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Occupational Health and Safety Surveillance

Surveillance of Safety and Health Programs and Needs in Small U.S. Businesses

Alice Greife, Column Editor

Reported by T. J. Lentz, W. K. Sieber, J. H. Jones, G. M. Piacitelli, and L. R. Catlett

Small businesses comprise a vital and significant portion of the U.S. economy, accounting for the employment of more than half (56%) of the workforce in private industry.[1] Establishments with fewer than 100 employees make up 98 percent of all U.S. workplaces, and 87 percent of these have fewer than 20 employees. Despite this overwhelming percentage of small businesses in private industry, the fragmentation of this segment of the workforce by place of employment creates challenges for identifying and characterizing safety and health conditions and related needs for small businesses.

While federal and state standards and regulations address compensation, labor practices, and safety and health conditions, these have traditionally not applied to small businesses or have been modified with regard to small businesses.[2] Exemptions from record-keeping requirements and additional characteristics that distinguish small businesses also complicate the issue of understanding how the safety and health needs of workers in these establishments are met. Many occupational hazards are similar across businesses and industries, regardless of size; yet others may be unique to small businesses and industries that are predominated by small employers (e.g., construction, retail trade, wholesale trade). Often, it is the small business employer who has fewer resources and personnel devoted to safety and health activities.

The changing nature of the U.S. economy, with the shifting of jobs from a manufacturing setting to service- and information-oriented workplaces, is also likely to create new opportunities for small businesses. Understanding past safety and health challenges for small businesses can prove useful as a benchmark for comparison with data on small businesses at present, and on those that will evolve in the future. Based on this premise, NIOSH researchers have been considering multiple sources of data in order to characterize safety and health conditions in small businesses.

Methods

Survey Reviews

As a starting point, a summary of results from a 1997 NIOSH survey of Occupational Safety and Health Administration (OSHA) on-site consultation programs and their perception of small business needs is presented based on utilization of the consultation program services.[3] Upon review of these data, NIOSH researchers selected four industries (health services, construction, manufacturing, and service industries) to investigate further. Findings from the 1981–1983 National Occupational Exposure Survey (NOES)[4,5] on utilization of occupational safety and health personnel and facility practices were then obtained and are presented here for these industries by establishment size. Data from the OSHA Integrated Management Information System (IMIS) for the period 1979–1999 are also presented for these industries,[6] again according to size of establishment.

Together, these data sources provide a baseline and subsequent measure of safety and health priorities within the industries and contribute to an understanding of small business safety and health needs. This information is especially relevant today, as NIOSH prepares to initiate a third national survey of occupational health and safety conditions in U.S. workplaces. Current plans for the next national hazard survey are also described.

Survey of the Utilization of OSHA Consultation Services

Distinct from the activities of enforcing compliance with safety and health standards, OSHA has an independent function to make available consultation services on work safety and health issues for small businesses. The OSHA on-site consultation program provides trained safety and health personnel, at an employer's request, and at no cost, to conduct worksite visits to identify occupational hazards and present advice on complying with OSHA regulations and standards. This program, authorized by Congress in 1974 and operated according to regulations in 29 CFR Part 1908, is administered by state agencies and supported by federal OSHA grants under cooperative agreements. The program is specifically designed for small and medium-sized establishments (<250 employees) in high-hazard industries or involved in high-hazard activities. Practically speaking, some of the programs have specifically targeted services for the smallest employers (<10 workers). Consultation visits are strictly voluntary for employers; however, the employer must agree to correct serious hazards identified as a result of the visit. Information derived from these visits is kept strictly confidential from OSHA enforcement. Consultation visits result not in citations or penalties, but in a written report to the employer detailing any

hazards identified during the state consultation visit and indicating what would be required to bring the employer into compliance with OSHA standards. For small business employers, the OSHA onsite consultation program represents a valuable health and safety resource at no cost.

In 1997, NIOSH researchers performed a survey of the OSHA state consultation programs to assess which small businesses utilized the programs, and to determine possible needs of these businesses regarding safety and health information. Brief questionnaires were mailed to the 54 programs (50 states plus Washington, DC; Puerto Rico; the U.S. Virgin Islands; and Guam).[3] Responses were received from 21 (39%) of the OSHA state consultation programs, and NIOSH compiled the results for eight questions that addressed the needs of small businesses, as perceived by the administrators of the OSHA consultation programs. The questions and a summary of the most frequent responses (by number in parentheses) are provided below.

- *Question 1. In your experience, which small business sectors are in need of additional studies by NIOSH to determine/define a perceived safety or health risk?*
  Answers: Construction [non-specific] (4); plastics [injection molding, radio frequency sealers] (4); auto body repair (3); beauty/nail salons (3); dry cleaners (3); furniture/wood-working (3); healthcare (3); machine shops (3); printing shops (3); spray painting [isocyanates] (3); waste recycling (3)
- *Question 2. In your experience, which small business sectors have health or safety hazards for which controls are not available?*
  Answers: Construction [abrasive blasting, nonspecific] (4); waste recyclers (3); agriculture [farming] (2); beauty/nail salons (2); food service [meat cutting] (2); welding shops (2)
- *Question 3. In your experience, which small business sectors are most in need of materials to disseminate* existing *information on hazards or controls to small business owners and workers?*
  Answers: Auto body repair (4); beauty/nail salons (4); health-care (4); pesticide applicators (3); welding shops (3); agriculture (2); construction [nonspecific, lead abatement] (2); dry cleaners (2); furniture/woodworking (2)
- *Question 4. If there are needs for publications containing basic safety and health information for small businesses, what are the most important topics?*
  Answers: OSHA programs [consultation] (12); ergonomics (6); ventilation (6); personal protective equipment (5); hazard communication (4); fall protection (3); job hazard analysis (2); paints/sprays (2); welding (2)
- *Question 5. If there were materials other than short handouts/pamphlets that NIOSH could provide to improve outreach to small businesses, which would be most useful?*
  Answers: Videos (13); CD-ROMs (11); posters [with "how to" instructions] (11); multilingual materials (3)
- *Question 6. What other groups should NIOSH try to work with as partners to improve outreach to small businesses?*
  Answers: Industry/trade associations [nonspecific, small-business-oriented, woodworking] (15); chambers of commerce (5); OSHA consultation programs (4); associated general contractors (2); farm associations (2); safety councils (2); schools [business/vocational] (2); small business administration (2)
- *Question 7. Which industries have most commonly requested consultation services in your state during the past three years?*
  Answers: Machine shop/metalworking (10); construction [nonspecific] (9); timber [lumber mills] (7); healthcare (5); government (4); manufacturing [nonspecific] (4); furniture/woodworking (4); medical offices/labs (3); printing (3); auto and auto body repair (2); chemical (2); concrete (2); dental labs (2); industrial machinery (2); plastics [nonspecific] (2); schools (2); transportation/equipment (2); welding (2)
- *Question 8. What are the major types of consultation services requested by small businesses?*
  Answers: Health and safety audit (15); training (14); hazard identification/evaluation (13); program assistance [written plans] (10); hazard abatement [machine guarding, general, ventilation, bloodborne pathogen] (4); clarification of OSHA requirements (3); hazard communication (2)

While these survey results could hardly be considered comprehensive or representative of all small businesses, they do provide some information as to the health and safety information needs for small business. These data may be useful in targeting future research, surveillance, and intervention activities, as well as in prioritizing which small business industries may require additional safety and health services. Collecting statistics about the utilization of these services by size of establishment was beyond the scope of this survey, although these data may be available from the state consultation programs and could also prove useful.

Responses from questions 1, 2, 3, and 7 of the survey were considered important for identifying small business sectors most in need of safety and health services. These were used to determine industries, by standard industrial classification (SIC) codes, to investigate further. The industries selected were as follows:

- construction (SIC 15–17)
- manufacturing—lumber/wood products, furniture and fixtures, rubber and plastics, primary metals (SIC 24, 25, 30, 33)

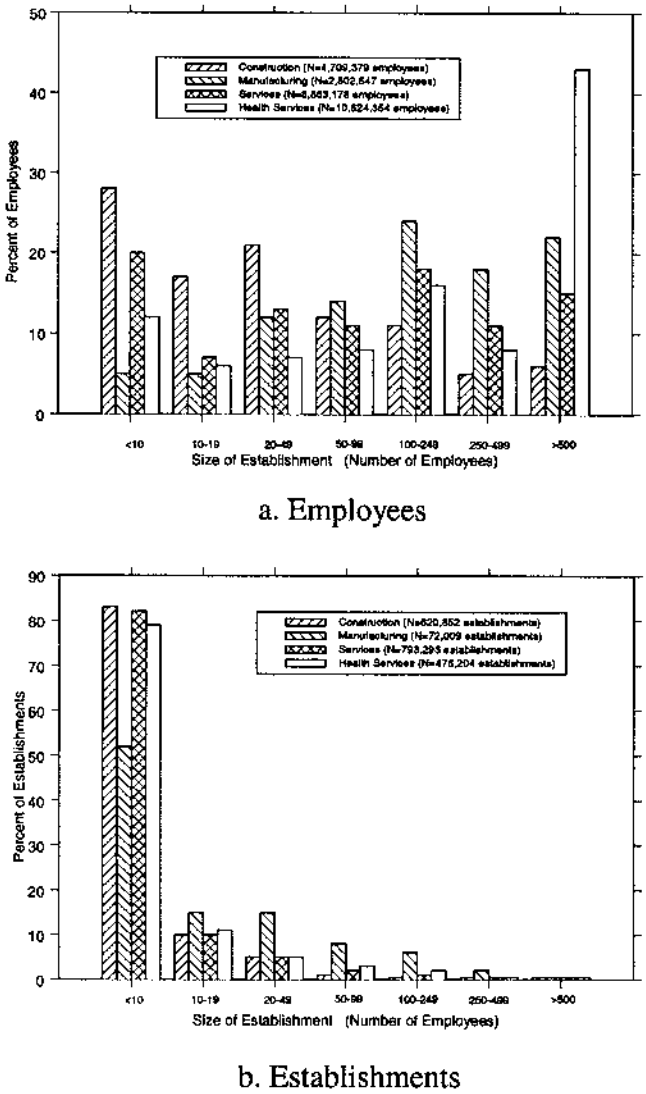


FIGURE 1
Distribution of a) employees and b) establishments by size of establishment in four industries (1994).[7]

- services—personal, business, automotive repair, miscellaneous (SIC 72, 73, 75, 76)
- health services (SIC 80)

For these industries, graphs of the number and percentage of employees (Figure 1a) and establishments (Figure 1b) are presented by establishment size, based on employment demographics for 1994.[7] The percentage of employees in small establishments (e.g., <100 employees) varies by industry; for example, about 80 percent of employees in the construction industry work in establishments with fewer than 100 employees, compared to about 55 percent in the services industries, and 30 percent in the manufacturing and health services industries. About 80 percent of all establishments in the construction, health services, and services industries employ fewer than 10 employees, compared to 50 percent of establishments in manufacturing.

Occupational Safety and Health Practices by Industry Sector—NOES

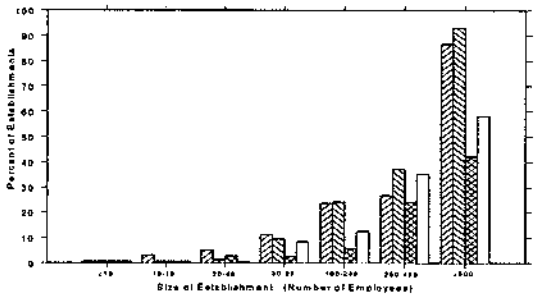
During 1981–1983, a National Occupational Exposure Survey (NOES) was conducted in the United States to provide data on occupational health practices in industry, and on worker exposures to chemical, physical, or biological agents in a wide variety of workplace settings. The NOES sample, selected using a scientific statistical sampling method, consisted of 4,490 industrial facilities in 98 defined geographical areas. Factors considered during selection included geographic location, facility type (by SIC code), and facility-specific employment size. Excluded from the survey were agricultural production, mining, financial industries, and government activities.

NOES information on occupational safety and health practices was collected using a standardized questionnaire that was given to facility management. This questionnaire was designed to obtain information on facility size, medical services provided, industrial hygiene (IH) and safety policy, and general employee health record keeping. Details of the survey methodology have been described previously.[4,5]

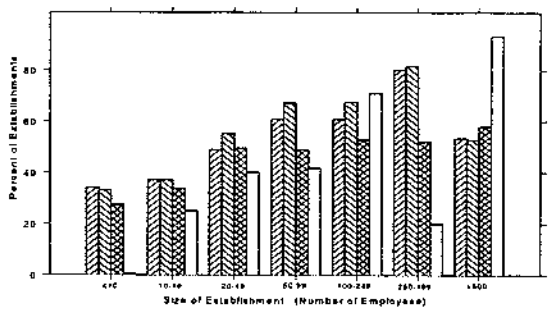
Results and Discussion

Using results from the 1981–1983 NOES, occupational safety and health programs, in the industries that were classified as having perceived safety and health risks or hazards in the OSHA consultation program survey, were profiled. Percentages of establishments that monitor for airborne contaminants and physical agents, receive occupational safety and IH consulting services, and employ full-time health and safety specialists are shown in Figures 2a–f by facility size (number of employees).

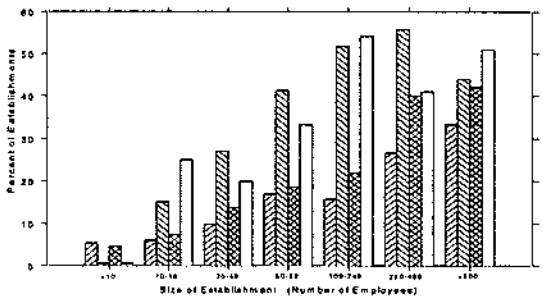
As indicated in Figures 2a–f, only in the largest size category (>500 employees) did the majority of establishments employ full-time personnel specializing in injury/illness prevention. In contrast, in the smaller size categories (<100 employees), fewer than 20 percent of establishments in the construction and manufacturing industries also employed full-time staffs specializing in injury/illness prevention. In the service industries, this 20 percent level



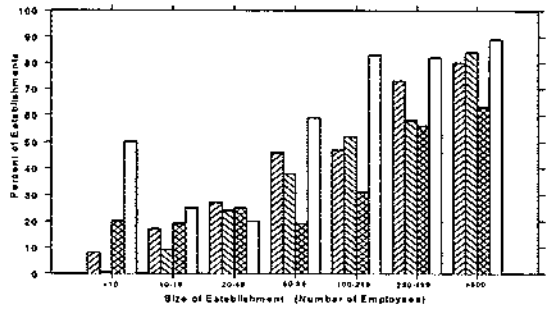
a. Facilities with full-time staff for injury/illness prevention



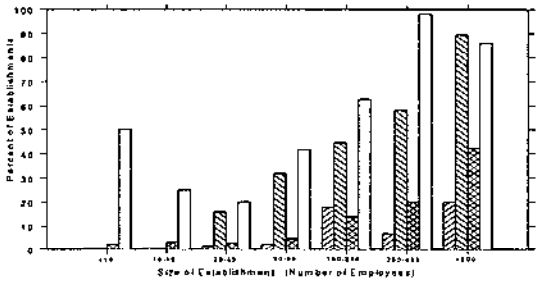
b. Facilities utilizing safety consultants



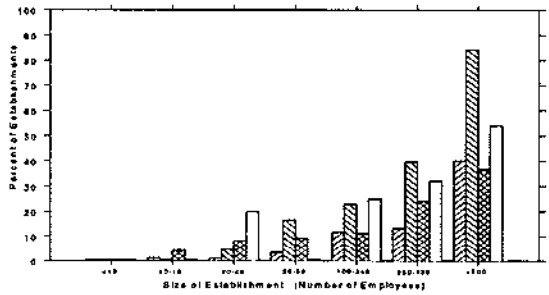
c. Facilities utilizing IH consultants



d. Facilities with regularly scheduled formal safety training program



e. Facilities with monitoring program for physical agents



f. Facilities with monitoring program for airborne contaminants

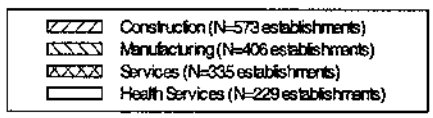


FIGURE 2

Characteristics by size of establishments in four industries (Source: 1981–1983 NOES).[4,5]

was not recognized until establishment size reached the 250-employee mark. Establishments in each industry/size category did utilize IH or safety consultants, though again the percentage of establishments generally increased with increasing facility size. A greater percentage of establishments in each industry/size category used safety consultants than used IH consultants. Similarly, a greater percentage of establishments by industry/size category had regularly scheduled formal safety training programs than any type of monitoring program. Monitoring programs for physical agents were more prevalent than those for airborne contaminants, particularly in the health services industry, where more than 20 percent of the establishments in all size categories had monitoring programs. Monitoring programs were least common in the construction industry and in establishments with fewer than 100 employees.

Despite the age of the NOES data (i.e., nearly 20 years), comparison of this information with recent data from the Ohio Bureau of Workers' Compensation[8] indicates that NOES data may still be relevant. Based on a survey of 281,000 insured companies in Ohio, only about 2.1 percent of these companies used free occupational safety and health consultations (IH, ergonomics, engineering, construction safety, or general safety services) from the agency during the period of 1991–1995.[8] This seems to indicate that the low percentages of companies utilizing IH or safety consultants has not changed appreciably since the 1981–1983 time period of NOES, when 4.4 percent of facilities used IH services, and 6.1 percent used general safety services from government sources.

A review of the OSHA IMIS database, containing information regarding OSHA compliance inspections (both federal and state) for the years 1979–1999, also reveals interesting statistics regarding the four industries.[6] In Figure 3a, data from the IMIS records indicate that there is a disparity in the frequency of inspections among different sized facilities (defined by the number of employees). For instance, in the health services industry, more than 55 percent of the OSHA inspections were conducted in facilities with more than 500 employees, compared to only 7 percent in facilities with fewer than 10 employees. The opposite trend is seen for the construction and service industries; for these sectors, a much greater percentage of inspections was conducted in the smallest facilities (<10 employees), compared to fewer inspections in large facilities (>500 employees). A relatively equal distribution of inspections across all size categories is indicated for the manufacturing industry.

The distribution of inspections by size of facility is generally proportional to the distribution of employees within a business sector. In the construction industry, for example, where 78 percent of the workers are employed in

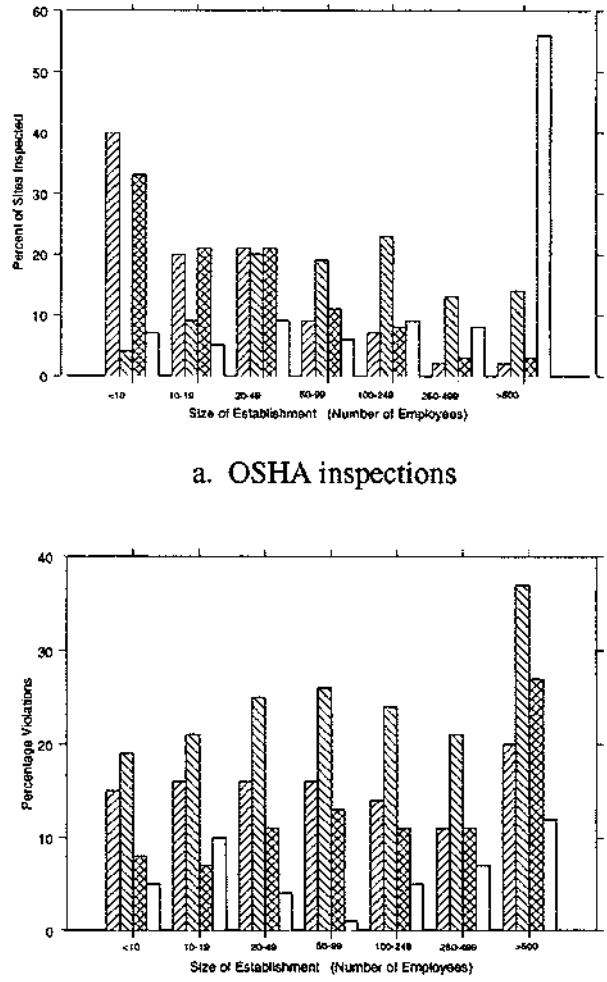


FIGURE 3

Distribution of OSHA compliance activities by size of establishment in four major industries (Source: OSHA IMIS data).[6]

facilities with fewer than 100 employees, 90 percent of the OSHA inspections were conducted in this same size category. A notable difference was observed in the service industry, where 86 percent of the OSHA inspections were conducted in small businesses (i.e., <100 employees), in which only 51 percent of the employees in this industry were employed.

Figure 3b shows that the number of violations per the number of samples collected (i.e., the "violation rate") is relatively equal across all size categories within a given industry, except for the large-sized facilities. For all industries, the violation rate is highest in the largest establishments (>500 employees). It is not evident from the available data whether this discrepancy is reflective of actual differences in hazardous conditions by facility sizes (i.e., small vs. large establishments), or whether OSHA may be disproportionately investigating and citing violations in larger establishments.[9] Better characterization of processes and safety and health practices, particularly how these may differ by industry or establishment size, is required to answer this and other questions about workplace hazards and the challenges for addressing them.

Current Plans for the Third National Hazard Survey

Hazard surveillance as the basis for primary prevention of work-related morbidity and mortality is one objective of the NIOSH National Occupational Research Agenda. One tactic for meeting this objective is a national survey of occupational hazards and occupational safety and health practices. The survey, which is a major component of the NIOSH surveillance strategic plan, is presently being designed. Under the direction of staff from the NIOSH Surveillance Branch (Division of Surveillance, Hazard Evaluations; and Field Studies, Hazard Section), researchers throughout the Institute have met routinely to discuss strategies for conducting the survey. The survey would have an expanded scope and data collection emphasis compared to the 1981–1983 NOES. Industries surveyed in the 1981–1983 NOES would be included again for comparison, with the addition of establishments in agricultural production, mining, finance and real estate, retail trade, and government. The survey is intended to begin with the health services industry. The survey effort will also serve as a starting point for a national occupational exposure database incorporating occupational exposure information from various sources.

This third national hazard survey will update similar information collected during the 1981–1983 NOES and will eventually be a significant source of data for all industries. In particular, it should provide great efficiency for tracking safety and health issues that affect small business workplaces.

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