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Culture of safety: A foundation for patient care

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ABSTRACT

The 1999 IOM report on patient safety identified the house of medicine as a culture that tolerated injury at a frightening level. Identifying other industries that had cultures that would not tolerate such levels of error has begun to change the culture of healthcare to a more "high-reliability" culture. Various organizational and standardized communication tools have been imported from the military, airline, and energy industries to flatten the hierarchy and improve the reliability of communication and handoffs in healthcare. Reporting structures that focus on the effectiveness of the team and the system, more than blaming the individual, have demonstrated noticeable improvements in safety and changed culture. Further sustained efforts in developing a culture focused on safety as a priority is needed for sustainable reduction of harm, and improve the reliability of care.

A 2-year-old boy presents to same-day surgery for an elective circumcision. The bedside nurse sees him for his preoperative evaluation. The anesthesiologist evaluates him and discusses anesthetic risks as well as caudal analgesia for the procedure. The surgeon visits with the family to confirm the surgical consent and answer any questions. Without any concerns, the patient is taken to the operating room, undergoes anesthesia, and has his caudal analgesia performed. In preparing to prep the surgical site, the circulating nurse removes the patients diaper and discovers a significant diaper rash of the perineum encompassing his penis. The surgeon is notified, evaluates the surgical site, and cancels the elective circumcision. Serious safety event? Near-miss? Good catch?

Introduction

In 2000, the Institute of Medicine (IOM) released a groundbreaking report, To Err is Human,[1] which suggested that as many as 98,000 deaths annually in the United States were due to medical error. Although multifactorial, the IOM concluded that healthcare needed a paradigm shift in response to errors from individual blame to a systems-based approach. Drawing upon principles of other high-risk industries, the IOM advocated for a "*culture of safety*," in which errors and near misses are an opportunity to learn and improve. Safe healthcare should be the guiding force for all healthcare providers and institutions.

Since then, significant efforts have been made at national and local levels to decrease the incidence of healthcare errors. However, despite tremendous investments, healthcare has not achieved the error-free success seen in other industries, such as aviation or the nuclear industry. The Institute for Healthcare Improvement (IHI) estimates that there are 40–50 incidents of patient harm per 100 admissions.[2] In order to achieve effective changes through patient safety initiatives, a culture of safety must be the foundation to create sustainable vigilance to patient safety.

Characteristics of a safety culture

A culture of safety that provides highly reliable and safe care relies on three overarching principles: trust, reporting, and improvement.[3] Workers demonstrate trust in their peers and organization when they routinely report errors and unsafe events in order to learn (more than judge), and continuously improve. According to the Joint Commission, safety culture in healthcare is "the summary of knowledge, attitudes, behaviors, and beliefs that staff shares about the primary importance of the well-being and care of the patients they serve, supported by systems and structures that reinforce the focus on patient safety."[4] Although the cultural emphasis is on systems of safe care, individual attitudes, knowledge, beliefs and behaviors are the safety culture foundations. According to the Joint Commission, a safety culture promotes trust and empowers staff to report errors, near misses, and risks.

Trust is established with workers in an organization when the intimidating behaviors that suppress error reporting and near

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misses are eliminated. In the 2013, the National Healthcare Quality Report found that most healthcare workers believe making mistakes would be held against them.[5] With greater than 50% of healthcare workers reporting no adverse events at their facility in the last 12 months,[5] under-reporting is likely, considering known rates of healthcare error.

Trust is a mutual compact between organizations and their workers. This compact encourages transparency and processes that recognize blameless errors due to human factors, and then address unsafe, purposeful, and blameworthy actions separately. Trust in a safety culture mandates a clear understanding of how errors are evaluated and reconciled, engages healthcare workers in training when unsafe, or punishing when negligent and blameworthy actions are present. Learning how and why blameless errors occur provides an opportunity for the organization to evolve and improve. Recognizing and acknowledging the appropriate organizational response to blameworthy events strengthens trust in maintaining a safety culture. Organizations must hold all workers, regardless of level, accountable to the adherence of safety protocols and procedures in order to maintain a high degree of reliability and trust. Frankel describes accountability as a key element of a safety culture.[6]

Organizations with highly reliable safety cultures continually identify and assess the strengths and weaknesses of their safety systems in order to prevent minor error from escalating to harm. Unfortunately, healthcare is still predominately reactive to errors, rather than proactive in identifying deviations from care. Too often, incidents are investigated after patient harm has occurred through event review or root cause analysis. Corrective actions are implemented in order to prevent future events. Imagine the airline industry only establishing new and improved safety protocols after catastrophic occurrences. Becoming highly reliable in patient safety requires frontline workers to recognize and be willing to report close calls and near misses with the same vigilance as sentinel events. The following are characteristics of high-reliability organizations (HROs).

Principles of high-reliability organizations

The US mortality rate from hospital-associated preventable harm has been estimated to be as high as 400,000 people annually,[7] equal to two 747 jets crashing every day.[8] A situation like this would be untenable and subject to public outcry with overwhelming government scrutiny. The aviation industry and other HROs (i.e., nuclear energy, naval aircraft carriers) function on a daily basis with lower than expected adverse events.[8] Cultural changes have occurred in all the systems mentioned, moving them from dangerous endeavors to exemplary organization, that are highly trusted. Meanwhile, healthcare continues to have a suboptimal safety record.

A culture of safety that permeates the organization is what sets HROs apart from less-safe institutions. Safety is taught, managed, and promoted in the workplace and reflects the attitudes, beliefs, perceptions, and values that is collectively shared by all employees at all levels. HROs successfully avoid or mitigate catastrophes in a complex and risky environment where accidents would be expected. Weick identifies HROs as successful organizations in high-risk environments that learn in a continual state of self-assessment and reinvention.[8] He describes a state of "collective mindfulness" where all workers are constantly looking for and reporting problems or unsafe conditions. Thus, significant accidents are rarely seen in the organization, or are easily fixed before they escalate and cause significant harm. Because of human factors, failure inevitably happens in all organizations. However, HRO culture leans on organizational structure, training, experience, and creativity as a reliable means to recover from "failure" before failure progresses to "accidents."

What would the most appropriate organization response be to unnecessary anesthesia and caudal procedure for the 2-year-old boy? Clearly, there were opportunities to identify the diaper rash prior to the operating room. Perhaps under "normal" conditions, the surgical site is always inspected, but today there were three children ready for the operating room at once assigned to the same nurse. When asked, the parents stated everything was fine and the baby was healthy. Surgical sites are usually marked and visualized but only for cases of laterality, which would not apply for circumcision. Instead, an incision diagram is marked and signed without requisite site visualization.

In their study of high reliability, Weick and Sutcliffe[8] identified that HROs maintain structure and function in times of uncertainty where the potential for error can lead to significant harm. In addition to a unique and resilient structure, HROs think and act differently from other organizations, having organized for the expected and unexpected. They described ***mindfulness*** as the mentality that continually evaluates the environment regardless of intervening circumstances. In contrast, "mindlessness" is the approach where simple assessments exist only during the duration in which their plans were enacted.

The foundation of this "mindfulness" includes five high-reliability principles that allow HROs to respond appropriately when facing unexpected situations (Table 1).[8] The first three characteristics allow HROs to sustain high levels of safety through ***anticipation,*** while the second two characteristics achieve ***containment*** of unexpected events. The state of "Anticipation" allows early identification of events, but also includes the efforts to stop the progression of unexpected ones. Because all events cannot be anticipated, practices of containment exist for the unanticipated or unexpected events that may occur. Where anticipation directs initiatives before unexpected events occur, containment addresses unexpected event after they occur (Table 2).

An HRO culture of "anticipation" has three principles: (1) HROs have a ***preoccupation with failure***. They are never satisfied with zero events for any duration. The longer the period of harm-free interval exists, the more vulnerable an organization becomes due to complacency and inattention to detail. To avoid failure, HROs are highly aware of all errors and potential for error. The smallest deviations may lead to new threats to safety. *In review of this case, no other similar events had occurred in this hospital before. However, wrong-site surgery had occurred which launched new policies for cases of laterality. However, in establishing the procedures, site marking for all surgical sites regardless of laterality was considered but eventually determined to be unnecessary.* (2) Personnel in HROs

Table 1
Five principles of high reliability organizations.

Principle	Explanation
Three principles of anticipation	
(1) Preoccupation with failure	Do not ignore failure; even small deviations from expected results can escalate
(2) Reluctance to simplify	Organizations and errors are complex; identify root causes; reject simple explanations
(3) Sensitivity to operations	Frontline workers understand all aspects of the expected outcomes and better at identifying failure and opportunities for improvement
Two principles of containment	
(4) Commitment to resilience	Anticipate errors, adapt, and improve; errors do not cripple an organization
(5) Deference to expertise	Authority does not define expertise; solutions may come from those with most intimate knowledge of process/situation