THROUGH THE EYES OF THE EXECUTIVE, CREATING A HEALTHIER AND SAFER WORKFORCE

"If you always do what you've always done, you'll always get what you've always got."

—Henry Ford

PREFACE:

When I look at the landscape of health and safety today in the U.S. and globally, it reminds me of a Henry Ford quote I heard long ago - "If you always do what you've always done, you'll always get what you've always got." Our workforce is getting older and less healthy; organizations are experiencing massive brain drain as our baby boomers retire; and workplace accidents have remained stagnant but the costs associated with them are increasing annually. I would argue – if we are going to improve – then something has to change! How do we create a sense of urgency with leaders to take on the responsibility of prevention when their thoughts are driven by the financial burden of the health and well-being of their workers?

This roundtable assembled a diverse group of thought leaders, experts and executives to explore this issue and provide the roadmap that will help organizations improve outcomes rather than continue to compound the problem. Each attendee brought a unique perspective on workplace health, safety and learning. Combined, these perspectives have a direct influence on the final result. While the responsibility of establishing a workplace culture in which health and safety are paramount ultimately lies with CEOs – its delivery can be delegated. It's collaboration among all stakeholders, top to bottom, that leads to real change in organizations.

As occupational health and safety experts, we face a huge challenge. Ideally, the framework for change presented in this paper will result in the next big thing for health and safety – the thing that helps all organizations, regardless of the path their journey takes, to achieve excellence and ensure improvements are sustainable for generations to come both in the US and abroad.

Thank You,

Todd Hohn
Global Director of Workplace Health and Safety
Underwriters Laboratories Inc.

OUTLINE

Acknowledgements

In addition to my great appreciation for the hard work of all of our attendees:

Section I:

Executive Summary:

UL (Underwriters Laboratories), in collaboration with the Owen Graduate School of Management at Vanderbilt University and the Center for Catastrophic Risk Management (CCRM) at the University of California, Berkeley, sponsored a two-day Leadership Roundtable on June 20-21, 2014, in Nashville, Tenn.

With the theme *Through the Eyes of the Executive: Creating a Healthier and Safer Workforce,* the Leadership Roundtable was the first of its kind in a proposed series of periodic thought-leadership summits about the concept of workplace health and safety program integration.

As envisioned, the three sponsoring entities intend to provide the foundation for ongoing collaboration among Leadership Roundtable participants. UL is a global independent safety science company dedicated to promoting safe living and working environments. Vanderbilt is an internationally recognized research university located in Nashville. The CCRM at UC Berkeley is a group of internationally recognized experts in the fields of engineering, social science, medicine, public health, public policy and law who share their life-saving knowledge and experience with industry and government.

The meeting format featured a sequence of brief lectures by participants and facilitated roundtable discussions. The agenda was carefully designed to stimulate discussion and ultimately help participants reach consensus on recommendations in relation to:

- real and perceived barriers to the successful integration of workplace health and safety interventions;

- case studies and best practices at companies with integrated occupational health and safety service delivery models;

- efforts to imbed a culture of health and safety in organizations;

- metrics used to measure the impact of coordinated workplace health and safety programs and benchmark performance across multiple locations and/or by industry type.

The participants represented a cross-section of business executives; safety, insurance and risk management professionals; occupational medicine physicians and nurses; university faculty members and researchers; and other subject matter experts. (Refer to Appendix A for a list of participants and their affiliations and Appendix C for the meeting agenda.) At the conclusion of the meeting, participants were invited to summarize their thoughts and recommendations.

All of the participants agreed that organizations and the workers they employ benefit from the integration of health and safety programs. They also noted that incremental movement toward improved coordination and synergistic endeavors serves the best interests of all stakeholders in the nation's personal health care, benefits and workers' compensation delivery systems.

The participants collectively identified the following Top 7 necessary conditions that must exist in organizations to achieve and sustain health and safety integration:

1. **Use a holistic approach:** Align safety and health; they are not disparate functions. Design initiatives to incorporate both health protection (safety) and health promotion (well-being).

2. **Make a commitment:** Position integrated health and safety activities as key contributors to an organization's value system and sustainability, not as a cost of doing business.

3. **Present the business case:** Express value in terms senior executives understand. Adopt common terminology for key performance indicators. Senior executives know intuitively that healthy workers are more productive workers, but they need empirical evidence to justify an investment in comprehensive workplace health and safety programs. Reduce ambiguity.

4. **Create an overarching management structure:** Create lines of authority and reporting to encourage effective communication among all parties. For example, when safety, health and risk management individually report to different senior executives or department heads, experience shows that opportunities for collaboration are likely to be impeded by competing priorities, resource constraints, logistical challenges and cultural barriers.

5. **Prepare for a new profession:** Redesign undergraduate and graduate school curricula to incorporate health and safety concepts in business courses. Similarly, introduce more business management concepts into environment, health and safety (EH&S) education. Redefine professional roles and responsibilities to better meet current and anticipated business, safety and health management needs and trends.

6. **Support a culture of continuous learning:** By learning, we refer to an organization's ability to shift its focus from past accidents (lagging indicators) in order to include behaviors and conditions that create risk (leading indicators). When behavior change permeates an organization, it creates a sense of urgency. By looking for deviations and responding with vigilance, organizations can stimulate meaningful changes in systems and processes that help reduce the likelihood of accidents.

7. **Get everyone involved:** Whether it be participation rates in health and wellness initiatives, at- risk reporting or learning teams, the involvement of the entire organization cannot be understated or underestimated in the impact it has on performance improvement. The more successes can be measured and reported, the more holistic response by management.

Further findings and recommendations are described in depth in this document. The eBook is organized in accordance with the sequence of events outlined in the Leadership Roundtable agenda:

Section II:

Clarifying the Rationale, Goals and Process for the Roundtable

Rationale

In essence, unhealthy workers present a safety risk which, in turn, contributes to worker injuries, illnesses and fatalities. However, the integration of workplace

health and safety initiatives has remained an elusive goal. In many organizations, the two functions have persistently resided in parallel universes.

Behavior is a major determinant of attitudes toward health and safety and a significant driver of employers' health care costs. According to the Centers for Disease Control and Prevention (CDC), 75 percent of U.S. health care costs are linked to chronic conditions largely caused by unhealthy behaviors. Employers can help employees and their organizations by offering interventions and incentives to encourage the adoption of new, healthier behaviors.

Unhealthy workers are costly for employers and society. The Integrated Benefits Institute, an organization represented at the Leadership Roundtable, attributes $576 billion in total annual spending to injured and ill workers based on:

- $117 billion in wage replacement (incidental absence attributed to illness, workers' compensation, short-term and long-term disability);

- $232 billion in medical and pharmacy costs (workers' compensation, employee group health

- medical treatments, employee group health pharmacy); and

- $227 billion in lost productivity (absence attributed to illness and being present but not wholly productive, also known as "presenteeism").

- In interviews with 94,000 American adults who work 30 hours or more per week, the 2013 Gallup-Healthways Well-Being Index found:

- $24.2 billion in annual lost productivity attributed to poor worker health;

- an average cost to employers of $341 per daily worker absence;

- across 14 occupations, 77 percent of workers

either above normal weight or diagnosed with at least one preventable chronic condition.

Worksite programs, policies and environments that are health-focused and worker-centered have the potential to significantly benefit employers, employees, their families and communities, according to the CDC's National Healthy Worksite Program (NHWP). The CDC program defines a comprehensive approach to worksite health as a "planned and organized set of programs, policies, benefits and environmental supports designed to meet the health and safety needs of all employees." This approach features interventions that concurrently address multiple risk factors and recognizes the influence of various organizational levels, including the individual employee and the enterprise as a whole.

The NHWP reports worksite health programs are more likely to be successful if occupational safety and health are considered in their design and execution. Authorities also cite a growing body of evidence that suggests workplace-based interventions that take coordinated or integrated approaches to reducing health threats to workers on and off the job are more effective than traditional, isolated programs. Integrating or coordinating occupational safety and health with health promotion may increase program participation and effectiveness and may also benefit the broader context of work organization and environment.

Work-related Injury Trends

In terms of "working environments," conditions worldwide are dire. According to the International Labor Organization, 6,300 people die every day as a result of occupational accidents or work-related diseases — more than 2.3 million deaths per year. Globally, 317 million accidents occur on the job annually, with a high percentage of those accidents resulting in significant time away from work. The economic burden of these

workplace accidents is estimated to be $2.2 trillion for all employers, equal to 4 percent of the annual global Gross Domestic Product.

In addition to the global perspective, work-related injuries in the U.S. represent a considerable cost burden. Approximately 4.1 million U.S. workers suffer a serious job-related injury or illness every year, according to the Occupational Health and Safety Administration. J. Paul Leigh, a professor of Health Economics at the School of Medicine and Department of Public Health Sciences, University of California, Davis, has estimated that occupational illnesses and injuries cost the American economy $250 billion annually in medical expenses and lost productivity.

The working conditions for health and safety vary widely among countries, economic sectors and social groups. While the U.S. is experiencing lower accident and death rates, the same cannot be said for developing countries where a large part of the population is engaged in hazardous activities with typically the poorest being the least protected and the most affected.

These trends are not new. For example, in 2004, Leadership Roundtable host Todd Hohn, UL's Global Director of Workplace Health and Safety, was working for a major workers' compensation insurer. Asked to lead a construction safety unit with $100 million in losses related to sprains and strains, he discovered a new approach to an endemic problem was needed to turn things around. After educating contractors on programs that simultaneously promoted efficiency improvements and safer work practices associated with reducing sprains and strains, the insured companies realized 2-10 percent in bottom-line savings without sacrificing growth initiatives. In short, the insurer helped construction workers be more productive and its clients be more profitable.

Ten years later, Mr. Hohn said, the same lesson applies: new ways are needed to address persistent problems that cause work-related injuries, illnesses and absences:

- "Traditionally, organizations have viewed their health and safety functions as distinct areas of their businesses. Integrating these two functions can provide greater transparency to effectively detect and mitigate emerging risks, and ultimately improve worker conditions."

A Health Perspective

Roundtable participant Ronald Loeppke, M.D., M.P.H., has devoted much of his medical career to understanding the ways in which health is inextricably linked to workforce productivity and the economic viability of individuals, populations and nations.

In his 2008 paper on *The Value of Health and the Power of Prevention*, (citation: International Journal of Workplace Health Management Vol. 1 No. 2, 2008, pp. 95-108, Emerald Group Publishing Limited) he explains how the health care cost crisis in the U.S. is driven by health risk and chronic illness in the American population. After analyzing case studies and related scientific literature, he suggests "a global strategy for health enhancement would yield a multitude of benefits for humankind" and that a multi-faceted approach to workplace health and safety would help:

- lower health risks;

- reduce the burden of illness;

- improve productivity;

- lower total health-related costs.

He also observes that solutions appear to depend on a "substantial commitment to prevention and a culture of health rather than just more treatment and cure." Consequently, he recommends shifting the focus to "quality and effectiveness of care rather than just the quantity and efficiency of the care."

Two years later, in a 2010 study on the *Impact of the Prevention Plan on Employee Health Risk Reduction* (citation: Population Health Management, Oct. 2010, 13(5): 275-285), Dr. Loeppke and co-authors Dee W. Edington, Ph.D., (also a Leadership Roundtable participant) and Sami Bég, M.D., M.P.H., evaluated the impact of The Prevention Plan™ on employee health risks after one year of integrated primary prevention (wellness and health promotion) and secondary prevention (biometric and lab screening and early detection) interventions. The Prevention Plan is a member benefit program offering support services such as a 24-hour nurse call center, one-on-one health coaching, contests, group events and employer incentives.

A comparative analysis of 15 health risk measures among 2,606 participating employees showed significant reduction in 10 risk categories, most notably blood pressure, blood sugar and stress. In the paper, the authors note that health care consumer education and engagement in one's own well-being are critical success factors. Further, they say the findings support an approach that positions prevention as an investment to be leveraged rather than a cost to be justified by employers.

Continuing to mine in the same vein in 2011, Dr. Loeppke was among physicians to contribute to an American College of Occupational and Environmental Medicine (ACOEM) guidance statement on *Workplace Health Protection and Promotion: A New Pathway for a Healthier—and Safer—Workforce*. (citation: Hymel P, et al.; *JOEM 2011*, 53(6)).

The guidance statement defines workplace health protection and promotion as:

> "The strategic and systematic integration of distinct environmental, health and safety policies and programs into a continuum of activities that enhances the overall health and well-being of the workforce and prevents work-related injuries and illnesses."

The guidance is based on the hypothesis that "integrating traditionally independent health protection and health promotion activities will create synergy and enhance the overall health and well-being of the workforce while decreasing the likelihood of workplace injuries and illnesses."

In fulfilling their roles as medical directors for global corporations, Dr. Loeppke recalls that the guidance statement authors were experiencing safety as a compartmentalized function despite the clear benefits of integration with worker health initiatives. He told colleagues at the Leadership Roundtable:

> "Workers don't leave their personal health risks at home on the doorstep when they go to work, and they cannot remove the effects of workplace exposures when they return home. It's a 24-hour issue. Health impacts work and work impacts health. Workers with adverse health risk factors are more likely to sustain injuries. It's important to recognize that when we are attempting to manage the health and safety of a workforce, we are dealing with the whole population of workers, not just those who are in the river of illness and about to go over the waterfall of medical morbidity and complications. That's why it's so important to go upstream and help people keep from falling into the river in the first place."

Rather than focusing on the Return on Investment (ROI) associated with workplace interventions, Dr. Loeppke encourages health and safety professionals and business executives to think about the full Value of Investment (VOI). This includes key performance indicators such as prevention program participation, preventive screening compliance, reducing health risks over time, and measuring health related productivity impacts (absenteeism and presenteeism).

He uses a case study to illustrate his point: A large employer in the gaming industry estimated eight days of health-related productivity loss per employee per year. The company realized that an incremental improvement in worker health behaviors would help justify an investment in a more comprehensive health and safety program. According to calculations, if health and safety interventions reduced productivity loss by just one day per employee, per year, the company would accrue $18.8 million in earnings before interest, taxes, depreciation and amortization (EBITDA) and its shareholders would benefit from an 84 cent per share value increase. (Citation: Loeppke R. "The Value of Health and the Power of Prevention". *International Journal of Workplace Health Management.* 2008; 1(2)95-108).

A study of ACOEM's Corporate Health Achievement Award winners also validates the positive effects of a comprehensive approach to workplace health and safety on VOI. (Citation: The link between workforce health and safety and the health of the bottom line: tracking market performance of companies that nurture a "culture of health; Fabius R, Thayer RD, Loeppke R, Konicki DL, et al.; JOEM 2013; 55(9):993-1000). The annual award recognizes the healthiest and safest companies in North America. Researchers tracked an initial theoretical investment of $10,000 in publicly traded award recipients from the mid-1990s to 2012. They found award-winning companies outperformed the S&P 500 in four theoretical investment scenarios. In the highest-performing scenario, award winners had an annualized return of 5.23 percent vs. –0.06 percent for the S&P 500. In the lowest-performing scenario, award-winning companies had an annualized return of 6.03 percent vs. 2.92 percent for the S&P 500.

Although the study sample was limited to award winners, the authors said the findings suggest companies that build a culture of health and safety by focusing on workforce well-being can be expected

to yield greater value for their investors:

> "Evidence seems to support that building cultures of health and safety provides a competitive advantage in the marketplace. This research may have also identified an association between companies that focus on health and safety and companies that manage other aspects of their business equally well."

Complexities Abound

Combining health protection and health promotion in the workplace may appear to be a relatively simple concept, but in practice it's a complex process. Roundtable participants acknowledged the following challenges must be addressed in order for an integrated program to succeed:

- U.S. labor statistics show yearly declines in accident and injury incident rates. However, fewer injuries decrease awareness and diminish the sense of urgency that seems to be required to stimulate workplace health and safety innovation.

- Many organizations have operational "silos" and budget allocation models that result in competing priorities and lack of collaboration.

- In the global marketplace, employers and workers are under intense pressure to produce. Potential byproducts include stress, unreasonable job demands and work shortcuts.

- The population is aging. Older employees generally know how to work safely but are vulnerable to illness and injury. While younger workers may be healthier and more resilient than their older colleagues, lack of experience can result in serious missteps.

- With the looming baby boomer exodus from the U.S. workforce, companies are bracing for "brain drain" and significant loss of institutional knowledge.

- The U.S. workforce is culturally diverse, requiring

adjustments to accommodate various customs and languages.

- Overuse of opioid therapy medications to treat pain is a serious issue in the workplace. According to the National Council on Compensation Insurance, narcotics comprise at least 25 percent of all workers' compensation prescriptions dispensed at a cost of about $1.4 billion a year.

- Obesity prevalence and the presence of multiple chronic conditions (co-morbidities) such as diabetes, hypertension and depression among a significant percentage of the working population drive up medical care, absence and disability-related costs.

- Many workplaces operate in litigious environments and are subject to government regulation. Sometimes laws and regulations seem to conflict with business interests. Legislation designed to protect workers may have overlapping or even contradictory provisions.

- Mental and behavioral health conditions that afflict workers and diminish performance are often undiagnosed or inadequately treated.

These kinds of challenges, along with academic research and evidence-based findings, reinforce the desirability of a preventive approach that incorporates safety learning, wellness (physical fitness, better nutrition, stress reduction) and behavioral health support.

Roundtable Objectives

A primary goal of the Leadership Roundtable was to create a structured forum for the exchange of information and ideas across multiple disciplines and establish a foundation for future collaboration on the integration of workplace health and safety initiatives. Other objectives included:

- Identify ways in which process changes can save money and improve performance.

- Better understand the role of organizational structure and contributions from top management in the creation and maintenance of a culture of health and safety.

- Define health risks employees bring into the workplace, their effect on productivity and how they can best be addressed.

In opening remarks, co-organizer Ranga Ramanujam, Ph.D., a professor in the Owen Graduate School of Management at Vanderbilt University and a leading expert on operational failures in high-risk work settings, said his awareness of probable links between health and safety was crystalized 10 years ago when he was involved in a health care system research project in Pittsburgh, Pennsylvania. The project was chaired by former U.S. Treasury Secretary Paul O'Neill, who is internationally known for his work on the application of lean management principles to improve quality and efficiency in health care organizations.

Mr. O'Neill firmly believes that in any industry or process, consumer and product safety has to start with worker safety. As a result, he pushed Dr. Ramanujam and his colleagues to interview chief executive officers at 42 hospitals. The researchers found every CEO was committed to safety. However, they were a lot less frequently engaged in data analysis or activities around safety than they were engaged in the review of financial indicators such as length of stay and reimbursement rates.

Consequently, Dr. Ramanujam invited leaders at the Roundtable to ask: *What is the role of top management with respect to workplace health and safety?*

McWane Story

Ruffner Page, President, McWane

Astute executives recognize they have to change perceptions to better align environment, health and safety (EHS) initiatives with their overall business objectives. However, turning this realization into reality can be a challenging process.

Many companies still put environment in one box, safety/health protection in another and employee well-being in a third, even though evidence shows bottom-line results improve when these functions are combined in a single package. These boxes are a byproduct of traditional organizational divisions and distinctively different schools of thought. What used to make sense now tends to impede progressive organizations' efforts to lower costs, maximize productivity and fully engage the workforce.

Given the time and effort it takes to achieve true culture change, success stories are relatively scarce. McWane, Inc., is one of those success stories. The company's dramatic shift from "bad actor" to "stellar performer" is both compelling and instructive for employers who are intent on adapting to and thriving in today's competitive marketplace.

The Turnaround

When Ruffner Page became president of McWane in 1999, he identified a need to improve the company's EHS programs. By the time McWane was making headlines, the company had already started to chart a new course for EHS, with a goal of implementing a much more comprehensive, transparent management system that emphasized training and accountability, management commitment and employee engagement as corporate values.

The company acknowledged that it had allowed isolated operational silos to inhibit information-sharing and opportunities to analyze and rapidly respond to incidents, accidents and other trends

throughout the organization. As Barbara J. Wisniewski, McWane's vice president of health and safety, explains: "Corporate didn't know what they did not know."

McWane is now recognized as a leader in EHS with best-in-class programs that exceed compliance

expectations. McWane operates five Occupational Safety and Health Administration (OSHA) Voluntary Protect Program star sites and one merit site. In addition, it has received numerous awards and recognitions.

The company adheres to three guiding principles:

Compliance: Manage business activities to meet/exceed all government laws and regulations as well as internally established EHS requirements. Goal: 100 percent compliance, 100 percent of the time

Protection: Conduct activities in a responsible manner to protect employees, the public, and the environment; minimize impacts from operation

Continuous Improvement: Strive to continually enhance EHS performance.

McWane attributes its ability to incrementally rebuild trust and establish a culture of health and safety to many inter-related elements. They include:

- Ongoing education and training.
- Comprehensive EHS management system.
- Internal and external expertise.
- Physical improvements.
- Employee engagement-based culture.
- Health and safety collaboration with human resources.
- Enhanced communication and relationship-building.

Between 2002 and the end of 2012, McWane experienced the following:

- 76.5 percent reduction in its total recordable incident rate
- 74.8 percent decline in its DART rate (cases involving days away from work, restricted duty or job transfers)
- 71.2 percent decline in cases with days away from work

Summary

In many cases, a small percentage of underperformers, or worse, a single catastrophic incident, can eclipse significant continuous improvement and damage a company's reputation. To remain competitive and profitable, companies have no choice but to focus on the integration of workplace health protection and promotion efforts. McWane provides an example of how a comprehensive approach can turn things around.

Section III:

Employee Health, Safety and Learning from a Top Management Perspective

Executive Panel Discussion Summary

During the Leadership Roundtable, a panel of senior executives discussed challenges and advantages associated with integrating workplace health and safety initiatives. Todd Hohn of UL served as panel moderator. The panelists included:

- Isa Al Ansari, Chief Operations Officer, ALBA, Bahrain

- Sandy Bledsoe, Assistant Vice Chancellor, Risk Management, Vanderbilt University

- Jeff Otterstedt, Senior Vice President, Pipe Division, McWane, Inc.

- Steven Reisner, Vice President, Risk Management & Safety, Time Warner Cable

- Nick Stavropoulos, Executive Vice President, Gas Operations, Pacific Gas & Electric

The Moderator asked the panel 7 key questions reiterated here. The full context of the executive panel responses can be found in Appendix B:

Moderator: *Many organizations experience challenges with transparency and trying to establish the governance they need to achieve their health and safety goals. How do health and safety fit within your organization and how is it structured?*

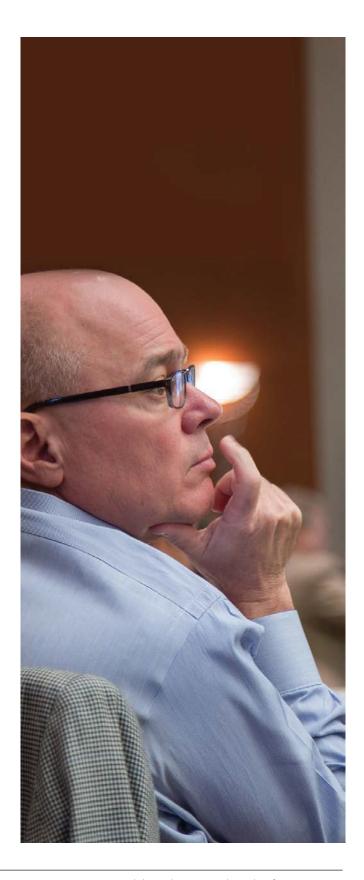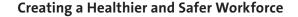**Moderator:** *Can you give us some examples of successes or best practices in the health and safety arena?*

Moderator: *What are some key challenges with respect to promoting workplace health and safety that continue to defy easy solutions?*

Moderator: *The International Organization for Standardization (ISO) is working on the development of a global occupational health and safety standard. As one of the delegates for the U.S., I am curious on how you view working with contractors and managing the supply chain for products made outside of your facility and related issues? How do you manage and instill in your organization a culture of health and safety, not only for your own employees but for outside contractors?*

Moderator: W*hat are your organizations doing with respect to prevention and health management to drive change?*

Moderator: *Many employers have expressed concerns about fatigue as a factor in liability claims. How do you address that?*

What Executives Said – Key Take-aways:

During the executive panel discussion, the issue of where to place health and safety professionals in an organizational structure was discussed. Findings indicate health and safety seem to have climbed overall into the higher realms of the hierarchy, however the silos separating health and safety were unfortunately more prevalent. Managers in those roles communicated regularly with their counterpart and tried to solidify that working relationship even with separation. Also, while many had corporate-wide safety reporting directly to the CEO, the responsibility still lied with the general managers in the plants and employees to report and correct unsafe conditions in a timely manner.

While corporate health management and promotion is fairly new, many executives on the panel had already started the process to help ensure their workers' health and well-being in and out of the office. Though they had no doubt that a healthy workforce could translate into fewer incident rates, this is largely dependent thus far on insurance and workers compensation programs already in place. There will need to be a stronger push from the top down for more research into total population health management to transform compliance based processes into a holistic health management program.

In addition to integrating health and safety functions, organizations must move from a corrective to a preventive approach to achieve safer, healthier workplaces and those that support continuous learning. An essential part of this process is achieved through improving employee engagement. It's important to include those on the front lines who experience working conditions first hand. They are at the "sharp end of the stick" and are instrumental to identifying things that are not going right, but also helping to institute changes to fix the issues. Getting their buy in early will cause the adoption rate of any changes to be higher.

ALBA Story

Isa Al Ansari, Chief Operations Officer, Alba (Aluminum Bahrain)

The Alba plant in Bahrain is an impressive site. Commissioned in 1971, it has expanded exponentially every decade. With the prospected addition of a sixth line, it will become the biggest single-location smelter in the world, employing nearly 3,000 people and generating spin-off businesses that employ another 2,000. The Bahrain Mumtalakat Holding Company, a government entity, has a 69 percent share in the business; the Saudi Basic Industries Corporation (SABIC), owns 20 percent and the remainder is publicly traded.

After the company experienced five work-related fatalities between 2010 and 2012, the company's new CEO, Tim Murray, a Vanderbilt University graduate, implemented a next-generation of safety programs based on seven tenets and three simple principles:

Tenets

1. Alba takes ownership of safety
2. Change starts with belief
3. 100 percent shop floor involvement and 100 percent buy-in from Alba union members
4. Training
5. Environmental focus
6. Health focus
7. Keeping the momentum alive

Principles

1. Ownership of safety starts with you.
2. Working safely is a condition of employment.
3. All work-related injuries and illnesses are preventable.

According to ALBA Chief Operations Officer Isa Al Ansari, who traveled from Bahrain to Nashville to relate Alba's story:

"We made safety priority number one, even above production. This message was delivered to all shop floors. We even translated our message for contractors in six languages."

Prior to the change, Alba had 20 SHE coordinators reporting to the safety department. Over time, they had become isolated from the plant and were not operating as part of the team. Under new leadership, the SHE safety coordinators were redeployed as SHE standardization consultants, trainers and investigators. This transition helped close communication gaps between management and the shop floor. "We used to send safety memos and notices but they only reached supervisors, not shop floor workers," Al Ansari said.

Today, safety messages are everywhere — from jumbo video screens at the main gates, to signs at worker gathering places, to computer monitor screen savers and newsletters, to the sides of buses that take employees to and from work.

Alba standardized, measures and reports key performance indicators (KPIs) to senior management on a monthly basis. KPIs include incidents, accidents, safety training, inspections, behavorial observations, near miss reporting and corrective actions. Dramatic changes experienced at Alba in response to senior management's increased emphasis on safety are demonstrated through a significant increase in reported near misses, behavioural observations and plant visits by safety personnel.

Onsite health care services are also part of the picture. Alba houses one of the most advanced onsite medical facilities in Bahrain. The clinic provides comprehensive medical services to employees and emergency services to residents in the area, and it sponsors community health outreach and education, blood donation and first aid training programs.

Section IV:

Operational Experience Learning for the Integration of Health and Safety

Prevention happens through learning. It has always been that way, whether it occurs in health and safety, production or quality control. Fortunately, most organizations are experiencing fewer accidents. Unfortunately, this means there opportunities to learn from them are diminishing, leading to stagnation around workplace health and safety initiatives.

Going into the Roundtable, the hosts knew that great companies:

• take the time to learn from identified errors in systems and/or processes; and

• fix the issues creating the problems in the first place.

This proactive approach is what separates great companies from good ones. Great companies have learned over time that fixing system and process issues have broader positive implications for the organization: morale improves, production increases, and employees feel that management truly cares about their safety. Fixing these issues may also avoid bigger potential problems that have not yet been uncovered. Great companies have also learned that the more information they have, the better the organization will be at driving continuous improvement. That's why they embrace early reporting (noticing) and discourage a "whack-the-mole" mentality. Ultimately, this helps prevent the fear of reprisal for reporting. In fact, great companies go out of their way to encourage reporting and recognize employees who are good at it through incentives and other means to drive success.

If organizations wait for accidents to occur before they learn from them, then they are simply treading water until they drown. With this mindset we set out to structure the breakout sessions to create a new way of thinking on how organizations learn, ensuring they don't have to wait for accidents or catastrophic events to define how they respond.

This new learning model played out in each of the five breakout sessions, starting with the organization structure, followed by noticing, analyzing, disseminating and metrics. During the Roundtable break-out sessions, each multi-disciplinary group was asked to respond to a series of questions. The answers to these questions helped inform the discussion and provide a framework for recommendations. The breakout sessions are covered in Sections V-IX. The adoption of the new way of thinking – looking forward rather than watching over one's shoulder –is critical for any organization to compete in the new millennium and continue the journey from a good culture of safety to a great culture of safety.

Note: It was assumed by everyone coming into the Roundtable that a certain level of basic health or safety to include management systems thinking already was present. Therefore, the recommendations put forth are designed to elevate, enhance or elaborate on existing systems and processes. Further, the recommendations represented are extrapolated from material presented at the Roundtable in an effort to provide clarity and eliminate redundancy that may have resulted from individual group reports.

Section V:

Organizing for Health and Safety

During this Roundtable session, participants heard from three speakers and broke into groups to address these questions:

Q: Can we avoid a simplistic solution?

    d. Respect for complexity

    e. Shared vision

    f. Measure what matters

Q: Will senior leaders have enough patience to develop solutions?

Q: To create a lasting impact, health and safety needs to be held up as an organizational value. Is it just enough to communicate that or should more be done? If so, what does that look like? What are some challenges in maintaining that as a value so it doesn't become stale?

Q: With all the dynamics organizations deal with from internal pressures (production/quality/financial performance, etc.) and those from external issues (economy/competitors, etc.) how do you effectively manage those issues with tradeoffs of health and safety?

Q: What are the practices and processes that can enhance both health and safety?

Presentations

Dee W. Edington, Ph.D., Edington Associates, Professor Emeritus in the School of Kinesiology at the University of Michigan and Founder and Director Emeritus of the Health Management Research Center

Dr. Edington, a widely respected subject matter expert, has been doing research on workplace health and safety risks and interventions for more than 35 years. He has arrived at five basic conclusions:

1. Risk status is related to cost.

2. Excess costs are related to excess risks.

3. Risks travel in combinations — there are 36 different risk combinations that result in high costs.

4. Change in costs follow change in risks.

5. Controlling risks leads to zero trends if people and organizations control and maintain their risks.

Dr. Edington believes it is incumbent on senior executives to frame a vision for the enterprise and determine who is in charge of safety, quality and health in their organization. To accomplish this, he said system and design thinking is needed in order to capitalize on organizational strengths:

"We envision a world where organizations cultivate energized workplaces, shared pride, shared values and success. Who is in charge of safety, quality and health? Everyone. We have to work together. That is achieved through coaching…I don't call it training anymore."

Dr. Edington's advice for all stakeholders includes the following:

1. Support a healthy, safe, high-performing, engaged and thriving workplace and workforce.

2. Retain and attract talented employees.

3. Promote healthy and safe families and communities.

4. Consider health and safety as a serious economic strategy.

Todd Hohn, Global Director of Workplace Health & Safety, UL

In addition to integrating health and safety functions, organizations must move from a corrective to a preventive approach to achieve safer, healthier workplaces. This requires the use of tools such as information management systems and scorecards.

Scorecards that combine lagging indicators with leading indicators — such as percentage of compliant or safe conditions and percentage of employees trained — help organizations shift to a preventive approach. Scorecards become even more powerful when used in combination with automated systems that support data collection, analysis and learning as well as health and safety management. With this one-two punch, organizations can gain the structure and benchmarks they need to guide their workforces to a healthier and safer future.

Employee engagement is an essential part of this process because workers are on the front lines

and experience workplace conditions first hand. In addition to employee involvement, Mr. Hohn offered these guiding principles for organizations:

1. Be vigilant about deficiencies and deviations that pose injury risks.

2. Enable employees to be involved in the evaluation of health and safety processes without fear of reprisal.

3. Respond to all observations. A near-miss should be investigated with the same degree of urgency as an accident or injury. An inconsistent or knee-jer response by management discourages incident reporting.

4. Follow each step in the corrective action process; allow people to respond and review to ensure the risk is abated.

5. Constantly learn. Every incident, no matter how seemingly minor, presents an opportunity to learn from leading indicators and failures.

6. Consistently elaborate. What you learn in one part of the business is likely to have applications throughout the enterprise. Share system and process failures and successes across the organization.

Tim Vogus, Associate Professor, Owen Graduate School of Management, Vanderbilt University

Dr. Vogus' research focuses on the mechanisms through which organizations create and sustain a culture of safety and achieve highly reliable performance through mindful organizing. He views a culture of safety to be a dynamic system that is a function of actions leaders take to create a context in which safety is prioritized and employees feel psychologically safe. In turn, frontline employees enact behaviors that surface and address threats to safety, and a safety culture refines its practices and processes through disciplined reflection on the safety outcomes achieved (i.e., trying to replicate the good, redress the bad). The interrelated processes of enabling, enacting and elaborating tend to characterize healthy safety cultures across industries. Mindful organizing is a key set of behaviors through which frontline employees detect and correct errors and unexpected events.

According to Dr. Vogus, in a study of 95 nursing units at 12 hospitals:

- A one-unit increase in mindful organizing (rated on a 1-to-7 scale) was associated with 35 percent fewer medication errors.

- A one-unit increase in mindful organizing was associated with 69 percent fewer patient falls.

In a separate study of 125 nursing units at 13 hospitals, he found mindful organizing was positively associated with managerial ratings of quality and safety. In a study of 50 hospital nursing units in three urban hospitals, he found a standard deviation (approximately .4 on a 1 to 7 scale) increase in mindful organizing was associated with a 13.6 percent decrease in voluntary turnover, the equivalent of $169,000 to $1,014,560 in savings per year in the average hospital in the sample.

Recommendations

1. The quality of a safety program largely depends on the people who are responsible for it: "Don't just throw a warm body at it." Recruit and support qualified safety professionals who act as agents of change throughout the organization.

2. Establish a process to identify and resolve competing priorities throughout the enterprise.

3. Reflecting on the Alba Story (refer to Section III), take action to change attitudes about safety and increase employee buy-in.

4. Organizational alignment is essential when attempting to incentivize and enhance cross-functional collaboration. Recognize that every level of an organization has key metrics

Influenced by individual roles and responsibilities.

5. Establish a health and safety review board to evaluate specific incidents and endemic issues;allow the group to develop a response plan.

6. Employers must invest resources – time, money, staff – to engage employees in safety learning that will lead to an individual commitment to a culture of health and safety.

7. Value transparency. The more we know about what is going on, the better we can engage people and find deviations. Traditions tend to obscure what is occurring in the moment (ostrich behavior).

8. Be prepared. Even though crises are rare, they can be tremendously damaging for an organization. Preparation that incorporates health and safety can be a "life-saver" for a company.

9. Stay sharp. Establish multi-disciplinary, collaborative teams to assess capabilities and identify needs on an ongoing basis.

10. Have a seat at the table. Create a position with the title of Health and Safety Officer and place it as close to the top of the organization as possible to ensure a culture of health and safety permeates the organization.

11. Consider resource constraints. A large business has more resources at its disposal for workplace health and safety initiatives than a smaller business in which a champion may have a more diverse range of responsibilities.

Section VI:

Enhancing Organizational Capabilities for Noticing and Anticipating

This segment of the Leadership Roundtable focused on "on how you see it, how do you know what you see and how do you anticipate what to do about it?" Participants addressed these questions:

Q: How can I as a professional efficiently and effectively involve virtually all employees in the health and safety process?

Q: Once I involve employees, how can I effectively and efficiently manage that process?

Q: More generally, is effective, continuous organizational learning a realistic goal for the safety and/or health professional? If "yes," then under what conditions is it realistically so?

Presentations

L. Casey Chosewood, M.D., M.P.H., Director, Office for Total Worker Health™, National Institute for Occupational Safety and Health

It's essential to recognize worker health as a key determinant of safe performance on the job. Acknowledging the importance of recurring Leadership Roundtable themes –integrating services, eliminating operational silos, collaborating on solutions and creating environments in which workers can succeed – Dr. Chosewood cautions against assuming that all organizations are monolithic. Consequently, he suggests basing workplace interventions on the magnitude of individual risk and factors such as age, gender and wages:

> "The lowest-paid workers often have the most unsafe jobs, less access to health resources, the most dangerous work hours (shift work) and tend to be employed at multiple workplaces. That's where your risks are. No single program will meet the needs of all workers. We also need to focus on our internal biases when thinking about safety. Does the input we are receiving reflect diversity in age, race and gender in the majority of workplaces? If not, we may wrongly presume we understand the motivations and health challenges of our workers. As we build our safety teams and programs, we

must let employees have a strong voice in the process. Employers who keep workers at the center of their solutions have better outcomes and are able to sustain their organizations. Well-qualified, healthy workers are in limited supply."

Cary Usrey, Process Improvement Leader, Predictive Solutions

Certain "safety truths" seem to prevail in the workplace:

- More inspectors = safer organizations

- Diverse perspectives make organizations safer

- Observational data provided by diverse sources should be acted upon

Meaning:

> "The more diversity you get the better, but there is inherent risk in that. How do you get meaningful involvement from frontline workers who are not safety professionals?"

To obtain employee buy-in, employers must first be aware of some of the barriers to noticing and anticipating. For example:

- If the answer to the question, "Why are we doing what we are doing?" is "Because my boss said so," then there is likely a need for improved communication.

- If training is general in nature rather than targeted to specific jobs and situations, employees are less likely to identify with it or adhere to safe work practices.

- Employees lose interest when their employer doesn't act on information they provide to help make the workplace safer.

- Accountability is key. If no one seems to care about safety, no one will volunteer to give feedback, which circles back to the original question: "Why are we doing what we are doing?

Observations can be made by anyone in any workplace. After that, it's a question of managing the response. The collection of meaningful data in relation to the goal of improving safety performance is an evolving process that requires ongoing management.

Emery Roe, Ph.D., Research Associate, Center for Catastrophic Risk Management, UC Berkeley

Dr. Roe posed the question: Is effective organizational learning a realistic goal for safety professionals? To answer this question, one must first recognize that the reasons why people don't seem to learn from the past are the same reasons they are unable to anticipate the future: organizational uncertainty, poor institutional memory, conflicting societal goals and political objectives, and so on.

If the question is answered in the affirmative, then the practices and processes that make institutional learning possible must be identified to create a pathway for continued success. This may mean:

- finding proven means to reduce uncertainty and conflict;

- increasing resources to better handle what can't be reduced;

- creating and supporting persistent leadership;

- generating a prompt response to incidents;

- involving virtually all employees in the safety process.

When learning about what risk means, Dr. Roe said students often focus on the likelihood of something going wrong and the possible consequences. He proposes turning the equation around and instead asking:

> "What is working here? What would be even better than what we are doing now and how do we get there? What are the unintended consequences of doing what is right? Safety

and health needs to be factored into that way of thinking."

Recommendations:

1. Enact a culture of health and safety. Noticing and reporting conditions prior to an injury allows the organization to manage problems at infancy. It can draw attention to process improvement opportunities and enhance ongoing vigilance and preparedness.

2. Reinforce/recognize employees for following safe work practices and identifying unsafe actions.

3. Hold people accountable for succeeding/not succeeding. Don't use safety performance as a sole or convenient disciplinary tool.

4. Remember that a good judge of an organizations culture for noticing is how it responds to conditions that have been reported even though an incident hasn't occurred.

5. Instill a sense of ownership Give employees stop-work authority to prevent impending failures. Recognize employees' ability to call out potentially unsafe conditions.

6. Noticing and reporting of conditions is important as it enables continuous and systematic learning.

7. Encourage diversity. The broader the scope of workforce reporting, the greater the insights and ability to respond to system and process failures that contributed to the condition.

8. Recognize that work is never done as planned. Many deviations occur throughout the course of the day that could cause an injury but don't. Workers should be encouraged to report deviations.

9. Reduce the burden. To notice and report has to be easy for everyone.

10. Be transparent. To encourage and promote reporting, timely follow-up is required.

Section VII:

Enhancing Organizational Capabilities for Analyzing and Extracting Lessons

During this segment, participants were invited to consider a series of thought-provoking questions:

Q: How do you assess the quality of analyses?

Q: How do you assess current capabilities and future needs?

Q: What are successful capability development pathways? Does context matter?

Q: How should senior leaders get involved and show support?

Q: How do you trade off involving more people in analysis vs. a small team of experts?

Q: Does the traditional approach to creating a safe workplace really result in safe work?

Q: Does the absence of an incident mean the work is safe?

Q: How do we deconstruct a job that went well to identify opportunities for improvement before an accident arises out of normal work?

Q: How would you use data or other resources to evaluate a possible occupational disease? How does an organization manage this type of issue?

Presenters

John S. Carroll, Gordon Kaufman Professor of Management, MIT Sloan School of Management, Cambridge, Massachusetts

To enhance organizational capabilities, one must first define and assess existing capabilities. This may involve:

People and time:

- Expertise (internal/external) and diversity
- Unencumbered time (analysis team & sources)

Access to data:

- Historic data for understanding operations
- Benchmarking with other organizations

Facilitation and teamwork skills

Analytic models and systems thinking

Fit to implementation needs:

- Political savvy and networks to mobilize
- Writing and speaking/advocacy skills

To enhance these capabilities, organizations must consider the following:

How to obtain senior leader attention and support

Strategic thinking:

- Prioritized gaps between needs and capabilities
- What is needed now vs. building capabilities
- Make or buy (internal vs. external expertise)?

Stakeholder engagement:

- Employees
- Peer organizations, suppliers, customers
- Regulators, publics, critics

"A lot of the questions we are asking are 'how' questions. I am trying to make this actionable and concre te," Dr. Carroll said.

Trish Ennis, Vice President, Risk Control Manager, Willis, West Region, Denver, Colorado, and President, American Society of Safety Engineers

From Ennis' perspective as a risk and safety consultant to casualty and construction clients, organizational learning involves several components: data sources, leading and lagging indicators, workforce engagement, deconstructing work as done and opportunities for learning. Ennis told the assembly of thought leaders:

"We are good at leading in health, but not so much in safety. We measure the absence of accidents instead of something more proactive. If you want to know what is going on, talk to your workforce. They may not know about safety, but they do know about the fixes they do in the field to get the work done and all things that were never measured because an event did not occur, even though there was the potential for the next accident."

Richard Lewis, M.D., M.P.H., Medical Director, Battelle Memorial Institute, Columbus, Ohio, and Consulting Occupational Medicine Physician

While attention is being paid to reducing work-related injuries, occupational illness remains a unique concern. What do employers know about proper diagnosis, the cause of occupational illness, the timing (e.g., immediate or latent) or about the relevance to other workers who may be exposed to the same hazardous conditions as the ill employee? He noted:

"If you don't manage an occupational illness well, you may find people being put off work by emergency physicians and a lot of claims being filed."

Recommendations:

1. Establish a health and safety review board to evaluate specific incidents and endemic issues and allow the group to develop a response plan.

2. Do not make it personal. Focus on the process, not the people.

3. Collect data from various sources throughout the enterprise: It's difficult to identify and collectively manage risk without it.

4. Involve the sharp end of the stick: Engage employees in solutions (learning teams) to address issues identified during at-risk, near-miss and incident reporting.

5. The quality of safety reporting is at least as important as the frequency of reporting. For example, in a hospital that reported more than 20,000 medication errors, the likelihood that a particular error would be reported was best predicted if it was previously reported. This suggests that people have a tendency to get comfortable pointing out the obvious while overlooking other safety concerns.

6. Ask: How safe is it? Deconstruct related task(s) and involve workers, supervisors, safety and occupational health professionals.

7. Consider what you look at after an incident occurs. Do you analyze things that went right and why? Usually this doesn't happen.

8. Bad Apple Theory: Don't' spend too much time assessing decision quality when you should be analyzing the decision-making process.

9. The absence of an incident does not mean work is safe.

10. In your organization, analyze data and events. Think about the system that drove that event or behavior. If six people are familiar with a system, there likely will be six different answers. Understand and agree on the nature of systems.

11. Break the mold: Traditional safety tends to focus on the employee or their direct supervisor when something goes wrong. Instead, look up and outside the organization to understand how decisions made in the past or present contributed to an environment in which workers or management felt safe.

Section VIII:

Organizational Change for Enhanced Health and Safety

The following questions were posed to Leadership Roundtable participants during this segment:

Q: Where in the organizational structure should safety reside in order to be successful in driving the level of leadership engagement, employee involvement and change we have been discussing at this roundtable? What are the reasons for your response?

Q: How do you make the personal health of an employee population relevant as a business interest to your leadership as well as to the employees?

Q: How do you generate programs that will result in positive behavioral changes toward the improved wellness of employees? What is the best way to implement these programs?

Q: Short of a crisis, what is the trigger for change?

Q: What are some legitimate reasons for why top management may be unable stay actively involved in safety/health management?

Presenters
Jack Hawkins, Director, Environmental, Health and Safety (EH&S), Time Warner Cable

One of the dilemmas EH&S professionals face is defining their role: Is their job about compliance or loss prevention? When safety is overly focused on compliance, loss prevention and associated cost-savings opportunities are diminished.

In addition to the push-pull between compliance and loss prevention, EH&S professionals also must weigh the value of policies versus processes in the context of:

• Information reporting

• Internal controls

• External reporting

• Dealing with outside agencies

• Engaging leadership to act

Hawkins explains:

"We are trying to improve our overall company culture, not just our safety culture. It has to align with the mission and vision of the company. Leadership needs tools to show they are purposely engaged. All managers and supervisors have roles and accountabilities."

Craig Heligman, M.D., Associate Chief Medical Officer, CSX Transportation, CSX Corporation, Jacksonville, Florida

The railroad industry has not always had a reputation for safety, but its record has improved over time. Generally speaking, safety has emanated from operational departments. At CSX, the medical department formerly resided in risk management; it was transitioned to public safety, health and environment.

Dr. Heligman shared this scenario to explain how complicated internal reporting structures can be:

"We used to have health and wellness in our area. We were moving all the medical people to where there were other science-based people, but then health and wellness was moved into social responsibility because it wasn't considered 'scientific.' I am a prevention specialist and know there is science behind it, so my objective is to restore the connection, leverage relationships and put a total worker health plan in place. It makes sense if you can get your hand around the whole balloon. It means I need to get an executive vice president who has a close relationship with corporate social responsibility and the benefits managers in HR involved."

One of the first steps is the development of a total worker health steering committee and cross-functional team to cultivate management engagement.

Ranga Ramanujam, Professor of Management,

Owen Graduate School of Management, Vanderbilt University

To answer the questions posed during this session, one has to determine the kind of change that is desired – incremental or transformational – for individual organizations, which are complex organisms.

Dr. Ramanujam noted:

"If we are talking about tweaking work perhaps that can be done locally. But if we are talking about changing culture, that is a much bigger and active role for top management."

Recommendations:
1. If a safety solution or process is delayed because of time and budgetary constraints, be open about the constraints and establish a realistic implementation timeframe.

2. Establish a process to identify and resolve competing priorities throughout the enterprise.

3. To reach those who are hardest to reach, be aware of "herd immunity." Messages must be repeated.

4. Organize and leverage learning teams to tailor solutions to needs and level of pain.

5. If safety is buried in your policy guide, elevate its position and incorporate it in your mission statement. Safety should be kept top of mind through messaging. It is not a flavor of the month.

6. Advocate for cost transparency and ensuring there is communication across operational segments or silos.

7. As information circulates within an organization, close communication gaps and complete the loop. Everyone should find out how a suggestion or observation is acted upon.

8. If you find a causal relationship, communicate it and manage perceptions. Credibility and trust

issues develop when reporting is not timely.

9. Produce timely, sincere, accurate information in response to health and safety concerns. Take control of communication. Keep people posted. Otherwise, miscommunication will prevail and opportunities to educate will be lost.

10. Value transparency. The more we know about what is going on, the better we can engage people and find deviations. Traditions tend to obscure what is occurring in the moment.

11. Assemble information so it can be viewed in a holistic manner and managed through some type of initiative structure.

12. Develop an internal marketing plan or tool kit to share the case for change.

13. Do not make assumptions about what will get the attention of senior executives. We may assume that what we are doing is aligned with what management wants, and hopefully that is true, but it may not necessarily be true. Until that conversation occurs, health and safety goals may not be 100 percent in alignment with the company's mission, purpose and operational functions.

14. The goal of disseminating information is to achieve behavior change. Seek validation that behavior change occurred. If it hasn't make the necessary changes to get the desired outcome.

15. To reinforce safe working practices memorialize events that occurred to share with future generations of the workforce.

Section IX:
Measuring the Right Things

In this final presentation/discussion segment of the Leadership Roundtable, participants were challenged to answer questions related to demonstrating the value of workplace health and safety interventions:

Q: How do you become more reliable if you don't know what the system is you are trying to improve?

Q: Where does the key data reside (internally and externally) and how do I get it?

Q: What are the challenges of integrating data at the person level?

Q: Who are the natural allies in the organization around health and safety?

Q: How do you identify the key "business metrics" at the key levels of your organization (e.g. C suite, operations) to get their attention?

Q: What does measurement tell you about an organization's values and beliefs (their "theory in use")?

Q: If you change measurement, will this help change how people in the organization think?

Presenters
Richard Hartley, Ph.D., Principal Engineer, Environment, Safety, Health and Quality Division, B&W Pantex, Amarillo, Texas

Dr. Hartley endorses methods to make systems visible because "you can't measure what you cannot see, and you can't manage what you cannot measure."

Systems thinking is valuable because it:

- helps individuals and work groups design smart, enduring solutions to problems;

- provides a more accurate picture of reality (Work-As-Done versus Work-As-Planned);

- encourages thinking about a problem and solutions with an eye toward the long view;

- promotes reliability by defining the system targeted for improvement.

Dr. Hartley said:

"Don't get too concerned about what you are going to measure. First you need to understand systems basics: purpose, elements and relationships. You'd be surprised how many people don't understand their purpose. Take a simple concept, define the output of the system. Transform inputs to outputs and study how relationships influence each other. Relationships are invisible but powerful. Your goal is to make systems visible to make magic happen."

Thomas Parry, Ph.D., President and Co-Founder, Integrated Benefits Institute, San Francisco, California

Dr. Parry discussed strategies for "getting past silos" and the application of health and safety performance metrics. He said:

"Healthcare reform is changing everything. All bets are off with regard to what employers are going to do. The C Suite cares about value, and senior executive are asking: 'Is there value in continuing to offer employees health care benefits or should we just give employees a contribution to help them manage their own benefits?' We know from experience that we can't manage costs or population health by managing claims. Cost and risk-shifting is not a long-term term strategy. In addition, employers typically use many vendors and have to deal with voluminous reports...they get so many reports at their stewardship meetings they don't know what to do with it all."

When communicating with senior leaders about the value of health and safety interventions, he recommends keeping it to one page:

- What is the total health experience of the population?

- What does health really mean to the business?

- Where do the organizational results come from?

Dr. Parry recommends narrowing results down to a per-employee calculation:

"If you can't tell a story, you are going to lose the opportunity to have an influence. You have to be able to describe where your population is in terms of health: risks, biometrics, chronic condition prevalence, treatment indicators, preventive care, and so forth. We have to think about metrics as hierarchies of information."

W. Earl Carnes, Senior Adviser for High Reliability, U.S. Department of Energy, and Liaison, Institute of Nuclear Power Operations (retired)

Carnes worked for more than 40 years evaluating and improving operations in complex organizations that perform critical societal missions. He worked frequently with senior management on leadership, culture, governance and organizational systems needed to promote performance excellence.

He sums up the challenge of performance measurement in two sentences, borrowing from William B. Cameron, a sociologist:

"Not everything that can be counted counts. Not everything that counts can be counted."

Because work is socially constructed, outcomes must be measured in both technical and social terms; what is emphasized and measured will evolve as the organization learns, improves and matures.

Recommendations:

1. Include health and safety metrics in annual corporate reports (including leading and lagging indicators).

2. Avoid presenting disparate metrics that do not resonate with the business as a whole. Senior executives generally want to see metrics tied to overall company performance, such as an increase in earnings per share individual program success.

3. Rather than focus on risk, talk about safety benefits.

4. Implement a balanced scorecard that incorporates measurable health and safety activity.

5. Measurement methods must be both quantitative and qualitative, especially if the goal is to change behavior and engage employees in the conversation from the start.

6. Look at community and population health data and integrate health and safety measures using leading rather than lagging indicators.

7. When establishing performance parameters, consider a company's profit, growth, people and social responsibility goals.

8. The next step is to define various components: productivity, quality, EH&S, wellness, etc. Too often these components are viewed as a cost rather than as an opportunity to improve profit.

9. If safety is out doing its own thing while operations drives the business, it will continue to be seen as a fringe activity.

Section X:

Summary of Findings and Recommendations

During the Leadership Roundtable, participants discussed the rationale behind integrated occupational health and safety programs from the perspective of top management and environment, health and safety professionals. They asked: How can this knowledge be leveraged to implement equally effective workplace health promotion programs?

The following are 10 essential take-aways:

1. These concepts are inextricably intertwined: Healthy worker = safe worker = business success.

2. The majority of occupational health and safety

initiatives are driven by regulation, while health promotion is not mandated, only encouraged, for example, through prevention provisions and insurance incentives in the Patient Protection and Affordable Care Act. Essentially, employers cannot force employees to care about their own health and well-being; they can only make it make it uncomfortable for them to cling to bad habits or reward them for positive behavior change.

3. Management wants to see empirical studies and data that demonstrate the value of health promotion interventions. They know intuitively that it's better to employ healthy workers than unhealthy workers, but they need more information to justify an investment in workforce health. While a growing body of literature corroborates the value of prevention, many executives still need convincing. In addition, major corporations have the ability to invest in health promotion, but the majority of mid-size to smaller companies find it challenging to allocate sufficient resources.

4. In an organization, workplace health and safety program integration is likely to work best if there is a good understanding of population health risks and interventions are specifically designed to target those risks.

5. The alignment of health and safety through service line integration, collaboration and joint reporting has exponential — not just added — advantages.

6. Stakeholder agreement on common language and common metrics constitutes a powerful force. Misapplication of metrics raises barriers to progress. New terminology might be as simple as referring to safety and health as a single entity overseen by a trained professional. Ambiguity over systems definitions also need be resolved. With system-wide understanding of health and

safety, the focus can be redirected to leading indicators and a more holistic approach.

7. Express the value of safety and health by making the business case and educating the executive; influence from a curricular level.

8. Champions must be familiar with the "influence map" in organizations and apply relationship-building and other soft skills to change behaviors.

9. Organizationally, wellness should not be considered a benefits function. Health and safety is an investment, not a cost of doing business.

10. Change higher education curriculum. Incorporate workplace safety and health concepts in business courses, and incorporate business concepts in safety and occupational health instruction.

Section XI:

Next steps

The evolution (or as some would refer to it, "revolution") of occupational health & safety in the U.S. has a storied past marked by catastrophic events. Each one provides a different perspective into how future events can be prevented if we take the time to learn from the past.   The crucial point to recognize is that incidents continue to occur. While in the US, fatalities and accident rates have declined, the magnitude of these incidents has increased in severity and financial loss. Organizations can and should leverage what they and others learn from experience to minimize the death, destruction and tragedy associated with workplace accidents.

Top-performing companies create a culture in which everyone feels responsible for identifying, reporting and reducing potential risks. This management model greatly improves a company's ability to take corrective action before an incident or accident occurs. In large and diverse organizations, it helps address the challenge of maintaining consistency across multiple divisions, departments and locations. From the shop floor to the C-suite, more business leaders are realizing that the various departments involved in H&S are not merely cost centers whose fundamental value is compliance, nor does it make sense for them to remain in separate silos. When they are properly integrated and managed, all EHS functions help ensure a safer, healthier and more productive workforce while improving competitive position and driving overall business performance.

Based on the Leadership Roundtable findings, one can make a good argument that most organizations should be capable of applying the recommendations contained in each of the break-out sessions as well as the seven necessary conditions outlined in the executive summary to support positive, lasting behavior change. However, it will take a Herculean effort of a unified, yet diverse team to chart a whole new course for workplace health and safety in the U.S. and abroad.

To help accelerate the process, the Leadership Roundtable generated these five reminders prior to adjournment.

1. **Be a Leader:** Take ownership, step up and be a catalyst for improvement. Leaders don't emerge by sitting back and waiting for regulations to drive improvements. The world's greatest companies have strong leaders who associate mediocrity with merely being satisfied with compliance. Strong leaders recognize there is a lot more at stake.

2. **Cross-pollinate Learning:** Education and awareness are essential ingredients requiring a curricular emphasis on the critical influence future business leaders (MBA students) will have in the development of progressive workplace health and safety cultures. It also will be important to build educational programs for H&S professionals and mid-level managers to help

them on their journey toward the full realization of cultures of health, safety and continuous learning.

3. **Speak "C Suite-ish":** To build on the leadership component, health and safety leaders need to strive for new standards of excellence in terms of how they converse with management. Health and safety experts must learn to speak the language of the "C Suite" and develop a set of integrated health and safety metrics that provide the transparency leaders need to see to validate their support cultures of learning, health and safety. They simply can't afford to wait for leadership to interpret what they are saying. If they hesitate, they risk becoming irrelevant.

4. **Imitate the Best:** Engage and study organizations, like those participating in the Roundtable, that have already achieved progress in the development of cultures of health, safety and learning. To that end, several applied research projects will be conducted in 2015 to implement the practices presented at the Roundtable and study organizations that are performing all, or parts of them, with successful results. In addition, efforts will be made to include small- and medium-sized enterprises in the process to ensure real-world business representation and insightful perspectives. These case studies will be reported throughout the year.

5. **Continue Meeting:** All of the Roundtable participants expressed appreciation for the opportunity to be part of a first-of-its-kind Leadership Roundtable to assemble such a diverse and eclectic group of experts. This group will be invited to meet annually to review results of the applied research and continue to evolve the model established here to further advance cultures of learning, health and safety.

Admittedly, it's an ambitious agenda. However, it's important work as we find ourselves at another crossroad: health and safety status quo or health and safety excellence? These are not "issues." They are lives. It's incumbent on health, safety, research, and business leaders to work together and be change-agents. Best-in-class organizations know that hesitancy does not win the day. Commitment and execution is key.

Appendix A:

Participants, UL Roundtable - Through the Eyes of the CEO, Creating Healthier and Safer Workforces

Isa Al Ansari
Chief Operations Officer
ALBA

Michele Alphonse
Program Manager
IBM

Mahmood Aziz
Supt. Behavioral and Organization, Training & Recruitment
ALBA

Joyce Benton
Risk Control Director
CNA Healthcare

Sandy Bledsoe
Assistant Vice Chancellor, Risk and Insurance Management
Vanderbilt University

Jay Brown
Director, Workers' Compensation
Corrections Corporations of America

Earl Carnes
Sr. Advisor, High Reliability (Retired)
Department of Energy

John Carroll
Professor
MIT

L. Casey Chosewood
Sr. Medical Officer for Total Worker Health
NIOSH Total Worker Health

Frank Cruice
Senior Director - Safety & Security
Perdue Farms, Inc

John Dony
Program Manager
National Safety Council — Campbell Institute

Dee Edington
Founder
Edington Associates

Trish Ennis
President Elect
American Society of Safety Engineers

Thomas Ferguson
Vice President - Practice Leader
AIG

Richard Hartley
Principal Engineer
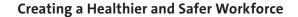B&W Pantex

Jack Hawkins
Director, Environmental Health and Safety
Time Warner Cable, Inc.

Craig Heligman
Associate Chief Medical Officer
CSX Transportation, Inc.

Eric Lambert
Director, National Construction Safety & Quality
Zurich

Richard Lewis
Medical Director
Battelle Memorial Institute

Ron Loeppke
Vice Chairman
U.S. Preventive Medicine

Jennifer Meister
Director of Marketing
Workplace Health and Safety

Karen O'Hara
Director Marketing and Communications
WorkCare, Inc

Stephen Oswald
CEO
Capital Safety

Jeff Otterstedt
Senior Vice President
McWane, Inc

Tom Parry
President
Integrated Benefits Institute
Michelle Press
Global Marketing Communications Manager
UL LLC

Ranga Ramanujam
Professor
Vanderbilt University

Steve Reisner
Vice President of Risk Management
Time Warner, Inc

Karlene Roberts
Professor
UC Berkeley

Emery Roe
Professor
UC Berkeley

Nickolas Stavropoulos
EVP, Gas Operations
Pacific Gas & Electric

Waleed Tamimi
Manager, Operational Excellence
ALBA

Cary Usrey
Process Improvement Leader
Predictive Solutions

Tim Vogus
Professor
Vanderbilt University

Joe Wallace
Risk Control Director
CNA

Mark Ward
SVP Sales & Marketing
Workplace Health & Safety

Brett Williams
Director, Product Management
Workplace Health and Safety

Will Yarbrough
EHS Consultant
Amerex Corporation

APPENDIX B:

EMPLOYEE HEALTH, SAFETY AND LEARNING FROM A TOP MANAGEMENT PERSPECTIVE

Executive Panel Discussion Summary

During the Leadership Roundtable, a panel of senior executives discussed challenges and advantages associated with integrating workplace health and safety initiatives. Todd Hohn of UL served as panel moderator. The panelists are:

Isa Al Ansari, Chief Operations Officer, ALBA, Bahrain

Sandy Bledsoe, Assistant Vice Chancellor, Risk Management, Vanderbilt University

Jeff Otterstedt, Senior Vice President, Pipe Division, McWane, Inc.

Steven Reisner, Vice President, Risk Management & Safety, Time Warner Cable

Nick Stavropoulos, Executive Vice President, Gas Operations, Pacific Gas & Electric

Moderator: What motivated you to attend this Leadership Roundtable?

Stavropoulos: Following a catastrophic gas explosion in San Bruno, Calif., we have been completely retooling our safety culture and taking the best ideas from industry and academia. That's why we are here.

Bledsoe: We have had good success in patient safety, and we believe it's transferable to employee safety. I'm here to learn from my colleagues in the Owen Graduate School of Management at Vanderbilt University and from other participants.

Al Ansari: We had five fatalities between 2010 and 2012. Since then we have implemented a lot of programs and seen big improvements. We think sharing our experience with others could help save lives.

Reisner: I've been in the safety industry for 40 years, 20 of them at Time Warner Cable. There was no one

in safety when I started. We now have 25 full-time safety professionals throughout the organization.

Otterstedt: Like everyone else, I'm here to learn.

Moderator: *Many organizations experience challenges with transparency and trying to establish the governance they need to achieve their health and safety goals. How do health and safety fit within your organization and how is it structured?*

Stavropoulos: We have an overarching safety organization over all lines of our business – nuclear, hydro, electric, gas – and multiple disciplines. The head of each line of business owns safety. We get support from corporate safety in terms of structure and procedures, but we own the results within each line of business. Health is within human resources (HR) and working closely with safety, but we are still in a silo environment.

Otterstedt: We used to have safety buried deeply in the organization, often reporting to HR. Now it has its own department, reporting to the General Manager at the site. Safety personnel is as good as any department we have, with a lot of horse power and respect from other departments. There is corporate oversight to ensure attention is drawn to safety throughout the company when necessary.

Bledsoe: Workers' compensation, occupational health, environmental health and safety and quality report to different vice chancellors. Therefore, relationship-building is important because it's not a natural reporting structure. It can be a challenge if the relationship is not there.

Al Ansari: Safety used to report to administration and the general manager. Now we have a senior safety manager reporting to the CEO, and the

function includes safety, occupational health and environment. Only the medical department reports to the HR director. We have a centralized safety department, and we expect everyone in the company to be a safety coordinator.

Reisner: I report to the treasurer. Our CEO was the CFO, so he understands insurance, high self-insured retentions and safety in our organization. With the enhancement of our safety program and centralization, we are reinstating safety committees from the bottom up. Health is still handled in the benefits area under HR.

Moderator: *Can you give us some examples of successes or best practices in the health and safety arena?*

Reisner: We had very decentralized management. Now we have centralized operations, so I was able to move safety under risk, where we handle insurance and claim management functions. We think this is a good way to go. We are doing a lot of site-specific work. What we didn't have before was raw metrics. Now we have a really great way of knowing where we have come from and where we are headed.

Moderator: *Every organization has some level of management commitment to health and safety. But a management focus on employee engagement and involvement seems to vary across the board, even though workers are ultimately the experts and need to be involved in the solutions. There has to be trust between employees and management to be successful. What can employers do to demonstrate that they intend to resolve issues that are brought to their attention by workers on the front lines?*

Stavropoulos: Two things stand out. First is the engagement we have created with our field workforce. We have 22,000 people mostly represented by a union (IBEW). When I first came to PG&E I met with IBEW leaders and told them,

"We've got to turn this around; what are your ideas?" As a result, the level of employee engagement has gone up dramatically. We have asked them to be our partners all along the way. Getting their support from the very beginning has been a key to our success. Second, at our Diablo Canyon nuclear power plant in California, our corrective action program has been very successful with respect to safety and reliability of operations. We adopted nuclear industry-like software and procedures and opened it up to all of our employees. We saw immediate employee engagement to report into the corrective action program (incident reporting). If we don't know about it, we can't fix it.

Otterstedt: One of the biggest successes we have seen is in labor relations. I joined the company in 1998 in eastern Ohio, a heavily unionized area just seven years removed from a major strike. When employees trust you on safety, they open up on a lot of other things. We focused in 1998 on issues that proved to be unproductive. Now it's a much more constructive atmosphere on how we can work together and build on positive developments in safety. One of the things we have done to encourage healthy eating habits is provide fresh fruit daily to employees working in foundries and other hot environments.

Bledsoe: More than 10 years ago we realized that adverse outcomes such as patient infections, falls and lawsuits are not just the cost of doing business. We needed to be engaged from a leadership standpoint. Management commitment really is critical...its' not just a cliché. We developed a physician champion to help us with a message. Then it became a multi-disciplinary effort — not just policies, procedures and education but creating a culture of safety. We developed financial incentives for safety improvements. We have safety officers in the medical center, and some of their compensation is based on quality and patient safety metrics. All

of this has helped us improve patient outcomes, reduce the number of lawsuits and do many other positive things in the medical center. Hand washing compliance is a specific example. Employee compliance with hand-washing protocols is less than 60 percent in U.S. hospitals. At Vanderbilt Medical Center, we are now above the 90th percentile by giving people positive incentives to comply.

Al Ansari: We believe it's important to engage workers on the shop floor, but we found it was difficult for management to change employee behavior. We have the largest labor union in the country, and after every accident and fatality, we invite them to work with us. One of their members attends safety meetings and presentations. He's very engaged. This is a continuous journey.

Moderator: *What are some key challenges with respect to promoting workplace health and safety that continue to defy easy solutions?*

Stavropoulos: We have a very geographically dispersed, 24/7 workforce with many people working in the field. Communication is a big challenge. How do you engage those people? How do you get the message out?

Otterstedt: We have improved but continue to struggle with recognition of near misses and taking the opportunity to learn from them…giving them the priority they deserve. Near misses are basically a rehearsed accident. Also, there is a tremendous amount of recordkeeping associated with training. It's a high administrative burden. And communicating and keeping the message fresh is always a challenge.

Bledsoe: Communication is the toughest thing (with our workforce), which runs the gamut from physicians to groundskeepers. It's so diverse. How to do you get your arms around that? And then the silos continue to be a problem. How do you get synergy around everyone doing the same thing?

Al Ansari: I agree, communicating and keeping the message fresh is always a challenge. In our organization, a set number of observations must be submitted every week; not just fake ones. We have linked managers' bonuses to department performance, including visits to the shop floor. Near-miss reports are distributed to all managers and supervisors. We review them every day, select those that are high potential and agree on an action plan.

Reisner: When we transitioned to a centralized organization and combined safety and regional HR at the corporate level, we brought in an experienced safety director (Jack Hawkins, formerly of Coca-Cola Bottling Co., a Roundtable participant). We needed behavioral change. Jack started with the senior executives. Then he brought it down to the regional senior management level and their assistant vice presidents. Now the big challenge is reaching supervisors and frontline employees out in the field. We work in diverse environments and have a lot of exposure risk. We have to manage that and make sure our field and call center employees understand the importance of safety. Managing remote employees adds a layer of challenges.

Moderator: *The International Organization for Standardization (ISO) is working on the development of a global occupational health and safety standard. As one of the delegates for the U.S., I am curious on how you view working with contractors and managing the supply chain for products made outside of your facility and related issues? How do you manage and instill in your organization a culture of health and safety, not only for your own employees but for outside contractors?*

Al Ansari: The contractors who work directly with Alba employees go through all of our training and use the same personal protective equipment. To encourage contractors to improve standards and safety practices and discourage them from trying to

make money by hiring cheap labor, we have changed our tendering procedures for work contracts.

Otterstedt: Three years ago we started to work with ISN World (a global resource for connecting hiring clients with safe and reliable contractors). They provide a grading system on any potential contractor that we can compare to our standards — insurance coverage, health and safety performance, recordable injury rates, environmental record... We are given a grade of A-F; we only select A- or B-grade contractors, regardless of price. This has opened us up to a better array of subcontractors.

Stavropoulos: We use the same quality metrics for our subcontractors as we do internally. We are early in the maturity curve on how to deal with that effectively. We have benchmarked with Alaska Air. They do a phenomenal job tracking leading indicators around the safety performance of their contractors.

Reisner: I would like to do more with contractor safety training. Our legal department is cautious about that though because they don't want to insinuate that contractors, who are mostly installers, are our employees.

Moderator: W*hat are your organizations doing with respect to prevention and health management to drive change?*

Bledsoe: Our occupational health folks have done a wonderful job incentivizing the workforce to be healthier, and we are taking baby steps now with population health management, trying to integrate it more into workers' compensation management and to look at it from a more holistic perspective.

Stavropoulos: We are embarking on the journey of doing voluntary health screenings and tracking the improvement. We are starting to see beneficial impacts.

Otterstedt: Last year we created teams that received points for varying levels of physical activity. The team

aspect took off very well and people were excited about it. I work out regularly as part of a group. When an executive demonstrates that kind of accountability it's very powerful.

Reisner: Our benefits department is responsible for the health plan. They recently instituted personal care and wellness programs that we hope will translate into fewer injuries.

Moderator: *Talent management is a challenge for many employers. How do you identify and cultivate leaders with respect to environment, health, safety and risk management?*

Reisner: We have 15,000 to 16,000 field technicians who provide the foundation for our supervisorial personnel. No one is a born manager. It's really important for us to train these people on safety metrics, how to run safety meetings, how get a message moving up the line. Our CEO is also very engaged.

Bledsoe: We have found the Vanderbilt Leadership Academy is a great way to identify and assemble emerging leaders with diverse backgrounds all across the campus.

Otterstedt: We cultivate leaders in departments who express a desire to teach safety. Some people need some coaching to become supervisors. At the highest levels, we had to look outside our organization for safety professionals. I have had success hiring former military personnel are accustomed to a relatively formal, rigid management structure.

Stavropoulos: The majority of our employees are craftspeople with technical skills. We have a power training program that starts right out of high school, and we have aggressively tapped into returning veterans. In fact, we recently celebrated our success with hiring veterans, who are highly trained and have valuable experience. Also, 40 percent of our incentive compensation is tied to safety goals. We have very

specific safety goals that are measured and reported in our proxy statement.

Moderator: *Many employers have expressed concerns about fatigue as a factor in liability claims. How do you address that?*

Bledsoe: We all pride ourselves on how hard and long we work. We don't measure the impact of fatigue well at all. On the patient safety side, we were forced to deal with it; on the employee safety side we don't deal with it effectively.

Reisner: Our technicians work hard and long hours. We haven't studied it, but fatigue can certainly come into play.

Otterstedt: In accident investigations, we report the number of hours the employees involved are into their shift. We pay premiums on overtime, so we try to avoid that. At the executive level, 25percent of the incentive package is tied to safety performance.

Stavropoulos: Fatigue is an issue for our field workers. We put limits on work hours. It's a challenge when we are responding in storms and other emergencies. That's when our employees really want to do a good job and restore power and gas to their friends and neighbors as quickly as possible. We have exercise rooms next to control rooms, rest time and operations with specific protocols around fatigue management.

APPENDIX C:

AGENDA

THROUGH THE EYES OF THE EXECUTIVE, CREATING A HEALTHIER AND SAFER WORKFORCE

June 19-21, 2014 at the Marriott West End, Nashville

SCHEDULE

THURSDAY JUNE 19 (Crescent Room)
6:30 -8:00 PM   Kickoff Reception

- Welcome remarks

  ○ Todd Hohn, Global Director of Workplace Health and Safety, Underwriters Laboratories Inc.
  ○ Ranga Ramanujam, Professor, Owen Graduate School of Management, Vanderbilt University

- Employee Safety Turnaround —McWane's Story

  ○ Presentation by Ruffner Page, President, McWane

FRIDAY JUNE 20 (Parthenon A+B)
8:30 –9:00 AM   Opening Session - Welcome remarks

- Eric Johnson, Dean, Owen Graduate School of Management, Vanderbilt University

Clarifying the rationale, goals, and process for the roundtable

- Todd Hohn, Global Director of Workplace Health and Safety, Underwriters Laboratories Inc.

- Karlene Roberts, Professor Emeritus, Hass School of Management, University of California, Berkeley

- Ranga Ramanujam, Professor, Owen Graduate School of Management, Vanderbilt University

9:00 –10:45 AM   Employee Health, Safety and Learning from Top Management Perspective (Facilitator: Todd Hohn)

Presentations

- Integrating Employee Health & Safety—The Dow Experience, Presentation by Dr. Ron Loeppke, Vice Chairman, U.S. Preventive Medicine (20 minutes)

- Top-Management Driven Employee Safety at ALBA, Presentation by Isa Al Ansari,

Chief Operations Officer, Aluminum Bahrain (15 minutes)

Panel discussion (60 minutes)

- Stephen Oswald, CEO, Capital Safety

- Isa Al Ansari, Chief Operations Officer, Aluminum Bahrain

- Nickolas Stavropoulos, EVP Gas Operations, Pacific Gas & Electric

- Jeff Otterstedt, Senior Vice President, Clow Water Systems

- Steve Reisner, Vice President, Risk Management, Time Warner Cable

- Sandy Bledsoe, Assistant Vice Chancellor, Risk and Insurance, Vanderbilt University

10:45—11:00 AM	**BREAK**

11:00-12:15 PM **Session 1: Organizing for Health & Safety (Facilitator: Tim Vogus)**

- **Preliminary presentations to pose questions for breakout groups (*15 minutes total*)**

   o Tim Vogus, Associate Professor, Owen Graduate School of Management, Vanderbilt University
   o Todd Hohn, Global Director of Workplace Health and Safety, Underwriters Laboratories Inc.
   o Dee Eddington, Founder, Eddington Associates

- Discussion in breakout groups (*40 minutes*)

- Reports from breakout groups & general discussion (*20 minutes*)

12:15—1:15 PM **LUNCH**

1:15 AM - 2:30 PM **Session 2: Enhancing Organizational Capabilities for Noticing & Anticipating (Facilitator: Emery Roe)**

- Preliminary presentations to pose questions for breakout groups (*15 minutes total*)

   o Emery Roe, University of California, Berkeley
   o Cary Usrey, Process Improvement Leader, Predictive Solutions
   o Casey Chosewood, Sr. Medical Officer for Total Worker Health, CDC/National Institute for Occupational Safety and Health

- Discussion in breakout groups (*40 minutes*)

- Reports from breakout groups & general discussion (*20 minutes*)

2:30 – 2:45 PM **BREAK**

2:45—4:00 PM **Breakout Groups – Session 3: Enhancing Organizational Capabilities for Analyzing and Extracting Lessons (Facilitator: John Carroll)**

- Preliminary presentations to pose questions for breakout groups *(15 minutes)*

- ○ John Carroll, Morris A. Adelman Professor of Management, MIT Sloan School of Management
  - ○ Trish Ennis, Senior Risk Control Manager, Willis
  - ○ Richard Lewis, Medical Director, Battelle Memorial Institute
- Discussion in breakout groups *(40 minutes)*
- Reports from breakout groups & general discussion *(20 minutes)*

4:00—4:15 PM	**Day 1 wrap up (Todd Hohn & Ranga Ramanujam)**
5:45-10:00 PM	**DINNER-Country Music Hall of Fame (Transportation Provided/Meet in Lobby)**

SATURDAY JUNE 21 (Parthenon A+B)
Breakfast available in the meeting room starting 7:00 AM

8:00 —9:15 AM   **Session 4: Organizational Change for Enhanced Health & Safety (**
Facilitator: Ranga Ramanujam)

- Preliminary presentations to pose questions for breakout groups *(15 minutes)*
  - ○ Ranga Ramanujam, Professor, Owen Graduate School of Management, Vanderbilt University
  - ○ Jack Hawkins, Director, Environmental, Health & Safety Time Warner Cable
  - ○ Craig Heligman, Associate Chief Medical Officer, CSX Transportation, Inc.
- Discussion in breakout groups *(40 minutes)*
- Reports from breakout groups & general discussion *(20 minutes)*

9:15—9:30 AM   **BREAK**

9:30 —10:45 AM   **Session 5: Measuring the Right Things (Facilitator: Earl Carnes)**

- Preliminary presentations to pose questions for breakout groups *(15 minutes)*
  - ○ Earl Carnes, DOE
  - ○ Rick Hartley, Chief Engineer, B+W Pantex
  - ○ Tom Parry, President, Integrated Benefits Institute
- Discussion in breakout groups *(40 minutes)*
- Reports from breakout groups & general discussion *(20 minutes)*

10:45—11:45 PM   **Closing Plenary**