



Occupational Safety and Health

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PROGRESS REVIEW



In the 18th session in the second series of assessments of *Healthy People 2010*, Acting Assistant Secretary for Health Donald Wright chaired a Progress Review on Occupational Safety and Health. He was assisted by staff of the lead agency for this *Healthy People 2010* focus area, the Centers for Disease Control and Prevention (CDC) National Institute for Occupational Safety and Health (NIOSH). Also participating in the review were representatives from other offices and agencies within the U.S. Department of Health and Human Services (HHS) and the U.S. Department of Labor (DOL), including representatives from the Bureau of Labor Statistics (BLS) and the Occupational Safety and Health Administration (OSHA). Dr. Wright, who was formerly the Director of the Office of Occupational Medicine at OSHA, observed that occupational safety and health is an area in which the Nation has made great gains. Injury and death rates have fallen sharply in the period since the founding of OSHA and NIOSH in 1970. During that time the number of workers in the United States has doubled. Still, even with consistent progress, a great deal remains to be done.

The complete November 2000 text for the Occupational Safety and Health focus area of *Healthy People 2010* is available online at www.healthypeople.gov/document/html/volume2/20ocsh.htm. Revisions to the focus area chapter that were made after the January 2005 Midcourse Review are available at www.healthypeople.gov/data/midcourse/html/focusareas/fa20toc.htm. Additional data used in the Progress Review for this focus area's objectives and their detailed definitions can be accessed at wonder.cdc.gov/data2010. For comparison with the current state of the focus area, the report on the first-round Progress Review (held on February 18, 2004) is archived at www.healthypeople.gov/data/2010prog/focus20/2004fa20.htm. The meeting agenda, tabulated data for all focus area objectives, charts, and other materials used in the Progress Review can be found at a companion site maintained by the CDC National Center for Health Statistics (NCHS): www.cdc.gov/nchs/about/otheract/hpdata2010/focusareas/fa20-osh2.htm.

Data Trends

In his overview of data for the focus area, NCHS Director Edward Sondik outlined the annual burden of occupation-related injuries, illness, and death in the United States. In 2006, 5,703 deaths related to work were reported (about 16 per day), representing a significant decline since 1996, when 6,112 were reported.

However, the trends in certain industries, namely, mining and agriculture, do not align with the overall decline. Similarly, although the number of cases of pneumoconiosis (e.g., black lung, asbestosis, silicosis) has declined in many areas of the country, in other areas cases are actually increasing. Additionally, more than 4 million

new cases of nonfatal injury or illness occurred in 2006. The estimated yearly cost of occupational injuries and illnesses is \$128 to \$150 billion dollars.

Dr. Sondik noted that this focus area could serve *Healthy People 2010* as a model of success in progress toward attaining the targets of its objectives. Of the 22 objectives and subobjectives in the focus area that were continued after the Midcourse Review of *Healthy People 2010*, 6 have met or exceeded their targets, 11 are improving, 3 are getting worse, 1 has no tracking data available, and 1 remains in developmental status. Dr. Sondik then examined in greater detail the focus area objectives highlighted in the Progress Review.

(Objs. 20-1a, -1b, -1c, -1d, -1e): The rate of occupational fatalities decreased from 4.5 per 100,000 workers aged 16 and older in 1998 to 3.9 per 100,000 in 2006. The 2010 target is 3.2 per 100,000 for all population groups. The rate per 100,000 for males in 2006 was 6.7, compared with 0.6 for females. Overall industry rates have improved in recent years for all population groups for whom data were available, except for black non-Hispanics, whose occupational fatality rate increased slightly from 3.8 per 100,000 workers in 2000 to 3.9 per 100,000 in 2006. In 2006, injury death rates per 100,000 workers aged 16 and older for particular classes of industry were as follows: mining, 27.8—an increase from 23.6 in 1998 (target, 16.5); construction, 10.8—a decrease from 14.5 in 1998 (target, 10.1); transportation, 16.3—an increase from 11.8 in 1998 (target, 8.3); and agriculture, forestry, and fishing, 29.6—an increase from 23.3 in 1998 (target, 16.3).

(Objs. 20-2a, -2b, -2c, -2d, -2e, -2f, -2g, -2h): The rates of work-related injuries resulting in medical treatment, lost time from work, or restricted work activity generally improved overall and for particular classes of industry. In 2006, the overall rate was 4.2 per 100 full-time workers, the lowest rate since the BLS began the survey in 1972. This surpasses the target of 4.3 per 100. Injury rates in 2006 per 100 full-

time workers for particular classes of industry were as follows: construction, 5.8—a decrease from 8.7 in 1998 that surpasses the target of 6.1; health services, 5.4—a decrease from 7.9 in 1998 that surpasses the target of 5.5; agriculture, forestry, and fishing, 5.6—a decrease from 7.6 in 1998 (target, 5.3); transportation, 6.3—a decrease from 7.9 in 1998 (target, 5.5); mining, 3.4—a decrease from 4.7 in 1998 (target, 3.3); and manufacturing, 5.5—a decrease from 8.5 in 1998 that surpasses the target of 6.0. The work-related injury rate per 100 full-time adolescent workers aged 15 to 17 years was 4.4 in 2005, a decrease from 4.9 in 1998. The target is 3.5 per 100.

(Obj. 20-3): Injury and illness involving days away from work due to overexertion or repetitive motion are down from a rate of 675 per 100,000 full-time workers in 1997 to 349 per 100,000 in 2006. The target is 338 per 100,000.

(Obj. 20-4): The number of deaths from pneumoconiosis among people aged 15 years and older decreased from 2,928 in 1997 to 2,531 in 2004, marking significant progress toward the target of 1,900. The exception to the downward trend is deaths from asbestosis, the number of which has increased. These are long-term trends, as pneumoconiosis diseases are typically chronic, and much time may elapse from initial exposure, to diagnosis, to death.

(Obj. 20-7): The target of zero cases of elevated blood lead concentrations equal to or greater than 25 $\mu\text{g}/\text{dL}$ per 100,000 workers will likely not be reached by 2010. However, the rate is down, from 12.1 in 1998 to 7.4 in 2005.

(Obj. 20-8): The rate of occupational skin diseases or disorders declined from 67 new cases per 100,000 full-time workers in 1997 to 45 new cases per 100,000 in 2002, surpassing the target of 47.

Key Challenges and Current Strategies

Representatives from NIOSH presented on principal themes of the focus area: Christine Branche, Principal Associate Director; Steven Sauter, Senior Scientist, Division of Applied Research and Technology; James Grosch, Research Psychologist, Division of Applied Research and Technology; Mark Stephenson, Senior Research Audiologist, Division of Applied Research and Technology; and Lewis Wade, Senior Science Advisor. Their statements and Progress Review briefing materials identified a number of barriers to achieving the objectives, as well as activities under way to meet these challenges, including the following.

Barriers

- It is difficult for the public to understand the scale and impact of occupational injuries and illness. Also, there is a widespread and incorrect belief that certain preventable conditions are an acceptable risk of employment.
- Despite the progress of occupational research, including the establishment of the National Occupational Research Agenda (NORA I and NORA II) and the Research to Practice (r2p) initiative, gaps in scientific knowledge regarding occupational health remain.
- Disparities in occupational health are growing. The number of Hispanic worker deaths in 2006 (937) is nearly double that in 1992 (532). The number of Hispanic workers is increasing, and Hispanic workers tend to be employed in riskier occupations, such as construction, agriculture, and manufacturing.
- The U.S. workforce is aging—the greatest growth in number of workers is currently in the 50 years and older age group—and the potential effects cut across various categories of work. Older workers do not recover as well from injury and, typically, remain away from work longer. The trend in fatal workplace injuries has increased dramatically for workers aged 65 and older. However, their risk for nonfatal injuries and illness has leveled off.
- In 2006, nonfatal occupational injuries numbered more than 3.9 million cases. Nonfatal occupational injury rates are highest for young workers and decrease with age. Inexperience and minimal training in occupational safety and health likely contribute to their higher rates.
- The organization of work is changing. With the shifts in types of jobs and sectors of employment in the United States, fewer workers have full-time, dayshift, year-round positions. The great increase in recent years in the use of contractors means that an increasing proportion of the workforce is without health insurance coverage. More and more workers use telework options. Still, the average number of annual hours worked by Americans continues to be higher than that for workers in most other industrialized countries.
- Changes in work organization may be related to a general increase in frequent mental distress among wage earners. Seven percent of full-time workers experienced a major depressive event in 2007. On average, workers experiencing high levels of stress will each cost their employers around \$600 annually in increased health care utilization.
- Working at home continues on an upward trend, but multiple studies on work settings show that the risks for stress and work overload are higher among people who are at home. The number of children and others in the household who are in need of care amplifies those risks.
- Work-related hearing loss accounts for approximately 10 percent of nonfatal occupational illnesses—and is likely underreported. It is the most common occupational illness in the manufacturing sector and its development is insidious, often taking

5 years to be noticed by the worker. The hearing acuity of the average 25-year-old carpenter is like that of a healthy 50-year-old. Data reporting in this area began only recently.

- The mining industry is one of the more challenging sectors—it is growing for the first time since the 1970s, and its workforce is aging. Also, new mines are deeper and can pose more health risks—for example, methane gas and poor mine design. Recent mine disasters at Sago (WV) and Crandall Canyon (UT) have focused more attention and legislation on miner health and safety issues.
- Chemicals and chemical products have been the leading sources of occupational skin diseases or disorders involving days away from work. Although fewer workers in manufacturing are now exposed to such substances, there are emerging hazards, such as nanomaterials.
- The rate of deaths from work-related homicides met its *Healthy People 2010* target of 0.4 per 100,000 workers in 2005. Even with this decrease, an average of 10 workers die in the United States each week as a result of workplace homicide.

Activities and Outcomes

- NORA, a NIOSH program begun in 1996, provides a framework to foster occupational safety and research. NORA I resulted in 21 research priorities and a national research agenda. NORA II initiated a sector-based approach in 2006 to increase focus on individual industries and connect more directly with workers, businesses, and other partners. The eight sectors currently addressed by NORA are agriculture, forestry, and fishing; construction; health care and social assistance; manufacturing; mining; services; transportation, warehousing, and utilities; and wholesale retail and trade.
- The NIOSH r2p initiative systematically translates research results into new technologies, products, and practices for the workplace. Successes of

r2p include development of a new personal dust monitor for assessing coal miners' exposure to coal dust, production of a booklet on engineering measures to prevent injuries on commercial crab-fishing vessels, and contribution of results from NIOSH firefighter fatality investigations to the revision of National Fire Protection Association standards on personal alert safety systems.

- NIOSH was the first Federal Agency to develop and implement an electronic injury surveillance system. By greatly increasing the number of data elements that can be captured, such a system can provide a more comprehensive and accurate picture of the situation at issue.
- The WorkLife initiative, introduced by NIOSH in response to *Steps to a Healthier US*, works to integrate approaches to work and health through better workplace programs, policies, and practices. A recent WorkLife symposium found that many promising health-related worksite practices have been implemented, but many need to be rigorously evaluated.
- NIOSH has worked with DOL to increase reporting on hearing loss and is attempting to establish data points to better assess trends.
- The Fatality Assessment and Control Evaluation (FACE) identifies work situations with high risks of fatal injury through onsite fatality investigations. A current target of FACE investigations is the deaths of Hispanic or immigrant workers. In 2006, NIOSH and its partners conducted 243 FACE investigations, 95 of which were completed, disseminated, and posted on the Web at www.cdc.gov/niosh/face/.
- By means of a new surveillance plan carried out under NORA in partnership with the National Opinion Research Center, NIOSH can now track how job characteristics are changing. Data show that net skill use by U.S. workers has increased significantly since 1977.

- Among its recent accomplishments aimed at improving health and safety standards and practices in the mining industry, NIOSH has fostered design guidelines for retreat mining, recommendations on refuge alternatives, and an improved, self-contained self-rescuer.
- To address workplace homicides and assaults, NIOSH has developed the Workplace Violence Research and Prevention Initiative. This program has enhanced the research program and its outreach. NIOSH also is funding universities and new research grants to develop, evaluate, and adopt interventions to reduce workplace violence.
- The Adult Blood Lead Epidemiology and Surveillance (ABLES) program has expanded to track and respond to cases of excessive lead exposure in adults in 37 States. In addition, the NIOSH technology application “Hand Wipe Method for Detecting Lead” has been licensed commercially and is being marketed. This hand wipe can quickly and easily detect the presence of lead on skin and surfaces and prompt workers to perform more thorough handwashing. This method can reduce lead exposure for more than 10,000 workers and 900,000 children in the United States.

Approaches for Consideration

Participants in the Progress Review made the following suggestions for public health professionals and policymakers to consider as steps to enable further progress toward achieving the objectives for Occupational Safety and Health:

- Raise public awareness of the national impact of occupational illness, injury, and death and of the fact that, to a significant extent, these are preventable.
- Improve surveillance of populations at disproportionate risk for occupational illness and injury and identify research methods, intervention approaches, and dissemination tools to reach these populations.
- To enhance the safety and health of older workers, improve surveillance and focus on at-risk workers and new interventions.
- Give greater attention to assessing the effectiveness of interventions, to determining whether illnesses are, in fact, work-related (taking into account the contribution of nonwork factors), and to translating research into practice.
- Increase inclusion of occupational safety-related items on OSHA logs to enhance the overall quality of data, particularly for hearing loss.
- Target public health efforts and resources more effectively to work-related injury prevention programs, especially in industry sectors in which risk is greatest.
- Encourage industry to step up worker training in the proper use of hearing protectors, which can be very effective when worn correctly.
- To reduce nonfatal occupational injuries and illness, assist employers in developing, evaluating, and adopting effective practices to protect employees from musculoskeletal disorders.
- Promote increased efforts on the part of the mining industry to train workers in advanced escape and rescue techniques.
- Improve tracking of pneumoconiosis cases to explain and address shifts in rates over geographic areas and increases in deaths from asbestosis in particular.

- Because the onset of symptoms of work-related illness and injury may not be closely linked in time to exposure to workplace hazards, take steps to ensure that all relevant applications for workers' compensation are reported to employers and captured in OSHA logs.
- Seek to develop multiple data sources to better capture information about problem areas of the economy where the incidence of occupational injury and illness are particularly high.

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[Signed June 3, 2008]

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