Do Workplace Health Promotion (Wellness) Programs Work?

Ron Z. Goetzel, PhD, Rachel Mosher Henke, PhD, Maryam Tabrizi, PhD, MS, Kenneth R. Pelletier, PhD, MD (hc), Ron Loeppke, MD, MPH, David W. Ballard, PsyD, MBA, Jessica Grossmeier, PhD, MPH, David R. Anderson, PhD, LP, Derek Yach, MBChB, MPH, Rebecca K. Kelly, PhD, RD, CDE, Tre' McCalister, MA, EdD, Seth Serxner, PhD, Christobel Selecky, MA, Leba G. Shallenberger, DrPh, James F. Fries, MD, Catherine Baase, MD, Fikry Isaac, MD, MPH, K. Andrew Crighton, MD, Peter Wald, MD, MPH, Ellen Exum, BS, Dexter Shurney, MD, MBA, MPH, and R. Douglas Metz, DC

Objective: To respond to the question, "Do workplace health promotion programs work?" **Methods:** A compilation of the evidence on workplace programs' effectiveness coupled with recommendations for critical review of outcome studies. Also, reviewed are recent studies questioning the value of workplace programs. **Results:** Evidence accumulated over the past three decades shows that well-designed and well-executed programs that are founded on evidence-based principles can achieve positive health and financial outcomes. **Conclusions:** Employers seeking a program that "works" are urged to consider their goals and whether they have an organizational culture that can facilitate success. Employers who choose to adopt a health promotion program should use best and promising practices to maximize the likelihood of achieving positive results.

There is a brewing controversy about whether workplace health promotion programs in the United States "work" or "do not work."[1] We have been studying and evaluating workplace health promotion programs (also referred to as wellness programs) for nearly 30 years.* During our decades of research, we have learned that some programs are well designed, consistent with evidence-based practices, effectively executed, and properly evaluated.[2] These programs "work." We have also observed far too many well-intentioned programs that are poorly designed, executed in a haphazard fashion, do not follow evidence-based best practices, are not evidence-based, are inadequately resourced, are not culturally supported, and are therefore not effective.† These programs do not "work."

This paper addresses the controversy surrounding whether workplace health promotion programs "work"—or not. Our intent is not to provide an exhaustive review of the evidence on health promotion programs. Rather, this paper addresses questions raised by employers, benefit consultants, academicians, and practitioners in response to this controversy and to help employers assess whether health promotion programs are worthy of implementation.‡

Specifically, we first discuss what is meant when people say a wellness program "works"—what are the outcomes expected from these programs and should those outcomes be re-considered? Second, we introduce the various techniques for measuring workplace programs, and how these may affect perceptions about what "works." Third, we review best and promising practices in health promotion and the importance of instituting a "culture of health" as a necessary foundation for effective programs. Fourth, we provide examples of effective programs followed by an analysis of studies used as evidence that these programs are ineffective. We then reference literature reviews that suggest that health promotion programs can "work" if they contain the necessary ingredients linked to success. Finally, we conclude with recommendations for employers considering health promotion program adoption. We begin with a discussion of outcomes.

OUTCOMES EXPECTED FROM HEALTH PROMOTION PROGRAMS

First, it is important to define terms. Workplace health promotion programs are employer initiatives directed at improving the health and well-being of workers, and, in some cases, dependents. They include initiatives designed to avert the occurrence of disease or the progression of disease from its early unrecognized stage to a more severe one.[3]

What do workplace programs aim to accomplish? If we were to gather key executives at a company who are informed about health care and ask them what they expect a workplace health promotion program to achieve, you would likely hear a range of responses, similar to those voiced in previous studies.[4] For example, they might say the following:

From Johns Hopkins Bloomberg School of Public Health—Institute for Health and Productivity Studies (Dr Goetzel) and Truven Health Analytics (Drs Goetzel and Tabrizi), Bethesda, Md; Truven Health Analytics (Dr Henke), Cambridge, Mass; University of Arizona School of Medicine and University of California San Francisco School of Medicine (Dr Pelletier); US Preventive Medicine (Dr Loeppke), Jacksonville, Fla; American Psychological Association (Dr Ballard), Washington, DC; StayWell (Drs Grossmeier and Anderson), St Paul, Minn; The Vitality Institute (Dr Yach), New York, NY; The University of Alabama (Dr Kelly), Tuscaloosa; Mercer (Dr McCalister), Austin, Tex; Optum (Dr Serxner), San Francisco, Calif; Population Health Alliance (Dr Selecky), Washington, DC; Exxon Mobil Corporation (Dr Shallenberger), Houston, Tex; Stanford University School of Medicine (Dr Fries), Palo Alto, Calif; The Dow Chemical Company (Dr Baase), Midland, Mich; Johnson & Johnson (Dr Isaac), New Brunswick; Prudential Financial (Dr Crighton), Newark, NJ; USAA (Dr Wald), San Antonio, Tex; IBM Corporation (Ms Exum), Somers, NY; Cummins, Inc (Dr Shurney), Columbus, Ind; and American Specialty Health (Dr Metz), San Diego, Calif.

Funding for this study was provided by American Specialty Health.

The authors declare no conflicts of interest.

Address correspondence to: Ron Z. Goetzel, PhD, Institute for Health and Productivity Studies, Johns Hopkins Bloomberg School of Public Health, and Truven Health Analytics, 7700 Old Georgetown Rd, Ste 650, Bethesda, MD 20814 (ron.goetzel@truvenhealth.com).

DOI: 10.1097/JOM.0000000000000276

*Throughout the paper, we use the terms "wellness" and "workplace health promotion" interchangeably, although workplace health promotion is the preferred term among professionals in the field. In addition, whereas we refer to these initiatives as "programs," they are really broader "strategies" that employers put in place to achieve positive health and well-being outcomes.

†It is noteworthy that many unsuccessful programs are not reported because of publication bias, meaning that program managers are reluctant to publicize negative findings.

‡It should be noted that this paper is focused on US-based workplace health promotion initiatives. Health promotion programs in Europe, and for that matter other parts of the world, differ significantly from those found at US companies. For example, Northern European health promotion efforts place greater emphasis on creating a positive work environment and the importance of including workers, especially unions, when shaping company health and safety policies. Conversely, in other parts of the world less attention is directed on financial outcomes and ROI largely because governments fund health care services, not employers. Nevertheless, internationally, there is greater interest placed on productivity outcomes (absenteeism and safety incidents in particular) because these directly influence the organization's performance and international competitiveness.

1. "Make workers aware of their health and how being in good health improves quality of life."
2. "Workers should take 'ownership' of their behaviors and be accountable for health and cost outcomes."
3. "High participation and active involvement in these programs. People should take advantage of the many programs offered."
4. "Employees should lose weight, stop smoking, exercise more often, eat a healthy diet, better manage their stress levels, and generally adopt healthy habits."
5. "Medical claims costs should go down. The company should experience a lower incidence of certain diseases linked to behaviors like diabetes, heart disease, cancer, chronic obstructive pulmonary disease (COPD), musculoskeletal disorders, and stroke."
6. "Workers will be absent less often, disability costs will be controlled, accidents will be avoided, and injury rates should drop sharply."
7. "These programs will attract the best talent—and turnover rates will be reduced because we are the employer of choice in the community."
8. "Workers will perform at higher levels—they will be happier, have more energy, produce better results for our company."
9. "Establish a culture of health and well-being, where every worker feels valued and important to the enterprise—this will inspire greater loyalty and a high level of engagement."
10. "The program will produce a positive return-on-investment (ROI) for the company—for every dollar spent, two or three will be saved."

The expected outcomes expressed are varied and optimistic. It is unlikely that an employer would spend a few hundred dollars per employee per year on a workplace health promotion program and achieve *all* of these results. There is one expectation listed above that may be especially challenging—that the program will not cost the company a dime because it will achieve a financial return far in excess of what a company would expect from any other investment. This is the expectation that health promotion programs alone will produce a substantial return-on-investment (ROI), often in 1 year. For those unfamiliar with the term, ROI is a financial metric that calculates the amount of money gained (or costs averted) relative to the amount spent on any given investment. In simple terms, a 3:1 ROI means that the investor saves $3 for every $1 spent.

It should be noted that few employer-provided benefits are expected to produce a positive ROI. A typical US employer today spends large sums on health insurance for workers—health care premiums for US workers averaged $16,351 in 2013.* There is little evidence that these expenditures on medical treatment produce a positive ROI.[5] At a minimum, employers expect medical treatments to be safe and effective.[6] At best, some medical treatments have been shown to be cost-effective. Workplace health promotion programs, on the contrary, are often held to a much higher standard of producing a financial gain, or "profit," calculated in dollar terms—to justify their worth to employers.†

The above discussion provides background to the ongoing debate in the blogosphere, news media reports, and conference presentations focused on whether ROI is considered the most relevant metric determining whether workplace health promotion programs work. When savings are not realized, some critics assert that the program has failed.[7] Some go as far as to say that if workplace health promotion programs do not achieve a positive ROI, employers should get rid of them because workplace health promotion programs represent one of "the biggest scams" ever deployed by the health care industry on corporate America.[8] This perspective errs in the assumption that cost saving is the sole purpose of workplace health promotion and, therefore, the only outcome of interest.

There are other yardsticks by which health promotion initiatives should be measured that may be more aligned with actual program goals. These measures could help define a program that works as opposed to one that does not. In the following sections, we list some broad categories of measures that assess whether programs have the right structures and processes in place, are consistent with best and promising practices, and are likely to achieve a broad range of desired outcomes.

MEASURING HEALTH PROMOTION PROGRAM SUCCESS

Workplace programs can be evaluated using a measurement framework (published elsewhere)‡[9–11] organized into the following three broad categories: program structure, delivery process, and expected clinical, health care utilization/cost, and productivity outcomes.

An assessment of program structure focuses on whether the program's critical components are in place and whether they follow best practice principles. Essentially, if the program is not structured or designed properly, it is unlikely to produce positive results.

Relevant questions for the structural assessment include the following: (1) What are the interventions and their component parts? (2) Are those interventions aligned to the demographic and health status characteristics of employees and family members? (3) How is the program delivered to employees and are the operational underpinnings reliable? (4) What topics are covered and are they relevant to the population served? (5) Are the interventions evidence-based? (6) Is there coherence, consistency, and integration among the various program components? (7) If there are incentives in place, are they appropriate to promoting health and well-being? (8) Are sufficient resources allocated and is staffing adequate? (9) Are organizational factors important to success integrated into the program design? (10) Is the program a permanent, integrated feature of employee benefits? (11) Does the program fit the "culture" of the organization? (12) Is there an infrastructure in place to track critical measures necessary to evaluate program outcomes?

The structural assessment draws on a combination of quantitative (eg, claims, health risk, epidemiological, disability, survey, and absence) and qualitative (eg, interviews and observations) data, complemented by "administrative" reports. For example, checklists or scorecards produced regularly to keep program managers current on the operation of the program could be an important source of supplementary data for the structural assessment.

The process evaluation assesses how well the program is being implemented—is it executed and progressing according to plan, and are operations and delivery systems handled smoothly? Importantly, is there a feedback loop that allows for ongoing refinement

*Annual premiums for employer-sponsored family health coverage were $16,351 in 2013, up 4% from the prior year, with workers on average paying $4565 toward the cost of their coverage, according to the Kaiser Family Foundation/Health Research & Educational Trust 2013 Employer Health Benefits Survey. Available at: http://kff.org/private-insurance/report/2013-employer-health-benefits/.

†McGinnis et al[6] discuss the various explanations for why prevention is held to a higher standard than medical treatment. Among the reasons cited are the following: the complexity of prevention interventions; interest group dynamics (financial motives abound for those providing care compared with those seeking to prevent it); the need to influence public policy and not just individual behaviors; and social preference, that is, people demand medical care when ill (an immediate problem) but are reluctant to change pleasurable habits if there are no obvious immediate gains from that change. In addition, having access to medical treatment is viewed by many as a societal "right," whereas "interfering" in people's health behavior choices may be viewed as an intrusion into a person's personal affairs and a limitation on freedom of choice.

‡Program evaluation guidelines, from which the current list of structure, process, and outcome measures were derived, originate in the publications[9–11] (as detailed in the References section).

and course-correction? A well-structured program that is poorly executed would not work. Relevant questions for the process evaluation include the following: (1) Are the programs engaging the right people? (2) How many participate and complete the interventions? (3) Do participants advance in their readiness to change behaviors, and do they become more engaged in improving their health? (4) How satisfied are they with the way the program is run and its relevance to their needs? (5) Is the program delivered with sufficient dose or intensity to be noticed? (6) Is fidelity high—meaning that program components are delivered in a similar way across locations or business units? (7) Does corporate and local leaderships endorse the program? (8) Are communications and branding strategies robust and sufficiently diverse to attract the attention of different population segments? (9) Do programs yield sustained engagement over time? The process evaluation largely draws on quantitative data (eg, employee surveys), complemented by administrative reports and observational studies.

Next is an evaluation of outcomes, which is usually the primary concern of the employer sponsors (ie, key executives) and program implementers. The goal of the outcomes evaluation was to assess the extent to which program objectives are achieved within a given time horizon. This highlights the need to understand the outcomes expected by each stakeholder before beginning or renewing a program. As shown above, the expected outcomes may differ from organization to organization—some outcomes may be straightforward and easily achieved, whereas others may be unrealistic and difficult to measure. There needs to be agreement among all the key players on what can be accomplished in 12, 24, 36, 48, and 60 months.*

Typically, program outcomes fall into three broad categories—improvements in the health and well-being of workers; cost savings through appropriate use of health care services; and enhanced individual and business performance metrics. Other key human capital outcomes may include improved quality of life; a more engaged and motivated workforce; increased worker retention and attraction; improved safety performance; improved manufacturing reliability; and a healthier company culture.

Improvement in population health is measured by assessing the degree to which the proportion of workers "at high risk" improves (ie, is reduced) over time. This is done by collecting valid and reliable baseline data on the target population's *health habits*, such as diet, exercise, alcohol consumption, smoking status, seat belt use, and sleep patterns; *biometric characteristics*, which might include total cholesterol, blood pressure, and blood glucose; and *well-being* measures of stress, depression, and overall health status. Follow-up assessments are then performed after an appropriate time interval to determine shifts in the health profile of the population.

Individual and business performance measures often involve examining worker absenteeism, disability rates, safety incidents, and on-the-job productivity associated with health issues, referred to as "presenteeism."[12] Performance measurement involves gathering any or all of these above data for the population of interest and tracking changes over time, controlling for as many confounder as feasible.

Certainly, cost management is a reasonable expectation for workplace health promotion programs. To assess program savings, the following data sources can be examined, assuming relevance and availability: medical insurance claims, absenteeism records, workers' compensation liability claims, disability incident and duration reports, and presenteeism surveys. These data provide a valuable resource for estimating program savings from a number of sources, and the savings may be additive when multiple outcomes are considered.

Conducting a rigorous and credible ROI analysis is time-consuming, expensive, and requires a high level of expertise in statistical analysis, health services research, econometrics, and benefit plan design. Well-designed ROI studies of workplace health promotion programs are rare, and even the best of these studies contains methodological flaws simply because they are conducted in real-world settings with limited ability to control for confounding factors, such as self-selection into programs, high attrition rates, changes in employee demographics, benefit plan design modifications, alterations in third-party fee schedules, lack of statistical power to show effects, nonnormal distributions of data, and legal or practical constraints related to the conduct of randomized trials.

It is also important to note that the "I" (investment) in an ROI analysis is not well defined. When considering program costs, it is not clear what should be included. Certainly, fees paid to vendors that administer the program are a program expense. But, less straightforward is the salaries of staff that manage the program internally, compensation to employees for their time to participate during work hours, facilities costs, and incentives payouts to workers (assuming that these are incremental and not integrated into benefit design). These are all real programs costs and often complicated to calculate. Ideally, ROI studies would measure costs and savings associated with each program component separately. This necessitates attributing savings and measuring costs for each of (perhaps dozens of) interventions introduced simultaneously, which is difficult, if not impossible, to do in a real-world setting.

A broader view considered by leading employers is moving beyond ROI to the full value of the investment in improving the health of a population. This approach, akin to assessing the cost-effectiveness of programs as opposed to their cost-benefit, reflects the interest of these employers to adopt effective and efficient ways to achieve population health improvement for their workers and dependents.[13]

Some studies have given us insights into workplace health promotion program elements shown to produce positive results. A review of these best and promising practices is presented in the next section.

BEST AND PROMISING PRACTICES IN HEALTH PROMOTION

Given the heterogeneity of programs that call themselves wellness or workplace health promotion, it is important to note the common features of effective programs. There is a large divide between what is termed a "comprehensive" health promotion program and one characterized as "random acts of wellness."† We know that programs that merely administer health risk assessment surveys and/or offer a health improvement Web site are generally ineffective. We also know that "off-the-shelf" programs offered by a vendor also fail if they lack leadership support and are not integrated into the culture of an organization.

What works? According to the *Healthy People* 2010,[14] a comprehensive workplace health promotion program includes the following five elements:

1. Health education, focused on skill development and lifestyle behavior change along with information dissemination and awareness building.
2. Supportive social and physical environments, reflecting the organization's expectations regarding healthy behaviors and implementing policies promoting healthy behaviors.
3. Integration of the worksite program into the organization's benefits, human resources infrastructure, and environmental health and safety initiatives.
4. Links between health promotion and related programs like employee assistance.

*The long time horizon is intentional as many of the key objectives of workplace programs can only be realized after several years.

†A term used by Mark Matson, Vice President of Human Resources, EWI, Columbus, OH.

5. Screenings followed by counseling and education on how to best use medical services for necessary follow-up.

To understand more precisely the critical elements of effective programs, the reader is referred to studies performed over the past several years that have identified the common features of effective programs.*[15–17] These best or promising practice studies provide needed specificity and alignment with the framework developed by the Healthy People 2010.

On the basis of behavior change and organizational theory, we know that effective programs have strong senior and middle management support and grass roots champions, include employee input when developing program goals and objectives, have dedicated staff, offer meaningful incentives that encourage workers and families to participate, have a strong communication strategy consistent with the corporate culture, and are regularly evaluated using well-defined metrics of success.[18–21]

A series of literature reviews and site visit studies support this view. For example, the research by O'Donnell et al,[20] conducted in cooperation with the American Productivity and Quality Center, identified the following 10 characteristics of sustainable programs: (1) linking of program to business objectives; (2) executive management support; (3) multi-year strategic planning; (4) employee input when developing goals and objectives; (5) wide variety of program offerings; (6) effective targeting of high-risk individuals; (7) incentives to motivate employees to participate in the program, leading to high participation rates; (8) program accessibility; (9) effective communications; and (10) evaluation of effectiveness.

A later study, also conducted with the American Productivity and Quality Center,† listed the following common themes found in best performing programs (ie, those with documented evidence of success): (1) organizational commitment, (2) incentives for employees to participate, (3) effective screening and triage, (4) state-of-the-art theory and evidence-based interventions, (5) effective implementation, and (6) ongoing program evaluation.

A panel of experts assembled by the National Institute for Occupational Safety and Health (NIOSH) in 2008 created a list of *Essential Elements of Effective Workplace Programs and Policies for Improving Worker Health and Wellbeing*. These experts from public and private sectors identified 20 components of a comprehensive health protection and health promotion program. These 20 components were divided into the following four broad areas: (1) organizational culture and leadership, (2) program design, (3) program implementation and resources, and (4) program evaluation.‡ Importantly, the *Essential Elements* document underscored the need for programs, practices, and policies to be "hard coded" into the work environment and to complement individually focused health promotion efforts.

In a separate project,[9–11] the Centers for Disease Control and Prevention (CDC) and the National Association of Chronic Disease Directors convened a panel of experts and asked them to identify best or promising practices in the workplace. That discussion produced the following four successful strategies: (1) employing features and incentives consistent with an organization's core mission, goals, operations, and administrative structures; (2) targeting the most important health care issues among the population; (3) achieving high rates of program engagement and participation in both the short and long term; and (4) evaluating programs on the basis of clear definitions of success, as reflected in scorecards and metrics agreed on by relevant stakeholders. This project has led to the development of the CDC Worksite Health Scorecard, which is available to employers on the CDC Web site.§[22]

Not addressed by the above studies is how programmatic categories should be funded and where emphasis should be placed in budgeting for workplace health promotion. For example, given limited resources, there is little insight offered on the proportion of funds to be spent on individual counseling, biometric testing, exercise equipment, classes, subsidies for healthy food items, Web sites, advisory group meetings, personal trainers, on-site clinics, and incentives, to name but a few program investment alternatives. More research is, therefore, needed to better understand which of the above program components is most cost-effective in providing value to workers, driving participation, and achieving specific outcomes.

In addition, research is needed to determine which program components are most applicable for certain populations. For example, best practices found in a manufacturing facility may not translate well to call centers, universities, or hospitals.

The Importance of Establishing a Culture of Health

It is important to highlight one component of successful programs, which is frequently referenced in the best practices literature reviewed above—establishing a culture of health. A culture of health is defined as one in which individuals and their organizations are able to make healthy life choices within a larger social environment that values, provides, and promotes options that are capable of producing health and well-being for everyone regardless of background or environment.[23] Comprehensive health promotion programs are built on a culture of health that supports individuals' efforts at changing lifelong health habits by putting in place policies, programs, benefits, management, and environmental practices that intentionally motivate and sustain health improvement.[22]

Improving population health requires more than simply convincing people to take better care of themselves. It requires that the organization where individuals spend a good portion of their waking hours creates an environment where leading a healthy lifestyle is the "default" option. As an example, a supportive company culture is exemplified by company cafeterias, where healthy food is abundant, affordable, clearly labeled, tastefully prepared, and situated at eye level at the checkout counter. When possible, these foods are also priced lower than less healthy items. In addition, healthy and appealing food is served at meetings, included in company-provided overtime meals, and available in vending machines.

For companies seeking guidance on how to create a healthy company culture, several organizational health tools have been developed and made widely available. These include the CDC Worksite Health ScoreCard,[24] the Health Enhancement Research Organization Scorecard,[25] National Business Group on Health's Wellness Impact Scorecard,[26] Corporate Health Achievement Award,[27] and NIOSH Essential Elements.[28]

Although these tools can drive important tactical changes to the workplace, they do not define a healthy culture—creating a healthy company culture is more than just checking off items on a list. In recent weeks, a team of researchers (including the lead author) visited several employers, large and small, that embody healthy company cultures in their businesses.¶ These site visits are part of a larger project funded by the Robert Wood Johnson Foundation.[29] In visiting these companies, the team observed that a culture of health

*New best practice and benchmarking studies are currently underway and their results will be forthcoming shortly.

†The long time horizon is intentional as many of the key objectives of workplace programs can only be realized after several years.

‡Readers are referred to the NIOSH website for a complete list of these essential elements. Available at: http://www.cdc.gov/niosh/docs/2010-140/.

§Readers may wish to compare NIOSH and CDC Web sites when deciding which tool is most applicable to their situation. The elements contained in the two tools are complementary to one another. The NIOSH instrument is focused on occupational health and safety, whereas the CDC tool is focused on specific categories of health risks and improvement opportunities supported by evidence.

¶The companies visited were selected by an expert panel and many were winners of the C. Everett Koop Award. They included Johnson & Johnson, USAA, Citibank, Dell, Graco, Turck, Lincoln Industries, LL Bean, and NextJump.

and well-being is woven into the fabric of the organization. These companies' leaders genuinely care about the health of their workers and their families—not because a program will save them money, but because they think of their workers as part of a large family. They say, for example, that they want their workers to leave their jobs each day healthier in mind and body than when they first came in. They also lead by example by practicing healthy behaviors instead of telling workers how they should behave.

Company executives create cultures of health not just because it is "the right thing to do," but because they believe that crucial business metrics (revenue, profit, stock price, company valuation, and reputation) are enhanced when health and well-being are ingrained in the company's norms, values, and beliefs. Leaders also believe that if they attract and retain the right people—those who fit well into the company's culture and share common core values—the enterprise will prosper. Not surprisingly, executives from these companies reported that they are doing well as a business, referencing stable health care costs, reduced accident rates, low turnover, and high morale. To support these anecdotal claims, there is emerging research showing that companies that build a culture of health by focusing on the well-being and safety of their workforce also yield greater value for their investors.[30]

It should be noted, however, that the cause–effect relationships between programs and outcomes are not always clear. For example, it may be that companies that do well financially also have the necessary talent and resources to run well-functioning health promotion programs that, in turn, produce excellent results.

EXAMPLES OF HEALTH PROMOTION PROGRAMS THAT WORK (OR DO NOT?)

The above studies highlight the essential elements of comprehensive health promotion programs. Readers seeking examples of effective programs, with documented evidence that these programs can improve population health and save money, are directed to The Health Project Web site,[31] where a list of more than 50 employers that received the C. Everett Koop National Health Award can be found.*

Recent examples of best practice programs include those at Johnson & Johnson, Prudential Financial, The Dow Chemical Company, USAA, LL Bean, Lincoln Industries, Alcon Laboratories, Union Pacific Railroad, Highmark, Eastman Chemical, PepsiCo, Vanderbilt University, The State of Nebraska, Dell Inc, Medical Mutual of Ohio, The Volvo Group, and Procter & Gamble.

One of the earliest evaluations of a workplace program, authored by Fries et al[32] and published in *The American Journal of Medicine*, focused on the Bank of America retirees. The randomized control trial (rare in "real-world" studies) concluded that individuals exposed to the workplace program (the intervention group) improved their health risk scores by 23% from baseline to 24 months, compared with controls. Cost reductions averaged 10%, as measured by claims data, at 12 months, with a net savings of $179 reported for employees in the treatment group.

Another example of a successful employer program, published more recently in *Health Affairs*, is that of Johnson & Johnson, whose workplace health promotion program has been in place for more than 30 years. The evaluation spanned the period of 2002 to 2008 and found that the company experienced an average annual, inflation-adjusted, growth in total medical expenditures equal to 1.0%, approximately 3.7 percentage points lower than for other similar large companies.[33] The ROI from the Johnson & Johnson study was estimated to be between $1.88 and $3.92 for every $1.00 invested.

*To receive the Koop Award, organizations need to provide documentary evidence that their programs improved health and reduced costs through the application of evidence-based health promotion and disease prevention interventions.

Despite the above examples of programs that work, many programs do not employ best and promising practices.[34] Of the increasing numbers of workplace health promotion programs, many are ineffective because of underinvestment, improper design, poor implementation, and uneven evaluation.[35] For example, the RAND Corporation (RAND) recently published results of a national survey of employers with 50 or more workers and found that 51% claimed that they offer wellness programs.[36] Other surveys have reported similar results with one survey, showing that as many as 63% of all companies offering health care benefits have at least one wellness program.[37]

Nevertheless, most of these programs are neither comprehensive nor evidence-based and, therefore, unlikely to be effective (at least in terms of their ability to save money).[38] Linnan et al,[39] in a federally funded study published in 2008, found that just 6.9% of US employers offer comprehensive worksite health promotion programs as defined by the five elements listed in the *Healthy People* 2010.

Several high-profile studies have recently been publicized in the media as examples of ineffective programs. Results of these individual studies have been extrapolated to build a narrative that *all* workplace health promotion programs are therefore ineffective. Critics of workplace programs have written, "... in addition to potentially harming some employees—wellness won't reduce corporate health spending either. A leading health policy journal has exposed vendor 'get well quick' schemes, and published studies with negative returns at Barnes Hospital [BJC Healthcare] and PepsiCo. RAND weighed in with a study showing only minor health improvements and no cost savings."[40]

Next, we review three studies that were highlighted by various popular and business media as examples of health promotion program failures.[41]

The RAND Study

In 2013, RAND published results from a federally funded study focused on workplace health promotion programs.[37] The project was multifaceted and involved a literature review, site visits to companies, an employer survey, and analysis of a large multiemployer database comprising more than half a million employees whose medical and health risk records were analyzed over a period of several years, resulting in 1.8 million person-years of data. In media reports, the study purportedly "delivered a blow" to the wellness "industry" and "cast doubt" about programs' effectiveness given the "grim" results.[42]

Despite the media spin on the findings, the RAND study reported "significant," "clinically meaningful," and "long-lasting" improvements in employees' weight, smoking status, and physical activity—but not in cholesterol values. In terms of financial outcomes, RAND found that participants had lower health care costs and reduced service utilization compared with statistically matched nonparticipants, but the results were not statistically significant. Therefore, the study authors were unable to conclude that the programs saved money, although they inferred that they were probably cost neutral. The small number of individuals included in subcomponents of the RAND studies (eg, only 746 individuals were included in the smoking analysis and 12,127 in the cost analysis—out of 567,506 employees in the database) impacts the generalizability of results to the companies included in the study and to workplace health promotion programs in general.

The PepsiCo Study

A January 2014 article published in *Health Affairs* also introduced doubt about the effectiveness of workplace health promotion—in this case, a study of PepsiCo employees.[43] The focus of this study was only on the ROI from PepsiCo's program. The study authors estimated the cost savings from the PepsiCo program, called

"Healthy Living," and concluded that the lifestyle management program component of Healthy Living did not produce a positive ROI.

PepsiCo's Healthy Living program contained the following two major components: one focused on disease management and the other on lifestyle management. The study tracked the experience of about 67,000 workers more than 7 years. The 2014 study was an update of an earlier analysis of PepsiCo's program published in a 2012 issue of *Population Health Management*.[44]

As was the case in the RAND study, only a subset of employees were successfully matched to a similar eligible nonparticipant population; 2610 individuals in disease management, 17,432 in lifestyle management, and 2162 in both disease and lifestyle management. The assignment of workers into one or another program was based on health risks and the presence of a disease. For example, workers with serious illnesses or prevalent conditions such as hyperlipidemia, hypertension, and low back pain were assigned to disease management, whereas individuals with weight, stress, smoking, eating, and fitness problems (often people who are less expensive at baseline) were assigned to lifestyle management. Because this was an ROI analysis, the researchers did not report on health improvements or risk reduction in PepsiCo's population so readers were left to wonder whether the main purpose of health and disease management was achieved.

As noted above, the authors found net program savings for disease management but not lifestyle management. Lifestyle management did save the company money but not enough to offset the cost of the program. Nevertheless, for individuals who were in both lifestyle and disease management, substantial savings were realized totaling $360 per employee per year. Overall, the combined lifestyle and disease management program produced a positive ROI for Healthy Living—estimated at $1.46 saved for every dollar invested. Although not highlighted in the analysis, this paper did report absenteeism reductions among workers engaged in lifestyle management.

Forbes Magazine reported on the study with the headline, "Healthy lifestyle adoption push may not save employers money."[45] The article noted, "Encouraging workers to adopt a healthy lifestyle may not reduce health costs or lead to net savings." Follow-up media reports and blog posts further decried the results using such headlines as "PepsiCo's wellness program falls flat," and "Workplace wellness takes another hit."[46] Critics were quick to note that disease management works, but workplace health promotion programs do not.

A main concern with the type of analysis performed with PepsiCo data is that it draws a distinction between the effects on health care costs by individual program components and assumes that these components work independently of one another, unless the member participates in both programs. PepsiCo's aim was to manage the health of its entire population—a consumer-centric approach—not one where artificial boundaries are drawn between vendors. The question arises, where should an individual fit if he or she has high blood pressure, high blood glucose, heart disease, high stress, and also has lifestyle habits that put him or her at high risk for exacerbating those conditions, like smoking, being sedentary, and eating a poor diet? Where should that individual belong in the PepsiCo program configuration? Would the worker be qualified for disease or lifestyle management—or both? Furthermore, how effective are these programs in changing behaviors and increasing compliance with evidence-based practices? And, other than reduced hospital admissions, what is the source of "savings" from either disease or lifestyle management programs? These issues were not addressed in the published study.

Furthermore, other questions that would put PepsiCo's program effectiveness in a broader context were not asked by the researchers. For example, What was the work environment for workers who might have benefited from these programs? Were supervisors supportive? What policies were in place to encourage healthy eating, physical activity, management of biometric measures, and other health promoting activities? What elements of a "culture of heath" were in place at PepsiCo? Were any of these issues considered in the analysis?

This missing information is essential in evaluating whether the PepsiCo program "worked" or not. The study authors acknowledge that, "reconciling these seemingly contradictory findings requires not only asking, 'do wellness programs work?' but also, 'which program components have which effects under which conditions?' Such an approach is particularly important given the heterogeneity of offerings that can be subsumed under the label 'workplace wellness' and the variety of settings in which these programs are implemented."

Interestingly, the earlier study of PepsiCo's program, by many of the same authors of the current research, concluded that the PepsiCo program, which included disease, lifestyle and case management, did produce a saving of $456 per person per year alongside significant reductions in hospital admissions and emergency department visits. In the earlier study, the authors cautioned that cost savings are achievable from health and workplace health promotion programs only after 3 years of program implementation. This variable of program duration is often overlooked but is critical because most positive ROI results are reported only after a program has been in place for 3 or more years.[47]

The BJC Healthcare Study

In a 2013 study published in *Health Affairs*, Gowrisankaran and colleagues[48] reported on health care utilization and cost outcomes from a wellness program in place after only 2 years at BJC Healthcare, a large nonprofit health care organization in the Midwest. Participation in the program, described as comprehensive, afforded workers access to the most generous "Gold" insurance plan offered by the organization.

In the second year postintervention, the investigators found a significant drop in hospitalizations resulting in a $22 per member per month savings for conditions targeted by the wellness program. Nevertheless, those savings were offset by a $19 per member per month increase in noninpatient costs. As a result, the authors concluded that the program did not save money for the hospital and there was no positive ROI, at least not in the short run. This study also focused on financial outcomes and no health improvements were reported, although widespread participation in health risk assessments and health fairs was observed. It should be emphasized that, although the program was characterized as comprehensive, it was mainly structured as incentive-based—allowing employees to enroll in a better grade insurance program following a health screening. Nonetheless, this study was also hailed as further evidence that workplace health promotion programs do not work.

LITERATURE REVIEWS FOCUSED ON WORKPLACE HEALTH PROMOTION

The three studies highlighted above reported both positive and negative findings. It is troubling, although not surprising, that the media focused primarily on the negative results because those were newsworthy and challenging to conventional wisdom. Several lessons can be learned from the above studies and among those lessons are the following: (1) Multiple outcomes need to be considered in evaluating the overall impact of workplace programs; (2) a long enough timeline (usually 3+ years) is necessary to detect population health effects; and (3) transparency in the methods employed when conducting evaluations is critical. Also, important is the need to capture a full understanding of the intervention programs provided so that reader can assess their adequacy in terms of fidelity, dose, and extent to which they adhere to evidence-based principles.

CONCLUSIONS

It should be noted that the conclusions drawn from the three studies highlighted above are in sharp contrast to important literature reviews published in recent years. A 2010 review by the Community Guide Task Force, housed at the CDC, found that well-designed programs exerted a positive influence on a number of health behaviors (eg, smoking, diet, physical activity, alcohol consumption, and seat belt use), biometric measures (eg, blood pressure and cholesterol levels), and financial outcomes important to employers (eg, health care utilization and worker productivity).[49] The literature search yielded 4584 titles, and 334 were examined in detail. Of these, 86 studies were included in the review.

A meta-analysis by Chapman et al[50] in 2012 examined 42 studies and found that participants in workplace health promotion programs had about 25% lower medical and absenteeism expenditures than nonparticipants. A widely cited meta-analysis of the literature on costs and savings associated with worksite health promotion programs conducted by Harvard economists Baicker et al[51] reported that medical and absenteeism ROIs amounting to $3.27 and $2.70, respectively, saved for every $1.00 invested, over a 3-year time horizon. The economists did acknowledge in their review that the evidence was still young and that the research varied in quality and rigor.

Other recent reviews by Lerner et al[52] and Serxner et al[53] examined the literature using different frames of reference. Lerner et al found few methodologically strong studies focused on economic outcomes. Nevertheless, of the 10 studies with strong designs, eight documented positive financial effects, whereas two reported negative results. Serxner et al also noted a great deal of variability in program design, execution, and evaluation but concluded that the overall body of evidence suggests that well-formulated programs can achieve cost savings, especially after several years of operation. Other reviews by Serxner and colleagues[54,55] are cited as references in this paper.

Although the evidence is still being compiled, and many more and better designed studies are needed, the general conclusion of evaluations conducted by leading economists and researchers is that comprehensive workplace programs (those that adopt best practice principles and create cultures of health) *do* exert a positive influence on certain health behaviors and biometric measures, and they also produce positive financial outcomes important to employers (eg, reductions in health care utilization and productivity improvements).[51,53]

RECOMMENDATIONS FOR EMPLOYERS CONSIDERING HEALTH PROMOTION PROGRAMS

For employers considering implementing health promotion programs, a take away from this paper is that some of these programs work and some do not. Program success depends on the goals of the program, program design and implementation, and importantly how the program is evaluated. If the only expectation is that the sponsoring organization will "make money" (ie, achieve a financial gain) in the form of lower health care costs by instituting a workplace health promotion program, then implementing a best practice health promotion program may not be worth the effort.

A second "take away" is that the program must fit into the culture of the organization. If the culture is based on quarter-to-quarter results, then a workplace program that requires several years to become ingrained and well functioning may not be the right strategy for that particular organization.

Assuming that expectations are clear, and the organization's culture is conducive to beginning or expanding a workplace health promotion program, ongoing measurement and evaluation needs to be built into program design and implementation. Tracking program success metrics ensures that success is not left to chance but, instead, based on explicit feedback loops and standard business practices focused on quality improvement.

REFERENCES

1. Khanna V, Lewis A. Keas poll on workplace stress and disease burden provides an education. Available at: http://thehealthcareblog.com/blog/tag/al-lewis/. Accessed April 10, 2014.
2. Goetzel RZ, Ozminkowski RJ. The health and cost benefits of work site health-promotion programs. *Annu Rev Public Health.* 2008;29:303–323.
3. Commission on Chronic Illness. *Chronic Illness in the United States*. Cambridge, MA: Harvard University Press; 1957.
4. Goetzel RZ, Ozminkowski RJ, Asciutto AJ, Chouinard P, Barrett M. Survey of Koop Award winners: life-cycle insights. *Art Health Promot.* 2001;5:2–8.
5. Cohen JT, Newman PJ, Weinstein MC. Does preventive care save money? Health economics and the presidential candidates. *N Engl J Med*. 2008;358:661–663.
6. McGinnis JM, Williams-Russo P, Knickman J. The case for more active policy attention to health promotion. *Health Aff (Millwood)*. 2002;21:78–93.
7. Lewis A, Khanna V. Here comes Obamacare's "workplace wellness." *Wall Street Journal*, online edition, June 20, 2013, 7:14 PM.
8. Lewis A. *Wellness Programs Take a Punch to the gut at PepsiCo*. Disease Management Purchasing Consortium, Inc. 2014. Available at: http://www.insurancethoughtleadership.com/articles/wellness-programs-take-a-punch-to-the-gut-at-pepsico#axzz2tnHjbNtw. Accessed April 8, 2014.
9. Ozminkowski RJ, Goetzel RZ, Dunn RL. *SAMHSA/CSAP Workplace Managed Care Financial/Cost Research Evaluation Guide*. Division of Workplace Programs, Center for Substance Abuse Prevention, Substance Abuse and Mental Health Services Administration; August 1998.
10. Goetzel RZ. Program evaluation—Chapter 5. *Health Promotion in the Workplace*. 2nd ed. Delmar Publishers, Inc. Published 1994.
11. Goetzel RZ, Ozminkowski RJ. Program evaluation—Chapter 5. In: Michael P., O'Donnell P., ed. *Health Promotion in the Workplace*. 3rd ed. Albany, NY: Delmar/Thomson Learning; 2002.
12. Cancelliere C, Cassidy JD, Ammendolia C, Cote P. Are workplace health promotion programs effective at improving presenteeism in workers? A systematic review and best evidence synthesis of the literature. *BMC Public Health.* 2011;11:395.
13. Loeppke R. The value of health and the power of prevention. *Int J Workplace Health Manag*. 2008;1:95–108.
14. Healthy People 2010. *With Understanding and Improving Health and Objectives for Improving Health*. Washington, DC: US Department of Health and Human Services; 2000. Available at: http://www.healthypeople.gov/2010/Document/HTML/Volume1/07Ed.htm#_Toc490550857. Accessed April 8, 2014.
15. Terry P, Seaverson EL, Grossmeier J, Anderson D. Association between nine quality components and superior worksite health management program results. *J Occup Environ Med.* 2008;50:633–641.
16. Terry PE, Grossmeier J, Mangen D, Gingerich SB. Analyzing best practices in employee health management: how age, gender and program components relate to employee engagement and health outcomes. *J Occup Environ Med*. 2013;55:378–392.
17. Goetzel RZ, Henke RM, Benevent R, et al. The predictive validity of the HERO scorecard in determining future healthcare cost and risk trends. *J Occup Environ Med*. 2014;56:136–144.
18. Goetzel RZ, Shechter D, Ozminkowski RJ, Marmet PF, Tabrizi MJ, Roemer EC. Promising practices in employer health and productivity management efforts: findings from a benchmarking study. *J Occup Environ Med*. 2007;49:111–130.
19. Goetzel RZ, Guindon AM, Turshen IJ, Ozminkowski RJ. Health and productivity management: establishing key performance measures, benchmarks, and best practices. *J Occup Environ Med*. 2001;43:10–17.
20. O'Donnell M, Bishop C, Kaplan K. Benchmarking best practices in workplace health promotion. *Art Health Promot Newsl*. 1997;1:12.
21. Loeppke R. Guidance for a reasonably designed employer-sponsored wellness program using outcomes-based incentives: consensus statement of the Health Enhancement Research Organization (HERO), American College of Occupational and Environmental Medicine (ACOEM), American Cancer Society and American Cancer Society Cancer Action Network, American Diabetes Association, and American Heart Association. *J Occup Environ Med*. 2012;54:889–896.
22. Centers for Disease Control and Prevention. *The CDC Worksite Health ScoreCard: An Assessment Tool for Employers to Prevent Heart Disease, Stroke, and Related Health Conditions*. Atlanta, GA: US Department of Health

and Human Services; 2012. Available at: http://www.cdc.gov/dhdsp/pubs/worksite_scorecard.htm. Accessed April 8, 2014.

23. Robert Wood Johnson Foundation. RWJF's model for advancing a culture of health. Available at: http://www.rwjf.org/en/blogs/culture-of-health/2013/05/about_culture_ofhea.html. Accessed April 8, 2014.
24. Centers for Disease Control and Prevention. Worksite Health ScoreCard. Available at: http://www.cdc.gov/dhdsp/pubs/worksite_scorecard.htm. Accessed April 10, 2014.
25. The Health Enhancement Research Organization. NEXT GENERATION HERO Employee Health Management (EHM) best practices scorecard in collaboration with Mercer. Available at: http://www.the-hero.org/scorecard_folder/scorecard.htm. Accessed April 10, 2014.
26. National Business Group on Health. WISCORE: Wellness Impact Scorecard. Available at: http://www.businessgrouphealth.org/scorecard_v4/index.cfm?event=logon.landing. Accessed April 7, 2014.
27. American College of Occupational and Environmental Medicine. ACOEM Annual Awards Recipients. Available at: http://www.acoem.org/uploadedFiles/About_ACOEM/Historical_Info_Awards_and_Grants.pdf. Accessed April 7, 2014.
28. Centers for Disease Control and Prevention. *Essential Elements of Effective Workplace Programs and Policies for Improving Worker Health and Wellbeing*, October 2008. DHHS (NIOSH) Publication Number 2010-140. Available at: http://www.cdc.gov/niosh/docs/2010-140/pdfs/2010-140.pdf. Accessed April 7, 2014.
29. Robert Wood Johnson Foundation-Grants. Through our investments in our grantees, we seek to improve the health and health care of all Americans. Available at: http://www.rwjf.org/en/grants.html#q/maptype/grants/keyword/workplace/ll/33.796,-84.328/z/13. Accessed April 10, 2014.
30. 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;55:993–1000.
31. The Health Project. C. Everett Koop National Health Award Winners. Available at: www.thehealthproject.com. Accessed April 10, 2014.
32. Fries JF, Bloch DA, Harrington H, Richardson N, Beck R. Two-year results of a randomized controlled trial of a health promotion program in a retiree population: the Bank of America Study. *Am J Med*. 1993;94:455–462.
33. Henke R, Goetzel R, McHugh J, Isaac F. Recent experience in health promotion at Johnson & Johnson: lower health spending, strong return on investment. *Health Aff (Millwood)*. 2011;30:490–499.
34. Pelletier KA. Review and analysis of the clinical and cost-effectiveness studies of comprehensive health promotion and disease management programs at the worksite: update VII 2004–2008. *J Occup Environ Med.* 2009;51:822—837.
35. Goetzel R, Chung Roemer E, Kent K, Smith K. Health Care Cost Savings from Comprehensive Worksite Health Promotion (CWHP) Programs - Policy Narrative. *Comprehensive Worksite Health Promotion Program.* Report to the Bipartisan Policy Center; 2013. Available at: http://bipartisanpolicy.org/sites/default/files/Worksite%20Health%20Promotion%20Programs_0_0.pdf. Accessed April 11, 2014.
36. Mattke S, Liu H, Caloyeras JP, et al. Workplace Wellness Programs Study: Final Report. RAND Corporation; 2013. Available at: http://www.rand.org/content/dam/rand/pubs/research_reports/RR200/RR254/RAND_RR254.sum.pdf. Accessed April 8, 2014.
37. Kaiser Family Foundation and Health Research and Educational Trust. Employer health benefits: annual survey 2012. Available at: http://ehbs.kff.org/pdf/2011/8225.pdf. Accessed April 8, 2014.
38. Health Policy Brief: Workplace Wellness Programs, Health Affairs (Millwood). Workplace Wellness Programs. The Affordable Care Act will expand the ability of employers to reward workers who achieve health improvement goals. Available at: http://healthaffairs.org/healthpolicybriefs/brief_pdfs/healthpolicybrief_69.pdf. Accessed December 4, 2012.
39. Linnan L, Bowling M, Childress J, et al. Results of the 2004 national worksite health promotion survey. *Am J Public Health*. 2008;98:1503–1509.
40. Lewis A, Khanna V. Will Workplace Wellness Actually Make Workers Healthy? Available at: http://www.fastcoexist.com/3026401/will-workplace-wellness-actually-make-workers-healthy. Accessed April 10, 2014.
41. Khanna V, Lewis A. RAND shrugged. Available at: http://thehealthcareblog.com/blog/2013/06/19/rand-shrugged/. Accessed April 10, 2014.
42. Begley S. Exclusive: workplace wellness fails the bottom line, waistlines— RAND. Available at: http://www.reuters.com/article/2013/05/24/us-wellness-idUSBRE94N0XX20130524. Accessed April 10, 2014.
43. Caloyeras JP, Liu H, Exum E, Broderick M, Mattke S. Managing manifest diseases, but not health risks, saved PepsiCo money over seven years. *Health Aff (Millwood)*. 2014;33:124–131.
44. Liu H, Harris KM, Weinberger S, Serxner S, Mattke S, Exum E. Effect of an employer-sponsored health and wellness program on medical cost and utilization. *Popul Health Manag.* 2013;16:1–6.
45. Lewis A, Khanna V. PepsiCo's Wellness Program Falls Flat. Available at: http://thehealthcareblog.com/blog/2014/01/06/pepsico%E2%80%99s-wellness-program-falls/. Accessed April 10, 2014.
46. Lewis A. Workplace Wellness Takes Another Hit. LinkedIn Discussion-2014. Available at: http://www.linkedin.com/groups/Workplace-Wellness-Takes-Another-Hit-3344903.S.582609508387052339 5?qid=4281e394-5343-4dfa-9e9d-49b64fa99849&goback=.gna_3344903. Accessed April 16, 2014.
47. Grossmeier J, Terry PE, Anderson DR, Wright S. Financial impact of population health management programs: reevaluating the literature. *Popul Health Manag*. 2012;15:129–134.
48. Gowrisankaran G, Norberg K, Kymes S, et al. A hospital system's wellness program linked to health plan enrollment cut hospitalizations but not overall costs. *Health Aff (Millwood)*. 2013;32:477–485.
49. Soler RE, Leeks KD, Razi S, et al. A systematic review of selected interventions for worksite health promotion. The assessment of health risks with feedback. *Am J Prev Med*. 2010;38:S237–S262.
50. Chapman L. Meta-evaluation of worksite health promotion economic return studies: 2012 update. *Am J Health Promot*. 2012;26:TAHP1–TAHP12.
51. Baicker K, Cutler D, Song Z. Workplace wellness programs can generate savings. *Health Aff (Millwood)*. 2010;29:304–311.
52. Lerner D, Rodday AM, Cohen JT, Rogers WH. A systematic review of the evidence concerning the economic impact of employee-focused health promotion and wellness programs. *J Occup Environ Med.* 2013;55:209–222.
53. Serxner S, Gold D, Parker K. Financial impact of worksite health management programs and quality of the evidence. In: Rippe JM, ed. *Lifestyle Medicine*. 2nd ed. Boca Raton, FL: CRC Press; 2013:1325–1336.
54. Serxner SA, Gold DB, Zakowski SL, Gray A. Do employee health management programs work? *J Health Promot*. 2009;23:1–8.
55. Serxner SA, Alberti A, Weinberger S. Medical cost savings for participants and non-participants in health risk assessments, lifestyle management, disease management, depression management, and nurseline in a large financial services corporation. *Am J Health Promot*. 2012;26:245–252.
56. IOM (Institute of Medicine). *A Ready and Resilient Workforce for the Department of Homeland Security: Protecting America's Front Line.* Chapter 4. Washington, DC: The National Academies Press; 2013. Available at: http://www.iom.edu/Activities/HealthServices/DHSWorkforceResilience.aspx. Accessed April 10, 2014.

