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Preventing Incidents & Fatalities
Eight questions every senior leader should ask
By Thomas R, Krause, Donald R. Groover and Donald K Martine (Continued)

QUESTION 5: What leading metrics do we track to ensure that our fatality prevention mechanisms are robust?

Many leadership teams excel at reviewing lagging indicators that provide a sense of how well the organization has performed. However, what can be learned from this information is limited to how the organization ranks against others and whether performance has stayed the same, declined or improved. Lagging indicators do not address the status of prevention activities (e.g., whether they have eroded and increased exposure).

One paradigm change that needs to be understood is that the "safety triangle" which has been relied on for decades is the wrong model for thinking about fatality prevention. This triangle suggests that stopping small injuries will produce a corresponding reduction in more serious events (Heinrich, 1959). This concept is not absolutely true for fatalities and life-altering events. These events may not be preceded by a series of more minor mishaps; instead, the probability of a serious event is much higher from these exposures. Stopping eye injuries by getting employees to wear safety glasses with side shields will not reduce fatal risk exposure.

Leading indicators vary by organization (e.g., Edkins & Pollack, 1996; Petersen, 2000), but it is increasingly common to see successful organizations using the following types:

- Number of near-miss, high-energy/high-potential events. These are events in which a fatality could have occurred, but due to the misalignment of one factor, the organization suffered a near-miss.

- Corporate audit results associated with the fatality and catastrophic event elements. Results from corporate SH&E audits provide an understanding of the status of closure on deficiencies in these elements.

- The status of compliance with single-layer prevention barriers (Reason, 1997). A single-layer barrier is a safety measure that supplies protection based on a single system, often at one of the lowest levels of the hierarchy of controls. For example, suppose an organization relies on employees to de-energize equipment routinely, reliably and correctly each time, without having a system to measure the level of variation. Such single-layer systems have a high likelihood of failure, unless another layer is added on top of this barrier. High-quality verification audits would provide a second layer of protection and likely would reduce variation.

Managing safety on par with other business functions requires that leaders have valid performance measures by which to assess progress and drive strategy (Arezes & Miguel, 2003). In addition, leaders need measures of root causal factors of serious events (Manuele, 2008; Reason, 1997) by which they can monitor the conditions, systems and practices for variation that increase exposure to these events.

QUESTION 6: How do we know whether we are building strong safety leadership at all levels and creating a culture of commitment?

In addition to asking the right questions and having the right systems and activities, leaders must assess whether they are creating a culture of commitment to the organization's value for safety. A culture of commitment is defined as an environment in which employees at all levels will do what is right for themselves, their boss and the organization, even when they would personally gain from non-compliance, because they have bought into and connected to the organization and leaders' vision. They do so even when no one is around to encourage compliance.

Senior leaders must lead the way and sponsor such a culture. For a senior leadership team to successfully manage fatality prevention, it must actively help create the type of culture desired and be emotionally committed to achieving it. Workers do not create such a culture; it is developed and sustained by the organization's leadership (Krause, 2005).

One way for leaders to help create this culture is to walk through the operation and ask workers and their front-line supervisors questions about what they observe:

- Have you experienced or heard recently of any significant close calls, where an inch or a foot this way or that, or if not for the heroic action of a person, someone could have been injured seriously? What happened? What did we do about it?

- Does your supervisor or operations manager have difficulty deciding to shut down operations when s/he receives a report about a potential for serious injury?

Senior leadership should also ask what the local management team is doing to enhance safety leadership and how it knows that its leaders are improving in this area. Additionally, leadership should ask about instruments that provide a true measure of the culture and what leadership is doing to improve the results of the measures.

When senior leaders are willing to ask these questions and are ready to listen to the responses, they demonstrate an emotional commitment to improving culture. When they are further prepared to understand what people are saying, to evaluate the influence of observed behaviors on culture, and to influence a change in that culture, leaders are leading the way to a culture that places a high value on safety.

Such practices are consistent with a transformational, versus a transactional, leadership style. Transformational leadership, also known as relationship-oriented or inspirational leadership, is characterized by behaviors that engage and motivate followers to act beyond mere self-interest. This style of leadership has been shown to predict enhanced safety performance (Barling, et al., 2002). In addition, direct reports' ratings of a leader's influencing style predict that leader's best practices, which aggregate across leaders to predict the characteristics of organizational culture and safety climate (Bell, et al., 2008)

QUESTION 7: When we look at safety-related events, are we influenced by attribution bias?

Cognitive biases are mental shortcuts used to make judgments about uncertainties (Kahneman, Slovic & Tversky, 1982; Hammond, Keeney & Raiffa, 1998). These biases can skew perceptions about workplace exposures and adversely affect safety- related decisions (Krause, 2005).

One such bias is attribution bias, which describes a tendency to misinterpret cause and effect. When something bad happens to someone who is not a peer, people may tend toward an internal bias. That is, they see the bad outcomes as something caused by the person, that s/he had a bad attitude or intentionally did something wrong to produce that outcome.

When an individual personally experiences something bad, s/he tends to have an external bias. That is,the person will likely point to and focus on systems issues or factors outside of his/her control as the reason for the event. In the authors' experience, managers tend to have an internal bias when they hear about an injury or serious event, while workers are inclined to have an external bias.

Given this natural bias, leaders must support a thorough investigation to understand fully both immediate and root-cause factors. Attribution bias can creep in when the immediate causes of an incident are first reported. Commonly, the immediate causes of an incident are a misalignment in the working interface resulting from improper or inadequate equipment, inadequate processes or employee action or inaction. When leaders hear that an employee performed in an at-risk manner that contributed to the event, they may conclude that the employee is at fault. This is attribution bias.

During the investigation process, senior leaders must ask, What is the likelihood that this is the first and only time these immediate causes have existed? How probable is it that no other employee has violated this rule or not followed that procedure? In most cases, the answer is near zero.

Digging deeper allows the investigation to move quickly past the immediate cause to the root causes and, finally, to an understanding of why and how nonconformance became acceptable in the organization. Leaders must ask the right questions to show that they seek full disclosure of the chain of contributing causes and confidence that a similar event will not recur. These questions include:

- What were the immediate and root causes to this event?
- Do the recommendations address both immediate and root causes?
- Who is responsible for tracking the recommendations and reporting to me on progress?
- How will we know that the action plan we developed will result in the changes we need and be sustainable?
- Are all parties in agreement with the investigation and recommendations?

These questions are another way for management to ask, What can we learn about our exposures, and how can we better manage them? In many cases, the actions organizations and their leaders take to manage safety arise more from attributions than from actual causes (DeJoy, 1994).

Not surprisingly, in organizations where leaders ask questions of this nature, and show a true desire to address root causes (including weak systems, leadership practices and culture), employees have a better understanding of safe operating procedures and are less likely to be injured or involved in a near- miss incident (Michael, Guo, Wiedenbeck, et al., 2006). Countering

attribution bias promises a more powerful, positive and lasting impact on the safety climate in an organization than the placement of blame for action or inaction.

QUESTION 8: Are we maintaining a sense of vulnerability?

One of the most dangerous developments in an organization is the leaders' loss of their sense of vulnerability to catastrophic events (CAIB, 2001; Baker, 2007). In some ways, leaders are more at risk of losing this sense than other employees. The sheer scope of their job means they are continually monitoring and managing a wide range of threats to the organization. It is easy to lose a sense of urgency for safety when the severity or frequency of accidents is low. However, the absence of injuries does not indicate an absence of exposure (Hale, 2001; Manuele, 2004). Nor does it mean that exposure levels are trending down- ward. In fact, the opposite may well be the case.

Leaders maintain their sense of vulnerability by continually gathering and receiving information about the true state of workplace hazards, safety prevention mechanisms and practices, and organizational culture. Leaders maintain confidence by listening to the discussions about injury rates and trends. They listen to determine whether the discussion focuses more on injury classification than on the event and the prevention plan. They assess whether any systems discourage full disclosure.

Consider a situation in which a new senior leader is hired or is new to his/her executive position. How much information does staff share regarding serious events? For this leader to understand the organization's history and why certain systems and climates exist, then s/he must know defining moments in the organization's history.

This leader must hear about these events and why they are important, for example:

- names of deceased employees and the dates of fatal events;
- copies of the investigation reports;
- history of corrective and preventive actions for prior serious events;
- information about how the organization has ensured that all of its other sites have addressed similar exposures.

When an organization is open to sharing this information with a new leader, it becomes clear that it expects leaders to place a high personal and organizational value on safety.

Fundamentally, a sense of vulnerability helps leaders make better decisions with respect to safety. Leaders must often make operational or strategic decisions where the outcome is unclear. In these situations, leaders are particularly susceptible to cognitive biases such as overconfidence, recency effect and status quo bias, especially if they are acting within the context of few recent incidents or from an incomplete set of indicators.

Lacking a sense of vulnerability, leaders are at risk of making wrong decisions (Hammond, et al., 1998). On the other hand, leaders who maintain a defensive posture with respect to serious events can help others evaluate threats from a new perspective (Johnston, 2004), and make

better safety-related decisions (Krause, 2005).

Making Serious Incident Prevention a Reality

For many SH&E professionals, the first challenge to addressing life-altering injuries and fatalities is knowing how to bring the topic into discussion with senior leadership. Interestingly, some people become superstitious, believing that talking about the topic will somehow bring on an event. For others, the task of getting the organization to incorporate this thinking and these systems into its culture is seen as so daunting that it is perceived as unachievable.

Yet, SH&E professionals have an ethical duty to try to facilitate conversations about these concepts. While they cannot force leaders to do the right thing, they can at least ensure that they have considered the possibilities.

In a high-functioning organization, an article such as this one is shared with members of the leadership team who will be asked to read it and be prepared to discuss it at an upcoming meeting. The topic will be placed on the agenda, the merits of the questions will be discussed and considered, and the team will consider how the organization is approaching these questions. It is the authors' belief that in this type of organization, the right choices and decisions will be made.

For others, the task will be more challenging. The culture may be less open to ideas or the SH&E professional may not be in a position to bring such a sensitive topic to leadership. In this situation, a healthy discussion among the leadership group is unlikely. More importantly, this professional is worried about the issue being dropped without adequate consideration. If s/he believes strongly that the organization would benefit by taking steps to reduce the probability of life-altering injuries and fatalities, then s/he must find an ally in the leadership group. The SH&E professional would then work with the ally to advance the discussion.

Catastrophic events need not happen. Leaders who review and understand the right metrics, ask the right questions, focus on creating a culture of engagement and create the right tension around vulnerability are doing the things necessary to align their organizations for injury-free performance. By following the guidelines presented, senior leaders can look closely in the mirror and feel confident that they are doing what is necessary to provide proper oversight and sponsorship for prevention.

References

Arezes, P.M. & Miguel, A.S. (2003). The role of safety culture in safety performance measurement. *Measuring Business Excellence, 7*(4), 20-28.

Baker, J. (2007). The report of the BP U.S. Refineries Independent Safety Review Panel. Retrieved Feb. 1, 2009, from http:// www.bp.com.

Barling, J., Louglin, C. & Kelloway, E.K. (2002). Development and test of a model linking safety-specific transformational leadership and occupational safety. *Journal of Applied Psychology, 87*(3), 488-496.

Bell, K., O'Connell, M., Reeder, M., et al. (2008, March/April). Predicting and improving safety performance. *Industrial Manage- ment, 50*(2), 12-16.

Bureau of Labor Statistics (BLS). (2008). Census of fatal occupational injuries in 2007. Washington, DC: U.S. Department of Labor, Author. Retrieved May 20, 2009, from http://www.bls .gov/iif/oshcfoi1.htm.

***Columbia* Accident Investigation Board (CAIB).** (2001). The *Columbia* Accident Investigation Board Report: Vol. 1. Washington, DC: Author. Retrieved Feb. 1, 2009, from http://caib.nasa.gov.

Coyle-Shapiro, J.A.M. & Conway, N. (2005). Exchange rela- tionships: An examination of psychological contracts and perceived organizational support. *Journal of Applied Psychology, 90*(4), 774-781.

Cullen, W.D. (1990). The public inquiry into the *Piper Alpha* disaster. London: HMSO.

DeJoy, D.M. (1994). Managing safety in the workplace: An attribution theory. *Journal of Safety Research, 25*(1), 3-17.

Diaz, R.I. & Cabrera, D.D. (1997). Safety climate and attitude as evaluation measures of organizational safety. *Accident Analysis and Prevention, 29*(5), 643-650.

Edkins, G.D. & Pollack, C.M. (1996). Proactive safety management: Application and evaluation within a rail context. *Safety Science, 24*(2), 83-93.

Erickson, J. (1997, May). The relationship between corporate culture and safety performance. *Professional Safety, 42*(5), 22-33.

Ferris, G.R. (1985). Role of leadership in the employee withdrawal process: A constructive replication. *Journal of Applied Psychology, 70*(4), 777-781.

Griffiths, D.K. (1985). Safety attitudes of management. *Ergonomics, 28*(1), 61-67.

Hale, A. (2001). Conditions of occurrence of major and minor accidents. *Institution of Occupational Safety and Heath Journal, 5*(1), 7–21.

Hamalainen, P., Takala, J. & Saarela, K.L. (2006). Global estimates of fatal occupational accidents. *Safety Science, 44*(2), 137-156.

Hammond, J.S., Keeney, R.L. & Raiffa, H. (1998, Sept/Oct). The hidden traps in decision making. *Harvard Business Review, 76,* 47-58.

Hayes, B.E., Perander, J., Smecko, T., et al. (1998). Measuring perceptions of workplace safety: Development and validation of the Work Safety Scale. *Journal of Safety Research, 29*(3), 145-161.

Health and Safety Executive (HSE). (2008). Health and safety statistics 2007/08. London: Author. Retrieved May 20, 2009, from http://www.hse.gov.uk/statistics

Heinrich, H.W. (1959). *Industrial accident prevention* (4th ed.). New York: McGraw Hill.

Hidley, J.H. (1998, July). Critical success factors for behavior- based safety. *Professional Safety, 43*(7), 30-34.

Hofmann, D.A. (1999). *A review of recent safety literature and the development of a model for behavior safety.* Ojai, CA: Behavioral Science Technology Inc.

Hofmann, D.A. & Stetzer, A. (1999). The role of safety climate and communication in accident interpretation: Implications for learning from negative events. *Journal of Applied Psychology, 84,* 286-296.

Hopkins, A. (2000). *Lessons from Longford: The Esso gas plant explosion.* Sydney: CCH Australia Limited.

Hopkins, A. (2009, April). Thinking about process safety indicators. *Safety Science, 47*(4), 460-465.

Johnston, R.G. (2004). Adversarial safety analysis: Borrowing the methods of security vulnerability assessments. *Journal of Safety Research, 35*(3), 245-248.

Kahneman, D., Slovic, P. & Tversky, A. (Eds.). (1982). *Judgment under uncertainty: Heuristics and biases.* Cambridge: Cambridge University Press.

Kickul, J.R., Gundry, L.K. & Posig, M. (2004, Feb.). Does trust matter? The relationship between equity sensitivity and perceived organizational justice. *Journal of Business Ethics, 56,* 205-218.

Konovsky, M. & Pugh, S.D. (1994). Citizenship behavior and social exchange. *Academy of Management Journal, 37*(3), 656-669.

Krause, T.R. (2005). *Leading with safety.* Hoboken, NJ: John Wiley & Sons.

Krause, T.R. (2008). Motivating leadership of safety excellence: What really works. *Proceedings of ASSE's Safety 2008 Conference, Las Vegas, NV, USA.*

Krause, T.R. & McCorquodale, R.J. (1996, March). Transitioning away from safety incentives. *Professional Safety, 41*(3), 33-36.

Krause, T.R. & Weekley, T. (2005, Nov.). Safety leadership: A four factor model for safety leadership. *Professional Safety, 50*(11), 34-40.

Kriebel, D. (1982). Occupational injuries: Factors associated with frequency and severity. *International Archives of Occupational and Environmental Health, 50*(3), 209-218.

Manuele, F.A. (2004, Feb.). Injury ratios. *Professional Safety, 49*(2), 22-30.

Manuele, F.A. (2008, Dec.). Serious injuries and fatalities: Call for a new focus. *Professional Safety, 53*(12), 32-39.

Michael, J.H., Guo, G.Z., Wiedenbeck, J.K., et al. (2006). Production supervisor impacts on subordinates' safety outcomes: An investigation of leader-member exchange and safety communication. *Journal of Safety Research, 37,* 469-477.

NIOSH. (2006). Worker deaths by falls: A summary of surveillance findings and investigative case reports [NIOSH Report No. 2000-116]. Washington, DC: U.S. Department of Health and Human

Services, CDC, Author. Retrieved May 20, 2009, from http://www.cdc.gov/niosh/docs/2000-116.

Petersen, D. (2000, Jan.). Safety management 2000: Our strengths and weaknesses. *Professional Safety, 45*(1), 16-19.

Reason, J. (1997). *Managing the risks of organizational accidents.* Aldershot, U.K.: Ashgate.

Ruppel, C.P. & Harrington, S.J. (2000). The relationship of communication, ethical work climate, and trust to commitment and innovation. *Journal of Business Ethics, 25*(4), 313-329.

Simard, M. & Marchand, A. (1997). Workgroups' propensity to comply with safety rules: The influence of micro-macro organizational factors. *Ergonomics, 40,* 172-188.

Spigener, J. (2007). Fatality prevention: Issues and possible solutions. *Proceedings of ASSE's Safety 2007 Conference, Orlando, FL, USA.*

Stricoff, R.S. (2007, Sept.). A culture for safety: What the BP Baker Report didn't tell us. *Chem.Info, 45*(9), 16-17.

Takala, J. (2005). Introductory report: Decent work, safe work. *Proceedings for the XVIIth World Congress on Safety and Health at Work.* Geneva: International Labor Organization.

Thomas R. Krause, Ph.D., is chair of the board and cofounder of BST, a global safety consulting firm based in Ojai, CA. Krause consults with senior executives on leadership, culture and behavior change in the service of safety improvement. He has authored and coauthored several books and many articles on safety, performance improvement and leadership. His latest book, Taking the Lead in Patient Safety, was published in 2008. Krause holds a Ph.D. in Psychology from the University of California, Irvine. He is a professional member of ASSE's Valley Coastal Chapter.

Donald R. Groover, CSP, CIH, is vice president and executive relationship manager for BST. He works with senior executives, leadership teams and other key organizational leaders to enhance organizational effectiveness and safety performance. Groover has authored many articles on safety and leadership, and has contributed to several books. He is a professional member of ASSE's Wichita Chapter and is a past president of AIHA's Wheatland Section. Grover holds master's degrees in education and environmental health sciences.

Donald K. Martin, M.P.H., CSP, CIH, is an executive consultant with BST. He has extensive expertise designing and implementing SH&E management systems, risk management programs and organizational culture change initiatives. He has experience in the offshore oil exploration, mining, pulp and paper, oil refining and consumer products industries. Martin holds a B.S. in Environmental Science from Sam Houston State University and an M.P.H. from the University of Texas at Houston.

He is a member of ASSE's Maine Chapter.
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