUME,
BIG DOLLARS,
RISING TENSION

By Mike Baker and Justin Mayo
Seattle Times staff reporters
Published February 10, 2017
What Is Concurrent Surgery?

• **Concurrent or simultaneous surgeries:** When the critical components of the operations for which the primary attending surgeon is responsible are occurring at the same time.

• **Overlapping surgeries:** When the critical components of the first operation have been completed and the primary attending surgeon performs critical portions of a second operation in another room.
Looking forward – June 2016

by DAVID B. HOYT, MD, FACS
PUBLISHED JUNE 1, 2016 • PRINT-FRIENDLY

Over the last several months, the issue of concurrent and overlapping operations has received considerable attention in the lay and professional press. The American College of Surgeons (ACS) Statements on Principles have long included a section on the surgeon’s responsibility to be present for key parts of the preoperative, intraoperative, and postoperative phases of care. In light of the media play that this topic is now receiving, however, the ACS leadership recently determined that the time was ripe to clarify the College’s position on this matter.

Overlapping and concurrent operations: The controversy

The issue of concurrent and overlapping surgery came to the public’s attention last fall, when the Boston Globe’s Spotlight team reported on alleged double-bookings of surgical procedures at a nationally recognized area hospital.
Concurrent and Overlapping Surgeries:

Additional Measures Warranted

A Senate Finance Committee Staff Report

December 6, 2016
Our Approach for Assessment

• During the surgical tracer, the schedules will be reviewed to determine if there are patients scheduled for the same procedure, at the same, by the same practitioner.

• If such a situation is identified, the surveyor will determine if the hospital has a policy regarding scheduling of concurrent/overlapping surgery and whether the policy is being followed.

• Absence of a policy would lead to citation. LD.04.01.07 EP 1 (AHC, CAH, HAP, OBS)
Hair Covering in the Operating Room
Citations

• In 2016, state surveyors cited surgeons for wearing “skull caps” instead of the “bouffant” caps during surgery

• The Joint Commission has cited OR staff mostly for uncovered facial hair
Quality and Safety Issues

• Surgical site infections (SSI) are the most common and costly hospital acquired infection
  – 60% more likely to go to ICU, five times more likely to be re-admitted, and twice as likely to die

• Estimated annual incidence of SSI in the US is 160,000-300,000

• Bacterial contamination of the operating room field has been shown to be decreased by wearing surgical headgear
American College of Surgeons Statement on Operating Room Attire

• The skullcap is symbolic of the surgical profession.

• The skullcap can be worn when close to the totality of hair is covered by it and only a limited amount of hair on the nape of the neck or a modest sideburn remains uncovered.

• Statement contradictory to AORN guideline?
It’s about the hair, not the hat
Approach

• Try to achieve consensus among stakeholders
• A survey using the pictures shown and others is currently in the field
• Based on the response, we may need to have a formal consensus process
• Some of our customers are moving ahead with their own initiatives
Potential Challenges

• Most surgical attire practices and guidelines are based on convention rather than evidence

• Variations in guidelines and recommendations (e.g. AORN, ACS)

• Comparative definitions of Personal Protective Equipment by OSHA, CDC, AORN, AANA
Documentation Assistance:
Use of “Scribes”
Use of “Scribes”

Use of EHRs is a main driver
  Time-consuming data entry
  Reduced time for direct patient interaction
  Reduced productivity
Helps decrease physician burn-out
Use is rapidly growing, and there is limited
guidance on the continuum between acceptable
and ideal practice
Project Goals

• Explore risks and identify best practices related to the use of assistants or “scribes” used to aid physicians with documentation and order entry

• Anticipated Project Results
  – Likely no new standards
  – Surveyor education
  – Field education on best practices
  – Timeline: December 2017
Weighing Pediatric Patients in Kilograms
Quality/Safety Issues

- Dose of medications, x-rays, etc. are calculated based on kilograms
- Weighing a child in pounds and converting to kilograms leads to errors
- Many organizations recommend kilograms:
Challenges and Issues

• Most U.S. adults do not know the metric system
  – Transition to home may lead to errors
• Weighing adults in pounds and children in kilograms could lead to errors
  – What are the risks of having two processes for measuring the weights of patients in the clinical setting?
• Need to gain broad stakeholder support
Suicide Prevention
History of the Suicide National Patient Safety Goal (NPSG)

• Introduced in 2007
  – Suicide was 11\textsuperscript{th} leading cause of death in US
  – Frequently reported sentinel event

• \textbf{NPSG.15.01.01}

Identify patients at risk for suicide.

\textit{Note: This requirement applies only to psychiatric hospitals and patients being treated for emotional or behavioral disorders in general hospitals.}
Elements of Performance

• **EP 1:** Conduct a risk assessment that identifies specific patient characteristics and environmental features that may increase or decrease the risk for suicide.

• **EP 2:** Address the patient’s immediate safety needs and most appropriate setting for treatment.

• **EP 3:** When a patient at risk for suicide leaves the care of the hospital, provide suicide prevention information (such as a crisis hotline) to the patient and his or her family.
Recent Work to Consider Revisions to the NPSG

• Considered expanding NPSG to other patient populations and settings
• Clarifying requirements on who to evaluate and what to do when at-risk people identified
• Reviewed possibilities with experts, customer focus groups, advisory committees
Current Status of Work on NPSG

• Concluded we will not expand the NPSG to beyond patients with behavioral health diagnoses due to concerns about:
  – Low positive predictive value of screening instruments in populations with lower prevalence of suicidality
  – Limited resources to fully evaluate patients with positive screens
  – Limited data on the effectiveness of screening other populations
Other Recent Activities

• Improve risk-mitigation strategies for inpatients
  – Environmental hazards (ligature risks)
  – Effective plans to minimize suicide risk in very high risk patients
  – Ensuring adherence to plans

• June 2017 Conference to begin to discuss areas of disagreement and to try to find consensus
Thank you.

Mark Crafton
mcrafton@jointcommission.org
Share & Learn Round Tables

**Karen Lewis**
MSN, RNC-OB
St. Joseph Hospital

**Round Table 1 - Room A**
Designing high quality maternal care systems: offering VBAC

**Teresa Campbell**
RN, MN, BSN, FACHE, CENP
Chief Nursing Executive
Sutter Lakeside Hospital

**Round Table 2 - Room B**
Improving the discharge process for better health outcomes

**Jim Gude**
MD
OffSiteCare, Inc.

**Round Table 3 - Room C**
Leveraging telemedicine for its clinically useful services
Lunch Discussion

♦ **Operations**: How does your organization promote a culture of quality?

**Room A**

♦ **Frontline Staff**: Describe an initiative or project your organization implemented that resulted in higher quality of care.

**Room B**
Controlling & Preventing Sepsis and Hospital-Acquired Infections

Mitesh Rao, MD, MHS
System Patient Safety Officer
Stanford Health Care
Safer-System Redesign: Moving Infection Control Towards a Proactive Future

Mitesh Rao, MD, MHS
System Patient Safety Officer, Stanford Health Care
Director SHC Center for Advancing Patient Safety
Assistant Professor of Emergency Medicine, Stanford University School of Medicine

Hospital Quality Symposium – August 2017
The Current State of Safety and Quality

• Routine safety processes fail routinely
  • Hand Hygiene
  • Medication Administration
  • Patient Identification
  • Transitions of Care

• Uncommon, preventable adverse events:
  • Wrong-site surgery
  • Retained Foreign Objects
  • Inpatient Suicide
Who believes that *human error is inevitable*?
“Human error is inevitable”

“It happens in health care systems as it does in all other complex systems, and no measure of attention, training, dedication, or punishment is going to stop it”

What is Human Factors?

“We can’t change the human condition, but we can change the conditions under which humans work.”

James Reason

“Human error in medicine, and the adverse events that may follow, are problems of psychology and engineering, not of medicine.”

JW Senders
Six Features of Human Factors

Six features of human factors that distinguish it from other applied disciplines:

1. A belief in the idea that technologies (e.g., computerized physician order entry), tools (e.g., scalpels), and machines (e.g., ventilators) are built to serve people and, therefore, must be built with users in mind.

2. An understanding that individual differences in physical (e.g., hand size, height, weight, and dexterity) and cognitive (e.g., memory and learning) capabilities exist and a further understanding that designs must accommodate these differences.
Six Features of Human Factors

3. Acknowledge that the design of all things, including technologies, environments and processes, influence human behavior and well-being

4. Emphasis on evaluation and on empiric data during the design process (*evidence based design*)

5. Use of the scientific method and objective data to test hypotheses and generate data about human behavior and performance

6. A systems orientation and recognition that technologies, cultures, procedures, processes, environments, and people do not exist in isolation and that effective design must take into account the implication of their interactions
To Err is Human
Drivers of Human Error

• Fatigue, lack of sleep
• Fear, stress
• Frustration
• Illness and injury
• Interruptions or distractions
• Reliance on memory or vigilance
• Noise, heat, lighting, clutter
• Unnatural workflow
• Boredom
• Poorly designed procedures or devices
Our Work Environment
Error Reducing Strategies

- Use Visual Controls
- Avoid Reliance on Memory
- Use Protocols and Checklist
- Simplify and Standardize
- Improve access to information
- Use constraints/forcing functions
- Reduce interruptions and distractions
- Take advantage of patterns and habits
- Promote team function
- Automate carefully
ELIMINATING SERIOUS HARM IN HEALTHCARE (Design Elements)

1/10,000,000
1/1,000,000
1/100,000
1/10,000
1/1000
1/100
1/10

RISK OF HARM

IMPROVEMENT OVER TIME

HUMAN FACTORS INTEGRATION
- Intuitive Design
- Obvious to Do the Right Thing
- Impossible to Do the Wrong Thing

HIGH RELIABILITY CULTURE
- Core Values & Vertical Integration
- Behavior Expectations for All
- Hire for Fit
- Fair, Just & 200% Accountability

RELIABLE KEY PROCESS DESIGN
- Evidence-Based Best Practice
- Focus & Simplify
- Tactical Improvements (Process Bundles)
The Evolution of Safety: From Compliance to Resilience

Safer-Systems Redesign: “Building the Road to High Reliability”

“For chronic, complex problems, such as falls and health care—associated infections, the use of system-focused tools brings health care closer to zero harm. [...] Yet we still do not fully understand how to move organizations forward. Health care is much more complex than nuclear power or building jet engines.”


- Systems Sciences
- Complexity Sciences
- Transdisciplinary Collaboration
Stanford Health Care (FY 2015)

Life Flight launches 500 patient transports annually

- 613 Licensed Beds (477 in use)
- 49 Operating Rooms
- 689,417 Ambulatory Visits

New Stanford Hospital
Open for patient care in 2018
824,000sq/ft size

Our People

- 15,232 Total
- 1,480 Volunteers
- 10,034 Employees
- 1,162 Residents & Fellows
- 2,556 Medical Staff

Healing humanity through science and compassion, one patient at a time.
Our Mission

Our mission is to achieve preeminent clinical outcomes through *elimination* of preventable harm.

Our vision is to design evidence-based, adaptive and resilient systems while leveraging *innovation and technology.*
Center for Advancing Patient Safety

**Aims:**

- Discover new evidence to reduce preventable harm to patients
- Foster partnerships to innovate and evaluate new designs, strategies and technologies to improve safety in complex healthcare environments and the patient’s home
- Support development, implementation, and dissemination of innovations in patient safety
The Cycle

Advancing Quality and Safety through *Learning* and (Re-)*Design*

*Improving* Quality and Safety through *Corrective Measures*: improving systems

*Innovating* Quality and Safety through *Innovation* – designing novel systems

 ADVANCING

 IMPROVING

 INNOVATING
Our Approach – Human-Centered Design of Clinical Systems

Transdisciplinary Collaboration

- Systems Monitoring
- Systems Analysis
- Systems Design & Testing
- Systems Implementation
- Systems Evaluation

Patient & Family Advisors

1. Sharing care experiences
2. Focus groups & interviews
3. Workshops & usability tests
4. Satisfaction surveys

Clinical Champions

1. Identifying critical issues
2. Validating analysis findings
3. Providing design ideas
4. Advocating for new systems

Patient Safety Consultants

1. Monitoring incidences
2. Investigating events
3. Defining action plans
4. Training for new systems

Systems Designers

1. Analyzing/describing systems
2. Designing new systems
3. Simulating & testing systems
4. Educating about evidence

Resilient, harm-free systems

© Stanford Health Care Center for Advancing Patient Safety
Our People

Mitesh Rao, MD
SHC-CAPS Medical Director
System Patient Safety Officer
Clinical Assistant Professor, Emergency Medicine

Affiliated Faculty

CAPS Advisory Board

Patient Safety Champion Dyads

Medicine
Charles Liao, MD
Colleen Waters, MS, RN

Surgery
Venita Chandra, MD
Shaina Shepherd, BSN, RN

Critical Care
Javier Lorenzo, MD
Patricia Henry, MSN, RN

Emergency Medicine
Laleh Gharahbaghian, MD
Cheryl Bucsit, BSN, RN

Systems Design Team

TBD
Project Manager

Beatrice Podtschaske, MBA, PhD
Human Factors Engineer

Noraliza Salazar, MSN, RN
Clinical Specialist/Simulationist

TBD
Systems Engineer

TBD
Design Thinking Consultant
Our Methods – Informed by HF/E and Systems Engineering

**Data collection**
- Review of Policies and related documents
  - e.g. Interviews, Cognitive Walkthroughs + Simulation
- Tracer Observations

**Results**
- Process Maps, Screenshots, “Pain points” and Requirements catalogue

**Data Analysis**
- Review with Clinical Champions
  - Corrections and add’l “Pain points” and Requirements

**Data Synthesis**

**Generic Tasks**
- 1. Ordering
- 2. Preparation
- 3. Transfusion
- 4. Post-Transfusion
- 5. Documentation

**Processes**

**Human-Computer Interaction**
- ... List of pain points / Requirements Catalogue (coded)

---

Systems Analysis ➔ Systems Description

© Stanford Health Care Center for Advancing Patient Safety
ECMO Set-up
The ICU...
**FAQs**

(frequently asked questions)

**“Catheter-Associated Bloodstream Infections”**
(also known as “Central Line-Associated Bloodstream Infections”)

---

**What is a catheter-associated bloodstream infection?**

A “central line” or “central catheter” is a tube that is placed into a patient’s large vein, usually in the neck, chest, arm, or groin. The catheter is often used to draw blood, or give fluids or medications. It may be left in place for several weeks. A bloodstream infection can occur when bacteria or other germs travel down a “central line” and enter the blood. If you develop a catheter-associated bloodstream infection you may become ill with fevers and chills or the skin around the catheter may become sore and red.

**Can a catheter-related bloodstream infection be treated?**

A catheter-associated bloodstream infection is serious, but often can be successfully treated with antibiotics. The catheter might need to be removed if you develop an infection.

**What are some of the things that hospitals are doing to prevent catheter-associated bloodstream infections?**

To prevent catheter-associated bloodstream infections doctors and nurses will:

- Choose a vein where the catheter can be safely inserted and where the risk for infection is small.
- Clean their hands with soap and water or an alcohol-based hand rub before putting in the catheter.
- Wear a mask, cap, sterile gown, and sterile gloves when putting in the catheter to keep it sterile. The patient will be covered with a sterile sheet.
- Clean the patient’s skin with an antiseptic cleanser before putting in the catheter.
- Clean their hands, wear gloves, and clean the catheter opening with an antiseptic solution before using the catheter to draw blood or give medications. Healthcare providers also clean their hands and wear gloves when changing the bandage that covers the area where the catheter enters the skin.
- Decide every day if the patient still needs to have the catheter. The catheter will be removed as soon as it is no longer needed.
- Carefully handle medications and fluids that are given through the catheter.

---

**What can I do to help prevent a catheter-associated bloodstream infection?**

- Ask your doctors and nurses to explain why you need the catheter and how long you will have it.

---

**What do I need to do when I go home from the hospital?**

Some patients are sent home from the hospital with a catheter in order to continue their treatment. If you go home with a catheter, your doctors and nurses will explain everything you need to know about taking care of your catheter.

- Make sure you understand how to care for the catheter before leaving the hospital. For example, ask for instructions on showering or bathing with the catheter and how to change the catheter dressing.
- Make sure you know who to contact if you have questions or problems after you get home.
- Make sure you wash your hands with soap and water or an alcohol-based hand rub before handling your catheter.
- Watch for the signs and symptoms of catheter-associated bloodstream infection, such as soreness or redness at the catheter site or fever, and call your healthcare provider immediately if any occur.

---

**If you have additional questions, please ask your doctor or nurse.**

---

Co-sponsored by:

![SHEA](image-url)
![IDSA](image-url)
![American Hospital Association](image-url)
![APIC](image-url)
![The Joint Commission](image-url)
Conceptual Framework
(Adapted work system model)

Phases of ECMO Patient Care Process

1. Start
   - Decision: Patient Selection

2. Initiation

3. Maintenance
   - Decision: Discontinuation

4. Stop

5. Discontinuation

Outcome

Resources & Structures

Environment

Equipment & Tools

People

Organization
ECMO team

**Patient Care Team**
- Cardiac Surgery
- Cardiac Anesthesia
- Perfusion Therapy
- OR Nursing
- ICU Beside Nursing
- Respiratory Therapy
- Pharmacy
- Phlebotomy
- PICC Team
- Rehab OT/Physical Therapy
- Nutrition
- Palliative Care
- Infection Disease

**Support Team**
- Environmental Dept.
- Engineering
- Facilities
- Supply
- Pharmacy
- Lab
Methodology

Data triangulation

Analyst triangulation

Review of Guidelines and related documents

Interviews

Observation

Coding

N > 300 data points

Data collection

Data Analysis

Data Synthesis

© Stanford Health Care Center for Advancing Patient Safety
**E29 - Observation**

| Contact | E. Maia Bucoy-Duque, MSN, CCRN  
|         | E29-CVICU Patient Care Manager |
| Observers | • Beatrice Podtchaske  
|           | • Noraliza Salazar |

| Participants | ECMO care team |
| Location | E29 – patient room 29 |
| Date | June 16, 2017, ~7:30am-10am |

### OBSERVATION OBJECTIVES:

- Observe patient care workflows
- Observe ECMO circuit management
- Observe rooms/supplies/equipment maintenance by Housekeeping, PEMS, etc.
- Observe rounds on ECMO patients

### NOTES:

- Observed space (set-up): Patient room 29
  - 2 ECMO patients
  - CRRT (2x), ECMO Cardiohelp, ECMO trolley
  - One Workstation in the back, one wow in the front
  - Two red biohazard bins
  - One Defi in the back
  - Doppler

  - Overall impression of the environment:
    - Cluttered
    - Patient room: See also above
    - Hallway: used/unused equipment next to each other (e.g. IABP, rapid infuser, ECMO heater/cooler unit, Doppler, Vessel finder devices, CV code blue cart, WOWs); eventually equipment was removed.
    - Dirty floors
      - Paper, labels, caps, cartons, hair, gloves (inside and outside of the patient room).

- Observed tasks:
  - Blood sampling from patient (but we couldn’t see where she was sampling from) (RN)
  - Medication administration (RN)
  - Repositioning of the patient (with help of other bedside nurse, perfusionist and in one case with lift coach) (bedside team)
  - Documentation (RN, rounding team)
  - Room maintenance: Discarding biohazard and other trash (cartons), refilling hand gel (Housekeeping)
  - Removing equipment from hallway, refilling linens, serving food (Nursing assistant)
  - Daily assessment, goals review and therapeutic decision-making, interaction with patient (Rounding team)

- Other observations that may pose risk to infections/overall hygiene:
  - Slips in Hand Hygiene performance
    - Failures to perform correct hand hygiene (gel in, gel out).
    - Perceived Hawthorne effect: some stopped and went back to perform hand hygiene when they saw us taking notes, but it did not seem to be an “automated” habit.
  - Changing dispenser with same set of gloves that were used to push the trash bin, in and out with same gloves.
  - Someone picked up the barcode label from the floor and put them into the little basket on the side of the WOW (is this a trash basket or a basket to keep labels for use? f/u)
  - ECG technician went in and out of the next patient room w/o performing hand hygiene, she was pushing furniture to move in and out.
Preliminary Findings

Direct impact on CLABSI

**Structures & Patient Care Processes**
(Maintenance phase)

- Theme 1: Supplies, Equipment, Physical Structure

**People & Patient Care Processes**
(Decision points)

- Theme 1: Shared goals/Shared understanding
  (Roles & Responsibilities)

Theme 2: Policies & Procedures/ Guidelines

Theme 3: Staffing & Training

No direct impact on CLABSI

Theme 2: Patient Selection

Theme 3: Supplies, Equipment, Physical Structure

By Systems Category

By Phases
Physical Structure
Polarity: Resource constraints vs. Ease of maintenance

- Double occupancy room/room-sharing with open-belly patients/ high-traffic bed location
- Difficult workflows due to overcrowded rooms
- Floors not always clean
- Sharps containers full to the top
- Trash bins full/broken
- No mechanism to ensure windows are sealed (especially during construction around vicinity)
- No dedicated space for ECMO-related equipment/activities (e.g., laptop for documentation, trash bin that is closer to ECMO equipment)
- No dedicated “clean work surface” to setup supplies, e.g., for phlebotomy
Supplies
Polarity: Resource constraints vs. Ease of maintenance

- ECG leads are non-disposable
- Linens in closet are shared by 2 patients in the room
- Unused linens stay in the room’s linen closet after pt. discharge (unless pt. was in isolation)
- Phlebotomist’s supplies are not readily available
- Disinfectant cleaners have strong, offensive odors
- Alcohol gel dispensers sometimes empty
- Ambu bag and Yankauer suction occasionally on floor
- No mechanism for expedited trial and procurement of patient-safety related products
- Long VAT process for approval of products
Equipment
Polarity: Resource constraints vs. Ease of maintenance

• Only 1 ACT machine for all ECMO patients
• Some ECMO machines are bigger/more cumbersome to operate/transport
• Monitor cables not always clean
• ECG lead wires not disposable
• Equipment, e.g., ventilators, not stored in unit (have to be delivered from storage area when needed)
• Rehab equipment not readily available as needed
• Mobility equipment, e.g., bariatric chairs not easily available
• Housekeeping carrying too many equipment around (Rover, cell phone)
• iStat machine’s PaO2 sometimes off by 40-50 points
• Venous sample from circuit get hemolyzed using VAMP
• No cannula dressing change policy
• No anticoagulation protocol
• No ECMO weaning protocol
• No established hand-offs with RT re-chronic vent weaning protocol
• Hourly ACT sampling from ECMO circuit
• Blood culture is drawn from ECMO line
• Variability in management due to multiple personnel directing care
Shared goals/Shared understanding
Polarity: Specialists View vs. “Big picture”

• Co-management by ICU Team/CV Surgeon:
  – Goals of care sometimes not aligned
  – Disparity in what is communicated to patient/family re-prognosis sometimes not aligned

• Expression of futility of care by caregivers not often heard leading to moral distress when “stuck with ECMO patients not getting better.”

• Deliberate tracking of “# of days on ECMO” not established

• Palliative Care consultation not obtained until late

• Family sometimes not aligned with goals of care

• Patient not often involved in care decisions

• “Consent” is not a fully informed consent

• Structured patient & family education not established
Patient Selection

Polarity: Innovation vs. High Value Care

• Higher acuity level of ECMO patients; ~20-30% come from outside hospitals

• Previously:
  – ECMO suitability was done by a surgeon or Pulmonary Critical Care Attending or Anesthesia Attending;
  – Very selective using a predetermined set of criteria
  – Done with 2-person agreement (2 Critical Care MD team members or 1 Critical Care MD and 1 CV surgeon)
  – 3rd person is called in for any lack of agreement

• Currently:
  – No SHC-established patient selection criteria
  – Selection only done by ECMO surgeon on call
Ideas for improvement

**CLABSI Prevention**

*Establish standard of care and adherence to guidelines*

- Establish policies & guidelines, especially infection control guidelines for ECMO care
- Optimize equipment and physical space
- Promote inclusion of infection medicine and infection control in monitoring patients
- Promote antimicrobial stewardship
- TK

**ECMO Patient care**

*Managing complexity by balancing polarities*

- Establish policies & guidelines, including transparent decision-making processes/clear criteria for patient selection
- Formalize the program: Center for excellence accreditation
- Staff training
- Interdisciplinary, interprofessional case conference
- Standardize goals of care discussion, include quality of life care early
Recommendations

1. Work on becoming an “ECMO Center of Excellence”
2. Multidisciplinary approach to patient selection
3. Institute criteria/guidelines for ECMO use
4. **Fully implement ELSO Infection Prevention Guidelines**
5. Implement new central line dressing
6. **Implement "multidisciplinary ECMO Team" including Infection Control/Palliative Care/Ethics/Social Work/Patient-Family Council representative**
7. Develop SHC Management of ECMO Patient procedure
8. Institute multidisciplinary SHC ECMO Training program with clearly defined duration of training based on training goals, competency assessment of trainee, etc.
9. Integrate "OR scrubbing class" into ECMO training curriculum/competency assessment
10. Conduct ECMO care simulations
Recommendations

11. Institute ECMO Patient/Family Education program

12. Institute SHC ECMO Anticoagulation protocol

13. Establish “expedited VAT Approval" process for patient safety-related products

14. Continue regular joint rounds by Housekeeping/Facilities/PEMS/Nursing

15. **Transparency of SHC ELSO registry data; benchmark against comparable ECMO programs**

16. Look into Best Practices related to:
   - Patient selection
   - Diagnosing sepsis on ECMO patients
   - Antibiotic use on ECMO patients
   - Re-sternotomy/cannulation at the bedside
   - Cohorting of ECMO patients; study patient flows and room configurations
   - Hand hygiene compliance (e.g., use of surveillance cameras)
Recommendations

17. Further study the relationship between unit acuity/staffing skills/resources

18. Control of foot traffic/limit # of visitors in ECMO rooms

19. Continue Rehab mobility program based on CUSP (Comprehensive Unit-based Safety Program)

20. Follow the same process for how food trays are delivered into isolation rooms

21. Continue vigilance re - hand hygiene compliance

22. Look into availability of disposable, wireless bedside ECG; partner with bedside monitor company to develop, if not available yet

23. Improve overall workspace (standard placement for equipment in the room) including a designated workspace for perfusionist

24. Find literature to support claim that staff scrubs/shoes/equipment wheels are not contributing to spread of microorganisms

25. Enforce that MD & Pharmacist WOWs cannot go inside patient rooms; if unavoidable, WOW needs to be wiped down before it comes out of the patient's room.
Recommendations

26. Fully implement the joint PEMS/Housekeeping rounds

27. “Open belly” and ECMO patients should never be co-located

28. Continuous monitoring by Facilities/Infection Control/Housekeeping to ensure that windows are completely sealed especially with construction sites in the vicinity

29. **RN to also draw the ACT sample when sampling for other labs from arterial line (instead of the ACT being drawn from ECMO circuit)**

30. **Provide an ACT machine for each ECMO patient**

31. Further standardize the approach for antibiotic utilization

32. Institute a process to follow to ensure that sharps containers/trash bins do not get full and alcohol gel dispensers are always refilled promptly, e.g., increase frequency of scheduled Housekeeping checks, etc.
Recommendations

33. Further examine relationship between patient acuity levels/skills mix/resources

34. Utilize RN/Nursing Assistant Float pool when predicted unit acuity is higher than average

35. Provide two separate linen storage area for each patient in the room

36. Active involvement of patient/family in decision-making; rounds in front of patient to inform patient of status/involve patient in care decisions

37. Share relevant information regarding patient's status/prognosis with intent (not haphazardly); deliberate assessment of patient's "readiness to learn (or readiness to know)" before sharing significant info; include in training program.

38. Improve consenting process to include risks, goals, plan of care

39. Look into other options to indicate that WOW has been cleaned (instead of “Fresh and clean” tent card

40. Standardize the blue PEMS cart set up
Recommendations

41. Check with EVS/Engineering on Best Practice for cleaning IV pumps; explore how IV pumps get soiled with medications

42. Explore "standard spots" to place equipment in room. Look into set up of ICU in new hospital.

43. Revise laminated cards to include pre-printed ELSO guidelines and other resources

44. Re-examine adequacy of resources (supplies/equipment, personnel) and "Plan B" (for overflows into E2)

45. Fully convert all Trolleys to CardioHelp ECMO machines

46. Extra phlebotomy supplies in one of bedside drawers of ECMO room

47. ECMO room set up (same as isolation room setup) - phlebotomy cart outside room; pre-bagged supplies are carried into room, extra phlebotomy supplies in one of bedside drawers

48. Enforce a standard phlebotomist "check-in" with bedside RN to clarify blood samples to be collected (to ask if there are any other add ons)
Challenges

• Resource-intensive work – how do we justify the investment?
  • How do you measure success (cost reduction) by improving safety?
  • How do you measure a “saved lives”?
  • How do we contribute to value/reputation if everything goes right?

• Prioritizing projects – how do you pick what to take on?
  • How to determine if a project requires our level of expertise?
  • How to we determine the stakeholder support?
  • How does the project aligns with organization priorities?

• Success - how do we know that we succeeded?
  • How do we monitor improvement?
  • How do we know improvement/change is sustained?
  • How do share the success story? How do we learn from our efforts?
Take Away

• **Make significant leaps in quality and patient safety:**
  - Use tenets of reliability science
  - Design for reliability using attributes of highly reliable organizations
  - Leverage Lean infrastructure to identify/reinforce reliable design

• **Leverage systems analysis for more transparency and better understanding**
  - “Work-as-imagined” vs. “Work-as-done”, understanding workarounds not only as deviance, but potential innovations
  - How does the complex system function? What are the components? What are the interactions?
  - Seek close collaborations with experts throughout the systems: clinical services and support services

• **Build systems Change Agents for implementation of innovation**
  - Coach and support the change on the frontline
  - Monitor success and sustainability
Thank you!
Any questions? Please contact us!

Team: caps-consult@stanfordhealthcare.org
Personal: mrao@stanfordhealthcare.org
Twitter: @mithrao
Reducing CLABSI in the CVICU unit (E29)

Problem Statement
Central line associated blood stream infections have increased in E29

Background
CLABSI cause considerable increases in morbidity, mortality, and healthcare costs. An estimated 82,000 CLABSI and up to 20,000 attributable deaths occur in the ICUs annually. In addition, nosocomial bloodstream infections prolong hospitalization by an average of 7 days. Estimates of attributable CLABSI costs are between $3,700 and $29,000. In Stanford, our CLABSI rate has increased from 0.43 CLABSI/1000 CL days (2015) to 2.17 CLABSI/1000 CL days (2016 Q4)

Current State: Identify Target / Actual / Gap

Target State: SMART Goal
To reduce E29’s CLABSI rate by 50% by August 2017.

Analysis (RCA meeting scheduled for 5/3)

Key Drivers
- Dressing Disruption
- Insertion and maintenance techniques
- ECMO Patients
- Infection Disease Surveillance and treatment methods
- Lack of Standardize Care for ECMO patients

Interventions / Countermeasures
- New CVC dressing being trialed for CVC sites. Dressing anchors used to relieve pressure from weight of lines and help maintain integrity. Switch dressing changes q/day or PRN (3/17)
- Pictorial reminder at insertion site “best practice” including no hubbing, space enough between double sticks, line in the neck, etc
- Stopped routine zeroing for transducers. Implemented changing flush bag from q4 to q46 hours (3/17). Changing IV tubing every Sundays & Thursdays Developing Dressing Change Cart (June, 2017)
- Single ACT use per patient per room
- Develop daily checklist/bundle that includes infection prevention guidelines provided by ELSO from ID Task Force. Single use ACT machine (one per patient per room)
- Lack of daily assessment for need of central line

Sustain Plan
Activity to sustain | Owner | Sustain method and frequency | Report to
--- | --- | --- | ---
Cardiac Anesthesia Team Awareness and “Best Practice for Placement Picture” placed on all CVC lists | J. Lorenzo, C. Hill | | |
| Gaps identified in ELSO ECMO Infection Prevention Guidelines | J. Lorenzo, C. Hill, P. Henri | | |
| Anchor tubing trialed in Summer 2016 and implemented in Feb 2017 | P. Henri | | |

Maturity Bars:
- 0: Unstarted idea
- 1: Early tests / POC
- 2: Multiple POCs
- 3: Early implementation
- 4: Working well in operation

© Stanford Health Care Center for Advancing Patient Safety
What is Human Factors Engineering?

- Human Factors Engineering (aka “Human factors” or “Ergonomics”) is the scientific discipline concerned with the understanding of the interactions among humans and other elements of a system.

- Human Factors Engineering (HFE, or “Human Centered Design”) is a practical discipline concerned with the design of tools, machines, and systems that take into account human capabilities, limitations, and characteristics.

ECMO System
Our Project Pipeline (Selection)

- ECMO Care (May 17)
- CSF Drainage Devices (Nov 16)
- Blood Administration (Sept 16)
- Radiology Critical Results (Jan 17)

Resilience
How the findings impact CLABSI?

- **Neutral - Impact on CLABSI**: 31%
- **Neutral - no impact on CLABSI**: 19%
- **Positive**: 34%
- **Negative**: 27%
- **Other - no impact on CLABSI**: 7%
Supplies, Equipment and Physical Structure

Polarity: Resource constraints vs. Ease of maintenance

• Shared space: double occupancy of the room, crowded space, poor accessibility
  • Co-location of patients/high traffic
• Shared resources/equipment
  • ACT machine
  • “infected” circuit
• Availability and implementation of supplies (wipes), non-disposable vs. disposable leads, trays, etc.
• Compromised environment (construction, unsealed window)
• Maintenance/Housekeeping: full container, broken container…
• Joint Rounding PEMS/Housekeeping
• Lack of storage/space to operate (e.g. phlebotomist in isolation rooms)
Supplies, Equipment, Physical Structure

- Epic Documentation
- Equipment standardization: ECMO circuit
- Equipment storage (availability)
- Complaints about strong odors (staff, patients, families)
Policies & Procedures

Polarity: TK

- Lack of policies
- Anticoagulation Therapy
- Infection Control
  - Lack of adherence to hand hygiene
  - Lack of adherence of standard of care
  - Antimicrobial Stewardship
Patient Selection
Polarity: Innovation vs. High Value Care

• Patient selection: No transparency about criteria and decision-making process
• Lack of shared decision-making
• Misalignment among the team and between team/patient & family
Staffing & Training
Polarity: TK
Shared goals/Shared understanding

Polarity: Specialists View vs. “Big picture”

• Lack of team-based approach
• Lack of shared understanding / “big picture”
• No formal structures
Policies/Procedures/Guidelines

Polarity: TK

- ELSO Guidelines for Infection Control not consistently followed

- ELSO registry data not transparent to all

- Nursing Quality not tracking ECMO-related indicators

- Antibiotic stewardship not fully observed

- Poor hand hygiene compliance

- Cannula dressing not always kept clean, dry, and intact

- Expedited site prep during emergency cannulation

- 2 neck central lines inserted in OR
Policies/Procedures/Guidelines

• “Fresh and Clean” tent card on work surface of WOW indicating it has been cleaned gets misplaced or discarded

• WOWs brought into room not consistently wiped down when taken out of the room

• Wipe down of high touch ventilator surface not a standard practice

• PEMS & Housekeeping joint rounds not always done

• No mechanism for an earlier escalation to Crisis RN for unsuccessful sticks by phlebotomist

• Medications mixed in urinary cups that are rinsed after each use and reused.
Staffing & Training

Polarity: TK

• Recent "explosion" of ECMO program (↑ # of pts) without a corresponding ↑ in resources

• No established multidisciplinary ECMO training and continuing education program

• Varying levels of staff experience

• Numerous personnel from within the same discipline providing care during the shift

• Only 1 Nursing Assistant to assist nurses during the day shift
Avoiding Sentinel Events: Patient Safety Lessons Learned from Safe Table Forums and PHC

Claire Manneh, MPH  
Director of Programs  
CHPSO, a division of the Hospital Quality Institute

Dr. Robert Moore, MD, MPH  
Chief Medical Officer  
Partnership HealthPlan of California
TJC: A sentinel event is a Patient Safety Event that reaches a patient and results in any of the following:

- Death
- Permanent harm
- Severe temporary harm and intervention required to sustain life
What Can Go Wrong?
1. Unintended retention of a foreign body
2. Wrong patient, wrong site, wrong procedure
3. Fall
4. Suicide
5. Unassigned (category unassigned at time of report)
6. Delay in treatment
7. Other unanticipated event (incl. asphyxiation, burn, choked on food, drowned, or unresponsive)
8. Operative/post-operative complication
9. Medication error
10. Criminal event
How We Manage Events
Patient Safety Organizations (PSO)

- Created by the federal Patient Safety and Quality Improvement Act of 2005
- Formalized by a rule issued by the Agency for Healthcare Research and Quality (AHRQ) in 2008
To Err is Human…

To Err is Human
To Arr is Pirate
“To address this mistake we need to utilise our thorough system of root cause analysis. I will begin, if I may, by pointing out that it’s not my fault”
To Err Is Human…

• “Human error” is not an acceptable cause
• **Never** stop at an action or failure to act, find out why
Fault-Finding

- Clearly separate individual performance issues from causal analysis
  - Legal reasons
  - Culture
- Fault-finding poisons causal analysis
  - Inappropriate focus on isolated parts of system
Patient Safety Organization (PSO)

- Enacts many of the recommendations in “To Err is Human”
  - Collect standardized information nationwide
  - Develop voluntary reporting
  - Extend peer review protections to data related to safety and quality improvement
  - Develop a culture of safety
Established by the California Hospital Association and the regional hospital associations (Hospital Council, HASC, HASDIC)

One of the largest PSOs in the country
- 400+ hospitals, physician groups, SNFs, home health
- 60% members based in CA; some hospitals in AZ, CO, HI, NM, NV, OR, RI, TX, WA

Membership is complimentary for CHA members
Database of over 1.3 million safety event reports
Member listing available online: http://www.chpso.org/member-listing
CHPSO Safe Table Meetings

- Member hospitals convene to discuss a pre-selected topic
- Over 20 offered each year – free!
- All safe tables are available by WebEx
- 1-2 hours
- Cases are informally shared along with free lessons learned, tools, resources
Safe Table on Pressure Injuries

• Why Pressure Injuries?
  - HIIN Measure
  - Ongoing patient safety event (like falls)

• In 2016, over 150 member hospitals submitted 14,904 pressure injury events to the CHPSO database
  - Event Dates from 2007 – 2017
  - Subsequent slides – sample of 1100 events
Safe Table on Pressure Injuries

- Female: 459
- Male: 515

Bar charts showing:
- Age groups: Neonate, Infant, Child, Adolescent, Adult, Mature adult, Older adult, Aged adult
- Departments and Areas: Emergency department, Inpatient general care area, Labor and delivery, Special care area (e.g., ICU, CCU), Operating room or procedure area, Other, Not mapped to CHPSO database
- Counts: 525, 0, 4, 3, 188, 236, 169, 464, 0, 406, 15, 0, 233
Pt developed leaking abdominal aortic aneurysm
Procedure took several hours
Transferred to ICU, required vasopressors to maintain BP
Unable to turn patient (BP dropped)
After 3 days, nurses are able to turn patient but noted dark red discoloration on sacrum
Recorded as Stage 1 pressure ulcer
Two weeks later, pt developed skin necrosis and documented as Stage 3 due to odor.
Bone later is visible and ulcer documented as Stage 4
Reported to State
Sentinel Event Exercise

- What is your process in addressing a sentinel event?
- Get into groups of 4-5
  - One writer
  - One speaker
- Document your responses using the notepad
- 15 minutes
- Consider the following case and follow-up questions
Sentinel Event Exercise

• Small regional hospital
• ED patient given 0.3mg epinephrine from a multi-dose vial
  • Appropriate amt; pt showed signs of improvement
  • Multi-dose vials available in ED
• Earlier symptoms recurred, another dose administered by a nurse
• Nurse returns to see patient and the patient expired
• Second dose was too large – 10x error
1. As a risk manager, you have been notified of this case. What is the first thing you do?

2. How do you address the patient’s family (if the patient has one)?

3. How do you address the nurse involved in the case?

4. What are corrective actions you will make in this ED? Any updates to your process?

5. Do you see this happening elsewhere or with other multi-dose vials?
AHRQ Definition:

- The discipline that takes into account human strengths and limitations in the design of interactive systems that involve people, tools and technology, and work environments to ensure safety, effectiveness, and ease of use.
Human Factors Engineering
TIP #1: Look for Trouble

• Overlooking near misses and low-severity events ignores emerging and potentially catastrophic risks

• For most serious events, there will be a multitude of warnings: glitches in procedures, near misses, uncomfortable situations (i.e., dangerous conditions)—close calls 10 to 300 times more likely than actual events
TIP #2: Decide Whether to Investigate

• How common is the problem?
• How severe is the anticipated outcome?
  • Actual outcome gives minimum severity, anticipated outcome may be much worse.
• How complex is the issue?
  • Simpler issues addressable in a single department may be “farmed out” to them to investigate and report back.
**TIP #3: Prioritize**

### Risk Rating Matrix (adapted from AS/NZ 4360, 2004 Model)

<table>
<thead>
<tr>
<th>Likelihood</th>
<th>Consequence (Potential Impact)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insignificant</td>
<td>Minor</td>
</tr>
<tr>
<td>Almost certain (will undoubtedly recur, a persistent issue)</td>
<td>Moderate</td>
</tr>
<tr>
<td>Likely (will probably recur, not a persistent issue)</td>
<td>Major</td>
</tr>
<tr>
<td>Possible (may recur occasionally)</td>
<td>Catastrophic</td>
</tr>
<tr>
<td>Unlikely (do not expect it to happen again)</td>
<td></td>
</tr>
<tr>
<td>Rare (can’t believe it will ever happen again)</td>
<td></td>
</tr>
</tbody>
</table>

**Risk Rating**

- Low
- Medium
- High
- Extreme
### TIP #3: Prioritize

**Impact Table 2 (based on facts available about the incident)**

*This table may also be used to assess the impact of risks in order to analyse future risks*

<table>
<thead>
<tr>
<th></th>
<th>PEOPLE</th>
<th>RESOURCES</th>
<th>ENVIRONMENT</th>
<th>REPUTATION</th>
<th>QUALITY AND PROFESSIONAL STANDARDS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CA T A S T R O P H I C</strong></td>
<td>Incident that lead to one or more deaths</td>
<td>Severe organisation wide damage/loss of services/unmet need</td>
<td>Toxic release affecting off-site with detrimental effect requiring outside assistance</td>
<td>National adverse publicity. DHSSPS executive investigation following an incident or complaint. Criminal prosecution.</td>
<td>Gross failure to meet external standards, priorities</td>
</tr>
<tr>
<td><strong>M A J O R</strong></td>
<td>Permanent physical/emotional injuries/trauma/harm.</td>
<td>Major damage, loss of property/service/unmet need</td>
<td>Release affecting minimal off-site area requiring external assistance (fire brigade, radiation, protection service etc)</td>
<td>Local adverse publicity. External investigation or Independent Review into an incident/complaint. Criminal prosecution/prevention notice</td>
<td>Repeated failure to meet external standards.</td>
</tr>
<tr>
<td><strong>M O D E R A T E</strong></td>
<td>Semi permanent physical/emotional injuries/trauma/harm (recovery expected within 1 year).</td>
<td>Moderate damage, loss of property/service/unmet need</td>
<td>On site release contained by organisation</td>
<td>Damage to public relations. Internal investigation (high level), into an incident/complaint. Civil action</td>
<td>Repeated failure to meet internal standards or follow protocols.</td>
</tr>
<tr>
<td><strong>M I N O R</strong></td>
<td>Short-term injury/harm. Emotional distress. (Recovery expected within days/weeks.)</td>
<td>Minor damage, loss of property/service/unmet need</td>
<td>On site release contained by organisation</td>
<td>Minimal risk to organisation. Local level internal investigation into an incident/complaint Legal challenge</td>
<td>Single failure to meet internal standards or follow protocol.</td>
</tr>
<tr>
<td><strong>INSIGNIFICANT</strong></td>
<td>No injury/harm or no intervention required/near miss</td>
<td>No damage or loss, no impact on service Insignificant unmet need</td>
<td>Nuiscanoe release</td>
<td>Minimal risk to organisation, Informal complaint</td>
<td>Minor non compliance,</td>
</tr>
</tbody>
</table>
TIP #3: Prioritize

Impact Table Color Key

- **Red**: Fix it right now!
- **Orange**: Fix it expeditiously
- **Yellow**: Schedule a fix
- **Green**: Nice to fix
TIP #4: Communicate

• Communication is always involved
  — Merely identifying “communication” as a cause fixes nothing

• Clarify what is needed for communication

• Precision important
  — “Isn’t this a lot of fluid?”
  vs.
  “600 ml seems too much for a 10 kg child”
Resources

- CHPSO: members can request causal analysis reviews and research assistance

- HealthCare Reliability Organizing (HCRO) program of HQI
Health Plan Role in Patient Safety

- Aligned Mission
- Aligned Incentives
- Reporting Requirements
Health plans have peer review process

Professional issues versus system issue

Most safety issues are related to the underlying system of care

Peer review confidentiality intended for professional issues
Case Example from Health Plan

Where does this IV go?

(Photo from thesmallestthings.org)
Avoiding IV line mixups

Process changes:

- Reinforce “walk the line”
- No distant ports in babies’ IV lines
- Mother: no meds when visiting ICN
Supporting Small Hospitals in Patient Safety
Contact

Robert Moore MD MPH MBA
rmoore@partnershipphp.org

Claire Manneh
cmanneh@chpso.org
916-552-7683
Closing Remarks

Partnership HealthPlan of California