



Occupational Health and Safety Surveillance an Ongoing Survey to Identify Occupational Hazards and Workers at Potential High Risk

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Introduction

Occupational hazard surveillance is the ongoing and systematic collection, analysis, interpretation, and dissemination of current and historic data on occupational hazards, hazard controls, and new processes and technologies for the purpose of prevention of disease or injury in the workplace.⁽¹⁾ Surveillance activity, particularly hazard surveillance, has been identified as one of the highest priorities at the National Institute for Occupational Safety and Health (NIOSH).

Existing NIOSH hazard surveillance data are primarily contained in databases from the 1972–1974 National Occupational Hazard Survey, the 1981–1983 National Occupational Exposure Survey,

and the 1984–1989 National Occupational Health Survey of Mining, and in data systems of the individual NIOSH divisions. The three NIOSH surveys profiled occupational exposures to chemical, physical, and biological agents in the American workplace, and these data have been used extensively by such governmental agencies as NIOSH, the Occupational Safety and Health Administration, the Environmental Protection Agency, the National Toxicology Program, and the National Cancer Institute to help establish and direct research programs. However, these existing surveillance databases may no longer accurately reflect current conditions of occupational exposure and therefore need to be updated. Since the resources to fully repeat and update these NIOSH surveys are not currently available, other means to identify, characterize, and prioritize hazardous workplace exposures and conditions

are needed to address the deficiencies in existing hazard surveillance systems.

In one such effort, the Hazard Section of the Surveillance Branch of NIOSH's Division of Surveillance, Hazard Evaluations, and Field Studies initiated the Selected Occupational Hazard Surveillance Project to identify and study selected hazardous occupational exposures or conditions. This project will also be used to provide a means to identify candidates for ongoing NIOSH research on worker exposures and is expected to help promote the design and implementation of necessary engineering control technologies and interventions intended to prevent disease or injury in the workplace.

Methods

Initially, our main focus has been to subjectively identify the hazards and populations at risk that may have been overlooked historically, or even to uncover previously recognized hazards which may now be found in new circumstances or emerging technologies. The professional opinions of occupational safety and health professionals, both within and outside of NIOSH, were sought regarding potentially hazardous industries, jobs, or work practices which may have been inadequately studied in the past. These areas or topics of concern might involve, for example, exposure to a specific chemical, biological, or physical agent, a specific work practice, an industrial process, or worksite job stressors. Subjective or objective justification for suggested topics of concern was also requested. We sought these opinions to provide a general, overall view of which hazards were perceived to be of most concern in the occupational safety and health community. These opinions will be used as added input to NIOSH in targeting potential occupational exposures suitable for in-field research by the Hazard Section.

Requests were sent to 177 occupational safety and health professionals from

TABLE 1. Top 20 External Responses to Survey (at Least Two Responses)

Rank	Topic	External Responses	Total Responses
1.	Hazardous waste sites	9	15
2.	Ergonomics	7	23
	Indoor air quality	7	9
4.	Construction	6	11
	Healthcare workers	6	8
6.	Maintenance activities	5	14
	Agriculture	5	11
	Recycling industry	5	5
9.	Silica	2	11
	Noise	2	8
	Lead	2	6
	Bioaerosols	2	5
	Painters	2	5
	Isocyanates	2	4
	Younger workers	2	4
	Electromagnetic fields (EMF)	2	3
	Reproductive/developmental hazards	2	3
	Small businesses	2	3
	Methylene chloride	2	2
	Plastics	2	2

TABLE 2. Top 40 NIOSH Responses to Survey (at Least Two Responses)

Rank	Topic	NIOSH Responses	Total Responses
1.	Ergonomics	16	23
2.	Maintenance activities	9	14
	Silica	9	11
4.	Hazardous waste sites	6	15
	Agriculture	6	11
	Noise	6	8
7.	Construction	5	11
8.	Lead	4	6
	Metalworking fluids	4	5
	Respirator usage	4	4
9.	Bioaerosols	3	5
	Painters	3	5
	Cosmetologists/beauticians	3	4
	Animal handlers	3	3
	Diesel exhaust	3	3
	Fall protection	3	3
15.	Indoor air quality	2	9
	Healthcare workers	2	8
	Isocyanates	2	4
	Younger workers	2	4
	Mining	2	3
	Older/elderly workers	2	3
	Pesticides	2	3
	Fast food workers	2	3
	Glutaraldehyde	2	3
	Heat stress	2	3
	Infectious diseases	2	3
	Sodium azide	2	3
	Asbestos	2	2
	Automobile repair	2	2
	Biotechnology workers	2	2
	Carbon monoxide	2	2
	Decomposition products	2	2
	Diesel exhaust	2	2
	Formaldehyde	2	2
	Freon substitutes	2	2
	Greenhouse workers	2	2
	Ladders and scaffolds	2	2
	Lawn care industry	2	2
	Nitrous oxide	2	2
	Take-home toxins	2	2
	Tuberculosis	2	2

hazard topics. Table 1 lists all the topics that were nominated two or more times by the external respondents, and also indicates the total number of responses from both outside and within NIOSH for that topic. The hazards or workers at risk that were mentioned most by the external respondents generally correspond to areas for which NIOSH has major initiatives, notably ergonomics, indoor air quality, construction, agriculture, silica, noise, and lead.

Table 2 lists all topics that were nominated two or more times by NIOSH researchers, and also indicates the total overall number of responses received for that particular potential problem area. A complete listing of these topics is available through the NIOSH toll-free number: (800) 35-NIOSH (the NIOSH Survey to Identify Occupational Hazards).

The top ten candidates from all responses were ergonomics, hazardous waste sites, maintenance activities, construction, agriculture, silica, indoor air quality, healthcare workers, noise, and lead (see Table 3).

In one initial application, data from this effort are being used in the formulation of the National Occupational Research Agenda, which will establish priorities for workplace research over the next decade based on a determination of the potential for the greatest impact on reducing workplace injury, disease, and death.

Future Plans

The suggested topics list will be used to help prioritize potential occupational exposures or stressors for in-field research by the Hazard Section by associating candidates with such factors as the number of workers affected, the potential toxicological or physical severity of the hazard, epidemiological evidence, existing standards or sampling methodologies, and environmental controls. Other factors to be considered are an absence of research data and whether the topic could be studied within the constraints of existing resources.

It is planned to request similar input on an annual basis, and to share the results with interested parties. Input will be sought from the occupational safety and health community regarding the appropriateness of the existing candidate list and whether data are available to assist NIOSH in better prioritizing and evalu-

industry, labor, academia, private consulting firms, and other government agencies; among the groups included were the NIOSH Educational Resource Centers, the Council of State and Territorial Epidemiologists, and participants in the Sentinel Event Notification System for Occupational Risks. In addition, input was requested from 252 research-

ers within NIOSH (industrial hygienists, engineers, epidemiologists, occupational physicians, biologists, psychologists, safety specialists, etc.).

Results

Of the 429 individuals that were asked to participate, 108 (25%) responded, resulting in over 350 individual suggestions for

TABLE 3. Top Ten Overall Responses

Rank	Topic	Responses		
		Total	External	NIOSH
1.	Ergonomics	23	7	16
2.	Hazardous waste sites	15	9	6
3.	Maintenance activities	14	5	9
4.	Construction	11	6	5
	Agriculture	11	5	6
	Silica	11	2	9
7.	Indoor air quality	9	7	2
8.	Healthcare workers	8	6	2
	Noise	8	2	6
10.	Lead	6	2	4

ating candidates for future field studies. The list of potential participants will be continuously updated in order to form as representative a respondent group as possible. A pilot attempt has been made to utilize the expanding potential of the internet as a tool for gathering professional opinions regarding areas of occupational health and safety concern, and this effort will continue in order to reach as large an audience as possible.

Reference

1. Greife, A.; Halperin, W.; Groce, D.; et al.: Hazard Surveillance: Its Role in Primary Prevention of Occupational Disease and Injury. *Appl. Occup. Environ. Hyg.* 10(9): 737-742 (1995).

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