Title:
Practical Tools for the High Reliability Journey

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Session Title:
High Reliability: Practical Application and Tips for the Journey
Slot:
F 08: Friday, 28 July 2017: 2:30 PM-3:45 PM
Scheduled Time:
2:50 PM

Keywords:
• Failure Mode Effects Analysis, • High reliability organization and robust process improvement and • Root Cause Analysis

References:

Chassin, M. & Loeb, J. (2013). High-Reliability Health Care: Getting There from Here. *The Milbank Quarterly*, 91 (3), 459–490.

Institute of Medicine. (2009). *To Err is Human: Building a Safer Health System*. Washington D.C. National Academy Press.

National Patient Safety Foundation (2015). *RCA [2] Improving Root Cause Analyses and Actions to prevent harm*. Boston: NPSF.

Weick K., & Sutcliffe, K. (2007). *Managing the unexpected: Resilient perfromance in an age of uncertainty*. San Francisco, CA: Jossey Bass.

Woods, D., Dekker, S., Cook, R. & Johannesen, L. & Sarter, N. (2012). *Behind human error* (2nd Ed.). Burlington , VT: Ashgate .

Abstract Summary:
Learn two powerful improvement tools, Root Cause Analysis and Failure Mode Effects Analysis, that when coupled with principles of high reliability are vital to promoting sustainable change and prevention of adverse events.

Learning Activity:

LEARNING OBJECTIVES	EXPANDED CONTENT OUTLINE
The learner will be able to identify the limitations of traditional improvement activities for sustainable change in a complex organization.	I. Introduction A. Objectives i. The learner will be able to identify the limitations of traditional improvement tools for sustainable change in a complex, modern, healthcare organization. ii. The learner will be able to

	apply the tools of Root Cause Analysis and Failure Mode Effects Analysis to create effective, reliable change. II. Background A. Human error and complexity: the perfect storm for error B. Challenges to traditional improvement tools to innovate and sustain change in a complex environment. C. Incorporating high reliability principles into process improvement. D. The need for "boundary spanners" across disciplines i. Boundary spanner characteristics ii. Robust process improvement tools serve as boundary spanners III. Purpose A. High Reliability can easily become a "buzz word" unless we are intentional in our behaviors and change techniques. This presentation will highlight two key tools that when used correctly, can embed the culture of High Reliability by promoting robust analysis and sustainable actions.
The learner will be able to describe how to apply the tools of Root Cause Analysis and Failure Mode Effects Analysis to obtain sustainable, reliable results.	IV. Methodology A. Importance of intentional application of key factors of reliability into each process improvement tool i. Preoccupation with failure ii. Reluctance to simplify iii. Sensitivity to operations iv. Deference to expertise v. Resilience B. Practical application of tools to promote high reliability principles i. Root Cause Analysis (RCA) 1. Background of the RCA 2. Challenges to reliability of the RCA 3. Steps to an effective RCA 4. Just Culture principles and the RCA 5. Sources of bias and mitigation strategies for the RCA process 6. Strength of interventions- sustainable versus non-sustainable ii. Failure Mode and Effects Analysis (FMEA) 1. Background of the FMEA 2. Example of processes/activities that might require an FMEA 3. Challenges to reliability of the FMEA 4. Steps to an effective FMEA 5. Simulation and the FMEA 6. The key role of the facilitator V. Outcomes A. Culture of Safety survey improvement B. Focus on design for Human Factors C. Example of successful RCA – Retained foreign object in surgery i. Examples of

	system changes ii. Examples of high level interventions for sustainable prevention of error C. Example of successful FMEA-Pediatric code blue process i. High risk processes identified ii. Mitigation strategies implemented successfully VI. Practice Implications A. The culture change to a highly reliable mindset requires that process improvement tools reflect high reliability principles. B. Embedding key tools and improvement processes into a hospital quality program allow for high reliability to become a reality and way of doing business. C. Tools such as the Root Cause Analysis and Failure Mode and Effects Analysis lead to sustainable high level changes and outcomes by promoting anticipation of events and mitigation or resilience when emergent situations arise. VII. Questions and Answers

Abstract Text:

Highly reliable organizations are effective in three domains: leadership commitment to high reliability, a safety culture and robust process improvement (Chassin & Loeb, 2013). However, the nature of healthcare today creates a challenge to high reliability. Healthcare in the hospital today is a whirlwind of highly complex systems and processes, coupled with emergent conditions. Interacting within this chaos daily are human beings seeking and providing care to those who are ill and vulnerable. Human nature and the history of healthcare still lead us to fall back on expecting perfection from humans in this type of system. Current leaders in patient safety state that safety advances when human error is recognized as an attribute of the system and not the cause of it (Woods, et al, 2012). This means that we must expect vulnerability from human beings and create effective systems to mitigate the expected error. Errors occur most often, not because of lack of reliability from humans but because of lack of reliability of our system to prevent humans from error (IOM, 2009). Highly reliable organizations rely on finding system and process solutions to prevent human error in a proactive, rather than reactive manner (Weick & Sutcliffe, 2007). High reliability can become a "buzzword" unless we match the principles of high reliability with our everyday processes. Robust process improvement cannot be simplified by only adopting a process or tool. In order to create high reliability, we also need to be intentional with embedding the principles of high reliability into our process improvement tools. Root Cause Analysis (RCA) and Failure Mode Effects Analysis (FMEA), when implemented with high reliability principles, can be effective tools to recognize and mitigate the effects of human fallibility by encouraging proactive anticipation of conditions that lead to errors and encouraging robust interventions created by interdisciplinary collaboration to mitigate error from emergent conditions. High reliability depends on crossing traditional barriers and boundaries to innovate. Boundary spanners can be people, objects, or processes that bridge differences and lead to collaboration between diverse areas. Highly reliable improvement tools can serve as boundary spanning processes that bridge the gap between traditional process improvement and highly reliable performance.

Purpose

The purpose of this presentation is to describe how two robust process improvement tools can be used to promote highly reliable error reduction in a complex hospital environment.

Methods

An effective RCA and FMEA is a key feature of a highly reliable organization's robust process improvement program. The RCA at its most effective considers system issues as causes and human errors as effects, considers and mitigates for sources of bias in the investigation , creates strong actionable, timed interventions that address the root causes found and is supported by the highest levels of organizational leadership (National Patient Safety Foundation, 2015). The RCA is generally used to analyze an event or a close call that has been identified. An FMEA, on the other hand, is used to predict and identify safety or problematic gaps in a process before an event occurs. Both methods if not intentionally facilitated can have challenges to high reliability such as bias, failure to consider system issues, failure to encourage diverse opinions in the process, choosing interventions which do not consider human factors and failure to monitor and sustain the improvement. When used effectively, the tools are a key component of a highly reliably organization, leading to sustainable improvement.

Outcomes

Implementing the robust improvement tools, RCA and FMEA, through the lens of high reliability principles has led to an increase in staff perception of patient safety and how the organization reacts to and prevents adverse events. Improvement in the AHRQ Hospital Survey on Patient Safety was realized in the items of "organizational learning from erro"r and "non-punitive response to error". One RCA led to a system change of the counting process in the operating room that identifies a mandatory time out for counting prior to close. After implementation, there have been no further retained foreign objects over the last year. An FMEA at the same facility identified at least 20 high risk opportunities for failure in a pediatric resuscitation event. Mitigation strategies have been implemented for all opportunities and currently, the process was tested with no deficiencies.

Implications for Nursing Practice

High reliability is dependent upon identifying conditions for adverse events before they occur and creating resilience in the system for staff to react to safety issues before harm to a patient occurs. The RCA and FMEA are tools which promote both anticipation and mitigation and can serve as boundary spanning processes, linking process improvement to high reliability.