WHITE PAPER

Nurturing Your Safety Culture

Robert Wolosin, PhD, Research Product Manager, Press Ganey Associates, Inc.

"First, do no harm."—Hippocrates

Health care is not supposed to harm patients, but all too often, it does. So-called "iatrogenic" harm—harm in the course of medical care—has gained prominence in recent decades. High profile deaths such as those of Libby Zion in 1984, Betsy Lehman in 1994, Josie King in 2001, and Jesica Santillan in 2003 dramatize the fact that hospital personnel can make lethal mistakes. Other mistakes have less drastic outcomes but, nonetheless, may create complications, prolong the patient's length of stay, and/or increase the cost of care.

The scope of the problem is staggering. In the US, it is estimated that 98,000 preventable deaths occur annually due to medical errors. A recently published JAMA study[1] estimates that medical errors contribute to 32,591 deaths and $9.3 billion in excess charges in the US annually.

In addition to the obvious hardships and suffering medical mistakes cause patients, they create guilt for the caregivers who make them and put hospitals at risk for malpractice litigation. So it is not surprising that professional groups, governmental bodies, and not-for-profit organizations are taking steps to improve the safety of health care. For example, in November 1999, the Institute of Medicine (IOM), a branch of the National Academy of Sciences, made headlines by publishing *To Err is Human*[2], a complete review of the scope of medical errors in this country. It concluded that the rate of medical errors is far too high and made recommendations for change. In 2001, the same agency published *Crossing the Quality Chasm*, which called for sweeping changes in health care delivery and emphasized the need for safe patient care.

One "Bad Apple"

To Err is Human defines patient safety as, "Freedom from accidental injury due to medical care, or medical errors." How does one make medical care safer? The traditional way is to wait until someone—a physician, nurse, or pharmacist—makes a mistake that harms a patient, then find and punish that person. This "bad apple" approach reflects the theory that errors are matters of individual fault. It assumes that whoever made a mistake was too tired (or otherwise impaired), too lazy, or too ignorant to do any better, therefore the correct response is individual remediation. This method affords a certain amount of emotional satisfaction. Both the victim of the error and the institution can see that blame is assigned and the "guilty party" properly chastised—presumably, never to repeat the mistake.

The "bad apple" response has problems. For one thing, it creates an atmosphere of cover-up and fear. Who would want to admit to making a mistake that hurt a patient? Better to pretend that nothing untoward happened. Who would want to point the finger of blame? Better to remain silent and let things blow over. For another thing, it is based on the premise

that health care personnel should perform perfectly, every time, regardless of what's going on inside or around them. This "myth of medical perfection" is very powerful; it is part of the culture of medical training and becomes incorporated into many a health care worker's persona. But it is patently false. Human beings provide medical care, and human beings are not perfect—they are susceptible to all manner of failings, from not knowing the right thing to do in the first place to being unable to carry it out.

But by far the worst thing about the "bad apple" approach is that it does absolutely nothing to alter the underlying conditions that allowed the error to occur in the first place, so that in the future either the same or another provider in the facility may make the same mistake. This is the very last thing a hospital official wants to happen.

It's the System

Fortunately, there is another approach, based on the discipline of "human factors," a combination of engineering and psychology. The human factors approach has proven itself in so-called "high risk" industries such as nuclear power plants and commercial air travel, where the number of errors per million operations is extremely low. According to human factors research, errors do not just happen—they are outcomes of specific antecedents that can be anticipated and, if not eliminated altogether, at least mitigated. In this view, the health care worker who actually commits an error is merely the last link in a chain of events that have somehow lined up so as to allow the error to happen.

Of Swiss Cheese and Cockpits

One way to think about events "lining up" to make an error more likely is the Swiss cheese analogy. Think about a wedge of Swiss cheese: usually, looking into a hole does not allow one to see all the way through the wedge—more cheese blocks the view. But if all the holes lined up, one's gaze could pass through the entire wedge. In human factors parlance, the holes are called "latent errors." They are things that are ordinarily blocked by usual operating procedures and fulfilled expectations. But they are still present and can spring to life if given the opportunity.

Thus, airline accidents occur when many factors—poor flying conditions, equipment malfunctions, crew inexperience, and poor cockpit communication practices—stack the deck towards an accident. All that needs to happen is a precipitating event such as a sudden distraction, and the plane will go down. Disasters in other industries have similar histories.

Consider an actual hospital error[3] that illustrates how latent errors lined up and caused consequences: a seven-year old boy undergoing a routine operation was given an injection of what was thought to be an anesthetic but turned out to be a stimulant. The boy went into shock and died less than two hours later, despite heroic efforts on the part of the medical team to keep him alive. The fatal "latent error" was the hospital's practice (at the time, a common procedure in use around the country) of storing the anesthetic and the stimulant in containers that could be—and tragically were—mistaken for one another. Although the practice had been used successfully many thousands of times, it was like a hole in the Swiss cheese that combined with a precipitating event (perhaps a momentary attention lapse on the part of an OR worker) to cause the fatal error.

The airline industry has responded with "Crew [or Cockpit] Resource Management," a set of practices that makes the best use of all equipment, procedures, and people to promote safety in the skies. A key principle is the acceptance of the inevitability of errors, and an associated emphasis on recovering from them or lessening their impact. Crew Resource Management concentrates on open communication between crew members: if something looks wrong or "fishy," even if it involves a criticism of the plane's captain, it must be mentioned.

If human factors researchers are correct, and latent errors lurk behind the scenes in every hospital, what hope is there of improving patient safety? It turns out that there are many things a hospital can do. One traditional scheme for a "cause and effect" analysis includes the four Ps: Place, Procedure, People, and Policy. Each of these can be modified to increase patient safety. Or, the health care facility can take a cue from the airlines and alter the way things are done within its walls so as to catch errors before they happen, and learn from them when they do. As a result, a number of instruments that purport to measure the "safety culture" of a facility were developed. Not surprisingly, many of these tools measure communication practices.

Got Culture?

Culture is a high-sounding word. According to anthropologists, culture refers to patterns of thought and behavior within a society that are taught from one generation to another. But a simpler and more practical definition is, "the way we do things around here." It is the health care facility's ways of providing care and how personnel relate to one another that constitute its safety culture—it is the facility's practices.

The Hospital Survey on Patient Safety Culture

The Agency for Healthcare Research and Quality (AHRQ) is an arm of the Federal government charged with improving the quality, safety, and effectiveness of health care for all Americans. Recognizing the need to measure patient safety in health care organizations, AHRQ enlisted the help of a private research organization to develop a survey to measure patient safety culture. As a result, the so-called "Hospital Survey on Patient Safety Culture" (HSOPSC) was pilot tested, revised, and released to the public in November 2004.

The HSOPSC was designed to be completed by hospital personnel; it includes items that measure twelve areas or dimensions of patient safety culture. Table 1 shows these dimensions and their definitions. In addition, the survey asks each respondent to assign a "Patient Safety Grade" (A through F) to his/her work area, as well as to estimate the number of reports of mistakes the respondent submitted to the workplace in the past year. Press Ganey modified the HSOPSC by

Table 1: Press Ganey Safety Culture Survey Dimensions[4]

Patient Safety Culture Dimension	Definition: The extent to which...
Communication openness	Staff freely speak up if they see something that may negatively affect a patient, and feel free to question those with more authority
Feedback and communication about errors	Staff are informed about errors that happen, given feedback about changes implemented, and discuss ways to prevent errors
Frequency of events reported	Mistakes of the following types are reported: 1) Mistakes caught and corrected before affecting the patient; 2) Mistakes with no potential to harm the patient; 3) Mistakes that could harm the patient, but did not
Hospital handoffs and transitions	Important patient care information is transferred across hospital units during shift changes
Hospital management support for patient safety	Hospital management provides a work climate that promotes patient safety and shows that patient safety is a top priority
Nonpunitive response to error	Staff feel that their mistakes and event reports are not held against them, and that mistakes are not kept in their personnel file
Organizational learning and continuous improvement	There is a learning culture in which mistakes lead to positive changes and changes are evaluated for effectiveness
Overall perceptions of safety	Procedures and systems are good at preventing errors and there is a lack of patient safety problems
Staffing	There are enough staff to handle the workload and work hours are appropriate to provide the best care for patients
Supervisor/manager expectations and actions promoting safety	Supervisors/managers consider staff suggestions for improving patient safety, praise staff for following patient safety procedures, and do not overlook patient safety problems
Teamwork across hospital units	Hospital units cooperate and coordinate with one another to provide the best care for patients
Teamwork within units	Staff support one another, treat each other with respect, and work together as a team
Overall ratings	Staff members endorse the facility as a whole

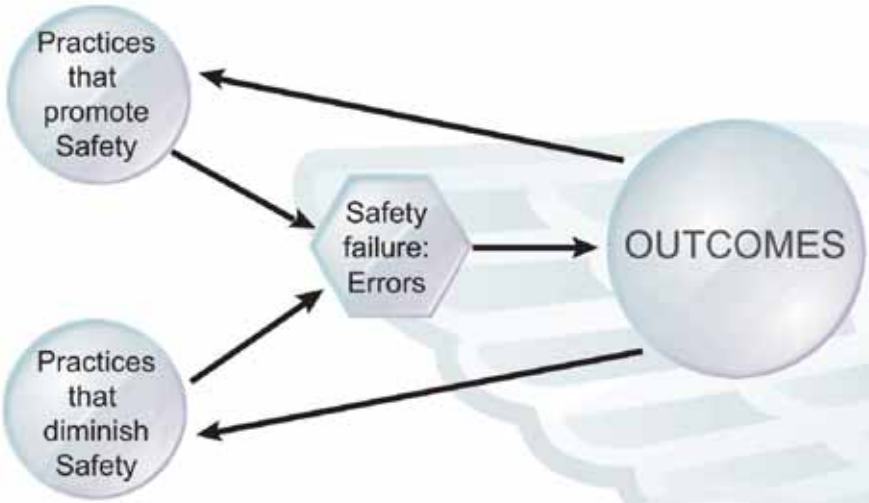

Figure 1: Relationships in The Press Ganey Safety Culture Survey

The Press Ganey Safety Culture Survey taps respondents' perceptions of practices within the workplace that promote and diminish patient safety, as well as errors themselves and their outcomes. Outcomes of errors, in turn, influence the safety culture by feeding back to the practices.

adding four overall ratings. The additional questions add to the available actionable data and provide for cross-functional analysis. Table 1 shows the dimensions of safety culture measured in the Press Ganey Safety Culture Survey.

The Press Ganey Safety Culture Survey is a way health care facilities can measure their practices and take action on those that are unsafe for patients. Items can be thought of as tapping the antecedents of errors, their consequences, and the nature of errors themselves.

As for antecedents, several survey items assess practices that promote patient safety (e.g., "When one area in this unit gets really busy, others help out," and "My supervisor/ manager seriously considers staff suggestions for improving patient safety"), while others focus on practices that diminish safety (e.g., "We work in 'crisis mode' trying to do too much, too quickly"). Three items require ratings of how often various types of mistakes are reported within the unit. Reporting of mistakes, whether or not they lead to actual patient harm, is one of the hallmarks of a safe unit, since "near misses" can be analyzed and used to understand the system's latent errors and correct them before they actually do harm. Another hallmark of a safety culture is how the organization responds to an error—by analyzing it and learning from it so as not to repeat it, or by ignoring it, or, worse, using the "bad apple" approach and sanctioning the individual who committed the error. Figure 1 illustrates these relationships.

Being On the Safe Side

A health care facility that invests in safe practices, measures its safety culture, and takes steps to decrease medical errors will eventually reap rewards. For example, a recent analysis of malpractice claims found that payments for claims involving errors averaged over $500,000 and that these claims contribute substantially to administrative costs. *To Err is Human* cited a study of medication errors ("adverse drug events" or ADEs) in teaching hospitals that found that each ADE increased the patient's length of stay by nearly two days and increased the cost of care by over $2,000.

The reduction of needless human suffering and the peace of mind from knowing that one's facility is doing everything in its power to fulfill the ancient pledge to do no harm is beyond measure.

[1] *Zhan C, Miller MR. Excess length of stay, charges, and mortality attributable to medical injuries during hospitalization. JAMA. 2003; 290(14):1868-74.*

[2] *Kohn, LT, Corrigan JM, Donaldson MS, eds. To err is human: Building a safer health system. Washington: National Academy Press, 1999.*

[3] *Belkin, L. "How can we save the next victim?" The New York Times Magazine, June 15, 1997.*

[4] *The dimension definitions (other than for "Overall ratings") are taken from Sorra, J, Nieva V, Famolaro T, and Dyer N. "Hospital survey on patient safety culture: 2007 comparative database report" US Department of Health and Human Services, Agency for Healthcare Research and Quality. April 2007. Table 1-1, p. 11.*

[5] *Studdert DM, Mellow MM, Gawande AA, Gahdhi TK, Kachalia A, Yoon C, Puoplolo AL, Brennan TA. Claims, errors, and compensation payments in medical malpractice litigation. N Engl J Med. 2006 May 11;354(19):2024-33.*