

## Integrating Health and Safety in the Workplace

### *How Closely Aligning Health and Safety Strategies Can Yield Measurable Benefits*

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**Objective:** To better understand how integrating health and safety strategies in the workplace has evolved and establish a replicable, scalable frame-

work for advancing the concept with a system of health and safety metrics, modeled after the Dow Jones Sustainability Index. **Methods:** Seven leading national and international programs aimed at creating a culture of health and safety in the workplace were compared and contrasted. **Results:** A list of forty variables was selected, making it clear there is a wide variety of approaches to integration of health and safety in the workplace. **Conclusion:** Depending on how well developed the culture of health and safety is within a company, there are unique routes to operationalize and institutionalize the integration of health and safety strategies to achieve measurable benefits to enhance the overall health and well-being of workers, their families, and the community.

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In recent decades, US employers have made significant progress in addressing issues of health and safety in the workplace. Since 1970, workplace fatalities have been reduced by more than 65% and injury and illness rates have declined by 67%, according to the Occupational Safety and Health Administration (OSHA).<sup>1</sup> Worker deaths have been reduced from approximately 38 per day in 1970 to 12 per day in 2012.

During this time, major safety improvements have been made through the use of risk assessment, medical surveillance examinations, safety training, improved protective equipment, better mechanical safety engineering and other physical changes in the workplace, and a host of other factors. These include efforts by labor and management to address safety issues more comprehensively, the rise of new governmental agencies focused on safety, and an increase in research and education devoted to safety. The establishment of OSHA and the National Institute for Occupational Safety and Health (NIOSH) in 1970 was also an important factor. Over time, employers adopted safety as a company value and built what came to be known as a “culture of safety” among their employees.

Coinciding with these advances in safety was the rise of a workplace wellness movement in the United States, driven in part by rising health care costs.<sup>2</sup> As costs increased, employers began to introduce “work-site health promotion” programs on a large scale in an effort to keep their employees healthier and thus reduce total health-related costs (medical/pharmacy costs and absenteeism/presenteeism costs).

Early workplace wellness programs consisted of health screenings, smoking cessation, weight-loss education, and on-site exercise offerings, including corporate fitness centers. Over time, these programs evolved into much more sophisticated efforts, which today include the use of health risk appraisals (HRAs) and biometric monitoring; programs for the management of chronic health conditions, such as diabetes, behavior modification, and large-scale population health strategies based on clinical data. Many large employers have even established medical clinics and pharmacies on site. Increasingly, employers use these programs and other strategies to integrate health broadly into corporate practices in an effort to establish what is often referred to as a “culture of health” alongside a culture of safety.

Over the course of many decades, these two workplace activities—safety and wellness—have evolved in tandem, but they have operated mostly independently, with separate work teams and organizational reporting structures.<sup>3</sup> Today, they are broadly known as “health protection” (safety) and “health promotion” (wellness).

Health protection usually encompasses the activities that protect workers from occupational injury and illness—ranging from basic safety training and the use of protective gear to equipment safety enhancements and improvements to the work environment. Health promotion encompasses the activities that maintain or improve the personal health of a workforce—ranging from the use of health risk assessments and immunizations

to chronic-disease and catastrophic-illness management. The professionals who work within these activity centers include everything from safety engineers and industrial hygienists to occupational health nurses and physicians trained in Occupational and Environmental Medicine and preventive medicine, and they may be housed in various clinical and operational centers in or near workplaces, from occupational health to human resources or benefits administration.

In recent years, employers and others in the occupational health community have begun to view the traditionally separated “silos” of health promotion and health protection—or, put more simply, health and safety—in a new light, recognizing that their positive impact in the workplace could be magnified by more effectively aligning the strategies that guide them.

A growing number of initiatives and studies, in fact, are embracing the idea that establishing a true culture of health in the workplace is *dependent* on the integration of health protection and health promotion strategies. Leading experts in both the health and safety professional communities are building programs around the concept that health activities impact safety and safety activities impact health.

In a 2011 paper titled *Workplace Health Protection and Promotion: A New Pathway for a Healthier—and Safer—Workforce*, Hymel, Loeppke, Baase, et al described the integration of health protection and health promotion as a continuum, in which “health promotion interventions contribute dynamically to improved personal safety in addition to enhancing personal health, while occupational safety interventions contribute dynamically to improved personal health in addition to enhancing personal safety. . . . The two factors, personal health and personal safety—each essential to a productive worker and to a productive workplace—are effectively combined in a symbiotic way that increases their impact on overall health and productivity. The whole becomes greater than the sum of its parts.”<sup>4(p695)</sup>

Supporters of the health and safety continuum concept are increasing, and various integration projects, initiatives, or studies are either under way or in development at organizations such as the American College of Occupational and Environmental Medicine (ACOEM), Underwriters Laboratories (UL), the American Society of Safety Engineers, the American Industrial Hygiene Association, the Centers for Disease Control and Prevention, and the NIOSH, as well as at leading employers, such as The Dow Chemical Company, American Express and Navistar, and at academic centers, such as Dartmouth-Hitchcock and the University of California at Los Angeles. Diverse professional voices

within these communities—ranging from industrial hygienists and safety engineers to occupational health physicians, nurses, and other practitioners of Occupational and Environmental Medicine—are seeking new ways to work together and leverage their various best practices and long-established health and safety guidelines.

In the years since the publication of *Workplace Health Protection and Promotion: A New Pathway for a Healthier—and Safer—Workforce*, the chorus of voices advancing health and safety integration has certainly grown, but the number of employers actively exploring this concept remains small. Although employers have made great strides in creating separate cultures of health and safety in the United States, only a few innovative employers have led the way and demonstrated that health and safety can be more powerful if integrated.

## THE INTEGRATED HEALTH AND SAFETY SUMMIT

In an effort to better understand how the environment for integrating health and safety in the workplace has changed over the last several years and to seek new ways of advancing the concept, ACOEM and UL hosted a summit meeting during the summer of 2014 that comprised experts from corporate, governmental, not-for-profit, educational, and research organizations.

Over the course of 2 days, the 21-member group identified several key factors that, if addressed, could help create a more favorable environment for advancing the principles of health and safety integration in the United States:

- *Determining why health and safety integration is important and how it should be defined:* A clearer demonstration of the value proposition for health and safety integration is needed, along with a better definition of the components that make up integrated health and safety (IHS) programs.
- *Formulating what should be measured to evaluate the impact of IHS programs:* A set of key metrics is needed, which could be used to measure the effectiveness of IHS strategies and programs and determine their value for employers, investors, and policymakers, along with the development of a health and safety index that could rate a company’s performance in integrating programs.
- *Describing how employers can systematically develop and implement IHS programs:* A set of practical, scalable, comprehensive guidelines is needed for employers—and specifically, for their health and safety teams—offering step-by-step advice on how to integrate strategic health and safety programs across operational silos.

This white paper addresses each of these needs, offering a standardized definition and set of components that should be considered a part of IHS programming, a new measurement tool for integration, based in part on the concept of the well-known Dow Jones Sustainability Index (DJSI), and a basic how-to framework for employer teams seeking to better align health and safety strategies across silos and better integrate their health and safety functions.

Taken together, these activities comprise a new way of approaching health protection and health promotion in the workplace, which can be called “Integrated Health and Safety” (IHS). This view uses the term “health” very generally to define various employer health-promotion and occupational medicine activities, just as it uses “safety” very generally to define various employer health-protection activities. The key point is that typical workplaces deploy diverse health and safety initiatives—each of which must be integrated as part of a continuum of well-being for their full potential to be achieved.

It is important to note in this discussion that the concept of IHS is *inclusive* of occupational health and safety, but not limited to it. The concept is overarching, encompassing traditional occupational health and safety elements, while expanding their impact—through synergy—to a wider spectrum of personal and population health outcomes. A workplace with a single, cross-divisional IHS strategy can magnify the effectiveness of its programs dramatically.

At the societal level, the impact of this new way of approaching workplace health and safety is profound. As the United States and the rest of the world face the rising burden of costs associated with chronic disease and poor health, numerous studies suggest that *comprehensive* intervention strategies will be required. Evidence confirms that stand-alone, nonintegrated efforts to address these issues will not succeed.<sup>5</sup> Cross-discipline and cross-sector initiatives—including the integration of health interventions in a way that links the community (public health), the home (primary care), and the workplace (occupational health and safety)—hold the most promise for success in addressing our growing global health issues. To effectively address our large-scale health issues in the United States and the world, the gatekeepers of health in each sector—the community, the home, and the workplace—must work together in new ways.

The widespread adoption of an IHS model in the workplace would ensure that this vital sector—impacting the health of more than 130 million Americans—is well-aligned and prepared as the transition to cross-sector health intervention strategies begins to take hold in the United States and globally.

## DEFINING “INTEGRATION”: A LOOK AT VARIOUS HEALTH AND SAFETY APPROACHES IN THE WORKPLACE

In *Workplace Health Protection and Promotion: A New Pathway for a Healthier—and Safer—Workforce*, Hymel et al defined 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.”<sup>4(p695)</sup> The National Institute for Occupational Safety and Health, which recently launched its Total Worker Health initiative in an effort to encourage wider integration of health and safety in the workplace, defines what it calls “total worker health” as “a strategy integrating occupational safety and health protection with health promotion to prevent worker injury and illness and to advance health and well-being.” Other leaders in the integration movement, including the Live Well/Work Well program at Dartmouth-Hitchcock and the WorkStrong program at the University of California at Los Angeles, do not offer definitions per se but list key principles that must be in place for integration to yield benefits, ranging from the integration of primary care, disease management, and program sustainability to teamwork and management accountability.

In seeking a better understanding of the elements and definitions most commonly found in IHS programming, participants in the 2014 ACOEM/UL summit meeting compared and contrasted seven leading national and international guidelines that are aimed at creating a culture of health in the workplace by focusing on health and safety together across operational divisions. These guidelines were chosen among many existing approaches because they exemplify tactics for improving workforce health that put a pointed emphasis on integration and offer both health and safety components. By comparing and contrasting them, a broad overview of current trends and best practices can be established. This, in turn, can help identify additional components that may be needed to achieve the goal of widespread adoption of health and safety integration.

Guidelines compared and contrasted included:

- *SafeWell* from the Harvard University School of Public Health
- *The Whole Worker* from the Commission on Health and Safety and Workers’ Compensation (CHSWC)
- *The Integrated Employee Health model* from the National Space and Aeronautics Administration (NASA)

- *The Healthy Workplace Participatory Program* from the Center for Promotion and Health in the New England Workplace (CPH-NEW)
- *Let’s Get Started* from NIOSH’s Total Worker Health program
- *Healthy Workplaces* from the World Health Organization (WHO)
- *Managing Stress* from the European Union (EU) Agency for Safety and Health

Components in all of these guidelines are aimed at addressing both health and safety in the workplace, but each approaches the task with different tools, different levels of emphasis, and somewhat different workplace audiences in mind. Through a process of comparing and contrasting these seven guidelines, summit participants were able to create a list of 40 variables representing a range of components that are typically found in IHS programming. Each variable was rated by the level of emphasis placed on it in the overall mix of best practices offered by each of the guidelines to determine trends (see sample checklists in Appendix 1).

By comparing and contrasting the 40 variables identified in these guidelines, it becomes clear that there are a wide variety of approaches to integration of health and safety in the workplace today. For example, advice on employee engagement is commonly offered in all of the leading integration guidelines, but only three of the five offer strategies for obtaining senior leadership support for integration efforts, and these vary in emphasis. Although all of the guidelines offer strategies for program evaluation, only one puts a strong emphasis on data management as a strategic element. Guidelines also vary in the extent to which scientific evidence is cited for their recommendations.

A review of the guidelines also suggests that while many share common elements aimed at guiding employers toward the integrated use of both health and safety programs in the workplace, specific strategies aimed at helping employers unify strategies across organizational silos and bring disparate teams together operationally for more effective integration are lacking. Moreover, a comprehensive and universally applicable system of metrics that could be used to gauge the effectiveness of such programs is not evident. Although the importance of measurement is discussed in various guidelines and suggestions for measurement are offered, none provides an overarching, integrated measurement system. Also absent is a measurement approach that could translate health and safety metrics into business value—that is, a way of consistently demonstrating how health and safety programs impact an organization’s performance, productivity, and marketplace success.

Participants in the ACOEM/UL summit concluded that these activities—strategies for better aligning and integrating health and safety efforts across operational activity centers and a universally applicable system of health and safety metrics—are the two components most often missing from guidelines in use today. Both components are crucial for the creation of a sustainable culture of health in the workplace. The absence of these two components may keep employers from taking their health and safety programs to the next level of effectiveness and may be part of the reason more employers have not adopted culture-of-health initiatives. A next-generation definition of integrated health protection and promotion, then, would build on earlier definitions and add the crucial elements of universal measurement and alignment of strategies across silos to create *IHS*, which could be defined this way:

*Integrated Health and Safety* is the strategic and systematic integration of distinct health and safety programs and policies into a continuum of organizational, personal, occupational, community, and environmental activities that are replicable, measurable, and integrated across institutional silos, enhancing the overall health and well-being of workers and their families and preventing work-related injuries and illnesses.

This is certainly not the only definition that can be applied in an environment that is brimming with integrated concepts, ranging from NIOSH’s Total Worker Health initiative to the WHO’s Healthy Workplaces guidelines. But it does begin to place a new emphasis on building health and safety strategies that are specifically designed for alignment across operational silos in the workplace. Summit participants—representing diverse professional backgrounds and experience in health and safety—agreed that one of the most pressing needs in the workplace is the “how to” of IHS—tools and metrics to help managers who may intuitively understand the value of integration but lack the know-how to accomplish it.

What follows is a proposed framework for IHS aimed at this need—a system for consistent measurability as well as implementation of replicable, scalable integration strategies that bring together health and safety teams in the workplace. The framework begins with the foundational building block of a universally applicable metrics reporting system that measures the impact and corporate value of IHS programs in the workplace.

## TAKING INTEGRATION TO THE NEXT LEVEL: THE NEED FOR A NEW SYSTEM OF HEALTH AND SAFETY METRICS

Among the fastest growing disciplines within the occupational health and

safety community over the last decade has been health and productivity management, a strategic approach to workplace health and safety that focuses on identifying the total impact of employee health on business results and reducing impacts on performance and productivity costs, such as absenteeism and presenteeism, through targeted health and safety programming. A growing body of evidence supports health and productivity management's underlying concept—that focusing on the health and safety of a workforce is good business. Engaging in a comprehensive effort to promote wellness, reduce worker safety risks, and mitigate the complications of chronic illness within workplace populations can produce remarkable effects on health care costs, productivity, and performance.<sup>6</sup>

More recently, studies have begun linking worker health with the market performance of the companies that employ them. In 2013, for example, a study published in the *Journal of Occupational and Environmental Medicine (JOEM)* tracked the stock market performance of publicly traded companies with strong health, safety, and environmental programs. Using simulation and past market performance, a theoretical initial \$10,000 investment in these publicly traded companies over a 13- to 15-year span was shown by Fabius et al<sup>7</sup> to outperform the Standard & Poor's 500. Although correlation is not the same as causation, the results of the Standard & Poor's 500 study consistently suggest that companies focusing on the health and safety of their workforce can yield greater value for their investors—including competitive advantage in the market.

The rise of interest in health and safety measures as indicators of corporate value is gaining traction among thought leaders, who believe that a universal system of health and safety metrics reporting could emerge as a new standard of valuation, much as social and environmental sustainability emerged as corporate indicators via the DJSI in the late 1990s.

In August 2014, the Vitality Institute, a global research organization focusing on workplace health, published *Integrating Health Metrics into Health Reporting*, a concept paper advancing the idea of public reporting of workforce health measures as a means of gauging corporate performance and better informing the investment community. In making the case for establishment of universal health and safety metrics, Tryon et al<sup>8</sup> noted that such a system could help US employers overcome many of the barriers that keep them from achieving a more widespread culture of health in the workplace. The integration of health metrics into corporate reporting, they noted, “builds leadership and advocacy both within organizations and outside organizations to highlight the impor-

ance of prevention within businesses as a national strategic imperative.”<sup>8</sup>

Institutionalizing health and safety metrics reporting has the potential to set various corporate and financial dynamics in motion that would push workplace IHS programming into the mainstream of business strategy, according to the authors:

“It also enables investors and other key stakeholders to consider the health of employees within a business as a critical data point for investment decision making, due to the dual impact of health on a business (ethical and financial). This latter effect in turn places increased pressure on businesses to consider it as a critical component of business strategy. Finally, it also enables organizations to measure, manage and benchmark the health of their workforce as a strategic asset to the business.”<sup>8</sup>

Other organizations are exploring similar ideas internationally. In South Africa, for example, financial services company Discovery is partnering with the University of Cambridge and RAND Europe to assess worker health in South African companies using a “Healthy Company Index.” The index, which was launched in 2011, measures the impact of chronic disease and health and safety programming on South African companies and provides a system for them to measure the health status of their employees. A study of the index by the University of Cambridge and RAND Europe is underway.<sup>9</sup>

## USING THE DOW JONES SUSTAINABILITY INDICES AS A MODEL FOR HEALTH AND SAFETY MEASUREMENT

The DJIs were launched in 1999 as the first-ever set of global sustainability benchmarks, measuring the economic, social, and environmental impacts of corporate activities. Proponents of sustainability reporting argued that transparent, public reporting of these impacts was essential to maintain a sustainable global economy. Today, the DJSI is composed of eight regional indices that include best-in-class organizations—those that adhere to a robust set of standards for economic, social, and environmental best practices.

After 15 years, the DJSI is globally recognized by investors as the leading standard for corporate sustainability, tracking the performance of the world's leading companies, and they have had a substantial impact in terms of changing organizational behavior and corporate culture. Organizations must continually refresh their sustainability initiatives to be added—or to maintain their current position—on one of the in-

stances. Many companies around the world include achieving a listing in the DJSI as a corporate goal because it provides public validation of their long-term management strategies and increases their attractiveness to investors. There is what DJSI administrators call “vibrant competition among companies for index membership.”<sup>10</sup>

Taking into account the global success and impact of the DJSI, and increasing discussions among workplace health experts about the need for standardized, public metrics reporting of health and safety data, participants at the ACOEM/UL summit meeting in 2014 posed two questions—Could a consistent, replicable, public metrics reporting system similar to DJSI be created to assess the business value of health and safety for investors? Would creation of such a system help propel faster establishment of a true culture of IHS in the workplace—just as the DJSI led to greater corporate adoption of economic, social, and environmental sustainability programs in the late 1990s?

As a first step in addressing these questions, summit participants identified emerging health and safety assessment tools, including the *Business in the Community Public Reporting Guidelines*, the *Global Safety and Health Sustainability Index* of the Center for Safety and Health Sustainability, ACOEM's Corporate Health Achievement Award (CHAA) Self-Assessment tool, assessment programs from the Health Enhancement Research Organization and the Centers for Disease Control and Prevention, and assessment principles laid out by the Vitality Institute in *Integrating Health Metrics into Health Reporting*. Assessment and metrics recommendations provided in the seven health and safety guidelines identified by summit participants were also reviewed (Harvard's *SafeWell*, CHSWC's *Whole Worker*, NASA's *Integrated Employee Health Model*, CPH-NEW's *Healthy Workplace Participatory Program*, the WHO's *Healthy Workplaces*, EU Agency for Safety and Health's *Managing Stress*, and NIOSH's *Total Worker Health*).

Participants agreed that any proposed health and safety metrics reporting system would need to utilize worker health and safety information that is either readily available to organizations or that could be gathered without imposing hurdles or burdensome requirements. The system would need to include safeguards for protecting privacy of some forms of health data and would need to be constructed in a way that credibly translated health and safety information into values that would resonate with the investment community. They also agreed that an eventual metrics scoring system would need to include a strong degree of flexibility so that it could be adapted for use by diverse organizations.

After close review of the principles of corporate public reporting generally, and the specific reporting framework of the DJSI, participants concluded that a new health and safety reporting system would be most feasibly constructed in parallel to the DJSI, as a complementary system utilizing the DJSI's three well-established dimensions of sustainability (economic, social, and environmental). The resulting IHS Index (Fig. 1) would yield values similar to and consistent with the DJSI framework. Organizations qualifying for inclusion in the IHS Index would be required to meet robust health and safety requirements in each of the three major dimensions.

A wide range of categories would need to be fulfilled in each of the dimensions; for example, to fulfill the economic dimension, companies would be asked to demonstrate ongoing financial support for comprehensive IHS programming, including showing that they adequately fund program budget-lines for health and safety programs, that sufficient training is provided for these programs, that well-defined benchmarks for performance outcomes are in place, and that employees are making progress in meeting such outcomes. More generally, they would need to demonstrate the broad economic benefit to society that derives from investment in the health of their employees and the communities in which they do business.

As a part of their commitment to the environmental dimension, companies would be required to show organization-wide responsiveness to a well-defined set of environmental metrics, including reporting their rates of occupational and environmental illnesses and injuries over time (with evidence of actions taken to improve results), showing evidence of strict adherence to procedures for follow-up and response to environmental hazards, and reporting of relevant environmental inspections by regulatory agencies.

As a part of their commitment to the social dimension, companies would be

required to demonstrate adherence to diverse activities aimed at ensuring engagement of IHS strategies with employees, ranging from establishing and maintaining health and safety education programs and well-communicated population-health strategies to providing evidence of extending equal access to benefits, the reduction of disparities among employees in health and safety outcomes, and being a good corporate citizen of the community—including participation in community-wide health, safety, and environmental programs.

Following the blueprint for reporting established by the DJSI, public reporting by companies would be extensive and would respond to a very robust set of requirements in each of the three dimensions. To achieve recognition on the DJSI, a company assessment must be completed that includes a set of more than 100 questions; the information-sharing process that would lead to inclusion in an IHS Index would be similarly thorough.

### BUILDING THE INTEGRATED HEALTH AND SAFETY INDEX: CORE COMPONENTS

In their review of emerging health and safety assessment tools that could be used to help construct an IHS Index, summit participants concluded that ACOEM's CHAA program offered the best currently existing platform for adaptation and they created a conceptual model that could build on the CHAA's 1000-point assessment scale. Launched in 1996, the CHAA recognizes organizations with exemplary health, safety, and environmental programs. Participating organizations submit a comprehensive application about their programs and undergo a rigorous review by an expert panel to assess four key categories—Leadership and Management, Healthy Workers, Healthy Environment, and Healthy Organization. Since its establishment, awards have been given to or-

ganizations in diverse sectors, from publicly traded corporations to federal agencies.<sup>11</sup>

The CHAA's assessment scale measures a broad variety of standards for what it terms "healthy workplaces"—that is, each applicant's specific occupational and environmental health and safety programs, its overall company culture and organizational profile, and its governance. Applications are generally completed by a cross-organizational representation of professionals who are familiar with the applicant organization's health, safety, and environmental programs, as well as its overall management. Applicants use the CHAA's Self-Assessment tool, which helps them complete a comprehensive review of their organization's programs and practices.

An independent panel of trained examiners then reviews each application submitted. Examiners look for evidence of comprehensive and innovative health and safety programs with measureable results. In addition to looking for comprehensive programs, the examiners seek to understand how the programs are deployed across the organization and how they promote the health and safety of the organization's employees. Points are awarded for each of 17 standards, grouped within the CHAA's four categories. Each organization is judged independently on the basis of its achievements in terms of programs, outcome measures, and organizational trends.

Following the ACOEM/UL summit, a team of participants constructed a first-generation IHS Index that could extend the basic methodology of the CHAA Self-Assessment tool to achieve a new universal standard of health and safety reporting. The new index is scheduled to be formally launched and available on-line as a part of the CHAA award-application process in early 2015, thus providing a viable testing ground for the new IHS Index concept.

The scoring methodology of the proposed IHS Index will be based on the same

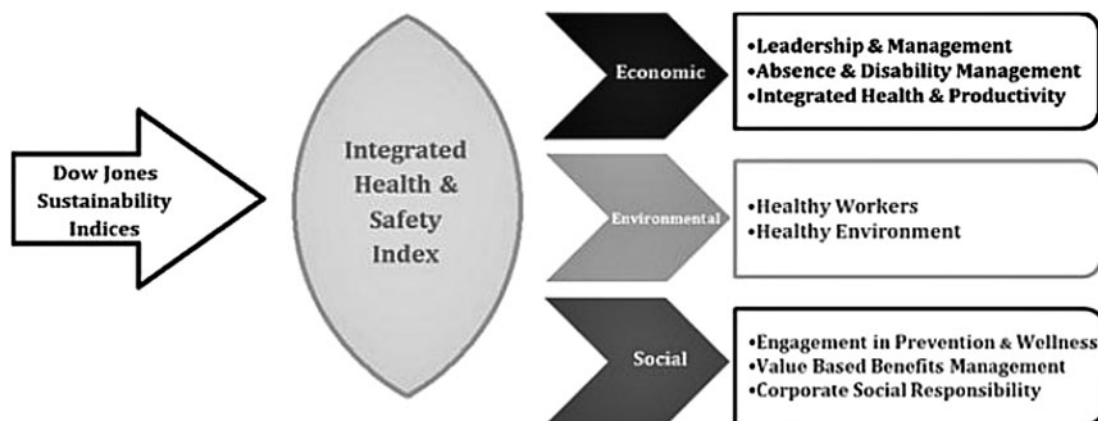


FIGURE 1. Integrated Health and Safety Index.

principles that examiners use when reviewing CHAA applications. The CHAA's four categories were carefully reviewed by the ACOEM/UL development team and consolidated to parallel the three dimensions utilized by the DJSI—economic, environmental, and social—with elements from each of the four original CHAA categories placed in an appropriate DJSI dimension (Fig. 2). By paralleling the three dimensions of the DJSI, the IHS Index will provide a framework for assessment that will be familiar to both the employer and investment community, thus facilitating participation.

The CHAA's 1000-point scale will be retained in the proposed Health and Safety Index. Organizations participating in the CHAA will earn points and be judged on their adherence to robust standards and metrics in each of the three main dimensions—economic, environmental, and social.

## STANDARDS AND METRICS FOR AN INTEGRATED HEALTH AND SAFETY INDEX

The proposed IHS Index will include comprehensive standards that can be applied to any organization, whether small, medium, or large. Examples of the kinds of standards that would be expected of organizations measuring their performance against the index are included below.

In addition to a comprehensive set of standards, the IHS Index will include a carefully calibrated set of metrics, included below, which will be used to help organizations arrive at a consistent measurement of their performance in terms of health and safety integration. Metrics would be included for each of the main dimensions of the IHS Index—economic, environmental, and social.

Each of the categories within the three dimensions in the IHS Index will include a geometric scoring process that assigns cumulative value using four measures—the extent

to which health and safety programs exist within the category (worth 0% to 30%), how well these programs are deployed (worth 31% to 50%), the extent to which measurement of these programs shows positive trends for the company (worth 51% to 70%), and the extent to which the company tracks performance of these programs and makes improvements to them (worth 71% to 100%). A company that scored the maximum in each category would achieve 100% value.

### Economic Dimension

- Examples of Standards for Leadership and Management
  - Organizational support and commitment to health, safety, and environmental programs and to the health, productivity, and safety of the workforce is strongly demonstrated.
  - Management provides appropriate resources for IHS, encouraging innovation and positive change.
  - Integrated health and safety programs are well aligned with pertinent regulations, guidelines and best practices measurable goals for key IHS programs are defined and incorporated into performance reviews, and members of health and safety teams work collaboratively and have input into decision-making process related to health, safety, and environmental issues.
- Examples of Standards for Absence and Disability Management
  - Disability management identifies individuals and worker populations who are at increased risk of poor performance because of health issues and finds positive means to enhance health and productivity in the workforce.
  - Illness conditions that render work unsafe and require job accommodations are closely evaluated and the workplace is used for rehabilitating workers.

- Return-to-work programs are effectively utilized and measured.
- Examples of Standards for Integrated Health and Productivity
  - Integrated health and productivity management effectively measures the link between worker health and productivity and directs employer investments into interventions that improve health and organizational performance.
  - Population health management is incorporated as an important component in the organization's business strategy.
  - Efforts are made to quantify the total economic impact of health, including direct medical and pharmacy costs of health care as well as indirect productivity-related costs, such as absenteeism and presenteeism.

### Metrics

- Workers' compensation
  - Number of workers' compensation claims filed annually
  - Total workers' compensation costs incurred each year—trend data minimum 3 years
  - Total temporary disability days paid each year
- Absenteeism
  - *Minimal cost of absenteeism*—1.35 days × number of employees with given condition × average daily wage
  - *Maximum cost of absenteeism*—10 days × number of employees with given condition × average daily wage
- Presenteeism
  - *Minimal cost of presenteeism*—17.9 days × number of employees with given condition × average daily wage
  - *Maximum cost of presenteeism*—91 days × number of employees with given condition × average daily wage
- Percentage of senior management reviews
  - Number of leader/senior manager reviews per year divided by total number in leadership position
- Turnover rate
  - Number of employees leaving during the year × 100 divided by the number of employees at the start of the year

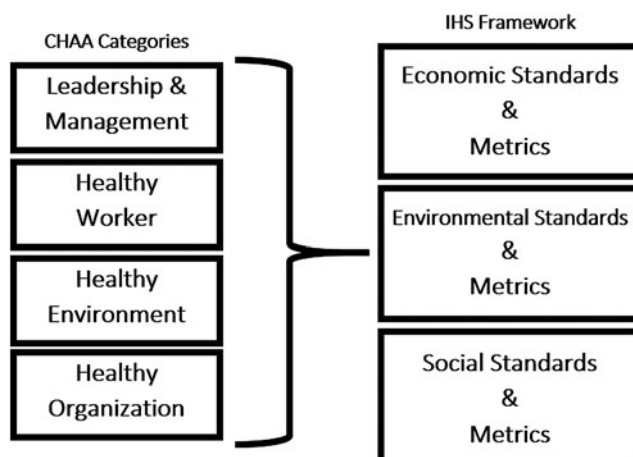


FIGURE 2. CHAA categories that parallel the DJSI dimension.

### Environmental Dimension

- Examples of Standards for Healthy Workers
  - Occupational health and safety professionals routinely inspect and evaluate the workplace to identify potential health and safety hazards and suboptimal work practices.
  - Appropriate health evaluations are performed, and workers are fully informed of the results of each health evaluation, whether normal or if variations are detected.

- Medical surveillance programs are in place, identifying early signs of potential hazard exposure and thus protect workers; appropriate infection control procedures are used.
- Examples of Standards for Healthy Environment—*Workplace Environments*
  - Health, safety, and environmental programs are in place to educate workers about potential hazards at the worksite.
  - Effective communication procedures ensure that all stakeholders, both within the organization and the local community, are informed on an ongoing basis of the identities of hazardous chemicals, associated health and safety hazards, and appropriate protective measures.
  - Organizational programs focus not only on workplace hazards but also the impact of emissions on the community and protection of the environment.

### Metrics

- Accident/incidence rates for employees, contractors, and fleets (trend over 5 years)
  - *Frequency*: OSHA Total Recordable Incidence Rate employees and contractors—(number of OSHA recordable  $\times$  200,000/number of hours worked)
  - *Severity*: OSHA restricted duty days for employees and contractors (number of lost/restricted work days  $\times$  200,000/number of hours worked)
  - *Severity*: OSHA lost/restricted workday case rate (number of OSHA lost/restricted workday cases  $\times$  200,000/number of hours worked)
  - *Vehicle accident rate*: Vehicle accidents per year  $\times$  1,000,000 divided by total miles driven in same period
- Hazard recognition (minimum 3 years of data)
  - Total number of inspections and/or audits per year to include number of correct (safe conditions) and number of adverse/at-risk (unsafe) conditions/inspection or audit
  - Total number of near miss reported/year
  - Total number of observations reported/year (safe conditions) and number of adverse/at-risk (unsafe) conditions/observation reported
  - Percentage of owned or leased work locations that have implemented an occupational safety health management system. Percentage of those locations that have been audited by an independent third party
- Participation
  - Percentage of workforce submitting observations (safe, at-risk conditions), near misses annually
- Hazard prevention/closure rate
  - Percentage completion of corrective actions for adverse (unsafe) conditions re-

ported for inspections/audits/near miss and observations within due date

- Education and training
  - Number of hours of training/employee as percentage of objective
  - Total training days completed during year divided by average number of employees for the year
  - The percentage of employees trained prior to start of work

### Social Dimension

- Examples of Standards for Engagement in Prevention and Wellness by employer/employees
  - Primary, secondary, and tertiary prevention strategies are in place, ranging from health promotion, lifestyle management, and safety engineering programs to health coaching, biometric testing, and active disease management.
  - Health risk appraisals are used to identify and prioritize beneficial health behavior change programs.
  - Healthy vending machine and cafeteria selections are available, and effective communication strategies are used to inform employees of what they can do to reduce illness, disease, and accidents.
- Examples of Standards for Value-Based Health Benefits Management
  - Actuarial claims analysis for trends in diagnoses and costs are used for planning appropriate disease management and health promotion programs.
  - Pharmacy benefit plan design is used to reduce costs, while providing access to appropriate medications, and is designed on the basis of beneficiary health risk factors.
  - The organization applies epidemiology, statistics, and information systems to ensure quality of care and identification of the most effective opportunities to improve the health of defined populations of workers/beneficiaries.
- Examples of Standards for Corporate Social Responsibility
  - The organization is aligned with the goals of the community in which it operates, acting as a transparent and trusted partner.
  - Clear lines of communication are in place linking the organization with community stakeholders, including public health organizations and safety and health agencies.
  - The organization leverages its health and safety policies to benefit the community and has strong policies in place to ensure attention to issues of importance.

### Metrics

- Wellness programs
  - Percentage of employees completing an annual HRA

- Percentage of employees completing annual laboratories/biometric screenings
- Percentage of employees completing a primary care physician periodic wellness visit
- Prevalence of chronic health conditions and health risks
  - Percentage of employees in individual high health risk levels at baseline and annual follow-up. (As an example, the percentage of employees who are high risk with each of the individual 15 health risks in Edington's assessment model is outlined in the book, "Zero Trends."<sup>12</sup>)
  - Percentage of employees in low, medium, and high health risk categories at baseline and annual follow-up. (As an example, this is outlined in "Zero Trends."<sup>12</sup>)
- Impact of health conditions
  - Working days lost per year by disease category (ie, diabetes, obesity, and hypertension)  $\times$  100 divided by working days available in the same year.
- Workplace demographics—Employee composition reflects the demographics of the community by sex, ethnicity, sexual orientation, disability, age, etc, at multiple organizational levels
  - Number of employees in an equity group  $\times$  100 divided by the total number of employees at same point in time
- Community engagement
  - Number of community activities engaged in annually

## HOW EMPLOYERS CAN BEGIN IMPLEMENTING IHS NOW: A ROADMAP FOR OPERATIONAL EXCELLENCE

Participants in the ACOEM/UL summit identified nonintegrated institutional silos as one of the greatest obstacles to achieving a true culture of health in the workplace. Employer health and safety activities are often housed in completely distinct organizational divisions, with minimal attempts at integration. Although these organizational units may have achieved programming excellence within their particular area of focus, they are seldom strategically linked together. The lack of integration and transcendent corporate strategies across silos prevents optimal resource utilization and impedes efforts to maximize workforce health and productivity.

By better coordinating distinct environmental, health, and safety policies and programs into a continuum of activities, employers could substantially enhance overall employee health and well-being, while better preventing work-related injuries and illnesses. But typical activities incorporated in workplace health and safety efforts are diverse and reflect an extremely wide range of

functions and goals. From safety engineering and ergonomics to disability prevention and behavioral health, the professionals who implement health and safety programs often speak completely different institutional languages.

Acknowledging that this has been a longstanding reality in the practice of occupational health and safety, participants in the ACOEM/UL summit formed a task force to develop a roadmap for integrating health and safety programs for operational excellence. Made up of senior executives from both the health and wellness community and the safety engineering community, the task force created a five-point framework specifically aimed at better aligning organizational silos and establishing sustainable integration of health and safety teams.

Integration and alignment of silos begins with institutional commitment and ongoing support from the highest levels of organizational leadership. Numerous studies have shown that successful implementation of individual health and safety programs in the workplace is heavily dependent on senior-level “champions,” who help keep teams focused on program goals.<sup>4</sup> With the complexity of integrating diverse health and safety operational teams, the commitment and active participation of senior management teams are even more critical.

With strong and sustained senior-level buy-in established, the details of health and safety integration can begin, using the five-point roadmap developed by the ACOEM/UL task force (Fig. 3). Essential elements include:

- **Planning:** Develop a rationale for why strategic integration is important and needed
- **Assessment:** Evaluate the current health and safety status of the organization
- **Implementation:** Develop and implement a new, integrated strategy and vision
- **Monitoring:** Create a system for collecting data and for monitoring and evaluating programs during implementation
- **Review:** Gauge progress periodically and take corrective action as needed

A brief summary of key elements of each of these phases is included in the following sections:

### Phase 1—Planning: Develop a Rationale for Why Integration is Important and Needed

The first phase of integration involves explaining the rationale for why an organization should integrate its health and safety activities, and what the impact will be for its business. This phase involves defining the value of integration; engaging organization leadership, including the C-suite; articulating a vision; and developing an organizational policy statement on integrating health and safety.

Key messages to communicate to stakeholders are that safe and healthy employees are less likely to be injured while on the job; that they are more likely to be vibrant, engaged, and high performing; and that all of these things are good for the bottom line. A wide variety of studies have demonstrated that healthier and safer employees are:

- Good for business and help improve productivity<sup>7</sup>
- Create a happier, less stressful, and more prosperous business environment<sup>13</sup>
- Do better at their jobs and contribute more<sup>14</sup>
- Are absent from work less and more productive when at work<sup>15</sup>
- Enjoy their jobs more, reducing turnover costs<sup>16</sup>

When working to improve the safety, health, and well-being of workers, an organizational vision or vision statement is a powerful, meaningful commitment both inside and outside of the organization—and can often serve as an important foundational step toward integrated health protection and health promotion. Nevertheless, to be fully realized, the vision must be reflected in both words and in actions. The connection of workforce health and safety to the values, services, and core products should also be acknowledged by leaders and communicated widely and regularly. A vision and supporting mission statement can help organizations:

- Craft a human-centered culture by inspiring effective programs and policies
- Keep health and safety issues “front and center” for senior leaders because they balance organizational priorities
- Set the tone for interactions between mid-level managers, front-line team leaders, and workers
- Engage workers by seeking active worker participation, input, and involvement
- Show community and industry leadership to customers, shareholders, and other constituents

The final element of phase 1 is developing a policy statement. Policies are the enduring cornerstones of culture building because organizations begin efforts to integrate health and safety across silos. Policies or similar operational documents may be found within many components of an organization, including within business or strategic plans, budget planning materials, human resources manuals, health insurance and benefits guidelines, and many other resources. Policies can also be used to ensure participatory approaches to program design and implementation, promote strong program communication, and to hold responsible parties accountable for moving the vision and mission forward.

### Phase 2—Assessment: Evaluate the Current Health and Safety Status of the Organization

The second phase of a roadmap to integration is assessment—that is, achieving a better understanding of an organization’s current status in terms of health and safety and identifying metrics to evaluate its programs



**FIGURE 3.** Five-point roadmap for Integrating Health and Safety to achieve operational excellence.



as they evolve. Gathering information related to the overall health and safety of the workforce and the associated metrics of health care costs and workers' compensation claims is an important starting point in the initial assessment. Depending on the size of the organization, this information may reside within various departmental silos, or perhaps with one individual responsible for finance, accounting, insurance, or general management. For larger organizations, some of the more common sources of assessment information, and the metrics that can be gathered from each, include:

- **Benefits:** health care–related costs, participation in medical plans, short- and long-term disability
- **Human resources:** absenteeism, workforce demographics, employee turnover, job satisfaction, and employee engagement
- **Risk management:** workers' compensation insurance costs, premiums and losses/claims, insurance broker, carrier, third-party administrators
- **Safety:** OSHA statistics, incidence rates, other safety performance metrics
- **Operations management:** productivity costs per unit/output/service, key performance metrics
- **Finance or payroll:** gross margin per unit/service, wages, total hours worked and full time equivalent employees, organizational structure and reporting relationships (also, human resources)

The objective of the data-gathering process is to determine how the organization is trending from a health, productivity, and performance perspective. Numerous studies over the last several years reflect rising costs of health care and workers' compensation due to the increasing percentage of workers with chronic health conditions, such as obesity and heart disease.<sup>17</sup> Managers should ask themselves how their organization is trending relative to the outcomes in these studies and what can be done to mitigate the illness burden of their workers. On the basis of the initial assessment, one or more opportunities may be quickly identified for improvement.

Workforce demographics, such as age groups, geographic areas, sex, and years in position, should be taken into account when assessing data and metrics to determine whether there are skewed outcomes compared with the percentage of total workforce in the same category (ie, if 50% of total medical cost is generated by a 35- to 44-year age group that comprises 30% total workforce). Generating widespread support for, and involvement with, data collection and metrics may require leveraging local, preexisting teams or committees, such as safety or wellness committees, to embrace these programs—a factor in phase 3, “implementation.”

### Phase 3—Implementation: Develop and Implement a New, Integrated Strategy and Vision

Once a direction is charted through the completion of phases 1 and 2, planning and assessment, Phase 3, implementation, can begin. This phase involves implementing the vision and strategies identified. In the book *Leading Change*, John P. Kotter, PhD, promotes an implementation methodology to achieve success.<sup>18</sup> Several of Kotter's general guidelines are applicable to phase 3, which include:

- **Establishing a sense of urgency:** This step is the catalyst necessary to break from the status quo on the path to achieve a new vision.
- **Creating a guiding coalition:** This team-building step includes seeking alignment with key stakeholders and defining the roles and responsibilities of each party necessary to succeed.
- **Developing a change vision:** This vital step helps bind the strategies that will be tied to the overall initiative and creates a compelling communication of the desired end state.
- **Empowering broad-based action:** This step is instrumental in developing best practices, removing obstacles to change, and identifying goals and objectives to achieve a vision of integration. A strong emphasis is placed on education and training in this step.
- **Communicating the vision for buy-in:** The main objective of this step is to turn words into actions so that “what is said turns into what is done.” Management must be perceived as backing up its words with actions in pursuit of the newly established vision.
- **Phased roll-out:** During this step, organizations build momentum by achieving short-term successes (from 6 to 18 months from the planning and assessment phases), consolidating these gains by sustained action, and eventually incorporating these changes into workplace culture.

### Phase 4—Monitoring and Evaluation: Creating a System for Data Collection, Monitoring, and Evaluation of Programs Implemented

Integrated health and safety programs should be monitored not only to evaluate participation and engagement, but also to quantify the value of investment. It is reasonable to monitor participation in particular programs on a monthly basis. This will allow program managers to determine whether more frequent or different communications about program offerings are necessary, or whether messages should be changed.

Quantifying return on investment or value of investment is another action that is necessary during implementation, but this is more effectively accomplished either once or twice a year. By examining the effects of IHS strategies on claims cost, workers' compensation costs, OSHA recordable rates, and disability/absenteeism numbers, managers can determine whether the cost of individual strategies is offset by these metrics or other indirect costs—such as engagement or productivity.

When establishing an IHS monitoring plan, it is important to note that it will usually take at least 2 to 3 years before significant directional results can be seen, although for aggressive intervention programs some results may be evident after the first year. Information should be compiled into meaningful categories for stakeholders. Gathering information about participation in programming and the resulting impact in health risks, injury rates, or environmental impacts can be of interest to risk management or wellness departments. Similarly, return-on-investment information can be meaningful to the organization's chief financial officer or perhaps its director of benefits. Knowing the interests of the stakeholders in an organization is important in crafting reporting to meet their needs.

### Phase 5—Review: Gauge Progress Periodically and Take Corrective Action as Needed

The final phase of integrating health and safety activities entails reviewing and adjusting or developing corrective action as necessary. Three steps are required—program evaluation, incorporating lessons learned, and providing reward and recognition.

- **Program evaluation:** A formal process should be established to capture the successes and failures of new programs. Review should include close examination of anything that was expected during the process as well as anything that happened but was not anticipated. Particular attention should be devoted to whether appropriate metrics and goals were used and whether they have been met, and whether additional metrics are needed to measure success. Managers should also evaluate return on investment. Determining the success of programs can be achieved through interviews, group-discussion meetings, and anonymous surveys. These can also be used to promote continuous improvement. A timeline for evaluation should be developed on the basis of key milestones in the integration process.
- **Incorporating lessons learned:** It is important to communicate lessons learned during the integration process so that both senior leadership and employees understand

program performance and buy-in to the program. Discussions should be scheduled to review findings and what actions have been taken to prevent or promote reoccurrence of issues as part of a continuous process improvement. Next steps should be determined from lessons learned, employee feedback, and key metric results.

- **Reward/recognition:** Rewards and recognition are of key importance in incentivizing workers and encouraging their acceptance of new programs. Financial incentives that help promote participation will aid in the success and return on investment, ranging from discounts at local health clubs and healthy food choice discounts to health insurance premium discounts, additional days off, and direct salary/bonus payment incentives. Over time, extrinsic rewards should be replaced by intrinsic recognition that health and well-being enhances one's performance in all facets of life.

## CONCLUSION AND RECOMMENDATIONS

A growing body of evidence suggests that significant benefits can accrue when health and safety teams are more closely aligned through overarching strategies and are integrated organizationally in the workplace. Leading experts in both the health and safety communities are building programs around the concept that health impacts safety and safety impacts health—the two, when properly integrated, form a continuum that can lead to a true culture of health and safety in the workplace.

Supporters of the health and safety continuum concept are increasing, and various integration projects, initiatives, or studies are either under way or in development at leading organizations. But uptake of the concept in the workplace remains somewhat limited. This environment could be significantly changed if more consistent definitions of the components that make up successful health and safety integration are adopted, best practices more extensively shared, and a universally applicable system of measuring the value of health and safety integration is developed. In addition, employers need a new practical and scalable roadmap for integration—a guide aimed specifically at overcoming the problem of aligning health and safety programs with corporate strategy across institutional silos.

The creation of a standardized definition for IHS, a new IHS Index, and a roadmap for integration has the potential of moving the combined communities of health and wellness and safety engineering into one of the most dynamic and productive periods in the history of occupational health and preventive medicine. But to succeed, these efforts

should advance with several guiding principles in place:

- **Plan with small and medium-sized organizations in mind:** The IHS model must be developed in a way that recognizes the realities of small and medium-sized companies and makes it possible for them to adapt core concepts. These organizations have unique challenges and a new model must be scalable for them.
- **Apply this concept in both white-collar and blue-collar workplaces:** The service sector and the manufacturing sector are both increasingly committed to creating a safe workplace. They have placed an emphasis on behavioral health over physical challenges, but they are equally concerned about issues such as ergonomics, business continuity, and emergency preparedness and response. Advocacy for the integration of health and safety should be extended across all workplaces.
- **Build incentives:** Integrated Health and Safety will emerge successfully if it is well incentivized. A wide variety of incentives could be developed for organizations that meet the requirements of a robust IHS Index—from favorable tax policies to discounts provided by insurance carriers to preferred workers' compensation rates. Organizations advancing the principles of IHS should work with other stakeholders in the health care community to develop these incentives.
- **Build partnerships and coalitions:** The IHS model will advance more rapidly if it has the formal buy-in and public backing of organizations from both the health and safety communities. This means outreach to potential partners to engage them, via research, awareness building, cosponsorship of special events, and educational activities. Pilot projects with state governments—aimed, for example, at achieving better workers' compensation outcomes through the use of IHS principles—should be considered. In addition, multilevel employer communication strategies that advance IHS by working inclusively with professional communities such as human resources, benefits administration, and labor relations will be important for success.
- **Develop new educational models:** Integrated Health and Safety will succeed only if it is embraced by employees at the grassroots level. Organizations are more likely to adopt new concepts that are practical and can be implemented without major disruptions to their existing operations. This means creating new educational models to convey IHS concepts in a way that makes them relevant and accessible by employees. A wide range of products and resources could help take IHS concepts from

the theoretical to the practical—including on-line resources, best practice compendiums, and on-site training programs, sponsored by organizations invested in the IHS concept.

- **Ensure confidentiality and trust:** Data collection is an integral part of the IHS model, but the use of data must be carefully managed in an environment of increasing regulatory complexity (Health Insurance Portability and Accountability Act, etc). Proponents of IHS must be active participants in the public discussion of privacy and data protection, and data safeguards and well-reasoned policy development, balancing transparency in reporting with data security, will be critically important as IHS develops.
- **Align efforts with the insurance sector:** Innovative models in workers' compensation insurance, employer-sponsored group health insurance, and reinsurance products that offer premium discounts to employers based on the level of the employer's IHS Index score should be promoted. This would recognize the value of these models and incentivize employers investing in evidence-based IHS strategies that reduce the burden of health risks, chronic illness, and work-related injuries, thereby reducing the costs and financial risks of the insurer.
- **Encourage continued research:** Although evidence is building that healthier workforces provide a competitive advantage for organizations, more research is needed to better understand the dynamics of cause and effect in IHS programming. Support for government organizations and academic centers that are engaged in active research on this topic is vital.

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## REFERENCES

1. US Department of Labor. *Commonly Used Statistics*. Available at: <https://www.osha.gov/osshstats/commonstats.html>. Accessed December 12, 2014.
2. Guidotti TL. *Global Occupational Health*. New York, NY: Oxford University Press; 2011.
3. Chapman WD. *Corporate Physicians: Between Medicine and Management*. New Haven, CT: Yale University Press; 1987.

4. Hymel PA, Loeppke RR, Baase CM, et al. Workplace health protection and promotion: a new pathway for a healthier—and safer—workforce. *J Occup Environ Med.* 2011;53:695–702.
5. Dobbs R, Sawers C, Thompson F, et al. *Overcoming Obesity: An Initial Economic Analysis.* McKinsey Global Institute; November 2014. Available at: [http://www.mckinsey.com/~media/McKinsey/dotcom/Insights/Economic%20Studies/How%20the%20world%20could%20better%20fight%20obesity/MGI%20Obesity\\_Full%20report\\_November%202014.ashx](http://www.mckinsey.com/~media/McKinsey/dotcom/Insights/Economic%20Studies/How%20the%20world%20could%20better%20fight%20obesity/MGI%20Obesity_Full%20report_November%202014.ashx). Accessed February 8, 2015.
6. Loeppke R. The value of health and the power of prevention. *Intl J Workplace Health Manage.* 2008;1:95–108.
7. Fabius R, Thayer RD, Konicki DL, et al. 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. *J Occup Environ Med.* 2013;55(9):993–1000.
8. Tryon K, Bolnick H, Pomeranz J, Pronk N, Yach D. *Investing in Prevention: A National Imperative.* The Vitality Institute; 2014. Available at: [http://thevitalityinstitute.org/site/wp-content/uploads/2014/06/Vitality\\_Recommendations2014.pdf](http://thevitalityinstitute.org/site/wp-content/uploads/2014/06/Vitality_Recommendations2014.pdf). Accessed December 12, 2014.
9. Discovery Limited. Is your company among South Africa's healthiest? [News Release]. Available at: <http://www.mynewsdesk.com/za/discovery-holdings-ltd/pressreleases/is-your-company-among-south-africa-s-healthiest-992335>. Published May 6, 2014. Accessed December 12, 2014.
10. McGraw Hill Financial. Dow Jones Sustainability Indices methodology. Available at: [http://www.djindexes.com/mdsidx/downloads/meth\\_info/Dow\\_Jones\\_Sustainability\\_Indices\\_Methodology.pdf](http://www.djindexes.com/mdsidx/downloads/meth_info/Dow_Jones_Sustainability_Indices_Methodology.pdf). Published September 2014. Accessed December 12, 2014.
11. American College of Occupational and Environmental Medicine. Corporate Health Achievement Award, prior award winners. Available at: <http://www.chaa.org/prioraward.htm>. Accessed December 12, 2014.
12. Edington DW. *Zero Trends: Health as a Serious Economic Strategy.* Ann Arbor, MI: University of Michigan Health Management Research Center; 2009.
13. Aon Hewitt, National Business Group on Health, Futures Company. The consumer health mindset. Available at: <http://www.aon.com/attachments/human-capital-consulting/2014-02-17-consumer-health-mindset-final-report.pdf>. Published 2014. Accessed December 12, 2014.
14. Gallup. The relationship between engagement at work and organizational outcomes. Available at: <http://employeeengagement.com/wp-content/uploads/2013/04/2012-Q12-Meta-Analysis-Research-Paper.pdf>. Published 2013. Accessed December 12, 2014.
15. Baicker K, Cutler D, Song Z. Workplace wellness programs can generate savings. *Health Affairs.* 2010;29:304–311.
16. World Economic Forum and Right Management (A Manpower Company). The wellness imperative: creating more effective organizations. Available at: [http://www3.weforum.org/docs/WEF\\_HE\\_WellnessImperative\\_CreatingMoreEffectiveOrganizations\\_Report\\_2010.pdf](http://www3.weforum.org/docs/WEF_HE_WellnessImperative_CreatingMoreEffectiveOrganizations_Report_2010.pdf). Published 2010. Accessed December 12, 2014.
17. Loeppke R, Taitel M, Haufler V, Parry T, Kessler RC, Jinnett K. Health and productivity as a business strategy: a multiemployer study. *J Occup Environ Med.* 2009;51:411–428.
18. Kotter JP. *Leading Change.* Boston, MA: Harvard Business Review Press; 1996.

## APPENDIX 1: Integrated Health and Safety Guideline Checklist

The Integrated Health and Safety Guideline checklist below, developed by summit participants, was used to help organize an effort to compare and contrast seven leading integrated health and safety guidelines. The checklist provides a useful tool to help employers in evaluating integrated health and safety guidelines. Within the checklist, three levels of emphasis are designated by pluses (+):

- + = low emphasis
- ++ = medium emphasis
- +++ = high emphasis

A sample uncompleted (blank) checklist is also presented below for comparing and contrasting various guidelines.

### Integrated Health and Safety Guideline Checklist – Completed Sample

Guidelines	Name	Name
Components		
Publication date	2012	2010
Type of guidance offered by program	Guideline	Workbook
Audience program is geared toward	Medium-size employers	Large-size employers
Program level	Beginner to basic	Basic to advanced
Workforce focus	Any-size workforce	Small workforce
Downloadable and free	+	+++
Evidence and rationale for integration of health and safety	++	+
Scientific references	++	+
Best practices included	+++	++
Illustrative examples from the field	++	+++
Practical and accessible	+++	+++
Step-by-step approach offered	+	+++
Management systems included	++	++
Practical Web links and references	++	+
Approaches to obtaining senior leadership support provided	+++	+
Guidance in building a business case	+++	++
Sample power points for obtaining leadership support	+++	+
Checklist of integrated health and safety status Indicators	++	++
Sample forms	+	+++
Guidance for goal setting	+++	+++
Program planning	++	+
Budgeting	+++	+
Strategies for aligning leadership at all levels	+++	+
Strategies for employee engagement	++	+++
Incentive strategies	+	+
CEO message maps for leadership communications	+++	+
Approaches for outreach to dependents	++	+
Work environment assessment	++	++
Work organization assessment	++	++
Individual health assessment	+++	+++
Creating a plan	+++	+++
Vendor selection	+	+
Implementation process	+++	+++
Work environment interventions	+	++
Work organization interventions	+	++
Individual health promotion interventions	+++	++
Disease management	+++	+
Disability management	+++	+++
Addresses health disparities and other barriers	+	++
Program evaluation strategies	+++	+++
Program evaluation tools, metrics, and scorecards	+++	++
Data management	++	+++
Legal and national policy context	+	+

Integrated Health and Safety Guideline Checklist – Blank Checklist

Guidelines	Name	Name
Components		
Publication date		
Type of guidance offered by program		
Audience program is geared toward		
Program level		
Workforce focus		
Downloadable and free		
Evidence and rationale for integration of health and safety		
Scientific references		
Best-practices included		
Illustrative examples from the field		
Practical and accessible		
Step-by-step approach offered		
Management systems included		
Practical Web links and references		
Approaches to obtaining senior leadership support provided		
Guidance in building a business case		
Sample power points for obtaining leadership support		
Checklist of integrated health and safety status Indicators		
Sample forms		
Guidance for goal setting		
Program planning		
Budgeting		
Strategies for aligning leadership at all levels		
Strategies for employee engagement		
Incentive strategies		
CEO message maps for leadership communications		
Approaches for outreach to dependents		
Work environment assessment		
Work organization assessment		
Individual health assessment		
Creating a plan		
Vendor selection		
Implementation process		
Work environment interventions		
Work organization interventions		
Individual health promotion interventions		
Disease management		
Disability management		
Addresses health disparities and other barriers		
Program evaluation strategies		
Program evaluation tools, metrics, and scorecards		
Data management		
Legal and national policy context		