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Examining the Value of Integrating Occupational Health and Safety and Health Promotion Programs in the Workplace

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Introduction and Purpose

The U.S. workforce is changing rapidly. As a society we are moving toward a knowledge-based economy that relies heavily upon the creativity, mental stamina, and intellectual capacity of workers. Our economy is becoming much more dependent on "knowledge" workers as many traditional service and manufacturing jobs migrate to other countries. As noted in a recent speech by Federal Reserve Board Chairman Alan Greenspan, "…in 1900, agricultural and manual laborers composed about three-quarters of the workforce. By 1950, those types of workers accounted for one-half of the workforce, and though still critical to a significant part of our economic value-added, today compose only about one-quarter of our workforce… work is becoming less physically strenuous but more demanding intellectually, continuing a century-long trend toward a more-conceptual and less-physical economic output."[1]

As we progress from a "brawn"- to a "brain"-based economy, the intellectual productivity of workers has assumed a much greater importance. Fortunately, the overall productivity of American workers has risen dramatically over the past several decades and especially in recent years. For example, in 2002, output per worker hour grew at an annual rate of more than 2.5 percent, compared with a rate of roughly 1.5 percent during the preceding two decades.[1] More recently, productivity has increased an astonishing 4.5 percent annually since the beginning of 2001.[2]

Clearly, a large portion of these productivity gains can be attributed to the billions of dollars spent on new technology and capital investment. Yet, another significant portion is a consequence of improvements in individual and organizational efficiencies, in many cases forced upon organizations that strive to remain competitive in a global market. As Greenspan explains, "It is, of course, difficult to separate rates of return based on the innovations embedded in new equipment from the enhanced returns made available by productive ideas … From an accounting perspective, efficiency gains, broadly defined as multifactor productivity, have accounted for roughly half the growth in labor productivity in recent years."[3]

At the same time, in order to stay competitive, organizations are adopting a "lean workforce" philosophy and many traditional manufacturing jobs are being transported overseas.

This paper examines the role of worker health as a key contributing factor to increases in workplace productivity, and the emergence of organizational practices that support the integration of occupational health, safety and productivity management programs. We explore answers to the following questions:

- What is the context for examining the relationship between worker health, safety, and productivity gains?

- Can a business case be developed for introducing and maintaining an integrated model of health, safety, and productivity management? Is it feasible to advocate for a coordinated approach to worker health at a time when the overall business imperative is focused on cost-cutting?

- What have employers done to advance employee health, safety, and productivity efforts?

- What methods are used to measure and monitor health, safety and productivity outcomes in the workplace?

- Is there evidence that improvements in the health and well being of workers can achieve economic benefits?

- What can be learned from successful efforts at integrating health, safety, and productivity management initiatives in American businesses?

- What is needed to promote research and fill critical knowledge gaps, to disseminate information about what is already known in this field, and to identify and reinforce successful practices?

This background paper directly addresses these and related issues. We describe how workers' poor health, either physical or mental, puts their productivity and safety at risk. Workers and their employers are beset by increased health care costs, heightened absenteeism, increased disability rates, additional safety incidents, higher workers' compensation claims, and a reduction in productive work output otherwise known as "presenteeism." We describe a new and emerging business strategy called *Health and Productivity Management,* or HPM, which has been in the forefront of advocating for integrated employee health, safety, and productivity management programs. We describe the rationale for integrating diverse and often competing organizational functions into a cohesive and coordinated unit, but also talk about the barriers to such efforts. We discuss the overall process that many employers have used to implement an integrated model. We review some of the common threads that run across several successful integrated program implementation efforts. We point to examples of "best practices" and quantitative results reported by these organizations. The paper concludes with some suggestions for next steps to be considered by government, industry, unions, non-government organizations, academia, and other policy experts. These suggestions focus on policies and circumstances that would enhance the development of more integrated health, safety and productivity management programs for adoption by U.S. employers.

We begin with a discussion of the context for the recent surge of interest in integration efforts directed at employee health, safety and productivity management.

An Integrated Approach to Employee Health, Safety and Productivity Management

Integrated health, safety and productivity management programs are emerging as a business imperative aimed at improving the total value of human resource investments. These programs rely upon the joint management of human resources benefits and programs that employees may access when they are sick, injured or balancing work/life issues. They include health insurance, disability and workers' compensation, employee assistance, paid sick leave, and occupational safety programs. Also included are activities meant to enhance morale, reduce turnover, and increase on-the-job productivity**.**

An integrated health, safety and productivity management model evolved over the past five to ten years. What led to its emergence? What prompted business leaders to actively pursue an integrated approach as a business imperative? Below we review some of the forces that supported a growing interest in, and adoption of, integrated health, safety and productivity management programs among American businesses.

Rising Health Care Costs

U.S. healthcare costs continue to escalate with no immediate relief in sight. In 2004, healthcare spending is expected to total $1.8 trillion, or 15.5 percent of the Gross Domestic Product (GDP)[4] -- a significantly larger portion of national wealth as compared to 11.1 percent 15 years ago.[5] Healthcare spending is projected to account for 18.4 percent of GDP by 2013 when more than one out of every four dollars of personal consumption will be spent on healthcare.[4]

For employers, the expense associated with providing health benefits to employees is becoming increasingly worrisome. During the past three years, annual health insurance costs have increased an average of 12.5 percent.[6] A recent survey by Mercer Human Resource Consulting found that employers expect health care costs to rise 12.9 percent in 2005 if benefit plan designs remain unchanged.[7]

In 2003, the annual cost of providing health insurance benefits averaged $3,391 for employee-only coverage and $9,075 for family coverage.[8] On average, employers paid 84 percent of the premium for employee-only coverage and 73 percent for family coverage.[8] However, when factoring in productivity related expenses, the costs to employers are significantly greater. Parry et al[9] estimated that the overall health and productivity cost burden to employers averaged $16,091 in 2002. This calculation included direct payments for health benefits

and indirect payments attributable to lost productivity. Some of the expenses associated with lost productivity included hiring replacement workers when an employee is absent (absenteeism) and reduction in services, loss of output and missed sales opportunities when employees are distracted or less attentive, especially when affected by poor health (presenteeism).

When all of these expense components are presented to employers individually and in aggregate, employers begin to understand that health care means more than paying doctor, hospital and drug bills. Health also impacts their employees' safety and productivity. Workers in poor health, and those with behavioral risk factors, may cost the organization more than can be measured by adding up medical expenses; the spillover effects on other areas such as safety, morale, and productivity may be significant.

Employer Response to Rising Healthcare Costs

But, not all employers are as broadminded and aware of the economic consequences of poor health. When examining their organization's balance sheet, employers focus mainly on their unsustainable rising health care costs. They are appropriately worried that rising health care costs will erode their profitability and make them less competitive in a global marketplace. According to consulting firm Deloitte and Touche[10] and a survey conducted by the Benefits Roundtable,[11] about 90 percent of senior managers rate "protecting employers from rising health care costs" as their number one or number two priorities.

How do employers plan to battle the rise in health care costs? Among the options being considered are the following:

- Withdraw or significantly curtail health care benefits to employees;

- Shift a larger portion of expense to employees by charging more for health benefits in the form of increased premiums, higher deductibles, greater coinsurance, and wider use of consumer-driven health plans – plans that are designed to offload much of the cost of care by introducing higher thresholds for submitting medical claims and requiring employees to pay a larger proportion of their bills;

- Change providers' behavior and fees by negotiating additional discounts for services, offering incentives for more efficient care practices, rewarding providers for adhering to evidence-based treatment guidelines, and channeling patients away from less cost-effective and unsafe providers;

- Support state and federal legislation that would lessen burdensome mandates and shift costs from the private to the public sector;

- Change end-user consumer and patient behaviors by encouraging individuals to use fewer services or use services more efficiently, and supporting their efforts in self-care and smart consumerism; and

- Prevent costly diseases from occurring in the first place by providing effective health promotion and disease prevention programs and services.

In many cases, employers are considering several combinations of the above solutions. Certainly one important development in past few years has been the steady erosion of employer-sponsored health benefit plans. Traditionally, of the more than six million employers in the U.S., 66 percent offer health benefits to employees, and almost all larger employers, with 50 or more employees, offer such benefits.[12] However, more and more employers are deciding to drop health care coverage for their employees because of rising costs. A 2004 Census Bureau report found that about 1.4 million more people were uninsured in 2003 compared to the previous year. The percentage and number of people covered by employment-based health insurance fell between 2002 and 2003, from 61.3 percent (175.3 million) to 60.4 percent (174 million).[13] As expected, the number of people without health insurance also grew last year, to 45 million -- an increase from 15.2 percent to 15.6 percent.

In sum, employers face significant health care challenges. A central question many ask is whether they should continue to provide health care benefits to employees and whether such benefits affect the employer's standing in a very competitive global market place. Historically, employers provided health care benefits to remain competitive among their peers who recruited from the same pool of job applicants, and to protect workers from catastrophic events. Today, health care payments are directed primarily at the treatment of acute and chronic health conditions, not at catastrophic events. Consequently, employers require a different type of business case argument for continuing to provide effective health care coverage to their employees -- one that emphasizes the safety and productivity benefits of good health as well as the significant losses likely to occur when health is compromised.

Many progressive employers understand this concept intuitively and have struggled to collect the right type of data to support their beliefs. We demonstrate below how business cases for increased investment in integrated worker health, safety and productivity management programs have been developed, and provide some emerging evidence that these programs can achieve a positive return-on-investment (ROI) and consequently improve the performance of organizations.

How are Health, Safety and Productivity Related?

Enlightened employers understand the various factors that comprise their total employment costs. They realize that their direct costs include wages paid to employees in the form of salary, bonuses, stock, savings plans, and commissions. They also understand that they pay for what is sometimes referred to as fringe benefits, which include health insurance, short- and long-term disability coverage, and workers' compensation.[14] A third component, often overlooked, consists of "other labor costs." This category of expense includes the "people" or "human capital" costs for programs that increase productivity and morale (e.g., training, health promotion, fitness facilities, picnics, fun events) and reimbursements to workers for lost time due to absenteeism. For example, the employer pays for unnecessary replacement worker wages, routine over-staffing or overtime premiums, and the largely intangible costs of dealing with morale issues, interpersonal problems, and sub-par performance related to health problems.

Over the past several years, literature has emerged demonstrating the relationship between poor health and employer costs. For example, a study by Goetzel et al. showed that employees who are depressed and highly stressed cost employers significantly more in health care costs compared to those without these psychosocial risk factors.[15] Other studies have documented the relationship between poor health and productivity losses. Other studies have documented the relationship between poor health and productivity losses. Claxton et. al[16] demonstrated that when workers are appropriately treated for depression, their absenteeism drops. Cockburn et. al[17] documented differences in workers' productive output when treated for allergies with different types of antihistamines. Burton et. al[18] showed a direct relationship between modifiable health risk factors and work output for telephone call center operators at a bank.

Several investigators have developed innovative methods to quantify these productivity losses and translate them into dollar terms, for specific health and disease categories[19,20,21,22,23,24,25,26] or across multiple health conditions.[27,28] These and other studies have set a framework for future research that examines the relationship between employee health, organizational performance and work output (i.e., productivity).

When one couples individual health concerns with organizational stressors such as downsizing, lackluster senior management, poorly communicated policies, and an environment without clear purpose, the potential for productivity losses becomes even more pronounced. Negative organizational announcements and adverse business developments may occur within a larger socio-economic context and may further dampen worker enthusiasm and motivation to perform at peak performance levels. Job and personal stresses, along with other job pressures, may manifest themselves as symptoms reflecting increased health,

safety and productivity risks for the individual and organization. Such symptoms may present themselves as medical conditions (e.g., chest and back pain, heart disease, gastrointestinal disorders, headaches, dizziness, weakness, repetitive motion injuries); psychological disorders (e.g., anxiety, aggression, irritability, apathy, boredom, depression, loneliness, fatigue, moodiness, insomnia); behavioral problems (e.g., accidents, drug/alcohol abuse, eating disorders, smoking); and organizational malaise (e.g., absence and tardiness, poor work relations, high turnover, low morale, job dissatisfaction, low productivity). (See figure 1.)

Figure 1

Employers may be stymied in their response, not knowing where to place intervention emphasis and which departments or functions are responsible for such interventions. Senior managers may assume that the medical department handles medical problems, employee assistance handles psychological problems, labor relations handles behavior problems, and organizational development handles low morale problems. Given the fragmented nature of organizational structures, they may struggle to come up with a "given" solution to these varied problems, or they may introduce independent solutions that are divorced from other related and possibly complementary efforts.

Employers Search for Solutions

Certainly, there are a myriad of interventions that internal program managers and commercial vendors can offer to remedy individual and organizational problems. They include the introduction of programs promising to better manage health, demand, disease, pharmacy benefits, disability, absence, stress, work-life balance, safety, and other human resource issues.

But, in evaluating opportunities for interventions, senior managers should first ask whether any of these programs really work? Have they been shown to be effective? Do they achieve improvements in any of the categories listed above and are they cost-effective? Unfortunately, the "jury is still out" when determining the efficacy and cost-benefit of alternative interventions available to employers. (See Figure 2.)

Figure 2

- Manage disease
- Manage disability and absence
- Manage health and demand
- Manage stress
- Strengthen EAP
- Re-engineer
- Reorganize
- Create Incentives
- Cut pharmacy benefits

In terms of solutions, three distinct schools of thought have emerged in the literature. One school encourages a focus on the individual employee through the provision of and financial support for health education, lifestyle modification, behavioral change and self-management interventions. A second school is focused on changing the organization by introducing occupational health and risk management programs focused on ergonomics, "sick building" phenomena, changes in policies, and introduction of new benefits. A third school is focused on changing societal practices through policy changes, legislation, infrastructure improvements, and mandated programs, e.g., changes in OSHA regulations, introduction of new legislation (e.g., ADA or FMLA), or reform efforts directed at healthcare and workers' compensation.

While it may be easier to simply focus on the individual, organization or society when introducing a solution, the reality is that these are very much intertwined, and a comprehensive and integrated approach is necessary. An integrated health, safety and productivity management model was first developed by DeJoy and Southern[29] and has since been expanded and elaborated upon by several other researchers and practitioners in the health, safety and productivity management community.

An integrated model is preferred. But, it is also important to recognize that different types of interventions fall into each of the three schools of thought mentioned above. At the individual level, solutions need to consider job and task factors associated with one's work as well as individual factors that employees bring to their job from outside. Job and task factors include the physical and psychological demands of the job such as exposure to toxins, work schedule, repetitive motion tasks, heavy lifting requirements, threats to personal safety, task pacing and control, job ambiguity, and decision latitude.

Individual factors also include health, safety and behavioral/lifestyle habits related to smoking, exercise, eating/nutrition, safety, alcohol/drug use, preventive care and so forth. Further, individual psychological and attitudinal factors come into play when considering job performance. They include health knowledge, behavioral skills, personal representation of health or illness (i.e., "worried well" or invulnerable "walking time bomb" personas), perception of individual susceptibility, self efficacy, and perceived behavioral control. Other attitudes toward work and one's immediate supervisor also play an important role in determining job performance.

At the organizational level, the following factors may influence worker health, safety and productivity: organizational structure and climate (management style); corporate culture and values; and union-management relations. For example, an especially oppressive work culture can lead to several adverse outcomes at an organizational and individual level.

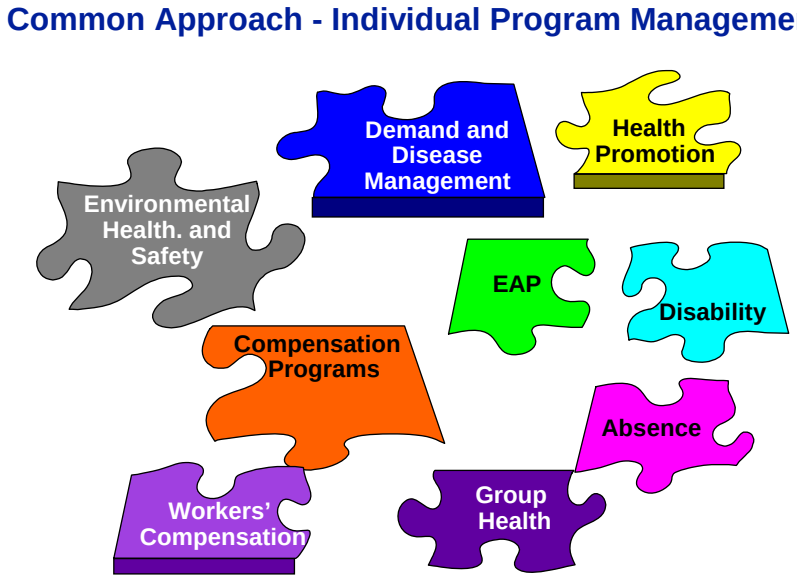
Finally, from a societal perspective, there are several extra-organizational forces that support or impede the health, safety and productivity of workers. They include legal, economic and social factors such as the state of the economy, unemployment rates, training and advancement opportunities, global competition, the growth of dual career families, introduction of national legislation (OSHA, ADA, FMLA, health care legislation), deregulation, and other larger societal events influencing the workplace.

Developing an Integrated Health, Safety and Productivity Management Model as an Alternative to Fragmented Organizational Structures

Where, then, should senior managers focus their attention: the individual worker, the organization, or society as a whole? The answer is "all of the above," but in a thoughtful and coordinated fashion. The approach advocated here is to develop and institutionalize an integrated model of worker health, safety and productivity as an overall business strategy.

Focusing for a moment on the organization as a whole, it is more the norm than the exception that health, safety and productivity issues are addressed separately and discreetly by different functions within the organization: employee benefits, employee assistance, risk management, occupational medicine, safety, organizational development, operations, human resources, employee relations, labor relations or other departments. Fragmented, department-specific strategies attempt to manage individual and organizational risks, although oftentimes these risks are common to several functions simultaneously within the organization and might be better managed through cooperative or integrated activities. (See Figure 3.)

Figure 3



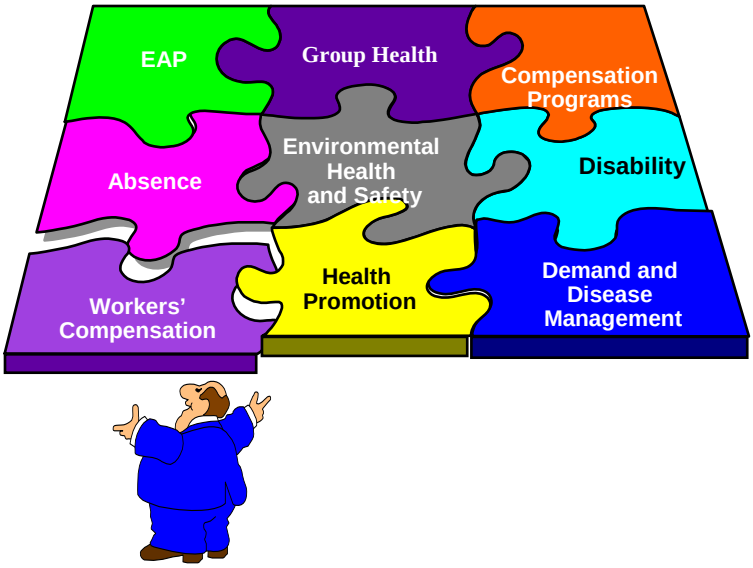
In a “silo-based” structure, each organizational function attempts to handle company-wide issues separately using a variety of interventions. At an organizational level, every department stakes out its own turf and its own fiefdom. Problems are addressed individually, one at a time, and in an uncoordinated fashion. In contrast, an integrated health, safety and productivity management approach allows business leaders to think about broader organizational problems and develop inter-departmental links, to address these problems with greater efficiency in a more complex landscape.

An Integrated Model for Improving Health, Safety and Productivity

Given the cacophony of individual, departmental, and functional approaches to solving common organizational problems, a need emerges for increased coordination and better integration across disparate organizational structures. An integrated health, safety, and productivity management model establishes a new paradigm for working across departments to form a coordinated, synergistic and unidirectional set of solution packages. This approach is often necessitated by resource constraints and increasingly complex people management requirements. Consequently, individual department heads recognize that they can no longer afford to do their job in piecemeal fashion. The new paradigm forces managers to concentrate their efforts on improving the health and well-being of employees as a whole, not as individual cases, regardless of where the organizational benefit programs reside. (See Figure 4.)

Figure 4

HPM—Putting the Pieces Together



Arguments For and Against an Integrated Health, Safety and Productivity Management Approach

While the above discussion articulates some of the reasons why organizations may wish to implement an integrated health, safety, and productivity management model, there are still some significant barriers standing in the way. We list below several reasons for moving ahead with an integrated approach and some key obstacles to such a movement.

Arguments in favor of integration and coordination of functions include the following:

- Cost efficiency and lack of duplication can be achieved when resources and experiences are shared across departments and functions;

- To achieve efficiencies, organizations need to develop and apply common metrics so that a uniform story can be told using data and measures that are commonly understood and accepted; and

- A health, safety, and productivity approach will lead to reduced competition for senior management attention and scarce resources.

While these arguments may make sense at face value, there are also some significant barriers and blockages that can be voiced against a health, safety and productivity management model. They include the following:

- There is often turf protection by program managers and a consequent lack of interest in sharing resources, knowledge and experience with others viewed as internal competitors;

- Managers may complain that they "lack the time" to devote to "non-essential" tasks and processes – managers may view integration efforts as "busy time" that distracts employees from their "real" jobs;

- Managers may declare that different departments and organizations function under different sets of rules. Some departments may be subject to federal or state regulations, others may be in charge of implementing organized labor contracts, and yet others may be responding to specific senior management directives;

- There may be momentum to continue doing things as they have always been done, because "they work" and there is a reluctance to "fix something that isn't broken." In addition, employees may argue that even if they wanted to they could not integrate and coordinate their activities because of "hard coded" reporting relationships and a lack of authority to introduce new

structures. Further, they may argue that senior management needs to authorize a re-organization for such activity to take place; and

- Similarly, opposition forces may argue that there is no evidence that an alternative model or models that emphasize integration are better than existing structures and work practices. Furthermore, they may assert that the idea may appear to work in theory, but it would cost more than it would save and thus not produce a short term ROI.

Making a Business Case for Integration – Posing Hypotheses

These arguments for or against an integrated model have merit. Certainly, from a higher vantage point, an integrated health, safety, and productivity management model makes sense. But, from the middle manager's perspective such an approach may prove to be a distraction and just another example of a short-lived management initiative that is ineffective and potentially harmful. These are tough obstacles to overcome. For an integrated model to succeed, it must be based on a solid theoretical foundation and supported by empirical evidence. Also, it must be easy to understand and straightforward to implement.

An important early step in the process of creating an integrated model is to organize a multidisciplinary and multi-functional team empowered to design, implement and evaluate the health, safety and productivity management program. The team must be clear in its purpose and aware of the series of challenges it faces. In many ways, these challenges can be viewed as research hypotheses[30] that need to be supported or discredited, depending upon results of investigations and the data derived from those investigations.

We list below some of the common hypotheses associated with the development of integrated health, safety, and productivity management programs:

- Poor employee health is responsible for unnecessary and avoidable health, safety and productivity losses;

- Employee health can be improved through well-founded, evidence-based, well-implemented, and measurable health, safety and productivity management interventions;

- Providing health benefits alone is not enough – employers need to take an active role in delivering health education, awareness building, risk reduction and counseling programs that support health, safety and productivity enhancement efforts;

- Administration of health benefits, health promotion, workers' compensation, non-occupational disability, occupational health and safety, behavioral health,

organizational development, and other relevant functions can and should be coordinated in order to maximize the impact of a "package" of human resources programs;

- Improvements in employee health will not only reduce medical care costs but also enhance worker safety, productivity and organizational competitiveness; and

- Successful health, safety, and productivity management programs can save more money than they cost and thus achieve a significant and positive ROI for the organization.

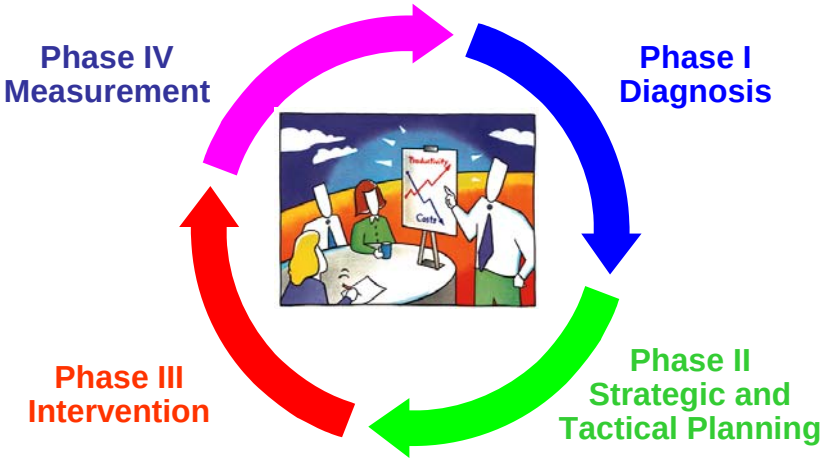
Integrating Health, Safety and Productivity Management Programs – A Practical Approach

Thus far, we have discussed some of the factors that lead organizations to consider an integrated model, and some of the barriers that stand in the way. We have also described some of the formidable challenges involved in making a business case for integration. In this next section, we move beyond the conceptual issues driving organizations toward a fully integrated health, safety and productivity management model and discuss the practical steps that organizations can take to design and implement a successful program.

Figure 5 presents a schematic diagram of the process needed for implementing health, safety and productivity management. The first step involves diagnosing where the organization is at greatest risk – people-wise, program-wise, or expense-wise. This is done through various data analytic projects focused on the organization as a whole and also on its employees. There are two levels of diagnoses – one at the broad global or macro level and the second at the more discrete micro level to unearth specific problems or issues requiring attention.

Figure 5

Health, Safety and Productivity Management Process

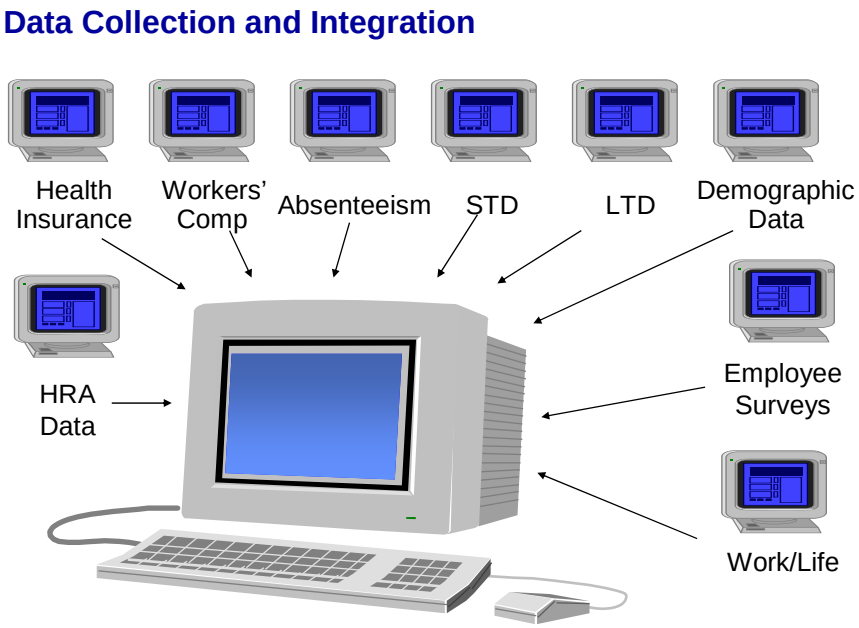


The diagnosis phase is followed by a prescriptive phase where an inter-departmental team meets to review and further query the diagnostic data; discuss and evaluate alternative intervention options; and develop strategic and tactical plans to implement a health safety, and productivity management solution. The third phase involves the actual implementation of a package or set of solutions that fall into four broad categories: care or disease management; health promotion or health management; workplace environment; and organizational climate and culture. Finally, the fourth phase requires measuring and evaluating whether the interventions worked, or not, and determining why they worked or failed. This may lead to further fine-tuning of the program and the process may begin once more. Below we describe each of these phases more completely.

Phase I – Diagnosis

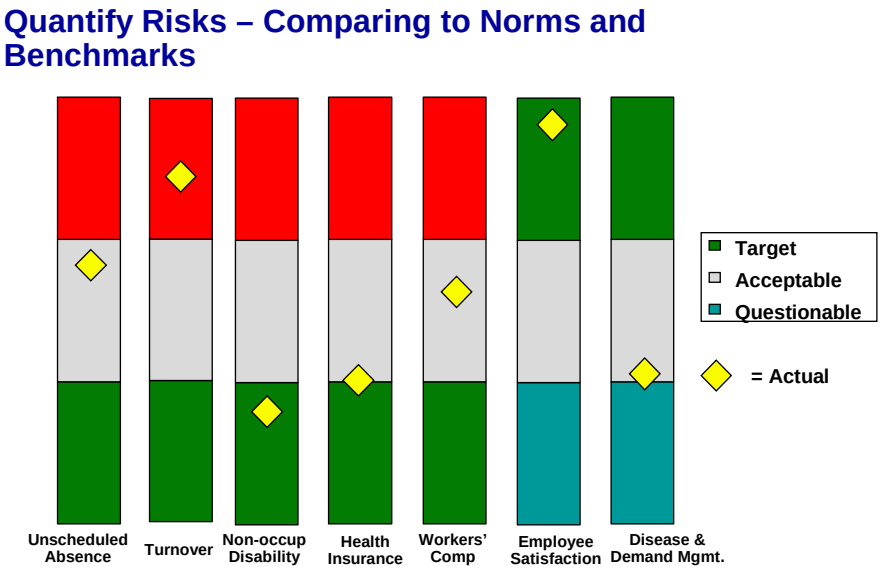
The health, safety, and productivity management process is contingent upon the availability and application of reliable, valid and actionable data used to diagnose whether a problem exists, how big the problem may be, and where attention should be directed to address the problem. As noted above, there are two levels of diagnoses. At a macro level, the organization collects and assembles disparate data that are typically scattered across departments, in small and large computers, and at vendor sites. The intent is to bring together these data elements, at least at the global level, for examination and interpretation, and most importantly to somehow combine them to tell a cohesive and compelling story. (See Figure 6.)

Figure 6



When feasible, it is best to compare and contrast the organization's experience to norms and benchmarks established by reputable third parties. This helps determine whether the organization's experience is above, below or at norm, and whether there is potential for improvement. (See Figure 7.) Similarly, different parts of the organization can be compared to one another, assuming common metrics are developed, to determine their relative standing organizationally.

Figure 7



A follow-up step may be to examine the organization's data at a more finite or micro level. This is done to hone in on specific problem categories and identify the source of those problems. For example, the organization may wish to determine where its benefit costs and service utilization results are highest, and whether the drivers for these expenditures can be determined. This often involves analyzing data from group health care administrative files, human resources demographic and eligibility files, absence records, short and long term disability claims, workers' compensation records, health risk data, program participation files, and various survey databases. This task is complex and sensitive, especially because individual person-level data are being examined and the confidentiality and anonymity of workers must be preserved. However, specialty data warehouse and data analysis organizations that specialize in this type of work are available and frequently hired to perform data aggregation, analysis and evaluation tasks for the organization.

Macro Analyses -- Establishing Benchmarks and Best Practices in Health, Safety and Productivity Management

When introducing health, safety, and productivity management programs as a business strategy, internal champions must first develop a business case for examining and managing diverse human resource processes in a coordinated and synergistic fashion. This can be done by first quantifying the aggregate costs of providing health, safety and productivity management programs to workers. Typically, employers examine their program expenses one area at a time and are only able to report those expenses within any given benefit or program, such as group health, occupational safety, disability or workers' compensation. Consequently, managers are generally unaware of costs associated with other programs and are almost never able to estimate total health and related lost productivity costs for the organization.

To get a "big picture" view of health, safety and productivity management program expenses, the organization may wish to first count up the dollars spent on employees, by each program and across programs. How are those dollars distributed? Where are the biggest expenses and where are the biggest opportunities? How do the organization's metrics compare to benchmarks? What are the savings opportunities based on the difference between current values and benchmarks?

In Appendix A, we present an abstract of an article that describes the process and results of a benchmarking study conducted by Medstat, the American Productivity and Quality Center (APQC) and the Institute for Health and Productivity Management (IHPM) along with 43 employers. It dealt with an effort to collect and analyze data reflecting these 43 organizations' health, safety and productivity metrics (referred to in the study as Health and Productivity Management or HPM). We report below some general findings from that study which can be replicated within any given organization. We also report the results from a qualitative study performed as part of these benchmarking efforts that attempted to identify and synthesize common themes that run across best practice health, safety, and productivity management organizations. These themes were derived from site visits to nine organizations: Coors Brewing Company, Champion International Corporation, Steelcase Inc., Texas Instruments, Union Pacific Railroad, 3M Corporation, ChevronTexaco, General Electric Company, and Navistar International Transportation (now called International Truck and Engine).

Conducting a Macro Diagnostic Analysis – Aggregating Health, Safety and Productivity Management Expenses for the Organization

In our benchmarking study, we determined that median health, safety, and productivity management expenses per employee per year were $9,992 (in 1998 dollars). These estimates were derived by summing employer expenses for the following five core program categories: group health, turnover, unscheduled absence, non-occupational disability, and workers' compensation. Group health costs constituted the largest proportion of total health, safety, and productivity management costs ($4,666 or 47 percent), followed by turnover ($3,693 or 37 percent), unscheduled absence ($810 or 8 percent), non-occupational disability ($513 or 5 percent) and workers' compensation ($310 or 3 percent). (See Figure 8.) When other programmatic expenses related to employee assistance, health promotion, occupational medicine, safety, and work/life services were added, total health, safety and productivity management costs increased to $10,365 per employee (in 1998 dollars).

Figure 8

Establishing the "Cost Burden" of Poor Health
Median HPM Costs Per Eligible Employee (1998 $)
Medstat/IHPM/APQC Benchmarking Study

Group Health $4,666 47%

Turnover $3,693 37%

Unscheduled Absence $810 8%

Non-Occupational Disability $513 5%

Workers' Compensation $310 3%

- The sum of median 1998 HPM costs across programs was $9,992 per eligible employee

Comparing organizational median health, safety and productivity management expenses to best practice values (operationally defined as the 25th percentile or better), we determined the potential cost savings across the five core health, safety and productivity management program areas to be $2,562 per employee per year, or 26 percent of the median total health, safety and productivity management costs (see Figure 9).

Figure 9

Median HPM Opportunity Per Eligible Employee for All Survey Participants

Turnover $1,247 49%

Group Health $617 24%

Unscheduled Absence $435 17%

Non-Occupational Disability $143 6%

Workers' Compensation $120 4%

- The sum of the median 1998 HPM opportunity costs across programs was $2,562 per eligible employee, a 26% reduction opportunity in total per employee HPM costs

Table 1 summarizes the data for each of the core program areas examined in the study. Reported in the table are the minimum, maximum, 25th, 50th, and 75th percentile values for key utilization and cost measures across the 43 organizations who participated in the study.

Table 1: Key utilization and cost measures collected from HPM benchmark study participants, by category -- 1998 data

HPM Program Categories				**Percentiles**	
	Min	**Max**	**25**	**50**	**75**
Group Health $/Eligible	$3,127	$6,421	$4,049	$4,666	$4,978
NonOccup Disab $/Eligible	$225	$1,084	$370	$513	$682
Work Comp $/Eligible	$93	$863	$190	$310	$505
Unscheduled Abs $/Eligible	$131	$1,864	$375	$810	$1,207
Unscheduled $/Eligible – Hourly	$137	$859	$312	$442	$510
Unscheduled $/Eligible – Salaried	$308	$1,337	$440	$868	$1,272
Total Absence Rate	0.18	3.95	0.76	1.72	2.64
Absence Rate – Hourly	0.43	7.25	0.92	1.02	1.92
Absence Rate – Salaried	0.60	2.08	0.71	1.32	1.94
Total Turnover $/Eligible	$1,826	$10,317	$2,446	$3,693	$6,284
Turnover $/Eligible-Hourly	$848	$7,986	$2,147	$2,595	$3,929
Turnover $/Eligible-Salaried	$1,684	$16,241	$3,344	$5,240	$6,887
Total Turnover Rate	2.21	46.01	6.18	8.54	15.26
Turnover Rate-Hourly	5.54	64.52	10.83	17.83	25.64
Turnover Rate-Salaried	2.23	30.63	5.79	9.29	10.39

Results from this benchmarking effort were reported to each participating organization, and internal organizational champions, in turn, used the results to advocate for an integrated health, safety and productivity management approach to human capital management. The analyses helped "size" the extent to which the organization was currently investing in human resources initiatives and the potential for savings through coordinated activities. The study also pointed to specific programmatic areas where the experience of the organization was extraordinarily high and where the organization was performing well (as measured against their peers). Some organizations used the report to set goals for improvement: for example, to achieve values comparable to those of best practice organizations.

One key exhibit used in the benchmarking report was the single dollar bill icon, which highlighted the organization's total dollar investment in health, safety and productivity management programs and facilitated an "apples to apples" comparison of costs. The "carved up" dollar bill was used to effectively communicate to senior management the considerable sums already invested in employee health and well-being. From that platform, organizational champions could argue that improved coordination can and should reduce overall costs and enhance employee health, productivity and quality of work life. By highlighting areas for improved coordination, and by placing a dollar value on an integrated approach, internal champions showed that such an integrated approach was not simply theoretical, but practical.

The qualitative study findings reported below further highlighted practical advice to companies who wished to model their programs after organizations achieving best practice outcomes, and emphasized the promise of cost savings resulting from such efforts.

Leveraging Health and Productivity Management Benchmarking Data at The Dow Chemical Company

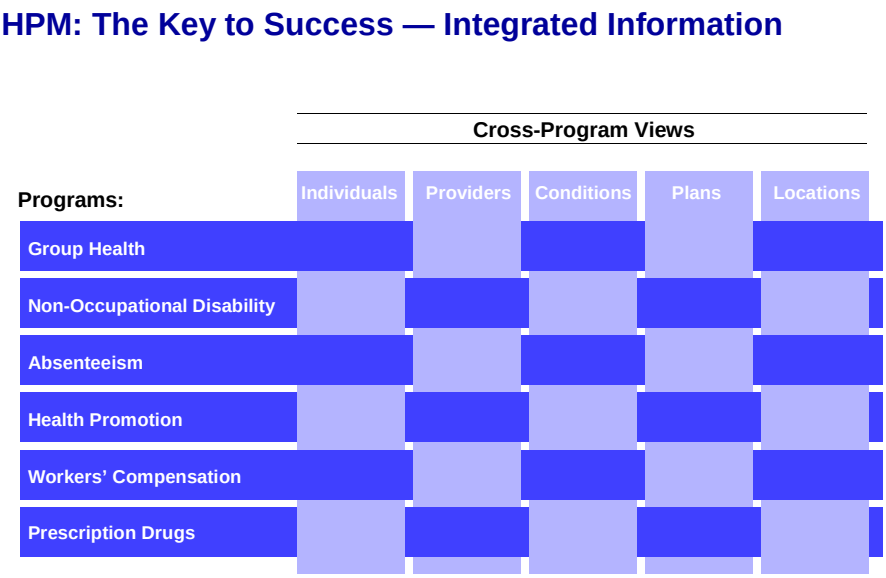
Several organizations have used the health, safety and productivity management benchmarking study, or similar analytic approaches such as those developed by the Integrated Benefits Institute,[31] to justify increased investment in health, safety and productivity management programs and improved coordination across existing human resource functions. Internal staff at The Dow Chemical Company used data from several benchmarking studies to formulate a financial argument for continued investment in health improvement and risk reduction programs for their employees.

Dow's Health and Human Performance (H&HP) staff quantified to senior management the large sums of money that the company was spending in several areas to address the broad impact that employee illness may have. From their benchmarking study, Dow staff estimated the gap between their actual expenditures and the values derived from the experience of best practice organizations to be approximately $30 million annually in 1998 dollars. That savings opportunity, coupled with a delineation of the company's different programs and services aimed at improving employee health and productivity, convinced senior managers that more attention should be devoted to coordinating these activities. Such coordination could deliver multiple health-related programs more effectively and efficiently. In addition, the analysis triggered a reframing of health and productivity management programs offered by the company as investments to be carefully managed, rather than an inevitable cost of doing business. As an example, Appendix B presents the "business case" made by Dow staff in support of increased investment in health, safety and productivity management programs.

Micro Analyses – Establishing Opportunities for Integrating Health, Safety and Productivity Programs by Linking Relevant Databases

The benchmarking studies described above lay the foundation for implementing an integrated model within the organization. Once that foundation has been established, it is then necessary to drill deeper into program-specific and, if available, multi-program integrated databases. Many organizations have established data warehouses where health, safety and productivity management data are stored. (See Figure 10.) In most cases, these organizations have hired outside contractors to assemble, clean, organize and enhance their databases so that common metrics can be established across multiple employee benefit programs.

Figure 10



As reported by several investigators,[32,33] a large category of expense can be found in the payment of medical claims. Estimates vary, but it is safe to assume that medical costs comprise one third to one half of total health, safety and productivity management expenditures. They are generally easier to examine than other expenses since methods to analyze health insurance claims data have been advanced in this country for the past 20-25 years.

In terms of a hierarchy of analysis, medical claims data are analyzed first, along with benefit program eligibility data and data collected from "carve out" benefit firms (e.g., prescription drugs, behavioral health, vision, dental, etc.). Next, short term disability claims are linked to employees' medical experience along with absenteeism records. When feasible, workers' compensation claims are also linked to absence, disability and medical claims. These combined databases

generally comprise the foundation of a health, safety and productivity management database for an employer, based upon administrative or archival records.

Other health, safety and productivity management data may be collected by the employer, but these generally rely upon employee self-reporting on a number of different survey instruments. (See IHPM's Gold Book for a compendium of available instruments currently available to measure presenteeism in the workforce.[34]) For example, many employers have begun to collect presenteeism data from their employees that allow the employer to quantify, and often "monetize," on-the-job productivity losses associated with certain health conditions or other work-related issues. Employers may keep employee morale, attitude, or climate data on individual or departmental levels. Employers may also link health risk, behavioral and biometric data collected by health risk appraisal (HRA) instruments or obtained as a result of medical screenings conducted in occupational medicine clinics. When health and productivity management program participation data are collected, these too can be appended to employee files.

Several examples of studies involving creation and analysis of integrated databases are found in the Appendix section of this document. Appendix C presents an abstract of a study whereby medical data were linked to absence and disability data for six large employers. Appendix D presents an abstract of a follow up study where employee presenteeism records were also linked to medical, absence and disability data. Appendix E describes a study whereby HRA data were integrated with medical and eligibility data for another group of six large employers.

The above discussion summarizes the different tasks that can accompany the diagnostic phase of any health, safety, and productivity management initiative. In many ways, we have described a "best case" scenario where multiple data files are available to be analyzed by the organization or its data vendor. All too often, such data aggregation and analysis activities are not feasible and less sophisticated methods are employed to diagnose health, safety and productivity management problems in the organization. These include examining summary reports provided by various department managers, conducting interviews with key staff, or administering a straightforward risk assessment survey.

The diagnostic phase is iterative in the sense that new information can always be made available to determine emerging problem areas where problems were resolved. The diagnostic process continues as health, safety and productivity management initiatives are introduced. Data used in diagnoses are then revisited during each of the follow-up phases and used for program evaluation purposes.

Presenting Initial Diagnostic Findings to Decision Makers

An important step in the diagnostic phase of a health, safety and productivity management project is analyzing and synthesizing the data so that decision makers can interpret them and transform them into actions. High level presentations to senior managers with limited time should focus on overall conclusions, presented in "bullet" format or as simple graphs. In contrast, presentations to middle managers, program administrators, analysts, and other involved parties are usually more comprehensive.

It is important that all of the relevant data, both positive and negative, be presented to decision makers. The internal program champion should help decision makers interpret the results and reach appropriate conclusions so that senior managers are then able to verbalize alternative action items. The presenter should prepare the audience for future results by speaking about ongoing research activities, other studies that are planned, or follow-up studies to those currently presented.

Once the diagnostic phase is finalized, the group can move forward to Phase II, which is prescriptive in nature and involves establishing tactical and strategic direction for the health, safety, and productivity management initiative.

Phase II – Prescription for Action – Establishing a Strategic and Tactical Direction for Health and Productivity Management

A central theme of this paper is that to be successful, individuals championing an integrated approach to health, safety and productivity management within the organization need to become involved in and lead efforts at coordinating initiatives across several diverse and often competing organizational functions. Developing a cogent and workable integrated health, safety and productivity management strategy involves the cooperation of leaders from several departments. The nature of most organizations is that each program manager has control over a certain domain, silo, fiefdom, and territory. Seldom do managers meet in the same room and work in a synchronized manner with one another. Thus, the catalyst for change must emerge from senior management who can direct changes in organizational policies and procedures. Equally important is the task of engaging middle managers in the initiative and gaining the buy-in of rank and file employees. In short, change must be initiated from the top, but to be successful and long-standing, and it must be supported by employees at all levels of the organization.

Thus, a senior manager must orchestrate a process where seemingly disparate interests come together to develop an integrated program strategy. It should be made clear that no single corporate function can directly impact more than a couple of system dimensions -- however, there is enormous potential if all the functions are conceptualized as being part of an integrated approach to

workplace health, safety and productivity management. For example, certain functions will have a direct influence on a worker's job design and tasks. They will affect worker motivation and work attitudes. Other functions such as benefits, health promotion, employee assistance, and occupational medicine may exert influence on individual aspects of worker health and prompt workers to act in certain ways; however, they may have very little influence on job design, organizational climate and work group dynamics.

The internal champion must therefore develop a coordinating or steering committee made up of human resources function leaders. The purpose of a multi-functional tactical and strategic work group is to articulate the organization's overriding aspirations and philosophy regarding worker health and provide a general framework for achieving these objectives. The philosophy should be clear about the establishment of complementary goals related to employee health, cost containment, worker productivity, quality of life and corporate image. It should be made clear that these issues are not independent but rather interdependent.

To remove barriers between departments and functions, senior management should sponsor the steering group (coordinating council) and appoint its leader. This will facilitate centralized planning and integration of health-related programs, while breaking down barriers in communication and implementation.

The health, safety and productivity management coordinating council's first task should be to review the data and analyses prepared during the diagnostic phase of the project. Using all of the available data, council members can highlight major issues or "hot spots" requiring attention. Along with these quantitative data, the group may wish to collect qualitative data from individual or focus group discussions with key managers or groups of workers. These discussions may lead to further insights into the work environment and its problems, or conversely, into areas that appear to be working better than average.
Quantitative data, for example, might provide important information on the nature, frequency and severity of illnesses, disabilities or injuries. Organizational audits or discussions with key staff may uncover deficiencies in ergonomics, task design, or interpersonal communications. Further investigation may unearth issues related to workload; heightened risk factors such as poor posture, lack of physical activity, smoking and improper diet; and poor management-worker relations leading to a negative organizational climate.

The challenge for the health, safety and productivity management group is to not become overwhelmed with the amount and density of data available from the diagnosis phase. The key is to develop a prioritization process that allows the group to array issues in terms of importance and modifiability. Dow Chemical has made important strides in this area in its development of a Health and Productivity Management – Economic Valuation Tool (HPM - EVT). (See Appendix F.)

Next, some very practical decisions need to be made regarding the cost of interventions; their degree of effectiveness; the size of the employee population affected; time constraints; potential internal and external partners; acceptability and sustainability of interventions; and potential side effects or secondary gains. Through a series of discussions and consensus-building activities, the coordination group can select one or several interventions, or a package of interventions, to implement, preferably at pilot sites where results can be evaluated over time.

For example, assume that during Phase I the organizational diagnostic assessment uncovers a severe problem with high levels of stress in the workplace. In a traditional model, individual workers may be invited to participate in a stress management seminar where they learn coping skills or relaxation techniques, or undergo cognitive-behavioral therapy. In a health, safety and productivity management model, the sources of stress would be identified and a coordinated intervention approach would be applied. For example, stress associated with boring/monotonous jobs may be addressed through job redesign, work-flow changes and organizational modification. Workers may be cross-trained to assume several role functions in order to reduce the repetitiveness of their tasks. They may be assigned new supervisors or work teams. They may be given more flexibility in how they use their time in getting tasks done. Or, they may be invited to stress management seminars and receive more free time for physical activity and fitness training. Stress related to job insecurity or regional economic problems can be addressed through improved management communication, increased access to employee assistance programs or other means.

Importantly, interventions are packaged, rather than provided in an individualized and uncoordinated manner by different departments and disciplines. They combine environmental and behavioral approaches and focus on the individual, the organization and the environment all at once.

Finally, some employers may wish to develop a return-on-investment (ROI) projection for alternative health, safety, and productivity management initiatives. Returning to our example of Dow Chemical, program leaders at Dow began developing a business case document for health, safety and productivity management. Their business case used as one of its elements a cost projection model for company health care spending over the upcoming ten years. Besides projecting future costs, the model also projected savings and ROIs based upon assumptions related to the success of its preventive health management efforts. To make these projections, Dow relied upon prior research that examined the relationship between modifiable health risk factors present among its workers and the company's healthcare costs[35, 36, 37, 38] Dow's staff sought to translate health and medical care issues into language that would be familiar to corporate staff in charge of the financial health of the organization. Consequently, health,

safety and productivity management initiatives recommended by Dow's staff could be seriously considered by company leaders in a manner similar to other operational priorities.

A ten-year financial impact cost projection model was developed that predicted the company's health care expenditures under alternative health risk reduction scenarios. The analysis was based on demographic and workforce characteristic information of Dow's employee population, and several behavioral and biometric health risk factors about that population. This baseline information formed the basis for a subsequent estimation of Dow's payments in future years and calculation of ROI and net present values (NPV).

Four possible scenarios were developed and subsequently compared to a base case. A scenario where employee health risks were assumed to remain constant over ten years produced savings of about $8.0 million, and annual cost increases averaging about 3.1 percent (adjusted for inflation). An intervention program that achieved significant risk reduction in the population (at the rate of 1 percent per year over ten years) resulted in $50.8 million in savings and annual cost increases of only 1.4 percent. A more modest program that achieved a 1.0 percent improvement in health risks over ten years achieved $12.7 million in savings and an annual increase of about 2.9 percent in health care expenditures. The three scenarios produced benefit-to-cost ratios of $0.65, $4.14 and $1.04 to $1.00, respectively. A final scenario created to determine the break-even point for program investment determined that in order to save $1.00 for every $1.00 invested, Dow's efforts in risk reduction would have to achieve .09 percent reduction per year or 0.9 percent over ten years.

The ROI analyses performed for Dow only focused on medical expenditures. As shown in our and others' research (see appendices for study examples), medical costs constitute a fraction of total company health and productivity management expenses, which include the cost of employee absence for illness, short-term disability, workers compensation program use and employee turnover. Assuming productivity expenses follow the same patterns of growth as do medical expenditures, Dow's total health and productivity expenses would be expected to increase by almost $40 million in ten years (in 2001 dollars), however the savings from risk reduction programs would be much higher as well.

Phase II concludes with a final work plan for interventions and action programs recommended by the coordinating committee. These must be agreed to be senior management and appropriately resourced. Once approved, the organization can move to its next phase of program implementation.

Phase III – Intervention

Once the coordinating council has decided which set of interventions to offer, the next step is to introduce and effectively manage these programs. Below, we

outline several packages of interventions that are traditionally delivered within a function or department. They are listed here as broad categories, without any detail as to the specific aspects of these programs, their design and implementation. Several authors have described these interventions, and there is a growing body of literature focused on the ROI from any one category of programming. (See for example review articles by Goetzel and colleagues.[39,40])

The Institute for Health and Productivity Management (www.ihpm.org) helped define these categories and white papers have been prepared by the Institute describing the elements of each. Thus, for the sake of simplicity, we have only listed the main elements of programs that comprise the four larger categories of interventions:

Care Management

- Acute/chronic disease management sometimes referred to as tertiary prevention which includes efforts to prevent complications of existing disease (e.g., disease management programs directed at chronic diseases such as diabetes, congestive heart failure, and depression);
- Work related injury, disability and illness management; and
- Medical or large case management.

Health Promotion and Disease Prevention (Health Management)

- Primary prevention efforts to prevent poor health among the currently healthy through behavioral risk factor reduction and lifestyle modification programs (e.g., programs that increase physical activity, support healthy diets, prevent obesity, prevent smoking, manage stress, prevent falls, encourage moderate alcohol consumption, maintain social connections and support structures, and assure appropriate immunizations);
- Secondary prevention efforts directed at early detection of disease (e.g., screening for cancer, hypertension, high blood glucose, hypercholesterolemia, unhealthy body weight; other efforts to assure compliance with Clinical Preventive Services guidelines set by the U.S. Preventive Services Task Force (USPSTF); receiving counseling on quitting smoking); and
- Self care, consumerism, demand management programs.

Workplace Environment

- Occupational & environmental medicine;
- Ergonomics and job design;
- Employee safety;
- Medical surveillance programs; and
- Return to work and job accommodation.

Corporate Culture and Organizational Health

- Clarity about and communication of socially responsible organizational values;
- Focus on workplace stress reduction and work-life balance; and
- Organizational efforts to improve work climate, morale, employee attitudes, including periodic assessment of these organizational dynamics.

Phase IV – Program Monitoring and Evaluation

The health, safety and productivity management program designed and implemented by organizational staff may be extraordinarily effective, but unless program managers collect valid and reliable data on its impact, those efforts cannot be measured. Therefore, program managers are encouraged to establish effective measurement and monitoring systems that document program results. These can take the form of standard "dashboards" and "report cards" that are generally descriptive in nature and capture key metrics at any given point in time.

Periodically, program managers need to also conduct more rigorous evaluation studies that cover a longer period of time, typically years, and control for alternative explanations of program results. Well-designed studies generally include before and after data points for the treatment and control or comparison groups. Better studies examine program impacts on entire populations at a site rather than on participants alone. Proper data collection, analysis and reporting help to more fully document program accomplishments and fine-tune modifications in its design and execution. Most importantly, measurement systems provide the metrics that justify ongoing investment in the company's programs, assuming those investments pay off.

Program evaluation methods and procedures are well documented in several texts and articles. We have published practical guides on program evaluations that can be applied to health, safety and productivity management program studies.[41] Further, Ozminkowski and Goetzel[42] have reported on the difficulties of conducting applied research in corporate settings and recommended ways to overcome many of the common obstacles encountered in such research. Much of the applied research done in company settings has focused on the financial impact of health, safety and productivity management programs, since these impacts are foremost in the minds of program sponsors. We note below some of the economic studies conducted by the authors in their evaluations of health, safety and productivity management programs.

Health, Safety, and Productivity Management Program Results

Most evaluations of health, safety and productivity management programs have been published in what is referred to as the "gray literature" -- case studies describing program impacts that are reported by professional trade organizations rather than in peer-reviewed scientific journals. Some notable exceptions exist

including evaluations focused primarily on the impact of worksite health promotion programs. Among the financial impact studies most frequently cited, and those with the strongest research designs, are evaluations performed at Johnson and Johnson,[43, 44] Dupont,[45] the Bank of America,[46, 47] Tenneco,[48] Duke University,[49] and the California Public Retirees System.[50] Other notable studies examining financial outcomes were conducted at Procter and Gamble[51] and Chevron Corporation.[52]

Over the past ten years, several organizations have applied for and received the C. Everett Koop Health Project Prize for Excellence in providing health, safety and productivity management initiatives with documented health improvements and cost savings. We provide in Appendix G some examples of organizations with programs in the area of health, safety and productivity management that qualified for the award.

Return on Investment Results

Goetzel and colleagues reported on their literature review of ROI studies directed at health, safety and productivity management programs.[53] The review found that ROI estimates ranged from a low of $1.40 in benefits per dollar spent on the program, to a high of $13 per dollar spent, depending on program type. Traditional health promotion programs achieved a median ROI of $3.14 to $1.00. The review acknowledged that negative results were not likely to be reported in the literature and that the quality of some of the studies was less than optimal.

More recently, Aldana[58,59] performed a comprehensive literature review to date of the financial impact of health promotion and disease prevention programs on health care costs. In his analysis of 32 program evaluations focused on health care cost outcomes, Aldana uncovered four studies that used randomized designs, 11 with quasi-experimental designs with comparison groups, and 17 that did not use a control or comparison group. The average study duration was only 3.25 years. Only four of the studies reported negative results but none of those used randomized designs.

Of the 32 studies examined by Aldana that focused on health care cost outcomes, thirteen calculated cost/benefit ratios associated with the interventions. For these studies, financial returns averaged $3.48 for every dollar expended. The one ROI study employing an experimental design[47] reported a benefit to cost ratio of 5.90 to 1.00. As above, several caveats were highlighted in the Aldana review, many of which related to the difficulty of achieving adequate internal validity when conducting “real-life” research in a corporate setting.

Other literature reviews that focus on health promotion and disease prevention programs’ financial impact include those Pelletier,[54,55,56] Chapman,[57] Aldana[58,59] and Goetzel et al.[53,60] highlight a growing body of evidence

supporting a business case for corporate investment in employee health. The most recent studies have used sophisticated econometric methods to evaluate the financial impact and many analyzed data over several years (with some extending for three to five years and one lasting 11 years).

Health and Productivity Management – Some Lessons Learned

Although the movement toward greater integration and coordination among various functions and departments within the organization is still relatively young, there are some common themes that run across various attempts at health, safety, and productivity management that can be reported. These were highlighted in our benchmarking study focused on the qualitative features of successful programs.

Common Themes of Best Practice Organizations

The health, safety and productivity management benchmarking study focused on gathering qualitative information through site visits to organizations considered "best practice" in implementing health, safety and productivity management programs. The site visits resulted in the formulation of ten themes that were common to most if not all of the organizations visited. These are summarized below:

1. Alignment between health, safety and productivity management and the overall business strategy of the organization. Organizational health, safety and productivity management staff recognized that the main business purpose of their organization was to deliver products and services that are competitive in the market. The health, safety and productivity management team's role was to support the organization's primary mission by acting as a strategic partner to help the organization attain its business objectives.

2. Interdisciplinary team focus. During site visits, "best practice" companies brought together staff from many diverse functional areas such as human resources, employee benefits, risk management, employee assistance, safety, legal, labor relations, disability management, medical-occupational health, employee relations, work-life, attendance management, health promotion, quality, and security. These individuals worked cooperatively across their companies' territories, "silos", and "fiefdoms" to achieve common health, safety and productivity management and organizational goals.

In most cases, health, safety and productivity management teams decided that a top-heavy infrastructure was not always necessary. While some companies restructured to create a formal interdisciplinary health, safety and productivity management group, many more experienced internal obstacles that kept health, safety and productivity management related components apart from one another. Nonetheless, managers collaborated with one another despite organizational

barriers that may otherwise have set them apart. Department or function leaders did not need to be convinced that there was a need for an interdisciplinary approach. They were already "sold" on this concept.

3. Champion or a team of champions. At each meeting, it was evident that one person or a group of key individuals drove the process and championed the health, safety and productivity management vision at all levels of the organization. These champions exhibited determination to "make things happen." – an overwhelming sense of purpose and passion about health, safety and productivity management.

4. Senior management and business operations as key members of the team. While in many cases, a health, safety and productivity management approach develops as a grass-roots initiative, senior management and operations leaders quickly became engaged. They recognized that a health, safety and productivity management model needed to be supported by senior management and staff throughout business operations. At companies with successful health, safety and productivity management programs, the links to finance and funding sources were apparent. Senior management, business operations and the health, safety and productivity management team worked hand-in-hand with a mutual appreciation of one another's contribution to the process.

5. Prevention, health promotion, and wellness staff are heavily engaged in the process. These individuals believed in and practiced healthy lifestyles, employee empowerment, and self-responsibility. They advocated the establishment of a "healthy company" culture. Health promotion leaders, and their supporters in medical and occupational health departments, were able to clearly articulate the link between the employee health and well-being and the productivity of the organization as a whole. They drove research and outcome studies that documented the relationship between health and productivity for their organization.

6. Emphasis on quality of life improvement, not just cost cutting. Repeatedly, managers talked about improving organizational processes and "doing the right thing" for their employees. There was an expectation that if an organization improved the quality of work life, productivity would also improve and cost containment would be a natural consequence. The health, safety and productivity management team was not only focused on managing the 20 percent of employees who consumed the most program resources; they were also concerned about attending to the needs of the other 80 percent, whose health and well-being influenced their work.

7. Data, measurement, reporting, evaluation, and return on investment studies become increasingly important over time. While high costs may have driven the initial health, safety and productivity management initiative, in most instances evaluation protocols and elaborate data reporting systems were not prepared

ahead of time. The philosophy of the health, safety and productivity management team seemed to be "just do it, and develop the ability to evaluate results later." Leaders decided to launch projects that were likely to quickly improve efficiency, quality, and cost. Once actions were taken, these organizations realized that they needed to show quantitative results and develop systems for ongoing monitoring and tracking of progress.

Data and reporting systems were developed with three main purposes in mind: (1) highlight areas for potential intervention and improvement, in order to set priorities and quantify the potential for savings; (2) provide ongoing reporting and data monitoring to the business units, in order to hold them accountable for improved performance; and (3) evaluate outcomes, return on investment and potential areas for further investment.

8. Communication is constant and directed throughout the organization. Health, safety and productivity management leaders realized that they needed to keep their activities on the front burner for all constituents. They needed to communicate purpose, tactics, and results to fellow team members, business operations, the front line, and senior management. The packaging of information was critical. It needed to be organized in such a way that the target audience would understand and apply the information. The audience needed to see the purpose of health, safety and productivity management initiatives and realize that positive results were central to business success.

9. Constant need to improve by learning from others. In order to remain cutting-edge, these "best practice" organizations strived to learn new ideas and approaches from others through a variety of techniques including benchmarking. They also felt comfortable in openly sharing their experience and stories with others as a way of teaching and coaching. There was little guardedness or embarrassment about failures or mistakes; some felt they often learned more from failures than from successes. These organizations were proud of their accomplishments and enjoyed the spotlight that uncovered both achievements and unsuccessful risk-taking initiatives.

10. Have fun. Health, safety and productivity management team members appeared to be excited, enthused, and motivated by their work. There was a "positive energy" flowing through the room with ample opportunities to introduce humor and good-natured challenges to fellow team members.

A second set of site visits were conducted about a year after the first set was concluded. The major focus of this second benchmarking study was to understand the different measurement, evaluation and reporting systems established and used by health, safety and productivity management best practice organizations used in reporting intervention program results to senior managers. The main themes from this round of benchmarking visits are reported below:

1. Organizations are changing their definitions of productivity to include metrics that extend beyond traditional measures of "output per worker." Productivity is now being viewed as a broader term that includes service delivery, relationship building, ability to innovate, knowledge improvement, creativity, loyalty, and the ability to work within a team structure. In a more complex way, worker productivity can be viewed as that individual's contribution to work output, while at work.

2. Best-practice organizations rely upon understandable mission/vision statements that enable health, safety and productivity management-related functions to "operationalize" their goals and objectives. Often, safety-related measures are used as the link between health, safety and productivity management metrics and the organizational mission.

3. Best-practice organizations consider many factors that impact work force productivity beyond those associated with specific health conditions—for example, corporate culture and employee attitudes. In addition to assessing direct measures of productivity, organizations are discovering that indirect measures may be just as important. They are building integrated databases that link diverse, but often interconnected, variables such as employee attitude, organizational culture, health-risk factors, medical disorders, and psychosocial influences. Some leading-edge organizations are attempting to demonstrate the impact of these factors on customer satisfaction levels and corporate earnings.

4. Best-practice organizations concentrate on targeted, well-understood health, safety and productivity management-related metrics. Reporting mechanisms (report cards, dashboards, etc.) are generally straightforward and descriptive in nature. These organizations have defined their key health, safety and productivity management metrics and determined best ways to present these to various constituencies within their organization. They have developed communication processes to keep health, safety and productivity management activities "top of mind" for senior management.

5. Best-practice organizations act on their beliefs that internal benchmarking is as important as external benchmarking. Best-practice organizations have developed sophisticated methods to capture organization-wide data on several key indicators and to compare business units with one another using internally-developed norms. These organizations use internal benchmarking studies to improve their average or median health, safety and productivity management values over time and to narrow the range between the best and worst performing units. Best-practice organizations first focus on internal benchmarks to secure buy-in by operations leaders for a health, safety and productivity management focus. From this process, a natural questioning develops regarding how their competitors are performing. When an organization is able to compare itself with

competitors, it is much more likely to gain the attention and support of senior management.

6. Best-practice companies link key data elements to develop a comprehensive view of employee health and productivity. The influence of health on productivity is increasingly based on the impact of multiple health conditions rather than any one or two. Organizations express a widespread interest in developing integrated health, safety and productivity management databases that connect disparate data at the individual level. Those advocating development of an integrated data "warehouse" believe that having access to multi-dimensional data will allow them to gain a more comprehensive picture of employee health and productivity that, in turn, will allow them to design more effective intervention programs.

7. Some best-practice organizations have used the process of applying for a national award, such as the C. Everett Koop National Health Award, as a catalyst for gathering and reporting health, safety and productivity management-related data. The process of gathering and reporting data across functional areas is an effective tool for breaking down the walls between organizational silos.

8. To support investments over time, best-practice organizations are able to demonstrate ROI for specific health, safety and productivity management-related programs both prospectively and retrospectively. These organizations are leading the way to developing ROI methodologies across all health, safety and productivity management programs and efforts. Program champions generally submit projected ROI estimates in order to gain approval for specific programs. Rigorously conducted ROI studies—performed by outside or inside objective researchers and aimed at documenting bottom-line impact of health, safety and productivity management programs—are still rare in organizations. When performed, they lend enormous credibility to health, safety and productivity management efforts.

Remaining Issues

As noted earlier, organizational efforts to introduce and maintain innovative health, safety, and productivity management programs are still in their infancy. Although significant advances have been introduced in the past five to ten years, the field is still evolving and there are many issues that remain unresolved. At the NIOSH *Steps to a Healthier Workforce Symposium*, held in Washington DC in October 2004, concepts articulated in this background paper were presented to the attendees and session discussants. The moderator and discussants for the session were Russell Toal M.P.H., Joseph Fortuna M.D., Jim Ramsay Ph.D., and Steven Moffatt. Their comments, critiques and suggestions complemented many of the points addressed in this paper. Some of the key observations offered by the reviewers, and not covered previously, are described below.

External Forces Affecting Organizational Productivity

It is certainly true that individual and organizational health affect the performance of organizations and their competitiveness in the marketplace. However, there are many other forces impacting organizational output that are largely unrelated to health. One such force is globalization and the ever-increasing influence of international competition. This worldwide movement brings with it greater availability of inexpensive foreign labor and consequent outsourcing of jobs overseas. Also, since foreign installations are generally not burdened by the cost of providing health care insurance and medical services to employees, managers have less incentive to introduce the types of programs described here. Thus, a different type of business case must be developed for multinational organizations; one that emphasizes improvements in individual productivity and organizational competitiveness rather than reductions in health care costs. This expanded business case must be especially well articulated for employers with major sites outside U.S. borders, and for those moving more jobs overseas.

Difficulty of Developing Multi-Functional Teams

Earlier in this document, we described potential barriers that may stand in the way of introducing and maintaining an integrated, multi-functional organizational work group focused on improving health, safety and worker productivity. One important barrier noted is the difficulty of convening this type of group and maintaining its focus over time. There are often “turf battles” across departments. Functional leaders may be concerned about losing their autonomy and influence within the organization. Individuals assigned the task of convening or participating in multi-functional groups may not be given the necessary time or resources to do the job well. Individual and team incentives may not be aligned. Finally, senior management may not be fully “on board” with the process.

To develop successful teams, these substantial obstacles to integration must be recognized and addressed. Departmental representatives need to understand how the team approach will benefit them personally and organizationally. A “what’s in it for me” personalized business case must be developed. Expanding the team to include major “influencers” in the organization is also recommended. If possible, physicians and other health care professionals should be included on the team since they often bring both credibility and content expertise related to health and productivity interventions. Finally, representatives from business operations, especially those accountable for profit and loss (P and L) statements, need to be engaged in the process.

One topic not well addressed in this paper is the role of safety officers and their influence on the integration process. While safety is mentioned as an important element of an integrated approach, more research and greater insights are needed regarding this important component. On the plus side, in many cases, safety may be the “hook” with which integration efforts become rooted within the organization since safety programs are statutory and are viewed as “must have” rather than “nice to have.” On the minus side, safety officers may view

themselves as apart and distinct from other human resources functions and operating under a separate set of rules. Further, safety programs often rely upon antiquated measures of performance and may not address the root or actual causes of accidents, especially those caused by poor management processes. In short, greater integration and cooperation across disciplines, including safety, is difficult but necessary for health, safety and productivity management programs to succeed.

Relevance to the Public Sector

Although much of the discussion in this paper, and most of the examples used, has focused on private sector initiatives, the concepts and approaches described apply equally well to public sector employers. Simply stated, employees work for private enterprises, government agencies and non-profits, and the issues raised in our discussion are relevant to these employees regardless of who signs their paychecks. Also, unions play a critical role in shaping organizational structures and initiatives and they too need to be included in planning in implementation procedures. In many cases, public sector employers working for local and state agencies, universities, and non-profit organizations are quite large and exert significant influence in the communities where they are housed. Thus, the concepts articulated here can be applied in all types of workplaces and, in fact, public sector organizations may be more suitable to function as "laboratories" for testing novel approaches for integration.

Importance of Culture

The review panel emphasized the importance of creating an organizational culture and climate conducive to integration efforts. An organization that clearly articulates a set of norms and values emphasizing the importance of individual contributions to organizational success, and the value of human capital in achieving organizational goals, will be most successful in putting in place an integrated model of health, safety and productivity management. The organization's leadership must clearly express its vision as it relates to human capital management, and do so with vim and vigor on an ongoing basis. Further, managers must offer vehicles for achieving that vision. Importantly, leaders must provide innovate structures that support cooperation across functions. The message from management must be that health, safety and productivity management is the joint responsibility of individual workers, their managers, and senior leadership of the organization. This message reinforces a culture of shared responsibility and diminishes the notion that employees are "to blame" for increasing human resource expenses.

The Role of Academia

Currently, there is a gap between what is known from scientific research and what is applied in a "real world" setting. Universities and research organizations that receive their funding from public sources need to work harder to fill the information-application gap. Academic and research institutions need to more broadly and clearly communicate what is currently known about what "works" in

health, safety and productivity management and how successful programs can facilitate organizational efforts at integration. They also need to do a better job in developing practical tools and "off the shelf" practices for translating knowledge into action. For example, they can play a significant role in developing case studies and best practice models that are made available to organizations wishing to introduce innovative programs at their sites.

To support these efforts, universities should develop multidisciplinary programs and educational curricula to teach health, safety and productivity management. Students entering these programs would come from various disciplines including medicine, engineering, business, economics, or organizational psychology. They would emerge as external "change agents" or consultants supporting integration efforts or internal program champions ("intrapreneurs") advocating integrated models. Ideally, medical and doctoral degrees in health, safety and productivity management would be conferred to graduates of these programs.

Conclusions

This background paper reviewed recent efforts by U.S. employers to coordinate health, safety and productivity programs with the aim of achieving greater efficiency and a maximum health and dollar impact. We discussed the origins of the integration movement, the rationale for employer efforts in this area, barriers standing in the way of successful program adoption, and processes for employers to follow when designing, implementing and evaluating an integrated health, safety and productivity management model.

As noted, work in the field of health, safety and productivity management is still in its infancy. However, there are ways to provide a boost to champions of an integrated approach. We present below some suggestions to consider in three broad areas: research, dissemination and implementation activities. Some of these are far-reaching while others might be more easily implemented. The intent here is to put forward a broad range of policies and practices that can be implemented by government agencies, industry, unions, non-governmental organizations and academia, to promote research that fills critical knowledge gaps, to disseminate information about opportunities for integration, and to identify and reinforce successful implementation practices.

Research Opportunities

There is a need for better research in the area of health, safety and productivity management efforts, especially as these relate to economic outcomes – a key concern to businesses. We list below some of applied research questions that would form the foundation for a research agenda on this topic.

"Practical" Employer-Related Research Questions:

- What does it take for employers to adopt a health, safety and productivity management mindset?
- What types of data are necessary to convince senior managers to invest in improved employee health, safety and productivity?
- What forms do organizational health, safety and productivity management programs take – what are the similarities and differences among programs?
- Which investments in health, safety and productivity management are easiest to justify ("no brainers") and which are more difficult?
- How can employers involve their health plan providers as partners in health, safety, and productivity management efforts?
- What outcomes have employers achieved from integration efforts – how have they measured these outcomes and how credible are the results?
- What are the lessons learned and what advice would employers offer to businesses that are first contemplating health, safety and productivity management initiatives?

Academic Research Questions:

- In relative terms, to what extent does the health and well being of employees drive individual productivity and business profitability? How does "health" compare to other productivity drivers such as compensation and incentive reward structures, improved work processes, availability of capital and equipment, composition of an employee's work group, specific management style, organizational climate, general business climate, etc.?
- What are the productivity gains or losses associated with appropriate management of certain health and disease conditions: e.g., depression, stress, anxiety or other psychosocial conditions; musculoskeletal disorders; migraine headaches, pain, arthritis; heart disease, stroke, hypertension, hypercholesterolemia; allergies, asthma; diabetes; overweight; smoking; etc.?

- To what extent do health, demand and disease management intervention programs affect worker productivity?
- How can productivity be measured objectively? What is the value of the various self-report instruments available in the marketplace? How good are they (in terms of validity, reliability, practicality and interpretability of the data)? Is there a need to develop a generally accepted productivity scale (similar in acceptance to the SF-36 quality of life scale)?
- Why should health plans pay attention to safety and productivity concerns of employers?
- What is needed to develop a succinct and well-accepted business case for increased coordination among health, safety and productivity functions within an organization?
- Is the complexity of implementing an integrated health, safety and productivity management model "worth it?"
- What is the ROI from health, safety and productivity management programs?

Policy-Related Research Questions:

- To what extent do the health, safety and well-being of American workers affect the nation's economy and productivity?
- What level of societal investment in health, safety and productivity enhancement is "appropriate?" When do you reach a point of diminishing returns?
- Investing in people vs. technology – which produces a larger health, safety and productivity payoff?
- Are efforts to increase worker productivity also creating increased worker stress and work-life imbalance? Should we be devoting more time and effort to leisure activities?
- Who and what creates stress – the person, the organization, or society – and what can we do to address it?

Knowledge Dissemination Opportunities

In addition to formulating well-crafted research questions, we face the challenge of communicating knowledge already gained from prior research and disseminating findings from new studies. Part of the problem is that employers and policy makers suffer from "informational gaps" regarding the value of health, safety and productivity management programs. They do not have access to reliable and practical information. Business people do not read scientific journals; instead they read the *Wall Street Journal*, the popular press, and their professional journals. Occasionally, scientific research is reported in the press, but such reporting is rare and oftentimes misleading.

Our challenge, therefore, is to translate relevant findings from scientific studies and to disseminate these to the business community through the popular media, so that relevant information useful in decision-making is accessible to business people. To do a better job in this area, it will be necessary to involve public relations and media experts who are responsible for carefully crafting communications, so that findings are presented in a straightforward and credible fashion.

One immediate way to gain employers' attention is to highlight organizational costs associated with physical, psychological, behavioral and organizational risk factors among employees. Employers are eager to understand the cost drivers affecting their organization the measures they can take to reduce those costs. When provided with well-crafted messages that are intuitive and data based, employers will respond with an internal "call to action."

Similarly, government officials need to learn from the private sector how to improve the health, safety and productivity of workers. Employers congregate at industry conferences and meetings to share their stories of success and failure. Government officials need to attend those meetings to learn from employers' experiences "in the trenches."

Government officials also need to adopt efficient processes used by private sector businesses to diagnose human capital problems, review the options, make decisions and implement action steps. Business leaders often complain about government inefficiency and wasteful policies that lack proof of efficacy. It would benefit government officials and business leaders to begin a meaningful dialogue focused on health, safety and productivity management issues facing American businesses, and how federal agencies can support business leaders to make informed decisions regarding these programs.

For example, business leaders want to know which treatments are most effective and cost-effective. They need help deciding which vendors offer high quality services. They would like to learn about quality improvement processes that work. Open communication between business and government leaders may be one of the best ways to more directly involve companies in improving the health, safety and productivity of employees and communities.

Another method to disseminate knowledge about "best practices" is to support programs that honor and reward organizations with documented health improvements and cost savings emanating from their health, safety and productivity management programs. Several examples of such awards processes currently exist including those developed by Secretary Thompson (Innovation in Prevention); C. Everett Koop (The Health Project); Sean Sullivan (Institute for Health and Productivity Management); and the American College of Occupational and Environmental Medicine. Ideally, an annual prize for excellence in providing health, safety and productivity management programs would be conferred by a senior governmental official in a highly publicized award ceremony.

Implementation Opportunities

There are several ways in which the government can encourage implementation of evidence-based health, safety and productivity management programs. For one, the government can provide financial incentives to businesses that implement effective programs. The government can create tax credits or rebates that partially reimburse organizations for the expense of developing and operating well-attended and scientifically credible programs.

As a secondary recommendation, employers should be educated on ways to promote participation in health, safety and productivity management programs through the use of financial or other incentives. When employees are offered incentives to participate in programs, their rates of engagement increase dramatically. Overall worker health and company financial outcomes also improve proportionately. Employers can encourage participation in programs by using such incentives as discounts, credits, or rebates on medical plan premiums. These financial incentives should be structured in such a way that they promote participation rather than behavior change or risk reduction.

Businesses should also be encouraged to cooperate with health plan and medical providers in providing these programs to members. This would allow small employers in a community to become engaged, since their employees would be in the pool of workers whose health is managed by plans with a presence in the community. Health, safety and productivity metrics could be developed for a given community (similar to HEDIS measures developed by the National Committee for Quality Assurance) and reported at the plan and community level. Workers would then have access to these measures when choosing where to work and deciding which health plans offer the best benefits for them and their families. Providing “report cards” and “dashboards” metrics to employees about their organization and health plan will improve the quality and performance of health, safety and productivity management programs for that community.

Government agencies can also take a more active role in providing technical assistance to employers who wish to develop, manage and evaluate these programs. Government officials can fund studies that apply good scientific methods to evaluate various aspects of human capital programs and publicize the results more broadly. One line of research relevant to this discussion focuses on economic incentives and tax credits to encourage more businesses to develop health, safety and productivity management programs.

Government agencies should also act as “models” for effective programming. They should enhance the quality of their internal programs and develop and promote “best practices” to be emulated by the private sector.

Finally, government officials should closely examine the relationship between statutory safety program requirements, such as those mandated by OSHA, and their possible links to health, safety and productivity management initiatives. Do statutory requirements encourage or discourage innovation in this area?

Summary

Employers can gain efficiencies and achieve greater impact by integrating their health, safety and worker productivity management programs. Over the past decade, employers have put in place several innovative programs that may or may not be founded on evidence that these programs work. We need to discern what program elements are effective and whether some common learning can be gained by examining these initiatives. Research is therefore needed to learn more about what works, and why. It is interesting to note that most of the "science" emanating from studies of health, safety and productivity management efforts has emerged from private sector initiatives and has been funded by private sources. Consequently, even though the research is growing in both volume and rigor, it is still relatively primitive when compared to large-scale government-funded studies.

It is important, therefore, for government agencies to establish special research funds that are specifically earmarked for studying the science underlying *in-situ* worksite health, safety and productivity management programs, and the effectiveness of these programs in improving health, lowering costs and increasing worker productivity. It is recommended that researchers in charge of these studies be encouraged to use the most rigorous scientific methods so that conclusions drawn from the research have a strong theoretical and scientific base and are not reliant on conjecture, anecdote, or belief.

Appendix A:

Health and Productivity Management –

Establishing Key Performance Measures, Benchmarks and Best Practices

Citation: Goetzel, R.Z., Guindon, A.M., Turshen, I.J., and Ozminkowski, R.J. "Health and Productivity Management – Establishing Key Performance Measures, Benchmarks and Best Practices." Journal of Occupational and Environmental Medicine, 43:1, January, 2001, 10-17.

ABSTRACT

Major areas considered under the rubric of health and productivity management (HPM) in American business include absenteeism, employee turnover, and the use of medical, disability, and workers compensation programs. Until recently, few normative data existed for most HPM areas. To meet the need for normative information in HPM, a series of Consortium Benchmarking Studies were conducted.

In the most recent application of the study, 1998 HPM costs, incidence, duration and other program data were collected from 43 employers and almost one million workers. The median HPM costs for these organizations were $9,992 per employee which were distributed among group health (47 percent), turnover (37 percent), unscheduled absence (8 percent), non-occupational disability (5 percent) and workers' compensation programs (3 percent). Achieving "best practice" levels of performance (operationally defined as the 25th percentile for program expenditures in each HPM area) would realize savings of $2,562 per employee (a 26 percent reduction). The results indicate substantial opportunities for improvement through effective coordination and management of HPM programs. Examples of "best practice" activities collated from on-site visits to "benchmark" organizations are also reviewed.

Appendix B:

Health and Productivity Management Business Case Example

The Dow Chemical Company

Overview

For several years, human resources and health services staff at Dow have recognized the need to improve disability management. This has generally been described as one component of an overall management strategy, which should be in place for "human capital management" or "health and productivity management." Various committees, teams and individuals have investigated this area and made recommendations. In order to move ahead and capture the value that has been articulated, an accountable, knowledgeable leader needs to be charged with responsibility to create and implement a plan in this area.

Situation

- Dow already makes a significant investment in human capital.
- The "maintenance" costs associated with this human capital investment are substantial.
- A significant percent of the maintenance costs are associated with "health."
  - health benefit plan
  - long-term disability
  - salary replacement for short-term disability
  - workers' compensation
  - occupational health services
  - health promotion
  - epidemiology
  - industrial hygiene
  - safety initiatives
  - sick leave
  - demand management
  - case management
  - return to work planning
  - restricted work assignment
  - absenteeism
  - EAP / Psychological Services
  - ADA compliance
  - FMLA compliance
- The many elements of maintenance costs are related and often interdependent.
- The management of these several aspects of maintenance costs at Dow is disconnected.
- With the reduced work force it is ever more critical to minimize time away from work.
- In this era of the "knowledge worker," having high productivity among the work force is a key competitive advantage.
- Over the past 5–7 years, many premier companies have recognized the advantage of integrated health management for their health-related services.
- There is an opportunity to capture, manage and improve the "maintenance" expenditures associated with the human capital investment.

- Optimal integrated management of these several health-related elements can produce much greater value from human capital investment through increased productivity.

Opportunity

- The area most in need of improvement at Dow is absence and disability management.
- Overall objectives of an integrated disability management program would include:
  - accurate methodology for quantifying impact of absence from work
  - reduction in overall disability/absence hours
  - minimized legal exposure
  - reduction in direct costs
  - improvement in service
  - improvement in reporting
- Specific examples of some of the opportunities available in improved management include:
  - Defined goals and objectives
  - Clarification of internal vs. vendor roles and managing hand-off processes better
  - Selection and coordination of vendors
  - Implementing the use of performance metrics
  - Implementation of an integrated database

Appendix C

The Health and Productivity Cost Burden of the "Top 10" Physical and Mental Health Conditions Affecting Six Large U.S. Employers in 1999

Citation: Goetzel, R.Z., Hawkins, K, Ozminkowski, R.J., Wang, S. The Health and Productivity Cost Burden of the "Top 10" Physical and Mental Health Conditions Affecting Six Large U.S. Employers in 1999. Journal of Occupational and Environmental Medicine, 45:1, 5-14, January 2003.

Abstract

A multi-employer database that links medical, prescription drug, absence, and short term disability data at the patient level was analyzed to uncover the most costly physical and mental health conditions affecting American businesses. A unique methodology was developed involving the creation of patient episodes of care that incorporated employee productivity measures of absence and disability. Data for 374,799 employees from six large employers were analyzed. Absence and disability losses constituted 29 percent of the total health and productivity-related expenditures for physical health conditions, and 47 percent for all of the mental health conditions examined. The ten most costly physical health conditions were: angina pectoris; essential hypertension; diabetes mellitus; mechanical low back pain; acute myocardial infarction; chronic obstructive pulmonary disease; back disorders not specified as low back; trauma to spine and spinal cord; sinusitis; and diseases of the ear, nose and throat or mastoid process. The most costly mental health disorders were: bipolar disorder, chronic maintenance; depression; depressive episode in bipolar disease; neurotic, personality and non-psychotic disorders; alcoholism;, anxiety disorders; schizophrenia, acute phase; bipolar disorders, severe mania; nonspecific neurotic, personality and non-psychotic disorders; and psychoses. Implications for employers and health plans in examining the health and productivity consequences of common health conditions are discussed.

Appendix D

Health, Absence, Disability, and Presenteeism Cost Estimates of Certain Physical and Mental Health Conditions Affecting U.S. Employers

Citation: Goetzel R.Z. Long S.R., Ozminkowski R.J., Hawkins K., Wang S., Lynch W. Health, absence, disability, and presenteeism cost estimates of certain physical and mental health conditions affecting U.S. employers. Journal of Occupational and Environmental Medicine, April, 2004; 46:4, 398-412.

Abstract

Available evidence about the total cost of health, absence, short-term disability, and productivity losses were synthesized for ten health conditions. Cost estimates from a large medical / absence database were combined with findings from several large, published productivity surveys. Ranges of condition prevalence and associated absenteeism and presenteeism (on-the-job-productivity) losses were used to calculate average and lower-bound estimates of condition-related costs. Based on average impairment and prevalence estimates, the overall economic burden of illness was highest for hypertension ($392/per eligible employee per year), heart disease ($368), depression and other mental illnesses ($348), and arthritis ($327). Presenteeism costs were higher than medical costs in most cases, and represented 18 percent to 60 percent of all costs for the 10 conditions, depending upon whether lower-bound or average presenteeism cost estimates were used. Significant variation in methods to estimate prevalence and presenteeism was noted among existing survey tools. Caution is advised when interpreting any particular source of data, and the need for standardization in future research is noted.

Appendix E

The Relationship between Modifiable Health Risks and Health Care Expenditures: An Analysis of the Multi-Employer HERO Health Risk and Cost Database

Citation: Goetzel, R.Z., Anderson, D.R., Whitmer, R.W., Ozminkowski, R. J., Dunn, R.L., Wasserman, J. and the HERO Research Committee. "The Relationship Between Modifiable Health Risks and Health Care Expenditures: An Analysis of the Multi-Employer HERO Health Risk and Cost Database." Journal of Occupational and Environmental Medicine, 40:10, October, 1998, 843-854.

Abstract

This investigation estimates the impact of ten modifiable health risk behaviors and measures and their impact on health care expenditures, controlling for other measured risk and demographic factors. Retrospective two-stage multivariate analyses, including logistic and linear regression models, were used to follow 46,026 employees from six large health care purchasers for up to 3 years after they completed an initial health risk appraisal. These participants contributed 113,963 person-years of experience. Results show that employees at high risk for poor health outcomes had significantly higher expenditures than did subjects at lower risk in seven of ten risk categories: those who reported themselves as depressed (70 percent higher expenditures), at high stress (46 percent), with high blood glucose levels (35 percent), at extremely high or low body weight (21 percent), former (20 percent) and current (14 percent) tobacco users, with high blood pressure (12 percent), and with sedentary lifestyle (10 percent). These same risk factors were found to be associated with a higher likelihood of having extremely high (outlier) expenditures. Employees with multiple risk profiles for specific disease outcomes had higher expenditures than did those without these profiles for the following

diseases: heart disease (228 percent higher expenditures), psychosocial problems (147
percent), and stroke (85 percent). Compared with prior studies, the results provide more
precise estimates of the incremental medical expenditures associated with common
modifiable risk factors after we controlled for multiple risk conditions and demographic
confounders. The authors conclude that common modifiable health risks are associated
with short-term increases in the likelihood of incurring health expenditures and in the
magnitude of those expenditures.

Appendix F

Dow Chemical Health and Productivity Management Economic Evaluation Tool (HPM - VT)

The initial development of the HPM-EVT arose from a request from Dow for help in identifying its best opportunities for interventions designed to jointly manage healthcare, disability, employee absence, workers compensation, health promotion, worker productivity and other health, safety and productivity management programs. Dow recognized that employee health and well being not only influence medical care expenditures but also the productivity of workers and the overall competitiveness of the company. Dow also recognized that illness and employee well being influence productivity in a number of ways, both in terms of time off from work and its associated consequences, and in terms of unproductive time spent on the job that arises from individual illness or caregiver responsibilities. The HPM-EVT that Dow envisioned was designed to address the following issues that confront many large businesses:

1. Documenting how much money the company spends on healthcare and productivity losses;
2. Estimating how much money could be saved as a result of better management of health and productivity-related problems or from the adoption of health, safety and productivity management interventions designed to maximize individual health and productivity;
3. Identifying the underlying drivers of health and productivity problems observable in the workforce;
4. Assessing the status quo—what the company does now to address these underlying drivers, and where gaps exist between drivers of health and productivity problems and current programming efforts;
5. Establishing how well current programs work, what is their return on investment, and how well new programs could work to address health and productivity problems;
6. Determining where the best intervention opportunities lie for limiting unnecessary medical or productivity-related expenditures, enhancing worker health, and allowing the company to fully realize the gains from a highly productive workforce;
7. Creating an empirically based system to prioritize intervention opportunities in light of limited funds and the political realities of the workplace; and
8. Predicting the financial impact of individual interventions or combinations of interventions designed to improve health and productivity, thereby limiting the influence of factors that drive health and productivity losses.

Taken together, this information can help senior corporate managers more effectively address health and productivity challenges in their organization, limit benefit program expenditures, and increase the value of their health, safety and productivity management programs.

For example, suppose an investigation of healthcare claims and disability program data reveals high prevalence and high cost associated with musculoskeletal disorders and arthritis. Suppose as well that these are key reasons for missing work or performing at lower than optimum levels of productivity. An investigation of the underlying drivers for these problems might reveal a host of factors that aggravate muscle and joint problems. These might include: poor ergonomic design of workstations; unfit and overweight workers; lack of access to appropriate physicians, medications or other treatments; poor worker morale at certain locations; unclear and poorly communicated work rules; poor safety procedures; or other factors. Appropriate interventions might include effective disease management programs, ergonomic redesign of workstations, revision of health and fitness programs, clearer communications of corporate policies, etc. The HPM -EVT is designed to assist with the identification of priority issues requiring immediate attention and the identification of appropriate intervention strategies to address these issues. The tool helps focus attention on underlying drivers, supports a search for solutions to address health, safety and productivity management problems, and forecasts the net impact of applying alternative interventions to control these problems, to better manage worker health and productivity.

The HPM-EVT is designed to help corporate planners identify a variety of intervention programs to address problems that reduce productivity. These might include:

- Health and disease management interventions (for musculoskeletal disorders, diabetes, heart disease, asthma, allergies, depression, anxiety, influenza, hypertension, etc.);
- Health promotion interventions (for smoking, exercise, nutrition, obesity, stress management, etc.);
- Integrated absence management programs (for incidental absence, disability management, workers' compensation, etc.); and
- Organizational health programs (policies and procedures, corporate communications, training, EAP, work/life, etc.).

The impact of these intervention programs on health and productivity outcomes can then be estimated prospectively using this tool. Finally, a key feature of the HPM-EVT is that a multitude of problems can be analyzed simultaneously and the user can introduce several "what if" scenarios to test ideas internally before investment requests are filed. The tool helps establish which problems are most pressing, and rank alternative interventions to control those problems.

In short, the HPM -EVT allows senior managers to evaluate the simultaneous management of several issues that contribute to higher healthcare expenditures and productivity loss. Better management is expected to lead to higher revenues and profits and healthier, more productive employees.

Appendix G

Examples of Organizations That Have Documented Health Improvements and Cost Savings from Integrated Health, Safety and Productivity Management Programs

Caterpillar's Healthy Balance Program: The program features a strong incentive to participate, top-down management support, well-developed and well-implemented programming, data-driven interventions, and well-staffed and supportive programs. Participation rates are excellent; 37,000 out of 41,000 eligible employees participated in the program in 1998. A follow-up health risk assessment showed a significant decline in smokers in a high-risk group – from 19 percent to 15 percent. For the 2,321 employees completing the high-risk program, overall health risks declined by 14 percent. Participants in the high-risk program also reduced their doctor visits by 17 percent and hospital days by 28 percent.

CIGNA Corporation Working Well Program: CIGNA's Working Well program is a well-funded, multi-component initiative directed at CIGNA's 38,000 U.S. employees. The Working Well Moms lactation program is geared toward encouraging and supporting breast-feeding at home and at work. The program achieved breast-feeding duration rates of 72 percent at six months and 36 percent at twelve months resulting in prescription drug, health care and absenteeism savings for the company and its employees. The Flu Shots program, which provides free immunization inoculations, resulted in significant differences in absence rates between intervention and control group employees. In addition to a high participation rate for the program (39 percent), a randomized clinical trial established a return on investment of 3:1. Employees who received flu shots experienced 29 percent fewer absenteeism days than controls, saving the company $33 per inoculated employee.

DaimlerChrysler/UAW National Wellness Program: The program, targeted at DaimlerChrysler's 95,000 employees in the U.S., aims to improve worker health and help employees become wise health care consumers. In 1997, the health care costs of HRA program participants were $114-146 lower than the costs of non-participants. Those who completed the HRA and then participated in at least one additional wellness program had costs that were $200 lower than for non-participants. Over time, differences in health care costs between participants and non-participants ranged from $5 to $16 per employee per month. Over a six year period, 1,930 white collar employees at company headquarters who completed two or more HRAs reported reducing their driving risk by 51 percent, smoking by 33 percent, excess alcohol consumption by 32 percent, mental health risk by 26 percent and poor nutrition by 23 percent.

Fannie Mae Partnership for Healthy Living: The program, begun in 1994, is offered free of charge to all Fannie Mae employees and their spouses/domestic

partners. The comprehensive program includes health screenings and targeted follow-up intervention programs. The program has achieved excellent overall participation and follow-up rates (60 - 80 percent). Multiple health risk assessments have shown that 53 percent of all high-risk employees drop at least one risk factor by their third annual HRA screening. The program has saved $1.5 million in medical costs and $1.0 million in employee absence. A return on investment analysis based on 1,650 employees for the period of 1994-1996 concluded that the program returned $1.09 to $1.26 for every dollar invested.

Union Pacific Railroad – Project Health Track: The Health Track Program is focused on ten risk factors and chronic health conditions. Because Health Track has been successful in documenting health improvements and cost savings, it has been declared one of eight Big Financial Deals (BDF) at UPRR for the year 2001-2006. An econometric analysis performed by outside evaluators for UPRR and published in a peer-reviewed journal found that the dollar difference between program elimination and successful program continuation, whereby a one percent reduction in ten risk factors is achieved per year over a ten-year period, produced $99.4 million in savings for the railroad. A return on investment (ROI) of $4.07 for every dollar invested was projected for the company over ten years, assuming the program continues at current performance levels. UPRR has demonstrated that continuous quality improvement, theory-driven programming, and rigorous evaluation are the key ingredients for success.

Northeast Utilities – WellAware Program: The WellAware Program targets all 15,000 NU employees and their spouses at 60+ worksites throughout the northeast. Approximately 2,500 participants completed two health risk appraisals (HRAs) between 1998 and 2000. Results were impressive – there was a 31 percent decrease in smoking, 29 percent decrease in sedentary lifestyle, 11 percent decrease in cholesterol risk, and 5 percent decrease in stress. An HRA followed by a targeted high-risk program was shown to be more effective in reducing health risks than an HRA alone. A coronary artery disease program showed positive pre/post trends in medication compliance, cholesterol levels, exercise, diet and smoking rates. A return on investment (ROI) of 2.6 to 1.0 was calculated based upon a reduction in re-hospitalization rates for heart disease patients (from 12.0 percent to 2.2 percent -- averting almost nine hospitalizations in a 12 month period).

Citibank Health Management Program. In 1994, Citibank, a global financial services company with 130,000 employees worldwide and 51,000 employees in the U.S., implemented a comprehensive health management program targeted at all U.S. employees and expatriate staff. The program, which attracted about half of the eligible population, included administration of a health risk assessment (HRA), targeted high-risk interventions, and disease and demand management programming. An external economic evaluation, published in a peer-reviewed journal, documented a return on investment of $4.50 for every dollar invested in the program. Senior management was impressed with the financial results but also wanted to determine whether the program achieved significant health improvements and risk reduction for participants. A series of five follow-up

evaluation studies were commissioned and results were again published in a peer-reviewed journal. Data analyses revealed statistically significant risk reductions in 8 of 10 risk categories. In addition, participants in the high-risk program achieved even greater health improvements than those who only participated in the HRA program. These health improvement findings, coupled with impressive ROI results, convinced Citibank management to enhance and expand the program.

FedEx Corporation – Health Risk Reduction and Cost Reduction Programs. FedEx offers a variety of Human Capital Management (HCM) programs to its over 200,000 employees. Its management philosophy and culture focuses on "people – service – profit" in that order. Its varied programs include: FedEx Safety Above All, FedEx Employee Benefits (with programs directed at demand management, utilization management, catastrophic case management, and disease management), Cigna Well Aware, CareMark Care Patterns, Maternity Education Benefit Fairs, Smoking Cessation, LifeWorks, Health and Wellness Centers, and Employee Assistance Programs. Compared to expected values, FedEx's programs resulted in cumulative five-year medical benefit cost savings of about $579 million. Additionally, six year cumulative cost savings related to decreases in medical-related lost time from work were estimated at approximately $497 million. FedEx Fitness Program participants reduced their overall benefit costs from $1,210 to $1,021 (16 percent) in the year following program enrollment, while non-participants' total benefits decreased from $2,104 to $1, 947 (7 percent).

Motorola – Global Wellness Initiatives. Motorola offers Wellness Initiatives to its 56,000 U.S. employees. The company invests approximately $6.0 million annually in the development and operation of its wellness and work/life programs. Over a three-year period, participants in the Wellness Centers and Wellness Reimbursement Benefit Programs increased their annual lifestyle-related health care costs by 2.5 percent while non-participants' costs increased by 18 percent. This translated to an annual savings of $6.5 million in lifestyle-related medical expenses and $10.5 million in disability-related expenses. These savings yielded a $3.93 to $1.00 return on investment (ROI). A flu vaccination program achieved a $1.20 o $1.00 ROI during the 2001 – 2002 flu season. Additionally, 46 individuals concluded an 8-week tobacco cessation program in which 15 became tobacco free.

Johnson & Johnson -- Health and Wellness. Johnson & Johnson Health and Wellness is an outgrowth of the company's LIVE FOR LIFE program, which originated in 1979. In developing its health and wellness initiatives, Johnson and Johnson brought together experts in health education, behavior change, risk reduction, and disease management to create programs to improve workers' health and productivity. Currently, the program integrates health promotion activities with disability management, occupational health, employee assistance and work-life programs. The cornerstone of the program is a Health Risk Assessment (HRA) with follow-up risk reduction and health improvement interventions. More than 90 percent of eligible employees participate in the

Johnson & Johnson programs and receive financial incentives for their participation.

Peer reviewed studies performed for Johnson and Johnson by Medstat found that the Health and Wellness Program improved the health of employees and saved the company money. In a study tracking health risks of workers over a 2 ¾ year period, researchers found significant reductions in health risks in the areas of cigarette smoking, sedentary lifestyle, high cholesterol, high blood pressure, nutrition, seat belt use, and drinking and driving. Certain risk factors worsened, however, including high body weight, high fat intake, risk for diabetes, and cigar smoking. A financial impact analysis performed by Medstat and spanning a nine-year study period found that the health and wellness program saved Johnson & Johnson about $225 per employee per year in medical care utilization costs. That savings, coupled with savings from administrative streamlining of the program, produced overall savings of about $8.6 million per year for the company, over a four-year period examined by the researchers. This latest set of findings complements a series of studies performed over the past two decades that have documented positive program impacts on health care costs, absenteeism, health improvement, risk reduction, and employee attitudes.

Fairview Health Services – Fairview Alive. The Fairview Alive Program, first introduced in 1996, now serves approximately 13,000 eligible employees. The program offers employees an employee *heath kit* that includes a personalized health assessment and a self-care book. Employees are encouraged to obtain necessary preventive screenings. Incentives are offered to those who participate in health improvement programs. Fairview also provides on-site education classes, self-study materials, community health education programs, a high-risk personalized risk reduction and counseling program, and other programs designed to improve worker health and productivity. Of those eligible to participate, about 74 percent take advantage of some aspect of the program.

A longitudinal assessment of risk factors in a subset of the population that participated in two HRA administrations found a reduction in average health risks from 4.4 to 3.6 risks per participant, a 19 percent reduction. An independent evaluation by Watson Wyatt Worldwide found that medical cost increases for participants in the program were about $100 lower than for non-participants resulting in medical cost savings of about $400,000. In addition, lost injury days and workers' compensation costs increased at a much lower rate for participants when compared to non-participants. This resulted in an additional cost savings of about $500,000 for the organization.

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