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Country Report

Occupational Safety and Health in the USA: Now and the Future

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Abstract: In the USA, national worker protection legislation was enacted in 1970. The legislation required that research, recommendations and guidance be developed to aid employers and workers, that workplace health and safety standards be adopted, that employer comply with those rules and that the government police employer compliance, and that assistance be offered to employers and workers to help them maintain a safe and healthful workplace. In the 40 yr since passage of the Occupational Safety and Health Act of 1970, worker injury, illness and fatalities have declined but not been eliminated. Efforts to accelerate the standards adoption process are much discussed in the USA along with how to protect workers from emerging hazards like nanotechnology. New strategies which seek to eliminate not only the causes of *work-related* injury and illness, but also more broadly, *worker* injury and illness, are on the horizon.

Key words: Worker safety and health, Standards, Guidance, Enforcement, Prevention through design, Consultation, NIOSH, OSHA

Introduction

By the mid-20th century, the toll of worker injury, illness and death brought increased attention to the study and practice of occupational safety and health. Rules and practices to make work safer and healthier first emerged through consensus standard-setting in professional practice organizations, then through individual state action and finally, in 1970, a national framework for occupational safety and health was adopted in the USA called the Occupational Safety and Health (OSH) Act.

The OSH Act included provisions for: (1) research, recommendations and guidance by a National Institute for Occupational Safety and Health or NIOSH (*http://www.cdc.gov/niosh/);* (2) adoption and enforcement of national occupational safety and health standards by an Occupational Safety and Health Administration or OSHA (*http://www.osha.gov/);* and (3) consultative assistance to employers by both OSHA and NIOSH. Since 1970, the toll of worker injury, illness and death has decreased from the high levels at the beginning of the 20th century, but not eliminated. New strategies are now on the horizon to further help reduce the toll of worker injury, illness and death.

Research, Recommendations and Guidance

NIOSH conducts scientific research into traditional and emerging workplace hazards across all industries, including the most hazardous like construction, mining, agriculture and manufacturing. Research has led to the issuance of authoritative recommendations about to how to best protect workers against many chemical, physical and biological agents, including asbestos, crystalline silica, beryllium, and diacetyl (popcorn butter flavoring). NIOSH

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also engages in research on work organization and stress, occupational health disparities, workplace violence and other emerging hazards such as nanotechnology.

NIOSH also engages in certification of personal protective equipment like respirators. In addition to conducting scientific research and certifying respirators, NIOSH also conducts individual radiation dose reconstructions for current and former atomic weapons workers under authority of the Energy Employees Occupational Illness Compensation Act of 2000 and administers the World Trade Center Health Program for those who responded to, or survived, the September 11, 2001, terrorist attacks.

Standards Adoption

After a spurt of standards adoption activity from 1970 to 1980, the pace of OSHA standards adoption slowed considerably in the early 1980s. The occupational safety and health standards adoption process has even been described as "ossified" and various ways have been suggested to stimulate adoption of needed standards[1], but the major cause of the low pace may lie in the various requirements added to the standards adoption process in the last 40 yr[2]. Of particular concern to safety and health practitioners is that many of the occupational exposure limits for air contaminants have not been updated by OSHA since they were first adopted in 1972.

Only one occupational health standard has been adopted in the past ten years related to hexavalent chromium exposure. Despite the slow pace of adoption historically, OSHA in 2011 still plans for the future adoption of several standards, including workplace standards for crystalline silica, beryllium, infectious diseases, combustible dust, and a management safety and health standard called the injury and illness prevention program[3]. Importantly, OSHA is currently finalizing revision of its Hazard Communication Standard (29 C.F.R. 1910.1200) to include the United Nation's international consensus standard known as the Globally Harmonized System of Classification and Labeling of Chemicals (GHS)[4].

Standards Enforcement

How vigorously enforcement responsibilities are discharged has been a persistent topic of review since the OSH Act was passed. The balance OSHA strikes between assisting employers to comply with its standards[5] versus penalizing employers for not complying are inherent aspects of standards enforcement[6]. The ten most frequently cited standards remain fairly constant from year to year and include violations of standards on scaffolding, fall protection, hazard communication, respiratory protection, lockout/tagout, electrical wiring methods, powered industrial trucks, ladders, general electrical requirements and machine guarding[7].

The size of monetary penalties assessed by OSHA is also a persistent topic of review. In 2010, OSHA announced it was launching a new "*Severe Violator Enforcement Program (SVEP)*". The SVEP is intended to focus OSHA enforcement resources on recalcitrant employers who endanger workers by demonstrating indifference to their responsibilities under the law. This supplemental enforcement tool includes increased OSHA inspections in these worksites, including mandatory OSHA follow-up inspections, and inspections of other worksites of the same employer where similar hazards and deficiencies may be present[8].

As a part of SVEP, OSHA also took steps to administratively increase the amount of the employer is fined for not complying with an OSHA standard. Currently, the maximum penalty by law for a serious violation, one capable of causing death or serious physical harm, is only $7,000 and the maximum penalty for a willful violation is $70,000. OSHA made several administrative changes to its Field Operations Manual. These changes are expected to increase the average penalty for a serious violation from about $1,000 to an average $3,000 to $4,000. To date, Congressional efforts to increase the maximum amount of various civil penalties proposed by OSHA have not succeeded.

Government Assistance

The OSH Act provides two ways for employees or employers to get help from NIOSH or OSHA. They can request a health hazard evaluation from NIOSH or a consultative assistance visit from safety and health professionals funded by OSHA primarily from academic or state government occupational safety and health agencies.

First, employees, employee representatives, or employers can ask NIOSH to help learn whether health hazards are present at their place of work. NIOSH may provide assistance and information by phone and in writing, or may visit the workplace to assess exposure and employee health. Based on their findings, NIOSH will recommend ways to reduce hazards and prevent work-related illness. The evaluation is done at no cost to the employees, employee representatives, or employers.

Second, employers may obtain assistance free-of-charge from safety and health professionals funded by cooperative agreements between OSHA and state agencies or universities. A consultation visit parallels what happens during an enforcement inspection, except no penalties are assessed for violations that are identified and corrected.

In addition, the OSHA Voluntary Protection Program (VPP) recognizes employers and workers in the private industry and in federal government agencies who have implemented effective safety and health management systems and maintain injury and illness rates below national Bureau of Labor Statistics' averages for their respective industries. In VPP, management, labor, and OSHA work cooperatively and proactively to prevent fatalities, injuries, and illnesses through a system focused on: hazard prevention and control; worksite analysis; training; and management commitment and worker involvement. To participate, employers must submit an application to OSHA and undergo a rigorous onsite evaluation by a team of safety and health professionals. Despite concerns about OSHA decreasing funding for VPP, OSHA has recently expressed strong support for the value of VPP.

Looking to the Future

Nanotechnology

Nanotechnology is touted as a transformative technology that is predicted to improve many aspects of human life[9]. Greater understanding of potential risks to consumers, the environment and to workers from some nanomaterials is emerging through scientific research. Adopting a standard to protect workers from nanotechnology risks may take many years because the risks to workers have not been sufficiently characterized. However, NIOSH has developed guidance to protect nanotechnology workers, including *"Approaches to Safe Nanotechnology: Managing the Health and Safety Concerns Associated with Engineered Nanomaterials*"[10], and a draft document entitled "*Current Intelligence Bulletin: Occupational Exposure to Carbon Nanotubes and Nanofibers"*[11].

Prevention-through-Design (PtD)

Addressing occupational safety and health needs in the design process to prevent or minimize the work-related hazards and risks associated with the construction, manufacture, use, maintenance, and disposal of facilities, materials, and equipment is called "prevention through design (PtD)"[12]. NIOSH is leading a PtD National Initiative to promote this concept and highlight its importance in all business decisions.

A growing number of business leaders are recognizing PtD as a cost-effective means to enhance occupational safety and health. Many U.S. companies openly support PtD concepts and have developed management practices to implement them. For example, the American Standards Institute, in collaboration with the American Society of Safety Engineers, adopted a new 2012 PtD consensus standard for design and redesign processes[13]. Researchers with Sustainability Construction Safety and Health developed a rating system to assess the degree to which occupational safety and health concerns are addressed in construction projects[14]. Rating tools such as these applied to proposed project plans can provide an incentive to include occupational safety and health elements into "green and sustainable" initiatives.

Total Worker Health™

Total Worker Health™ is a strategy integrating traditional occupational safety and health *protection* practices with health *promotion* strategies not only to prevent injury and illness among workers, but also to advance their health and well-being. There is increasing evidence that the work environment and the overall health, safety and well-being of the workers within it are strongly connected[15]. Diminished health and injury, whether caused by work *or* resulting from non-work activities, reduces quality of life, limits opportunity, reduces organizational productivity, blunts income for workers and those dependent upon them, threatens the viability of the enterprise of which they are apart, and ultimately negatively impacts the nation's economy. Conversely, workplaces with low risk of injury and enhanced opportunities for the total health of workers can lead to a vibrant, engaged and highly performing workforce. NIOSH first launched an initiative to address total worker health in 2004 and now conducts research on the integration of health protection and health promotion through both intramural and extramural programs[16].

The Next 40 Years

In 1970, national legislation was enacted in the USA to "assure as far as possible every working man and woman in the Nation safe and healthful working conditions". There is no doubt that working conditions today are safer and more healthful for many, but much work remains to be done to honor the Congressional promise made 40 yr ago. Stubborn issues like the pace of the standard-setting pro-

cess needs to be addressed, how effectively enforcement responsibilities are carried out needs vigilant attention, the complimentary role of consultation versus enforcement needs to achieve an appropriate balance, emerging hazards like nanotechnology need to be studied, and new strategies like PtD and Total Worker Health™ need to be examined to keep the promise made to American workers 40 yr ago. The future for occupational safety and health in the USA is bright as long as the level of commitment by government, occupational safety and health practitioners, researchers, employers and workers remains strong.

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