

A case for safety leadership team training of hospital managers

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Background: Delivering safe patient care remains an elusive goal. Resolving problems in complex organizations like hospitals requires managers to work together. Safety leadership training that encourages managers to exercise learning-oriented, team-based leadership behaviors could promote systemic problem solving and enhance patient safety. Despite the need for such training, few programs teach multidisciplinary groups of managers about specific behaviors that can enhance their role as leadership teams in the realm of patient safety. **Purpose:** The aims of this study were to describe a learning-oriented, team-based, safety leadership training program composed of reinforcing exercises and to provide evidence confirming the need for such training and demonstrating behavior change among management groups after training.

Key words: collective learning, leadership training, multidisciplinary teams, patient safety

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The intervention in this project was developed by some of the coauthors under their association with the Center for Medical Simulation, a not-for-profit educational organization. The name of the program, Healthcare Adventures, is trademarked, but the description of it given here can be replicated by others, with the exception of the project planning tool, which is copyrighted. Those authors who developed the program were also involved in the design of this study.

DOI: 10.1097/HMR.0b013e318208cd1d

Health Care Manage Rev, 2011, 36(2), 1–13

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Methods: Twelve groups of managers from an academic medical center based in the Northeast United States were randomly selected to participate in the program and exposed to its customized, experience-based, integrated, multimodal curriculum. We extracted data from transcripts of four training sessions over 15 months with groups of managers about the need for the training in these groups and change in participants' awareness, professional behaviors, and group activity.

Findings: Training transcripts confirmed the need for safety leadership team training and provided evidence of the potential for training to increase targeted behaviors. The training increased awareness and use of leadership behaviors among many managers and led to new routines and coordinated effort among most management groups. Enhanced learning-oriented leadership often helped promote a learning orientation in managers' work areas.

Practice Implications: Team-based training that promotes specific learning-oriented leader behaviors can promote behavioral change among multidisciplinary groups of hospital managers.

Delivering safe care reliably continues to be an elusive goal for hospitals, often with lethal consequences for patients. Seemingly intractable problems can stem from complex, interacting, and tightly coupled subunits that require mutual understanding and adjustment (Gaba, 2000). Accordingly, there is growing recognition that systems rather than individuals are often at the root of safety problems (Reason, 2000). Systems failures may involve multiple causes, spanning disciplinary and unit boundaries. Resolving such problems requires managers to work together to develop systems-oriented solutions (Carroll & Edmondson, 2002) and a learning orientation that facilitates experimentation and adaptation (Bunderson & Sutcliffe, 2003), as well as psychological and technical change (Edmondson, 2003a). In contrast, a performance orientation—associated with blaming individuals for failures and encouraging people to work harder—can be detrimental in the long-term (Bunderson & Sutcliffe, 2003; Porter, Webb, & Gogus, 2010).

We define team-based leadership as cooperative efforts among groups of managers with different disciplinary backgrounds to achieve shared goals related to systems for which group members are collectively responsible (Katzenbach & Smith, 1993). A learning orientation involves practices that support and enable performance-enhancing adaptation (Edmondson, Bohmer, & Pisano, 2001). We thus define learning-oriented leadership as behaviors designed to frame tasks as learning situations with the objective of improving interpersonal risk taking and organizational effectiveness. We suggest that effective team-based, learning-oriented leadership—that which accomplishes behavioral change and positively impacts performance—requires training managers to exercise learning-oriented behaviors and to lead as teams.

There are several reasons why hospital managers may not provide effective team-based leadership for patient safety, even when managers accept the need for learning. First, for clinician-managers, their extensive clinical training may cause them to focus more on promoting technical

remedies than on cultivating a learning orientation to maintain safe patient care (Fulop & Day, 2010). Conversely, non-clinician-managers' lack of clinical training may make interventions to promote patient safety feel beyond their expertise or ability to influence. In addition, hospital managers' differentiated responsibilities can prevent them from managing hospitals as systems (Ancona & Caldwell, 1992; Oshry, 1995). Differences in disciplinary training and focus also often yield different perspectives and interpretations of events, which can make working together challenging (Porter-O'Grady, 2004). Thus, team-based leadership training that enables intact groups of managers, that is, those with differing responsibilities for the same work area, to jointly learn to exercise learning-oriented leadership behaviors has the potential to improve team leadership for patient safety (Firth-Cozens, 2001).

Despite the need for safety leadership team training for health care management groups, to our knowledge, few such specialized programs exist. Numerous executive programs offer leadership training through universities, firms, and consultants for individual hospital leaders. In addition, several training programs address leaders' role in promoting patient safety.¹ Likewise, there are patient safety programs that offer team training for clinicians (Neily et al., 2010).²

¹For example, the National Patient Safety Foundation offers a 1-day Leadership Day program as part of its annual Patient Safety Congress, designed to provide leadership training for patient safety managers (<http://www.npsf.org/npsfac>).

²For example, training programs based on crew resource management have become popular for addressing teamwork processes and cognitive, affective, and teamwork outcomes (http://teamstepps.ahrq.gov/about-2cl_3.htm). The Institute for Healthcare Improvement offers management team training opportunities for quality improvement teams (<http://www.ihf.org/IHI/Programs/Collaboratives>) involving collaborations among project leaders from multiple organizations to test and implement changes in their workplace and to share lessons across facilities. The Institute for Healthcare Improvement also offers quality leadership training for C-suite executives (e.g., <http://www.ihf.org/IHI/Programs>) focused on highlighting points of leverage for improving quality such as engaging the chief financial officer.

What appears missing from this plethora of offerings are programs that teach intact groups of managers about behaviors that can enhance their role as learning-oriented leadership teams in the realm of patient safety and provide opportunity to integrate their learning and practice its application.

Drawing on theory and evidence about leaders' role in collective learning, authors developed a safety leadership team training program for groups of senior- and mid-level hospital managers. In addition to its unique focus on safety leadership training for intact management groups, the program was distinguished by a highly customized, multimodal curriculum that was heavily experience-based. Reinforcing training modalities formed an integrated program. Its curriculum focused on developing learning-oriented leadership by cultivating specific behaviors which prior research suggests are important for promoting team learning orientation, learning, and performance. In this article, we describe the program and present evidence confirming the need for such training and of behavior change after training in 12 groups of managers.

Theoretical Framework

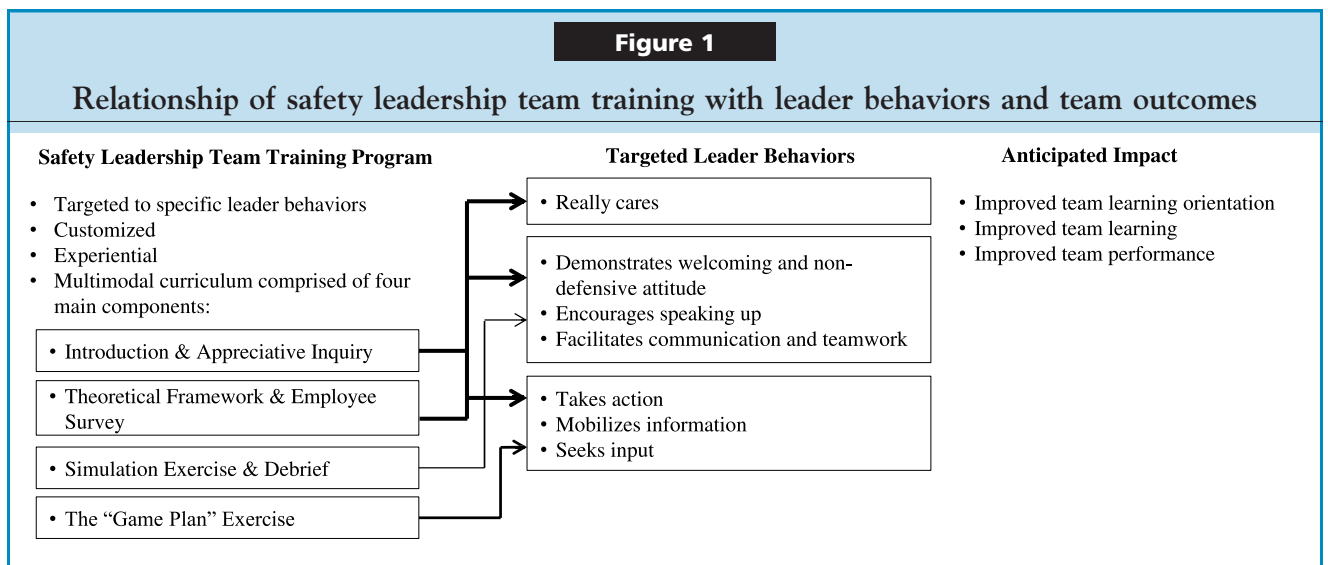
Previous research suggests that leaders can create the psychological and organizational conditions that support team learning and, in turn, team performance (Bunderson & Sutcliffe, 2003; Edmondson, 1999; Edmondson et al., 2001; LePine, 2005). Studies describe an array of leadership behaviors that managers have employed to promote a learning orientation. The theoretical framework that guided the development of this training curriculum may be summarized as follows. We expected that a customized, multimodal, and experience-based training program targeting seven learning-oriented leadership behaviors will enhance these behaviors,

team learning orientation, and, ultimately, team learning and performance (Figure 1).

First, managers can signal to staff members that they *really care* about safety by devoting their time, attention, and passion to patient safety issues. Staff members observe verbal and nonverbal cues from managers, often through small but visible gestures, and model their own behavior accordingly (McFadden, Henagan, & Gowen, 2009). When leaders cultivate a caring tone, staff awareness of safety-related concerns is heightened (Zohar & Luria, 2003).

Second, behaviors that protect managers from threat or embarrassment also prevent learning in organizations (Argyris, 1985). When managers get defensive or explain away irregularities, they signal that their workers' input is uninvited, is not valued, and will not be acted upon. Being defensive rather than *welcoming suggestions* results in ignoring potentially valuable data for improvement purposes (Vaughan, 1996) and deterring future input (Edmondson, 1996). By exhibiting a welcoming response toward concerns and feedback, managers instead signal openness to continuous improvement and an invitation to participate.

Third, raising safety concerns to a manager poses risk to staff who fear being labeled as incompetent or difficult; they often work around problems rather than speaking up (Tucker & Edmondson, 2003). However, speaking up can prevent errors (Stern, Katz-Navon, & Naveh, 2008) and enhance creativity (Amabile & Khaire, 2008). Managers can *encourage speaking up* by creating a psychologically safe space for people to take risk and by assuring that doing so will produce a response (Edmondson, 1999). Explicitly inviting and acknowledging employees' comments and acting on suggestions promote speaking up (Nembhard & Edmondson, 2006).



Fourth, communication and teamwork are necessary for the delivery of safe patient care (Leonard, Graham, & Bonacum, 2004). Effective communication is the efficient, accurate, and precise transfer of critical information. Teamwork is “an array of behaviors, cognitions, and attitudes that make coordinated and adaptive performance possible” (Salas, Wilson, et al., 2008: 333). Managers can *facilitate communication and teamwork* by ensuring opportunities, establishing practices (Edmondson, 2003b), and creating conditions that foster these results (Hackman, 2002).

Fifth, leaders can *take action* to improve patient safety when concerns come to their attention. Managerial action can promote learning in several ways. It can overcome obstacles and facilitate forward momentum on safety initiatives. Being responsive to concerns and providing feedback about actions taken are also essential for motivating continued input about safety problems (Gandhi, Graydon-Baker, Huber, Whittemore, & Gustafson, 2005). The willingness of managers to take action in response to staff recommendations also promotes experimentation around new improvement ideas (Tucker, 2007).

Sixth, information is critical for diagnosing and solving problems, yet sufficient information is not always available (Argote & Ingram, 2000). Managers have the authority to reach across departments to access information (Tushman & Scanlan, 1981). They can also instill processes and set expectations for information gathering and sharing (Firth-Cozens, 2001). By *mobilizing information*, managers prevent duplication of knowledge acquisition efforts, enhance creative problem solving and decision making, and improve employee morale as staff feel that their thoughts and experiences are valued (Leggat, Bartram, Casimir, & Stanton, 2010).

Finally, leaders can *seek input* from staff. Pausing before and after making changes to seek input from those who experience the consequences of these changes can improve the quality of decisions (Edmondson et al., 2001). Learning and improvement occur when concerns are surfaced, beliefs are challenged, and assumptions are modified (Hargadon & Bechky, 2006). Seeking input also assumes investing the time to review and respond to information received.

On the basis of evidence that they can enhance team learning and performance, we targeted these seven learning-oriented behaviors for promotion through the training program. Evidence of team training’s effectiveness on collaborative leadership action to promote safety in complex, dynamic work environments, such as aviation and health care (Salas, DiazGranados, Klein, et al., 2008), suggests that team training may improve the ability of groups of managers to overcome barriers to effective team-based learning-oriented safety leadership. Our focus on cultivating specific behaviors stems from research suggesting that theoretically based and carefully crafted team training that provides practice opportunities and feedback and encourages the transfer of trained competencies back to the work environ-

ment can promote managers’ capabilities (Baker, Gustafson, Beaubien, Salas, & Barach, 2005).

Methods

The safety leadership team training was adapted from an existing program designed for training nonclinical health care management groups to better appreciate patient safety risks and recognize the importance of their teamwork behaviors in accomplishing goals. That program, known as Healthcare Adventures, uses an experiential learning module, employing realistic health care simulation. The enhanced program designed for this project grounded the training in leadership and organizational theory, targeted specific behaviors, and added learning modes.

Safety Leadership Team Training Components

The training program included instructional modes designed to activate people with a variety of learning styles (Cassidy, 2004). Facilitation focused on identifying and documenting lessons as they occurred to promote integration of learning within groups. The semistructured curriculum consisted of four primary components, plus a follow-up program:

1. *Introduction and appreciative inquiry.* The training commenced with a welcome address from the hospital’s senior vice president for quality and patient safety (SVP). The presence of a senior executive demonstrated organizational support and alignment of values that was expected to engage skeptics and those who respond to leadership approval (Klein, Conn, & Sorra, 2001). In pairs and as a group, participants then discussed their contributions to patient safety and examples of times the group was “at its best.” Through dialogue and storytelling, groups developed a shared vision of how they function and what it takes to achieve their best (Watkins & Mohr, 2001). Discussion highlighted behaviors—often the seven targeted behaviors—that provided the group’s sense of high functioning.

2. *Theoretical framework and employee survey.* A presentation provided evidence of the need for learning-oriented leadership to encourage behavior change to enhance patient safety. Each behavioral element of the theoretical framework was translated into a question contained in a 56-item survey on safety climate that was administered hospital-wide prior to the training. Facilitators presented survey results comparing the group’s own scores, based on responses from individuals working within the work area supervised by the management group, with scores for all hospital managers. Groups discussed implications of their specific results. By presenting survey data, we aimed to demonstrate that the training was applicable and to facilitate identification of group weaknesses. We intended the survey data to unfreeze individuals who

denied room for improvement (Lewin, 1951) and to engage learners biased toward reliance on data and quantitative assessment.

3. *Simulation exercise and debrief.* The simulation exercise employed an experiential learning methodology designed to engage participants in a lifelike situation relevant to their everyday work experience (Gaba, Howard, Fish, Smith, & Sowb, 2001). Groups participated in a patient care scenario set in a hospital room using computer-controlled, lifelike, mannequins (details available on request). The scenario was designed to promote discussion regarding three of the seven leadership behaviors. By including errors and lapses in patient safety, the scenario created an opportunity for participants to speak up or be defensive about not speaking up. It also allowed the group to facilitate communication and teamwork when tasked to develop a plan of action. For individuals for whom practical application is crucial to learning, the simulation exercise allowed them to enact leadership skills in a safe environment (Salas, DiazGranados, Weaver, & King, 2008).

After the scenario, a facilitator led a debriefing, guiding participants to consider their actions in this scenario and to relate it to their use of targeted learning-oriented leadership behaviors in their work environment. The three leadership behaviors targeted by the simulation, being welcoming/nondefensive, encouraging speaking up, and facilitating communication and teamwork, were also specifically addressed during the debriefing. The general approach to the debriefings is founded on a theoretical framework of “advocacy/inquiry” (Torbert, 2004) and adapted for use in health care simulation (Rudolph, Simon, Rivard, Dufresne, & Raemer, 2007). Through this dialogue, individuals uncover their assumptions while gaining insight into the perspective of their team members. This instructional mode is intended to help people learn through reflecting on their experiences in real time (Kolb, 1994).

4. *The “Game Plan” project management exercise.* Consistent with adult learning theories, the Game Plan engaged groups in real work to make the training more practical, relevant, and goal oriented (Knowles, Holton, & Swanson, 2005). Facilitators introduced a structured exercise to help managers generate a comprehensive, graphical roadmap for an improvement effort that the group planned to undertake.³ Facilitation promoted conversations addressing specifically three of the learning-oriented leadership targets, taking action, mobilizing information, and seeking input, using the group’s improvement project as a specific case example. For instance, the facilitator asked “What actions do this group need to take to achieve this improvement objective?” and “What leadership by whom is required to achieve desired actions?” In addition, the Game Plan addressed classic components of task-

oriented teams: outcomes, team members, and roles; and components suggested by Lewin’s (1951) “force field analysis”: supporting and restraining forces. Theory and research supporting the Game Plan design suggest that some individuals can process complex information more easily when it is represented graphically (Gilhooly, 2006; Yakura, 2002). The Game Plan allowed visual learners to foresee the project they will undertake, to work collaboratively to identify obstacles, and to heighten awareness of the leadership necessary to facilitate project success.

5. *Follow-up program.* A 2-hour follow-up session, called the “booster shot,” was conducted approximately 3–7 months after the initial training to reinforce lessons and maintain efforts to apply them after the initial training. Facilitators reintroduced the seven learning behaviors targeted by the training and inquired about ways in which managers had enacted or failed to enact them since the initial training. By reuniting managers to discuss their application of lessons from the initial training, these meetings supported groups’ evolution as safety leadership teams. About 15 months after the initial training, at least one training facilitator met with representatives from each participating group for a final interview to review progress on its application of targeted behaviors.

Administration and Evaluation

Sample. In one academic medical center in the Northeast United States, we selected a stratified random sample of 12 management groups, labeled Groups 1–12 based on training order. They were chosen from 28 groups that volunteered out of 33 intact groups identified and invited by the hospital’s SVP to participate. Stratification ensured equal distribution of groups working on the hospital’s high-priority safety initiatives, intensive care, nonclinical, and all other. Each group’s director, chief, or quality assurance (QA) chairperson identified individuals comprising the group’s formal and informal leadership, including physicians, nurses, other clinicians, and administrators. Intervention groups included 6–12 managers each, for a total of 108 participants. Of these, 93% provided demographic data (Table 1). Among these participants, 61% were female; 73% were clinicians; 33% were considered by the hospital to be senior managers; and 62%, 81%, and 83% had at least some prior simulation-based, leadership, and quality improvement training, respectively. Among management groups, two were composed entirely of nonclinician managers, whereas others were all clinical or mixed. One group was composed entirely of senior managers ($n = 9$), whereas three groups included zero or one senior manager.

Training Administration. The 12 participating groups each participated in a full-day, off-site training (May–December 2008), follow-up session (December 2008–April 2009), and final interview (July 2009–March 2010),

³The Game Plan was derived from the work of The Grove Consultants International, San Francisco, California.

Table 1

Descriptive statistics

	<i>n</i>	Female	Clinicians	Prior simulation experience	Prior leadership training	Prior quality improvement experience	Designated senior manager
Team 1	11	45.5%	90.9%	60.0% ^a	80.0% ^a	88.9%	18.2%
Team 2	6	83.3%	0.0%	0.0%	100.0%	83.3%	16.7%
Team 3	9	55.6%	77.8%	77.8%	77.8%	77.8%	100.0%
Team 4	11	72.7%	54.6%	63.6%	81.8%	81.8%	18.2%
Team 5	7	100.0%	85.7%	71.4%	71.4%	71.4%	0.0%
Team 6	7	57.1%	100.0%	85.7%	71.4%	57.1%	28.5%
Team 7	7	57.1%	0.0%	0.0%	100.0%	100.0%	57.1%
Team 8	11	45.5%	72.7%	81.8%	90.9%	100.0%	36.4%
Team 9	6	66.7%	100.0%	66.7%	66.7%	83.3%	50.0%
Team 10	9	55.6%	88.9%	66.7%	88.9%	87.5%	44.4%
Team 11	8	37.5%	100.0%	62.5%	75.0%	62.5%	12.5%
Team 12	8	75.0%	87.5%	75.0%	62.5%	87.5%	12.5%
Overall	100	61.0%	73.0%	61.6% ^b	80.8% ^b	82.5%	33.0%

^a*n* = 10 for these cells.

^b*n* = 99 for these cells.

all conducted by the facilitator/investigator team. Prior to the training, the facilitation team met with each group to discuss group dynamics and composition and to identify the group's improvement initiative. Facilitators used information from this preparatory session to customize the training to the group. During the full-day training, facilitators presented the semistructured curriculum described above in Safety Leadership Team Training Components. Afterward, groups were expected to apply learning-oriented leadership behaviors in general and specifically in leading their improvement projects.

Data and Evaluation. The longitudinal design of the program enabled us to have serial contact with participating groups. Transcripts from the first two sessions with each group provided data on the need for training, and those from the third and fourth sessions provided data on change in awareness, professional behaviors, and group activity after the training. Four investigators reviewed transcripts and agreed upon examples reflecting the need for and evidence of change related to each targeted behavior to illustrate the potential of the program.

Results

Showing You Really Care

Prior to the training, many participants had difficulty pointing to specific actions that had indicated caring, although they recognized the need to do so. The operations manager for Group 12 articulated this challenge, “a majority of times people aren't looking for resolution, but

they just want to be heard. We want to build rapport so they will come with a concern when they have one.”

After the training, through reflection about their leadership and exercises that enabled experimentation with leadership behaviors, participants consciously sought to demonstrate caring with positive effect. For example, in Group 2, a project specialist described offering to help, “We say ‘let me see what we can do to help.’ We're doing more of this now than before. People are seeing us more for that and coming to us with questions. I see people going above and beyond to help people.” In Group 12, the nurse director pointed to participation by the whole leadership group to show they cared about an initiative, “We also all ran different groups, so it wasn't just one of us. It showed it was important, and we're all on the same page.” In Group 5, a nurse specialist talked about recognizing the importance of small problems, “We hear about some things that may be considered minor from our perspective, but [they] matter to patients.”

Demonstrating a Welcoming/Nondefensive Attitude

There was recognition of the need to address managers' defensive behavior on most groups. During Group 7's premeeting, an administrative director indicated that she was looking forward to the training so that they could decrease defensive communication in the department, “We could use these skills for interacting well under stress and not for jumping down other people's throats.” The associate chief nurse in Group 3 described her desire to learn “the language for challenging each other in a non-confrontational way.” In Group 6, the associate

director acknowledged how defensiveness among the managers had caused his staff to stop offering suggestions. Describing the previous week, he said, “We had a new staff person who joined medical services. After offering new ideas, he said I’m not going to do this anymore because everyone gets defensive and shuts down.” A clinical nurse specialist in Group 9 confessed that staff may not feel as welcome to speak with their managers as they do among themselves, “We can be open with each other, but staff may not have the same comfort level dealing with [senior managers].”

During the booster shot and final interviews, many participants observed changes toward welcoming behavior. As a manager for Group 2 proudly explained, “I often catch myself typing on the computer when people come to talk to me...I stop and face the person now.” Group 4 found that instituting regular meetings that enabled them to vent their own concerns as a group made them less apt to be defensive with frontline staff. The senior therapist said, “We were less apt to be defensive with staff because we were able to vent about [our survey results] as a group. We felt more proactive than reactive. We used to just blurt it out.”

Participants acknowledged the role of the training in promoting welcoming behavior. According to a coordinator in Group 6, “[The training] gave me a different perspective on listening to team members and not being judgmental or asking another question to ask why they were proposing what they were.” In Group 11, the director suggested that it was the simulation debriefing session that provided some lasting lessons, “The brainstorming session was good to get us to talk about things more openly. The information about dealing with staff, I thought was helpful to adjust the way we listen instead of always responding immediately.” A senior therapist in the group followed by positively, proclaiming, “We’re being less defensive.”

Encouraging Speaking Up

During the training, participants from all groups discussed how speaking up is limited by the organizational culture. For instance, according to Group 3’s nursing director, “At [our hospital] disclosure is very hard. It is going to be a major culture shift to say something is wrong.” Many participants recognized the role for training around this issue. For instance, in discussing a colleague’s assertiveness during the simulation exercise, Group 11’s director said, “[Her] example is key to what we need to do.... I think you are correct that people won’t learn how to respond like [she] did unless they are trained.” Participants also provided explanations for why challenges around speaking up persist. For example, a nurse in Group 4 explained, “It goes back to the never ending struggle between doctors and nurses.... There is

definitely conflict avoidance and when you cross disciplines there is a confidence barrier.”

After the training program, participants described their efforts to encourage speaking up and their staff’s response. According to a surgeon in Group 6, “We’re changing the way things have run. We’re giving them more voice. I think [staff] didn’t feel their voices were heard before but now we’re seeing more of it so they must feel differently.” A nurse described Group 10’s efforts to encourage speaking up and the response:

I see that staff feel like they can approach us. I say to my staff, don’t feel bad about speaking up, even if a problem goes away. I encourage them to provide information regardless how small... People page me if they notice redness. Before, people would do a safety report and didn’t know where it went.

Participants frequently noted that lessons from the training helped them in their managerial roles to promote an environment where people feel comfortable speaking up. The simulation and debrief discussion in particular provided participants with a visceral memory upon which some drew, when circumstances in their work area warranted. Reflecting on her experience, a project specialist in Group 4 indicated, “I remembered that speaking up is hard to do so I recommended that the simulation team conduct a simulation-based training [with staff] to help people on this issue. I did that because of our training.” A nurse director in Group 4 noted that the training helped her to promote speaking up in her unit, “For me personally, the simulation in the ED was the most helpful part of the training. It was validating; it’s really important to say something when you hear something of concern. If I’m not willing to do it, I can’t expect that of others.” Group 7’s business manager described how, when encouraging her staff to speak up, she referred back to her group’s simulation experience: “I’ve used that [simulation] example with [staff] so many times to explain to people that the organizational chart doesn’t matter. I have some responsibility just by being physically present.” Finally, a physical therapist in Group 9 credited the simulation experience for providing personal insight that drove both personal behavior change and a leadership initiative around speaking up:

I had an aha moment. I was mad at myself with the simulation. I felt like I chickened out. In my culture, you have to give me permission to take leadership. My aha moment is that I have to take leadership.... Before, it was not OK to be wrong because people feel like you’re being idiotic. Now, I do it anyway.... There is a Joint Commission committee on speaking up, and I joined the committee.

Facilitating Teamwork and Communication

Pretraining and training discussions provided ample support for leaders' need to facilitate improved teamwork and communication in their work areas. For example, an administrative director in Group 7 indicated recurrent challenges cultivating teamwork when "each person has their own agenda and sometimes that doesn't mesh." A project specialist expressed frustration over Group 4's inability to get multiple disciplines to work together, "We need them to be involved. What's the point unless you have a physician in the planning process or the decision making process." Group 8's executive director offered an explanation for why facilitating teamwork and communication is difficult in hospitals,

Every one of the three disciplines has an incredible passion for the same mission, but we also have separate missions and sometimes we do not agree, but we are not up-front to the table with our disagreements. We all report up through different lines of hierarchy. We may seem to agree but under pressure we respond to different "masters" because of our competing missions.

The need for better communication to foster teamwork was also clear. According to an administrative director in Group 3, "We beat to death things that aren't important.... Communications problems permeate every topic in the department." Challenges in facilitating communication were also apparent, as the senior vice president in Group 3 acknowledged, "Town meetings with everybody don't work well. It ends up with everybody talking at people, rather than meaningful interaction with everybody."

After the initial training, groups that had previously indicated being challenged in this regard identified examples of ways their behavior promoted successful teamwork and communication within their work areas. Particular advances were achieved in interdisciplinary and interunit teamwork. For example, a nurse specialist in Group 5 exclaimed, "This is the first time I felt like I had a physician partner!" Similarly, in Group 7, the business manager stated, "Because we were talking about it with peers [in other departments], we were able to learn from other departments." Several examples of behavior change demonstrated direct application from the training of lessons about the importance of establishing teamwork processes. A project specialist in Group 2 described their process for facilitating teamwork and the benefit it derived, "We formalized a list. We saw there were a lot of overlapping efforts. Our goal became to identify other efforts and create a broad umbrella of groups working together.

This led to prioritization of goals, outcomes, difficulties, steps, responsibility, targets."

As of the booster shot and final interview, participants also attested to the benefit of the training on the group's ability to facilitate teamwork and communication within and across work areas. A physician/QA chair in Group 8 credited the simulation training, "I liked the simulation project that we did. What I liked is how we did it as a team and it was interesting to see how outside of our normal actions how we did come together as a team." Participants also ascribed improving interdisciplinary teamwork and communication to the Game Plan, although this was not a primary target of that exercise. The executive medical director for Group 3 said, "I think having everyone in the room working on the project was beneficial. Being able to discuss with the senior leadership issues around patient safety and quality opened up a dialogue and facilitated it with that group."

Taking Action

Participants acknowledged challenges related to their action taking as safety team leaders. First, they described struggling with how to take action given their already intense workload. The physician/QA chair for Group 1 said, "One tension is finding time and energy to promote change in the midst of generating revenue and seeing patients." Similarly, in the face of competing demands, participants described having to choose which problems require immediate action, thereby delaying or abandoning the resolution of other safety issues. During the training, a nurse director in Group 12 questioned, "The issue is when [should] you take action? How can I choose when to take action, mobilize information? I feel like that's where we fall down." Participants acknowledged not always being able to follow through after initiating action, despite good intentions. A clinical nurse specialist in Group 9 said, "We do a good job of getting staff input but not going back. Then something else happens so you go down that road."

In posttraining meetings, participants reported increased action taking and expressed an increased self-awareness of the importance of leadership action and follow-through on identified safety issues. The operations coordinator for Group 4 stated, "Whenever they asked us to do something, I did it immediately, to encourage the effort. We wanted to support the momentum that the nurses started." A nurse on this unit concurred, "Three of us, all staff nurses, we got support from [the more senior leaders on the unit]. They gave us equipment and feedback right away whenever we needed it."

Participants from Group 12 described their success with taking action and keeping staff abreast of progress. After gathering a long list of issues and ideas from staff, the group set a goal of taking action on three to four

items per week to ensure “quick wins” while simultaneously working on issues requiring more time. Each week, the group posted this input on a board on the unit, added new ideas, and color coded items to indicate whether they were completed, not feasible, or tried and ineffective. A safety and quality improvement coordinator in Group 12 also conveyed the benefits of this training, “Since we began this project there has been more awareness about looking at patient safety issues. [It] seems that it’s extending beyond this group, trickling down.” This group also demonstrated how their leadership actions and follow-through encouraged staff to identify and document safety issues. At the booster shot meeting, an assistant director for this same group said, “We also emphasize that a safety report is the way to get the problem fixed so it doesn’t happen again. They understand that every one is followed up on.”

Moreover, participants indicated that the visual representation of their improvement initiative provided by the Game Plan exercise aided their ability to take action. According to the nurse director in Group 4, the Game Plan benefitted the improvement project leaders by providing both detailed instruction and overall direction,

I think the game plan helped them with that. When doing the project for the first time, it helped them to break down the steps of the project, both operational and psychological help, though more helpful for [the resource nurse]. She knew she was moving in the right direction based on the game plan.

Group 5’s director suggested that the Game Plan clarified the complexities of the project they undertook: “I thought we had this whole project worked out and ready to go. Now, we see this isn’t [the case]. [I now] see why leadership needs to be engaged enough so frontline staff get the support they need to do this.” Finally, a patient advisory board member who participated with Group 5 was so enthusiastic about the Game Plan that she indicated using the same method for other hospital initiatives, “I have loved using the game plan for [a related committee] and our project is going really well, at the speed of light. People have taken the bull by the horns in their roles now that they know what they are.”

Mobilizing Information

When discussed at the training, participants understood the importance of mobilizing information. As one nurse/project manager in Group 4 put it, “If everybody knows the information, there is less chance of making mistakes.” However, many were less clear about how to mobilize important information. Managers recognized that they needed strategies for highlighting what was most important for staff who may be inundated with

information. The clinical nurse specialist in Group 12 explained, “People shut down. There is so much coming, so much communication—meetings, paper, email, too much communication.” The director of Group 3 described frustration with the role of mid-level manager as translator between senior administration and frontline staff, stating, “Our role at this mid-level is translational. We give senior managers’ messages to the frontlines and we report their needs about patients up to administration. It’s not an easy role.”

Participation in the training enabled managers to reconsider their mobilization of information. The evolution of Group 8 provides an example. During the premeeting, the vice chair explained the challenge of mobilizing information within and across departments, “As leaders in this department now, we have to communicate with all departments and at the same time maintain a parallel process for all physicians and nurses in the department. This is our challenge.” At this group’s booster shot meeting, an administrative director explained how the group had worked to overcome this challenge: “Quality and safety used to be just a QA committee, made up of physicians, reviewing cases. We evolved to include disciplines, review safety trends, and data, comparisons to other groups, involve everyone in the process. [We] involve outside departments.” The result was more consistently informed and engaged participation within the department and with those with whom they interact. Members of Group 11 explained how they changed the way they shared survey results with staff by preparing examples rather than simply presenting results they knew would meet with resistance. A senior clinician in the department explained that sharing the information this way enabled problem solving, “That way it wasn’t about the score. [It was] more about here’s what we need to do.”

In the booster shot and final interview, participants described how the training inspired them to mobilize information by encouraging staff to report safety issues. Safety reports enabled managers in several groups to open a dialogue across disciplinary and departmental boundaries by providing a means for initiating a discussion about safety issues. A clinical nurse specialist in Group 12 explained, “[The] report gives you cover so you’re not just showing up. Sometimes they get the same report that we get, so it starts a conversation.” Similarly, in Group 4 an assistant director said, “[The safety report] resulted in meetings with nursing staff [on a patient care unit], and action there. Having the safety report really helped. It forced the interaction.”

Seeking Input

Most leadership groups recognized that prior to the training, they did not consistently seek staff input before and after making changes to improve patient safety. For

example, Group 1's QA chair reflected, "We put in a system to fix an error but staff didn't like it.... In retrospect, looking at how the decision was made, it could have been made more diplomatically." Participants conveyed a variety of reasons for their failure to seek input. Uncertainty about best practices for seeking input and gauging how much input is enough inhibited some groups from actively seeking input from staff. These participants identified learning more about such practices as an important objective of their participation in the training. According to the medical director for Group 3, "[The] survey results point out that communication is an issue. I agree. We need help with knowing what is a good way to seek input and to communicate back to people." Participants also cited a lack of time and concerns about not being able to follow through on input received. Some groups also provided examples of when not taking time to seek input led to problems. The nurse director for Group 12 explained,

...for example, medical carts. We were out of compliance. We asked a few people and made a quick decision. People felt like we had cut off their right arm [i.e., because we did not adequately explain how to use the new cart]. Within a week, someone broke the cart because people didn't know how to use it.

On the basis of the training, this group, whose failure to seek input resulted in a broken medical cart, let staff drive the problem-solving process applied to their identified improvement project. The leaders organized brainstorming sessions and actively sought input from multiple disciplines, making special efforts to include personnel typically more hesitant to contribute. The nurse director said, "From the time before we started the project, we made a huge impact. We really hit every base we were trying to hit. We worked with physicians, nurses, residents. We really got buy-in from every area." Project results reinforced this lesson by showing substantial progress toward achieving their improvement goal: The unit had reduced infection rates from three times the hospital average to zero for several months.

Participants credited the training for improving their understanding and ability to seek input from staff. According to the nurse director in Group 4, "We had one huddle that was incredibly successful.... You don't realize what others can bring when you don't stop to ask them." A social worker in Group 6 presented an interesting perspective, as her work time is split between two departments, one that received training and another that did not. After the training, she found that coworkers who experienced the training were much more supportive, and the nonparticipating leaders both discouraged and denigrated her input. Referring to the presentation

of survey results, the executive director of Group 8 explained that she now makes input seeking a priority: "I proactively do more consensus building even though it's time consuming. The leadership profile [i.e., survey results] you put forward was helpful; now I consciously do it, even though it's time-consuming." The Game Plan exercise helped groups identify those from whom input would be useful to achieve their objectives. For example, Group 9 recognized the need to target physician input as part of its Game Plan. At the Booster Shot, the nurse director said of their success, "We recognized it was a challenge and actively sought it out." Although it was not a primary target of the simulation, participants nevertheless drew lessons about input seeking from the exercise. For example, the nurse director for Group 12 said,

To sit through the simulation and group discussion [debrief] and talk about how you present and structure things has given me a different perspective on how to approach systems. [To] treat things as a coaching opportunity. My staff had some input before, but now [have] more input and to put the problem solving on them.

In summary, at or before the training, participants provided ample evidence of the need to work on the seven targeted leadership behaviors. As of about 15 months after the training, at least some members in all groups reported some behavior change based on insights derived from their experience in the safety leadership team training.

Practice Implications

We designed a safety leadership team training program using multiple teaching modes to provide groups of hospital managers with an opportunity to develop seven learning-oriented leadership behaviors. Whereas safety leadership training for managers is available, multimodal, experiential training for intact groups of managers, focused on improving their functioning as leadership teams on behalf of patient safety, is in its infancy. The need for training health care managers to become more learning-oriented leaders for the sake of patient safety, however, is clearly present and growing (Carroll & Edmondson, 2002).

Findings confirmed the need for this type of training and its potential to increase targeted behaviors among 12 management groups. Most (28 of 33) of the management groups invited to participate volunteered for this training. For groups selected, initial meetings and discussions during the training revealed that many managers recognized the need for the targeted behaviors to improve the learning environment for their staff. Managers, however, sought assistance with enacting the behaviors, particularly given

intense workloads, competing demands, excessive information, uncertainty over best practices, and deeply ingrained patterns of interaction.

The training prompted personal insights, greater awareness, and exercise of leadership behaviors among participants in all groups. After training, managers consciously sought to enact safety leadership, often in innovative ways. For most groups, the training led to new routines and coordinated effort to accomplish goals. When the program worked as intended, enhanced understanding of the value of leadership behaviors, coupled with opportunities to experience and discuss their application, provided a shared learning experience that led managers and management groups to more proactive attempts to provide learning-oriented leadership. In addition, by showing they cared, welcoming suggestions, encouraging speaking up, facilitating communication and teamwork, taking action, mobilizing information, and seeking input—all on behalf of safety—many groups appeared to promote a learning orientation in their work areas.

In subsequent meetings, managers acknowledged the role of the training in cultivating their safety leadership and noted lessons that helped them as managers to promote a learning environment. Training components were credited with affecting targeted behaviors. However, managers' attribution of behavior change was not necessarily specific to components targeting those behaviors, for example, Group 3's medical director acknowledged the Game Plan for helping to facilitate teamwork, although this behavior was the primary target of the simulation exercise. This highlights the benefit of multiple training modalities for reinforcing lessons and activating people with different learning styles. Enthusiasm for the training prompted several participants to spontaneously adopt components for their own use as managers.

Written comments also revealed that participants appreciated the opportunity to have productive, uninterrupted discussions with colleagues about their collective role in promoting safe patient care. Program evaluations after the training showed that participants expected the training to have moderate impact on targeted behaviors. On a scale of 0–10 (0 = *significant negative impact*, 5 = *no anticipated change*, and 10 = *significant positive impact*), participants rated expected impact, on average, across behaviors at 8.4 of 10, ranging among groups from 7.4 to 9.7 ($SD = 1.5$). There was little variation by behavior. Although the impact of the training dissipated slightly over time, participant evaluations 15 months after the training also indicated positive impact of the training (6.9 of 10; $SD = 1.6$; details available on request).

Several limitations of this study warrant mention. First, the results presented stem from 12 management groups. A larger sample would have enhanced our ability to draw conclusions. Similarly, although diverse in background, managers came from one facility, raising questions about

generalizability. However, behaviors targeted by our training were derived from research based in multiple facilities, and our focus on one hospital reduced confounding due to hospital-level factors. Second, this article sought to describe and illustrate the need and value of the training when it worked well. Execution of the training program varied, and a few participants felt that their leadership behavior was unchanged by the training. Finally, group outcomes are a function of many factors beyond the scope and control of any training program and cannot prevail against strong structural and contextual forces.

Certainly, no training program can guarantee that a management group will succeed in its efforts to create a learning environment on behalf of patient safety. However, an innovative, customized, multimodal training that aims to cultivate specific learning-oriented leadership behaviors appears promising. The training described here could be implemented by others with sufficient access to simulation and organizational behavior professionals. Based on experience of team training in health care more generally, sustaining high levels of learning-oriented leadership will take ongoing practice to keep up team skills (Baker et al., 2005). However, relative to standard training techniques, engaging management groups through multiple modes of instruction, including visceral experiences of the team exercising learning-oriented behaviors together in situations and on projects meaningful to them, provides a shared experience upon which they can reflect and draw for accomplishing future work together.

Acknowledgments

The authors thank the participants in the Healthcare Adventures Safety Leadership Team Training Program for their insightful contributions to this program and to the faculty and staff of the Center for Medical Simulation, Cambridge, Massachusetts, for creating and conducting the simulations. We gratefully acknowledge financial support for this research from the Patrick and Catherine Weldon Donaghue Medical Research Foundation of Hartford, CT (DF07-212) and from the Massachusetts General Hospital, Boston. The research described herein was approved by the institutional review board at participating institutions.

References

- Amabile, T. M., & Khaire, M. (2008). Creativity and the role of the leader. *Harvard Business Review*, 86(10), 100.
- Ancona, D. G., & Caldwell, D. F. (1992). Demography and design: Predictors of new product team performance. *Organization Science*, 3(3), 321–341.
- Argote, L., & Ingram, P. (2000). Knowledge transfer: A basis for competitive advantage in firms. *Organizational Behavior and Human Decision Processes*, 82(1), 150.

- Argyris, C. (1985). *Strategy, change, and defensive routines*. New York: Harper Business.
- Baker, D., Gustafson, S., Beaubien, J., Salas, E., & Barach, P. (2005). *Medical teamwork and patient safety: The evidence-based relation. Literature review*. Rockville, MD: Agency for Healthcare Research and Quality. AHRQ Publication No. 05-0053.
- Bunderson, J. S., & Sutcliffe, K. M. (2003). Management team learning orientation and business unit performance. *Journal of Applied Psychology, 88*(3), 552–560.
- Carroll, J., & Edmondson, A. (2002). Leading organisational learning in health care. *Quality & Safety in Health Care, 11*(1), 51–56.
- Cassidy, S. (2004). Learning styles: An overview of theories, models and measures. *Educational Psychology, 24*(4), 419–444.
- Edmondson, A. (1999). Psychological safety and learning behavior in work teams. *Administrative Science Quarterly, 44*(2), 350–383.
- Edmondson, A. (2003a). Framing for learning: Lessons in successful technology implementation. *California Management Review, 45*(2), 34.
- Edmondson, A. (2003b). Speaking up in the operating room: How team leaders promote learning in interdisciplinary action teams. *Journal of Management Studies, 40*(6), 1419–1452.
- Edmondson, A. C. (1996). Learning from mistakes is easier said than done: Group and organizational influences on the detection and correction of human error. *Journal of Applied Behavioral Science, 32*(1), 5.
- Edmondson, A. C., Bohmer, R. M., & Pisano, G. P. (2001). Disrupted routines: Team learning and new technology implementation in hospitals. *Administrative Science Quarterly, 46*(4), 685–716.
- Firth-Cozens, J. (2001). Cultures for improving patient safety through learning: The role of teamwork. *Quality in Health Care, 10*(Suppl. 2), ii26–ii31.
- Fulop, L., & Day, G. (2010). From leader to leadership: Clinician managers and where to next? *Australian Health Review, 34*(3), 344–351.
- Gaba, D. (2000). Structural and organizational issues in patient safety: A comparison of health care to other high-hazard industries. *California Management Review, 43*(1), 83–102.
- Gaba, D. M., Howard, S., Fish, K., Smith, B., & Sowb, Y. (2001). Simulation-based training in anesthesia crisis resource management (ACRM): A decade of experience. *Simulation and Gaming, 32*, 175–193.
- Gandhi, T., Graydon-Baker, E., Huber, C., Whittemore, A., & Gustafson, M. (2005). Closing the loop: Follow-up and feedback in a patient safety program. *Joint Commission Journal on Quality and Patient Safety, 31*(11), 614–621.
- Gilhooly, K. (2006). Business on the map: Mind-mapping tools make inroads into corporate IT as they streamline problem-solving and help structure tasks. *Computerworld, 40*(27), 26.
- Hackman, J. R. (2002). *Leading teams: Setting the stage for great performances*. Boston: Harvard Business School Press.
- Hargadon, A. B., & Bechky, B. A. (2006). When collections of creatives become creative collectives: A field study of problem solving at work. *Organization Science, 17*(4), 484–500.
- Katzenbach, J. R., & Smith, D. K. (1993). The discipline of teams. *Harvard Business Review, 71*(2), 111–120.
- Klein, K., Conn, A., & Sorra, J. (2001). Implementing computerized technology: An organizational analysis. *Journal of Applied Psychology, 86*(5), 811–824.
- Knowles, M., Holton, E., & Swanson, R. 2005. *The adult learner*. (6th ed.). London: Elsevier.
- Kolb, D. (1994). *Experiential learning: Experience as the source of learning and development*. Englewood Cliffs, NJ: Prentice-Hall.
- Leggat, S. G., Bartram, T., Casimir, G., & Stanton, P. (2010). Nurse perceptions of the quality of patient care: Confirming the importance of empowerment and job satisfaction. *Health Care Management Review, 35*(4), 355–364.
- Leonard, M., Graham, S., & Bonacum, D. (2004). The human factor: The critical importance of effective teamwork and communication in providing safe care. *Quality and Safety in Health Care, 13*(Suppl. 1), i85–i90.
- LePine, J. A. (2005). Adaptation of teams in response to unforeseen change: Effects of goal difficulty and team composition in terms of cognitive ability and goal orientation. *Journal of Applied Psychology, 90*(6), 1153–1167.
- Lewin, K. (1951). *Field Theory in Social Science*. New York: Harper and Row.
- McFadden, K. L., Henagan, S. C., & Gowen, C. R. (2009). The patient safety chain: Transformational leadership's effect on patient safety culture, initiatives, and outcomes. *Journal of Operations Management, 27*(5), 390–404.
- Neily, J., Mills, P. D., Young-Xu, Y., Carney, B. T., West, P., Berger, D. H., et al. (2010). Association between implementation of a medical team training program and surgical mortality. *JAMA, 304*(15), 1693–1700.
- Nembhard, I., & Edmondson, A. (2006). Making it safe: The effects of leader inclusiveness and professional status on psychological safety and improvement efforts in health care teams. *Journal of Organizational Behavior, 27*, 941–966.
- Oshry, B. (1995). *Seeing Systems: Unlocking the Mysteries of Organizational Life*. San Francisco: Berrett-Koehler.
- Porter, C. O. L. H., Webb, J. W., & Gogus, C. I. (2010). When goal orientations collide: Effects of learning and performance orientation on team adaptability in response to workload imbalance. *Journal of Applied Psychology, 95*(5), 935–943.
- Porter-O'Grady, T. (2004). Embracing conflict: Building a healthy community. *Health Care Management Review, 29*(3), 181–187.
- Reason, J. (2000). Human error: Models and management. *BMJ, 320*(7237), 768–770.
- Rudolph, J., Simon, R., Rivard, P., Dufresne, R., & Raemer, D. (2007). Debriefing with good judgment: Combining rigorous feedback with genuine inquiry. *Anesthesiology Clinics, 25*(2), 361–376.
- Salas, E., DiazGranados, D., Klein, C., Burke, C. S., Stagl, K. C., Goodwin, G. F., et al. (2008). Does team training improve team performance? A meta-analysis. *Human Factors: The Journal of the Human Factors and Ergonomics Society, 50*(6), 903–933.
- Salas, E., DiazGranados, D., Weaver, S. J., & King, H. (2008). Does team training work? Principles for health care. *Academic Emergency Medicine, 15*(11), 1002–1009.
- Salas, E., Wilson, K. A., Lazzara, E. H., King, H. B., Augenstein, J. S., Robinson, D. W., et al. (2008). Simulation-based training for patient safety: 10 principles that matter. *Journal of Patient Safety, 4*(1), 3–8.
- Stern, Z., Katz-Navon, T., & Naveh, E. (2008). The influence of situational learning orientation, autonomy, and voice on error making: The case of resident physicians. *Management Science, 54*(9), 1553–1564.
- Torbert, B. (2004). *Action inquiry: The secret of timely and*

- transforming leadership*. San Francisco: Berrett-Koehler Publishers, Inc.
- Tucker, A. (2007). An empirical study of system improvement by frontline employees in hospital units. *Manufacturing and Service Operations Management*, 9(4), 492–505.
- Tucker, A. L., & Edmondson, A. C. (2003). Why hospitals don't learn from failures: Organizational and psychological dynamics that inhibit system change. *California Management Review*, 45(2), 55–72.
- Tushman, M. L., & Scanlan, T. J. (1981). Boundary spanning individuals: Their role in information transfer and their antecedents. *Academy of Management Journal*, 24(2), 289.
- Vaughan, D. (1996). *The challenger launch decision: Risky technology, culture, and deviance at NASA*. Chicago: University of Chicago Press.
- Watkins, J. M., & Mohr, B. J. (2001). *Appreciative inquiry: Change at the speed of imagination*. San Francisco: Jossey-Bass/Pfeiffer.
- Yakura, E. K. (2002). Charting time: Timelines as temporal boundary objects. *Academy of Management Journal*, 45(5), 956–970.
- Zohar, D., & Luria, G. (2003). The use of supervisory practices as leverage to improve safety behaviour: A cross-level intervention model. *Journal of Safety Research*, 34(5), 567–577.