

Workplace Health Protection and Promotion

A New Pathway for a Healthier—and Safer—Workforce

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Traditionally, health protection and health promotion activities have operated independently of each other in the workplace. Health protection has usually been viewed as encompassing the activities that protect workers from occupational injury and illness ranging from basic safety training to the use of protective gear, work organization, and safety-enhancing modifications. Health promotion, by contrast, has usually been viewed as encompassing the activities that maintain or improve the personal health of a workforce—ranging from health risk assessments to wellness initiatives and immunizations.

By placing boundaries around these activities (creating workplace “silos”), their overall effectiveness has been limited. A new concept, “Workplace Health Protection and Promotion,” seeks to address this limitation by systematically integrating these two previously independent functions. Today’s best evidence indicates that the aims of both health protection and health promotion interventions are best achieved when they are working in concert.

Workplace health protection and promotion enhances the overall well-being of a workforce by more closely integrating health promotion and health protection activities along a continuum. In this model, 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 manner that increases their impact on overall health and productivity. The whole becomes greater than the sum of its parts. Once health protection and promotion programs are intertwined and deployed strategically to enhance each other, a healthier workforce thus becomes a safer workforce and vice versa.

Organizations, whether large or small, can engage in this new strategy by systematically integrating their health promotion safety and environmental programs, policies, and processes. Activities incorporated in workplace health protection and promotion are diverse and reflect a wide range of functions and goals. Examples include assessing worker health status, addressing personal health risks, the early recognition and treatment of injury or illness, job safety initiatives and efforts to create cultures of health and safety, disability prevention and return-to-work programs, emergency preparedness planning, and behavioral health and environmental safety initiatives. While these may appear to be diverse approaches, they are all aimed at the same thing: promoting overall health and preventing workplace injuries and illnesses.

Stated simply, workplace health protection and promotion is the strategic and systematic integration of distinct environmental, health, and safety policies and programs into a continuum of activi-

ties that enhances the overall health and well-being of the workforce and prevents work-related injuries and illnesses.

ABOUT THIS DISCUSSION ARTICLE

This discussion article makes the case for a new way of approaching health protection and health promotion, advancing the premise that a healthier workforce will be a safer workforce and a safer workforce is a healthier workforce. This article discusses the current state of workplace health, safety, and environmental programs; reviews the literature on the impact of these programs; and discusses how the integration of health protection and promotion activities can improve safety and decrease workplace injuries and illness.

PROBLEM

Currently, most workplace health protection programs (ie, safety and work environment) are separated from workplace health promotion (WHP) programs (ie, wellness and disease management). The two are often housed in completely distinct organizational divisions with health protection often residing in non-health oriented units and health promotion initiatives a function of human resources or benefits. These programs are usually run as distinct, separate activities, with minimal attempts at integration. This lack of integration prevents optimal resource utilization and impedes efforts to maximize the overall health and productivity of the workforce.

HYPOTHESIS

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.

WHAT IS DRIVING THE NEED TO INTEGRATE HEALTH PROTECTION AND HEALTH PROMOTION?

The American health care system faces enormous challenges and is on a collision course with several trends that have dire consequences for the nation:

- Chronic health conditions are on the rise across all age groups in the United States, and it is expected that in the near future, conditions such as diabetes, heart disease, and cancer will add an enormous burden to already high costs of health care. Employers will be particularly impacted as they provide medical benefits for employees and absorb the costs of absenteeism and of long- and short-term disability claims.¹
- Nearly 50% of Americans have one chronic health condition, and of this group, nearly half have multiple chronic conditions.² One study found that more than 80% of medical spending goes toward care for chronic conditions.²
- Health risks leading to chronic conditions are also on the rise. According to the Centers for Disease Control and Prevention (CDC), in 2007, only one state (Colorado) had a prevalence of obesity less than 20%. Thirty states had a prevalence equal to or greater than 25%.³

- A 2001 study found that annual medical claims' costs for people with five or more health risks were double the costs of individuals who were healthier, that is, had two or fewer health risks.⁴
- The American workforce is aging, and it is projected that between 2006 and 2016, the number of workers 55 to 64 years of age will increase by 36.5%, while workers between 65 and 74 years of age and older than 75 years will increase by 80%.⁵ By 2015, one in every five workers will be 55 years of age or older.⁶
- Older workers typically suffer from chronic health conditions and have multiple health risks. The chronic conditions most common among older age groups often require more care, are more disabling, and are more difficult and costly to treat than the chronic conditions that are more common in younger age groups.⁷

In addition to these trends, the percentage of women in the workforce is increasing, and today, women comprise 46.8% of the workforce.⁸ The distribution of nonfatal occupational injuries by sex varies by occupational sector. "In 2007, females accounted for 68.4 percent of injuries occurring in management, professional, and related occupations, while making up 51.2 percent of the workforce in that sector. Similarly, females represented 56.4 percent of the service workforce, but accounted for 61.1 percent of injuries in that sector."⁹

As the nation grapples with these trends, employers more and more have begun to understand that as the health risks of the US population increase, the disease burden on the workforce moves in parallel, and they recognize that this formula does not bode well for the economic health of their companies.

Research has shown that common chronic conditions, such as cancer, heart disease, and diabetes, are driving up total health-related costs in the workplace.¹⁰⁻¹² Other health conditions among workers—ranging from musculoskeletal/pain and depression to obesity—are adding to those costs.^{13,14}

In addition to a steadily rising medical and pharmaceutical cost burden, employers are now also seeing evidence of significant productivity-cost impacts related to poor health. Research is beginning to show a much greater connection between employee health and productivity in the workplace than was ever realized in the past.

For example, studies have shown that on average for every one dollar spent on worker medical/pharmacy costs, employers absorb two to three dollars of health-related productivity costs.¹⁵ These costs are manifested largely in the form of presenteeism (a condition in which employees are on the job but not fully productive), absence, and disability. Compounding these issues for employers is the impact of safety issues and health-related environmental-hazard costs.

Statistics show that work-related accidents and injuries exert an enormous toll on employers. Accidents, overexertion, or injuries caused by excessive lifting, carrying, or pushing, adds significantly to employer costs—with an annual impact in the billions of dollars. The National Safety Council (NSC) has estimated that on-the-job injuries cost the United States more than \$130 billion annually.¹⁶ Included in this figure are wage and productivity losses of \$68 billion, medical costs of \$24 billion, and administrative costs of \$22 billion.

In addition to these safety- and hazard-related injury costs, the effort of administering to the needs of injured workers is also extremely costly.¹⁷ The NSC estimates that employers spend well more than \$10 billion in time lost for employees who were not injured but involved in the reporting and investigation of injuries.¹⁶

The cost of protecting employees from environmental hazards in the workplace is also substantial. While the overall cost of environmental regulation in the United States has been estimated to be roughly 2% of the gross domestic product, for some industries, it is particularly high.¹⁸ The costs associated with benzene protection in coal factories or for arsenic protection in glass-manufacturing plants—both of which run in the millions of dollars per life-year—

are common examples of potential economic burdens as employers address environmental safety issues.

When all of these factors are added together, they spell out a difficult reality for the United States: the national pipeline of healthy, productive workers faces significant health-related challenges. Moreover, the cost of responding to these workplace health and safety issues has the potential to undermine America's competitiveness in the global marketplace. More than ever before, the nation needs to take steps to ensure the optimal health of its workforce.

DEFINING THE NEW "WORKPLACE"

Amidst all of these megatrends, the very nature and definition of the workplace are changing. The stationary-manufacturing and product-oriented workplaces of the past centuries have morphed into much-wider, all-encompassing virtual work environments that span workplace, home, and community, as technology enables workers to stay connected 24/7/365. This new environment makes it possible to work anyplace, anytime. As employers fulfill the need to supply customers in a more efficient and timely manner, around-the-clock work activity has increased, making not only where employees are working but also when they work important elements in the new-age workforce.

As companies have downsized and right sized to meet the new economy, increasing numbers of contingent workers are used as staff in workplaces. These individuals may have numerous employers who make up their annual income and, in many cases, may not have access to health benefits. Twenty percent of wage-and-salary employees now work a shift other than a regular daytime shift, and many are working extended hours or more than one job.¹⁹

DEFINING THE NEW "WORKFORCE"

As noted, the workforce is aging. In addition, women are entering the workforce in greater numbers.⁸

- In 1950, only one in every three women or 33.9% of all women (16 years of age or older) were in the labor force.
- By 2010, 59.2% of the 122 million women aged 16 years and older participated in the labor force, either working or looking for work.
- In 2010, women comprised 46.8% of the total workforce, up from 45% in 1998.
- Unemployment among women is lower than for men. In 2009, only 8.1% of women were unemployed compared with 10.3% of men.⁸

The growing presence of women in the workforce is significant in that women traditionally make the health care decisions for the family. Now that they are actively involved in the workplace in increasing numbers, this presents an opportunity for the implementation of safety and health programs with the potential for a broad-ranging impact on the family.

Likewise people are working longer, resulting in an older workforce. According to the Bureau of Labor Statistics (BLS), between 1970 and 2007, there was a 101% increase in workers age, that is, 65 years of age and older.²⁰ During the same time span, total employment increased only 59%. For men older than 65 years, the increase was 75%, but for women, the increase was 147%. The BLS projects that between 2006 and 2016, the number of workers aged 55 to 64 years will increase by 36.5%, while the number of workers between 65 and 74 years and older than 75 years will increase by 80%.²⁰

As previously mentioned, older workers suffer from more health risks and/or chronic medical conditions that are usually more costly to treat. A 2003 Towers Perrin report indicated that the annual aggregate medical claims' costs for employees and their dependents between the ages of 25 and 29 years was \$2148.²¹ This figure rose to \$4130 for those between the ages of 40 and 44 years and to \$7622

for employees between the ages of 60 and 64 years. As the workforce ages, the medical and pharmacy costs of employers are projected to rise.

THE PROFOUND IMPACT OF HEALTH IN THE WORKPLACE

In this new environment, where the pressure on both workers and employers is intense and where health costs are skyrocketing and chronic disease and safety and environmental hazards pose new threats, health promotion and health protection measures aimed at the nation's workforce could have significant long-term impact, potentially saving billions in costs.

A growing body of research demonstrates the connection between improved health and functional status, worker productivity, and lowered total costs.

- A 2007 study on health and productivity management programs, funded by the Association of State and Territorial Chronic Disease Program Directors, National Association of Chronic Disease, concluded that well-designed health programs in the workplace could achieve long-term health and productivity improvements in worksite populations.²²
- A 2005 study demonstrated that individuals who reduced their health risks generally saw an improvement in productivity, whereas those who increased their health risks or remained the same showed decreased productivity.²³
- A Harvard analysis of the literature on costs and savings associated with prevention programs in the workplace found that medical costs were reduced by \$3.27 and absenteeism costs were reduced by \$2.73 for every \$1.00 spent on comprehensive workplace wellness and prevention programs.²⁴
- Another study found that lowering obesity rates alone could lead to productivity gains of \$254 billion and avoidance of \$60 billion in treatment expenditures.²⁵ A recent study determined that employers could achieve significant savings by reducing the prevalence of obesity, particularly among those with a body mass index greater than 35.²⁶
- A variety of return-on-investment studies have shown that for every dollar invested in health promotion over a 3-year period, return-on-investment for employers ranges from \$1.40 to \$4.70.²⁷

WHY WORKPLACE HEALTH IS ESSENTIAL TO HEALTH REFORM

These trends and statistics suggest that health is not only of great value to individuals and populations but also to business and industry. Enlightened employers—whether small, medium, or large—are beginning to look beyond health care benefits as a cost to be managed and instead are considering the benefits of good health as an investment to be leveraged. This creates a scenario in which a proactive extension of a “culture of health and safety” into the American workplace can provide a critical piece in the overall health-system reform puzzle.

The workplace offers unique resources and infrastructure for addressing the health problems of the overall US population. With many adult Americans spending much of their active, waking hours connected in some way to the workplace, the sheer volume of individuals who can be reached through workplace health programs is vast. The CDC estimates that 65% of the adult population of the United States can be reached through worksites. Research indicates that worksite health programs represent an ideal opportunity to have an impact on the health behaviors of working adults and their families.²⁸

There are many other reasons why a new focus on health in the workplace makes sense, including the following:

- Workplace programs can reach segments of the population who may not have access to health information in other settings.

- Workplaces concentrate groups of people together who share common purpose and culture.
- The work environment can be utilized to advocate for and provide access to healthy lifestyles.
- Communicating with workers is straightforward, due to preestablished and well-organized communication channels.
- Social and organizational supports are available in the workplace.
- Organizational hierarchies make possible the introduction of procedures, practices, and norms.
- The physical environment of the workplace can be used to affect health behaviors (cafeteria/food selection, ergonomic office design, use of stairways and landscaping, etc).
- Financial and other incentives can be utilized in the workplace to gain participation in programs.²⁹

Studies show that health promotion activities in the workplace have the capacity to influence both individuals and populations. Public health promotion—which has used social policy and engineering interventions along with health education to decrease dental caries, improve highway safety, and decrease smoking prevalence in the United States—can be very effectively applied in the workplace.

As one part of multicomponent initiatives to improve dietary behavior, for example, several interventions have been found to be effective in increasing healthy food choices. These include point-of-sale education and labeling³⁰ and enriching and subsidizing health food choices available through cafeterias and vending machines.^{31,32}

Worksite policies banning tobacco use at the workplace have also gathered momentum in recent years and have added to overall efforts to decrease smoking and limit exposure to second-hand smoke.³³

Employee assistance programs aimed at reducing chemical dependence among employees have been shown to result in significant long-term impacts.^{34,35}

In short, the workplace can be considered a microcosm of larger society and as such can provide an effective setting for addressing both individual health and the health of populations. Programs in the workplace can reach and engage segments of the population that may not otherwise be exposed to health-improvement efforts.

TRADITIONAL SAFETY AND WELLNESS SILOS NOT OPTIMAL FOR WORKPLACE HEALTH

The evidence clearly shows that the health of the workforce is inextricably linked to the productivity of the workforce and the health of the nation's economy. It also shows that employers increasingly recognize this link and are interested in improving worker health by expanding workforce health protection and health promotion programs. Employers in recent decades have devoted more resources and attention to the subject. In one study, a majority reported that they have established some form of health promotion effort in the workplace.³⁶

But are these efforts sufficient to significantly impact workforce health nationally and to introduce a true culture of health and safety in the workplace?

While the national recognition and embrace of programs for workplace health protection and health promotion are clearly on the rise, the 2004 National Worksite Health Promotion Survey found that only 6.9% of surveyed organizations met the criteria for comprehensive health programming for employees.³⁷ This falls far short of the 75% target that has been outlined in the federal government's Healthy People Program.³⁸ “Safety” and “wellness” are still in distinct silos.

Few employers have created truly integrated programs, which comprehensively address both health promotion and health protection in a systematic fashion. In the majority of workplaces, the “wellness community” and the “safety community” are simply not connecting; they operate far too independently.

The “safety” side of the equation—encompassing the activities that protect workers from occupational injury and illness and promote a better work environment—is often housed in an organizational sector that is completely separated from health and wellness. The “safety committee” in a mid-sized manufacturing company may have no formal connection with the coordinator of the company’s wellness incentive program, housed in human resources, for example.

The “wellness” side of the equation—encompassing the activities that maintain or improve the personal health of a workforce—may be focused and engaged in the same company, with the benefits planning and implementation team, but be out of touch with core operations involving Occupational Safety and Health Administration (OSHA) regulations and safety impacts.

Why the disconnect? Some may view the occupational health community’s efforts at health promotion and disease prevention as a drain on resources that are needed for occupational health protection activities. Conversely, others may view health protection, safety, and environmental hazard efforts as overly isolated in achieving broad population health goals.

As National Institute for Occupational Safety and Health (NIOSH) has noted, “The occupational health community has seen efforts at generic health promotion and disease prevention in the workplace at best as drawing needed resources from occupational health protection strategies, and at worst involving victim blaming and distracting attention from the occupational health needs of workers. There has been concern that a narrow focus on health promotion will deflect employers from their legal responsibilities to provide workplaces free of recognizable hazards.”³⁹

Lessons can be learned from the health protection/safety focus of employers. Since the establishment of the OSHA on April 28, 1971, the number of workplace fatalities, injuries, and illnesses has decreased. In 1970, approximately 14,000 workers were killed on the job. By 2009, that number had fallen to approximately 4340 even when the workforce doubled in size to more than 130 million workers at more than 7.2 million worksites. Since the establishment of OSHA, the rate of reported serious workplace injuries and illnesses declined from 11 per 100 workers in 1972 to 3.6 per 100 workers in 2009. Clearly, companies have adopted a “Culture of Safety” and have made vast improvements to the workplace to ensure a safe workforce. Today, if someone experiences a serious job-related injury, the site usually shuts down and a root-cause analysis is completed before the continuation of work. However, if an overweight employee were to have a heart attack on the job, work would continue uninterrupted. That same focus and “Culture of Safety” that companies adopted over the last 40 years in response to workplace injury and illness need to be translated to a “Culture of Wellness,” focusing on the overall health of employees.

MAKING THE CASE FOR INTEGRATING WORKPLACE HEALTH PROTECTION AND HEALTH PROMOTION

The time has come to move these often-independent employer health promotion and health protection activities to a new, more-effective level through integration. Increasingly, thought leaders in the traditional sectors of wellness and safety are advancing the question: Could health improvements translate to safety improvements, safety improvements translate to health improvements, and the synergies gained by integrating the two create significantly healthier workplaces?

By better coordinating distinct environmental, health, and safety policies and programs in the workplace into a continuum of activities, it is theorized that employers can substantially enhance the overall health and well-being of the workforce while better preventing the work-related injuries and illnesses. In short, a healthier

workforce can be a safer workforce; a safer workforce can be a healthier workforce.

This is an intuitive conclusion, which on its face seems logical. We know, for example, that employees can improve their muscular and cardiovascular response capabilities through exercise and nutrition programs; does it, therefore, follow that their ability to avoid injury is enhanced via heightened fitness levels? Conversely, we know that ergonomically oriented safety programs reduce injuries, for example, but do they also contribute to overall health gains for individuals?

Evidence is beginning to point in these directions. Good physical condition, absence of chronic illness, and good mental health are the factors that have been scientifically observed to be associated with low occupational injury rates.^{40–42} It has been clearly shown, for example, that workers with certain adverse health risk factors are more likely to sustain injuries than those without such risks. Among these factors are obesity, sleep deprivation, having poorly controlled diabetes, being a smoker, abusing drugs and/or alcohol, or being impaired by certain prescription medications.^{40,43,44}

This evidence is one of the driving factors behind the adoption of more aggressive screening for the presence of numerous medical conditions and illnesses in a variety of US Department of Transportation examinations (eg, Federal Motor Carrier Safety Administration (FMCSA) medical examinations for commercial drivers and Federal Aviation Administration (FAA) examinations for pilots.) Identifying medical conditions that impact safety has been proven effective in lowering accidents among commercial drivers and pilots.^{45,46}

Researchers have found a statistically increased risk for accidental death in obese employees⁴⁷ and have determined that hearing loss and poor eyesight are also associated with injuries at work. Crawford et al found that those who self-reported their hearing as “not good” were at increased the risk for an accident at work,⁴⁸ while Choi et al⁴⁹ reported that workers with self-reported fair/poor hearing had a twofold risk for an injury at work. Girard et al⁵⁰ found similar relative risks in a retrospective study.

Zwerling et al⁵¹ reported that self-reported poor and fair vision increases the risk of occupational injury by about 50%. Browning et al⁵² reported a similar association between self-reported problems of vision and injuries at work.⁵²

Many studies have found an increased risk for an occupational injury connected to fatigue, as well as a clear correlation between poor sleep and the risk for an injury at work.^{53,54} One study reported a twofold risk for an injury at work in employees with sleep disorders.⁵⁵

Several studies observed increased injury rates in employees reporting conflicts at work, either with coworkers or with supervisors, and a much higher incidence of self-reported injuries in those who had depressive symptoms.^{56–58}

Costs associated with these various workplace health/safety risks have also been well documented. A University of Michigan study showed that 85% of workers’ compensation costs were attributed to worker health status tied to risk assessment.⁵⁹ In a 2009 study conducted by Kuhnen et al,⁶⁰ a comparison of low-risk health risk assessment (HRA) participants with high-risk participants showed that those with high risk were nearly 3 times more likely to file a worker’s compensation (WC) claim, whereas medium-risk participants were 1.5 times more likely to file a short-term disability claim.⁶⁰

While there is ample evidence to indicate that wellness promotion affects safety, evidence proving that safety affects wellness is less readily available. We need to know much more about how safety impacts on wellness. That said, some current research does suggest an inherent connection.

A recent study of worker health programs at Navistar, for example, shows a strong cross-silo linkage between safety and health results in an integrated environment.⁶¹ After the creation of a comprehensive, integrated health initiative that spanned both sides of

the health protection/health promotion spectrum, Navistar reported substantial gains in both overall health and safety results. Injury incidence frequency rate dropped to 455 injuries in 2009 compared with 2446 injuries in 1998.⁶² Navistar's both workers' compensation costs and hospital admission rate per employee dropped, and the company achieved a 48% decrease in "controllable absences" (workplace injuries/illness).

Navistar's experience bolsters the notion that implementation of comprehensive health protection and promotion activities can lead to a culture of health in the workplace. Other research is increasingly pointing to this broader connection. Emerging studies of the impact of the work environment on the health of workers are suggesting that the impact lies far beyond what has been traditionally categorized as occupational health and illness. For example, shiftworkers are more likely to eat poorly and suffer from obesity and diabetes.⁶³ Female shiftworkers may be at a higher risk of breast cancer.⁶⁴

Pioneering research by Laura Punnett of the University of Massachusetts has suggested that a host of factors is related to musculoskeletal injuries in the workplace—ranging far beyond safety-oriented measures such as the mechanics of lifting, posture, etc, and encompassing such factors as socioeconomic status and lifestyle behaviors. When these multivariate factors are addressed together, the potential for overall health gains in employees is increased.⁶⁵

Numerous studies of the impact of shiftwork have shown that changes aimed at sleep deprivation as a safety issue have also demonstrated improvements on health conditions ranging from diabetes and obesity to cardiovascular disease.⁶⁶ But, perhaps, most compelling in establishing the link between safety and wellness are "sequencing" studies, indicating that participation by employees in wellness programs is less likely when such programs are introduced in workplaces with unaddressed safety issues.⁶⁷ The research suggests that a firm foundation of solid safety efforts is necessary before an organizational wellness effort can yield optimal results—a powerful argument for the integration of the safety and wellness silos. A combination of safety and wellness appears to be necessary to move an organization forward in adopting a true culture of health.

Reflecting this evidence base, an increasing number of organizations have, in recent years, developed initiatives and produced guidance documents supporting the fundamental importance of improving and maintaining health status as a bridge to improving safety results and integrating safety programs as a key foundation for achieving overall health. In the United States, the American College of Occupational and Environmental Medicine (ACOEM), NSC, NIOSH, and others have begun to elevate this concept of integration, as have international organizations, including the World Health Organization/International Labour Organization, the United Kingdom's National Health Service, and the European Union's Safety and Health at Work Strategy.

Common elements in the new integrative models include the following:

- Building a "whole life" approach to health and safety, which combines both on-the-job and off-the-job dimensions in a unified vision that leads to a true culture of health;
- Stressing the importance and connection of overall health and wellness to safety outcomes; and
- Recognizing the evolution in the nature of workplace hazards and including this awareness in the development of health strategies.

The NIOSH introduced its WorkLife Initiative in 2007 to better integrate employee health strategies,⁶⁸ and the State of California this year introduced a similar initiative with a guideline for employers titled "The Whole Worker: Guidelines for Integrating Occupational Health and Safety with Workplace Wellness Programs."⁶⁹

The NIOSH and other organizations stress that continued improvements in injury reductions are not just a reflection of excellence

in traditional safety areas, such as machine guarding, but also are dependent on improvements in personal health.

The National Aeronautics and Space Administration has also implemented a widely studied paradigm of workforce health—one that embraces a more holistic, cross-silo view of a "healthy workforce: Employers that have traditionally been responsible for safety, environmental, and occupational health concerns will, of necessity, become more involved with work life issues, health behaviors, and social interactions."⁷⁰

The National Aeronautics and Space Administration's description of its wellness and safety paradigm provides a strong model for integration, calling for an approach that "requires a service construct oriented toward human performance; a health model focused on population, rather than on individual goals and objectives; and a measurement system oriented toward health status and outcomes. A systems approach rather than a programs approach better supports this paradigm because systems are constructed of linkages and seek synergy. Systems operations require thinking, work processes, and resource utilization, which emphasize integration, collaboration, and optimizing overall performance rather than stand-alone components or programs."⁷⁰

It is important to note that there may be a certain amount of productivity loss that cannot be recovered through health and safety programs. Recent research has identified the "normal impairment factor" (NIF)—an amount of productivity loss that is not attributable to health risks and therefore not available for "recapture," using health and productivity management programs.

StayWell Health Management and Riedel & Associates Consultants, Inc, established the NIF in 2009, and research demonstrated that the NIF comprised 3.4% of all productivity loss or 1.8 weeks per person per year. This finding was based on a sample of 772,750 employees, representing 106 employers within five industry sectors.⁷¹ In a new study, the authors tested the original NIF against a group of 577,186 employees completing the HealthMedia, Inc, health risk appraisal. Their NIF comprised 3.5% of all productivity loss.⁷²

These studies demonstrate that two unique and very large employee health risk appraisal databases identified normal impairment factors of 3.4% and 3.5%, respectively. This amount of nonhealth risk-related productivity loss needs to be taken into consideration to accurately quantify the amount of loss that is avoidable and therefore can be impacted by integrated health protection and promotion programs.

COMPLETING THE CONTINUUM: TAKING HEALTH PROTECTION AND PROMOTION HOME

The workplace is organically connected to the home and to the physical communities in which workplaces exist. Health behaviors extend across all three environments and cannot be artificially separated. Just as factors in the workplace can affect health and well-being at home and in the community, exposures, activities, and other elements outside the workplace can affect health and productivity on the job.

In an important study, Seabury et al⁷³ point out that it is becoming increasingly difficult to distinguish individual behavior at and away from work. This makes it more difficult to draw the distinction that individuals can only directly affect their own health through their actions away from work, while employers only directly affect worker health through the workplace environment. As Cherniack et al⁷⁴ put it: "Prevention of chronic disease factors, as well as efforts to maintain high function and effectiveness cannot be confined to a 40-hour work week."

The workplace environment can be utilized to stimulate healthy lifestyle habits that can be carried over to the home environment. For example, encouraging employees to take the stairs (up two, down three), creating walking trails in and around the worksite, offering healthy snack options in vending machines and at

meetings, providing access to on-site exercise facilities, and encouraging stretch breaks, all these activities assist in establishing healthy lifestyle behaviors.

Research of Punnett et al⁷⁵ on multivariate factors in workplace safety and injuries provides epidemiologic evidence, suggesting that there is not a clear dividing line between “work-related” and “non-work-related” injuries. The concepts of injury and illness must be considered in a broader context.

Thus, it makes sense for an organized national effort promoting workforce health and protection to be coordinated with efforts such as the emerging “medical home” concept, championed by the all primary care specialties, which envision a strong emphasis on partnerships between patients and a medical team to achieve optimal health.

By logical extension, efforts aimed at integrating health promotion and health protection in the workplace can ultimately be connected with the medical home, with the employer occupying a role as a member of an individual’s “health team” and medical community.

The same argument can be made for connecting the workplace health protection and promotion concept with a variety of other health system initiatives—ranging from the adoption of electronic health records to national antismoking and nutritional awareness campaigns.

As a vital component in a three-legged stool composed of workplace, home, and community, workplace health protection and promotion programs can then have an even greater impact on overall health care reform.

NIOSH is refocusing workplace health efforts on integration across silos and sectors, notably connecting workplaces, homes, and communities through the funding of several academic Work-Life Centers of Excellence.⁷⁴ Three WorkLife Centers of Excellence have been created to support and expand multidisciplinary research, training, and education to stimulate the integration of workplace health protection and workplace health promotion. The Centers are as follows:

- **University of Iowa, Health Workforce, Center of Excellence**, whose goals are as follows:
 - To implement, evaluate, and compare health protection/health promotion models, including an intervention based around an integrated worker safety/health promotion committee and an intervention using health counseling to integrate the delivery of health protection and health promotion services in the public sector.
 - To establish a learning network of interactive partnerships with employers; employee groups, including unions; and health organizations.
 - To serve as a state and national information, education, and policy resource on employee health programs.⁷⁶
- **Center for the Promotion of Health in the New England Workplace**—a consortium of the University of Massachusetts and the University of Connecticut. The Center’s research objectives are as follows:
 - To assess the value of the integration or coordination of health protection and health promotion in the workplace.
 - To integrate two core public health areas (Occupational Health and Safety and Health Promotion), linking primary prevention to the workplace and the workplace to primary prevention.
 - To evaluate whether this strategy provides enhanced health benefits and/or greater cost-effectiveness.
 - To evaluate opportunities and obstacles in the traditional public health infrastructure.⁷⁷
- **Harvard School of Public Health Center for Work, Health, and Well-being**—the goals of the center are as follows:

- To establish, facilitate, and maintain a collaborative network of researchers interested and engaged in worker health across diverse disciplines, including occupational health and safety, social/behavioral sciences, social epidemiology, industrial hygiene, social policy, organizational change, medicine, nursing, economic analysis, and labor relations.
- To foster and expand collaborations with employers, labor unions, and intermediary organizations to help to shape the center’s directions and to influence the dialogue among these constituencies regarding the application of integrated approaches to worker health.
- To synthesize and apply lessons learned from prior research on the integration of occupational safety and health and WHP.
- To initiate research in two high-priority employment sectors, health care, and construction, across several studies.
- To cultivate future transdisciplinary research initiatives through strategically planned pilot projects.
- To train future and practicing professionals with a stake in the health of working people on needed skills and methods for integrating occupational safety and health and WHP.
- To disseminate best practices and programs for integrated efforts to key stakeholders.
- To contribute to national priorities and future research directions aimed at furthering integrated approaches to worker health through collaborations with NIOSH as part of this cooperative agreement.⁷⁸

These Centers will be publishing the results of their research and additional information may be found on their respective websites.

CONCLUSION

Traditionally, health protection and health promotion activities have operated independently in the workplace. Health protection has usually been viewed as encompassing the activities that protect workers from occupational injury and illness—ranging from basic safety training to the use of protective gear and safety-enhancing modifications to equipment. Health promotion, by contrast, has usually been viewed as encompassing the activities that maintain or improve the personal health of a workforce—ranging from health risk assessments to wellness initiatives and immunizations.

The creation of workplace “silos” that place boundaries around these activities has been a limiting factor in organizations’ ability to develop truly integrated health initiatives, reducing their overall effectiveness. While we have made great strides in creating a culture of safety and health protection in the United States since the establishment of OSHA 40 years ago and have made encouraging progress in establishing a culture of wellness and health promotion in more recent decades, the two have yet to meet and merge into a true “culture of health.”

A new way of approaching these two vital activity centers is needed—one that will integrate them into a concept called “workplace health protection and promotion.” This is the path to creating a sustainable culture of health.

Simply defined, workplace health protection and promotion is 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.

Organizations, whether large or small, can engage in this new strategy by systematically integrating their health promotion and safety programs, policies, and processes. This includes implementing programs that recognize the interactions of safety, environment, and health; creating a climate in which employees believe that an organization cares about their health and safety; building a culture in which a health and safety mindset becomes a “24/7” way of thinking; and promoting an off-the-job health and safety focus that becomes

as important as, and overlaps with, the on-the-job health and safety focus.

By extending this concept in this way—taking it beyond the walls of the workplace and connecting it with other health promotion initiatives in the home and community—workplace health protection and promotion can contribute tangibly to a stronger overall national health care system and improved health outcomes for the population in general.

While logic, anecdotal evidence and a growing body of research suggest that integration of health promotion and health protection initiatives in the workplace can help to pave the way for improvements in workforce health and productivity; more research is needed to strengthen this hypothesis, particularly in measuring the impact of safety programs on workforce wellness.

RECOMMENDATIONS

To advance the concept of integrated health protection and promotion, the nation's employers and policymakers should work together on a basic agenda for research and change, incorporating several key action steps. These include the following:

1. A set of best practices in the integration of health protection and health promotion in the workplace should be gleaned from the initial pilot programs referenced in this document.
2. Results of these pilot studies should be translated into practical guides for nationwide implementation by employers. Dissemination should occur through a variety of vehicles, including conferences, Web sites, seminars, and publications. An emphasis should be placed on providing guidance for small- to medium-sized employers.
3. Public policy options supporting integrated health protection and promotion strategies should be developed and communicated, engaging key stakeholders, including federal and state lawmakers, employers and insurers, labor unions and pension funds, health care providers, and health and safety professionals and other organizations.
4. Incentives at the federal, state, and local level should be adjusted and implemented, encouraging employers to adopt integrated health protection and promotion strategies.
5. Government and private sector organizations and agencies should expand research on the synergy between health protection and health promotion in the workplace. While some evidence exists to suggest the benefits that can be gained by better integration of health promotion and health protection, much more targeted research is necessary. Specifically, more studies are needed that are aimed explicitly at demonstrating the tie between specific wellness activities and safety or injury and illness reduction and productivity. This can be accomplished through pilot programs in key industry sectors to gauge the impact of workplace health and wellness programs on workplace safety through demonstrating a decrease in on the job injuries and illnesses.
6. An effort should be made to coordinate a strategy of health protection and promotion in the workplace with other national health care initiatives, including the growth of evidence-based medicine. Functional research and metrics from the workplace should be integrated with clinical, evidence-based outcomes to create new standards for determining the value and impact of workplace programs.
7. Systems for measuring the effectiveness of combined health protection and promotion programs should be standardized so that they can be readily utilized across industries/employers. A broad sweep of key metrics should be incorporated, including functional status, cost impact, patient satisfaction, and clinical outcomes.
8. Funding for the NIOSH WorkLife Center of Excellence program should be extended to every region of the United States; all centers should be fully funded to allow continued development of a

comprehensive research, translation, and outreach program to all employment sectors.

A Committee of the Health and Productivity Section of ACOEM developed this document

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