



OVERVIEW OF PATIENT SAFETY & HOW TO BE A PATIENT SAFETY CHAMPION

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OVERVIEW FOR TODAY

- Overview of patient safety and our obligation to improve
- The inevitability of human failure
- Definitions (adverse events, medical errors, near misses, pt safety, systems thinking)
- High reliability organizations
- How you can help make your practice environment safer

INTRODUCTION TO THE PROBLEM

- TO ERR IS HUMAN “The IOM Report” (1999) although they have published hundreds of reports since, gave rise to modern patient safety movement
- Estimated \$17-29 billion per year including the expense of additional care necessitated by the errors, lost income and household productivity, and disability
- Cost also in trust in the health care system by patients and diminished satisfaction by both patients and health professionals
- 2013 estimates suggest 210,000-400,000 Americans die annually from medical errors.
 - 3rd leading cause of death after heart disease and cancer



300,000 REASONS WHY



- 2lb bag of jelly beans... 375 times (750 lbs of jelly beans)
- If we took one minute to remember each American who died from a medical error in 2019, it would take us 208 days without sleeping
- Nuclear bomb taking out the cities of Birmingham & Tuscaloosa
- >1,000 jumbo jet crashes per year, or 2-3 *per day*

Would you fly?

WHO MAKES MISTAKES?

- EVERY ONE of us has made a mistake
 - Car keys, glasses, phone, phone numbers, birthdays, anniversaries, typos, blurry combinations of words, medications, driving directions, etc
- EVERY health care professional will eventually see a medical error.
- MOST health care professionals will participate in a medical error during their careers.
 - 1 in 5 Americans say they have been on the receiving end of a medical error

HUMANS ARE PREDICTABLY FALLIBLE



- We know that humans are PREDICTIBLY FALLIBLE, yet we continue to feel that an error shameful, a reflection of our quality as a professional, and our instinct is to hide it.
- Ultimately - I, you, your doctor, your loved ones, amazon.com, shipt, your hairdresser, your waitress, your pilot, an 18-year-old on an aircraft carrier, *everyone* will make mistakes related to their work.
- The number of them that actually reach the consumer depends on what safety processes are utilized by the **system**.

ADVERSE EVENTS

- “Unintended physical injury resulting from or contributed to by medical care (including the absence of indicated medical treatment), that requires additional monitoring, treatment, or hospitalization, or that results in death”
- Not all adverse events are preventable
 - Anaphylaxis to antibiotics
 - Stroke during cardiac catheterization

ERRORS

- Medical error: “The failure of a planned action to be completed as intended or the use of a wrong plan to achieve an aim.” – IOM
 - Can involve an act of commission (wrong thing done) or omission (failing to do the right thing)
- Not all errors lead to adverse events – most don’t!
 - Double dose of amoxicillin
 - Forgetting compression devices on a pt who did well anyway

TYPES OF ERRORS

- DIAGNOSTIC

- Error or delay in diagnosis
- Failure to employ indicated tests
- Use of outmoded tests or therapy
- Failure to act on results

- PREVENTATIVE

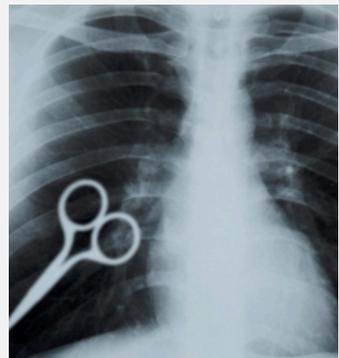
- Failure to provide prophylactic treatment
- Inadequate monitoring (in-hospital suicide, falls, pressure ulcers)
- Failure to follow-up of treatment

- OTHER

- Communication failure
- Equipment failure

- TREATMENT

- Error in the performance of an operation, procedure, or test (eg restraint-related injuries or death)
- Error in administering the treatment (eg improper transfusion)
- Error in the dose or method of using a drug
- Avoidable delay in treatment or in responding to an abnormal test
- Inappropriate/not indicated care (eg surgical injury and wrong-site surgery, mistaken identity)

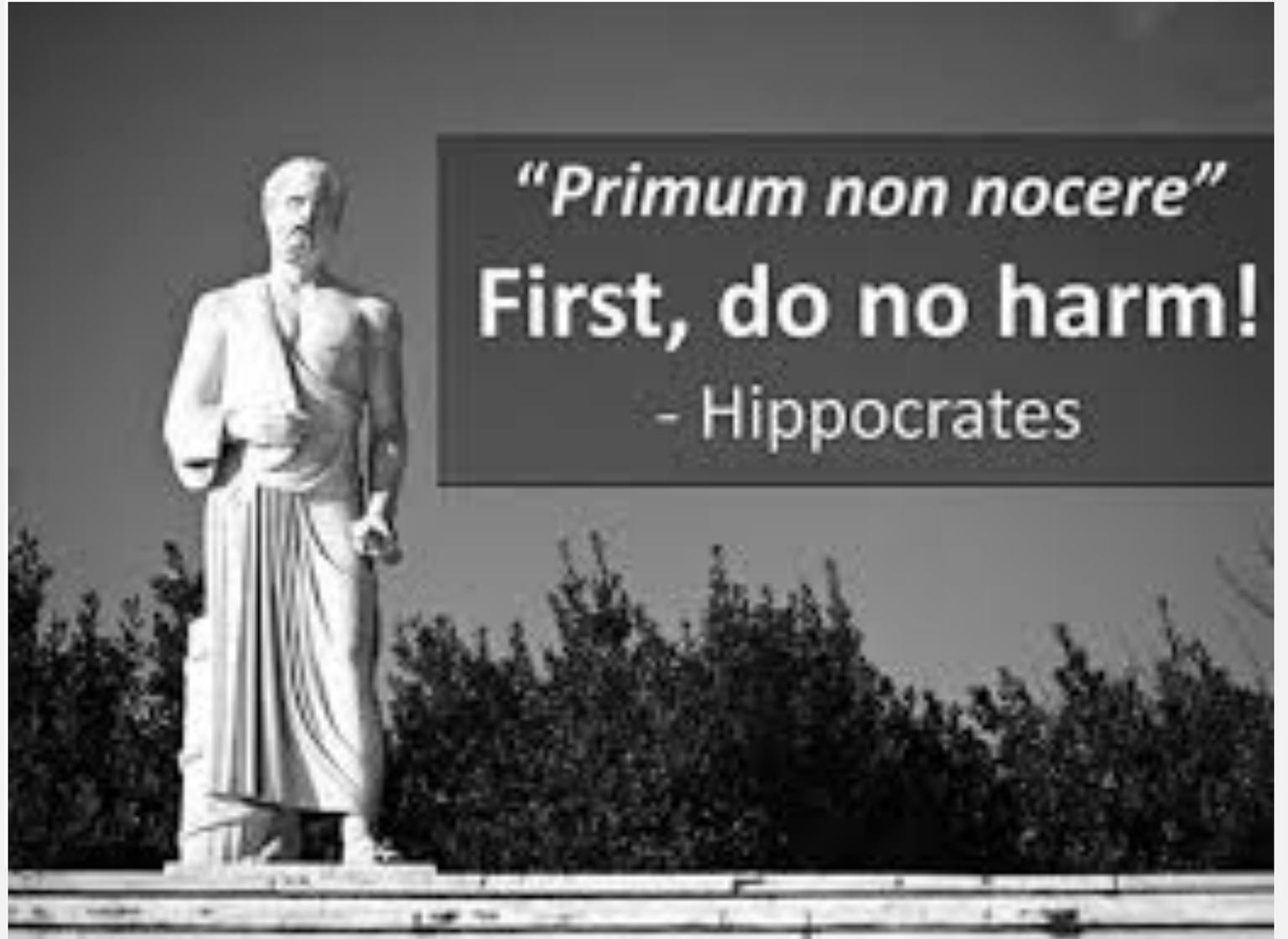


NEAR MISSES

- Any event that could have had adverse consequences but did not and was indistinguishable from fully fledged adverse events in all but outcome
 - Eg, medicine sent to the wrong patient but not given

PATIENT SAFETY

- WHO: “The absence of preventable harm to a patient during the process of health care.”

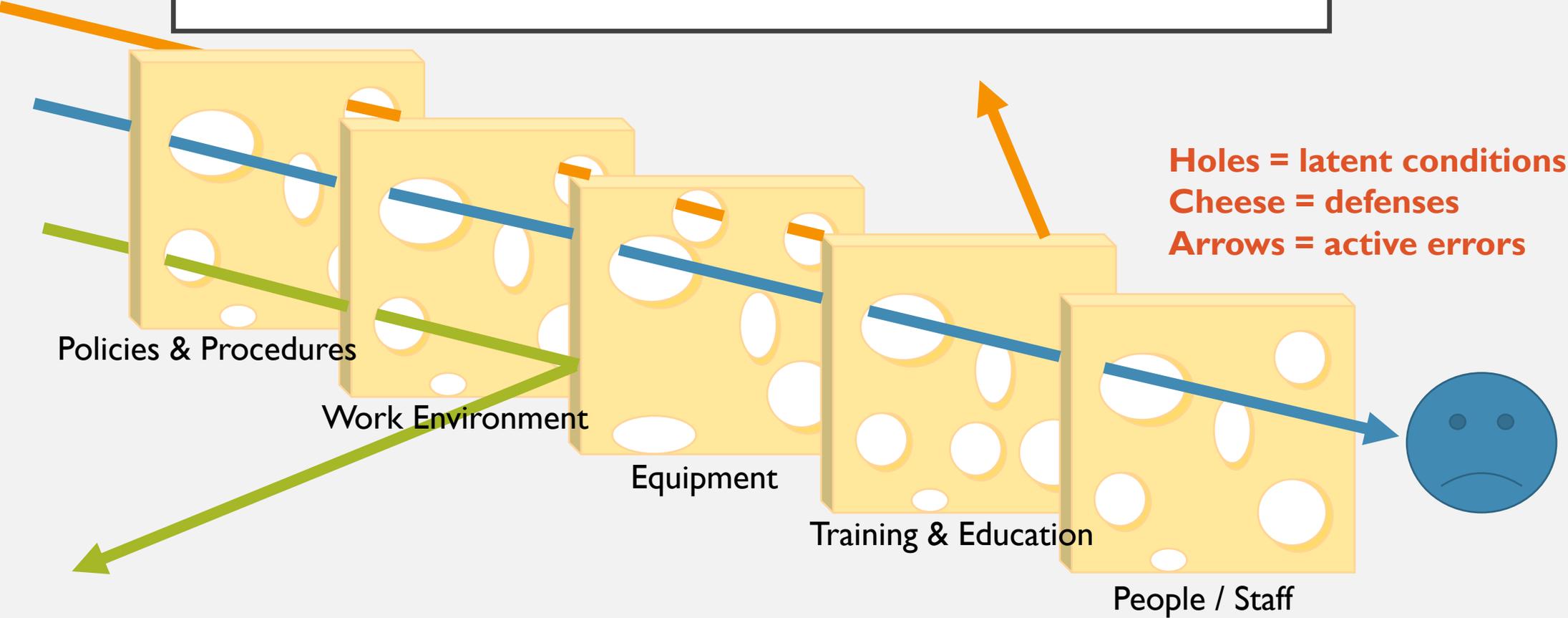




SYSTEMS THINKING

- The emphasis is on faulty systems, processes, and conditions that lead people to make mistakes or fail to prevent them
- eg, the stocking patient care units with high strength potassium or heparin

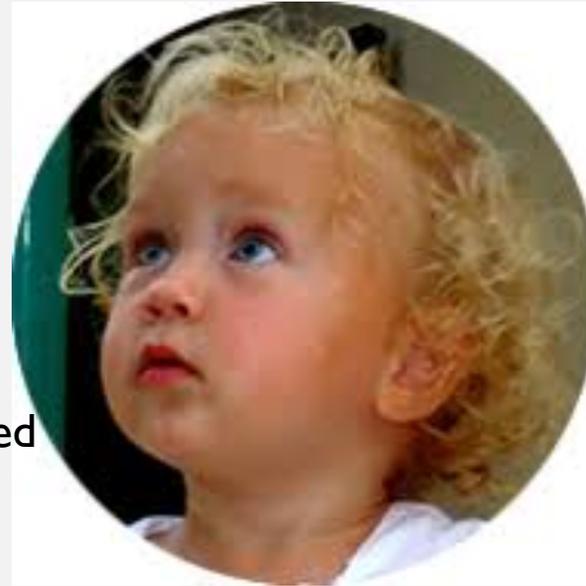
OBLIGATORY SWISS CHEESE MODEL





Josie King died of unrecognized sepsis while recovering from burn injury.

Emily Jerry died from incorrectly mixed chemotherapy.



Genesis Burkett died from overdose of NaCl.

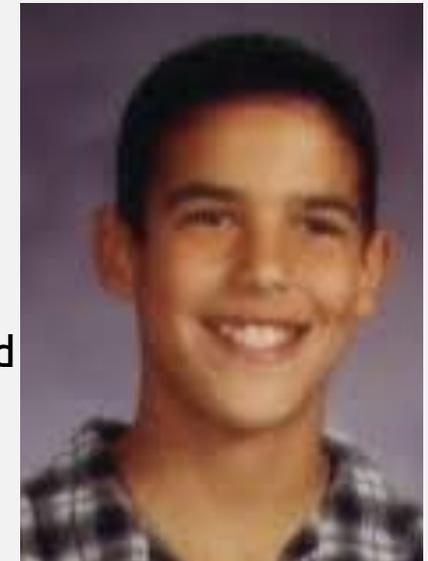
Sebastian Ferrero died from growth hormone stimulation testing when he received 10 fold overdose of arginine.



Gabriel Schweitzer died from cardiac arrest after a VP shunt failure was missed and his monitors turned off so he could sleep.



Justin Micalizzi died from inadvertently administered phenylephrine instead of zofran during anesthesia for joint washout.





HIGH RELIABILITY ORGANIZATIONS

- “Organizations that operate in complex, high-hazard domains for extended periods without serious accidents or catastrophic failures”
- “Relentlessly prioritize safety over other performance pressures”.
- Eg: military aircraft carrier: despite significant production pressures (aircrafts take off and land every 48–60 seconds), constantly changing conditions, and hierarchical organizational structure, all personnel consistently prioritize safety and have both the authority and the responsibility to make real-time operational adjustments to maintain safe operations as the top priority.”

HRO #1, PREOCCUPATION WITH FAILURE

- Everyone is aware of and thinking about the potential for failure.
- Understanding that new threats emerge regularly from situations that no one imagined could occur, so all personnel actively think about what could go wrong and are alert to small signs of potential problems.
- ***Errors are reported. Near misses are viewed as opportunities to learn about systems issues and potential improvements, rather than as evidence of safety.***



BE AWARE
OF HIGH-
RISK
SITUATIONS

- Emergency Departments, Operating Rooms, Intensive Care Units
- Use of verbal orders
- Patients who cannot advocate for themselves (children, elderly, disabled)
- Language barriers
- Handoffs in care
- Provider fatigue and distraction
- Conversion of medication doses ordered in units by weight (mg) to the appropriate number of units by volume (mL)
- LASA “look alike sound alike” drugs



ERROR REPORTING SYSTEMS

- Encourage your organization to start one if it doesn't already exist
- Familiarize yourself with the reporting system today
- **REPORT IT YOURSELF**
- Organizations committed to transparency and improvement use these reports to reduce latent conditions
 - Additional training or procedures
 - Root cause analysis
 - Quality Improvement projects

COMMUNICATION TOOLS

Handoffs and/or needs action: SBAR

- Situation (identify yourself, the patient, and the concern)
- Background (history, vitals, results, etc)
- Assessment
- Recommendation

Getting attention: CUS language

- I am Concerned
- I am Uncomfortable
- This is a Safety issue

Closed loop communication

- Sender gives message
- Receiver reads back to verify
- Sender confirms or corrects

HRO #2, RELUCTANCE TO SIMPLIFY

- People resist simplifying their understanding of work processes and how and why things succeed or fail in their environment.
- Understand that the work is complex and dynamic, so seek underlying rather than surface explanations.
- ***Begin to anticipate potential failures by designing better systems and processes.***

SYSTEMS THINKING

- Traditional analysis focuses on separating the individual pieces of what is being studied. (**Anatomy**)
- Systems thinking focuses on how the thing being studied interacts with other constituents of the systems – a set of elements that interact to produce behavior, of which it is a part. So instead of looking at smaller parts of the system, it works by expanding its view to take into account large numbers of interactions. (**Physiology**)
- This can result in strikingly different conclusions, particularly for dynamic, complex issues.



INTERCONNECTED SYSTEM

- Removing wolves from the park had cascade effect on Yellowstone
- Wolves feed on elk, so when removed the elk population exploded
- Elk fed on young aspen trees
- Loss of vegetation led to streambank erosion & change of course
- Loss of birds, beavers, bears



POKA-YOKE

- Stemming from post-WWII recovery efforts, the Japanese became famous for industry work to build up their production and minimize errors called **Poka-Yoke** which means "mistake-proofing" or "inadvertent error prevention".
- American equivalent is the field of Human Systems Engineering, which seeks to optimize interaction of humans and engineered systems by combining cognitive science, team psychology, physical performance, product design, etc.
- “Mistake-proofing” is why in most hospitals IV tubes and gastric feeding tubes are different calibers with different connectors – they literally cannot connect.



TECHNOLOGY

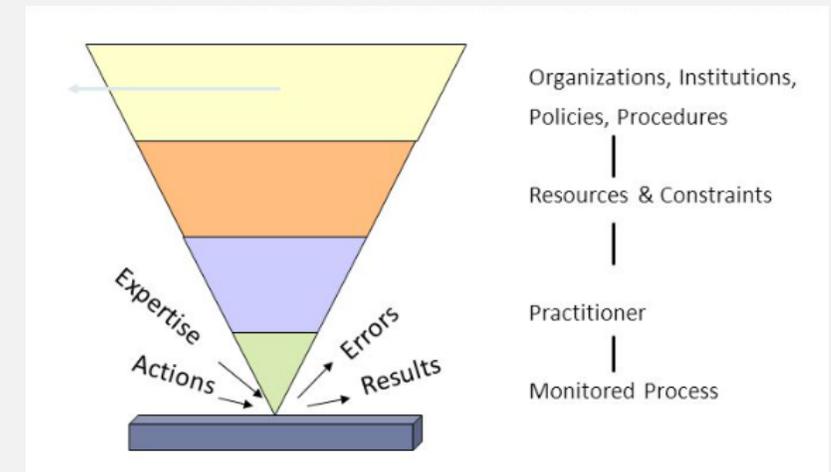
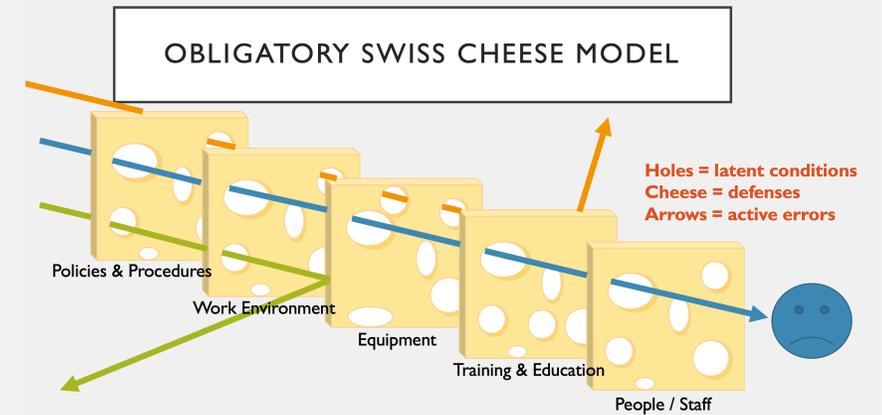
- Smart pumps
- Bar coding
- EMR Rx dose checking and clear wording
- Order bundles
- Use with caution, as they create new problems
 - Hard stops, unclear order sets, etc

HRO #3, SENSITIVITY TO OPERATIONS

- Strive to maintain a high awareness of complex operational conditions, aka, "big picture understanding" or "situation awareness."
- Communication, data sharing, and transparency are essential.
- ***People cultivate an understanding of the context of their work in relation to the organizational state and how the current state might support or threaten safety.*** (Furnace story)

“SHARP END” TRAP

- Avoid the sharp end trap: shame → reeducate → strengthen policy statements → silos
- Think deeper and more broadly - consider the blunt end - latent failures from policies & procedures.
- Using a systems approach, we begin to appreciate that adverse events and safety problems are not “caused by people”, but rather are the result of the interaction among **processes and workflows, technology designs, teamwork, staff, patients, financial restraints, training and education.**



HRO #4, DEFERENCE TO FRONTLINE EXPERTISE

- Appreciation that the 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.
- ***Deference to situational expertise results in a spirit of inquiry and de-emphasis on hierarchy in favor of learning as much as possible about potential safety threats.***

HRO #5, COMMITMENT TO RESILIENCE

- Commitment to resilience is rooted in the fundamental understanding of the frequently unpredictable nature of system failures.
- In spite of processes in place, systems might still fail in ways that were previously unexpected, and they practice performing rapid assessments of and responses to challenging situations.
- ***Staff are able to carry forward and deliver high-quality care even after a major setback or while in the midst of stress.***

GETTING AWAY FROM THE “BAD APPLE” CONCEPT

- Nurse RaDonda Vaught accidentally gave vecuronium instead of versed (like the diesel!)
- Initially criminally charged with reckless homicide, but charges have since been dropped.
- People must be held responsible for their actions.... But when an error occurs, blaming an individual does little to make the system safer and prevent someone else from committing the same error.
- Supporting **second victims** as part of resilience



PT SAFETY SUMMARY

- Thousands of patients die or suffer harm from medical errors despite the dedication and hard work of well-trained professionals.
- Errors are often caused by poorly designed systems rather than by irresponsible or ill-prepared individuals.
- Skilled people predictably make mistakes, especially when distracted or fatigued, so the complex systems in which they function must be designed in a way to defend against human error.
- Systems must be constantly preparing for how to respond to challenges, and this involves data-sharing and deference to expertise.

“Every system is perfectly designed to get the results it gets”

ACTIONABLE SUMMARY

- Whatever your job title, you can be a leader in patient safety and foster safety culture (18-year-olds on nuclear submarines)
- Be constantly aware of where the process might fail, especially in high risk situations
- Participate in error reporting systems
- Use SBAR for communicating handoffs or action needs – situation/background/assessment/recommendation
- Use CUS for communicating problem – concerned/uncomfortable/safety issue
- Use closed loop communication
- Incorporate safety technology such as smart pumps, order bundles, EMR
- Recognize and second victims

YOU ARE PATIENT SAFETY CHAMPIONS

- Patients need YOU to help your practice setting become a high reliability organization
- There are practices you can start immediately to begin saving lives
- Please email me with any questions or concerns: ccampbell@peds.uab.edu



MISC REFERENCES

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