Systems-Based Approaches for Effective Problem Solving

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Objectives

• Define Goal
• Identify Challenges
• Discuss Tools and Approaches to Achieve Goals to Evolve into a High Reliability Organization
  – Examples
• Identify the Role that Leaders at All Levels Must Play to Embed and Sustain a Culture of Safety Into the Fabric of the Organization
• Quality – The extent to which a service or product produces a desired outcome(s).
• Safety – Prevention or moderation of hazard induced harm.
• Hazard – A circumstance or agent that can lead to harm, damage, or loss.
• Risk – The chance of a specific event occurring. Measured in terms of consequences and likelihood.
What Is A System?

• A collection of elements whose operation is interdependent.
• Systems obey rules that cannot be understood by breaking them into parts, and stop functioning (or malfunction) when an element is removed or altered significantly.
• Systems provide a coherent and unified way of viewing, interpreting and of organizing our thoughts about the world.
Patient Safety - The Problem

• Not New
ADVERSE EVENTS IN HOSPITALS: NATIONAL INCIDENCE AMONG MEDICARE BENEFICIARIES
Medicare – Adverse Events
2010

• 13.5% Adverse Events (Serious Events)
• 13.5% Temporary Harm
• 1.5% die (15,000/month ~ 180,000/yr)

Bottomline – The Problem Is Still Here
Where Healthcare Was/Is

• Cottage Industry Mentality
• Virtually Total Reliance on:
  – Professional/Individual Responsibility
  – Individual Perfection
  – Train and Blame
• Little Understanding of Systems Relative to People and Processes
  – Ignorance vs Arrogance

Culturally Different!!!!
Typical Approach

• New Policies, Regulations, Reporting Systems, Training
• Good First Step But.....
  – Lack of Systems Insight
  – Superficial Solutions (?Answers)
  – Inadequate Follow-Up
  – Lost Opportunity
Traditional Institutional Risk Management

• What is its primary goal?
  – Prevent fiscal loss
  or
  – Prevent harm to patient

• Reactive or Proactive?

• Proactive approaches are oriented towards primary prevention instead of the more common secondary prevention or absence of any preventive approach
Systems-Based Approach

• Preventive Approach
• Influence Providers Behavior – Individually and Organizationally
• Concrete & Observable
• Viewed by the Target Audience as Useful
Program Elements

- Goal – Prevent Inadvertent Harm To Patient While Under Our Care
- Culture Not Compliance
- Identify Barriers
Awareness and Shame May be Largest Hurdles

• Survey at VHA and Data From Other Private Healthcare Organizations
  – Only 27% Agreed that Errors were a Serious Problem
  – 49% “Ashamed” by Error

• IOM report concurs
Combating Shame: Blameworthy Concept

• Safety Reports Are Only For Systems Improvement
• Reports Kept Confidential/Nonpunitive As Long As Not Deemed ‘Intentionally Unsafe’
  – Criminal Act
  – Under Influence of Alcohol or Illicit Drugs
  – Purposely Unsafe
• Supervisory System Is A Parallel Process
  – May Not Use Identified Info From Safety Report
Program Elements

• Goal – Prevent Inadvertent Harm To Patient While Under Our Care
• Culture Not Compliance
• Identify Barriers
• Reporting Systems
Patient Safety System Design

• High Reliability Organizations
• Role of Reporting
  – Learning or Accountability
• Systems-Based Solutions
  – Patient Centered – DUH!!!!
• Importance of Close Calls
Patient Safety System Design

THE "MISHAP DIAMOND"

Type A
Type B
Type C
Incidents
Close Calls

Severity
Frequency

Weak Program Model
Patient Safety System Design

THE "MISHAP PYRAMID"

Severity

Frequency

Type A

Type B

Type C

Incidents

Close Calls

Strong Program Model
Patient Safety System Design
NASA Experience

Corrective Actions from Close Call Reports

- Modifications/Repairs: 51%
- Training, Counseling or Increased Awareness: 26%
- Procedure Changes or Inspections: 15%
- Further Study or No Action Needed: 8%
Program Elements

• Goal – Prevent Inadvertent Harm To Patient While Under Our Care
• Culture Not Compliance
• Identify Barriers
• Reporting Systems
  – Identify Vulnerabilities, Not for Counting
• Systems-Based Solutions
Safety & Human Error: Challenges

• Healthcare Views Errors as Failings Which Deserve Blame - Fault
• Train and Blame Mentality vs Systems-Based
• Blind Adherence To Rules
• Corrective Actions Focusing on Individual
• No Blood No Foul Philosophy
Safety & Human Error: Cornerstones

- People Don’t Come to Work to Hurt Someone or Make a Mistake
- Must Keep Asking “Why?”
Safety – Human Error

DEFENSES
- Policies/Procedures
- Institution
- Profession
- Team
- Individual
- Technical

Incomplete procedures
Regulatory narrowness
Mixed Messages
Production pressures
Responsibility shifting
Inadequate training
Deferred Maintenance
Attention Distractions
Clumsy Technology

LATENT FAILURES

Accident
Safety – Human Error
Hindsight Bias
Changing Culture

Tools → Behavior → Attitude → CULTURE!!!
Prioritize

• Risk Based
  – Severity
  – Probability

• Must Make Sense
  – Business Processes
  – Regulatory Environment
March 4, 2011
VHA HANDBOOK 1050.01 APPENDIX B

THE SAFETY ASSESSMENT CODE (SAC) MATRIX

The Severity Categories and the Probability Categories that are used to develop the Safety Assessment Codes (SACs) for adverse events and close calls are presented in the following, and are followed by instructions on the SAC Matrix.

1. SEVERITY CATEGORIES
   a. Key factors for the severity categories are extent of injury, length of stay, level of care required for remedy, and actual or estimated physical plant costs. These four categories apply to actual adverse events and potential events (close calls). For actual adverse events, assign severity based on the patient's actual condition.
   b. If the event is a close call, assign severity based on a reasonable “worst case” systems level scenario. NOTE: For example, if you entered a patient's room before they were able to complete a suicide attempt, the event is catastrophic. Because the reasonable “worst case” is suicide.

<table>
<thead>
<tr>
<th>Catastrophic</th>
<th>Major</th>
<th>Moderate</th>
<th>Minor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients with Actual or Potential</td>
<td>Patients with Actual or Potential</td>
<td>Patients with Actual or Potential</td>
<td>Patients with Actual or Potential</td>
</tr>
<tr>
<td>Death or major permanent loss of function (sensory, motor, or intellectual) not related to the natural course of the patient's illness or underlying condition (e.g., acts of commission or omission). This includes outcomes that are a direct result of injuries sustained in a fall, or associated with self-inflicted injuries from an immediate or close-at-hand treatment</td>
<td>Permanent hindering of bodily functioning (sensory, motor, or intellectual) not related to the natural course of the patient's illness or underlying condition (e.g., acts of commission or omission) or any of the following: a. Increased length of stay for three or more patients b. Increased level of care for three or more patients c. Incurred or estimated costs exceeding $50,000, or in excess of the expected level of care for the patient d. Increased level of care for one or two patients</td>
<td>Increased length of stay for three or more patients e. Incurred or estimated costs exceeding $50,000, or in excess of the expected level of care for the patient f. Increased level of care for one or two patients</td>
<td>No injury, no increase length of stay or increased level of care</td>
</tr>
</tbody>
</table>

2. PROBABILITY CATEGORIES
   a. Like the severity categories, the probability categories apply to actual adverse events and close calls.
   b. In order to assign a probability rating for an adverse event or close call, it is ideal to know how often it occurs at your facility. Sometimes the data will be easily available because they are routinely tracked (e.g., falls with injury, Adverse Drug Events (ADEs), etc.). Sometimes, you get a feel for the probability of events that are not routinely tracked will mean asking for an quick or informal opinion from staff most familiar with those events. Sometimes it will have to be your best educated guess. Like the severity categories, the probability categories apply to actual adverse events and close calls:
   (1) Frequent. Likely to occur immediately or within a short period (may happen several times in 1 year).
   (2) Occasional. Probably will occur (may happen several times in 1 to 2 years).
   (3) Uncommon. Possible to occur (may happen sometime in 2 to 5 years).
   (4) Remote. Unlikely to occur (may happen sometime in 5 to 30 years).

3. How the Safety Assessment Codes (SAC) Matrix Looks

<table>
<thead>
<tr>
<th>Probability and Severity</th>
<th>Catastrophic</th>
<th>Major</th>
<th>Moderate</th>
<th>Minor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequent</td>
<td>5</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Occasional</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Uncommon</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Remote</td>
<td>5</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

4. HOW THE SAC MATRIX WORKS

When a severity category is paired with a probability category for either an actual event or close call, a ranked matrix score (3 = highest risk, 2 = intermediate risk, 1 = lowest risk) results. These ranks, or SACs, can then be used for doing comparative analysis and for deciding who needs to be notified about the event.

5. REPORTING
   a. All known occurrences of events, regardless of SAC score (one, two, or three), must receive appropriate and timely follow-up.
   b. The Patient Safety Manager (PSM), or acting PSM, must refer adverse events or close calls related solely to staff, visitors, or equipment and/or facility damage to relevant facility experts or services on a timely basis, for assessment and resolution of those situations.
Causation/Actions: Who vs. What & Why

• Who
  – ‘Whose Fault Is This?’
  – Actions focused on correcting individual
  – ‘Corrects’ only after problem occurs
  – Limited scope of action and generalizability

• What & Why
  – Actions focus on systems level causation
  – Widespread applicability
  – Stronger preventive strategy
Systematic
(5 Rules of Causation)

• Cause and Effect
• Human Error Must Have Preceding Cause
• Failure to Follow Procedure By Itself Is NOT a Root Cause
• Negative Descriptors Aren’t Actionable
• Failure To Act Is Not A Cause Without Pre-existing Requirement To Act

Human Factors Engineering and “Actions”

- **Warnings and labels** (watch out!)
- **Training** (don’t do that)
- **Procedure changes** (work around that)
- **Interlock, lock-in, lock-out, etc** (design it so you cannot do that – forcing functions)
- **Is there one right action???</p>
## Action Hierarchy

<table>
<thead>
<tr>
<th>Less memory or reliance on individual performance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Stronger Actions</strong></td>
</tr>
<tr>
<td>Architectural/physical plant changes</td>
</tr>
<tr>
<td>New devices with usability testing before purchasing</td>
</tr>
<tr>
<td>Engineering control or interlock (forcing functions)</td>
</tr>
<tr>
<td>Simplify the process and remove unnecessary steps</td>
</tr>
<tr>
<td>Standardize on equipment or process</td>
</tr>
<tr>
<td>Tangible involvement and action by leadership in support of patient safety</td>
</tr>
<tr>
<td><strong>Intermediate Actions</strong></td>
</tr>
<tr>
<td>Redundancy</td>
</tr>
<tr>
<td>Increase in staffing/decrease in workload</td>
</tr>
<tr>
<td>Software enhancements/modifications</td>
</tr>
<tr>
<td>Education using simulation-based learning with a competency assessment completed on a recurring basis</td>
</tr>
<tr>
<td>Eliminate/reduce distractions (sterile medical environment)</td>
</tr>
<tr>
<td>Checklist/cognitive aid</td>
</tr>
<tr>
<td>Eliminate look and sound-alikes</td>
</tr>
<tr>
<td>Repeat-back/Read-back</td>
</tr>
<tr>
<td>Enhanced documentation/communication</td>
</tr>
<tr>
<td><strong>Weaker Actions</strong></td>
</tr>
<tr>
<td>Double checks</td>
</tr>
<tr>
<td>Warnings and labels</td>
</tr>
<tr>
<td>New procedure/memorandum/policy</td>
</tr>
<tr>
<td>Traditional training</td>
</tr>
<tr>
<td>Additional study/analysis</td>
</tr>
</tbody>
</table>
Action Assessment

• Characteristics of Actions
  – Temporary vs. Permanent
  – Procedural vs. Physical

• Action Evaluation
  – Process
  – Outcome
Endorsing Organizations

- AAMI: Advancing Safety in Healthcare Technology
- AAMI FOUNDATION
- AOHP: Association of Occupational Health Professionals in Healthcare
- Aurora Health Care
- cpsi icsp: Canadian Patient Safety Institute
- Christus Health
- Citizens for Patient Safety
- CRICO: Protecting Providers, Promoting Safety
- ECRI Institute: The Discipline of Science. The Integrity of Independence.
- HCA Healthcare, Patient Safety Organization, LLC: Putting Patients First
- Institute for Healthcare Improvement
- ISMP: Institute for Safe Medication Practices
- Kaiser Permanente
- MHA: Keystone Center
- NAHQ: National Association for Healthcare Quality
- THE DOCTORSCOMPANY
- The Joint Commission
Must Go Beyond Symptoms

• **Identification of Proximate Cause Is Insufficient**
• Preventive Actions are Only Successful if they Address Underlying Causes
• Risk Management Must Address Primary Prevention, Not Just Short Term Loss Mitigation
• Incentives Are Needed
  – Extinguish “No Blood, No Foul” perspective
  – Communicate to Public & Profession (Including Trainees)
  – Reward Prudent Practices
Leadership - What Can Be Done Right Now?

• *Lead by Example*
• Relentless Drumbeat
• Eliminate ‘Whose fault is it?’
• Encourage Skepticism
  – Devil’s Advocate is Valued
• Distinguish **Real** Priorities From Official Priorities
• Part of Every Agenda

• **What Happened?**, **What Should Have Happened?**, **What Usually Happens?**
Key Points for Sustainable Progress

- Transparent Risk-Based Prioritization Methodology
- Define Blameworthy Behaviors
- Emphasize Systems-Based Solutions
  - Determination of Real Underlying Causes
  - Seek Out Stronger Solutions
- Emphasize Formal Scrutiny of Close-Calls
- Communicate Approach Widely

- **Interventions Must Go Farther Than Simply Training and Policy**
Closing Thoughts

• It’s Everyone’s Job
• Not About Errors!!!
• Counting reports **is not** the objective, identifying Vulnerabilities **is**
  – Hope reports increase
  – **Analysis, Action, & Feedback** are the key
• Prevention NOT Punishment
• Cultural change resulting from changed behaviors is the key
• Intervention in early training of all healthcare professionals
  • **Safety is the Foundation Upon which Quality is Built**