

# A New Paradigm for Safety Leadership:

Understanding the Role of Leadership in Creating Safety Excellence

by Thomas R. Krause, Ph.D. and Thomas Weekley, Ph.D.

**F**or many organizations the role of safety leadership is changing. As the need for improved organizational performance becomes evident, leaders are realizing that front-line employee involvement is a necessary but not sufficient condition for performance excellence. Moreover, getting employees effectively involved is in itself a leadership task.

Many organizations have made progress reducing recordable injuries, but continue to have serious injuries and even fatalities that do not correspond with the low recordable injury rates they have achieved. This is an issue that rightly troubles leaders.

The authors, respectively a senior safety consultant of more than 20 years and a senior leader for a major labor union, and former director of its General Motors Health and Safety Department, think that achieving the next level of safety improvement for organizations means more than refining current practices and norms. It means defining a new paradigm for leadership in safety that accounts for the leader's role in reducing exposure and in creating a climate and culture that is favorable for safety.

## BACKGROUND: DISCOVERING THE LEADER-SAFETY CONNECTION

While the importance of leadership may seem obvious, its role in safety has not always been completely clear to many organizations. Some safety practitioners have focused on employee-driven or behavior-based safety systems to the exclusion of all else (including a meaningful role for leadership) and as a result have eroded our understanding of who needs to do what and how to improve safety performance. (Blair; Manuele (a) )

Starting in 1994, Dr. Krause and his colleagues began an outcome study designed to quantify the results of companies using a safety improvement methodology over

a period of several years. This research, which was later published in a peer-reviewed journal in 1999 (Krause, et al), tracked 73 individual implementation projects and found that on average, the organizations reduced incident frequency by about 55% over a five-year period.

However, these results produced another finding that was unexpected. The site-by-site results showed a wide degree of variation in the reduction of incident frequency. Some organizations achieved results almost immediately and maintained them over the five-year period. Others took longer, sometimes several years, but eventually got the results they wanted. Still others got virtually no results, while a few got worse. These findings suggested that while the improvement mechanism was important, there was something more at work that distinguished the successful organizations from those that struggled or failed.

A follow-up study using an extreme groups design sought to isolate factors most strongly related to success and

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failure in the earlier studies. Two clusters of organizations were identified as representing both ends of the improvement continuum, the best and the worst. The research team studied these organizations carefully with site visits, surveys, and interviews, and analyzed their data. Results of this follow up study, published in 1998 (Hidley), comprised a set of critical success factors found to be common in the successful organizations and lacking in those that failed. But two findings stood out from the rest, one formal and explicit and the other informal and less well defined:

**1) Leadership, Commitment and Practices Predict Success** • The most important factor in predicting success of safety improvement initiatives was the quality of leadership they were given. This was intriguing given that the initiatives studied were employee-driven. Many of the leaders at the sites studied were unclear at that time what role they should play in the employee-driven initiative, or whether they should play any role at all.

**2) Success in Safety Correlated to Success in Business Generally** • The second finding was that companies highly successful in safety were also successful in operational performance generally. Again, this may not be startling to the experienced observer of organizational performance. But the implications of this finding for safety strategy are quite compelling. Most immediately, this suggests that safety is an ideal starting place for performance improvement generally. Safety enjoys a nationally-recognized standard of measurement (OSHA recordable rates) and, compared to other performance areas, has an immediate value for all levels throughout the organization. This finding also suggests that safety is a proper focus of leadership; not only because safety correlates to strong business performance, but also because it provides a natural starting place to engage the workforce in meeting organizational goals.

#### THE ELEMENTS OF EFFECTIVE SAFETY LEADERSHIP

Leadership in an organization essentially comes down to two tasks: getting employees to do the right work the right way, and maintaining a successful relationship with the people doing that work. The first is commonly called

## The Five Stable Elements of Personality

- Emotional Resilience** – Ability to deal with frustration, worry, anger management, moodiness, self-indulgence, impulsivity and sensitivity to stress
- Learning Orientation** – Imagination, aesthetic sense, willingness to experiment, intellectual curiosity, tolerance for diversity and values other than your own
- Conscientiousness** – Sense of competence and responsibility, your need for orderliness, the will to achieve, and the level of self-discipline and deliberateness
- Collegiality** – Agreeableness, trust, being straightforward, sympathy and consideration for others as well as modesty and compliance with standards
- Extroversion** – Level of positive emotions and warmth towards others, outgoingness, assertiveness, optimism, level of activity, and tendency to seek excitement

Figure 1: The Five Stable Elements of Personality

management and is task focused. It is where the leader tells other people what to do: schedule training events, perform jobs at particular times, start work now and stop later. It engages the minds of workers. The second is more properly called leadership and is people-focused. It involves how the task to be performed fits the overall goals of the organization and engages the hearts of workers. In many organizations, the two tasks appear to be at odds with each other; oftentimes leaders believe that doing one well (for instance, being job-focused) means sacrificing the other (being people-focused). While there is undeniably a tension that must be balanced, leaders in organizations who perform these tasks well are able to maintain a healthy and appropriate balance (Blake and Mouton). The successful realization of this balance both on the interpersonal level and on a level that impacts the whole organization can be described as made up of four basic elements: Personality and Values, Influence Style, Best Practices, and the Organizational Culture itself.

#### Personality & Values

At the very core of who a leader is, and consequently how he or she acts and responds as a leader, are personality and values. Psychological research in personality has been going on for at least the past 50 years. However this research took a giant leap forward when computer-based factor analysis revealed that dozens of identified personality traits could be reduced to five core attributes that make

## The Four Dimensions of Transformational Leadership

**Challenging** – Providing subordinates with a flow of challenging new ideas aimed at rethinking old ways of doing things; challenging dysfunctional paradigms; and promoting rationality and careful problem solving

**Engaging** – Helping others to commit to the desired direction, including the ability to coach, mentor, provide feedback and personal attention and link the individual's needs to the organization's mission

**Inspiring** – Setting high standards; using symbols to focus effort; modeling new standards, and communicating a vision and translating it into language that resonates with individuals at all levels of the organization

**Influencing** – Building a sense of mission and commitment to the vision, gaining respect and trust, increasing optimism and instilling pride

Figure 2: Dimensions of Transformational Leadership

up the fundamental core of personality (Judge, et al): Emotional Resilience, Learning Orientation, Conscientiousness, Collegiality, and Extroversion. (Figure 1). These personality characteristics (known in personality research as “The Big Five”) are not easily changed; they reflect traits which tend to hold across situations. For the leader, personality can be thought of as inbuilt tendencies, which are strengths or constraints that he or she brings to the table. These traits, along with the leader's values, play out in real-time leadership situations. Personality, however, is not destiny. The leader can develop an understanding of his or her personality attributes and learn to perform the right behaviors. Many leaders do this naturally, and others with coaching. It is difficult to change personality and values (Vaidya, et al), but it is possible to adjust behavior to enhance one's overall impact as a leader.

### How the Leader Influences

Good research exists on the relationship between leadership style and safety results (e.g. Hoffman and Morgeson; Zohar (a) ). There are two basic styles of influence that leaders use: transactional and transformational (Bass). A transactional style is based on simple exchange, e.g. If you do x you will receive y. A transformational style, on the other hand, is based on building engagement and participation. Leaders who have a strong transformational leadership style typically have groups that perform better in various ways, including safety outcomes.

Transformational leadership has four dimensions. (Figure 2) (Den Hartog, et al). The first is charisma. Does the leader provide vision and a sense of mission, instill pride, gain respect and trust and increase optimism? The second is inspiration, which is sometimes grouped with charisma. Essentially, it defines whether the leader acts as a model, communicates a vision, sets high standards, and uses symbols to focus efforts. The third is individual attention. Does the leader coach, mentor, provide feedback, link individuals' needs to the organization's mission, and provide personal attention? The fourth dimension is intellectual challenge.

Does the leader provide subordinates with a flow of challenging new ideas aimed at rethinking old ways of doing things, challenge dysfunctional paradigms, promote rationality and careful problem solving?

In the authors' experience, leaders who have high levels of transformational leadership are not dependent on their bosses to place a high priority on safety. Their safety best practices are strong whether or not there is an external emphasis on safety. It is likely that this is related to who the leader is: a transformational leader tends to demonstrate a value for the well being of his or her subordinates (Avolio), and this motivation to protect employees comes from a different—and more interior—place than organizational authority. Another finding related to transformational leadership is that its relationship to safety outcomes is entirely mediated by preventative action (Barling, et al). In other words, it's not just the leader's influence style that matters, but also what the leader does: supervisors with strong relationships with workers (transformational style) talk and listen to them and take action about safety (preventative action) and that leads to lower injury rates. (Zohar (b) ).

### What a Leader Does: Best Practices

The next element is the set of practices that successful leaders use in their daily activities (Figure 3). These practices manifest the personality and influence style of the leader and in turn strongly influence the organizational culture. Existing literature on leadership influences on

safety and organizational culture show that there are definable behavioral practices that recur among effective safety leaders. (e.g. Kotter; Erickson; Fairhurst, et al). At the same time, the organization needs to have the right systems in place and leaders need to understand them.

**Systems Management** • A leader must have a clear understanding of systems management if he or she is going to be effective in establishing a culture that promotes safety. Regardless of how well trained a person is, if the systems and processes he or she is required to use and operate within permit exposure to hazards, eventually day-to-day work pressures will encourage work practices that may contribute to injuries. These flaws in the system must be addressed if long term, lasting safety goals are to be reached and maintained. Operations and systems must be carefully examined for the worker-system interface and advance design must eliminate areas of potential harm.

**Vision**—The effective leader is able to “see” what safety performance excellence would look like and conveys that vision in a compelling way throughout the organization

**Credibility**—The effective leader is credible to other people in the organization, is willing to admit his or her mistakes with others, “goes to bat” for direct reports and the interests of the group, and gives honest information about safety even if it is not well received.

**Collaboration**—The effective leader works well with other people, promotes cooperation and collaboration in safety, actively seeks input from people on issues that affect them, and encourages others to implement their decisions and solutions for improving safety.

**Feedback & Recognition**—The effective leader is good at providing feedback and recognizing people for their accomplishments. This person publicly recognizes the contributions of others, uses praise more often than criticism, gives positive feedback and recognition for good performance, and finds ways to celebrate accomplishments in safety.

**Accountability**—The effective leader gives people a fair appraisal of the efforts and results in safety, clearly



Figure 3: Best Practices of Safety Leadership

communicates people’s roles in the safety effort, and fosters the sense that every person is responsible for the level of safety in their organizational unit.

**Communication**—The effective leader is a great communicator. He or she encourages people to give honest and complete information about safety even if the information is unfavorable. This leader keeps people informed about the big picture in safety, and communicates frequently and effectively up, down, and across the organization

**Action-Orientation**—The effective leader is proactive rather than reactive in addressing safety issues. This leader gives timely, considered responses for safety concerns, demonstrates a sense of personal urgency and energy to achieve safety results, and demonstrates a performance-driven focus by delivering results with speed and excellence.

**The Culture the Leader Creates**

The last element of successful safety leadership is the formation of a high-performance culture. While traditionally the safety leader’s task has focused on setting objectives and influencing site level improvement mechanisms, leaders who want to be effective at producing successful outcomes must also be able to go deeper to influence the organization’s culture and safety climate. Site level safety improvement mechanisms are managed, but organizational culture and safety climate are led. An

extensive body of research identifies nine measurable cultural characteristics shown to be predictive of successful performance outcomes (Krause (b) ):

*Teamwork*–The effectiveness of workgroups in meeting targets and deadlines

*Workgroup relations*–The degree to which coworkers respect each other

*Procedural justice*–The level that workers rate the fairness of first-level supervisors

*Perceived organizational support*–The level to which employees feel the organization is concerned for their overall well being

*Leader-member exchange*–The strength of relationship that workers feel they have with their supervisors

*Management credibility*–The perception of consistency and fairness of management in dealing with workers

*Organizational value for safety*–The perceived level of the organization’s commitment to safety

*Upward communication*–The adequacy of upward messages about safety

*Approaching others*–The probability that workers will speak to each other about performance issues

Companies with high levels of these nine characteristics tend to achieve higher performance overall in critical business functions than companies with low levels of these factors (Hofmann; Tansky and Cohen; Wayne, et al;

Lynch, et al; Koys; Williams). Furthermore, the authors are currently gathering data to test their beliefs that such organizations are also more successful in initiatives they undertake and generate change more rapidly.

### THE LEADER’S ROLE IN ELIMINATING HAZARDS

Today’s corporate leaders understand that by its very nature, the workplace will contain some hazards. One of the fundamental roles of the leader relating to safety is enabling the elimination and control of hazards. Before describing how leaders achieve this, it is useful first to outline a method by which organizations eliminate or mitigate exposure to hazards. When hazards are identified, by design risk assessments, incident investigations, or any other means, they must be controlled. The logic of applying controls in the most effective manner is known as the Hierarchy of Controls (Manuele (b) ). There are five levels within the “Hierarchy” (Figure 4); 1-Elimination or Substitution, 2-Engineering Controls, 3-Warnings, 4-Training and Procedures / Administrative Controls, and 5-Personal Protective Equipment.

It is the responsibility of leaders at every level to insure that each identified hazard is controlled in some way. The most effective control of any hazard is a Level 1 control, Elimination or Substitution. When hazards can be eliminated entirely the workplace is made immediately safer. For example, if an adhesive used in a given operation contains highly toxic solvents, replacing it with an adhesive that contains no toxic ingredients would be the most complete control (1- Substitution).

Obviously, many hazards cannot be eliminated so they must be controlled in some other way. The second most effective control of hazards is a Level 2 control, Engineering Controls. By way of example, the use of electron beam welders produces a radiation hazard. An effective control would be the use of lead-based guarding to shield against exposure to the radiation. This would be a classic Level 2, Engineering Control.

Beyond Level 2 controls, each subsequent level is less effective and therefore less desirable than the higher

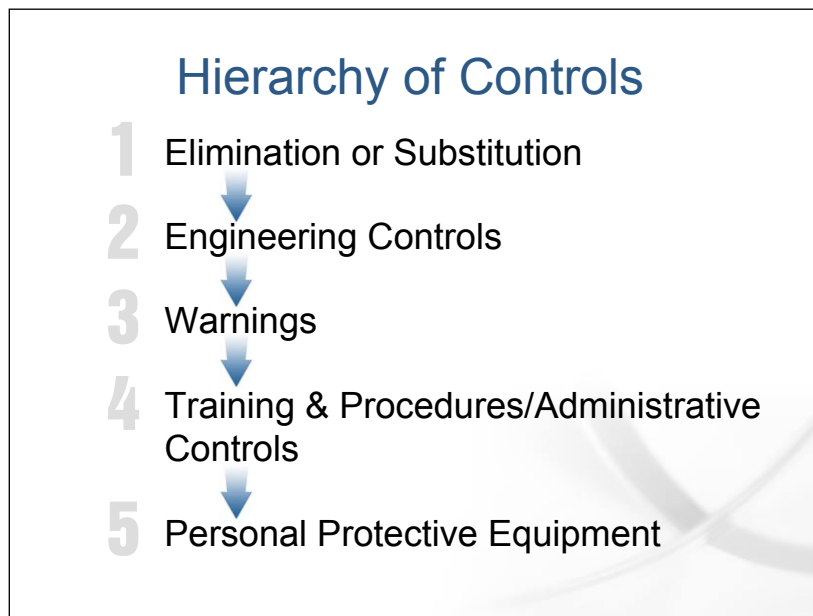


Figure 4: The Hierarchy of Controls

levels. Level 3 controls, Warnings, can be effective in certain situations. When conveyors are idle employees can position themselves in close proximity to the conveyor which would be hazardous if the conveyor were in operation. Signs and buzzers or audible controls can be effective at warning employees that the conveyor is going to begin operation. This would be an effective use of Level 3, Warnings; however, posting signs warning employees of toxic materials contained in an adhesive would fall far short of an effective solution.

Level 4 controls, Training and Procedures / Administrative Controls, are often used as effective controls of certain hazards. In these situations, safe work practices or methods are developed for a given task. Training of employees is then often required to prepare them to follow the developed procedures. A very simple example of these controls is the proper use of hand tools or the use of the proper tool for the job. A case in point would be tightening a screw in a small object with a screwdriver. If the object is held in the palm of the hand and the screwdriver slips the employee can suffer a hand injury. A safe procedure would be to hold the object against a work bench so if the screwdriver slips it would simply hit the surface of the bench.

Level 5 controls, Personal Protective Equipment or PPE, are essential to protect against many hazards. From as simple as safety glasses and gloves to Tyvek chemical resistant suits, PPE can be a very effective control of many hazards. The problem with Level 5 controls (or Levels 3 and 4 for that matter) is that they often require the use of other controls in combination along with strict supervision responsibilities. For instance, PPE almost always requires training on how to use it. There may also be inspection requirements and specific procedures. There may even be specific medical examination requirements prior to use of certain PPE.

In many cases, Level 1 and 2 controls are a one-time effort to effectively control a given hazard, while Level 3, 4, and 5 controls generally require additional training, communication, inspection, cleaning, maintenance, periodic replacements, enforcement and audits in various combinations.

Most hazards in today's workplace have some controls applied. The challenge to leadership is to establish an environment and a process whereby hazards are routinely examined to verify that in fact the most effective and

practical controls are applied and that, where lower-level controls are being used, their use is fully implemented and effective (i.e., safety glasses). In many cases, if the right people are brought together to review a given hazard, a Level 1 or 2 control may be applied and therefore eliminate complicated and onerous lower-level controls.

By revisiting the earlier example of an adhesive containing toxic ingredients, it can be illustrated how lower-level solutions can be effective while involving far greater complications at times. If the adhesive in question was determined to have characteristics which compel its use in this application, rather than substitution a different control must be applied. The control requirements could then include; Level 2 – ventilation systems, Level 3 – warning signs and buzzers connected to the ventilation, Level 4 - training for hazard communication, Level 5 – PPE gloves and perhaps a respirator, and possibly even more. As you can see, the higher-level solutions can provide many benefits and also offer cost-effective solutions.

The effective leader insists upon substantial control of hazards, understanding that each eliminated hazard and those systemically neutralized free the enterprise to focus more energy on quality and productivity issues while demonstrating a commitment to its workforce. Many leaders are able contribute to hazard control directly, both by providing the means (such as authorizing equipment expenses or procedure changes) as well as by creating real consequences for the organization (for instance, following up on the status of identified hazards with subordinates). However, not every leader has direct contact with day-to-day hazard control activities. Effective leaders at the site level as well as those higher up in the organization also contribute to hazard control through their influence on safety enabling systems, those mechanisms designed to reduce and eliminate exposure to hazards. In addition to hazard control, these mechanisms can include training, regulations, procedures, policies, and safety improvement mechanisms. Just as important, leaders affect sustaining organizational systems, those elements that sustain enabling safety systems and assure their effectiveness. These can include a variety of methods such as selection and development of managers, performance management methods for supervisors, changes in organizational structure, employee engagement, and other management systems.

## REDEFINING THE ACCIDENT CAUSALITY PARADIGM (The Working Interface)

The primary purpose of organizational safety initiatives, whether at the site or corporate level, is to reduce exposure to hazards in the workplace (Manuele (c) ). Hazards refer to the configuration of equipment, facilities, systems, and actions that define the interaction of the worker with the technology. One of the authors has characterized this as the Working Interface (Krause (a) ).

Note that the authors have avoided saying what proportion of incidents come from what type of exposure in the Working Interface. This is intentional. Many in the safety community have said that some high percentage, perhaps 80-90% of incidents come from behavioral causes, while the remainder come from causes related to equipment and facilities. However this dichotomy of causes, while ingrained in our culture generally, is now being questioned in the safety community. Many rightly recognize that this approach is not useful, not accurate, and in fact can be a harmful way of thinking about incident causality.

The traditional division between ‘human error’ and ‘mechanical failure’ is not well suited to the modern workplace. A better way of looking at it is to address the interaction between worker and technology. This avoids the problem of blame and brings real prevention into focus. The question isn’t “Whose fault was the accident?” It is, “How should the whole system of design, technology, and worker be influenced to create safety and prevent accidents?”

There are several reasons that this old paradigm is harmful. First, the dichotomy is not representative of what actually happens in the chain of events that causes injuries. It isn’t that the equipment simply malfunctions, independently of how it is maintained and designed, and it isn’t that the worker simply behaves unsafely, independently of the system configuration in which he or she operates. Rather, the worker interacts with the technology, and the interface that results comprises a system. The system is influenced by multiple variables: the quality of design, appropriateness of training, influence of culture and climate, and quality of leadership. Leaders in particular influence the Working Interface through what they choose to focus on and how they go about doing the things they do. A leader’s actions, and use of the best practices described earlier, affect the safety enabling systems and organizational

sustaining systems that feed into the Working Interface. For example, a leader who is strong in Credibility and Action-Oriented and who places a high value on safety, not only pays more attention to safety improvement mechanisms himself, but also influences others to do so. In turn, this attention and influence cascades down to the actual configuration of systems, equipment and procedures the worker finds himself in on a daily basis.

Second, using either end of the dichotomy as an explanation of the cause of the injury tends to encourage blaming. If the purpose of incident investigation is to establish fault, then it is useful to have neat (although inadequate) categories such as “worker behavior” or “equipment and facilities” as sources of the injury that can be used to find fault. This is a natural enough reaction and one that is seen in the popular press regularly, (e.g. “the accident was the result of operator error”) but it is often counter-productive because it leads to blame. And blaming is always a mistake.

The useful question is not “Who is at fault?” but rather “How can this injury, and others like it, be prevented in the future?” If people fail to realize this they fall into the trap of arguing over fault, and the investigation procedure itself becomes biased by various points of view that want the outcome not to blame them. Anyone familiar with multiple incident investigations in a less than ideal culture has seen how destructive this process can be. Incident investigation committees can waste time, make poor recommendations, and undermine the safety climate at the facility, whether by calling things “operator error, instruct the operator to act differently” or by seeing everything as facility related or the fault of supervision.

If blaming is non-productive, how else can the organization hold people accountable for their actions? As we have said, accountability is a best practice that we have seen in high functioning safety organizations. But a culture that emphasizes accountability and one that emphasizes “blaming” are very different. Is the leader’s interest in addressing the organizational issues that underlie hazards to find fault, or to improve the system? In our experience, improving the system is productive, and ‘a culture of blame’ is not. Leaders need to hold people accountable for their actions, while supporting and enabling them with the systems needed for their assurance.

A blame-free environment does not mean one in which we don’t seek to understand accountability and

responsibility for incidents, but does mean one in which we avoid consequences to individuals (including subtle and indirect ones) outside of those normally triggered by the accountability system for all other positive and negative accountabilities.

When blaming is eliminated, the opportunity to learn from near misses is enabled. It is critically important to understand that the reporting and investigating of “near miss” incidents, where no one is injured and no property is damaged, provides the organization a consequence-free opportunity to reduce or eliminate hazards and make the workplace safer in a proactive way.

The organizations that we have come in contact with believe that, in almost all situations, near misses precede injury incidents. If the organization can create a culture where the workforce understands the benefits of near miss reporting and feels unthreatened to do so, many more injuries can be prevented. Creating such a culture takes more than dictating that near-miss reporting is important; it requires a measured and honest approach to existing practices and adjusting them such that reporting is “how we do things here.” These can include steps such as eliminating punitive aspects of reporting, including near-miss reports and response as part of managers’ performance evaluations, publicly recognizing employees for identifying exposures, and setting a time limit on investigating and resolving issues raised by such reporting.

Ultimately, preventing an injury is far superior to preventing recurrence of an injury.

High-functioning organizations have gone beyond the entanglements of blaming and recognize that getting safety right means designing and influencing systems that reduce and eliminate exposure. Doing this is a leadership function.

## CONCLUSION

Leadership is never an easy topic. There always have been, and likely always will be, debate over what makes a great leader. However, it is also true that the field admits certain advances that can be established and accepted by business as a whole. Many of the organizations the authors work with have long recognized the insufficiency of the one-dimensional “prescribe and allocate” approaches advocated in the past. In fact, the authors think it is no accident that leadership in general has become an increasingly popular topic in safety forums of late. However, for just as long a time these organizations have lacked solid evidence that pointed to exactly what the role of leaders should be, or how leaders should act on it.

As emerging evidence makes clear, the nature of effective safety leadership is multi-dimensional. On the one hand, effective safety leadership requires a rigorous understanding of, and attention to, the systems that control hazards and exposure reduction. On the other, effective safety leadership is also more personal. Leaders who know themselves and understand their effects on their relationships, team, and organizational culture, make themselves more personally robust and resilient in the face of the natural challenges and real problems of leadership. They also enable themselves to more effectively foster a higher level of teamwork and a more productive organizational culture.

And perhaps most importantly, it is clear that a specific set of leadership best practices can be identified and defined. This forms the foundation for creating a safety culture in which injuries are unacceptable.



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