

# **Patient Safety: An Overview**

**Reviewed: 2008-2009 AMA RFS PHC**

**Original Source: 2006-07 AMA-RFS  
Public Health Committee (PHC)**



# What is patient safety?

- Patient safety is the prevention of inadvertent harm to patients by understanding the causative factors.
- Risks and vulnerabilities are identified and controlled to provide the safest medical practice environment.
- Interventions are designed with a focus on the “system,” or the entire working environment, rather than the individual.

# Why Patient Safety?

- Patients know that their ailments may not always be cured, but they don't expect to be inadvertently harmed due to their medical care.
- The “blame and train” approach to medical errors and close calls doesn't work well.
- Your *specialty board exam* may have questions on human factors engineering techniques that tease out root causes of medical errors and close calls.



# Playing the Blame Game: An Ineffective strategy for improving patient safety

- *Don't forget next time!*  
*"Be more careful!"*  
*"You should have been trained better!"*
- Except for instances of intentional unsafe acts, blaming individuals does not serve to lastingly protect patients from inadvertent harm.

The human brain is wired to make cognitive associations and focus attention in ways that put everyone at risk for making mistakes in hazardous environments.

Health care facilities can be high hazard workplaces!

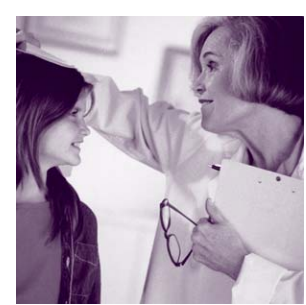


# How do you control hazards?

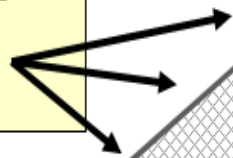
- **Preventing** inadvertent harm to patients requires use of **human factors engineering** principles.
- The “hierarchy of hazard control:”
  - Eliminate hazard
  - Guard against hazard
  - Train to avoid hazards
  - Warn against hazards



**Effectiveness**



Potential adverse events



Policy writing, training

Standardizing, simplifying

Automation

Improvements to devices, architecture



Adapted from the VA National Center for Patient Safety ([www.patientsafety.gov](http://www.patientsafety.gov))

# Human Factors Engineering and Patient Safety

- In other high hazard jobs such as airplane flying and running nuclear reactors, systems have been developed to minimize risks based on the science of human factors engineering.



# Broad Impact of Human Factors Engineering

- Aviation and Space Flight
- Nuclear Power
- Computers and Electronics
- Consumer Products
- Cars and Machinery
- Medical Devices and Systems



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# Human Factors Engineering Involves the Whole System

- Design of training and education
- Intuitive labeling and instructions for devices
- Failsafe for policies and procedures
- Understandable information displays
- Useful monitors
- Layout and structure of the facility
- Overall environment



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# Fixing the “System” works better

- Ex: A patient dies because he was given someone else’s anti-arrhythmic medication by mistake.
  - Blaming the individual doesn’t prevent medication mistakes from recurring.
  - Establishing computerized medication dispensation with use of bar coding is better.

# Fixing the “System” works better

- Ex: A patient is set on fire during surgery.
  - Blaming the individual doesn't prevent other patients from risk of fire.
  - ✓ Flammable alcohol-based products should be not be used with electrocautery.
  - ✓ Oxygen scavenging devices are used along with oxygen supplementation.

# Fixing the “System” works better

- Ex: A psychiatric inpatient attempts suicide by jumping out of the window.
  - The window wasn't designed to resist force coming from the inside of the building.
  - ✓ New metal bolts were installed to limit the risk for patients.



# Fixing the “System” works better

- What are some examples of workplace hazards in your specialty?
  - How would you alter the physical workplace environment or use technology to mitigate the risks?
  - Is the workforce inadequate?

# Noting “Close-Calls” is Important

- There are 10-100X more close calls than adverse events.
- Attending to close calls is the key to safety.
- Reporting and dealing with close calls is needed to create a “high reliability organization” that minimizes mistakes.
- High reliability is important in hazardous environments like aviation or health facilities.



# How do you identify safety hazards?

- Standards from national organizations
  - The Institute of Medicine
  - The Joint Commission
- Preventive methods
  - Close Call Reporting
  - Health Care Failure Mode & Effect Analysis
- Reactive methods
  - Root Cause Analysis



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# How do you identify safety hazards?

- Standards from national organizations

*The Institute of Medicine* ([www.iom.edu](http://www.iom.edu))

- Publication of reports
  - “To Err is Human,” 1999
  - “Data Standards for Patient Safety,” 2003



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# How do you identify safety hazards?

- Standards from national organizations



- [www.jointcommission.org](http://www.jointcommission.org)
- National Patient Safety Goals: Dangerous abbreviations, infection control, “sound-alike” medications, time outs, etc.



# How do you identify safety hazards?

- Preventive methods: Close Call Reporting
  - *Your hospital's safety department.*
  - Reporting of safety issues at your clinic or hospital is key to identifying hazards.
  - The patient safety director or officer evaluates the situation and determines the appropriate response (quick intervention, data collection, root cause analysis, etc.)



# Reporting Systems

- Online “incident reports” are common modalities.
- Do you know how to access your facility’s reporting system?
- The Patient Safety Reporting System (PSRS) was developed jointly by the Department of Veterans Affairs (VA) and the National Aeronautics and Space Administration (NASA).
- Everyone working in a VA facility is expected to voluntarily report any events or concerns that involve patient safety.



# How do you identify safety hazards?

- Preventive methods – HFMEA
  - *Health Care Failure Mode and Effect Analysis*
  - A hazardous health care process is analyzed for vulnerabilities and dealt with proactively.
    - Interdisciplinary teams use flow diagrams to depict a complex health care process.
    - Steps vulnerable to failures are assessed for mode, severity, and probability.
    - Actions are taken and the outcomes of the redesigned process are measured.



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# Health Care Failure Mode and Effect Analysis Example

Monitoring medication dispensation in the pharmacy.

- Look-alike and sound-alike medications
- Similar patient names
- Human factors



# Health Care Failure Mode and Effect Analysis Example

- Actions

- ✓ Implementation of computerized bar code medication administration systems and pharmacy automation measurably reduces medication errors.



# How do you identify safety hazards?

## Reactive methods – *Root Cause Analysis*

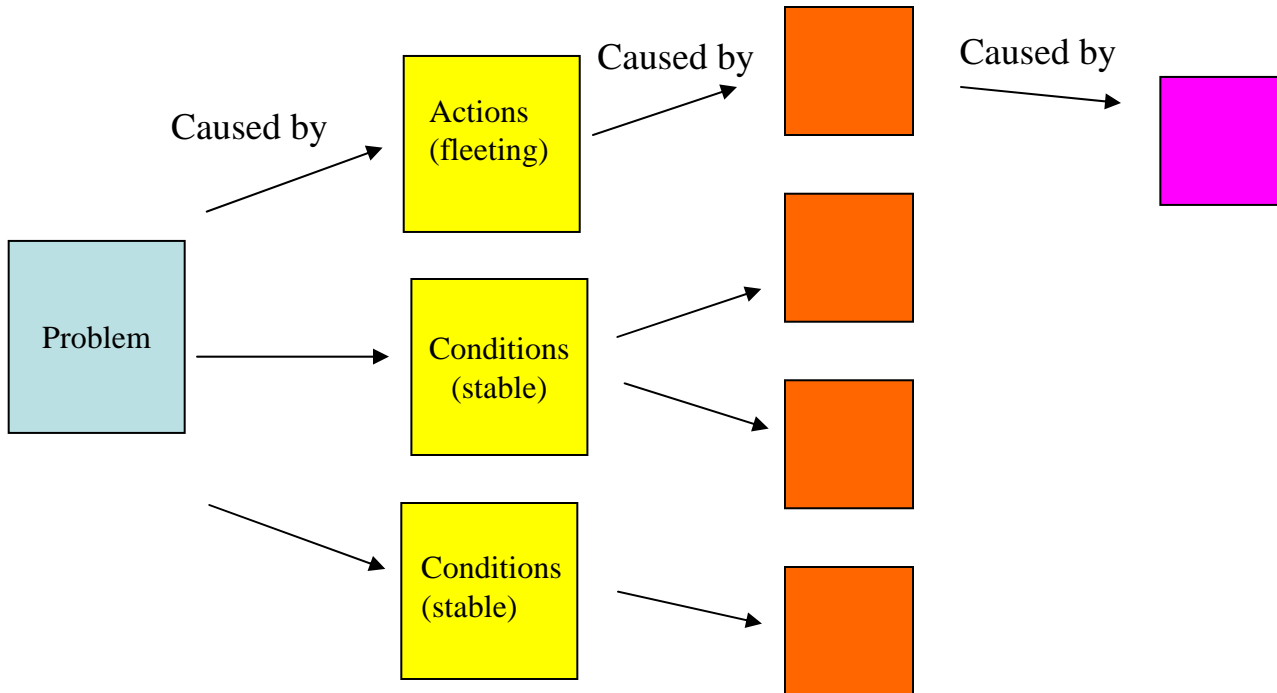
- Triggered from close calls or adverse events with “severe” potential.
- Multidisciplinary, confidential investigation to determine causes of adverse events or close calls.
- Based on interviews, documents, observation, and simulation of the event.
- A cause and effect flow diagram maps the root causes of the problem.
- Interventions are developed to prevent or minimize future events. Outcomes measures track the effect of the interventions.



# Principles of Root Cause Analyses

- Developed by the US military in 1949 to deal with equipment failures, adopted by NASA in the 1960s, and used in industry.
- Identify the factors contributing to close calls or adverse events ➡ more effective interventions.
- Address *why* something occurred (not a hunt for the individual *who* was responsible).

# Root Cause Analysis Cause & Effect Diagramming



# Root cause statements follow the “Rules of Causation”

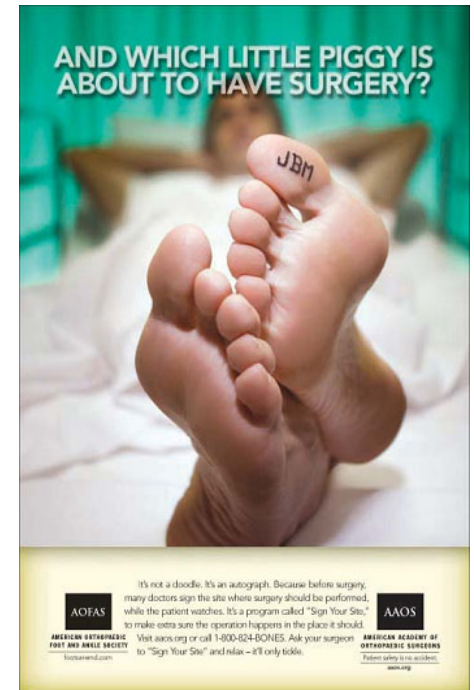
- Clearly show the cause and effect relationship.
- Use specific and accurate descriptors of words. Do not use negative statements.
- Identify the proceeding cause, not the human error.
- Identify the proceeding causes of procedure violations.
- There must be a pre-existing duty to act.



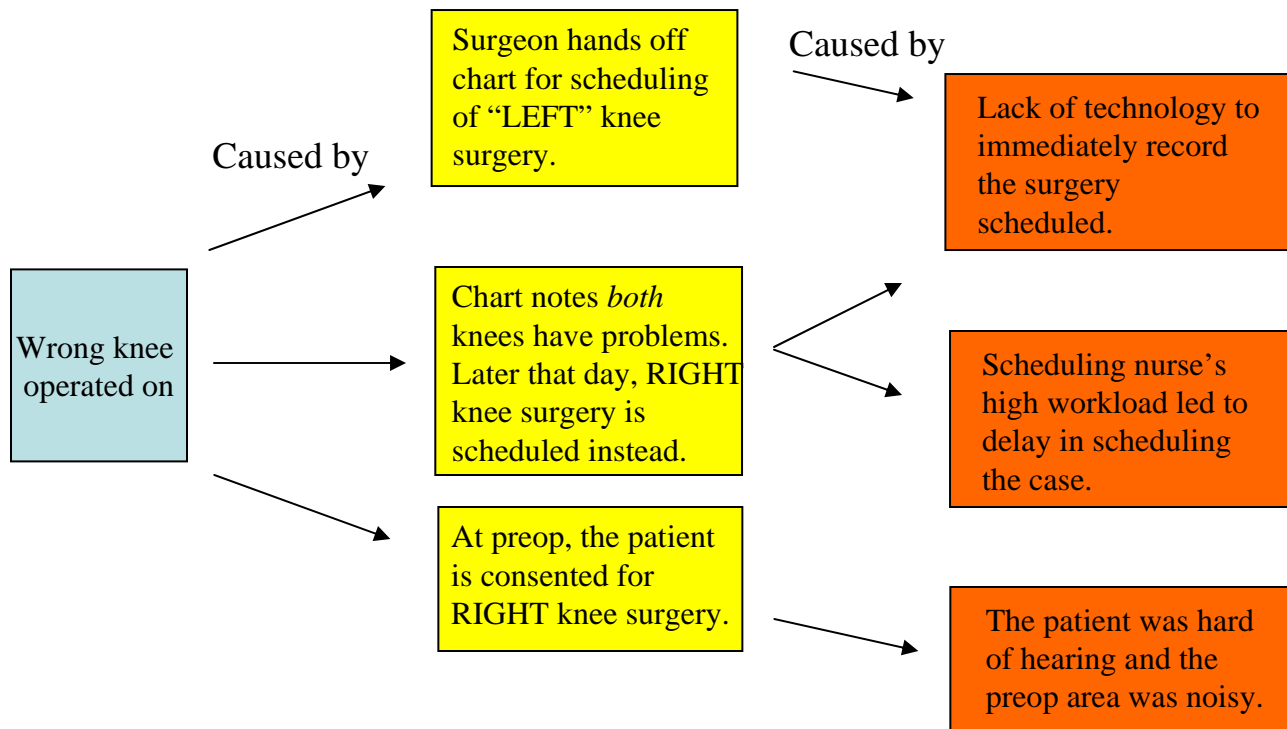
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# Root Cause Analysis Example

- Wrong Site Surgery
  - How and when did it happen?
- Information systems: computers, communication tools
- Architecture: room, work area layout
- Policies, procedures, process
- Equipment: devices, accessories, supplies
- Environment: Noise, clutter, lighting
- Safety mechanisms



# Root Cause Analysis Cause & Effect Diagramming






Details are in "Righting wrong site surgery," by Dr. Carayon, Kara Schultz, and Ann Schoofs Hundt, Ph.D., in the July 2004 *Joint Commission Journal on Quality and Safety* 30(7), pp. 405-410.

# Root Cause Analysis Example

- Actions
  - “Time-out” process to improve patient identification.
  - Marking the site of surgery beforehand.
  - Radiofrequency ID tags in the future?



# Take Action: Hierarchy

 <p>Stronger Actions</p>	<ul style="list-style-type: none"><li>○ <b>Architectural/physical plant changes</b><ul style="list-style-type: none"><li>● New devices with usability testing before purchasing</li><li>● Engineering control or interlock (forcing functions)</li><li>● Simplify the process and remove unnecessary steps</li><li>● Standardize on equipment on process or caremaps</li><li>● Tangible involvement and action by leadership in support of patient safety</li></ul></li></ul>
 <p>Intermediate Actions</p>	<ul style="list-style-type: none"><li>● Redundancy</li><li>● Increase in staffing/decrease in workload</li><li>● Software enhancements/modifications</li><li>● Eliminate/reduce distractions (sterile medical environment)</li><li>● Checklist/cognitive aid</li><li>● Eliminate look and sound-alikes</li><li>● Readback</li><li>● Enhanced documentation/communication</li></ul>
 <p>Weaker Actions</p>	<ul style="list-style-type: none"><li>● Double checks</li><li>● Warnings and labels</li><li>● New procedure/memorandum/policy</li><li>● Training</li><li>● Additional study/analysis</li></ul>

# How do you get involved?



National Patient Safety Foundation®

- [www.npsf.org](http://www.npsf.org)
- American Medical Association is a founding member
- Stand Up For Patient Safety Program
  - Information and tools for developing a culture of safety
- National Patient Safety Awareness Week
  - Toolkit to get involved
- Research grants



# How do you learn more?



- [www.va.gov/NCPS](http://www.va.gov/NCPS)
- Premier resource for patient and physician information
- Education and teaching tools
  - Powerpoints, classroom materials, teaching curriculum, toolkits, workshops
- Cognitive aids and handbooks
- Alerts and advisories



# World Health Organization Patient Safety Page

- <http://www.who.int/patientsafety/en/>








## The ABCs of Patient Safety

by Doni Haas, RN and Lorri Zipperer, MA

© 2001 NPSF. [www.npsf.org](http://www.npsf.org) Haas D, Zipperer L. ABCs of patient safety. *Focus Patient Safety*. 2000;3(1):3.

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- **A**ccountability is not always about a person.
  - **B**lame hides the truth about error.
  - **C**ultures must change.
  - **D**ocument facts.
  - **E**rror is our chance to see weakness in our systems and people.
  - **F**ocus on prevention.
  - **G**ather evidence to support facts.
  - **H**ear when you listen.
  - **I**nvestigate cause.

# ABCs cont

- **J**ustice should include compassion, disclosure and compensation.
- **K**nowledge must be shared.
- **L**earning from others' mistakes benefits all.
- **M**ake the effort to look beyond the obvious.
- **N**othing will change until you change it.
- **O**pportunities for solutions are lost by blame.
- **P**artner with patients and practitioners.

# ABCs cont

- **R**eporting error is suppressed by blame.
- **S**ystems are where practitioners practice.
- **T**hink about the blunt and sharp end.
- **U**nderstand the role of accountability.
- **V**alue the patient's perspective.
- **W**hy, Why, Why, Why, Why = root cause.
- **X**-ray vision sees the deeper story.
- **Y**ou can make a difference.
- **Z**eroing in on cause brings us one error closer to zero error.

Appreciation to the  
following past  
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**AMA**  
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