PART

1

THE BASICS OF PATIENT SAFETY

A FORMULA FOR ERRORS: GOOD PEOPLE + BAD SYSTEMS

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LEARNING OBJECTIVES

- Understand the prevalence of health care–associated **errors** and error consequences
- Describe the concepts of latent failures and human factors analysis
- Demonstrate how to apply mistake-proofing techniques to reduce the probability of errors
- Discuss the role of leaders in supporting patient safety initiatives

Since this book was published in 2000, there has been ongoing news media coverage of medical misadventures, increasing evidence of quality, safety, and efficiency gaps, and thus **patient safety** has continued to be a growing concern for the public, policymakers, and everyone involved in the delivery of health care services. Although the standard of medical practice is perfection (error-free patient care), most health care professionals recognize that some **mistakes** are inevitable.

In this book, readers discover how to examine medical mistakes and learn from them. This first chapter sets the stage for this learning by providing a general overview of the causes of medical mistakes and what can be done to eliminate or reduce the occurrence of such errors. The chapter starts with a description of a case involving surgery on the wrong patient. The case scenario is extrapolated from actual events, although the details of the case have been materially altered, including the use of fictitious names, to protect patient privacy and confidentiality.

Surgery on Wrong Patient

Mr. Murphy slipped on a wet floor in the locker room of the clubhouse at his favorite golf course. He fell heavily on his right hip and was in pain when he arrived by ambulance at the hospital's emergency department (ED). While Murphy was being examined, Mr. Jenkins was being admitted to the same ED. Jenkins was a resident of a local long-term care facility and he had also fallen on his right side that morning.

In addition to caring for Murphy and Jenkins, the ED staff members were very busy with other patients. As was typical when the department was crowded, the admissions registrar was behind in getting patients fully registered and putting identification bands on each patient. The registrar's time was also occupied by other duties. To prevent delays in patient care and to maintain patient flow in an already overcrowded ED, the physicians typically ordered needed diagnostic tests and pain medication in advance of conducting a physical examination of a patient. Staff members providing care relied on their memory of each patient's name, and verbal verification from the patient, but this was not done consistently. Mr. Jenkins, who had no attendant or family members with him, was not coherent enough to speak for himself and only his transfer documents accompanied him from the long-term care facility. Orders for right hip radiographs for both Murphy and Jenkins were entered into the computer by the nursing staff.

Murphy was transported to the radiology department first. A requisition for a radiograph of the right hip was printed out in the radiology department; however, his medical record did not accompany him. The radiology technologist took the requisition from the printer and, noting that it was for a right hip radiograph, verbally confirmed with Murphy that he was hurting in his right hip and was there for a hip radiograph. The technologist did not identify the patient using two patient identifiers (which for this department in this facility were name and date of birth). Unfortunately, the radiograph requisition was for Jenkins and it was Jenkins' name that was placed on Murphy's radiographs.

While radiographs were being taken of Murphy's hip, Jenkins was transported to the radiology department. A technologist who had just come back from her lunch break took the Murphy requisition from the department's printer and confirmed with the transporter that the patient on the stretcher was there for a right hip radiograph. She proceeded to perform the diagnostic study. The technologist did not know that there was another patient in the department for the same study, and she assumed she had the right requisition for the right patient (essentially repeating the error of the first technologist). Murphy's name was then placed on Jenkins' radiographs.

After both patients were transported back to the ED, the radiologist called the ED physician to report that the radiographs labeled with Murphy's name indicated a fracture. The radiographs labeled with Jenkins' name were negative for a fracture. Because metabolic diagnostic studies done on Jenkins indicated other medical problems, he was admitted to the hospital. Murphy was also admitted with a diagnosis of "fractured right hip." The radiologist had not been given any clinical information related to either patient. If he had, he may have noted that one of Murphy's diagnoses was obesity and his radiographs showed very little soft tissue. Jenkins, however, was very frail and thin and his radiographs showed a large amount of soft tissue.

Having been diagnosed with a fractured hip, Murphy was referred to an orthopedist. The orthopedist employed a physician assistant (PA) who performed a preoperative history and physical examination, noting in the medical record that there was shortening and internal rotation of the right leg. The orthopedic surgeon did not personally confirm these findings prior to authenticating the history and physical examination, even though he had had to admonish the PA in the past for doing less than thorough exams. The orthopedic surgeon had not communicated the performance issues related to the PA to anyone at the hospital. Likewise, the hospital's quality management department did not collect or report performance measurement data or conduct ongoing professional practice evaluations for any allied health professionals.

Surgery for Murphy was scheduled for the next day. Meanwhile, Jenkins continued to complain of severe pain in his right hip and refused to bear weight on that side. A repeat radiograph of his right hip was performed late that evening. The radiologist read the radiograph the next morning and a fracture was noted. Although the staff recognized the discrepancy in diagnoses between the first and second radiographs, no immediate investigation of the reason for this was done. The case was merely flagged for retrospective peer review.

Although Murphy's diagnostic images were digitally available through the Picture Archiving and Communication System (PACS) at this facility, they were not appropriately displayed in the operating room in accordance with the hospital policy addressing the Universal Protocol and procedures for avoiding surgical errors involving the wrong patient, wrong site, or wrong procedure. Once again, the discrepancy between the patient's physique and the soft tissue evident in the radiographs was not detected. Surgery proceeded until after the incision was made and the surgeon found no fracture. While waiting for the patient to recover from anesthesia, the surgeon made a quick call to the hospital risk manager to discuss how he should deliver the news of the unnecessary surgery to Murphy and his family.

Prevalence of Incidents

Fortunately, incidents like the one described in the case scenario are not usual occurrences, but they happen more often than they should. As of March 31, 2010, wrong site/wrong patient surgery continues to be the most prevalent **sentinel event** reported to The Joint Commission (TJC) constituting 13.4% of the 6,782 sentinel events reviewed by TJC since 1995 (The Joint Commission, 2010).

How often do incidents involving patient **harm** actually occur? A study prepared by Healthgrades (2008) estimates that patient safety incidents resulted in 238,337 potentially **preventable** deaths during 2004 through 2006. It is estimated that each year 100,000 patients die of health care–associated infections (Klevens et al., 2002). Medication errors are among the most common medical errors, harming at least 1.5 million people every year (Institute of Medicine, 2006). Although the exact number of injurious **patient incidents** is not clearly known, what we do know is that medical errors can have serious consequences and may result in patient death, disability, or other physical or psychological harm, additional or prolonged treatment, and increased public dissatisfaction with the health care system. Health care can be made safer and making it safer is a national imperative.

Incident Contributors

The causes of wrong site/wrong patient surgery generally involve more than one factor and the case described at the start of the chapter illustrates some of the common causes: incomplete patient assessment, staffing issues, unavailability of pertinent information in the operating room, and organizational cultural issues.

Mr. Murphy was the unlucky victim of less than ideal circumstances that led to a series of human errors that were not caught and corrected. Emergency department staff members were busy caring for patients and, not surprisingly, as annual ED visits throughout the United States increased by 31% between 1995 and 2005 (Nawar, Niska, & Xu, 2007). High patient loads frequently caused overcrowding in this facility's ED (a contributing factor to this case, related in part to staffing challenges). Staff did not follow procedures for properly identifying patients and surgical site verification (an organizational cultural factor). The radiologist had not been given any clinical information related to either patient (a contributing factor related to incomplete patient assessment). Conflicting diagnostic test findings did not arouse curiosity and were not investigated immediately. The PA who performed a preoperative history and physical examination noted in the medical record that there was shortening and internal rotation of the right leg; however, the orthopedic surgeon did not personally confirm these findings prior to authenticating the history and physical examination (resulting in an incomplete patient assessment).

Although Mr. Murphy's radiographs were available for viewing electronically, they were not appropriately displayed in the operating room (a factor related to availability of pertinent information in the operating room). The end result, as James Reason observed, is that the greatest **risk** of **accident** in a **complex system** such as health care is "not so much from the breakdown of a major component or from isolated **operator** errors, as from the insidious accumulation of delayed human errors" (1990, p. 476). In this instance, each contributing factor or cultural issue—which alone would not necessarily lead to the untoward outcome—align like the holes in Reason's famous **Swiss cheese model**, allowing a **system failure** to penetrate each potential **barrier** and occur (Reason, 2000).

Why Mistakes Occur

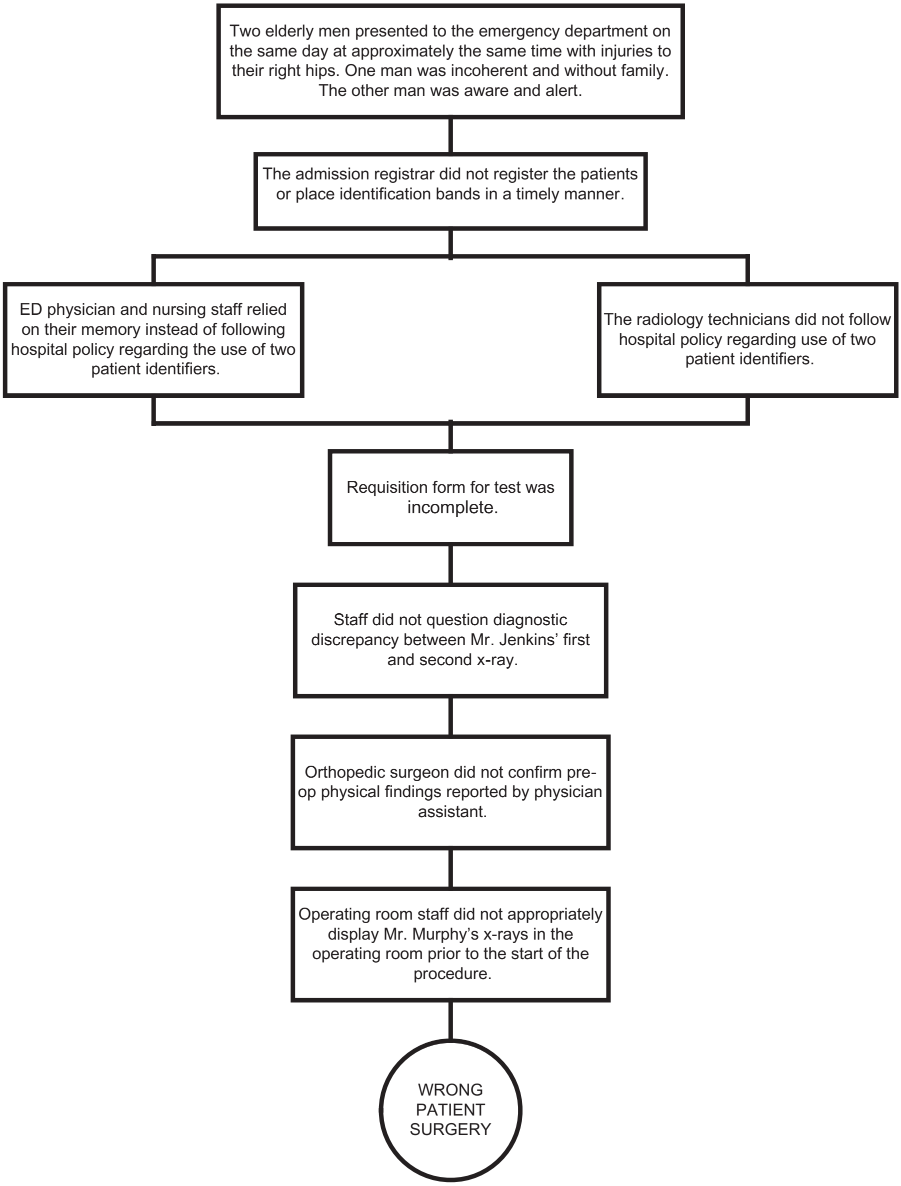
Mistakes are unintended human acts (either of omission or commission) or acts that do not achieve their intended goal. No one likes to make mistakes, but everyone is quick to point them out. In the minds of society and medical professionals alike, health care mistakes are unacceptable. Why are health care professionals so quick to find fault and place blame? Psychologists call it "the illusion of free will." "People, especially in Western cultures, place great value in the belief that they are free agents, the captains of their own fate" (Reason, 1997). Because people are seen as free agents, their actions are viewed as voluntary and within their control. Therefore, medical mistakes have traditionally been blamed on clinicians who were characterized as careless, incompetent, or thoughtless.

However, because human action is always limited by local circumstances and the environment of action, free will is an illusion, not a certainty (Reason, 1997). Investigations of incidents such as the Three Mile Island and the Challenger disasters indicate that "accidents are generally the outcome of a chain of events set in motion by faulty system design that either induces errors or makes them difficult to detect" (Leape et al., 1995). Mr. Murphy's unnecessary surgery illustrates the relationship between human errors and faulty systems. Several erroneous decisions and actions occurred that had an immediate impact on the chain of events. These types of errors, known as **active failures**, are often conspicuous and recognized as slips, mistakes, and **violations** of rules or accepted standards of practice. Active errors are usually committed by the persons who appeared to be in control of the system at the time the incident evolved. Examples of active errors that led to Mr. Murphy's unnecessary surgery are summarized in Figure 1.1.

Errors by the "frontline operators" created the local immediate conditions that allowed the **latent failures** in the system to become manifest. Latent failures are contributory factors in the system that may have lain dormant for a long time (days, weeks, or months) until they finally contributed to the incident. delayed impact on the function of the system (Reason, 1997). Many times these latent failures are only recognized after an incident occurs. Listed below are some of the latent failures that created conditions which made possible the occurrence of an unnecessary surgery:

- Staffing for the admissions registration area was not adequate for the volume of patients experienced during the busier times in the ED. There was no contingency plan to increase staffing during these times. Instead, the staff prioritized their workload and improperly prioritized patient registration and placing of ID bands as a task that could wait. There were no policies and procedures set forth to guide staff more properly in what to do in a busy situation. Nor was there a "safety culture" that facilitated identifying the environment as potentially unsafe and encouraged resolution of concerns.
- The facility's policy regarding patient identification did not address safety measures to be taken in the event that the patient was uncommunicative or disoriented and therefore unable to verbally confirm his or her identity.
- There was a lack of standardized "hand-off" communication of important information. Patient identification was not appropriately communicated between caregivers.
- The quality management activities of the hospital did not cover an entire category of care providers. There was no performance measurement data or systematic ongoing professional practice evaluation for allied health professionals; in this case, the PA. Traditionally, the quality management activities of the hospital most frequently resulted in peer review letters of sanction, and fear of this had prevented the orthopedic surgeon from communicating performance information about the PA for whom he was responsible. The surgeon also did not provide adequate supervision of the PA.

FIGURE 1.1 Active Errors Leading to Mr. Murphy's Unnecessary Surgery



Combination of Factors

As shown by the accident scenario, adverse patient incidents rarely result from a single mistake. System safeguards and the abilities of caregivers to identify and correct errors before an accident occurs make single-error accidents highly unlikely. Rather, accidents typically result from a combination of latent failures, active errors, and breach of defenses (Leape, 1994). System defenses, often called barriers, function to protect potential victims and assets from potential **hazards**. Defenses include engineered mechanisms (for example: alarms, physical barriers, automatic shutdowns), people (surgeons, anesthesiologists, nurses), procedural or administrative controls (time-out procedures, patient identification verifications). The breach of a defense occurs when latent failures and active errors momentarily line up to permit a trajectory of accident opportunity, bringing hazards into contact with victims, as demonstrated by James Reason's Swiss cheese model (2000).

Evidence from a large number of accident inquiries indicates that bad events are more often the result of error-prone situations and error-prone activities than they are of error-prone people (Reason, 2004). The balance of scientific opinion clearly favors system improvements rather than individual discipline as the desired error management approach for the following reasons:

- Human fallibility can be moderated to a point, but it can never be eliminated entirely. It is a fixed part of the human condition partly because, in many contexts, it serves a useful function (for example, trial-and-error learning in knowledge-based situations).
- Different types of errors have different psychological mechanisms, occur in different parts of the organization, and require different methods of management.
- Safety-critical errors happen at all levels of the system; they are not just made by those directly involved in patient care.
- Corrective actions involving sanctions, threats, fear, appeals, and the like have only limited effectiveness, and in many cases these actions can harm morale, self-respect, and a sense of justice.
- Errors are the product of a chain of causes in which the precipitating psychological factors—momentary inattention, misjudgment, forgetfulness, preoccupation—are often the last and least manageable links in the causal chain.

Health safety researchers have come to realize that individuals are not the primary cause of occasional sporadic accidents. Individuals can, however, be dynamic agents of patient safety by identifying and eliminating factors that undermine people's ability to do their jobs successfully (Smith, Boult, Woods, & Johnson, 2010). In the next section readers are introduced to the science of **human factors analysis** and what health care organizations can learn from the error-reduction efforts in other complex, yet highly reliable, safe industries.

How to Error-Proof Processes

Systems that rely on error-free human performance are destined to fail. Traditionally, however, individuals have been expected to not make errors. The time has come for health care professionals to universally acknowledge that mistakes happen and to aim improvement activities at the underlying system failures rather than at the people who, though predominantly well intentioned, are working in systems that are not robust in protecting against mistakes or critically harmful outcomes. For example, if a nurse gives the wrong medication to a patient, typically two things occur. First, an incident report is completed and sent to the nurse's department manager and **risk management**. Next, the nurse is "counseled" by management to pay closer attention next time. She is possibly told to read educational materials on the type of medication that was given in error. She may be warned that a second incident will result in a letter of reprimand being placed in her personnel file.

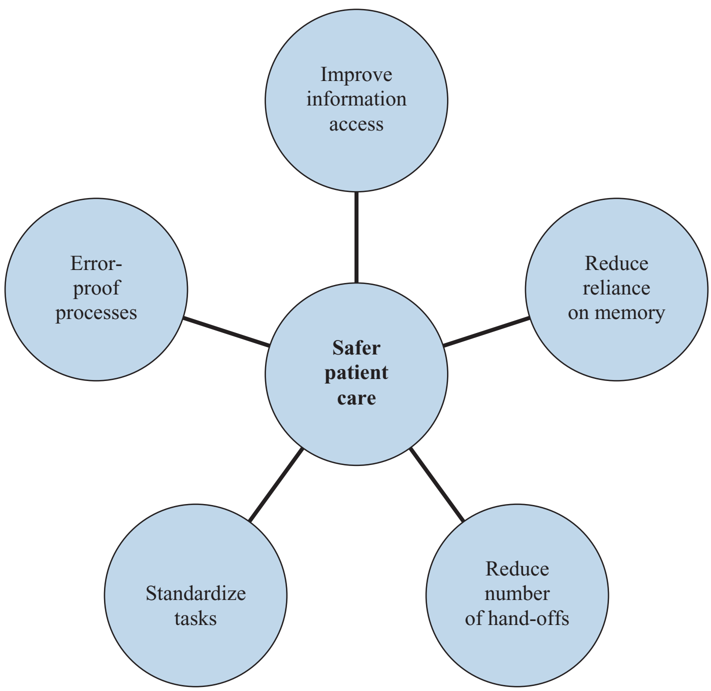
These individual-focused actions, however, will not fix the latent failures (for example: look-alike or sound-alike medication names, confusing product packaging, similar patient names) that continue to smolder behind the scenes and will invariably manifest themselves when another medication error is made by a different nurse. There may be the rare case of purposeful malevolence, malfeasance, or negligence, which is appropriately dealt with by sanction, but it is inappropriate to react with disciplinary actions for every error.

Human Factors Engineering

The discipline of **human factors engineering (HFE)** has been dealing with the causes and effects of human error since the 1940s. Originally applied to the design of military aircraft cockpits, HFE has since been effectively applied to the problem of human error in nuclear power plants, NASA spacecraft, and computer software (Welch, 1997). The science of HFE has more recently been applied to health care systems to identify the causes of significant errors and develop ways to eliminate or ameliorate them. Two particular concepts from the science of HFE have been introduced to health care systems to proactively improve safety. One is the use of a **risk assessment** technique—**failure mode and effect analysis**—to anticipate failures that may occur in **high-risk processes**. The process is then redesigned to reduce the severity and frequency of failures (Burgmeier, 2002). A second very promising proactive concept is the identification and examination of **close call** events (where a mistake almost reached a patient but was caught just in time). Information derived from close call events provides an understanding of latent failures that need to be resolved to prevent an actual harmful event from occurring (Cohoon, 2003).

By adopting the error-reduction strategies that have been successfully applied in other industries, many health care delivery systems can be redesigned to significantly lessen the likelihood of errors. Some of the tactics that have been summarized in health care literature are illustrated in Figure 1.2 and described in the following paragraphs (Leape, 1994; Cook & Woods, 1994; Grout, 2007; Clancy, 2007; Zwicker & Fulmer, 2008).

FIGURE 1.2 Error-Reduction Strategies



Reduce reliance on memory. Work should be designed to minimize the need for human tasks that are known to be particularly fallible, such as short-term memory and vigilance (prolonged attention). **Checklists**, protocols, and computerized decision aids are examples of tools that can be incorporated into health care processes to reduce mistakes. In a recent study related to clinical information technologies and patient outcomes, researchers found that hospitals with automated notes and records, order entry, and clinical decision support had fewer complications, lower mortality rates, and lower costs (Amarasingham, Plantinga, Diener-West, Gaskin, & Powe, 2009).

Improve information access. Creative ways must be developed to make information more readily available to caregivers. Information must be displayed where it is needed, when it is needed, and in a form that permits easy access by those who need it. For example, placing printed resuscitation protocols on "crash carts" gives caregivers a ready reference during cardiopulmonary resuscitation.

Mistake-proof processes. Where possible, critical tasks should be structured so that errors cannot be made. The use of **forcing functions** is helpful. For example, computerized systems can be designed in such a way as to prevent entry of an order for a lethal drug or to require weight-based dosing calculations for pediatric patients.

Standardize tasks. An effective means of reducing error is by standardizing processes wherever possible. If a task is done the same way every time—by everyone—there is less chance for error.

Reduce the number of hand-offs. Many errors come from slips in the transfer of materials, information, people, instructions, or supplies. Processes with fewer hand-offs reduce the chances for such mistakes.

The system and task redesigns suggested here could serve as the basis for improving processes that led to the unnecessary surgery described at the beginning of this chapter. The following specific corrective actions would likely be effective in decreasing the possibility of future adverse patient occurrences caused by latent failures in the system that cared for patients Murphy and Jenkins:

Reduce reliance on memory. In reverting to alternative procedures when patients were not wearing identification bands, the staff needed to remember to ask patients their identity. Strictly applied protocols for patient care treatment and diagnostic testing would incorporate the step of checking two patient identifiers and would not allow informal variations from this requirement.

Improve information access. The case illustrates many gaps in information communication (for example, patient identity, clinical information, and practitioner performance data). Health information technologies designed to permit access to clinical information by all appropriate practitioners may have helped the radiologist identify the error. Appropriate methods for collecting and trending practitioner performance data that can foster an improvement and safety culture are also needed to change the punitive culture generally associated with the peer review process.

Error-proof processes. Systems have been created that force the critical task of verifying patient identification before care can proceed. For example, by requiring patient identifier information to be entered into the system before the PACS allowed the radiology technologist to proceed with a diagnostic imaging study, the process would be more error-proof. A point-of-care bar-coding system that matches the identifying information in the system to the bar code on a patient's ID band would also greatly reduce mistakes.

Standardize tasks. Safety-critical tasks should be standardized and processes created to ensure that all steps are followed. An example is the use of a standardized checklist to ensure consistency and compliance with all measures of the Universal Protocol developed by TJC to prevent surgery on the wrong patient (The Joint Commission, 2009). Another example is the Surgical Safety Checklist developed by the World Health Organization (WHO) that helps ensure that OR teams consistently follow critical safety steps in the surgical process, with a goal of minimizing the most common and avoidable risks that may endanger surgical patients. Pilot testing of the WHO Surgical Safety Checklist in eight hospitals demonstrated the rate of death decreased from 1.5% to 0.8%, and the rate of complications decreased from 11% to 7% when the checklist was used (World Health Organization, 2008).

Reduce the number of hand-offs. If the steps of the ED admission process and related patient care activities were flowcharted, it would likely reveal unnecessarily complex steps and transfers of information. It is important to eliminate as many hand-offs as possible to prevent errors while at the same time recognizing the need to standardize the communication of important information during hand-offs.

Health care professionals also need to be indoctrinated with an understanding similar to aircraft pilots that safe practice is as important as effective practice (Helmreich, 2000). The staff involved in this unnecessary surgery should have been made aware of the process steps that are essential to safe practice, which would have made them less likely to circumvent these safety-critical steps.

Role of Senior Leaders

Efforts to successfully implement comprehensive patient safety improvement strategies require strong and sustained support, commitment, and actions by board members. administrators, medical staff leaders, and clinical leaders. These leaders must be committed to patient safety. Leaders must work together to ask what happened (not who should be blamed), establish values that place patient safety as a top priority, ensure adequate resources for patient safety, and require adherence to reliable, evidence-based practices. Several studies have substantiated the relationship between active senior leadership involvement and subsequent patient safety improvements (Leape et al., 2000; Lanier, 2006; Keroack et al., 2007; Ginsburg et al., 2010).

Senior leaders have a unique role in championing patient safety. The eight key steps for leaders to follow, as recommended by the Institute for Healthcare Improvement (IHI), are shown in the following list (Botwinick, Bisognano, & Haraden, 2006). By completing these steps, leaders can promote ever better patient safety in their organization.

Step One: Address strategic priorities, culture, and infrastructure

Step Two: Engage key stakeholders

Step Three: Communicate and build awareness

Step Four: Establish, oversee, and communicate system-level aims

Step Five: Track/measure performance over time, strengthen analysis

Step Six: Support staff and patients/families impacted by medical errors

Step Seven: Align systemwide activities and incentives

Step Eight: Redesign systems and improve reliability

Addressing the organization's culture of safety is a first step for leaders. There are various tools for conducting a safety culture assessment to determine factors needing improvement. (Nieva & Sorra, 2003) Borrowing from the Advisory Committee on the Safety of Nuclear Installations is a definition of a safety culture:

> **"The safety culture of an organization is the product of individual and group values, attitudes, perceptions, competencies, and patterns of behavior that determine the commitment to, and the style and proficiency of, an organization's health and safety**

management. Organizations with a positive safety culture are characterized by communications founded on mutual trust, by shared perceptions of the importance of safety and by confidence in the efficacy of preventive measures" (ACSNI, 1993).

As important as culture is to safety, there are indications that more work is needed in health care organizations. In a recent comparative study of **patient safety cultures** at 633 hospitals submitting data to the Agency for Healthcare Research and Quality (AHRQ), only 44% responded positively to having a nonpunitive response to errors (Sorra, Famolaro, Dyer, Khanna, & Nelson, 2009).

To change the safety culture and build trust, leaders must be visibly committed and supportive. This can be accomplished in several ways (Botwinick, Bisognano, & Haraden, 2006):

- Place patient safety issues at the top of the agenda at meetings of senior leaders, medical staff, and board meetings and educate board members and other leaders about patient safety.
- Engage the board in discussions of patient safety and share performance of the organization as compared with national best practices.
- Make patient safety a priority in hiring practices and spend time with new staff by providing information about patient safety at orientation.
- Provide existing staff with patient safety education and conduct unit walk-arounds focusing on patient safety—listen and respond to staff members' safety concerns.
- Promote and support reporting and analysis of **adverse events** to proactively identify and correct potential system failures.
- Provide support for those involved in a medical error.
- Implement evidence-based processes to increase safety and reliability and reduce errors (for example, rapid response teams, electronic health records with clinical decision support, physician order entry, and other automated error-reducing features).
- Improve, enhance, and reward teamwork.
- Align incentives with patient safety.
- Celebrate successes.

Conclusion

Health care professionals are entrusted with people's lives, and when they make a mistake, someone may suffer indeterminate harm or even death. This is a great burden that no true professional takes lightly. Health professionals have been traditionally socialized toward the unobtainable and unrealistic goal of being infallible. Thus, when they fail or make a mistake, their self-worth is diminished and they may face emotional devastation.

How does the same system that has placed professionals on this pedestal respond to an individual's mistake? It often accuses, ostracizes, sanctions, and even sues the person involved. After all, how can an error have occurred without negligence? Regulators and accrediting agencies ask health care organizations to report adverse events, yet when they do self-report, they are often punished with fines, probation, or even worse consequences. Is it really surprising that in a punitive (as opposed to a learning-oriented) safety culture that practitioners seek to conceal their mistakes or try to shift blame?

Patient safety improvements will only come about when leaders in health care organizations and the professionals providing care accept the notion that error is "an inevitable accompaniment of the human condition, even among conscientious professionals with high standards" (Leape, 1994). The very institutions that educate and regulate these clinicians must be the primary change agents for creating a learning-oriented safety culture. Only with acknowledgment that complete elimination of errors is beyond human control can we direct necessary focus on changing the systems in which humans work.

Changes in attitudes and practices—in short, culture change—will not occur overnight. People do not easily amend well-worn habits of thoughts and deeds. The physicist Max Planck wrote: "A new scientific truth does not triumph by convincing its opponents and making them see the light, but rather because its opponents eventually die, and a new generation grows up that is familiar with it" (cited in Millenson, 1997). The medical profession was issued an unprecedented challenge in May 1996 by the American Medical Association when this group announced that "it's time to acknowledge that medical mistakes happen—are even common" (Prager, 1996).

There is compelling evidence from the work under way in other complex industries that many medical errors can be eliminated with systems redesign and improved teamwork and through the sheer willpower of people committed to making it happen. Unfortunately, there are no quick fixes or magic bullets. Rather, research reveals a broad set of factors involved in failures related to potential and actual adverse events. Consequently, multiple directions for improvements must be coordinated to make progress on patient safety (Aspden, Corrigan, Wolcott, & Erickson, 2004). To uphold our professional commitment to "first do no harm," we are now pursuing each and every one of these new directions.

Discussion Questions

1. Describe how the expectation of perfection among health care practitioners can undermine patient safety efforts.
2. Describe three system or task redesigns that will decrease the possibility of mistakes caused by latent failures.
3. Explain why a culture that punishes people for mistakes contributes to an unsafe culture.

Key Terms

Accident
Active failure
Adverse event
Barrier
Checklist
Close call
Complex system
Error
Failure mode and effect analysis
Forcing function
Harm
Hazard
High-risk process
Human factors analysis
Human factors engineering
Latent failure
Mistake
Mistake-proof processes
Operator
Patient incident
Patient safety
Patient safety culture
Preventable
Risk
Risk assessment
Risk management
Sentinel event
Swiss cheese model
System failure
Violation

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