ISSUE BRIEF 4: WORK AND HEALTH

DECEMBER 2008

Work Matters for Health

1. Introduction

Our work affects our health in many ways – and our health affects our work.

On average, American adults spend nearly half of their waking hours at work.[1] Where we work influences our health, not only by exposing us to physical conditions that have health effects, but also by providing a setting where healthy activities and behaviors can be promoted. In addition to features of worksites, the nature of the work we do and how it is organized also can affect our physical and mental health. Work can provide a sense of identity, social status and purpose in life, as well as social support. For most Americans, employment is the primary source of income, giving them the means to live in homes and neighborhoods that promote health and to pursue health-promoting behaviors. In addition, most Americans obtain their health care insurance through their jobs. Not only does work affect health; health also affects work. Good health is often needed for employment, particularly for low-skilled workers. Lack of employment among those who are unable to work because of ill health can lead to further economic and social disadvantage and fewer resources and opportunities to improve health, perpetuating a vicious cycle.

Employment-related health problems have significant human and economic costs for individuals and for society overall.

In 2007, over 5,000 fatal and 4 million nonfatal work-related injuries and illnesses were reported in private industry workplaces; about half of the non-fatal injuries resulted in time away from work due to recuperation, job transfer or job restriction.[2] Some reports have found that the total economic costs to the nation of occupational illness and injury match those of cancer and nearly those of heart disease.[3] Healthy workers and their families are likely to incur lower medical costs and be more productive, while those with chronic health conditions generate higher costs in terms of health care use, absenteeism, disability and overall reduced productivity.[4] Workplace injuries and work-related illnesses have a major financial impact on both large and small employers. In 2006, the cost to employers for workers' compensation totaled $87.6 billion.[5]

This issue brief examines how work can affect health, exploring the health effects of both physical and psychosocial aspects of work as well as of work-related opportunities and resources. Examples of promising approaches to making work healthier also are provided.

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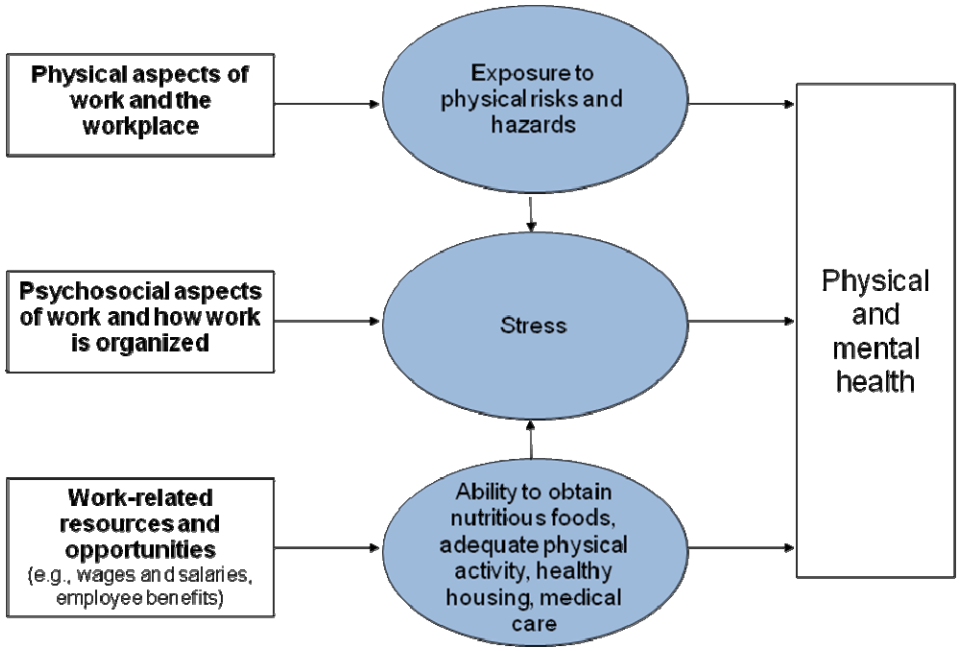
2. How does work affect health?

Figure 1. **How work shapes health for workers and their families**



Measures to protect workers from physically hazardous conditions remain important, but the current context calls for new integrated strategies that not only will protect workers from major hazards but will promote healthier work and workplaces.

Changes in work and in the workforce: Implications for health.

Both the profile of workers and the nature and structure of work in the United States have evolved over time. Today's workforce is older, more racially and ethnically diverse, and increasingly made up of women.[6] Along with this growing demographic diversity, the "21st century workplace" features more multidisciplinary jobs, more collaborative work and reliance on technology, and a shift away from manufacturing jobs.[7] As companies have restructured, both "knowledge work"—requiring a relatively high level of education or technical training—and service jobs have become more predominant.[7, 8] The Bureau of Labor Statistics projects that the United States workforce will increase by 22 million workers by 2010, with the largest number of workers employed in professional and related occupations and in the service sector.[9] Today's workers face greater job uncertainty; they are more likely to have many employers and to be required to enhance or expand their skills over the course of their working careers.[8] These shifts in work may have outpaced knowledge about their implications for the quality of working life and for safety and health on the job.[8] Measures to protect workers from physically hazardous conditions remain important, but the current context calls for new integrated strategies that not only will protect workers from major hazards but will promote healthier work and workplaces.

Certain jobs are associated with higher health risks. For example, operators, fabricators and laborers suffered nearly 40 percent of all reported occupational illnesses and injuries in 2001, while representing only 15 percent of workers.[9]

The links between health and the physical aspects of work.

There is widespread awareness that both the physical tasks involved in a job and the physical work environment can have important health effects. These concerns have been the traditional domain of occupational health and safety.

- ***Physical working conditions and risk of injury and illness.*** The type of work and the tasks involved influence a worker's risk of physical injury and illness.
  - Workers in particular sectors of the work force are at increased risk of work-related injuries and illness. Eight sectors—air transportation, nursing facilities, work with motorized vehicles and equipment, trucking services, hospitals, grocery and department stores, and food services—account for nearly 30 percent of nonfatal occupational injuries.[9] Certain jobs are also associated with higher risks. For example, operators, fabricators and laborers suffered nearly 40 percent of all reported occupational illnesses and injuries in 2001, while representing only 15 percent of workers.[9]
  - Physically demanding daily tasks and uncomfortable working positions can lead to physical strain and injury, increasing the risk of long-term absence.[10] Jobs requiring repetitive movements and those with high physical workload including lifting, pushing or pulling heavy loads put workers at higher risk for musculoskeletal injuries and disorders, overextension and repetitive strain injuries.[11] Carpal tunnel syndrome, caused by repetitive motion, accounted for the highest median days (25 days) away from work among all occupational illness or injuries in 2001.[9] The ergonomics of equipment and work space are important contributors to occupational health. For example, poorly designed tools, keyboards and chairs have been linked with arm, back and shoulder pain, as well as other musculoskeletal disorders.[12]
  - Sedentary jobs allow few opportunities for movement or exercise, and physical inactivity contributes to risk of obesity and chronic diseases such as diabetes and heart disease.[13]

- ***Hazardous exposures in the workplace.*** In addition to workplace conditions like inadequate ventilation or temperature control that can aggravate allergies or asthma,[14] the physical environment of a workplace can expose workers to a variety of potentially hazardous chemicals. Lead, pesticides, aerosols, ammonia and other cleaning products, and asbestos are just a few of the many workplace-related chemicals for which long-term exposure have been related to poisoning and serious illnesses.[9,15] Hearing loss from noisy work environments is one of the most common occupational injuries worldwide, and workplace noise also creates a higher risk of accidents.[16,17]

The psychosocial aspects of work and how work is organized also can affect health.

The experience of work itself—how time is organized, and the social and psychological aspects of working conditions—affect both physical and mental health. Differences in the degree of control that workers feel they have over their working conditions are thought to be a major factor accounting for steep social gradients in health among employed civil servants in the United Kingdom.[18,19] For many Americans, work is a major source of opportunities for personal development and building stable social networks. These opportunities are shaped by many characteristics of the work environment, including workplace culture, job demands and latitude in making decisions about one's work.

Reducing work-related stress can have positive health impacts not only for workers but for their children as well.

- ***Work schedules***. Evening and night shifts, holding multiple jobs, long work hours and excessive overtime work can be detrimental to health by causing fatigue and disturbances in circadian rhythms. Sleep deprivation leads to decreased concentration and lower cognitive performance, and can cause mistakes that negatively impact an employee's health, work, or both.[20, 21] Working more than 40 hours per week has been associated with poorer perceived overall health, increased injury and illness rates and increased mortality, with especially pronounced effects in conjunction with extended work shifts that are longer than 8 hours.[22]

- ***Commuting to work***. More Americans commute to and from work than in the past, and they are travelling longer distances; 3.3 million Americans have work commutes of 50 miles or more each way.[23] Longer commutes by both train and automobile have been associated with greater levels of stress.[24,25] Car commuting also has been linked with physical ailments such as lower back pain,[25] increased likelihood of obesity, [26] and less time for leisure and social activities.[27] Of the 134 million people in the United States who worked outside their homes during 2007, 120 million commuted in cars, contributing to traffic congestion, air pollution, reduced physical activity and risk of injury and death due to accidents.[28] As an alternative to car commuting, public transit has been linked with greater physical activity.[29]

Balancing work and family responsibilities: Health implications.

Since 1970, average hours worked by both parents in two-parent families with children under 18 years of age have increased by approximately 11 hours per week; over the same time period, more single mothers have joined the work force and are working longer hours.[30] For many families, these changes represent substantial declines in time for activities like housework, childcare, leisure and sleep—adding additional strain on families, especially in times of injury or illness.[30] Parents reporting stress due to the spillover of work to family life are more likely to suffer from mood, anxiety and substance dependence disorders.[31] Reducing work-related stress can have positive health impacts not only for workers but for their children as well. By allowing workers to have more control over their schedules, workplace policies such as flextime (which permits employees to schedule workday start and end times to accommodate family responsibilities) and supportive breastfeeding policies can improve health and well-being for workers and their families.

- ***Control at work, demands and decision latitude***. Jobs characterized by both high psychological demands and high levels of decision-making authority and skill utilization ("decision latitude") can promote self esteem and self efficacy. Conversely, workers whose jobs make high demands yet offer little decision latitude experience what has been called "job strain." They are more likely to suffer from psychological distress, and are at higher risk of chronic physical illnesses (such as cardiovascular disease) and unhealthy coping behaviors (such as smoking) that contribute to these illnesses.[18,32] Control at work is considered by some experts to account for a large part of socioeconomic differences in health among employed persons.[18,19]

- ***The balance between efforts and rewards***. Perceived balance between a worker's efforts and rewards (in terms of earnings, benefits, esteem, jobsecurity and career opportunities) also has been shown to influence health. Imbalance of high efforts with low rewards has been associated with poor physical functioning[33] and increased incidence of coronary heart disease,[34] as well as with moderately elevated risks of impaired mental and social functioning and onset of mild psychiatric disorders.[33,35]

Work environments that facilitate mutual support between coworkers can reduce job stress and may provide a buffer against physical and mental health stressors related to work.[34]

- ***Organizational justice***. Organizational justice characterizes both processes and relationships in the workplace. The former include whether decisions are made with input from affected parties, are consistently applied, and suppress bias; the latter include whether supervisors treat employees with respect, transparency and fairness. In the context of work, each of these components can affect both physical and mental health and well-being. Workers who experience low levels of relational justice have longer periods of illness-related absence compared with those who experience high levels of justice.[36] Lower levels of justice have been associated with poorer health, higher self-reported morbidity, and increased mental health problems;[37] a combination of high effort-reward imbalance and high organizational injustice was associated with a greater health risk than either alone.[38]

- ***Social support at work***. Work environments that facilitate mutual support between coworkers can reduce job stress and may provide a buffer against physical and mental health stressors related to work.[34] High levels of social support at work have protective effects on mental health and have been linked with reduced risk of illness-related absence,[35,39] while low levels are associated with increased risk of psychiatric disorders.[33,40]

- ***Gender and racial discrimination in the workplace***. Among both men and women and across racial or ethnic groups, perceived discrimination can be harmful for mental health.[41] The negative health impacts of discrimination in the workplace can be both short-term (increasing stress levels, blood pressure and other physiological symptoms) and longer-term (leading to musculoskeletal problems, arthritis, heart disease and other physical illnesses).[41-44]

Work-related stress and health.

Working conditions can damage health not only through obvious physical hazards but also through stress. The last decade has seen marked increases in scientific knowledge about causal pathways and physiologic mechanisms that help explain the links between social and economic factors and health. Important examples include physiologic damage to multiple vital organ systems caused by chronic stress through neuroendocrine and immune pathways.[45-49] Stressful experiences—including aspects of working conditions—can trigger the release of hormones and other substances in the body which, particularly with repeated stresses over time, can damage immune defenses and vital organs.[50] This physiologic chain of events can result in more rapid onset and progression of chronic illnesses including cardiovascular disease;[48] the bodily wear and tear associated with chronic stress may accelerate aging.[50-52] Accumulated strain from trying to cope with daily events may, over time, lead to far more physiological damage than a single stressful event, even if the event is dramatic.[50] Daily hassles can include constant challenges posed by work environments in which a person may feel disrespected, intimidated or under constant strain trying to balance the demands of work and family responsibilities with inadequate resources.

For most Americans, earnings from work represent the primary resources and opportunities enabling them to make health-related decisions about where and how they and their families live, play and go to school.

In 2006, 7.4 million workers—5.1 percent of workers ages 16 years and over who had been working for at least six months—were classified as working poor.[54]

Work-related opportunities and resources also affect health.

For most Americans, earnings from work represent the primary resources and opportunities enabling them to make health-related decisions about where and how they and their families live, play and go to school. Other work-related benefits—including health insurance, paid sick and personal leave, workplace wellness programs, child and elder care resources and retirement benefits—also shape the major health-related choices available to individuals and families.

The role of unions in protecting and promoting workers' health.

Historically, unions have played a major role in protecting workers' health in this country. They have, for example, advocated for legislation and enforced standards, informed members about their rights with respect to working conditions and about available resources for addressing occupational illness/injury, helped members receive workers' compensation benefits and aided them in disputes over workplace safety. They have been instrumental in achieving better wages and benefits, including health insurance coverage, for a substantial proportion of the U.S. workforce. Beginning in the 1970s, however, union membership began to fall, accompanied by declines in resources and bargaining power. As foreign and domestic non-union competition and employer demands for concessions have increased, unions have become less likely to employ tactics (e.g., protests, strikes and lawsuits) that historically have been powerful tools used to protect worker's health.[53]

- ***Income***. For the vast majority of Americans, employment is the sole or main source of income—a work-related resource that affects health through multiple well-documented direct and indirect pathways. Well-paying jobs represent greater economic security and ability to accumulate wealth, enabling individuals to provide their families with more nutritious foods, to obtain quality child care (which can affect a parent's ability to keep a job and can also reduce stress), to educate their children, and to live in healthier homes and neighborhoods. The "working poor," in contrast, generally do not earn enough income to cover basic living necessities for themselves and their families; in 2006, 7.4 million workers—5.1 percent of workers ages 16 years and over who had been working for at least six months—were classified as working poor.[54] Income-related advantages or disadvantages—and the opportunities for or obstacles to good health they represent—are likely to be passed on to future generations as well.

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78 percent of American workers who qualify for leave under the FMLA say they do not use it because they cannot afford to go without pay.[60]

- ***Health insurance***. Although most Americans receive their health insurance through their jobs, not all workers have access to this benefit. Overall, 56 percent of civilian workers have medical care benefits through their employment, but the proportion varies across occupational sectors: 78 percent of workers in management, business and financial sectors receive such benefits, compared with 35 percent of service industry workers.[55] Employers with lower-wage workers offer health insurance less frequently,[56] and, even if employment-sponsored benefits are available, low-wage workers may not be able to afford the necessary premiums, copayments or deductibles.

- ***Workplace-based health promotion programs***. Workplace-based wellness and health promotion programs are employer initiatives directed at improving the health and well-being of workers and, in some cases, their dependents.[57] Although most workplace-based wellness programs focus primarily on providing traditional health-promotion and disease management programs on site, some model programs integrate on-site elements with health resources outside of the workplace and incorporate these benefits into health insurance plans. While larger worksites offer more health promotion programs, services and screening programs and policies, only seven percent of employers in 2004 offered a comprehensive worksite health promotion program that incorporated five key elements defined in *Healthy People 2010:* health education, links to related employee services, supportive physical and social environments for health improvement, integration of health promotion into the organization's culture, and employee screenings with adequate treatment and follow up.[58]

- ***Paid sick and personal leave***. Access to paid sick days can help workers recover from illnesses and provide care for sick family members, potentially preventing more severe illness and use of expensive hospital care. Although the Centers for Disease Control and Prevention recommend that workers who are ill stay home from work to prevent spread of disease in the workplace,[59] following this advice may be difficult or impossible when sick days are unpaid. Nearly all employers who provide this benefit in this country do so on a voluntary basis. Paid personal leave can also provide workers with flexibility to accommodate health-related issues. Overall, 41 percent of civilian workers receive paid personal days, but this percentage varies by occupation—from 58 percent in management, professional, and related fields to 30 percent in service fields.[55] At the federal level, the Family Medical Leave Act (FMLA) enacted in 1993 provides eligible employees with at least 12 work-weeks of unpaid, job-protected leave for circumstances such as childbirth, a serious personal medical condition or care of a child, parent or spouse with a serious medical condition; however, 78 percent of American workers who qualify for leave under the FMLA say they do not use it because they cannot afford to go without pay.[60]

- ***Child care and elder care resources***. Providing child and elder care assistance as a work benefit can be important for the health of both workers and their dependents. In addition to the benefits of high-quality child care for children themselves (*see Commission Issue Brief 1: "Early Childhood Experiences and Health"*), reliable and stable child care can help parents secure and maintain steady employment and reduce workplace absenteeism.[61] Finding and paying for high-quality child care can often be difficult for working parents, however, and can be a major source of stress with potential adverse health consequences. Providing or finding elder care can become an additional financial and emotional burden for the 17 percent of the workforce with this responsibility.[62] These burdens can be greatest on workers in low-wage jobs, who have particularly limited access both to child and elder care resource and referral services and to employer-provided financial assistance for purchasing care.[63] Employers have focused increasing attention on elder care by giving employees information about available services and paid or unpaid time off to provide care.[64]

- ***Retirement benefits***. Retirement benefits—including Social Security and employment-sponsored retirement plans, such as the 401 (k)—are important as a source of steady income support for seniors. Almost all workers are covered by Social Security, and this program has had positive health impacts by reducing poverty and increasing income among older Americans.[65] Low-wage workers are less likely than others to be covered by employment-sponsored defined benefit or contribution plans;[66] as a result, many low-wage workers enter retirement with very little savings, which can have serious adverse health consequences in the absence of adequate safety nets.

Workers in lower-status and lower-wage jobs are disproportionately exposed to health-impairing working conditions, [69] reinforcing the burden of ill health and social disadvantage among particular social groups in this country.

Social advantage and employment-related opportunities.

Among Americans in every racial or ethnic group, higher levels of education are associated with greater likelihood of being employed and with higher earnings among those in the work force. For example, lifetime earnings (in 1999 dollars, and based on a 40-year work life) for adults who have graduated from high school but not attended college have been estimated at $1.2 million, compared with $2.1 million for those with bachelors degrees and $4.4 million for those with professional degrees.[67] Even as education levels have risen among blacks and Hispanics and they continue to move into higher-skilled and higher paying occupations, the proportion of blacks and Hispanics in management, professional and related jobs remains smaller and their earnings remain lower compared with whites and Asian Americans.[68] Workers in minority racial or ethnic groups are overrepresented in the service sector and low-paying jobs. The working poor—workers who have been employed for at least 27 weeks and live below the federal poverty level—are disproportionately comprised of racial minorities; rates of working-poor are twice as high among blacks or Hispanics as among whites or Asian Americans.[54]

Members of the most socially-disadvantaged groups tend to have low-paying jobs with high levels of occupational hazards and work-related health risks. Workers in lower-status and lower-wage jobs are disproportionately exposed to health-impairing working conditions,[69] reinforcing the burden of ill health and social disadvantage among particular social groups in this country. Low-paying, blue-collar jobs present more occupational hazards, including environmental and chemical exposures (e.g., pesticides, asbestos), poor working conditions (e.g., shift work with few breaks, potentially harmful tools), and psychosocial stressors (e.g., less control).[70,71] For example, bus drivers face numerous physical and psychosocial stressors in their jobs, including exposure to chemical fumes and high noise levels, high risk for musculoskeletal strain from addressing passengers and opening doors, pressure to arrive on time, and stress resulting from passenger behavior, traffic and required paperwork.[72] Lower-wage workers also are less likely to have health-related benefits such as paid sick leave, job flexibility and access to workplace wellness programs.[63,73]

During 2008 alone, the unemployment rate in the United States for individuals 16 years of age and older increased from 4.9 percent in January to 6.5 percent in October.[82] And those who are already at greater disadvantage with respect to social factors like educational attainment and racial or ethnic group are most likely to be unemployed.

The health effects of unemployment and job insecurity.

People who are unemployed have a higher prevalence of poor health and excess mortality than their employed counterparts.[74-77] While ill health itself can be a reason for unemployment, findings from longitudinal studies indicate that the health effects of unemployment appear to be independent of pre-existing health.[78,79]

Unemployment may affect physical and mental health in several ways:

- ***Lowered income and living standards***. Reductions in income associated with unemployment can lead to deteriorating physical health because of changes in ability to afford nutritious food, healthy housing, and/or appropriate medical care.
- ***Increased stress***. Loss of employment is associated with changes in health such as increased blood pressure,[80] and can limit access to health-promoting aspects of work such as physical and mental activity, use of skills, decision latitude, social contact and social status.
- ***Behavioral health risks***. The impact of unemployment on unhealthy coping behaviors like increased alcohol consumption, smoking and drug use has been widely studied; however, findings are inconsistent and longitudinal studies are rare.[78]

Among those who are employed, job insecurity and threat of job loss can contribute to poorer health through similar pathways. Stress associated with the prospect of losing one's job can lead to risky coping behaviors such as smoking, lack of exercise and forgoing sick or vacation leave, and may place workers at increased risk of work-related injury and illness.[81]

The number of Americans at risk of the health-damaging effects of job insecurity and unemployment is growing. During 2008 alone, the unemployment rate in the United States for individuals 16 years of age and older increased from 4.9 percent in January to 6.5 percent in October.[82] And those who are already at greater disadvantage with respect to social factors like educational attainment and racial or ethnic group are most likely to be unemployed.

3. Improving health by making work and workplaces healthier: a range of strategies.

Efforts to protect and promote workers' health and safety in the United States have historically focused on legislation and regulations intended to prevent work-related accidents and injuries by reducing physical hazards in the workplace. While such measures remain important, dramatic changes in the nature of work (i.e., shifts from manufacturing jobs to service jobs and "knowledge work") during recent years call for new strategies that not only will protect workers from major hazards but will promote healthier work and workplaces.

Conclusive knowledge of the most effective and efficient interventions to make work and workplaces healthier is limited. Our current understanding of the health effects of both physical and psychosocial aspects of work and workplaces needs to be broadened and deepened. The existing knowledge base is, however, adequate to point to promising directions. Listed below are selected examples of strategies and programs that have been explored as approaches to make work and working conditions healthier. Some, but not all, of the strategies described here have been evaluated with respect to health outcomes, with varying degrees of scientific rigor. Given current gaps in knowledge, high priority should be given to research focused on the impacts of these and other knowledge-based approaches on the health of workers and their families.

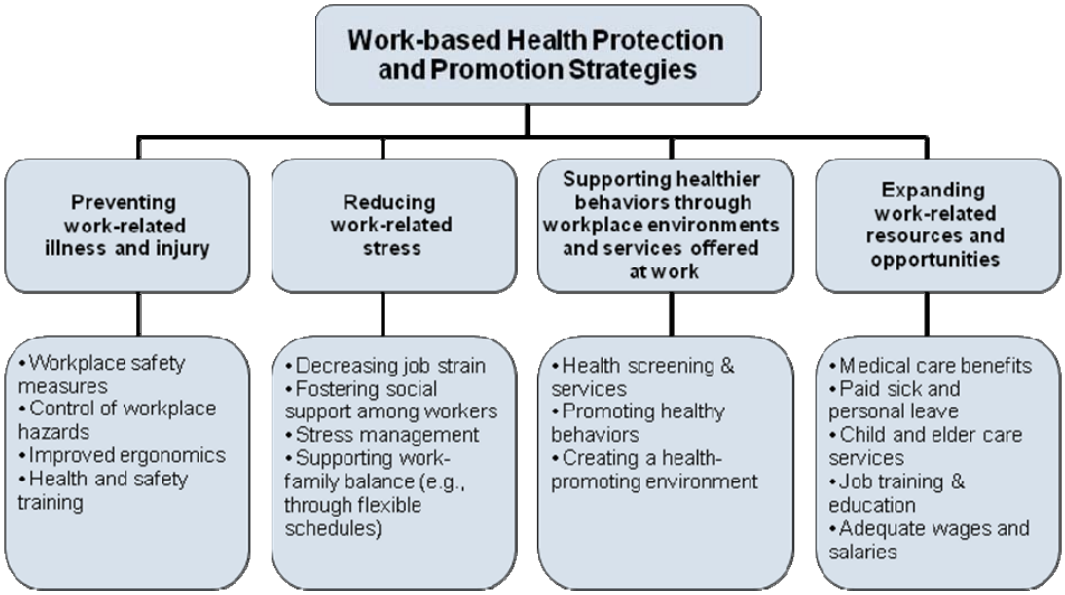
A growing body of evidence indicates that health promotion programs are cost-effective. One review found an average return of $5.81 per $1 invested in these programs, achieved through improved employee health, reduced medical benefit expenses and reduced absenteeism.[87]

- There is great potential for improving workers' health through *improvements in the nature and structure of work and design of work tools and work space*. Strategies include flexible scheduling, a change in focus between team or individual efforts, improving decision-making processes and task distribution, and other procedural adjustments. Changes to the work environment, including social as well as physical conditions, may also improve workers' well-being and reduce stress and stress-related illness. More concrete interventions include incorporating new technologies and tools to prevent injuries and protect worker safety. Employee *education and outreach programs* also can help increase awareness about health and safety hazards and prevention; such efforts, as an adjunct to workplace design policies, can reduce injury rates.[83,84]

- Given the amount of time most workers spend at their jobs, the workplace can also provide a setting for promoting health and healthy behaviors through *workplace wellness initiatives*. Healthy People 2010 goals include increasing the numbers of employers offering worksite health promotion programs and of employees participating in these programs.[85] Components of successful programs include high rates of participation, use of incentives, health risk assessments with follow-up plans, providing personalized health information, offering a variety of intervention types (e.g., group classes, online toolkits), and encouraging individuals to set goals and take responsibility for their health within a broader work culture promoting health and providing social support.[57] Although few programs have been rigorously evaluated, one recent study found that workplace wellness programs were effective in reducing tobacco use among participants, lowering high blood pressure, decreasing work absences due to illness or disability, and improving other general measures of worker productivity.[86] A growing body of evidence indicates that health promotion programs are cost-effective. One review found an average return of $5.81 per $1 invested in these programs, achieved through improved employee health, reduced medical benefit expenses and reduced absenteeism.[87]

- Employers also can provide resources and opportunities for people to be healthier by *expanding benefits* to enable workers to take better care of themselves and their families. *Workplace-based education and training* give workers opportunities to increase skills and gain higher-status positions and better paying jobs—both preparing the future workforce and providing more Americans with additional resources for making healthy choices. Work-focused public policies can play an important role in supporting the health of all Americans.

Figure 2. **Work-based strategies to improve health**



Work-based health improvement strategy #1: Preventing work-related illness and injury.

► ***Improving health through programs/policies to prevent work-related injuries and illness,*** **by modifying the workplace environment to decrease workers' exposures to risky and unsafe physical conditions and educating workers about safe workplace practices.**

Examples:

- *Smoke-free workplace policies* prohibit smoking in all enclosed areas within worksites. Implementation of smoke-free workplace policies has been associated with reduced prevalence of smoking, decreased consumption of cigarettes among smokers, and reduced exposure to environmental tobacco smoke among non-smokers.[88] As of October 2, 2008, 21 states had 100 percent smoke-free workplace laws in place. www.no-smoke.org

- The *Ohio Bureau of Workers' Compensation's Safety Grants Program* provides financial and informational assistance to Ohio public employers to incorporate evidence-based "best practices" for ergonomic design in the workplace, such as redesigning video display terminal workstations and modifying methods of providing patient care in health care settings. Findings from data collected by companies before and after interventions indicate reductions in incidence of and days lost to cumulative trauma disorder.[89] http://www.ohiobwc.com/employer/programs/safety/EmpGrants.asp

Work-based health improvement strategy #2: Reducing work-related stress.

► ***Improving health through programs/policies to reduce work-related stress and associated mental and physical health problems,*** **by improving psychosocial aspects of the working environment and promoting balance between work and family responsibilities.**

Examples:

- In 2005, Best Buy established an innovative workplace flexibility initiative called *Results Only Work Environment (ROWE)*, which focuses on productivity and results of employees' work efforts rather than on time at work. For example, the program allows the individual worker and his/her team, rather than supervisors, to set work hours and schedules. Employees reported significant positive changes in their control over their work time, their sense of work-family balance, and health and health behaviors.[90] http://www.flexiblework.umn.edu/

- AETNA provides a breastfeeding support program as part of its *New Child Program*, a comprehensive benefits program that includes preconception planning, preparation for a baby's arrival, and return to work initiatives. During maternity leave, employees can consult with lactation specialists and may receive home visits; once back at work, they have access to "mothers' rooms" with breast pumps and private cubicles. Participants have noted benefits including reduced stress and improved support from other breastfeeding mothers and from their employer's commitment to promoting family-career balance. In the program's first year, Aetna reported savings of more than $1,400 and three sick days per breastfeeding employee, with a nearly 3-to-1 return on investment.[91]
  http://womenshealth.aetna.com/WH/ihtWH/r.WSIHW000/st.36127/t.36576.html

- Twenty-one states, Washington, D.C. and Puerto Rico have *laws related to breastfeeding in the workplace*. In Colorado, for example, a law implemented in August 2008 protects an employee's right to breastfeed in a private room (other than a toilet stall) during her break time for up to two years after giving birth; the law also requires the Department of Labor and Employment to provide information to employers on accommodating employees who breastfeed. At the Federal level, the Breastfeeding Promotion Act introduced in 2007 by Representative Carolyn Maloney would amend the Civil Rights Act of 1964 to protect breastfeeding mothers and provide tax incentives to employers offering breastfeeding support.
  http://www.ncsl.org/programs/health/breast50.htm#Res
  http://www.govtrack.us/congress/bill.xpd?bill=h110-2236

Work-based health improvement strategy #3: Supporting healthier behaviors through workplace environments and services offered at work.

► ***Improving health through work-based promotion of healthier behaviors and disease prevention,*** **by using approaches such as education, health risk assessments, on- and off-site services and fitness programs, and by creating work environments that are more conducive to healthy behaviors.**

Examples:

- The *Wal-Mart Personal Sustainability Project (PSP)* is a voluntary, employee-driven program that encourages Wal-Mart and Sam's Club associates to integrate small changes— Personal Sustainability Projects, or PSPs—into their lives to benefit their own health and well-being as well as the health of the environment. As of September 2007, 480,000 Wal-Mart associates reported that they adopted a PSP; to date, nearly 20,000 associates have quit smoking, and associates collectively have lost more than 184,000 pounds by eating healthier foods and exercising more frequently. The PSP model has been adapted and implemented by the CDC and WellPoint.
  http://walmartstores.com/FactsNews/NewsRoom/6379.aspx

The next three work-based health promotion programs are recent winners of the C. Everett Koop National Health Award. To qualify, programs must focus on Healthy People 2010 goals and document effectiveness in reducing health risks and medical care costs. (The Health Project: http://healthproject.stanford.edu/)

- *Johnson & Johnson's Healthy People 2005* (2003 Koop Award recipient) provides benefit credits as incentives for employees to participate in comprehensive physical and mental health programs. More than 90 percent of U.S.-based employees participate in Health Risk Assessments, which are followed by "Pathways to Change" interventions designed to address elevated risks related to tobacco use, physical inactivity, blood pressure and cholesterol. The program also offers disability management and occupational medicine, on-site gyms, support for balancing work and life responsibilities, and counseling to resolve job performance issues. A study investigating the long-term outcomes of the LIVE FOR LIFE program—the precursor to Healthy People 2005—found it achieved $224 in savings per employee per year, primarily through reductions in inpatient hospital stays, mental health visits and outpatient services.[92] http://healthproject.stanford.edu/koop/JohnsonandJohnson/description.html

- *USAA Take Care of Your Health* (2006 Koop Award recipient) centers around simple health messages to employees and their families that are reinforced by programs at several levels (i.e., individual health risk assessments and campus-wide policies). Wellness programs—ranging from on-site fitness centers and healthier food choices in worksite cafeterias to lifestyle coaching—are integrated with disability management, a consumer-driven health plan and paid time off. Participants have achieved reductions in weight, smoking rates and overall health risk status. The program has a strong data collection system to track participation, health and cost outcomes, and has resulted in fewer absences from work and $105 million in savings over three years. http://healthproject.stanford.edu/koop/USAA/description.html

- *Pepsi Bottling Group's Healthy Living* program (2007 Koop Award recipient) includes components for wellness and prevention, lifestyle management, chronic disease management and case management for acute diseases. A marketing campaign aims to promote a culture of health, with resources including worksite clinics, flu shots, and work and home safety programs. Participants are rewarded with a variety of incentives, and 72 percent of employees and domestic partners completed Health Risk Assessments in 2006. The program has achieved significant risk reduction from baseline to one-year follow-up in all six areas targeted by interventions, with a reported return-on-investment of $1.70 for every dollar spent. http://healthproject.stanford.edu/koop/Pepsi%20Bottling%20Group/PBG%20Documentation.pdf

- *The Washoe County School District Wellness Program* (2008 Koop National Health Honorable Mention certificate recipient) in Reno, NV, emphasizes healthy living for employees, retirees and dependents. The program is funded by mandatory monthly contributions from all employees; the contribution is waived for employees who both participate in risk assessments for tobacco use, blood pressure and Body Mass Index and follow up with steps to address their personal health risks. A cost-benefit analysis found that each dollar spent on the program saved an average of $15.60 in reduced absenteeism.[93] http://promisingpractices.fightchronicdisease.org/programs/detail/washoe_county_good_health_incentive_program

- In 2007, Representative Tom Udall reintroduced the *Healthy Lifestyles and Prevention America Act* (HeLP), which would provide tax incentives to employers who implement wellness programs and workplace wellness marketing campaigns for their employees. Representative John Cornyn

sponsored the *Workforce Health Improvement Program (WHIP) Act* to ensure that wellness benefits covering off-site fitness facilities would not be taxed as additional income for employees; this legislation was intended to encourage employers to offer more wellness programs to their employees and decrease costs to employers related to employees' health care.
http://www.govtrack.us/congress/bill.xpd?bill=h110-2633
http://www.govtrack.us/congress/bill.xpd?bill=s110-1038

Work-based health improvement strategy #4: Expanding work-related resources and opportunities.

► ***Improving health through programs/policies focused on work-related resources and opportunities,* by expanding work-related compensation and benefits to enable workers to take better care of themselves and their families and by providing worker education training to increase access to higher-status and higher-wage jobs.**

Examples:

- *Corporate Voices for Working Families* is a national non-profit corporate membership organization created in 2001 to address issues affecting working families, including early childhood education and after-school care, lower-wage work, worker flexibility, youth transitions and the future of the mature workforce. Corporate Voices facilitates research and develops innovative policy solutions to improve the lives of working families through partnerships linking the private sector, government and other stakeholders. http://www.cvworkingfamilies.org/

- *Job Corps* is the nation's largest federally-funded job training and education program for disadvantaged youth ages 16 to 24. It provides career training, job placement, counseling services and the opportunity to earn a high school diploma or GED. Rigorous evaluations have documented positive impacts for Job Corps participants including higher-paying jobs and increased levels of educational attainment and literacy.[94] http://jobcorps.dol.gov/

- *The Job Center* in Dayton, Ohio, is the largest employment and job training center in the country, and is an example of the one-stop career centers mandated by the 1998 Federal Workforce Investment Act. The center's mission is to provide resources for workforce development as well as services to improve quality of life of job-seekers and their families. The public-private partnership is comprised of 47 organizations in one location that offer unemployment services, career counseling, GED and vocational training classes, and assistance with social services such as food stamps and Medicaid; it also serves as a resource for employers to reach a large pool of potential employees. The program has received several awards for innovative design and integration of government services. www.thejobcenter.org

- As of 2008, twenty-four states offered programs that supplement the federal Earned Income Tax Credit (EITC). In addition, local governments can also offer EITC-supplement programs. For example, the "*San Francisco Working Families Credit*"—San Francisco's city/county supplement to the federal EITC, created in 2004 with a broad-based coalition of organizations from the public, private and non-profit sectors—administers tax credits for low-income workers with children, and also boosts participation of eligible recipients in the federal EITC. http://sfgov.org/site/frame.asp?u=http://www.workingfamiliescredit.org

- At the Federal level, passage of legislation such as *The Healthy Families Act*, introduced in 2007, would require certain employers to provide a minimum paid sick leave. City ordinances passed in San Francisco, Washington, D.C., and Milwaukee require employers to provide paid sick leave to all employees. At least eleven states have introduced but not yet enacted paid sick leave legislation. http://www.govtrack.us/congress/bill.xpd?bill=s109-932

About the Robert Wood Johnson Foundation

The Robert Wood Johnson Foundation focuses on the pressing health and health care issues facing our country. As the nation's largest philanthropy devoted exclusively to improving the health and health care of all Americans, the Foundation works with a diverse group of organizations and individuals to identify solutions and achieve comprehensive, meaningful and timely change. For more than 35 years the Foundation has brought experience, commitment, and a rigorous, balanced approach to the problems that affect the health and health care of those it serves. When it comes to helping Americans lead healthier lives and get the care they need, the Foundation expects to make a difference in your lifetime.

About the Commission to Build a Healthier America

The Robert Wood Johnson Foundation Commission to Build a Healthier America is a national, independent, non-partisan group of leaders that will raise visibility of the many factors that influence health, examine innovative interventions that are making a real difference at the local level and in the private sector, and identify specific, feasible steps to improve Americans' health.

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REFERENCES

1. "Table 1. Time Spent in Primary Activities (1) and Percent of the Civilian Population Engaging in Each Activity, Averages Per Day by Sex, 2007 Annual Averages." *Economic News Release*. Washington, DC: U.S. Department of Labor, Bureau of Labor Statistics, 2007.
2. *Workplace Injury and Illness Summary*. Washington, DC: U.S. Department of Labor, Bureau of Labor Statistics, 2007.
3. Leigh JP, Markowitz S, Fahs M, et al. *Costs of Occupational Injuries and Illnesses*. Ann Arbor: University of Michigan Press, 2000.
4. Goetzel RZ, Long SR, Ozminkowski RJ, et al. "Health, Absence, Disability, and Presenteeism Cost Estimates of Certain Physical and Mental Health Conditions Affecting U.S. Employers." *Journal of Occupational and Environmental Medicine*, 46(4): 398-412, 2004.
5. Sengupta I, Reno V, Burton JF. *Workers' Compensation: Benefits, Coverage, and Costs 2006*. Washington, DC: National Academy of Social Insurance, 2008.
6. Toossi M. "A Century of Change: The U.S. Labor Force, 1950-2050." *Monthly Labor Review*, (May): 15-28, 2002.
7. National Business Group on Health. *Improving Health: An Employer Toolkit*. Washington, DC: Adapted from an Institute of Medicine report, 2006.
8. Karoly LA, Panis CWA. *The 21st Century at Work*. Santa Monica, CA: RAND Corporation, 2004.
9. *Worker Health Chartbook, 2004*. Cincinnati, OH: Center for Disease Control and Prevention, National Institute for Occupational Safety and Health, 2005.
10. Lund T, Labriola M, Christensen KB, et al. "Physical Work Environment Risk Factors for Long Term Sickness: Prospective Findings among a Cohort of 5357 Employees in Denmark." *BMJ*, 332: 449-452, 2006.
11. O'Neil BA, Forsythe ME, Stanish WD. "Chronic Occupational Repetitive Strain Injury." *Canadian Family Physician*, 47: 311-316, 2001.
12. Ross P. "Ergonomic Hazards in the Workplace: Assessment and Prevention." *American Association of Occupational Health Nurses Journal*, 42(2), 1994.
13. Warburton DE, Nicol CW, Bredin SS. "Health Benefits of Physical Activity: The Evidence." *Canadian Medical Association Journal*, 174(6): 801-9, 2006.
14. Bernstein JA, Alexis N, Bacchus H, et al. "The Health Effects of Non-Industrial Indoor Air Pollution." *Journal of Allergy and Clinical Immunology*, 121(3): 585-91, 2008.
15. Center for Disease Control and Prevention. "Adult Blood Lead Epidemiology and Surveillance --- United States, 2003-2004." *Morbidity and Mortality Weekly Report*, 55(32): 876-879, 2006.
16. Hager LD. "Hearing Protection. Didn't Hear It Coming...Noise and Hearing in Industrial Accidents " *Occupational Health and Safety*, 71(9): 196-200, 2002.
17. Nelson DI, Nelson RY, Concha-Barrientos M, et al. "The Global Burden of Occupational Noise-Induced Hearing Loss." *American Journal of Industrial Medicine*, 48(6): 446-458, 2005.
18. Karasek RA and Theorell T. *Healthy Work: Stress, Productivity and the Reconstruction of Working Life*. New York: Basic Books, 1990.
19. Marmot M, Bosma H, Hemingway H, et al. "Contribution of Job Control and Other Risk Factors to Social Variations in Coronary Heart Disease Incidence." *Lancet*, 350: 235-239, 1997.
20. Sparks K, Faragher B, Cooper CL. "Well-Being and Occupational Health in the 21st Century." *Journal of Occupational and Organizational Psychology*, 74: 489-508, 2001.
21. Spurgeon A, Harrington JM, Cooper CL. "Health and Safety Problems Associated with Long Working Hours: A Review of the Current Position." *Occupational and Environmental Medicine*, 546: 367-375, 1997.
22. Caruso CC, Hitchcock EM, Dick RB, et al. *Overtime and Extended Work Shifts: Recent Findings on Illnesses, Injuries, and Health Behaviors*. Washington, DC: Department of Health and Human Services, National Institute for Occupational Safety and Health, 2004.
23. Pisarski A. *Commuting in America III : The Third National Report on Commuting Patterns and Trends*. Washington, DC: Transportation Research Board, 2006.
24. Evans GW, Wener RE. "Rail Commuting Duration and Passenger Stress." *Health Psychol*, 25(3): 408-12, 2006.
25. Kluger AN. "Commute Variability and Strain." *Journal of Organizational Behavior*, 19(2): 147-165, 1998.
26. Lopez-Zetina J, Lee H, Friis R. "The Link between Obesity and the Built Environment. Evidence from an Ecological Analysis of Obesity and Vehicle Miles of Travel in California." *Health Place*, 12(4): 656-64, 2006.
27. Besser LM, Marcus M, Frumkin H. "Commute Time and Social Capital in the U.S." *American Journal of Preventive Medicine*, 34(3): 207-11, 2008.
28. 2007 American Community Survey. *United States Selected Economic Characteristics: 2007*. Washington, DC: U.S. Census Bureau, 2007.
29. Cole BL, Agyekum G, Hoffman S, et al. *Mass Transit Health Impact Assessment: Potential Health Impacts of the Governor's Proposed Redirection of California State Transportation Spillover Funds*. Los Angeles, CA: UCLA School of Public Health, 2008.
30. Boden LI. "Running on Empty: Families, Time, and Workplace Injuries." *American Journal of Public Health*, 95(11): 1894-7, 2005.
31. Frone MR. "Work-Family Conflict and Employee Psychiatric Disorders: The National Comorbidity Survey." *Journal of Applied Psychology*, 85(6): 888-95, 2000.
32. de Lange AH, Taris TW, Kompier MA, et al. "'The Very Best of the Millenium': Longitudinal Research and the Demand-Control-(Support) Model." *Journal of Occupational Health Psychology*, 8(4): 282-305, 2003.
33. Stansfeld S, Bosma H, Hemingway H, et al. "Psychosocial Work Characteristics and Social Support as Predictors of Sf-36 Health Functioning: The Whitehall II Study." *Psychosomatic Medicine*, 60(3): 247-55, 1998.
34. Kuper H, Singh-Manoux A, Siegrist J, et al. "When Reciprocity Fails: Effort-Reward Imbalance in Relation to Coronary Heart Disease and Health Functioning within the Whitehall II Study." *Occup Envrion Med*, 59(11): 777-84, 2002.
35. Stansfeld S, Shipley M, Marmot M. "Work Characteristics Predict Psychiatric Disorders: Prospective Results from the Whitehall II Study." *Occupational and Environmental Medicine*, 56, 1999.

36. Head J, Kivimaki M, Siegrist J, et al. "Effort-Reward Imbalance and Relational Injustice at Work Predict Sickness Absence: The Whitehall II Study." *Journal of Psychosomatic Research*, 63(4): 433-40, 2007.
37. Kivimaki M, Ferie JE, Head J, et al. "Organisational Justice and Change in Justice as Predictors of Employee Health: The Whitehall II Study." *Journal of Epidemiology and Community Health*, 58(11): 931-7, 2004.
38. Kivimaki M, Vahtera J, Elovainio M, et al. "Effort-Reward Imbalance, Procedural Injustice and Relational Injustice as Psychosocial Predictors of Health: Complementary or Redundant Models?" *Occupational and Environmental Medicine*, 64(10): 659-65, 2007.
39. Stansfeld SA, Rael EGS, Head J, et al. "Social Support and Psychiatric Sickness Absence: A Prospective Study of British Civil Servants." *Psychological Medicine*, 27: 35-48, 1997.
40. Stansfeld SA, Head J, Marmot MG. "Explaining Social Class Differences in Depression and Well-Being." *Social Psychiatry and Psychiatric Epidemiology*, 33(1): 1-9, 1998.
41. Williams DR, Neighbors HW, Jackson JS "Racial/Ethnic Discrimination and Health: Findings from Community Studies." *American Journal of Public Health*, 93(2), 2003.
42. Blascovich J, Spencer SJ, Quinn D, et al. "African Americans and High Blood Pressure: The Role of Stereotype Threat." *Psychological Science*, 12(3): 225-229, 2001.
43. Gee GC. "A Multilevel Analysis of the Relationship between Institutional and Individual Racial Discrimination and Health Status." *American Journal of Public Health*, 92(4): 615-23, 2002.
44. Pavalko EK, Mossakowski KN, Hamilton VJ. "Does Perceived Discrimination Affect Health? Longitudinal Relationships between Work Discrimination and Women's Physical and Emotional Health." *Journal of Health and Social Behavior*, 43: 18-33, 2003.
45. Bauer AM and Boyce WT. "Prophecies of Childhood: How Children's Social Environments and Biological Propensities Affect the Health of Populations." *International Journal of Behavioral Medicine*, 11(3): 164-75, 2004.
46. Hertzman C and Power C. "Health and Human Development: Understandings from Life-Course Research." *Developmental Neuropsychology*, 24(2-3): 719-44, 2003.
47. McEwen BS. "Stress, Adaptation, and Disease. Allostasis and Allostatic Load." *Annals of the New York Academy of Sciences*, 840: 33-44, 1998.
48. Steptoe A and Marmot M. "The Role of Psychobiological Pathways in Socio-Economic Inequalities in Cardiovascular Disease Risk." *European Heart Journal*, 23(1): 13-25, 2002.
49. Taylor SE, Repetti RL, Seeman T. "Health Psychology: What Is an Unhealthy Environment and How Does It Get under the Skin?" *Annual Review of Psychology*, 48: 411-47, 1997.
50. McEwen BS. "Protective and Damaging Effects of Stress Mediators: Central Role of the Brain." *Dialogues in Clinical Neuroscience*, 8(4): 367-381, 2006.
51. Seeman TE, McEwen BS, Rowe JW, et al. "Allostatic Load as a Marker of Cumulative Biological Risk: Macarthur Studies of Successful Aging." *Proceedings of the National Academy of Sciences U S A*, 98(8): 4770-5, 2001.
52. Seeman TE, Singer BH, Rowe JW, et al. "Price of Adaptation--Allostatic Load and Its Health Consequences. Macarthur Studies of Successful Aging." *Archives of Internal Medicine*, 157(19): 2259-68, 1997.
53. Price RH and Burgard SA. "The New Employment Contract and Worker Health in the United States." In: *Making Americans Healthier: Social and Economic Policy as Health Policy*, Schoeni R, House J, Kaplan G, Pollack H, editors. New York: Russell Sage Foundation, 2008.
54. *A Profile of the Working Poor, 2006*. Washington, DC: U.S. Department of Labor, U.S. Bureau of Labor Statistics, 2008.
55. *Employee Benefits in the United States, March 2008*. Washington, D C : U.S. Department of Labor, Bureau of Labor Statistics, 2008.
56. Kaiser Family Foundation. *Health Benefit Offer Rates and Employee Earnings*. Accessed November 26, 2008. http://www.kff.org/insurance/snapshot/chcm081508oth.cfm.
57. Goetzel RZ, Ozminkowski RJ. "The Health and Cost Benefits of Work Site Health-Promotion Programs." *Annual Review of Public Health*, 29: 303-23, 2008.
58. Linnan L, Bowling M, Childress J, et al. "Results of the 2004 National Worksite Health Promotion Survey." *American Journal of Public Health*, 98(8): 1503-9, 2008.
59. Center for Disease Control and Prevention. *Influenza Symptoms, Protection, and What to Do If You Get Sick*. Accessed November 18, 2008. http://www.healthservices.umb.edu/PDF%20files/General%20Medicine/Influenza%20Symptoms.pdf.
60. Cantor D, Waldfogel J, Kerwin J, et al. *Balancing the Needs of Families and Employer: Family and Medical Leave Surveys*. Rockville, MD: Department of Labor, 2000.
61. Matthews H. *Child Care Assistance Helps Families Work: A Review of the Effects of Subsidy Receipt on Employment*. Washington, DC: Center for Law and Social Policy, 2006.
62. Pitts-Catsouphes M. Analysis of Data from the National Study of the Changing Workforce Data, 2002. Unpublished Raw Data, 2006.
63. Heymann J, Boynton-Jarrett R, Carter P, et al. *Work-Family Issues and Low-Income Families*. New York, NY: Work, Family, and Democracy Initiative at Harvard University; Families and Work Institute, 2002.
64. Galinsky E, Bond JT, Sakai K. *2008 National Study of Employers*. New York, NY: Families and Work Institute, 2008.
65. Schoeni RF, Freedman VA, Martin LG. "Why Is Late-Life Disability Declining?" *Milbank Q*, 86(1): 47-89, 2008.
66. Butrica BA, Toder EJ. *Are Low-Wage Workers Destined for Low Income at Retirement?* Washington, DC: The Urban Institute, The Retirement Policy Program, 2008.
67. Cheeseman J, Newberger EC. "The Big Payoff: Educational Attainment and Synthetic Estimates of Work-Life Earnings." *Occupational Outlook Quarterly*, 2002.
68. Office of Employment and Unemployment Statistics, Division of Labor Force Statistics. *Labor Force Characteristics by Race and Ethnicity, 2007*. Washington, DC: U.S. Department of Labor, U.S. Bureau of Labor Statistics, 2008.
69. Volkers AC, Westert GP, Schellevis FG. "Health Disparities by Occupation, Modified by Education: A Cross-Sectional Population Study" *BMC Public Health*, 7, 2007.

70. Lucas R. "The Distribution of Job Characteristics." *Review of Economics and Statistics*, 56: 530-540, 1974.
71. Robinson JC. "Hazardous Occupations within the Job Hierarchy." *Industrial Relations*, 27(2), 1988.
72. Quinn MM, Sembajwe G, Stoddard AM, et al. "Social Disparities in the Burden of Occupational Exposures: Results of a Cross-Sectional Study." *American Journal of Industrial Medicine*, 50(12): 861-875, 2007.
73. Collins SR, Davis K, Doty MM, et al. *Wages, Health Benefits, and Workers' Health*. New York, NY: The Commonwealth Fund, 2004.
74. Bartley M and Plewis I. "Accumulated Labour Market Disadvantage and Limiting Long-Term Illness: Data from the 1971-1991 Office for National Statistics' Longitudinal Study." *International Journal of Epidemiology*, 31(2): 336-41, 2002.
75. Martikainen P and Valkonen T. "Excess Mortality of Unemployed Men and Women During a Period of Rapidly Increasing Unemployment." *Lancet*, 348(9032): 909-12, 1996.
76. Wilkinson R and Marmot M. *Social Determinants of Health. The Solid Facts.* Geneva: World Health Organization, 2003.
77. Bartley M, Ferrie J, Montgomery SM. "Health and Labor Market Disadvantage: Unemployment, Non-Employment, and Job Insecurity." In: *Social Determinants of Health* Marmot M, Wilkinson RG, editors. 2nd ed. Oxford: Oxford University Press, 2006.
78. Korpi T. "Accumulating Disadvantage: Longitudinal Analyses of Unemployment and Physical Health in Representative Samples of the Swedish Population." *European Sociological Review*, 17(3): 255-73, 2001.
79. Montgomery SM, Cook DG, Bartley M, et al. "Unemployment Pre-Dates Symptoms of Depression and Anxiety Resulting in Medical Consultation in Young Men." *International Journal of Epidemiology*, 28(1): 95-100, 1999.
80. Janlert U. "Unemployment and Blood Pressure in Swedish Building Labourers." *Journal of Internal Medicine*, 231(3): 241-6, 1992.
81. de Wolff A. *Employment Insecurity and Health*. Antigonish, Nova Scotia: National Collaborating Centre for Determinants of Health, 2008.
82. *The Employment Situation: October 2008*. Washington, DC: U.S. Department of Labor, Bureau of Labor Statistics, 2008.
83. Gatty CM, Turner M, Buitendorp DJ, et al. "The Effectiveness of Back Pain and Injury Prevention Programs in the Workplace." *Work*, 20(3): 257-266, 2003.
84. van der Molen H, Lehtola MM, Lappalainen J, et al. "Interventions for Preventing Injuries in the Construction Industry." *Cochrane Database of Systematic Reviews*, (4), 2007.
85. U.S. Department of Health and Human Services. *Healthy People 2010. 2nd Ed. With Understanding and Improving Health and Objectives for Improving Health.* . Washington, DC: US Government Printing Office, 2000.
86. Proceedings of the Task Force Meeting: Worksite Reviews; 2007; Atlanta, GA.
87. Chapman LS. "Meta-Evaluation of Worksite Health Promotion Economic Return Studies: 2005 Update." *American Journal of Health Promotion*, 19(6): 1-11, 2005.
88. Brownson RC, Hopkins DP, Wakefield MA. "Effects of Smoking Restrictions in the Workplace." *Annual Review of Public Health*, 23: 333-48, 2002.
89. Schneider SS and Hamrick CA. "Public Employers Ergonomics: Best Practices." *Journal of Occupational and Environmental Hygiene*, 1(4), 2004.
90. Moen P, Kelly E, Chermack K. "Learning from a National Experiment: Studying a Corporate Work-Time Policy Initiative." In: *Work-Life Policies That Make a Real Difference for Individuals, Families, and Organizations.*, Crouter AC, Booth A, editors. Washington, DC: Urban Institute Press, 2007.
91. Ball TM and Bennett DM. "The Economic Impact of Breastfeeding." *Pediatric Clinics of North America*, 48(1): 253-262, 2001.
92. Ozminkowski RJ, Ling D, Goetzel RZ, et al. "Long-Term Impact of Johnson & Johnson's Health & Wellness Program on Health Care Utilization and Expenditures." *Journal of Occupational and Environmental Medicine*, 44(1): 21-29, 2002.
93. Aldana SG, Merrill RM, Price K, et al. "Financial Impact of a Comprehensive Multisite Workplace Health Promotion Program." *Preventive Medicine*, 40(2): 131-7, 2005.
94. Schochet PZ, Burghardt J, McConnell S. *National Job Corps Study and Longer-Term Follow-up Study: Impact and Benefit-Cost Findings Using Survey and Summary Earnings Records Data*. Princeton, NJ: Mathematica Policy Research, Inc., 2006.

ADDITIONAL RESOURCES

- California Task Force on Youth and Workplace Wellness, http://www.wellnesstaskforce.org/about.html
- Center for Disease Control and Prevention, Healthier Worksite Initiative, http://www.cdc.gov/nccdphp/dnpa/hwi/index.htm
- Families and Work Institute, http://www.familiesandwork.org/
- Institute for Work & Health, http://www.iwh.on.ca/
- Job Stress Network, http://www.workhealth.org/
- National Business Group on Health, http://www.businessgrouphealth.org/
- Sloan Work and Family Research Network at Boston College, http://wfnetwork.bc.edu/
- The Health Project, http://healthproject.stanford.edu/koop/work.html
- The National Institute for Occupational Safety and Health (NIOSH), http://www.cdc.gov/niosh/
- NIOSH WorkLife Initiative, http://www.cdc.gov/niosh/worklife/
- The Partnership to Fight Chronic Disease, http://promisingpractices.fightchronicdisease.org/
- U.S. Department of Labor Occupational Safety & Health Administration (OSHA), http://www.osha.gov/
- Wellness Council of America, http://www.welcoa.org/