

# Module G

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# **Objectives**

- 1. Describe the impact of "To Err is Human" on the modern patient safety movement, including federal and state regulations and the PSO program
- 2. Discuss the role of organizational culture and safety culture in quality and patient safety improvement
- 3. Discuss the role of leadership in building a culture of safety
- 4. Define safety culture in terms of levels, categories, and key components
- 5. Explain how and why to conduct a safety culture assessment
- 6. Identify four types of interventions that support safety culture
- 7. Discuss how knowledge of human factors leads us to use systems thinking and high reliability principles
- 8. Describe the hierarchy of the strength of interventions
- 9. Discuss pre-work assignment and provide contextual support for patient safety for residency participants
- 10. Identify strategies and resources to improve patient safety and quality in healthcare organizations

### Obj.1 Impact of "To Err is Human"

#### Patient Safety Movement

- Institute of Medicine Report, 1999<sup>1</sup>
  - 1. Establish national focus and enhance knowledge base about safety
  - 2. Encourage health care providers to participate in voluntary reporting systems
  - 3. Raise expectations for improvements in safety
  - 4. Improve culture and systems in health care organizations for safer healthcare delivery



# Federal Laws and Regulation

- Patient Safety and Quality Improvement Act (PSQIA) of 2005<sup>3</sup>
  - Established voluntary reporting system for healthcare providers to enhance data about quality and patient safety issues
  - Provides <u>Federal privilege and confidentiality protections for Patient</u> <u>Safety Work Product</u>
  - Authorizes AHRQ to list Patient Safety Organizations
- Patient Safety Rule published in 2008 implements PSQIA
  - Provides the requirements for PSOs to be listed under AHRQ oversight
  - Describes privilege and confidentiality protections
  - Establishes framework for HHS to monitor compliance with PSO program, confidentiality provisions, impose penalties, etc.
- AHRQ does not provide funding to individual PSOs



# **Nebraska Laws And Regulations**

Nebraska legislature passed the Patient Safety Improvement Act in 2005<sup>2</sup>

- Called for formation of a Patient Safety Organization in Nebraska to encourage a culture of safety and quality by providing for:
  - Legal protection of information reported
  - Aggregation of information about occurrences
  - Sharing of information for improvement
- Nebraska Coalition for Patient Safety formed in 2006 through collaboration of:
  - Nebraska Hospital Association
  - Nebraska Medical Association
  - Nebraska Academy of Physicians Assistants
  - Nebraska Pharmacists Association
  - Nebraska Nurses Association
- Nebraska Statutes 71-8701-8721 pertain to this act
- No funding source for NCPS from state tied to this regulation



## AHRQ PSO Program



The "Listed PSO" logo is available for use by PSOs that are currently listed by the

HHS Secretary. Health care providers considering working with a PSO are advised to review this directory to ensure that the entity's PSO certifications have been accepted in accordance with Section 3.104(a) of the Patient Safety Rule.



#### https://pso.ahrq.gov/



## Why work with a PSO?



Working with a PSO provides a safe and **protected** environment in which to **report**, **analyze**, and **share** information about patient safety events so they can be **learned** from and **improvements** can be made to reduce the risk of patient harm.

**Patient Safety** 

Listed

Organization

These privilege and confidentiality protections can only be achieved by working with a federally-listed PSO.

Protect – Report – Analyze – Share – Learn – Improve

# How does a PSO work with providers?



#### Nebraska Coalition For Patient Safety PSO

- Nebraska's only federally listed PSO
  - Complies with state and federal regulations
  - Meets AHRQ listing requirements and is reviewed every 3 years
- Non-profit 501C3
- Funded by member fees, sponsor contributions, some grants.
- Governed by board of directors with representation from parent organizations, other state professional organizations and consumers
- Workforce of 2.5 FTEs Executive Director, Program Director and Health Data Analyst
- Located on UNMC campus via a services agreement for facilities, administration, HR, and IT support.
- <u>https://www.nepatientsafety.org/</u>



## **NCPS Founders**

NEBRASKA ACADEMY OF PHYSICIAN ASSISTANTS









Nebraska Pharmacists Association Nebraska Coalition for Patient Safety formed in 2006 through collaboration of:

- Nebraska Academy of Physician Assistants
- Nebraska Hospital Association
- Nebraska Medical Association
- Nebraska Nurses Association
- Nebraska Pharmacists Association

Representatives from these organizations serve on NCPS Board of Directors

#### **Check-in For Relevance**

- How many of you were aware of state regulations protecting quality and patient safety improvement information? Where could you look to find that information? Who could help?
- How many of you know whether or not you are working with a PSO? What are the benefits? What questions do you have about working with a PSO?
- What other questions do you have? What additional information do you need?

#### **Obj.2 Role of Organizational Culture**

Organizational Culture...

- Shared assumptions <u>learned</u> by a group as they solve problems that originate in external and internal environments
- Norms and behaviors that are <u>taught by</u> <u>leaders</u> (designated and situational) that define <u>how to think and feel about those</u> <u>problems</u> (Schein, 2010)

## **Obj.2 Role of Safety Culture**

- Shared values, norms, and behaviors related to patient safety among members of an organization (Weaver et al., 2013)
- These values, norms, and behaviors reflect
  - Relative importance of patient safety as compared to other organizational goals such as productivity (Zohar, 1980)
  - Your organization's willingness to learn from experience (Wiegmann, 2002)



# **Obj.2 Role of Safety Culture**

- Four beliefs present in a strong safety culture (IOM, 2004)
  - 1. Our processes are designed to prevent failure
  - 2. We are committed to detect and learn from error
  - 3. We have a just culture that disciplines based on risk taking
  - 4. People who work in teams make fewer errors



# Obj.2 Safety Culture: A specific type of organizational culture

#### **Organizational Culture**

- Allows us to make sense of our environment
- Reflects common language... is heard and observed
- Leaders create/teach culture by how they
  - Share information
  - Reward, provide feedback
  - Hold people accountable

#### Safety Culture

• A cross cutting contextual factor that moderates effectiveness of patient safety interventions (Weaver et al., 2013)



# **Obj.3 Role of Leadership**

# Joint Commission Sentinel Event Alert # 57: The essential role of leadership in developing a safety culture

- Leadership's first priority is to be accountable for effective care while protecting the safety of patients, employees, and visitors.
- Leadership commitment to creating and maintaining a culture of safety is just as critical as the resources devoted to financial stability, system integration, and productivity.

https://www.jointcommission.org/resources/patient-safety-topics/sentinelevent/sentinel-event-alert-newsletters/sentinel-event-alert-57-the-essentialrole-of-leadership-in-developing-a-safety-culture/



# **Obj.3 Role of Leadership**

Joint Commission Sentinel Event Alert # 57: The essential role of leadership in developing a safety culture

- Maintaining a safety culture requires leaders to consistently and visibly support and promote everyday safety measures.
- Leaders must understand that *systemic flaws exist* and each step in a care process has the *potential for failure* simply because *humans make mistakes*.

https://www.jointcommission.org/resources/patient-safety-topics/sentinel-event/sentinel-event-alertnewsletters/sentinel-event-alert-57-the-essential-role-of-leadership-in-developing-a-safety-culture/

#### **Obj.3 Role of Leadership**

# Leadership should be actively involved in the RCA<sup>2</sup> process:

- Understand and support the process
- Ensure the RCA team has the resources it needs time, training, tools - to carry out the process
- Approve and review action plans for effectiveness
- Understand what a thorough RCA<sup>2</sup> report should include
- Act when RCA reviews are not effective and credible
- Annually review the RCA process
- Establish and foster a culture of trust a just culture



NPSF/IHI. RCA2: Improving root cause analyses and actions to prevent harm. Boston: 2015

IHI RCA2 guide: http://www.ihi.org/resources/Pages/Tools/RCA2-Improving-Root-Cause-Analyses-and-Actions-to-Prevent-Harm.aspx

### **Check-in For Relevance**

- Does your organization have a quality/risk management plan?
- Who is ultimately accountable for the quality of care and safety of patients at your organization?
- How does leadership demonstrate commitment to patient safety?
- How is leadership and the board informed of how you are doing with quality improvement and patient safety? What metrics are reported to the board? How often and by whom?
- What success stories can you share? What challenges are you facing?



# Obj.4 Three Levels of Organizational Culture

Three levels of organizational culture...

"the way we do things around here"



https://www.continuitysa.com/beware-iceberg-business-continuity-important-not-outsource/

(Schein, 2010)

# Why is it important to recognize the three levels of culture?

- A gap often exists between our observed behaviors and our values/beliefs! (Schein, 2010)
- Example: We value physical activity and health, we use Fit Bits and Smart Phones to know if we achieve 10,000 steps per day
- Teachable, learnable tools and strategies can bridge this gap

### **Obj.4 Three Levels of Culture**



"...in many organizations, values reflect *desired* behavior but are not reflected in *observed* behavior." (Schein, 2010, pp. 24, 27) \*50<sup>th</sup> percentile response from 630 hospitals reporting to AHRQ 2018 National Database

## Obj.4 Four Categories of Organizational Culture (Schein, 2010)

#### Macroculture



#### **Organizational Culture**

#### **Professional Subcultures**



#### Unit/Dep't. Microcultures





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## Obj.4 Four Components of Safety Culture (Reason, 1997)

- Informed safe, highly reliable organization
- Flexible the organization changes processes and systems to improve; team communications are optimized; there is psychological safety to speak up about safety related information
- Learning information from reports is used to understand risk in the organization and how systems and processes can be improved (includes RCAs)
- **Reporting** staff feel safe to freely report errors and unsafe situations; they understand how the information is used
- **Just** –there is a fair, transparent, consistent system of managing events, demonstrating a shared accountability between system design and behavioral choices



Reason, J. Managing the Risks of Organizational Accidents. Hampshire, England: Ashgate Publishing Limited; 1997.

#### **Check-in For Relevance**

- Have you heard of Just Culture? Do you have any experience with this concept?
- What kind of event reporting system do you have? How are event reports used?
- Have you been involved in a Root Cause Analysis? How did it go?
- Why is it important to learn from events? Why is it important to share the learning with staff?

# Obj.5 Why assess safety culture

- Safety culture as measured by the Hospital Survey on Patient Safety Culture (HSOPS) is associated with
  - adverse events...the more positive your safety culture the lower is the incidence of adverse events (Mardon et al., 2010)
  - patient satisfaction...the more positive your safety culture the more satisfied are your patients (Sorra et al., 2012)



#### HSOPS and Patient Safety Events (Mardon et al., 2010)



**Higher HSOPS** scores are associated with fewer adverse events, which validates patient safety culture assessment as a meaningful indication of the safety of patients.

**FIGURE 1.** Scatter plot of PSI composite versus HSOPS composite average (N = 179).

#### HSOPS and Patient Satisfaction (Sorra et al., 2012)



"....behaviors and attitudes [of hospital employees] can directly affect the pain, discomfort, health, and recovery of patients."

**FIGURE 1.** Scatter plot of CAHPS hospital survey composite average score and Hospital SOPS composite average score (N = 73 hospitals; r = 0.41, P < 0.01) exploring relationships between patient safety culture and patients' assessments of hospital care.

## **Obj.5 Plan to Assess Safety Culture**

- The Joint Commission's Sentinel Event Database indicates that leadership's failure to create an effective safety culture is a contributing factor to adverse events
- Leaders should ensure your organization
  - Establishes a baseline measure of safety culture using the Agency for Healthcare Research and Quality (AHRQ) Hospital Survey on Patient Safety Culture (HSOPS)
  - Analyzes and shares results from the survey at the unit and job title level with front-line workers
  - Develops and implements action plans to address areas of weakness at organizational and unit-level
  - Re-assess safety culture every 18 24 months

(Joint Commission, 2017)



### **Obj.5 Resources to Assess Safety Culture**

• AHRQ Hospital Survey on Patient Safety Culture (HSOPS) Toolkit available at:

https://www.ahrq.gov/sops/quality-patientsafety/patientsafetyculture/hospital/index.html

• AHRQ National Comparative Database of HSOPS results for Benchmarking available at:

https://www.ahrq.gov/sops/quality-patientsafety/patientsafetyculture/hospital/hosp-reports.html

– 630 hospitals; 382,834 respondents in 2018 database



## **Goals of Safety Culture Assessment**

- Identify areas of culture in need of improvement
  - ✓ Identify impairments in organizational learning
  - Create road map for improvement of infrastructure that supports all safety and quality initiatives
- Increase awareness of patient safety concepts
- Evaluate effectiveness of patient safety interventions over time
- Conduct internal and external benchmarking
- Meet regulatory requirements
- Identify gaps between observed behaviors and values/beliefs within subcultures and microcultures (Schein, 2010; Jones et al., 2008; Nieva & Sorra, 2003)



## **HSOPS**

- 42 items categorized in 12 composites/dimensions
  - 2 dimensions measure outcomes at dept/unit level
  - 7 dimensions measure culture at dept/unit level
  - 3 dimensions measure culture at hospital level
- 2 additional outcome measures at dept/unit level
- Open-ended comments about patient safety
- Additional items available to evaluate impact of interventions on safety culture (e.g. TeamSTEPPS, Just Culture, Health IT)
  - Extent of training
  - Knowledge of intervention
  - Adoption of intervention



# **Crosswalk Reason's Components**

Reason's Components <sup>7</sup>	HSOPS Dimension or Outcome Measure
<b>Reporting Culture</b> - a safe organization is dependent on the willingness of front-line workers to report their errors and near-misses	<ul> <li>Frequency of Events Reported (U)</li> <li>Number of Events Reported (O)</li> </ul>
Just Culture - management will support and reward reporting; discipline occurs based on risk-taking	<ul> <li>Nonpunitive Response to Error (U)</li> </ul>

O=Outcome Measure, U=Unit, H=Hospital



# **Crosswalk Reason's Components**

Reason's Components <sup>7</sup>	HSOPS Dimension or Outcome Measure
Flexible Culture - authority patterns relax when safety information is exchanged because those with authority respect the knowledge of front-line	<ul> <li>Teamwork w/in Units (U)</li> <li>Staffing (U)</li> <li>Communication Openness (U)</li> <li>Teamwork ax Units (H)</li> <li>Hospital Handoffs (H)</li> </ul>
Learning Culture - organization will analyze reported information and then implement appropriate change	<ul> <li>Hospital Mgt Support (H)</li> <li>Manager Actions (U)</li> <li>Feedback &amp; Communication (U)</li> <li>Organizational Learning (U)</li> <li>Overall Perceptions (U)</li> <li>Patient Safety Grade (O)</li> </ul>



# How to Conduct SOPS

- AHRQ resources to help you conduct the survey directly in your organization: <u>https://www.ahrq.gov/sops/surveys/inde</u> <u>x.html</u>
- Use a vendor to help you conduct the survey



# **Conduct HSOPS with NCPS**

- NCPS uses principles of survey research to
  - Ensure adequate response rate > 50%
  - Accurately determine response rate
  - Ensure confidentiality of respondents
  - Correctly code reverse-worded survey items
- NCPS will customize survey demographics to ensure accurate assessment at level of Work Area (microcultures) and Job Title (subcultures)
- NCPS provides a reports to assist in understanding results and implementing strong action plans for improvement based on evidence-based interventions


#### **Check-in For Relevance**

- Why would an organization assess their safety culture?
- What would conducting SOPS tell you?
- What resources are available to you to conduct SOPS?
- Has your organization conducted SOPS? Do you have access to the results? What did you find?
- Share your experience and thoughts. What challenges do you face?

#### **Obj.6 Four Types of Interventions to Support Safety Culture 1. Just Culture**

"The Just Culture program teaches hospital leadership to address safety concerns by offering a strategy so that employees are not punished for decisions taken in good faith. The Just Culture Algorithm<sup>™</sup> is a structured approach that encourages hospitals to look at system factors instead of individual blame yet teaches an organization how to detect and manage disruptive and unprofessional behavior that puts patients at risk... Each manager has the Just Culture Algorithm posted in their office so that it is visible to all staff." (Campione et al., 2018, p. 28)



#### **Just Culture**

- Algorithm-based decision-making to manage behavior: human error, at-risk, reckless
- Shared accountability: employees accountable for their behavior; management accountable for systems





(Marx, 2001; Outcome Engenuity)

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#### **Obj.6 Four Types of Interventions** to Support Safety Culture

#### **2. Event Reporting**

"The reporting of safety events can be facilitated through a well-developed error reporting system that is easy to use and can track improvement in reducing both errors and near misses. Hospital leaders can promote reporting by providing sufficient feedback and engaging those who take the time to report errors." (Campione et al., 2018, p. 29)



### **Reporting Interventions**

#### Successful Reporting Systems

- Nonpunitive
- Confidential
- Independent
- Expert analysis
- Timely
- Systems-oriented
- Responsive

(Leape, 2002)



- Formal Reporting of adverse events with standardized taxonomies (e.g. NCC-MERP A – I Error Severity Taxonomy; medication errors by type and phase of origin; assisted and unassisted falls)
- Near misses and non-harmful errors are frequently reported, valued, and learned from
- Informal Reporting Safety Briefings and Leadership WalkRounds to leverage frontline expertise

(Institute for Healthcare Improvement, Singer et al., 2013) 41

#### **Obj.6 Four Types of Interventions** to Support Safety Culture

#### **3. Learning Interventions**

"Ultimately, the willingness of workers to report depends on their belief that the organization will analyze reported information and then implement appropriate change—organizational practices support a learning culture." (Reason, 1997)



#### Learning Interventions

- Team-based meetings (briefs, huddles, debriefs)
- Process Mapping (Colligan et al., 2010)
- Individual Root Cause Analysis (Institute for Healthcare Improvement)
- Aggregate Root Cause Analysis (Neilly et al., 2003)
- Failure Modes and Effect Analysis (VA National Center for Patient Safety)
- Safety Briefings and Leadership WalkRounds (Institute for Healthcare Improvement)
- Leveraging Frontline Expertise (Singer et al., 2013)
- Close the loop with reporting... provide feedback to frontline



#### Leveraging Frontline Expertise

# The foundation of all safety culture interventions

- Leaders engage the frontline to learn from and with them about system problems
- Leaders hold frontline accountable for implementing and sustaining mutually agreed upon change

#### The Leveraging Frontline Expertise (LFLE) Cycle



#### **Obj.6 Four Types of Interventions** to Support Safety Culture

#### 4. Team Strategies and Tools to Enhance Performance and Patient Safety

"TeamSTEPPS is an evidence-based team training program to enhance teamwork, communication, and problem solving that has shown to improve hospital patient safety culture and teamwork attitudes. TeamSTEPPS offers a comprehensive set of ready-to-use materials and a training curriculum." (Campione et al., 2018, p. 27)



### TeamSTEPPS

Adopting team behaviors positively impacts all components of safety culture because teamwork supports learning. (Jones et al., 2013)



#### http://teamstepps.ahrq.gov



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# Safety Culture Summary

- Safety culture is the learned, shared beliefs and behaviors that reflect willingness to learn
- Why is it important to devote resources to safety culture?
  - Improving safety culture increases likelihood of success of all other patient safety interventions
  - Safety culture is associated with adverse events and patient satisfaction
- Use sound survey research methods to ensure your assessments of safety culture are valid

*"If I had an hour to solve a problem I'd spend 55 minutes thinking about the problem and 5 minutes thinking about solutions." — Albert Einstein* 



# Safety Culture Summary

- Implement evidence-based interventions within each key component of safety culture
  - Just culture
  - Effective reporting systems that capture near misses
  - Root cause analysis, Leveraging Frontline Expertise
  - Team training, implementation, and sustainment
- Keep in mind the end goal...to understand and use what the frontline knows about the system to plan, implement, and sustain change



#### **Check-in For Relevance**

- Do the four components of a safety culture make sense?
- How do the components interact?
- What can you tell me about the culture of your organization (whether or not you have conducted a SOPS)?
  - Just and fair?
  - Reporting?
  - Learning?
  - Flexible?
- What opportunities for improvement have you identified so far? What resources do you need?



# Obj.7 High reliability, systems thinking and human factors

- High reliability consistent performance at high levels of safety over long periods of time
- Used in high risk organizations that manage extreme hazards in complex situation with success
- Healthcare is a high risk industry that can use High Reliability Organization (HRO) principles
- Systems thinking and human factors engineering are inherent in HROs



Chassin, Loeb, 2011

# **HRO Principles**

- Preoccupation with Failure
- Reluctance to Simplify
- Sensitivity to Operations
- Deference to Expertise
- Commitment to Resilience



#### **Preoccupation With Failure**

- Everyone is alert and on the lookout for potential failures.
- New threats arise unexpectedly and often.
- The absence of errors or accidents does not lead to complacency.
- Near misses are seen as opportunities to learn about systems issues and potential improvements, rather than as evidence of safety.
- People feel safe to report small problems so they won't become big ones.





# **Reluctance to Simplify**

- People resist looking for a simple answer or excuse for a problem.
- People understand that the systems they work in are complex and dynamic.
- Problems are analyzed for underlying explanations, rather than surface ones.
- Curiosity and questioning of the status quo is encouraged.



# Sensitivity to Operations

- There is "situational awareness" people have an understanding of what is going on around them and how the current state may threaten safety.
- People understand the "big picture" the context of their work in relation to the unit, process flow or organization.
- Resources are available for unexpected situations, changes in workload, etc.



#### **Deference to Expertise**

- People closest to the work are the most knowledgeable about the work.
- In a crisis or emergency, the person with greatest knowledge of the situation might not be the person with the highest status and seniority.
- If something unexpected occurs, the most highly qualified people, regardless of rank, make the decision.
- The organizational culture is such that all staff members are comfortable speaking up about potential safety problems.



### **Commitment to Resilience**

- People understand that system failures are often unpredictable.
- People prepare for and practice assessing and responding to challenging situations.
- Teams are cultivated through team training in skills such as situation assessment and cross monitoring so that potential safety threats can be identified and responded to quickly.
- Events and potential threats are learned from to improve systems and processes so future problems and harm can be prevented.





# Roadmap to HRO

Requirements to achieve high reliability:

- 1. Leadership commitment
- 2. Development of a culture of safety
- 3. Robust and ongoing improvement

Chassin, Loeb, 2011



#### Human Factors and Systems Thinking

The proposition is this: framed by the right systems of learning, the right systems of justice, we can design systems, and <u>help humans make</u> <u>choices in those systems</u>, to produce better outcomes at the individual, local, and societal level.

David Marx, Founder of Outcome Engenuity



#### To Err is Human









#### To Drift is Human





Ask Me If I Confirmed Two Identifiers Before Giving You Meds Www.AskMelf.com



### The P.I.D.A. Model



#### **Three Core Human Behaviors**

#### Human Error

#### Inadvertent action: slip, lapse, mistake

Manage through changes in:

- Processes
- Procedures
- Training
- Design
- Environment
- Behavioral Choices

#### At-Risk Behavior

A choice: risk not recognized or believed justified Manage through:

- Removing incentives for at-risk behaviors
- Creating incentives for healthy behaviors
- Increasing situational awareness

#### **Reckless Behavior**

Conscious disregard of a substantial and unjustifiable risk

Manage through:

- Remedial action
- Disciplinary action
- Punitive action

CONSOLE HUMAN MANAGE SYSTEM COACH HUMAN MANAGE SYSTEM

#### PUNISH HUMAN MANAGE SYSTEM?



#### Human Performance Shaping Factors

Internal	External
<ul> <li>Physical Attributes</li> <li>Psychological Attributes</li> <li>Knowledge/Skill/Experience</li> <li>Attention</li> <li>Bias</li> </ul>	<ul> <li>Systems</li> <li>Procedures</li> <li>Resources</li> <li>Staffing/Load/Stressors</li> <li>Time</li> <li>Environment</li> <li>Supervision</li> <li>Communication</li> <li>Culture</li> </ul>



#### Human Performance Shaping Factors - Examples

Alertness	Human- computer interface design	Task Saturation	Emotional state
Anxiety	Illness/injury	Task Complexity	Tool design
Attentiveness - concentration	Language	Medications	Training
Color contrast – color blindness	Lighting	Organizational Pressure	Weather
Communication – verbal instructions	Monotony	Overconfidence	Written Information
Distraction	Noise	Peer Pressure	Workplace layout
Fatigue	Situational Awareness	Culture	Values
Knowledge of task, process, system, rules	Skill	Fear	Visibility
Hearing ability	Stress	Schedule Pressure	Team Coordination



# Systems Thinking

#### What is a "System"?

- An organized, purposeful structure that consists of interrelated and interdependent elements (components, entities, factors, members, parts) that continually influence one another (directly or indirectly) to maintain their activity and the existence of the system, in order to achieve the goal of the system.
- A set of detailed **methods**, **procedures** and **routines** created to carry out a specific activity, perform a duty, or solve a problem.

http://www.businessdictionary.com/definition/system.html



# Systems Thinking

Outcomes are produced through the design and operation of structures and processes.

Structure	→ Process	→ Outcome
How care is	Tasks performed that	"Ultimate Validator"
delivered, organized,	are intended to	Changes in
financed	produce an outcome	individuals and
People, equipment,	Most closely related	populations due to
policies/procedures	to outcomes	health care
Equivalent to system	Causal relationship	Time to develop,
design, capacity for	between process &	multifactorial,
work	outcomes	random component

Donabedian A. An introduction to quality assurance in health care. New York: Oxford University Press; 2003.



### Humans + Systems

#### **Human Factors Engineering:**

- A discipline that strives to design systems that optimize safety and minimize risk of error in complex environments, by focusing on how systems work in actual practice - with fallible human beings interacting with tools, technology, systems and the environment.
- Specific activities are examined in terms of component tasks for the physical and skill demands, mental workload, team dynamics, and environmental conditions and device design needed for optimal performance of the work.

https://psnet.ahrq.gov/primers/primer/20/Human-Factors-Engineering



#### Human Factors Engineering in System Design

Tool/Technique	Example
Usability Testing: prevent problems or workarounds by testing tools, techniques and technology in real world conditions	<ul> <li>Testing a change to the electronic medical record with users before implementation.</li> <li>Doing a pilot of a new process with a few workers before implementing across the whole unit or testing on a unit before implementing organization-wide.</li> </ul>
Forcing Functions: prevents unintended action or allows only if required action performed first	<ul> <li>Medications cannot be ordered in CPOE until the allergies section is completed</li> <li>Patient ID must be scanned and match the medication dispensing system before medication can be removed</li> </ul>
<b>Standardization:</b> ensuring safety steps are performed in correct order, reducing reliance on human vigilance	<ul> <li>Using code carts with standard types of and locations for emergency drugs and supplies on every cart</li> <li>Checklist for central line insertion steps to prevent infections</li> </ul>



https://psnet.ahrq.gov/primers/primer/20/Human-Factors-Engineering

#### Human Factors Engineering in System Design

Tool/Technique	Example
<b>Environment</b> : Change the precursors to human error and at-risk behavior	<ul> <li>Housekeeping responsible for ensuring a clean gait belt is on hook at the head of the bed in each room</li> <li>Needle disposal bin design and placement</li> </ul>
<b>Barriers:</b> Prevent individual errors	Smart infusion pumps that contain pre-programmed libraries with standardized dosing for commonly used intravenous medications
<b>Recovery:</b> Catch errors downstream	<ul> <li>Bar Code Medication Administration at bedside using 7 rights of medication administration (rightpatient, drug, dose, route, time, reason, documentation)</li> <li>Surgical Safety Check List</li> <li>Sponges with radiopaque marker</li> </ul>
Redundancy: Add parallel elements	<ul> <li>Independent double check of high alert medications</li> <li>Independent double check of calculations for weight- based dosing</li> </ul>



#### **Hierarchy of Risk Controls/Interventions**

#### Strong

Physical, environmental, architectural, system or process simplification

#### Moderate

Cognitive aids, checklists, redundancy, standardization

#### Weak

Administrative, policy change, education, reminders, warnings, supplies



Hettinger et al., 2013; Liberati et al., 2018

Effectiveness and Sustainability

#### Learning About How Systems are Operating

- Team-based meetings (briefs, huddles, debriefs)
- Process Mapping (Colligan et al., 2010)
- Individual Root Cause Analysis (Institute for Healthcare Improvement)
- Aggregate Root Cause Analysis (Neilly et al., 2003)
- Failure Modes and Effect Analysis (VA National Center for Patient Safety)
- Safety Briefings and Leadership WalkRounds (Institute for Healthcare Improvement)
- Leveraging Frontline Expertise (Singer et al., 2013)




### **Check-in For Relevance**

- How does knowledge of the four components of a safety culture help an organization work toward becoming a high reliability organization?
- Why is knowledge of how systems and humans interact important to improving patient safety?
- Are humans ever a component of a system?
- Is human error a choice?
- How can we help humans make safe choices?

## **Obj.8 Hierarchy of Interventions**

- Interventions for improvement vary in effectiveness and sustainability
- Stronger interventions:
  - Are aimed at eliminating or mitigating root causes of undesired outcomes
  - Are aimed at improving systems and processes
  - Take human factors engineering into consideration
  - Include input from front line experts
  - May need to be made incrementally, especially if they are large scale system design improvements

Hettinger et al., 2013



### **Hierarchy of Risk Controls/Interventions**

#### Strong

Physical, environmental, architectural, software, system or process simplification

#### Moderate

Cognitive aids, checklists, redundancy, standardization, policy change

### Weak

Training, reminders, warnings



Hettinger et al., 2013; Liberati et al., 2018

Effectiveness and Sustainability

### **Hierarchy of Interventions**

STRONG	Example
Institutional (large facility-wide investment)	Implementing unit-based pharmacists
IT Structure (change in software/interface)	Usability evaluation, forcing functions (e.g. to prevent wt-based dosing errors in CPOE)
Architectural/ Environmental (change in physical environment)	Signage, relocating equipment (e.g. gait belt on hook next to bed)
Standardize Equipment	Surgical instrument trays, IV pumps
Leadership Involvement	Clinical champions assigned to relevant interventions
Simplify processes	Revise criteria for admission to Observation unit

Commonwealth of Massachusetts, 2012; Hibbert et al., 2018; Hettinger et al., 2013



### **Hierarchy of Interventions**

Moderate	Example
Policy/Procedure change or implementation	Patients at high risk for falls not to be left alone while toileting
Audit/Feedback	Appropriate fall risk interventions in place according to policy
Redundancy	Have an additional person assist
Enhanced documentation/ forms	Making hourly rounding and measures easier to document.
Checklists/Cognitive Aids	Fall Risk Signage with picture of required assist device (i.e., walker)
Standardize communication tools	Shift report form with specific space for fall risk and interventions
Training with practice and competency assessment	Falls skills fair. Personnel file documentation of skills competence

Commonwealth of Massachusetts, 2012; Hibbert et al., 2018; Hettinger et al., 2013



### Hierarchy of Interventions

Weak	Example
Counseling / Discipline	Discussion with individual employee and note in personnel file
Discussions in meetings	General mention in monthly staff meeting (*daily safety huddle reminders might be more helpful)
Notifications (email, communication book)	Notice to "do better." Decreased opportunity for it to be personalized or have questions answered.
Warnings	Punitive discussion and file note
Double-checks	Double checks of medication dosage prior to administration
Training without practice or competency assessment	Float staff expected to "see one, do one"

Commonwealth of Massachusetts, 2012; Hibbert et al., 2018; Hettinger et al., 2013



#### **Priority Payoff Matrix**

#### **Payoff/ Benefit** (strength of intervention)

- Rank your proposed actions on this matrix to help with selection and timing
- Use sticky notes with action items on them
- Works well with a team

Could you use this tool with your core team in a small organization?

Share your thoughts in the chat.

ProjectImage: Section of the sec

#### EASY/INEXPENSIVE DIFFICULT/EXPENSIVE

#### **Ease/Cost of Implementation**



HIGH

LOW

### **Check-in For Relevance**

- How does knowledge of human factors and systems help us create strong action plans for improvement?
- Are strong actions more difficult to implement?
- Are weaker actions easier to implement?
- When are weaker actions appropriate to use?
- Which type of actions to you use most often in your action plans?
- Could the hierarchy and priority matrix help you create stronger action plans?

# **Obj. 9 Homework Assignment**

#### **Homework with mentor**

- How does the mentor's organization tie patient safety culture to organizational culture and make it a priority?
- What patient safety metrics does the mentor's organization track? How are they reported to the Board of directors? What education is the Board given about patient safety?
- How does the mentor's organization use the SOPS results? What interventions are they implementing to improve their culture of safety?
- How does the mentor encourage reporting? How are near misses reported? When is an RCA done at the mentor's organization and how do they conduct it? Suggestions and lessons learned?



### **Obj. 10 Strategies and Resources**

 Identify strategies and resources to improve patient safety and quality in healthcare organizations





# Together we can improve patient safety.

What We Do

Members

**Resources & Tools** 

About

It takes everyone's commitment.

https://www.nepatientsafety.org/



Q

News & Events



# Continuously improve the safety and quality of healthcare delivery





#### Provide protection for reporting

Event investigations that meet the definition of Patient Safety Work Product are made privileged and confidential when reported to a PSO.

#### Learn from reported events

Learning from event review and data aggregation informs the development of feedback, training, and education.

#### □ Share learning

As an integral component of the patient safety learning system, products such as deidentified events, patient safety alerts, and reporting summaries are provided to members.

#### Offer resources

Members receive feedback on events, root cause analysis support, information about evidence-based best practices, and patient safety culture development.

#### Provide education and training

Offerings include quarterly member education, annual RCA training, and conference sessions specific to patient safety.



# Membership is Voluntary

- Currently 72 hospital, ambulatory clinic, and ambulatory surgery center members in Nebraska and Iowa
- All physicians, osteopathic physicians and physician assistants licensed in Nebraska
- As a federally listed PSO, NCPS can serve all types of providers in any state



### **Member Education**

- Debrief Collaborative
- Falls Reduction Interventions
- **PSWP Privilege in the Context of PSOs**
- Suicide Risk Mitigation
- Using Data to Inform QI Efforts
- Medication Safety: Using External Sources to Improve
- Updated Clinical Guidelines for the Management of Mild Chronic Hypertension in Pregancy



### Agency for Healthcare Research and Quality (AHRQ)

$\leftrightarrow$ $\rightarrow$ C $\Delta$ $\triangleq$ ahrq.gov	☆ 💄 :
An official website of the Department of Health and Human Services	Careers   Contact Us   Español   FAQs   🖂 Email Updates
Agency for Healthcare Research and Quality	Search AHRQ Q
Topics - Programs - Research - Data - Tools	✓ Funding & Grants ✓ News ✓ About ✓
	COVID-19 Resources and Data from AHRQ
	AHRQ National Nursing Network Training and mentoring to pr home residents and staff
	AHRQ Celebrates Hispanic Heritage Month Honoring the Nation's largest ethnic population and supporting ongoing efforts to reduce health disparities.
NHA	https://www.ahrq.gov/ 88

# AHRQ PSO Program

NHA

Research and Quality			
Patient Safety Organization (P	SO) Program		Subscribe to PSO Email Updates
🚳 Work With a PSO 💮 Become a PSO	Maintain a PSO Listing		
PSOs v Common Formats v Forms v Resource	is v About v FAQ Contact PSO		
Home ⇒ About			
			Share: f 🏏
About	About the PSO Program		
Organizations and Relationships			
	A Brief History of the Program	Patient Safety	
	The Congress developed and enacted the <u>Patient Safety and Quality Improvement Act of 2005 (Act)</u> in response to the <u>Institute of Medicine</u> w report, <u>To Err Is Human</u> w, which sparked national concern over the		
	number of preventable medical errors that were occurring. By conferring privilege and confidentiality protections on providers who work with listed Patient Safety Organizations (PSOs), the Act was intended to	Listed	AHRQ
	promote shared learning to enhance quality and safety nationally. The Denartment of Health and Human Services issued its Notice of Proposed Bulemaking (NPBM), or		Common
	proposed rule, on February 12, 2008. The proposed rule was open to public comment for 80 days and comments were received from over 150 organizations. Comments were also solicited and received on many of the 47 specific questions posed by the Department in the NFRM.	$\mathbb{P}_{20}$	Formats
	On October 14, 2008 the Department issued Interim Guidance that allowed it to begin implementing the Act. The Interim Guidance described a temporary legal framework consisting of the Act. Interim Guidance that closely follows the regulations proposed in a NPRM, and explanatory guidance detailing HHS interim procedures. The framework was effective immediately and AHRQ began listing PSOs within a few	Organization	
	weeks. The Interim Guidance remained in effect until the final rule became effective. The final Patient Safety Rule was adopted November 21. 2008 and became effective on January 19. 2009. Eve	rv PSO listed under the Interim Guidance was required	to come into compliance with the provisions of the
		,	

https://pso.ahrq.gov/about

### Institute for Healthcare Improvement (IHI)

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http://www.ihi.org/Pages/default.aspx

## **IHI RCA2 Resources**

← → C 🏠 🔺 Not secure | ihi.org/education/WebTraining/Webinars/rca2/Pages/default.aspx



http://www.ihi.org/education/WebTraining/W ebinars/rca2/Pages/default.aspx

### Additional RCA Training Resource



https://www.thinkreliability.com/

# **Just Culture Training Resource**



https://justculture.com/

### **Check-in For Relevance**

- Have you identified opportunities to improve your patient safety program?
- What are your next steps to improve your program and culture?
- What resources might you use to help you?
- What challenges will you face?
- What help do you need?

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