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What is Patient Safety Culture? A Review of the Literature

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Abstract

Purpose: To organize the properties of safety culture addressed by many studies and to develop a conceptual culture of safety model.
Design and Methods: A comprehensive review of the culture of safety literature within the U.S. hospital setting. The review was a qualitative meta-analysis from which we generated a conceptual culture of safety framework and developed a typology of the safety culture literature.
Findings: Seven subcultures of patient safety culture were identified: (a) leadership, (b) teamwork, (c) evidence-based, (d) communication, (e) learning, (f) just, and (g) patient-centered.
Conclusions: Safety culture is a complex phenomenon that is not clearly understood by hospital leaders, thus making it difficult to operationalize. We found senior leadership accountability key to an organization-wide culture of safety.
Clinical Relevance: Hospital leaders are increasingly pressured by federal, state, regulatory, and consumer groups to demonstrate an organizational safety culture that assures patients are safe from medical error. This article defines a safety culture framework that may support hospital leadership answer the question "what is a patient safety culture?"

A review of the patient safety literature must necessarily begin with the seminal Institute of Medicine (IOM) report To Err Is Human: Building a Safer Health System that found medical errors kill between 44,000 and 98,000 people in U.S. hospitals each year. Using the lower estimate, more people die from medical errors in a year than from highway accidents, breast cancer, or AIDS. The IOM committee recommended that healthcare organizations create an environment in which culture of safety is an explicit organizational goal, becomes a top priority, and is driven by leadership (Kohn, Corrigan, & Donaldson, 2000). In response to the recommendations of the IOM, healthcare organizations began the process of improving the widespread deficits in patient safety, including a focus on organizational safety culture (Leape, Berwick, & Bates, 2002). This led healthcare leaders to ask "how will we know?" when we have created a culture of safety within our hospitals (Pronovost et al., 2006). A first step is to define safety culture. We use the Agency for Healthcare Research and Quality (AHRQ) definition from the Health and Safety Commission of Great Britain:

> 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. (Health and Safety Commission Advisory Committee on the Safety of Nuclear Installations, 1993)

While it is not difficult to express safety culture in words, actually knowing and understanding the characteristics that define a safety culture and its implications to healthcare organizations may be more elusive.

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In this review, the authors critically examined the literature to identify studies that address the important beliefs, attitudes, and behaviors that are integral to a culture of safety in hospitals. Many authors offered a theoretical framework for a safety culture; however, the review supported the concept that a more comprehensive framework could be designed incorporating a broader range of properties. The purpose of this review was to organize the properties of safety culture addressed by many studies and develop and define a conceptual culture of safety model that could be a valuable tool to support hospital leadership in creating or improving an organizational safety culture.

Methods

The research design was a comprehensive literature review utilizing meta-analysis to develop a typology of the patient safety culture literature and identify key concepts of patient safety culture. To strengthen reliability and validity, two authors agreed to the grouping of the concepts into categories from which we generated a conceptual culture of safety framework with subcultures and properties (Strauss & Corbin, 1998).

A literature search was conducted using Medical Literature Analysis and Retrieval System Online (MEDLINE, 2007), from the U.S. National Library of Medicine, and the Cumulative Index to Nursing and Allied Health Literature (CINAHL) database, the authoritative source of information for the professional literature of nursing, allied health, biomedicine, and health care (CINAHL, n.d.). Key search words were "hospital safety," "culture of safety," "safety culture," and "safety climate." Limitations were English language, humans, and the years 1999 through 2007. We found a preponderance of literature addressing hospital patient safety culture and reviewed over 200 scholarly journal articles that met the initial criteria. To further narrow the review, we limited criteria to include only U.S. publications and studies conducted in the United States. We eliminated studies that were specific to disease, medical specialty, technologies, or hospital departments/units resulting in a review of 38 studies.

Findings

We identified a broad range of safety culture properties that we organized into seven subcultures and defined as:

1. Leadership: Leaders acknowledge the healthcare environment is a high-risk environment and seek to align vision/mission, staff competency, and fiscal and human resources from the boardroom to the frontline.
2. Teamwork: A spirit of collegiality, collaboration, and cooperation exists among executives, staff, and independent practitioners. Relationships are open, safe, respectful, and flexible.
3. Evidence-based: Patient care practices are based on evidence. Standardization to reduce variation occurs at every opportunity. Processes are designed to achieve high reliability.
4. Communication: An environment exists where an individual staff member, no matter what his or her job description, has the right and the responsibility to speak up on behalf of a patient.
5. Learning: The hospital learns from its mistakes and seeks new opportunities for performance improvement. Learning is valued among all staff, including the medical staff.
6. Just: A culture that recognizes errors as system failures rather than individual failures and, at the same time, does not shrink from holding individuals accountable for their actions.
7. Patient-centered: Patient care is centered around the patient and family. The patient is not only an active participant in his own care, but also acts as a liaison between the hospital and the community. The subcultures are diagramed in a conceptual model shown in the **Figure**. The **Table** is a typology of culture of safety identifying properties of each subculture that references the supporting literature.

Culture of Safety Begins With Leadership

It is a difficult task to identify the precise components of what makes a healthcare organization a safe organization. A common theme running through the literature suggests the role of senior leadership is a key element to designing, fostering, and nurturing a culture of safety. Therefore, we identified leadership as an important subculture. This was particularly exemplified when the National Quality Forum (NQF) adopted "Improving Patient Safety by Creating a Culture of Safety" with a focus on leadership structures and systems (NQF, 2006).

Engaged senior leaders are critical to an organization's successful development of a culture of safety. Engaged leaders drive the culture by designing strategy and building structure that guide safety processes and outcomes (Yates et al., 2005). Blake, Kohler, Rask, Davis, & Naylor (2006) identified administrative leadership as one of the most significant facilitators for establishing and promoting a culture of safety. Dickey (2005), in an editorial on "Creating a Culture of Safety," suggests a culture of safety must begin with the chief executive officer

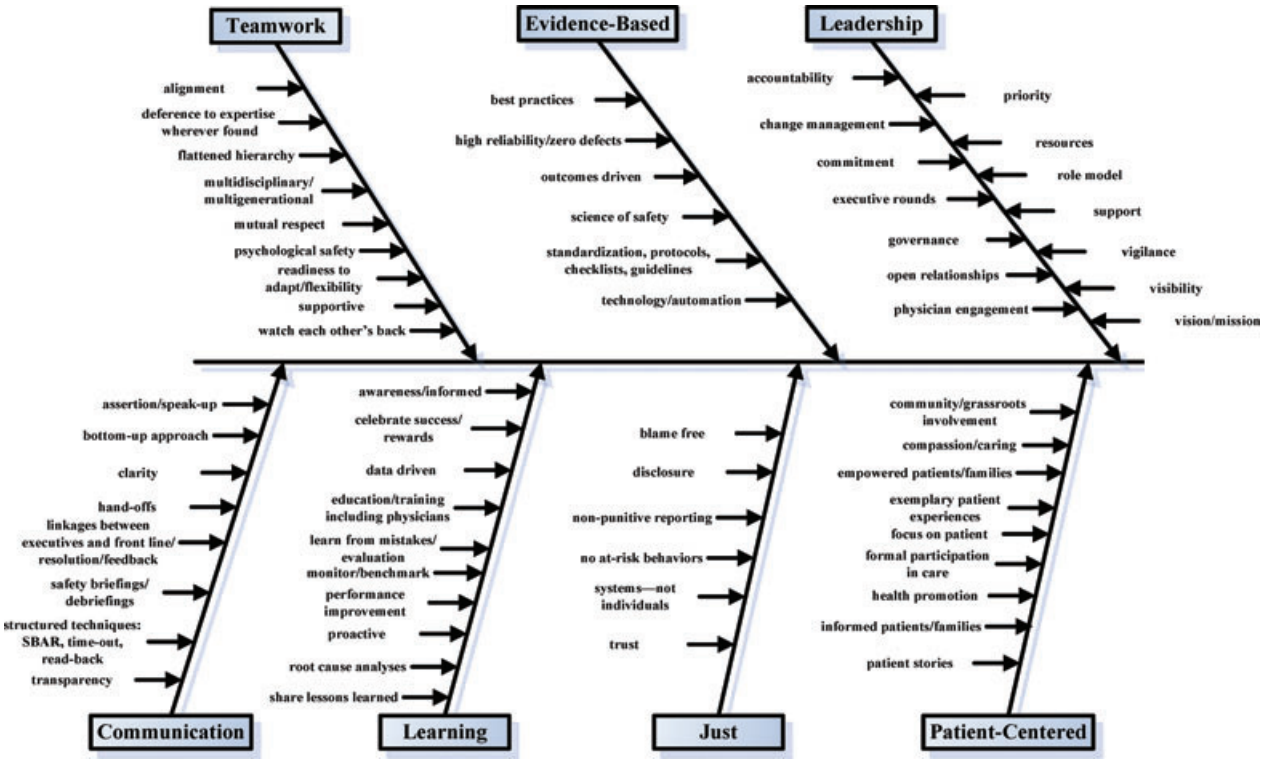

Figure. Hospital culture of patient safety.

(CEO), but it must also permeate throughout every level of the healthcare system.

Likewise, lack of leadership has been attributed as a barrier to safety culture. In 2002, Dennis O'Leary, then President of The Joint Commission, stated hospital CEOs see no business case for patient safety (DeWolf, Hatlie, Pugliese, & Wilson, 2003). In 2004, in an interview with Lucian Leape, the acknowledged father of patient safety, Buerhaus (2004) reported lack of hospital level leadership as a barrier to patient safety. "Most hospital presidents and CEOs are not in the vanguard of safety (p. 370)," Leape stated. As he travels and lectures on patient safety, he sees few CEOs in the audience.

However, we found several examples of hospital leaders that took steps to integrate a safety culture within their organizations. In 2005, top executives of Mercy Health System, St. Louis, met to discuss the moral and theological imperatives for creating a culture of safety. They identified improved leadership as a key element to enhance patient safety (Ballard, 2006). Children's National Medical Center in Washington, DC, reported a significant improvement in clinical outcomes, but stated improvement would not have occurred without a hospital-wide culture change emphasized by the CEO and Vice President of Patient Services (Chavanu, 2005). Cohen, Eustis, & Gribbins (2003) described how leadership in one community hospital improved the quality of care by changing the safety culture. Patient safety, with improved outcomes through an approach of targeted process and system improvements, was a strategic focus at Sentara Healthcare, an integrated healthcare system in Virginia involving the board of directors, senior administrators, and medical staff leaders (Yates et al., 2005).

Whereas strong leadership is often cited as critical to an organization's culture of safety, there are no easy answers as to how leadership can develop or be developed to assure a culture of safety. Five articles cited leadership education as key to an organization's move toward a safety culture. Leaders require basic insight into safety problems and need rationales for focusing on patient safety. They need to be educated on the science of safety and the power of data (Blake et al., 2006; Chavanu, 2005; DeWolf et al., 2003; Johnson & Maultsby, 2007; Ketring & White, 2002).

Teamwork

Teamwork is the second critical subculture we identified. Healthcare organizations are treating patients

Table. Culture of Safety Typology

Subculture	Properties	Studies
Leadership	Accountability	Frankel, Gandhi, & Bates (2003) Johnson & Maultsby (2007) Yates et al. (2005)
	Change management	DiBella (2001)
	Commitment	Cook et al. (2004) Ketring & White (2002) Singer et al. (2003)
	Executive rounds	Frankel, Gandhi, & Bates (2003) Thomas et al. (2005) Wittington & Cohen (2004)
	Governance	Clarke, Lerner, & Marella (2007) Connor, Ponte, & Conway (2002) Hader (2007)
	Open relationships	AORN (2006) Cohen, Eustis, & Gribbins (2003) Morath & Leary (2004)
	Physician engagement	Cohen, Eustis, & Gribbins (2003)
	Priority	Yates et al. (2005)
	Resources	Clarke, Lerner, & Marella (2007) Cook et al. (2004) Frankel, Gandhi, & Bates (2003) Singer et al. (2003) Yates et al. (2005)
	Role model	Kaissi (2006)
	Support	Ballard (2006) Blake et al. (2006) Odwazny et al. (2005)
	Vigilance	Kaissi (2006) Lindblad, Chilcott, & Rolls (2004) McCarthy & Blumenthal (2006) Yates et al. (2005)
	Visibility	Pronovost et al. (2003)
	Vision/mission	Clarke, Lerner, & Marella (2007) Cook et al. (2004) Pronovost et al. (2003)
Teamwork	Alignment	Frankel, Gandhi, & Bates (2003)
	Deference to expertise wherever found	Frankel & Haraden (2004)
	Flattened hierarchy	Clarke, Lerner, & Marella (2007)
	Multidisciplinary/mutigenerational	AORN (2006) Connor, Ponte, & Conway (2002) Gelinas & Loh (2004) Hansen et al. (2003)
	Mutual respect	AORN (2006) Cohen, Eustis, & Gribbins (2003)
	Psychological safety	Frankel, Gandhi, & Bates (2003) Morath & Leary (2004)
	Readiness to adapt/flexibility	AORN (2006) McCarthy & Blumenthal (2006)
	Supportive	AORN (2006)
	Watch each other's back	Weinstock (2007)
Evidence-based	Best practices	Apold, Daniels, & Sonneborn (2006) Ballard (2006) Clarke, Lerner, & Marella (2007) Frankel, Gandhi, & Bates (2003) Hansen et al. (2003) Ketring & White (2002)

Continued

Table. Continued.

Subculture	Properties	Studies
	High reliability/zero defects	Clarke, Lerner, & Marella (2007) Ketring & White (2002) Pronovost et al. (2003)
	Outcomes driven	Johnson & Maultsby (2007) Frankel, Gandhi, & Bates (2003) McCarthy & Blumenthal (2006)
	Science of safety	Pronovost et al. (2003)
	Standardization: protocols, checklists, guidelines	Frankel, Gandhi, & Bates (2003) Ketring & White (2002) McCarthy & Blumenthal (2006) Pronovost et al. (2006)
	Technology/automation	Johnson & Maultsby (2007) Nadzam et al. (2005)
Communication	Assertion/speak-up	Clarke, Lerner, & Marella (2007) Weinstock (2007)
	Bottom-up approach	Farrell & Davies (2006) McCarthy & Blumenthal (2006)
	Clarity	Weinstock (2007)
	Hand-offs	Blake et al. (2006) Weinstock (2007)
	Linkages between executives and front line/resolution/feedback	Blake et al. (2006) Morath & Leary (2004) Singer et al. (2003) Wittington & Cohen (2004)
	Safety briefings/debriefings	Frankel, Gandhi, & Bates (2003) Leonard, Graham, & Bonacum (2004) Wittington & Cohen (2004)
	Structured techniques: SBAR, time-out, read-back	Joint Commission (2009) Weinstock (2007)
	Transparency	DiBella (2001) Frankel, Gandhi, & Bates (2003)
Learning	Awareness/informed	Blake et al. (2006) McCarthy & Blumenthal (2006)
	Celebrate success/rewards	Kaissi (2006) Yates et al. (2005)
	Data driven	Ballard (2006) Frankel, Gandhi, & Bates (2003) Johnson & Maultsby (2007) McCarthy & Blumenthal (2006) Paine et al. (2004)
	Education/training including physicians	Blake et al. (2006) Cook et al. (2004) Frankel, Gandhi, & Bates (2003) Johnson & Maultsby (2007) Pronovost et al. (2003) Weinstock (2007)
	Learn from mistakes/evaluation	Blake et al. (2006) Farrell & Davies (2006)
	Monitor/benchmark	Chavanu (2005) Clarke, Lerner, & Marella (2007) Johnson & Maultsby (2007)
	Performance improvement	Clarke, Lerner, & Marella (2007) Reiling (2004) Wittington & Cohen (2004) Yates et al. (2005)

Continued

Table. Continued.

Subculture	Properties	Studies
	Proactive	Kaissi (2006) Reiling (2004) Wittington & Cohen (2004)
	Root-cause analyses	Apold, Daniels, & Sonneborn (2006) Connor, Ponte, & Conway (2002) Farrell & Davies (2006) Nadzam et al. (2005) Yates et al. (2005)
	Share lessons learned	Apold, Daniels, & Sonneborn (2006) DiBella (2001) Pronovost et al. (2003)
Just	Blame-free	Blake et al. (2006) DiBella (2001) Reiling (2004)
	Disclosure	Clarke, Lerner, & Marella (2007) Connor, Ponte, & Conway (2002) Johnson & Maultsby (2007) Pronovost et al. (2003)
	Nonpunitive reporting	Blake et al. (2006) Johnson & Maultsby (2007) Nadzam et al. (2005) Pronovost et al. (2003) Reiling (2004) Wittington & Cohen (2004)
	No at-risk behaviors	Clarke, Lerner, & Marella (2007)
	Systems—not individuals	Apold, Daniels, & Sonneborn (2006) Kaissi (2006) Wittington & Cohen (2004)
	Trust	AORN (2006) Morath & Leary (2004)
Patient- Centered	Community/grassroots involvement	Apold, Daniels, & Sonneborn (2006) Ketring & White (2002)
	Compassion/caring	Morath & Leary (2004) Rose et al. (2006)
	Empowered patients/families	Reiling (2004)
	Exemplary patient experiences	Gelinas & Loh (2004)
	Focus on patient	Connor, Ponte, & Conway (2002) Hansen et al. (2003) McCarthy & Blumenthal (2006)
	Formal participation in care	Connor, Ponte, & Conway (2002)
	health promotion	Hansen et al. (2003)
	Informed patients/families	Clarke, Lerner, & Marella (2007) Pronovost et al. (2003) Reiling (2004)
	Patient stories	Morath & Leary (2004)

with increasingly complex disease processes and with increasingly complex treatments and technologies requiring stronger efforts toward applications of teamwork and collaboration among caregivers to achieve a system-wide culture of patient safety (NQF, 2006).

Frankel and Haraden (2004) describe the original National Aeronautics and Space Administration model for organizational safety as including deference to expertise wherever found. This property of teamwork describes a multidisciplinary and multigenerational approach crossing all ranks, layers, and individuals across an

organization (Association of periOperative Room Nurses [AORN], 2006; Cook, Hoas, Guttmannova, & Joyner, 2004; Gelinas & Loh, 2004; Hansen et al., 2003).

Evidence-Based

Evidence-based health care is the third subculture we identified. Healthcare organizations that demonstrate evidence-based best practices, including standardized processes, protocols, checklists, and guidelines, are considered to exhibit a culture of safety (Apold, Daniels, & Sonneborn, 2006; Ballard, 2006; Clarke, Lerner, & Marella, 2007; Frankel, Gandhi, & Bates, 2003; Hansen et al., 2003; Ketring & White, 2002; Odwazny, Hasler, Abrams, & McNutt, 2005; Pronovost et al., 2006; Reiling, 2004).

Healthcare leaders refer to the aviation industry as a model for safety. Pilots use a standardized checklist before every flight to assure the aircraft, systems, and flight crew are ready and working as designed (Frankel & Haraden, 2004). Interestingly, the World Health Organization recently introduced a standardized checklist recommended for use by the operative team before surgical procedures.

Because the medical model of physician autonomy and the "art" of medicine is still prevalent, incorporating best practices and standardization may be leadership's greatest challenge to developing a culture of safety. However, as new generations of physicians are trained, the use of standardized guidelines may become more widely accepted (Sammer, Lykens, & Singh, 2008).

Communication

We identified communication, a fourth subculture, as an integral component of safety culture (Blake et al., 2006; Farrell & Davies, 2006; Hansen et al., 2003; NQF, 2006; Rapala & Kerfoot, 2005). Assertive language such as "I need clarity" (Weinstock, 2007) and structured language are communication techniques critical to a culture of safety. "Read backs" are an example of structured communication that clarifies and provides accuracy of verbal orders. "Time-outs" are another example of structured communication between team members, before an invasive procedure, to verify that the correct procedure, at the correct body site, is being performed on the correct patient (Joint Commission, 2009). Hand-off communication is a structured communication method between care providers to assure information is transferred as a cohesive plan between shifts, departments, and units (Blake et al.; Weinstock).

Frankel et al. (2003) and Leonard, Graham, and Bonacum (2004) suggest implementing forms of communication such as briefings. Briefings are very short discussions at the beginning of procedures to assure all parties are introduced and that equipment, medications, and supporting documents are in place. A debriefing occurs again at the end of a procedure to allow for a review.

Finally, front line staff want to know that communications with managers are heard and acknowledged. Providing feedback or closing the loop builds trust and openness; important properties of a culture of safety (AORN, 2006; Frankel et al., 2003; McCarthy & Blumenthal, 2006; Wittington & Cohen, 2004).

Learning

A culture of learning exists within a hospital when the organizational culture seeks to learn from mistakes and integrates performance improvement processes into the care delivery system (Blake et al., 2006; Farrell & Davies, 2006; Rapala & Kerfoot, 2005; Reiling, 2004; Smith, 2002; Wittington & Cohen, 2004). We found a learning culture to be a fifth subculture.

Learning can begin when leaders demonstrate a willingness to learn, not only from internal sources, but from sources outside health care that have developed and exhibited successful safety cultures (Wittington & Cohen, 2004). A learning culture creates safety awareness among employees and medical staff and promotes an environment of learning through educational opportunities (Blake et al., 2006; McCarthy & Blumenthal, 2006; Reiling, 2004). Education and training should include, at least, a basic understanding of (a) the science of safety, (b) what it means to be a high-reliability organization, (c) the value of a safety culture assessment, and (d) the performance improvement process, including rapid cycle testing of change (Johnson & Maultsby, 2007; Pronovost et al., 2006; Yates et al., 2005).

A hospital that is "data driven" has opportunity to learn not only from failures but from successes (Blake et al., 2006; Johnson & Maultsby, 2007; McCarthy & Blumenthal, 2006). A hospital should be transparent in reporting identified key safety indicators, and results should be posted and updated in a timely manner.

Learning cultures use root-cause analyses to investigate medical errors and near misses (Apold et al., 2006; Connor, Ponte, & Conway, 2002; Farrell & Davies, 2006; Nadzam, Atkins, Waggoner, & Shonk, 2005; Yates et al., 2005). However, as a hospital safety culture matures, learning cultures will become more proactive in identifying and improving potentially unsafe processes to prevent errors. Evaluation of the learning process encourages opportunities to share lessons learned, and considers the education process to be continuous and evolving (Apold et al.; Blake et al., 2006; DiBella, 2001; Farrell & Davies). A learning culture celebrates and rewards success (Kaissi, 2006; Yates et al.).

Just

We identified a just culture as a sixth subculture. One way to define just culture is to think of a two-sided scale of justice. One side of the scale is individual accountability and the other side is system failure (Kaissi, 2006). Marx (2008) describes a method useful to healthcare organizations to determine whether errors are individual failure or system failure by asking four questions: (a) Was the care provider's behavior malicious? (b) Was the care provider under the influence of alcohol or drugs? (c) Was the care provider aware he was making a mistake? (d) Would two or three of the care provider's peers make the same mistake? Just culture is characterized by trust (AORN, 2006; Morath & Leary, 2004; Singer et al., 2003). It is nonpunitive and includes a blame-free error-reporting atmosphere (Blake et al., 2006; Johnson & Maultsby, 2007; Nadzam et al, 2005; Pronovost et al., 2003; Reiling, 2004; Wittington & Cohen, 2004).

Patient-Centered

Patient-centered culture is the seventh subculture we identified. A patient-centered culture embraces the patient and family as the sole reason for the hospital's existence (Connor et al., 2002; Hansen et al., 2003; McCarthy & Blumenthal, 2006). It promises to value the patient by providing a healing environment during the hospitalization and also to promote health and well-being as a continuum of care (Hansen et al.).

It is the responsibility of leadership to commit to patient-centeredness as a core value. Leaders should challenge the medical staff and all employees to make every effort toward focusing on the patient and offering the patient an exemplary experience marked by caring and compassion (Gelinas & Loh, 2004; Morath & Leary, 2004; Rose, Thomas, Tersigni, Sexton, & Pryor, 2006). The patient-centered hospital allows and empowers patients to be participatory in their care decisions (Reiling, 2004). Leaders that share their patient-centered vision with their community allow the community to feel a sense of pride and ownership of their hospital (Apold et al., 2006; Ketring & White, 2002).

Patient stories can be used to put a "face" on system failures leading to potentially serious adverse events. Stories enhance the richness of description and create an atmosphere where discussion can lead to safety action (Morath & Leary, 2004).

Discussion

Health care, like other organizations, exhibits an organizational culture characterized by commonly defined attributes such as beliefs, attitudes, behaviors, and values (Schein, 1997). Similarly, cultures vary across organizations from department to department, unit to unit, and individual to individual. Recognizing these organizational commonalities and the potential impact that culture has on organizational structure, creating a culture of safety in health care may be imperative to any type of safety improvement program (McCarthy & Blumenthal, 2006).

One way to aid healthcare leaders in an understanding of safety culture, to evaluate the relationship with patient safety indicators, and to maximize the potential of patient safety is to administer a survey (Colla, Bracken, Kinney, & Weeks, 2005; Does your organization have a 'culture of safety'? Here's how to find out, 2006; Johnson & Maultsby, 2007; Nieva & Sorra, 2003; Pronovost & Sexton, 2005; Singer et al., 2003; Weingart, Farbstein, Davis, & Phillips, 2004). However, despite the efforts of the National Patient Safety Foundation, NQF, AHRQ, the Joint Commission, and others, in the early 2000s, few hospital executives had invested resources in a measurement of their organization's patient safety status or culture of safety (Pronovost et al., 2003).

Conclusions and Policy Implications

Safety culture is a complex phenomenon. Healthcare systems and individual hospitals have defined safety culture, surveyed staff including medical staff, developed performance improvement measures surrounding safety outcomes, and designed models and tools to guide and aid in the process. Yet, questions remain unanswered for both the hospital and its community: Does this hospital provide a safe environment for its patients? What will it take to assure the community we are a safe hospital? How will we know that our safety improvements have made a difference?

There are many directions policy makers could take toward improving a culture of safety within U.S. hospitals. McCarthy and Blumenthal (2006) state "policymakers could help stimulate a culture of safety by linking regulatory goals to safety culture expectations, sponsoring collaborations, rewarding safety improvements, better using publicly reported data, encouraging consumer involvement, and supporting research and education."

Hansen et al. (2003) offer suggestions for policy makers: review patient/provider ratio standards and define roles and responsibilities of providers, especially care "extenders" such as physician assistants and nurse practitioners. Leaders must view linkages between organizational culture, a rapidly changing workforce, and financial and quality success (Gelinas & Loh, 2004). Finally, we suggest that medical, nursing, and ancillary academicians incorporate safety culture principles into educational curriculums.

The question for policy makers is self-evident. Can a governmental response to patient safety, in the form of regulation and financial incentives/disincentives, provide sufficient impetus to hospital organizations to embrace a culture of patient safety with the ultimate goal of preventing patient harm?

Clinical Resources

- Hospital Survey on Patient Safty Culture http://www.ahrq.gov/qual/patientsafetyculture/hospsurvindex.htm
- Pascal Metrics http://www.pascalmetrics.com/Home.html

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