

Creating a Culture of Safety in Hospitals

Sara J. Singer¹ and Anita L. Tucker²

Abstract

A strong safety culture can help minimize medical errors, and hospitals' leaders have been encouraged to take responsibility for assuring patient safety (Institute of Medicine, 2001; Joint Commission on Accreditation of Healthcare Organizations, 2003; National Quality Forum, 2002, 2003). However, leading safety researchers suggest that few chief executives have made safety a top priority or committed substantial resources toward improving safety (Leape & Berwick, 2005). At the same time, much remains to be learned about how leaders can create a strong safety culture (Flin & Yule, 2004). Drawing on a field study of eight hospitals we find that strong safety leadership requires six actions: (1) setting and communicating a clear, compelling safety vision; (2) valuing and empowering personnel, (3) engaging actively in the effort to improve patient safety; (4) leading by example, (5) focusing on system issues, and (6) continually searching for improvement opportunities. Our data suggests that substantial variation in these behaviors exist among senior hospital leaders. This paper contributes to the safety literature by describing specific mechanisms senior leaders use to create a strong safety culture, such as sharing safety-related patients' experiences to personalize the importance of safety.

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Creating a strong safety culture is a critical but challenging task of senior leaders in organizations involved in potentially harmful activities (“high hazard” industries) (Roberts & Rousseau, 1989; Weick, 1987). Even when leaders understand the need to create a strong safety culture, doing so can remain an elusive goal (CAIB, 2003; Vaughan, 1996). We define a culture of safety as a shared value and belief among employees, managers, and leaders regarding the primary importance of ensuring that the organization’s equipment and processes cause no physical harm to employees or customers. A culture of safety can be discerned from behavioral norms that demonstrate a commitment to safety.

In health care, an example of a high hazard industry, strong safety cultures have the potential to prevent medical errors from claiming lives (Institute of Medicine, 2000). Despite leadership’s crucial role, leading safety researchers in healthcare suggest that few hospital Chief Executive Officers (CEOs) devote sufficient time or resources to patient safety (Leape et al., 2005). Prior research has found that variation exists across hospitals in leaderships’ awareness of safety risks and mistakes (Singer et al., 2003). In addition, perceptions differ between senior leadership and front line staff regarding safety culture and leader awareness of hospital safety risks, with senior leaders having a more optimistic view. This difference is larger in some institutions than in others, suggesting that some leaders do a better job than others in their effort to communicate their commitment to patient safety.

In other industries, such as aviation (Billings & Reynard, 1984), research on safety culture and the important role of senior leaders has been well established. Experts have suggested applying lessons from other hazardous industries to hospitals (Flin et al., 2004; Kerfoot, 2003;

Reason, 2000) However, transferring knowledge about creating cultures of safety from other industries to healthcare may be difficult. Institutional and organizational factors differ substantially between hospitals and other hazardous industries (Gaba, 2001). For example, enlisting non-employee physicians in safety initiatives is a critical challenge for hospitals (Poon et al., 2003). In addition, little is understood about specific mechanisms that senior healthcare leaders can use to instill a strong safety culture in their organizations, and leaders have few metrics to evaluate their own efforts to achieve this goal (Flin et al., 2004). These fundamental gaps in our knowledge about leadership warrant an exploratory, field-based investigation of behaviors that senior hospital leaders use to achieve strong safety culture (Van Maanen, 1988).

The remainder of this paper is organized as follows. First, we provide background on the safety challenge facing senior hospital leaders and potential lessons from research on other high hazard industries. We then delineate ways in which health care differs from other industries and argue for closer examination of hospital leadership. Next, after describing our field research methodology, we draw on qualitative and quantitative data from eight hospitals implementing an intervention to improve their safety cultures to introduce a framework for creating a culture of safety. We find that a building a strong safety culture requires six behaviors from senior leadership: (1) set and communicate a clear and compelling safety vision; (2) value and empower personnel to achieve the vision; (3) engage actively in the hospital's patient safety improvement effort; (4) lead by example; (5) focus on system issues rather than on individual error; and (6) continually search for improvement opportunities. We also identify specific actions that leaders can take, or ones that they should avoid, to achieve strong safety leadership, providing examples against which leaders may evaluate their own actions. We conclude with a discussion of our findings and implications for further research.

Healthcare and its relationship to other high hazard industries

Significant safety problems plague the U.S. health care delivery system today. Experts estimate that as many as 98,000 people die annually in the U.S. as a result of medical errors (Brennan et al., 1991). If this statistic is correct, more than twice the number of people die from hospital accidents than die from motor vehicle accidents (Center for Disease Control and Prevention, 1999).

In part due to the national attention generated by the widely publicized release of these data by the Institute of Medicine (Institute of Medicine, 2000), improving patient safety has become a high priority for hospitals (Institute of Medicine, 2001). However, reducing medical accidents remains a daunting task because it involves change on many dimensions. Improvement requires fundamental and extensive modifications of work processes (Campbell & Thompson, 2004; Chamberlain-Webber, 2004), deliberate planning and design of health care facilities (Chatzicocoli-Syrakou & Syrakoy, 2004), and a positive organizational culture (Campbell et al., 2004; Chamberlain-Webber, 2004).

Hospital leadership will be critical to achieving the necessary changes (Institute of Medicine, 2004). Overcoming organizational inertia and resistance will be a major challenge to health care leaders. The current task may be greater in hospitals than in many other high hazard industries where organizations have been working to improve their safety culture for decades. One study found staff perceptions of safety culture in hospitals was on average three times more problematic than in naval aviation (Gaba, Singer, Sinaiko, & Bowen, 2003). Unique characteristics of the health care system may compound these challenges in hospitals.

Other high-hazard industries include U.S. naval nuclear aircraft carriers, aviation, air traffic control towers, and nuclear power plants. Theories of organizational safety have looked within such organizations to explain why more accidents do not occur and whether and how they may be avoided. In general, there are two complementary views of organizational safety, Normal Accidents Theory (NAT) and High Reliability Organization Theory (HROT) (Sagan, 1993). NAT focuses on system complexity and the coupling of interactions between subsystems such that there are few buffers to dampen interactions that may cause accidents (Perrow, 1984, 1994). Consistent with NAT, Reason conceives of the roots of accidents as embedded in operational systems, latent until the tragically wrong combination of factors occur (Reason, 1990). According to NAT, accidents are inevitable and management and design efforts to prevent them may instead increase complexity and the likelihood of an accident.

In contrast, HROT takes a more optimistic view of potential leadership interventions. HROT suggests that the appropriate organization of people, technology, and processes can deter hazardous activities (Roberts, 1990; Rochlin, La Porte, & Roberts, 1987). Key characteristics of high reliability organizations (HROs) include safety as the top priority, redundancy in skills and knowledge, decentralized decision making, a culture of reliability, training, and trial and error learning (Sagan, 1993). Like hospitals, HROs face challenges including managing complex technology without failures and maintaining capacity for meeting periods of high peak demand. They are complex, internally dynamic and intermittently, intensely interactive, and they perform exacting tasks under considerable time pressure. HROs nevertheless perform these demanding activities with low incident rates and an almost complete absence of catastrophic failures.

Field studies of HROs have determined that a leader's ability to establish a safety culture plays a critical role in the occurrence of accidents. For example, investigators suggested that

NASA's internal culture was a major determinant of the Columbia space shuttle accident and that space shuttle program managers bore responsibility (CAIB, 2003).

HRO theorists have identified leadership behaviors associated with high reliability. They observe that effective leaders support open communication to ensure that critical information is identified and disseminated (CAIB, 2003; Roberts, Bea, & Bartles, 2001). Empowerment through flattening professional hierarchy in safety-critical settings such as the flight deck ensures that control passes to task experts and information flows rapidly between leaders and front line personnel (Reason, 2000; Roberts et al., 2001; Roberts & Libuser, 1993).

HRO leaders are preoccupied with possible failures rather than past success and continually seeking to learn about potential weaknesses and to improve systems (Roberts, 1990; Roberts et al., 2001). Rather than normalize discontinuities that come to their attention, HRO leaders focus on the potential for such abnormalities to signal vulnerability (CAIB, 2003; Weick & Sutcliffe, 2001). They invite dissenting opinions (CAIB, 2003). HRO leaders also emphasize systems causes rather than individual causes of errors, eliminate blame and punishment to encourage reporting, and demarcate for personnel clear lines around behavior that will result in punishment (Reason, 2000). HRO leaders measure and reward safety and reliability (Roberts et al., 2001). Finally, recent empirical research on leaders of military units found that simplicity and consistency of leadership practices that promote safety as a priority predicted greater work-related safety of their subordinates (Zohar & Luria, 2004).

Healthcare policymakers believe that, as in HROs, a primary driver of the failure of the health system to ensure adequate patient safety is a lack of leadership regarding safety culture (Institute of Medicine, 2001). This has led to application of theories of leadership and organizational safety derived from studies of HROs to hospitals (Flin et al., 2004; Kerfoot, 2003;

Reason, 2000). However, relatively little research directly on hospitals has examined senior leadership behaviors that might instill a strong culture of safety in this setting (Flin et al., 2004).

Experience of the UK's National Patient Safety Agency suggests that building a strong safety culture requires nurse managers to exhibit strong leadership including listening; explaining the relevance, importance, and benefits of patient safety; and promoting an ethos of respect and ability to speak up (Chamberlain-Webber, 2004). In addition, two recent studies suggest the importance of senior leaders' role in achieving clinical improvements. In the first, engaged senior managers was a key feature for improving complex clinical processes to meet guidelines for treating acute myocardial infarction (Bradley et al., 2005). The second study found that successful implementation of clinical innovations required leader support and problem recognition, but also concrete organizational support and implementation tools (VanDeusen Lukas, Meterko, Mohr, & Nealon Seibert, 2005). Leader support included prioritizing and talking about the innovation and reviewing progress toward its accomplishment. While these emergent findings are informative, in-depth examinations of the impact of hospital leadership on safety culture can shed further insights onto this topic.

Institutional and organizational factors in hospitals differ substantially from those of other hazardous industries. Particularly important in hospitals is the role of the medical professions (Scott & Backman, 1990). Professionals are indispensable to hospitals, yet many are governed more by external professional norms than by immediate administrative systems. Most hospitals operate with a bifurcated power structure to accommodate conflicting demands of administrators and physicians. Regarding quality and safety of medical care, medical professionals have long used their professional power to resist proposals for measurement and systematic improvement

efforts (Millenson, 1997; Starr, 1982; Weller, 1984), presenting the need for leadership intervention.

Other institutional factors may be detrimental to quality and safety in hospitals: (1) clinical training that promotes professional hierarchies and individual responsibility and accountability rather than non-punitive, team-based learning (Tucker & Edmondson, 2003); (2) compensation policies that pay for mistakes rather than reporting and improvement; and (3) a tort system that promotes fear of malpractice and deters providers from discussing and learning from mistakes (Gaba, 2001). Also, since the 1940s, the federal government has played a large role in influencing both the supply and demand for medical services. In addition, industry participation by for-profit, non-profit, and public entities as well as large hospital systems also distinguishes hospitals from other industries.

Combined with the fundamental observation that safety efforts in hospitals aim to protect patients rather than workers themselves, these substantial differences between hospitals and HROs suggest that more research on hospitals would be helpful. Indeed, one detailed study of an accident in a hospital found that, unlike in HROs, purely systemic reforms were insufficient to protect patients. Rather, to improve recognition of error provoking situations required that nurses and physicians also receive training and practice (Reason, 2004). Systematic investigation of the role of senior hospital leaders in creating a culture of safety may identify subtle differences of style, strategies, and tactics that could enhance effectiveness of efforts to improve hospital reliability as well as expand our understanding of leadership and organizational safety theories more generally.

Methods

This study employed both qualitative and quantitative methods. Over a period of 11 months, from August 2004 to July 2005, the authors conducted interviews in eight hospitals that had already participated in an organization-wide survey of attitudes and perceptions of safety culture. For seven of these hospitals, the authors also conducted on-site observation. The eight hospitals were selected to represent a diversity of sizes and geographic regions. For example, hospital 6 was a 25-bed non-teaching hospital in the rural mid-west, while hospital 7 was a 500-bed teaching hospital in a southwestern city. Investigators did not see survey results for the eight hospitals until they completed all field work and qualitative analyses.

Interviews

We conducted 26 semi-structured interviews with 51 individuals in the eight hospitals (see table 1 below). Interviews averaged approximately 40 minutes in length. Participants included senior leadership as defined by the hospital, middle managers, and front line personnel from one or more high hazard units, including cardiac catheterization laboratories, emergency departments, surgical departments, patient care units, and laboratories. Senior leaders generally included the Chief Executive Officer (CEO), Chief Medical Officer (CMO), Chief Operating Officer (COO), Chief Nursing Officer (CNO), and Chief Quality Officer (CQO).

Insert Table 1 about here.

Senior leader interviews included six open-ended questions related to patient safety (see Appendix). The first three questions addressed (1) senior leaders' priorities, (2) their assessment of hospital personnel attitudes toward patient safety, and (3) how they communicate about patient safety. To gain further insight about the leaders' role in creating a culture safety in the organization, we specifically asked leaders to discuss three topics that might illustrate their general approach to achieving safety culture: (4) how they support middle managers; (5) how

they addressed a safety hazard that recently came to their attention; and (6) how they implemented a recent organizational change in patient care processes. Middle manager interviews consisted of four open-ended questions, which like the senior leadership interviews, asked respondents to comment on a safety hazard and recent organizational change. In addition, we asked middle managers to describe a safety issue they recently discussed with senior leaders and their comfort in doing so. Finally, we asked them to identify a near-miss that came to their attention and how they addressed it. Similarly, four open-ended questions for front-line personnel largely mirrored the senior leader and middle manager interviews (see interview protocols attached). Interviews were taped and transcribed verbatim. Atlas TI coding software enabled formal codification of emerging themes in transcribed interviews. Two investigators reviewed the transcripts independently then jointly, negotiating differences and refining the coding scheme. We designed codes to tie our understanding of hospital safety culture to related literature and to develop evidence to support our conceptual model (Ibarra, 1999).

On-site Observations

At seven of the hospitals, we also conducted onsite observations. In four hospitals we observed the leaders conduct a worksite visit, one of two important components of an intervention we designed to improve safety culture. During a worksite visit, senior leaders observed processes and personnel in a high hazard area to better understand the safety risks. In the remaining three hospitals, we observed leaders implementing the second main component of the intervention, a safety town meeting. In a safety town meeting, senior leaders solicited suggestions for safety improvement with personnel from multiple disciplines in a high hazard area. Activities comprising the worksite visits and safety town halls allowed observation of senior leaders working together among themselves and working together with front-line

personnel on issues related to patient safety. During each site visit, investigators took extensive notes, and completed a written transcript of the day's activities before going to bed that night (Eisenhardt, 1989). The multiple case design enabled investigators to use each case to identify emergent themes and to use subsequent cases to support or modify the inferences drawn from the previous cases (Yin, 1999).

Insert Table 2 about here

Survey Measures

Strength of safety climate was measured by the Patient Safety Climate in Healthcare Organizations Survey, which measures personnel perceptions and attitudes toward safety culture at a point in time.³ Participating hospitals implemented the survey as part of a national study of safety culture in hospitals.⁴ Survey participants at each hospital generally included 100% of physicians and senior managers and a 10% random sample of all other hospital personnel. The survey included 38 questions suggested by the HRO literature and adapted from five safety culture survey instruments from health care and other industries. Each question offered five response choices ranging from strongly disagree (1) to strongly agree (5). We reverse scored negatively worded items. Topics included safety leadership, safety norms and policies, structural elements, and safety outcomes (e.g., whether the worker feels he/she provided safe care).

We examined 17 questions relevant to the leadership framework developed in this paper and applied principal components factor analysis to these survey questions to identify latent characteristics of leadership (with a varimax rotation to maximize the loadings on each factor).

³ The PSCHO was developed and tested by investigators at Stanford University and the VA Palo Alto Health Care System Patient Safety Culture Institute through funding from the Agency for Healthcare Research and Quality (AHRQ). The survey was adapted with permission from five existing survey instruments from health care and other industries. It is a precursor to the AHRQ *Hospital Survey on Patient Safety*, which was not available at the time of this study.

⁴ The survey was administered by Stanford University's Center for Health Policy and Center for Primary Care and Outcomes Research, with funding from the AHRQ.

After removing questions that showed a moderate to high degree of cross-loading and questions that failed to improve factor reliability, the analysis yielded one factor, which we labeled senior leadership for safety culture. The eigenvalue obtained from this evaluation was 4.2. Reliability analysis yielded a Cronbach's alpha of 0.89. The factor explained 61% of the systematic variation across questions.

Insert Table 3 about here

We report results for the seven items making up the senior leadership for safety culture construct and for the survey overall. We describe measures of safety climate based on the percentage of respondents with a “problematic response” (i.e., answered a question with a score of 1 or 2, suggesting a lack of safety culture). Results are adjusted to account for sample size differences.⁵ In computing means, standard deviation, and percent of scores that were problematic, we excluded senior managers' data from our sample. Response rates among all personnel excluding senior managers varied among the eight hospitals from 39% to 98%. Response rates among physicians ranged between 21% and 43%. Approval to conduct this study was granted in advance by Stanford University's institutional review board and by the relevant review boards of all of the participating institutions.

Results

We analyzed interview and observation data for senior leader behaviors that seemed to support or undermine safety culture. We then grouped these actions into categories, resulting in six dimensions of safety leadership. Although we do not claim that these dimensions are

⁵ To correct for the different sampling strategy for physicians (100% sampling) versus other employees (10% sampling), we weighted the responses of other employees by a factor of 10 relative to physicians. For hospitals that surveyed fewer than 100% of physicians sampling weights were adjusted accordingly.

exhaustive, we do feel that they provide a basic framework for describing a process for creating safety culture in hospitals. Below we describe the process and illustrate with quotes.

Creating a safety vision

Developing and communicating a clear safety vision throughout the organization was a key function of the senior leaders in hospitals we observed. For example at Hospital 1, COO/ CMO Dr. Slavitt's⁶ goal was "to be the highest performing hospital in terms of quality and patient satisfaction." He had articulated this goal to staff by telling them that "We are going to become the Southwest Airlines of hospitals." In developing this safety vision, Slavitt worked alone, stating that "I decided what the priorities were going to be."

In contrast, the CEO of Hospital 6, Michelle Paulson *used a more inclusive approach to developing her hospital's safety vision.* She explained,

"The whole safety initiative for us happens under the strategic objective of achieving urban standards in a rural setting. We have had discussions from the board down about what does it mean to be responsible. We are a small hospital, so we have to have the discussion about the appropriate scope of services for us. And if we can't achieve an urban standard, then we probably shouldn't be providing that service."

These discussions shaped their decisions about what services they would, and perhaps more importantly, would not provide.

Hospital 3 CEO Christensen *envisioned patient safety as supportive the hospital's financial goals.* He viewed patient safety as a link in a "chain reaction" from vision to financial and clinical results. In contrast, Hospital 2 CEO Palfrey's vision sought to compromise between safety and efficiency: "We want to provide safe services that allow us to stay financially [viable]."

⁶ All names are pseudonyms.

Another distinction among senior leaders was the *mechanisms they used to disseminate* their safety vision throughout the organization. Hospital 3 leaders used emotional, personalized storytelling—in person, over voicemail, and through videotaping—as a principal technique among leaders for motivating personnel. Network CMO Alan Eberhardt explained, “We are most effective when we can tell an emotional story of these near misses or sentinel events at the front line. Then [hospital personnel] really begin to understand it.” For example, Network CEO Christenson recalled a recent meeting during which he talked about the death of a 54-year old male: “This person could have been your father,” he told senior staff of the hospital system. Other mechanisms included breaking down hierarchical barriers by referring to everyone by their first names; quantifying the potential impact of errors; enlisting the managers in creating their own goals and priorities in alignment with hospital safety goals; and motivating action by monitoring and reporting progress toward the goals

Valuing and empowering people

Some senior leaders focused on empowering employees to shape the hospital’s improvement efforts to achieve its safety vision. For example, Hospital 6 CEO Paulson *facilitated broad participation* in deciding on a new clinical information system. Paulson recalled, “Going back to how the decision [about which computer system to purchase] was made, I think there is a lot of consensus building. A lot of evaluation. We have let management and staff chose the system.” Senior leaders at Hospital 6 also helped personnel to *take ownership of the system and implementation*. CEO Paulson explained, “We have done a ton of training. Our own staff built the internal menus.”

Managers also valued employees’ contributions to patient safety by *providing feedback about concerns raised and implementing viable suggestions*. Hospital 2 Emergency Department

Nurse Manager Sally explained the important effect of closing the loop: “If you know you’re going to be taken seriously and they’re going to try to do something, then you’re more apt to report.” Nurse Director of Surgical Services at Hospital 4 similarly suggested, “If you don’t go back and inform your front line staff [of your response to an incident report], you are just doing paperwork.” More than just having a safe place in which to report safety concerns (Edmondson, 2003a), feeling as though a concern would be taken seriously and acted upon by senior leaders was vital for getting staff to engage in patient safety efforts in the hospitals we observed.

In contrast, in Hospital 7, personnel received little empowerment or feedback from senior leaders. An Emergency Room nurse said, “They don’t want to hear it [our safety concerns], they don’t want to know it, they don’t care.” An Operating Room nurse added, “On this staffing issue, it is really critical [for patient safety because] we are not getting the help that we need.” An operating technician added, “The hospital as a whole doesn’t care to retain people...The bottom line is numbers. They want numbers. They don’t care about how they get them. There is no concern about employee satisfaction. Recruitment and retention is nil.”

In other hospitals, success in *involving and supporting others in the safety effort* was mixed. In Hospital 1, CMO Slavitt’s decision to exclude fellow senior executives from patient safety intervention meetings—although possibly a judicious time-management strategy on the part of an efficiency-minded boss—undermined his subordinate’s belief about his commitment to them and to the initiative. The CNO indicated that she would have much preferred to have been invited and allowed to decide for herself whether or not to attend the meeting.

Senior leaders in Hospital 4 demonstrated that there may be appropriate *limits to participative decision-making* (Bass, 1995; Mumford, 1981; Parnell, Carraher, & Holt, 2002; Yukl, 1989). As in Hospital 6, senior leaders in Hospital 4 included physician faculty in

determining the electronic medical record (EMR) vendor and supported their efforts to transition. However, as Hospital 4 CEO Bram Carter explained, refusing to convert to the EMR was not an option. “We said, here is the date by which everyone will convert, and if you don’t convert, you will not receive regular notices from the health system.”

Engagement of CEO, other senior leaders, and the board of directors

Engaged senior leaders supported the hospital’s patient safety efforts and signaled their importance. At Hospital 3, the Network CEO, Network CMO, and Network, CQO jointly directed the quality and safety initiative and met frequently to discuss patient safety priorities. Christenson reported that quality issues often accounted for a major portion of his day. In addition, Hospital 3 CEOs spent substantial time on patient safety. One Catheterization Lab Technician said, “Our CEO, he is constantly out and about, walking around, checking on things.”

In contrast, in Hospital 7 employees told us that the CEO was routinely unavailable for discussing patient safety issues. Illustrative of the lack of senior leader interaction with staff on patient safety issues, a nurse manager, Viola Flynn, described how staff bombarded her and the CNO with a wide range of issues during the work site visits and safety town halls. She explained, “When people feel like they have one shot at [being heard by senior management], they want to shotgun and make sure they get their digs in or their points made or their issues raised. Because who knows if they ever get another chance?”

Senior leaders’ *treatment of the governing board* also differed among hospitals. Hospital 3 leaders viewed expert board members as interested and helpful allies and worked to keep them appropriately informed. Network CMO Alan Eberhardt said, “I... worked on a board presentation [wrestling with] how to present to board of directors this [analysis of an error] in a meaningful but actionable direction, such that the governing body understands?” Hospital 6 used

board oversight as a tool to ensure personnel maintained safety-related changes. CEO Michelle Paulson told us, “We found a couple of big process issues that we could improve on. And now we are monitoring that for a year. It goes all the way to the board, that reporting. We keep it in front of us as a reminder.”

In contrast, we observed some evidence that Hospital 1 COO/CMO Dr. Slavitt did not adequately support the hospital board’s role in patient safety. Although Dr. Slavitt said he kept board members informed about patient safety, it did not appear that he valued their opinion and expertise, but rather viewed them as a hindrance. He commented that the Vice Chairperson of the Board was “a pain in the neck.” He viewed her as more interfering than helpful: “Sometimes it gets to be a bit tough because there’s so much she asks that is drivel.” Dr. Slavitt may have missed opportunities to harness the board’s efforts and formal authority to transmit a safety culture throughout the organization (Weiner, Shortell, & Alexander, 1997).

Leading by example

Some senior leaders demonstrated by personal example the importance of patient safety by *responding quickly and forcefully when safety problems were identified*. For example, Hospital 6’s CEO Paulson intervened when she felt that a staff person was acting inconsistently with the safety culture to which the hospital aspired. Paulson said, “Another tech wanted to sort of just finger point and just blame bad judgment on this tech. We had to back them up and actually protect the employee from that type of reaction.” Similarly, Hospital 3 Network CEO Christensen responded to notice of an unsafe act by demonstrating the importance of empowerment and hardwiring a systems fix to prevent future occurrences of a problem. He said, “We need to empower every one of those nurses... to say that the unit needs that I.D. bracelet within next 10 minutes.” In contrast, although Hospital 1 CMO Slavitt visibly supported patient

safety through quick action, he circumvented rather than empowered personnel normally responsible for taking action, potentially undermining their future ability to act independently. On learning about a safety hazard, Quality Director Vivian Prentice reported that Slavitt, “picked up the phone, and...it’s underway and it happened.”

Another way leaders provided an example was by *refusing to delegate the role of chief safety officer*. Hospital 4’s CMO Dr. Keith Moore described how he assumed the role of chief safety officer when the prior officer resigned from the organization: “I had someone else doing [patient safety], and I decided that this was important enough that I would name myself that and take it seriously.” In so doing, he felt he sent a strong signal to others to take safety seriously. In his capacity as chief safety officer, Dr. Moore used email list serves to communicate regularly with all personnel about the importance of patient safety and ongoing initiatives.

Focusing on systems issues

Although most leaders in the eight hospitals we studied acknowledged the importance of systems improvement, they demonstrated substantial differences in behaviors that might affect organizational learning. Several hospitals reduced anxiety among personnel about speaking up about safety concerns by *developing their employees’ abilities to communicate effectively with each other*. Hospital 3 Network CEO Christensen described the impact of extensive relationship training on the organization, “Relationship training has really helped make people feel comfortable talking with managers and managers talking directly to employees.” Hospital 4 had similarly undertaken a massive communication training initiative, involving all nurses, medical staff, and residents of the large, academic medical center. Physicians have responded positively, “Those physicians have come back from that course saying it was the best thing they ever did,”

said Hospital 4 CEO Bram Carter. Improvement in their most recent consumer assessment survey suggested that the initiative may have had some effect.

Hospital 6 senior leaders *treated near-misses as valuable learning opportunities*. CEO Paulson recalled a near-miss in which an incorrect laboratory reading almost resulted in an 86-yr old woman with congestive heart failure being unnecessarily transported out-of-town to have a cardiac catheterization procedure. Senior leadership intervened in four critical ways: first, they protected the technician involved from blame by other personnel—including the unit manager; second, they insisted that a root cause analysis be conducted as if the near miss had been a sentinel event; third, they communicated with the patient’s family about the mistake despite the potential for litigation against the hospital; and fourth, they ensured that new processes were implemented to prevent recurrence. CEO Paulson said,

“We treated that as a sentinel event...Initially the staff wanted to point to the tech, ‘You’ve made a mistake.’ When we did the root cause analysis, we realized that the process in the lab left a single tech, any tech, vulnerable to making a judgment call and uploading the results. And as typical with all sentinel events, several things aligned...Also the physicians were like nothing really happened to the patient, so we don’t really have to do a root cause analysis. The persistence from administration here that said, ‘No, yes we do.’ There is something to be learned here. And in fact we found a process component...the physician did the disclosure. My job then was to reinforce to him that he do the right thing.”

In contrast, managers in Hospital 7 described evidence of a consistently and severely punitive environment. One senior mid-level manager of the emergency care department said, “I think there is an integral culture ... that tends to be crisis management-based... You quickly identify who you think caused the problem and you deal with them in a not-so educational way.” He also indicated that senior leaders blamed individuals for errors, setting the direction for his fellow mid-level managers to do the same. Front line staff echoed this sentiment, stating that mistakes and near-misses were dealt with in a punitive, rather than learning, manner.

Continual search for improvement opportunities

Despite good safety records, some senior leaders *energetically identified further opportunities for improvement* while others did not. For example, despite being named one of the top 80 safest hospitals in the U.S., Hospital 3 Network CEO Christensen relayed the message that “they still had work to do.” He explained, “We just keep saying we need to get better... We have embarked on an effort of how to go from good to great.” Similarly, Hospital 6 CEO Paulson told one investigator why she was focused on increasing her staff’s willingness to discuss safety issues. “On the surface this hospital looks very strong. Any nurse will tell you that we work as a team. We work with the docs, they talk to us, we talk to them. [But] when there is a serious situation in the balance, we’ve had situations where the nurse will not confront the doctor.” Hospital 3 Network CMO Dr. Eberhardt described specific actions that demonstrated his will to improve, “On my safety rounds, I have gone exclusively to an area where we’ve had problems,” he said. In addition, during our visit at Hospital 3 the leadership team actively sought out and found shortcomings in their current system for medication administration.

This sharply contrasted the work site visit we observed at Hospital 2, during which the leadership team focused primarily on the strengths of their current system. Shortcomings were explained away as insolvable because they lacked sufficient resources. Reflecting this sentiment, when asked what might enable her to provide safer care one nurse responded, “I know what I’d like to have [a new medication cart], but we’ll never get that...I want a new cart that would allow me to stock drugs upright.” Similarly, at Hospital 7, the CEO described significantly lower than average safety climate survey results as indicative simply of “the stuff we actually had going on in the hospital” and indicated no interest in improving the results.

The strong and consistent application of these six dimensions by some hospital leaders appeared to foster commitment to safety throughout the organization. Conversely, the weak or inconsistent application of these activities seemed to result in a safety culture that had not penetrated to the front lines. Table 4 summarizes strengths and weaknesses in the six dimensions for the eight hospitals.

Insert Table 4 about here

Survey results

To examine the impact of the safety leadership exhibited by senior leaders in case study hospitals, we considered results from a survey of hospital personnel's perception of safety culture in each organization. As can be seen from the higher rates of problematic responses (1 or 2) to every leadership question, safety leadership appears to be much weaker in Hospital 7 than in other hospitals. These results are consistent with our observations that senior leaders in Hospital 7 did not engage in patient safety initiatives and fostered a punitive environment.

The rate of problematic responses to the leadership items was more than four times higher in Hospital 7 than in Hospital 6, and responses were almost twice as problematic overall. A z-test comparing Hospital 7's mean responses from non-senior managers on the safety leadership construct to other hospitals was significant for Hospitals 6, 3, 8, 4, and 1 at $p < .01$. In addition, overall differences in the percentage of personnel responding negatively to all the survey items relative to Hospital 7 were significant for Hospitals 6 and 3.

The greatest differences in rates of problematic responses related to perceptions of improvement in the level of patient safety overall. More than 17% of personnel at Hospital 7 perceived lack of improvement while no one felt this way in Hospital 6. In addition, more than

double the proportion of personnel at Hospital 7 (26.1%) versus Hospital 6 (10.1%) believed that senior management didn't have a good idea of the kinds of mistakes that occur in their facility.

Also, nearly six times the percentage of personnel at Hospital 7 (23.5%) compared to Hospital 6 (4.0%) and more than four times that of Hospital 3 (5.6%) felt that senior management failed to provide a climate that promoted patient safety. The survey results are presented in Table 5.

Insert Table 5 about here

Discussion

In this section, we discuss insights from the case material as they relate to literature on organizational safety and leadership to draw more general insights. Prior research on organizations and leadership suggests that senior leaders should use vision to steer an organization and to create an organizational culture (Bass, 1995; Bass & Avolio, 1993; Collins & Porras, 1994). Our cases support this recommendation, but they go further, suggesting that creating a strong safety culture requires more than simply articulating a vision. Senior leaders varied in their efforts to engage others in developing the hospital's vision, to transmit this vision down to the front lines of care, and to align the vision with specific, actionable departmental goals. Hospitals' experience in communicating their safety messages suggests that storytelling (Denning, 2004; McKee, 2003) and quantifying the potential impact of errors may be powerful tools for disseminating a message. Personalizing the importance of safety through storytelling may be more important in hospitals than in other high hazard industries because safety in hospitals requires individuals to expend time and effort for the sake of others. In addition, stories constitute a non-threatening technique for fostering education, awareness, and compliance

regarding patient safety efforts that may be particularly effective in motivating non-employee professionals.

HRO experts specifically exhort leaders to prioritize safety over efficiency (CAIB, 2003; Sagan, 1993). Although most leaders upheld this vision, the overt tension between safety and efficiency at some hospitals contrasted the view of safety and productivity as connected in a virtuous cycle in others (Deming, 1986). As financial pressure on hospitals intensifies, the ability of leaders to maintain resolve for safety will become increasingly critical.

Leadership theory has noted the importance of empowering personnel through motivation, involvement, and rewards (Bass, 1995; Bass et al., 1993). Research on HROs has also stressed the importance of empowerment for practical reasons: front line workers often possess the expertise and information to make the best decisions (Reason, 2000; Roberts et al., 1993). Data from our case studies similarly suggest that successful safety leadership requires motivating others in a constructive manner. Consistently promoting involvement; delegating responsibility; providing necessary resources; and listening, acknowledging, and acting upon concerns was necessary for creating an environment in which front line workers felt motivated to act (Chamberlain-Webber, 2004; Singer et al., 2005). Conversely, excluding individuals for the sake of efficiency hampered information flow, and resulted in the inability of subordinates to act on behalf of safety without specific direction from leadership. The benefit of empowerment is that culture, rather than formal procedures or the actions of a few leaders, becomes a self-reinforcing engine for ensuring patient safety. However, Hospital 4's experience highlighted the need for senior leaders to balance participation with need for change.

Substantial leadership and organizational research attests to the importance of senior leaders' role in establishing, maintaining, and adapting organizational culture (Kotter, 1999;

Mintzberg, 1990; Schein, 1992; Selznick, 1957). Not surprisingly, our case studies also demonstrated the value of senior leadership involvement. However, in hospitals—where leadership structure is typically diffuse (Weiner et al., 1997)—our findings suggest that safety culture warrants attention from both administrative and clinical leaders. The CEOs visible support of patient safety was beneficial as a signal of safety as a priority, despite the clinical nature of many improvement initiatives. Leadership by the CMO of patient safety efforts helped to ensure intimate knowledge about the safety concerns of frontline individuals (Campbell et al., 2004). In addition, efforts in some hospitals to involve Board of Directors demonstrated that the governing body can contribute both by providing information and expertise and by demanding accountability.

Leading by example has been promoted as a key ingredient for transforming organizations (Bass, 1995; Kotter, 2001). Senior leadership's willingness to engage in patient safety efforts sent clear indication to others that such activity was valued and important. Our case studies further suggest that leadership examples vary in their potential to impact positively safety culture. Most hospital leaders acted in visible ways that supported the vision of a safe hospital. However in Hospital 1, Dr. Slavitt's powerful message communicated through swift action to correct a safety hazard affected only the few personnel who observed the action (Thomas, Sexton, Neilands, Frankel, & Helmreich, 2005). In contrast, leaders in Hospitals 3, 4, and 6 set an example of storytelling and empowering front line personnel, the effect of which rippled throughout the organization, having a much greater impact on safety culture.

Senior leaders in some hospitals recognized the need to have others embrace the safety vision, make good decisions, and act accordingly. They empowered individuals by involving

them in the development of organizational goals, ensuring they understood their value, and giving them the authority to act.

Failure to empower personnel may be a particular concern in healthcare because so many hospital leaders are clinicians who have been promoted into these positions, with little if any leadership training. Medical training promotes decisive and autonomous decision-making, a skill seen as necessary for conducting clinical care. As a result, prevailing culture among physicians has typically downplayed teamwork and empowerment (Pisano, 1994). However, what is an asset in the clinical practice of medicine may be detrimental to the practice of hospital leadership, which requires negotiation, compromise, consensus building, and creating a sense of ownership in the organization's mission (Kotter, 2001; Mintzberg, 1990).

HROT particularly emphasizes the importance of establishing a strong safety culture by focusing on systemic issues that cause recurring errors rather than on blaming individuals for mistakes (Berwick, 1991; Leape, 1994; Reason, 2000). Several leaders purportedly had established a blame free environment in which people felt comfortable speaking up (Chamberlain-Webber, 2004; Edmondson, 2003b). Experience in Hospitals 3 and 4 suggests that one mechanism for facilitating speaking up is extensive relationship training. Other actions by senior leaders that supported a systems approach included consistently blaming systems rather than individuals, even under highly pressured circumstances; advocating a proactive approach to addressing safety concerns including patient involvement, despite malpractice concerns; evaluating work environment to detect opportunities for improvement and to monitor system changes once implemented.

In contrast, data from Hospital 7 and others provide evidence for the substantial challenge that hospital leaders face in trying to focus on the systemic nature of problems. Hospital 7's

experience demonstrated how instances of blame may undermine years of effort to encourage reporting.

Finally, HRO theories emphasize the importance of passion for continuous improvement (CAIB, 2003; Reason, 2000; Roberts et al., 2001; Weick et al., 2001). Our case studies supported this recommendation in combination with the others. In Hospital 2, the leaders tended to avoid identifying problems that they felt they did not have the resources to solve. Research in manufacturing has found similar results, where the potential for problem solution defines which problems get identified in the first place (MacDuffie, 1997). In contrast, in Hospitals 6 and 3, despite significant prior achievement, leaders continued to monitor operations and to seek problems to address.

Quantitative results provide some support for the value of the six leadership dimensions identified through field research. In general, safety climate survey results were better among hospitals whose senior leaders exhibited stronger safety leadership actions. In particular, personnel in Hospitals 6 and 3 reported lower safety problems at a significantly lower rate than did personnel in Hospital 7.

Limitations and Future Research

Ability to generalize conclusions drawn from case studies is always limited. The hospitals selected differed dramatically with respect to leadership structure and tenure (Finkelstein & Hambrick, 1996; Gabarro, 1987; Hambrick & Fukutomi, 1991; Pfeffer, 1983; Pfeffer & Moore, 1980) and hospital financial resources and staff stability (Aiken, Clarke, Sloane, Sochalski, & Silber, 2002; Curtin, 2003; Forsberg, Axelsson, & Arnetz, 2004; Mark, Harless, McCue, & Xu, 2004). The challenge was obviously greater in hospitals with recent changes in leadership and

significant financial pressure than in those with experienced teams and greater resources. In addition, characteristics of hospitals—such as their size and rural status (Brooks, Menachemi, Burke, & Clawson, 2005; Finkelstein et al., 1996; Harvey, 1992; Wholey, Moscovice, Hietpas, & Holtzman, 2004), academic status (Cohen & March, 1974), and system affiliation (Bazzoli, Chan, Shortell, & D'Aunno, 2000; Harvey, 1992) –may influence leadership roles and behaviors. Nevertheless, we believe that the framework presented here will have considerable applicability for hospital leaders facing the challenge of creating strong safety cultures and can be adapted for use in specific institutions.

Furthermore, a case study approach cannot demonstrate definitive relationships. Future research should explore our leadership model. Questions of interest include the extent to which the leadership qualities we identified are evident among hospital leaders more generally and how they vary by hospital and leader characteristics. Additional research should explore the relationship between leadership behaviors and safety culture; worker turnover and satisfaction; and safety and other performance outcomes. We also observed clear differences in the way safety culture leadership was intended versus received. Future research should also explore the extent to which managers' self-awareness about their own ability to instill front line motivation for change is related to strength of safety culture. In addition, although our measures of safety culture were clearly related to the leadership qualities identified as important through our qualitative investigation, they did not measure these constructs independently. Future research should survey hospital personnel with questions to assess more specifically the six key leadership activities.

Conclusion

Our case studies permitted identification of important patterns and themes. In particular, they allowed us to identify specific leadership styles, strategies, and tactics that may be effective for creating strong safety culture in hospitals that differ in subtle ways from those employed by leaders in other high hazard industries. Our data supported the view that superior leaders were actively engaged and created more compelling visions. Additionally, this study indicated that empowering others to act on behalf of safety and overtly valuing front line employees' contributions in this area is essential for creating a strong culture of safety. Developing these two behaviors in leaders is particularly challenging in an industry that enforces hierarchy, individual skill, and individual accountability. The data also suggested that safety leadership demands a constant quest for process improvement, even when admitting the need for change poses a legal risk. As financial pressures on hospitals create starker tradeoffs between safety and productivity, the need for the leadership skills explored in this paper may become even more acute.

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Research in progress; findings are preliminary

Table 1: Interviews with Hospital Personnel

Hospital No.	Hospital Type	Patient Safety Context	Interview Date	Participant titles	# people	Duration (Minutes)
1	Small, community, private (religious system affiliation) hospital in a mid-sized city in New England	COO/CMO runs operations of financially struggling hospital with little input from CEO	8/16/04	Cath lab team	3	60
			8/6/04	CMO/COO	1	30
			8/11/04	CQO	1	60
2	Very small, critical access hospital in a remote, rural and impoverished area in the South	Hospital closed in 1996 for financial reasons; previous JCAHO employee recently hired as patient safety coordinator	8/12/04	Admin	1	45
			8/12/04	CMO	1	45
			8/19/04	ED team	4	120
3	Hospital system of 5 hospitals including a heart hospital, in a mid-sized Midwestern city	Network CEO, CMO, and CQO have led the network's quality and patient safety effort jointly for over 20 years	8/20/04	Network CEO, Network CMO, and Network COO	3	90
			9/3/04	CEO	1	45
			9/3/04	Cath lab team	2	20
			9/14/04	CEO, CMO	2	90
4	Large teaching hospital in a large city in the West	Hospital purportedly enjoys unusual level of cooperation with its medical school; CMO leads patient safety effort, with support from hospital Director	9/9/04	Acting Manager Clinical Affairs, Acting Manager Clinical Quality Improvement, Manager of Medical Staff Administration	3	60
			10/27/04	ED team	3	60
			4/5/05	RN, OR	1	5
5	Small, system-affiliated, rural, non-profit hospital in a small Western city	CEO is actively engaged in the patient safety intervention and is willing to admit he does not know	4/5/05	RN, ED Manager	1	20
			4/5/05	CEO & Assistant to CEO	2	5
			4/8/05	Safety Officer	1	15
6	Very small, system-affiliated, rural, public hospital in a small Midwestern town	Pursing Baldrige Award because CEO feels it is more helpful (than JCAHO) in creating improvement capability	4/8/05	CEO	1	18
			4/8/05	Staff nurse from Patient Care Unit	1	12
			4/8/05	Lab Secretary	1	15
			4/18/05	Front Line Staff: Operating Room Technician, Operating Room Nurse, Emergency Room Nurse	3	14
			4/18/05	Department Managers: Emergency Services, Pre-Anesthesia Clinic, Post Anesthesia Care Unit, Emergency Department	4	42
7	Large teaching hospital in a large Southwestern city	The hospital faces financial challenges stemming from its large trauma cachement area, resulting in substantial unpaid and unreimbursed care being delivered each year	4/18/05	CNO; Nurse manager; Interim Dir Quality Outcomes Management; Outgoing Dir Quality Outcomes Management	4	60
			7/20/05	CEO, Interim CNO, Interim Dir Quality Outcomes Management; Administrator, Professional and Support Service	4	60
			4/20/05	CEO	1	20
8	Small, for-profit community hospital in the Southwest	The CEO highlighted their struggle to remain financially viable in a crowded hospital	4/20/05	RN, Director, Surgical Services	1	20
			4/20/05	RN, ED	1	10
				Average	2.0	41.4
8			26	Total	51	1036

Table 2: Observations of Safety Culture Improvement Intervention Activities

Hospital No.	Observation Date	Component Observed	Participant titles	# people	Duration (hours)
1	8/16/04	Work Site Visit	CMO, CQO, Patient safety manager, CFO, VP Physician Services, CNO, Nurse unit manager, Pharmacy manager	8	6
2	8/19/04	Work Site Visit	Administrator, CQO, COO, Director ETS and patient safety, Director nursing and risk management, HR director	6	6
3	9/3/04	Work Site Visit	Network CEO, Network CMO, Network CQO, Network CNO, Hospital President (3), VP women and children's services, Pharmacy director, Hospital clinical director	10	6
5	4/5/05	Safety Town Meeting	CEO, Dir of Quality Improvement, VP, HR Manager, Patient Care Manager, OR Nurse (Acting Manager), OR surgery nurse (2), OR Tech	9	1
6	4/8/05	Work Site Visit	CEO, Dir HR, Dir ED, Safety Officer, Lab Secretary, Manager of Health Information, Admitting Clerk	7	1
7	4/18/05	Safety Town Meeting	CNO, Nurse Manager, Outgoing Dir Quality Outcomes Management, Interim Dir Quality Outcomes Manager, OR staff members (3)	7	1
8	4/20/05	Safety Town Meeting	CEO, CNO, COO, Dir Infection Control, Dir Performance Improvement, Assistant Administrator, Dir Surgical Services, OR/PACU staff members (37)	44	1
7		Total		91	22

Table 3: Results of exploratory factor analysis of senior leadership-related safety climate items with orthogonal rotation (n=6538)

Items	Factor loading
Senior management provides a climate that promotes patient safety.	0.859
Senior management has a clear picture of the risk associated with patient care.	0.833
Patient safety decisions are made at the proper level by the most qualified people.	0.766
Overall, the level of patient safety at this facility is improving.	0.753
Senior management considers patient safety when program changes are discussed.	0.752
Senior management has a good idea of the kinds of mistakes that actually occur in this facility.	0.745
I am provided with adequate resources (personnel, budget, and equipment) to provide safe patient care.	0.735
Eigenvalue	4.247
Overall Variance Explained	60.67%
Cronbach's Alpha	0.89

Table 4: Representative Quotes Illustrating the Six Safety Leadership Behaviors

Behavior	Hospital 6	Hospital 3	Hospital 8	Hospital 4	Hospital 1	Hospital 2	Hospital 5	Hospital 7
1. Vision	<p>STRONG: <i>"... The whole safety initiative for us happens under the strategic objective of achieving urban standards in a rural setting. We have had discussions from the board down about what does it mean to be responsible. We are a small hospital, so we have to have the discussion about the appropriate scope of services for us. And if we can't achieve an urban standard, then we probably shouldn't be providing that service."</i> – Michelle Paulson, CEO</p>	<p>STRONG: "One nurse said to me one time, I don't think that you should expect us to be 100% perfect...And I said [if our error rate was .1%], we would make 1000 errors out of a million opportunities. ...So I said, '...This kind of quality happens because you're very purposeful about it. It doesn't happen accidentally.'" --Cindy Nord, Hospital President; "We believe strongly in the chain reaction. We believe that mission, vision, and values...drive leaders behavior, [which] influences employees and physicians, [which] impacts...patient safety, [etc.]. All of those then drive financial results and...quality outcomes." --Doug Christensen, Network CEO</p>	<p>STRONG: "Patient safety has to do with reputation. [When staff come to work at the hospital, they] find that they are working in a place where patient safety is certainly a high priority and care is good or they leave. And so, in order for any of those visions [of growth] to occur, patient safety has to be there. Otherwise it is just not going to happen." --Charles Carino, CEO</p>	<p>STRONG: "We have established system-wide performance improvement goals...Last year we asked that all of the clinical departments to select one performance improvement goal that matched one of the system performance improvement goals. And this year, we asked all of them to select one of our patient safety goals to match one of their process improvement goals, and...we asked them to do it. My quality safety unit actually monitors it". --Dr. Keith Moore, CMO; "We weren't achieving the outcomes we wanted, so we shut [our lung transplant] program down, even though it was okay financially." --Katherine Sams, Manager Clinical Affairs</p>	<p>STRONG: "We are going to be the highest performing hospital in terms of quality and patient satisfaction. We are going to become the Southwest Airlines of hospitals.... We're going to grow by proving that we're the best at what we do.... That's the clear strategic direction." --Dr. Godfrey Slavitt, COO/CMO Regarding the process for determining priorities: "I decided what they were going to be." --Dr. Godfrey Slavitt, COO/CMO</p>	<p>AMBIGUOUS: "Our mission is to provide continuity of quality health care to the people in our community. We want to provide safe services that allow us to stay financially [viable]. To provide good [essential health care] services." "[Staying financially viable is] important because otherwise, we won't be here to do anything." --Diana Palfry, CEO</p>	<p>AMBIGUOUS: "I'm confused, [by the multiple safety goals going around]...I would say we have a strong New Year's resolution to focus harder. The jury is still out whether we are really genuinely [making a difference in awareness?]." --Walter Sorensen, CEO</p>	<p>UNKNOWN:</p>

Research in progress; findings are preliminary

<p>2. Value and empowerment</p>	<p>STRONG: “Going back to how the decision [about which computer system to purchase] was made, I think there is a lot of consensus building. A lot of evaluation. We have let management and staff chose the system. We have done a ton of training. Our own staff built the internal menus. So we have train the trainers going on. We are just in the phase of implementation and it has gone beautifully with the software company's support. They are singing our praises.” – Michelle Paulson, CEO</p>	<p>STRONG: <i>“We need to empower every one of those nurses, if the ED sends someone up, we will accept the patient because we’re not going to put the patient in the middle of it, but we need to empower the nurse to say that we need that ID bracelet within next 10 minutes.”</i> --Doug, Network CEO</p>	<p>AMBIGUOUS: “When I talk with my directors...I say...you don't really know how to get that stone out of your way. And then you come to me and say, ‘Gee, I've got this stone and here are some ideas that I have and what do you think?’ And I help them kind of move that stone. But I am not the one that is guiding the wagon down the road. That's totally theirs.” --Charles Carino, CEO; Because if you don't go back and inform your front line staff, you are just doing paperwork. --Theresa Miller, R.N., Director, Surgical Services; If we identify an issue, it goes to the director, and I think sometimes it kind of stops there; there is no solution. --Jessica Walker, R.N., Emergency Dept Nurse</p>	<p>STRONG: “We had many meetings with faculty before we even selected an EMR...I would venture to say they were instrumental about them picking the [Vendor] system.” --Bram Carter, CEO; “We were gentle going in to this transition, we said we need to make this transition; it's important that you make it; we will train you how to use it; we'll work with you to help you any way we can; then we said, here is the date by which everyone will convert, and if you don't convert, you will not receive regular notices from the health system.” --Bram Carter, CEO; Everything I've suggested has been welcomed, and they've made the changes, sometimes within the same day. --Marsha Owens, Pediatric Pharmacist</p>	<p>WEAK: The Chief Nursing Officer was not been scheduled to meet with us. In a private conversation, she indicated to us that she would have preferred to have been invited, and that it should have been her decision to decide whether or not she attended. When the Patient Safety Officer arrived, he indicated that Dr. Slavitt had been the one to decide not to include her. --Summary of conversation with Lindsay Brady, CNO</p>	<p>AMBIGUOUS: “Every time we’ve ever had a problem, I think administration really has tried to help.” --Sally, ER Nurse Manager; Describing extraordinary staff efforts to replace chairs for family members in patient care rooms: “Here's what we did to get those chairs: First of all, the nursing staff shopped around. ...and they got the best price possible. Then the Safety Committee held car washes up here... We made a lot of money on that. And administration finally sat back, and they thought it was such a great idea that we were doing that, they told us to stop. They said, we'll find the money somewhere.” --Patrick Blake, ED Manager</p>	<p>WEAK: “I had been talking about these issues, but hadn't been heard.” --Linda Arnolds, ED manager</p>	<p>WEAK: The following comments come from a group interview: <i>“They don't want to hear it, they don't want to know it, they don't care.”</i> --Denise, RN Emergency Room Nurse; “On this staffing issue, it is really critical we are not getting the help that we need.” --Frieda, OR Lead Charge Nurse; “The hospital as a whole doesn't care to retain people...The bottom line is numbers...There is no concern about employee satisfaction. Recruitment and retention is null. --George, operating room technician; On being interrupted Denise responded, “That is an example of the lack of respect the management has for staff.”</p>
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Research in progress; findings are preliminary

3. Engagement	STRONG:	<p>STRONG: "Our CEO, he is <i>constantly out and about</i> , walking around, checking on things." – Ed, Cath Lab Technician, Hosp 3 "I... <i>worked on a board presentation</i> [wrestling with] how to present to board of directors this [analysis of an error] in a <i>meaningful but actionable direction, such that the governing body understands ?</i>" – Alan Eberhardt, Network CMO</p>	STRONG:	<p>STRONG: "They're aware because they're plugged into the online system, and they see those reactions when we see them. They review them daily." --Greg Nadel, Pharmacist</p>	<p>WEAK: "I think he doesn't need to be as involved because he knows we're moving [patient safety] forward." --Dr. Godfrey Slavitt, COO/CMO</p>	<p>WEAK: "<i>You are talking to administration, and we focus on the dollars. If you talk to the director of nursing, she's focusing primarily on patient care.</i>" --Diana Palfry, CEO</p>	AMBIGUOUS:	<p>WEAK: "<i>When people feel like they have one shot at [being heard by senior management] , they want to shotgun and make sure they get their digs in or their points made or their issues raised. Because who knows if they ever get another chance ."</i> --Viola Flynn, Outgoing QI Director</p>
4. Lead by Example	<p>STRONG: "Truly the red flag that went off for me, is that not only the manager, but another tech wanted to sort of like just finger point and just blame bad judgment on this tech. <i>We had to back them up and actually protect the employee from that type of reaction.</i> And I'm thinking that's probably the culture we are dealing with all the way around." – Michelle Paulson, CEO</p>	<p>STRONG: [A surgical patient went into arrest after a novice team member erroneously hooked up a CO2 canister instead of an O2 one.] "We performed a root cause analysis and found that several problems in the system allowed this to happen. We went through a whole list of these, and implemented them immediately in that surgical theater. The CNO and I then went to all ten operating theaters in network and made sure that the same changes were made." --Alan, Network CMO</p>	AMBIGUOUS:	<p>STRONG: "I had someone else doing that and I decided that this was important enough that I would name myself that and take it seriously." --Dr. Keith Moore, CMO</p>	<p>AMBIGUOUS: [Quality and Risk Director Vivian Prentice informed COO/CMO Dr. Slavitt about a patient who slipped and fell because a sloped ramp didn't have a handrail. She communicated that the area manager requested a handrail, but the request was denied.] "And, [Dr. Slavitt] immediately said, 'That doesn't make sense, that has to happen, whom do I need to speak to?' And he picked up the phone, and I could tell there was a little bit of resistance there, but it's underway and it happened...I truly expected the same roadblocks to go up and the same response, well we'll get to it, it's not a priority, and that didn't happen." --Vivian Prentice, Quality and Risk Director</p>	STRONG:	AMBIGUOUS:	AMBIGUOUS:

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5. Systems focus	<p>STRONG: “We treated that [incorrect laboratory reading that almost resulted in an 86-yr woman with congestive heart failure being unnecessarily transported out-of-town to have a cardiac cathertization procedure] as a sentinel event. We did a root cause analysis on it. <i>Initially the staff wanted to point to the tech, ‘You’ve made a mistake.’ When we did the root cause analysis, we realized that the process in the lab left a single tech, any tech, vulnerable to making a judgment call and uploading the results. And as typical with all sentinel events, several things aligned.</i>” – Michelle Paulson, CEO</p>	<p>STRONG: “We really need to prevent these things from happening, rather than waiting ‘til they happen, then doing a root cause analysis. We will probably be doing more Failure Mode and Effects Analysis. We have done these, and one of the Presidents of our hospitals has said, ‘we need to do two per institution.’ Beverly said ‘no, they [the Joint Commission for Accreditation of Healthcare Organizations] backed off and are only requiring one per institution.’ And we said, ‘no, we need to do these—however many we need to do—to prevent these things from happening regardless of JCAHO requirements.’” --Doug Christensen, Network CEO</p>	<p>AMBIGUOUS: “Anytime we come up with something that we think is even a slight risk and an event report is generated, we not only give that to the administrators who are risk managers so that they know and it is reported, but it is followed up with whatever area needs it.” --Theresa Miller, R.N., Director, Surgical Services; “I don’t know of a form that is made for near misses.” --Jessica Walker, R.N., Emergency Department Nurse</p>	<p>AMBIGUOUS: “Nurses initially said I don’t mind, I can take more than 4 patients. We had to create the culture that said that’s not OK. We had to tell them no, that’s not a safe practice, and in fact it’s against the law now. We had to tell them to tell the charge nurse, get a float nurse, call an action nurse, tell the nurse supervisor if there were ever that many patients. And, we track how often they go out of ratio, and we explain what we’re doing to try to get back into ratio, and we keep that on file. It was a real culture change; nurses always felt they could handle more patients. Everyone had to remind each other that it wasn’t safe practice and we’re not going to do that any more.” --Marsha Owens, Pediatric Pharmacist</p>	<p>AMBIGUOUS: “I think the senior management follow practice information, and if there is a problem with patient safety, their job is to find it and say, hey, you know what, we’ve got people falling on this floor more than any other floor – I think they’re more of a tracking and alerting to a trend, where the people that affect safety are probably the ones who work with it every day.” --Rhett O’Mally, Cath Lab Technician</p>	<p>AMBIGUOUS: Describing senior management’s initial response to a medication error: “the ER staff’s been talked to about the orders and stuff - and it’s like I said, in her defense, it was totally crazy back here” --Patrick Blake, ED Manager</p>	<p>AMBIGUOUS: “To prepare the employees for the program, they distributed a written summary and also explained at the beginning and gave them a tenet of trust--and, still [there was on the part of the people being observed] reservation; a feel of being audited was there.” --Brian LeBlanc, Vice President</p>	<p>WEAK: “I think there is an integral culture ... that tends to be crisis management-based. And so as a crisis management approach, <i>you quickly identify who you think caused the problem and you deal with them in a not-so educational way.</i>” Interviewer: At what level is that happening? “Some executives and senior leaders. It’s true.” --Senior Mid-level Manager of Emergency Care “I think it even happens at the department level, speaking in my level. There are even some people who are really rough on their staff.” --Emergency Department Manager</p>
6. Quest for improvement	<p>STRONG: “But this ... is getting to the crux of the matter. It’s about our culture. ...On the surface this hospital looks very strong. Any nurse will tell you that we work as a team. We work with the docs, they talk to us, we talk to them. When there is a serious situation in the balance, we’ve had situations where the nurse will not confront, and I think that is a culture that pervades healthcare.” -- Michelle Paulson, CEO</p>	<p>STRONG: “We just keep saying we need to get better. We have won a number of various awards. We have embarked on an effort of how to we go from good to great. Yeah we are good, but we need to get to great.” --Doug Christensen, Network CEO</p>	<p>AMBIGUOUS:</p>	<p>STRONG: “We think we have a pretty good safety culture, but our vision is to improve it, to make it the very best that it can, and to have concrete steps to help us make that improvement.” --Katherine Sams, Manager Clinical Affairs</p>	<p>WEAK: A cath lab nurse talking about a sentinel event in which the patient died: “If [the investigation team] had drawn in the tech that was with the doctor, he would have said we don’t usually do that...Every doctor who’s ever done this knows that ... So needless to say, when he did it, she died on his table. She coded and died...And unfortunately, it was never seen that it was the doctor’s fault, because they didn’t ask the right questions. And I was only told... to answer what was asked of me...They were interested in just making sure that everything was done that should be. And the patient died anyway.” --Polly, Cath Lab Nurse</p>	<p>AMBIGUOUS: “I talk about what we have been able to do [i.e., our success] because people have worked together as a team -- Diana Palfry, CEO; “I know what I’d like to have, but we’ll never get that...I want a new cart that would allow me to stock drugs upright.” --Evelyn Cane, Patient Care Nurse</p>	<p>AMBIGUOUS:</p>	<p>WEAK:</p>

Table 5: Average Percent Problematic Response to Survey Questions Related to Safety Leadership (†)

Item	Hosp 6	Hosp 3	Hosp 8	Hosp 4	Hosp 1	Hosp 2	Hosp 5	Hosp 7
Senior management provides a climate that promotes patient safety.	4.0	5.6	6.0	9.6	9.2	10.2	14.0	23.5
Senior management has a clear picture of the risk associated with patient care.	5.4	12.3	10.6	12.8	15.3	17.9	15.6	25.6
Patient safety decisions are made at the proper level by the most qualified people.	4.1	7.8	4.2	9.3	11.0	7.8	10.0	15.7
Overall, the level of patient safety at this facility is improving.	0.0	4.9	8.3	5.1	6.2	5.2	5.9	17.1
Senior management considers patient safety when program changes are discussed.	2.7	9.3	10.5	9.0	11.1	12.7	15.6	20.4
Senior management has a good idea of the kinds of mistakes that actually occur in this facility.	10.1	10.7	20.3	15.7	25.0	17.8	16.5	26.1
I am provided with adequate resources (personnel, budget, and equipment) to provide safe patient care.	9.2	15.7	12.0	18.6	12.3	18.8	15.5	35.0
Avg % problematic response to leadership items	4.96***	9.28***	10.72***	11.37***	12.51***	12.75	12.83	21.41
Avg % problematic response overall	12.04**	15.85**	18.52	16.17	16.57	16.97	16.47	21.91
N	82	306	120	764	202	60	97	475
Response rate overall (%)	97.6	43.9	59.0	39.3	46.7	92.3	55.7	42.6
Response rate among physicians (%)	42.9	21.0	32.5	37.5	25.5	42.9	38.3	28.6

† Results exclude senior managers

*** Statistically significantly different from Hospital 7 value at $p < .01$; ** Different from Hospital 7 value at $p < .05$