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Integration of Health Protection and Health Promotion: Rationale, Indicators, and Metrics

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Abstract

Objective—To offer a definition of an “integrated” approach to worker health and operationalize this definition using indicators of the extent to which integrated efforts are implemented in an organization.

Methods—Guided by the question, “How will we know it when we see it?” we reviewed relevant literature to identify available definitions and metrics, and used a modified-Delphi process to review and refine indicators and measures of integrated approaches.

Results—A definition of integrated approaches to worker health is proposed and accompanied by indicators and measures that may be used by researchers, employers and workers.

Conclusions—A shared understanding of what is meant by integrated approaches to protect and promote worker health has the potential to improve dialogue among researchers and facilitate the research-to-practice process.

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Introduction

Increased attention is being placed on the worksite as an important venue for influencing worker health. Since the Occupational Safety and Health Act of 1970 mandated development and enforcement of worksite standards and assigned employers the responsibility to maintain safe and healthy work environments, *health protection* efforts have been important in the prevention of work-related injuries and illnesses.^{1,2} In addition, health behaviors are critical contributors to a range of chronic disease outcomes,^{3–6} and workplace *health promotion* efforts may have a substantial influence on these health-related choices and behaviors. These initiatives include educational programs as well as workplace policies and practices that affect health directly or through their influence or support of individual health-supportive choices. The emphasis on primary prevention in the Affordable Care Act offers further opportunities for employers to encourage participation in workplace health promotion approaches.^{7,8}

Traditionally, health protection programs and policies have functioned independently of workplace health promotion. These efforts are often located in organizationally distinct “silos,” have separate budgets and personnel, oversee discrete policies and practices that affect worker health, and offer distinct educational and training programs, with little if any coordination or integration. These independent efforts related to worker health may include occupational health and safety, health promotion, disease management, and human resources and benefits, among others. This paper examines the opportunities for the integration of health promotion and health protection, although integration across all health-relevant domains may also be valuable.

Growing evidence indicates that comprehensive policies and programs that simultaneously address health promotion and health protection may be more effective in preventing disease and promoting health and safety than either approach taken separately. Although additional evidence of the effectiveness of this approach is needed, there is an increasing acknowledgement of the potential advantages of integration. Integrating health promotion and health protection efforts may contribute to greater improvements in behavior change,^{9,10} higher rates of employee participation in programs,¹¹ potential reductions in occupational injury and disability rates,^{12,13} stronger health and safety programs,¹⁴ and potentially reduced costs.¹⁵ Integration further facilitates better use of limited resources and improves the overall health, productivity and resilience of the workforce.^{10,16} In addition, internal collaboration across multiple departments may lead to improved processes and outputs, and an enhanced work climate.

This integrated approach has been adopted as a research to practice (R2P) priority by the National Institute for Occupational Safety and Health (NIOSH) in its Total Worker Health™ (TWH) Program. The TWH Program reflects a strategy for integrating occupational safety and health protection with health promotion, to prevent worker injury and illness and to advance health and well-being.¹⁷ In addition, this integrated approach has been endorsed by the American College of Occupational and Environmental Medicine,¹⁶ the American Heart Association for cardiovascular health promotion,¹⁸ International Association for Worksite Health Promotion,^{19,20} the Institute of Medicine,²⁰ the and others.^{16,18,20–23}

Despite this broad conceptual support, there is no shared definition of integrated approaches or set of standard metrics useful in their evaluation. A common definition and consistent metrics would facilitate the adoption of integrated approaches to worksite health and assist wider dissemination of these strategies. Measures are available to assess safety climate^{24–26}, the presence of workplace health promotion²⁷ and a “culture of health.”^{28,29} These measures tend to focus on *either* health promotion or health protection rather than on their integration. Another relevant resource is NIOSH’s Essential Elements of Effective Workplace Programs and Policies,³⁰ developed to serve as a guide to employers interested in comprehensive approaches to worker health. However, they were not intended to be used as measures of integrated approaches. Thus, although there is growing dialogue in the literature about what might be included in integrated approaches to worker and worksite health, no standard definitions or metrics have been developed to assess these initiatives.

The purpose of this paper is to propose a definition of an “integrated” approach to worker health. In addition, we aim to identify key indicators of the extent to which integrated efforts are being implemented within a given organization. We present measures that may be used by employers and researchers to assess the extent of implementation of an integrated approach.

Methods

This manuscript was developed by the Harvard School of Public Health Center for Work, Health and Wellbeing, a NIOSH-funded Center for Excellence as part of its TWH Program. This Center includes three research projects aimed at testing an integrated approach to worksite health promotion and health protection. Center investigators have conducted research using the integrated approach and have contributed to its extant literature.^{9,10,14,31–36} In our cross-project efforts, we identified a gap in the literature in defining and measuring integrated approaches to worker health recommended by the TWH Program. With the aim of determining “how we will know it when we see it,” we launched a multi-disciplinary effort to develop indicators and measures of integrated approaches to health promotion and health protection. Members of the team have had significant experience in utilizing integrated approaches in research, promoting their use in practice, as well as in worksite health promotion and health protection, and represent the fields of ergonomics, occupational health, industrial hygiene, occupational medicine, nursing, health promotion, social epidemiology, business management, law, economics, social policy and sociology.

Our methods included an overview of the pertinent literature to determine candidate definitions and assess the extent to which relevant metrics might be available. (See Table 1 for examples.) We used an iterative modified-Delphi process³⁷ by forming an expert review panel, including investigators and the External Advisory Board, as well as members of other TWH Centers of Excellence. With this method, the review team first identified common themes in the literature about integrated approaches to worker health. Through repeated discussions and revisions among Center members, these themes were used to generate a set of indicators and associated measures. In 10 meetings over 12 months, Center members discussed and arrived at consensus regarding a final set of indicators and their measures. The

resulting measures were reviewed by members of the Center's Worksite Advisory Board, who provided detailed recommendations for improvements. The measures were further tested through systematic cognitive testing with representatives of three employers. The measures have since been included in a survey of small-to-medium size worksites in one of the Center's studies.

Defining integrated approaches to worker health

We define an integrated approach to worker health as *a strategic and operational coordination of policies, programs and practices designed to simultaneously prevent work-related injuries and illnesses and enhance overall workforce health and well-being*.^{15-17,19,31,38} These policies and programs aim to protect worker health by reducing or eliminating the potential for exposure to job hazards (i.e., health protection), while also promoting worker health by fostering individual health behaviors, such as tobacco control, healthful diets, physical activity (i.e., health promotion), in the context of a health-supportive organizational and physical environment that actively engages workers throughout the process. These integrated efforts may involve other organizationally disparate functions affecting worker health and wellbeing, such as disease management, behavioral health, employee assistance programs, and medical and benefits functions.

In practice, these approaches occur along a continuum. Some employers may be prompted by concerns about compliance with regulations and establish occupational health and safety programs and policies, in the absence of any health promotion initiatives. Other employers may institute *both* approaches to supporting worker health, but the functions of health promotion and health protection may exist in separate silos in different parts of the organization. With increasing integration, workplace policies and practices reflect employers' dual commitment to and goals for health promotion and health protection efforts. Beyond the simple summation of health protection and health promotion, the integrated approach reflects an organizational transformation and a culture of health and safety that supports worker health both within and outside the workplace.^{9,10} Guidance on the process of implementing integrated interventions is increasingly becoming available.^{38,39}

Indicators of integration

We have outlined a set of indicators of integration, including organizational leadership and commitment to worker health; collaboration between health protection and worksite health promotion; organizational policies and practices (including accountability and training, management and employee engagement, benefits and incentives to support workplace health promotion and protection, and evaluation and surveillance); and comprehensive program content. Each of these individual indicators may be measured along a continuum, such that successful implementation of integrated approaches to worker health may be enhanced with greater implementation of each indicator.

Organizational leadership and commitment

Top management is responsible for articulating the vision for worker and worksite health, and ensuring that adequate resources are available for implementing integrated approaches

to worker health. Creating and sustaining a healthy workplace begins with a clearly articulated and communicated vision from senior leadership that ties health to the organization's mission.²⁰ Leadership also can ensure implementation of policies and programs by establishing accountability for action and ensuring that adequate resources are available.⁴⁰ Processes and policies relevant to safe design and purchasing decisions reflect top management commitment. Top management is also responsible for communicating throughout the organization the worksite's commitment to this integrated approach and to worker health goals.

Collaboration between health protection and worksite health promotion

Rather than functioning independently, there is coordinated and collaborative decision making and shared learning around developing, implementing and evaluating programs, practices and policies to protect and promote worker health. To the extent possible, policies and programs are planned and implemented to coordinate and leverage dual effects; for example, a policy aimed at reducing potential exposures to hazardous fumes may be linked to overall efforts to promote respiratory health, including through tobacco control policies and programs, such as banning smoking at worksites. Similarly, efforts aimed at reducing ergonomic exposures can emphasize the potential benefits for physical activity, while also minimizing the risk of injury.

Coordination of health protection and health promotion occurs across multiple levels of influence, including policies and practices at the organizational and environmental levels as well as programs for individual workers. This coordination underscores the application of differing operating principles used in occupational health and safety and worksite health promotion, which must be recognized and aligned for successful integration. Principles of prevention through anticipation, recognition, elimination, and control of hazards, along with ongoing environmental and health surveillance, provide an operating premise for occupational health and safety.^{41,42} These principles, along with the legal responsibilities under the OSHA Act, reflect the primary decision-making role played by management in protecting workers from occupational hazards.

The physical and organizational work environment may also play a central role in promoting healthy behaviors. For example, tobacco control policies, availability of healthy foods in work cafeterias, and benefit options that provide incentives for healthy behaviors are central to effective health promotion.^{43–45} At the individual level, educational and training programs can support health behavior changes for workers, and may also provide workers opportunities to build skills to minimize exposures to work hazards, e.g., effective use of lifting devices for patient care workers to minimize ergonomic exposures.

Supportive organizational policies and practices provide operational supports for worker health.

Accountability and training—Staff are held accountable for implementing integrated policies and programs when these responsibilities are included in their job descriptions. Performance metrics, applied to annual reviews, include responsibility for interdepartmental coordination and collaboration in support of health promotion and health protection.

Workers and managers can be trained to recognize and correct safety and health threats. To assist in program implementation, some worksites may turn to external vendors, who provide the experience and expertise to coordinate workplace health promotion and protection efforts.⁷

Management and employee engagement—The importance of engaging managers and employees across the organization is well recognized as fundamental to program success.²⁰ To the extent possible, integrated interventions take advantage of existing mechanisms to engage employees and managers across health promotion and health protection, and to involve them in decision-making and planning. Successful integration of health promotion and protection relies on active engagement of workers throughout the process. Engaged and empowered workers are encouraged to identify and report threats to safety and health and to expect they will be addressed. In this context, the mission of an existing health and safety committee might be expanded to also address health promotion, or a new committee with shared responsibilities in both domains may be created. Workers may be involved in problem identification and solving. Employees may also be engaged through a program “champion” who coordinates efforts to promote and protect worker health.³⁸

Benefits and incentives to support workplace health promotion and protection—Benefits and incentives are instituted that protect and promote workplace and worker health and well-being. Health care coverage is a central linkage point for health protection and promotion efforts.^{46,47} Workplace benefits that address health and well-being might include flex-time, paid sick leave, screening and prevention coverage, and health coaching or wellness opportunities. For example, employees may receive a cash bonus for completion of a health risk appraisal, attendance at health and safety trainings, or quitting smoking. Incentives for managers may acknowledge success in health and safety within their departments and in leading workplace health promotion and protection efforts. A critical review of benefits and incentives that currently exist in the workplace is important to determine the extent to which they support or inhibit workplace and worker health and well-being, and legal and ethical issues need to be addressed.^{48,49} For example, programs that provide incentives to reduce reporting of injuries may have the unintended consequence of minimizing reporting without altering actual injury rates, and also shift the burden of responsibility for injury reduction to individual workers without attending to needed multi-level supports in the work environment.⁵⁰

Integrated evaluation and surveillance—Ongoing evaluation and monitoring of integrated programs, policies and practices can provide necessary feedback for program monitoring, quality control, and ongoing quality improvement. A fully integrated system conducts continual monitoring and reporting that will consist of multiple audits, evaluations, and feedback mechanisms to all relevant workplace stakeholders. Reporting of both occupational health and behavioral exposures and outcomes is critical for both on-going engagement and support. An integrated system for health data can be used to ensure that data are organized in a way that contributes jointly to health promotion and protection efforts.^{20,47}

Comprehensive program content

The effectiveness of health protection and promotion messages for workers may be enhanced when these messages are coordinated and acknowledge the additive and sometimes synergistic effects of exposures to worksite hazards and individual health behaviors. Thus, for example, an integrated respiratory health program for workers may address the importance of tobacco use cessation in the context of efforts to control or eliminate potential adverse exposures on the job. Similarly, programs aimed at reducing musculoskeletal disorders may incorporate messages that underscore the potential intersections of inadequate sleep, low levels of physical activity, and work-related musculoskeletal injuries, and in turn, the role of pain in reducing the likelihood that an individual will be physically active.⁵¹

The effectiveness of health messages may also be enhanced when they are also linked to workers' job experiences and work environment.⁵² For example, long work hours and rotating or night shifts may impact sleep patterns, with consequences for diet choices.⁵³ Acknowledging and attempting to mitigate the influence of rotating or night shifts may increase the salience of information about the roles of sleep in dietary patterns and physical activity for workers on these shifts. Similarly, worker health outcomes may be affected by the work organization; for example, in a study of health care workers we found that low supervisor support and harassment at work were associated with increased risk of low back pain and sleep deficiency.³²

Recommendations for Measurement

We have operationalized these seven indicators with corresponding measures, as presented in Table 2. These measures may serve multiple purposes. For example, researchers may use them to assess the extent to which a company is implementing an integrated approach, to benchmark where a company might stand relative to other companies in the implementation of an integrated intervention, or to identify factors associated with variations in integration across companies. These factors may be rated on a three-point scale (e.g., absent; partially adopted; fully achieved).

Companies may use these measures as a “self-assessment” to estimate the extent to which they have integrated policies, programs, and practices related to worker and worksite health. As a planning tool, the measures can indicate areas of potential strength and improvement along the continuum toward full integration, and serve as a stimulus for priority setting and decision-making. In the context of a discussion with outside experts, this tool may be used to provide consultation around ways to increase integrated approaches to worker health. In this case, worksite representatives selected to represent diverse departments may complete the assessment individually, and then discuss their perceptions and work toward consensus. A consensus rating is important as people in different positions may have different perceptions of the degree to which any of the items are applied within their organization.

Discussion

This paper responds to the need for a shared definition of and common metrics to assess integration of health promotion and health protection. We have described seven indicators of integrated approaches that may locate an organization along a continuum, and have proposed a set of measures to assess the extent to which a worksite is implementing an integrated approach to worker and worksite health. These measures may be used to provide a benchmark for comparisons with other organizations, provide organizations feedback to facilitate the process of moving toward greater program effectiveness, and inform research aimed at identifying factors contributing to adoption and implementation of the integrated approach.

The indicators of integrated approaches to health promotion and health protection may encompass what has also been termed an integrated management system, that is, one that integrates policies, programs, and practices into an overarching framework that coordinates programs and policies instead of breaking them down into competing “silos.”^{20,38} An integrated management system may utilize integrated processes at each step of a plan-do-check-act cycle,⁵⁴ and the indicators of integration could be used to evaluate and monitor each step. Following this framework, a comprehensive commitment to worker health and safety is articulated as a core value of the organization, includes demonstrated management commitment, establishes and implements organizational interaction between health protection and health promotion, and uses data and evaluation for on-going monitoring and future decision-making.³⁸

While we have focused here primarily on the integration of health protection and worksite health promotion, there are other functions in the worksite that affect worker health that may also be incorporated into overall integrated efforts. For example, further coordination with disease management programs, employee assistance programs, human resources and benefits, and efforts to promote work-family linkages can strengthen efforts to promote and protect worker health. Similarly, clinical medical services provided by employers may include onsite occupational health clinics to provide better access for prevention, surveillance, treatment of work-related injuries and illnesses, as well as equally accessible clinical support services for health promotion and wellness.⁵⁵ Ideally, support for worker health and safety would also be integrated into the job descriptions of supervisors and managers who are also responsible for the production process, including workplace design, purchasing, production scheduling, and work assignments. These managers have considerable influence on the ways in which work is organized and over which investments are made.

The Affordable Care Act suggests further opportunities for programs supporting worker health. Employers will be given more latitude to offer incentives for participation in workplace health promotion programs. The use of the electronic medical record may provide opportunities for improved communication and improved evaluation of workplace influences on worker health.⁵⁶

While we have proposed a set of indicators for integration, it is important to note that the measures proposed here are being further tested as part of the process of ongoing measures development. We continue to explore the most appropriate methods for summarizing the measures presented here, and acknowledge that weighting the measures across the defined indicators will require further attention. Given the clear need for metrics that can be used across industry sectors and worksite size, it is important that future methods development include a representation of worksites across a range of settings by size, industry, geography and other factors. It is also important to note that these indicators rely on reports of individual employees within the work organization; further work is needed to better understand the concordance among inter-rater individual ratings and among individual ratings and objective indicators. Additionally, exploration of the characteristics of organizations (e.g., size, industry) associated with adoption and maintenance of integrated approaches will be helpful in moving the field forward.

In conclusion, work environments including workplace policies and practices may threaten or support worker health. Integrated approaches to worker and worksite health offer opportunities for the workplace to function as both an accelerator of chronic disease prevention and, in an increasingly complex working environment, a key determinant of individual health behavior.^{3116,57,58} We have identified a set of core indicators of the implementation of integrated approaches to worksite health promotion and health protection. A shared understanding of what is meant by the integrated strategies recommended by the TWH Program and others has the potential to improve dialogue among researchers and facilitate integration of health promotion and health protection efforts among U.S. workplaces. Broad application of the measures recommended here will provide a means for comparisons across studies, a platform for identifying worksite characteristics associated with the extent of program implementation, and a process for providing feedback to employers and workers interested in building comprehensive approaches to worker health.

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Statement of Clinical Significance

Worksite programs, policies and practices to benefit worker health include both *health protection* aimed at preventing work-related injuries and illnesses, and workplace *health promotion* efforts that promote wellness and healthy behaviors. This paper offers a rationale, definition and measures for “integrated” approaches that bring worker health protection and promotion together.

Table 1

Definitions similarly used for integrated approaches to worker health

Source	Definition
NIOSH, Total Worker Health™ ¹	“Total Worker Health™ is a strategy integrating occupational safety and health protection with health promotion to prevent worker injury and illness and to advance health and well-being.”
American College of Occupational and Environmental Medicine ²	“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 enhance the overall health and well-being of the workforce and prevents work-related injuries and illnesses.”
Institute of Medicine ³	“Integrated occupational safety and health protection with health promotion activities is a coordinated system that addresses both workplace and worker health. It strongly supports the view that all illness and injury should be prevented when possible, controlled when necessary, and treated where appropriate, and an integrated approach serves to enhance the effectiveness of programs designed to promote and protect worker health.”
International Association for Worksite Health Promotion ⁴	“The strategic integration of worker health protection and promotion to prevent worker injury and illness, advance worker health and well-being, and optimize organizational performance.”
World Health Organization ⁵	<p>“A healthy workplace is one in which workers and managers collaborate to use a continual improvement process to protect and promote the health, safety and well-being of all workers and the sustainability of the workplace by considering the following, based on identified needs:</p> <ul style="list-style-type: none"> • Health and safety concerns in the physical work environment; • health, safety and well-being concerns in the psychosocial work environment, including organization of work and workplace culture; • personal health resources in the workplace; and • ways of participating in the community to improve the health of workers, their families and other members of the community.”

TABLE 2

Measures by indicator of integrated approaches

Indicator	Measures
<i>Organizational leadership and commitment</i>	<ul style="list-style-type: none"> • Top management expresses its commitment to a culture of health and an environment that supports employee health. • Both worker and worksite health are included as part of the organization's mission. • Senior leadership allocates adequate human and fiscal resources to implement programs to promote and protect worker health.
<i>Coordination between health protection and health promotion</i>	<ul style="list-style-type: none"> • Decision making about policies, programs and practices related to worker health is coordinated across departments, including those responsible for occupational safety and health <i>and</i> those responsible for worksite wellness. • Processes are in place to coordinate and leverage interdepartmental budgets allocated toward <i>both</i> worksite wellness and occupational safety and health • Efforts to promote <i>and</i> protect worker health include both policies about the work organization and environment <i>and</i> education and programs for individual workers.
<i>Supportive organizational policies and practices</i>	
Processes for accountability and training	<ul style="list-style-type: none"> • Program managers responsible for worksite wellness and occupational safety and health are trained to coordinate and implement programs, practices and policies to target both worksite wellness and occupational safety and health. • Operations managers are trained to ensure employee health through coordination with and support for occupational safety and health and worksite wellness. • Job descriptions for staff responsible for worksite wellness and occupational safety and health include roles and responsibilities that require interdepartmental collaboration and coordination of worksite wellness and occupational safety and health programs, policies, and practices. • Performance metrics for those responsible for worksite wellness and occupational safety and health include success with interdepartmental collaboration and coordination of worksite wellness and occupational safety and health programs, policies, and practices. • Professional development strategies include training and setting goals at performance reviews related to interdepartmental collaboration and coordination of worksite wellness and occupational safety and health programs, policies, and practices. • Worksite wellness and occupational safety and health vendors have the experience and expertise to coordinate with and/or deliver approaches that support the coordination and collaboration of workplace health promotion and protection efforts.
Coordinated management and employee engagement strategies	<ul style="list-style-type: none"> • Both managers and employees are engaged in decision-making about priorities for coordinated worksite wellness and occupational safety and health programs, policies, and practices. • Joint worker-management committees addressing worker and worksite health reflect both worksite wellness and occupational safety and health. • Workers are actively engaged in planning and implementing worksite wellness and occupational safety and health programs and policies.
Benefits and incentives to support workplace health promotion and protection	<ul style="list-style-type: none"> • Incentives are offered to employees to complete activities to stay healthy (e.g. attend a training on health/safety), reduce high risk behaviors (e.g. quit smoking), and/or practice healthy lifestyles (e.g. gym membership discounts). • Incentives are offered to managers who protect and promote health (e.g. accomplish health and safety in their departments and encourage reporting of hazards, illnesses, injuries and near misses; lead and encourage their employees in health promotion and protection efforts). • Workplace benefits address health, safety, and well-being (e.g. health care coverage, flex-time, paid sick leave, screening and prevention coverage, wellness opportunities)

Indicator	Measures
Integrated evaluation and surveillance	<ul style="list-style-type: none"> • The effects of worksite wellness and occupational safety and health programs are monitored jointly. • Data related to employee health outcomes are integrated within a coordinated system. • High-level indicator reports (e.g., “dashboards”) on integrated programs are presented to upper level management on a regular basis, while protecting employee confidentiality.
<i>Comprehensive program content</i>	<ul style="list-style-type: none"> • The content of educational programs such as classes, online courses or webinars, or toolbox talks, addresses potential additive or synergistic risks posed by exposures on the job and risk-related behaviors. • The content of educational programs such as classes, online courses or webinars, or toolbox talks, acknowledges the impact of job experiences and the work environment on successful health behavior change.