

## Surveillance

T. J. Lentz & T. B. Wenzl

To cite this article: T. J. Lentz & T. B. Wenzl (2006) Surveillance, Journal of Occupational and Environmental Hygiene, 3:2, D8-D14, DOI: [10.1080/15459620500496715](https://doi.org/10.1080/15459620500496715)

To link to this article: <https://doi.org/10.1080/15459620500496715>



Published online: 24 Oct 2007.



Submit your article to this journal [↗](#)



Article views: 214



Citing articles: 12 View citing articles [↗](#)

## Surveillance

# Small Businesses with High Fatality Rates: Assessment of Hazards and Their Prevention

---

Most of the U.S. workforce is employed in business establishments with fewer than 100 workers. Employers in the small business industries are a vital part of the U.S. economy, responsible for providing a variety of products and services. The success of small businesses in construction, manufacturing, mining, and other industries is in part due to their scale, which allows them to operate with limited resources, to mobilize quickly to respond to demands for products and services, and to interact with clients, employees, and others on a more personal level. Not only do a majority (~56%) of U.S. employees work for small employers, but workplace fatality rates are frequently higher in those industries dominated by small workplaces.<sup>(1,2)</sup> Similar patterns exist in the European Union, where the risk of fatal accidents in businesses with fewer than 50 workers (or 99% of all businesses) is nearly double that for larger companies.<sup>(3)</sup> Prevention of occupational illness and injury is often difficult in small business establishments because they typically have fewer safety and health resources, usually cannot hire staff devoted to safety and health activities, and often lack the ability to identify occupational hazards and conduct surveillance. Given these premises, this investigation was conducted with the following objectives:

- to identify characteristics of a selection of seemingly diverse high-risk small business industries, many of which share similar challenges owing to their scale and the nature of the work involved
- to compare and contrast perceptions of safety and health hazards, training needs, and sources of information for small and large companies, citing surveys of the construction industry
- to assess methods for creating and improving awareness of occupational hazards through outreach, intervention, and effectiveness evaluations, recognizing examples in the small business community currently in practice or under development.

## METHODS

### Characterization of Small- and Medium-Sized Businesses (Demographics and Description)

In a previously published study, data from the U.S. Census Bureau and the Bureau of Labor Statistics (BLS) for the years 1994–1995 were reviewed to identify small business industries and to determine from these which industries experience greater numbers and higher rates of injuries, illnesses, and fatalities.<sup>(1,2)</sup> The investigation by the National Institute for Occupational Safety and Health (NIOSH)<sup>(1)</sup> focused on small business industries (>80% of workers employed in establishments

**Column Editor**  
Alice Greife

**Reported by**  
T.J. Lentz<sup>1</sup>  
T.B. Wenzl<sup>2</sup>

<sup>1</sup>National Institute for Occupational Safety and Health, Cincinnati, Ohio

<sup>2</sup>University of Cincinnati, Department of Environmental Health, Cincinnati, Ohio

The findings and conclusions in this presentation have not been formally disseminated by the National Institute for Occupational Safety and Health and should not be construed to represent any agency determination or policy.

with fewer than 100 workers) and examined injury, illness, and fatality statistics to characterize the risk of these outcomes in various industries. A total of 253 standard industrial classification (SIC) codes were identified as meeting the criterion for a small business industry in 1994. These data were used as an initial reference to identify and select several small business industries for additional investigation and consideration of occupational safety and health hazards and possible interventions to address these. From these data, fatality rates were chosen as the metric for selecting and conducting additional investigation of specific small business industries.

A subset of small business industries from mining, construction, manufacturing (logging), and services was selected for the purposes of this investigation based on characteristics of elevated numbers and rates of fatalities and similarities in processes and organization. This subset included 18 Standard Industrial Classification (SIC) codes at the 3-digit level, and broader categories of industries of SIC codes at the 2-digit level (SIC 10, 12, 14, 15, 16, 17). Among this subset, examination of specific parameters was performed. The distribution of employer sizes is skewed with the mean greater than the median, so to estimate the median size, which better represents the typical workplace since it is equivalent to the 50th percentile; tables from the Bureau of the Census were used that enumerate numbers of establishments smaller than 10, 20, 50, and 100 employees. For the purposes of this discussion, "small" is used to describe employers with fewer than 20 employee, and "medium" refers to employers with fewer than 100 employees.

### **Surveying Safety and Health Concerns in a Selection of Construction Firms**

In rankings of all small/medium business industries according to injuries, illnesses, lost worktime cases, and fatalities, construction industries consistently appeared in the top 25% for the previously mentioned NIOSH study.<sup>(1,2)</sup> Several construction industries (e.g., roofing, siding, and sheet metal work; general contractors; miscellaneous specialty trade contractors; plumbing, heating and air-conditioning contractors) figured among the leading small business industries by fatal injury cases.

To investigate safety and health concerns and priorities as potential factors that might explain elevated numbers of fatalities among small construction firms, additional information was obtained through two surveys of construction groups. The surveys were designed to identify safety and health priorities for construction firms of varying sizes. Both surveys were performed in 1999–2000 by researchers at the University of Florida at Gainesville and are described in detail elsewhere.<sup>(4)</sup> The survey instruments were written, self-administered questionnaires; one was administered to an audience of small- and medium-sized construction firms in late 1999, whereas the other was administered in early 2000 to a group of large construction firms. Although the survey forms were not identical, there were overlapping focus areas that allowed qualitative and semiquantitative comparison of results between small/medium

contractors and large construction firms. The surveys were not intended to be representative of all construction firms and may reflect differences that could be explained by types of firms surveyed or geographical regions of specialty. Rather, the written questionnaires were intended as a rough instrument to provide information about perceptions of occupational hazards, priorities, training resources, and information sources. Some of the information from the surveys may be generalizable to small businesses; however, because the surveys were limited to construction firms, the experience reflected in the study may not necessarily reflect occupational hazards and safety and health priorities in other small business industries.

### **Identifying Intervention Strategies and Innovative Approaches for Outreach**

Following a logical progression leading from characterization of small businesses through a survey of hazards and priorities, the next focus of this investigation involved intervention strategies. A review of the literature was performed to identify examples of intervention strategies and research evaluating the effectiveness of intervention efforts. From the literature review, several examples were selected and summarized here to indicate interventions and evaluations of their effectiveness. The object of this review and summary is to emphasize that lessons can be learned from these various small scale efforts and perhaps put to good use in other sectors.

There is good justification for considering effective means to providing safety and health outreach to small businesses. Because of the small size and geographic separation of many firms, it has not been clear how they can best be approached for practical safety training, since most cannot afford a dedicated safety person on staff. Consequently, creative and nontraditional methods may be required, in addition to a continual and repeated campaign of information dissemination for reaching the intended small business community with messages about workplace safety and health. No attempt was made to describe every industry that is dominated by small employers; rather, the focus of this investigation was limited to several select industries (construction, mining, and logging) that have some hazards in common, such as work on uneven surfaces, fall hazards, and contact with heavy equipment and machines. Excluded from the assessment were fatalities associated with trucking, taxicabs, and retail convenience stores, since these fatalities are often considered in the province of the traffic and crime control authorities but are undeniably work-related consequences.

## **RESULTS**

### **Characterization (Demographics and Description)**

A subset of small business industries that were selected based on elevated fatality rates is presented in Table I. This subset includes 18 SIC codes at the 3-digit level, and broader categories of industries of SIC codes at the 2-digit level (SIC 10, 12, 14, 15, 16, 17). Census data reveal that the median number of employees for these small business industries in mining,

**TABLE I. Characteristics of Selected Small Business Industries and Their Fatality Rates**

SIC	Description	Total Employees	Average Size of Establishment	Median Size <sup>A</sup>	Fatality Rate/10 <sup>5</sup>
10	Metal mining	48,500	69.7	9	26.6
12	Coal mining	93,000	51.1	9	43.2
14	Nonmetal	97,800	17.7	9	24.3
142	Crushed stone	40,300	19.4	<i>B</i>	21.5
144	Sand, gravel mining	29,600	11.8	<i>B</i>	30.1
15	Building construction	1,269,000	6.9	3.5	14.6
152	Residential buildings	500,000	4.0	<i>B</i>	18.0
153	Operative builders	139,000	6.6	<i>B</i>	3.2
154	Nonresidential buildings	630,700	15.8	<i>B</i>	12.8
16	Heavy construction	852,000	21.3	6.5	30.4
161	Highway construction	277,000	25.2	<i>B</i>	31.5
162	Nonhighway	575,000	20.5	<i>B</i>	29.2
17	Special trades	3,446,000	8.3	3.5	18.2
171	Plumbing	789,000	9.3	<i>B</i>	8.2
172	Painting	191,000	5.3	<i>B</i>	22.1
173	Electrical work	642,000	10.5	<i>B</i>	13.5
174	Masonry, stone	461,000	9.4	<i>B</i>	11.3
175	Carpentry	291,000	5.1	<i>B</i>	15.1
176	Roofing	253,300	8.2	<i>B</i>	37.7
177	Concrete work	272,400	8.5	<i>B</i>	10.9
178	Water well drilling	21,000	5.4	<i>B</i>	41.9
179	Struct steel, demolition	525,800	8.6	<i>B</i>	38.2
241	Logging	83,200	6.1	<i>B</i>	164
449	Water transpo svcs <sup>C</sup>	107,400	15.1	<i>B</i>	36.4

<sup>A</sup>Medians were estimated from charts that listed the numbers of establishments by size class, e.g., 0–4, 5–9, 10–19 etc.).

<sup>B</sup>Medians were estimated (from 1997 Economic Census data) for broader NAICS size class, corresponding to 2-digit SIC class.

<sup>C</sup>Forty-five percent of this group is employed in marine cargo handling (longshoring).

construction, and other sectors is often less than 10, and in some cases less than 5 workers.<sup>(5,6)</sup> (The distribution of workplace sizes is skewed, since there are many more small than large employers; thus, the average is larger than the median.) These sectors dominated by small businesses have fatality rates higher than the U.S. average for all private industry of 4.5 work-related fatal injuries per 100,000 full-time workers.

The Mine Safety and Health Administration (MSHA) has separately computed fatality rates by mine size for the 1997–2001 period (shown in Figure 1) and found a clear trend with larger mines having lower fatality rates.<sup>(7)</sup>

### Surveys of Safety and Health Concerns in Selected Construction Firms

Two independent surveys were performed in 1999–2000 targeting small/medium construction firms ( $n = 102$  respondents) and large construction firms ( $n = 99$  respondents). Surveys focused on obtaining information relating to safety and health program elements (e.g., use of safety personnel, safety incentive programs, training, substance abuse testing, and management organization), hazard identification, and other measures

of safety awareness. Responses were analyzed to identify differences, if any, between small and large construction firms regarding safety practices and hazard recognition. A summary of the defining size characteristics from the surveys of selected construction firms (revenue, number of workers, number of concurrent projects) and relevant safety and health issues (annual injury rate, training priorities and resources) for small/medium firms and large firms is presented in Table II.

Figure 2 shows the summary of survey results with the percentage of construction firms (by establishment size) indicating elements of safety and health programs utilized.

The survey results, summarized in Table II, seem to indicate that small/medium sized employers rely more often on trade associations for safety training materials. Large construction employers surveyed indicated a greater reliance on materials from government agencies, although these results were not analyzed for statistical significance. Table II also shows that perceptions of safety and health hazards and training priorities were similar for the small and large construction firms surveyed. The survey results also indicated the following:

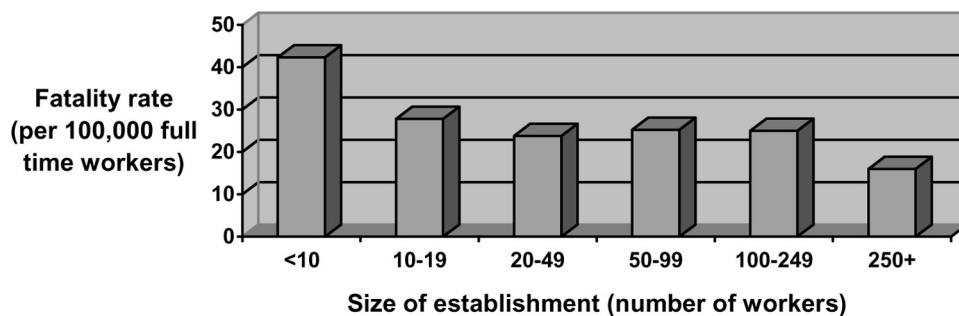


FIGURE 1. Fatality rates by size of mining establishment based on MSHA data from 1997–2001

- Reliance on substance abuse testing as a routine auditing tool was also consistent across small (85%) and large (87%) construction firms.
- A greater percentage of large construction firms (80%) provided more training on a more frequent basis than did small construction firms (60%).
- Large construction firms (80%) tended to utilize safety incentive programs more frequently than did small construction firms (49%).
- Analysis of injury rates did not support the value of incentive programs as a principal element for successful safety programs.

In addition, the survey responses indicated that factors associated with lower injury rates included:

- larger firm size
- increased firm revenues
- lower turnover rates
- general contractor versus subcontractor status
- level of management participation in training.

### Intervention Strategies and Innovative Approaches for Outreach

Through a review of the literature we identified a variety of interventions aimed at reducing injuries for small employers, but most have been limited to one area or one particular industry, and their effectiveness has rarely been evaluated. Selected examples are presented below.

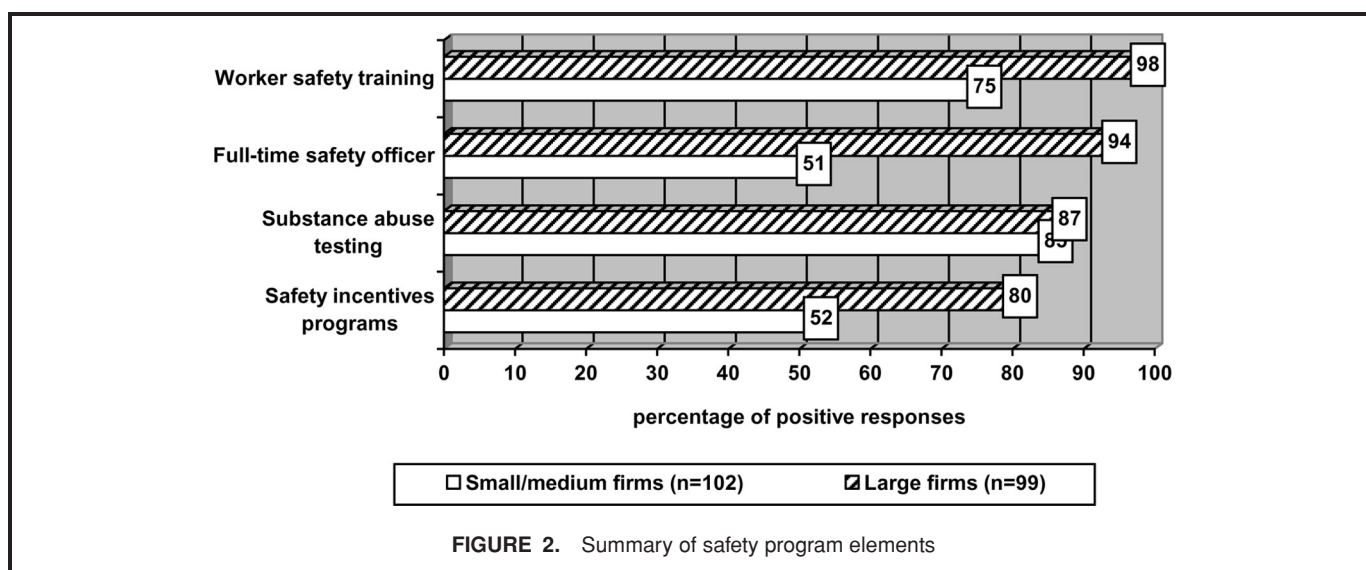
#### *Kentucky Construction Safety Initiative*

Working with a local workers' compensation insurance company, a group of researchers in Kentucky reached out to employees of small construction firms and offered realistic training exercises aimed at preventing back- and fall-related injuries. So far they have reported satisfactory performance scores but have not yet evaluated whether the training actually reduced injuries.<sup>(8)</sup> Remarkably, this group reported that it was feasible to ask workers to do "homework" on their own time and that compliance with this request was reasonably good.<sup>(9)</sup>

TABLE II. Summary of Data from Surveys of Selected Construction Firms

	Small/Medium Firms	Large Firms
Annual revenue (mean)	\$13.5 million (U.S.)	\$210 million (U.S.)
Ongoing current projects (mean)	10	38
Number of workers (mean)	42	400
Annual injury rate (mean) per 100 full-time workers	7.2–11.7	4.9
Priority training needs	<ul style="list-style-type: none"> <li>■ Fall protection</li> <li>■ Personal protective equipment</li> <li>■ Equipment safety</li> </ul>	<ul style="list-style-type: none"> <li>■ Fall protection</li> <li>■ Hazardous substances</li> <li>■ Working safely with objects/equipment</li> </ul>
Safety training sources	<ul style="list-style-type: none"> <li>■ Trade associations (60%)</li> <li>■ Government materials [OSHA, NIOSH] (51%)</li> <li>■ Commercially available texts/videos (35%)</li> <li>■ Trade journals (26%)</li> <li>■ Other (15%)</li> </ul>	<ul style="list-style-type: none"> <li>■ Government materials [OSHA, NIOSH] (62%)</li> <li>■ Commercially available texts/videos (44%)</li> <li>■ Trade journals (40%)</li> <li>■ Other (20%)</li> </ul>





### Minnesota Wood Dust Study

The Minnesota Wood Dust Study was performed in 48 small wood working shops in Minnesota, where wood processing is one of the primary industries in the state. The focus of the study, performed from 1997–1999 was to address an important health hazard (wood dust exposure) and to determine the effectiveness of intervention techniques designed to reduce wood dust exposure.<sup>(10–12)</sup> Toward that end, the researchers randomly assigned 48 small wood working businesses, each with 5 to 25 workers, to intervention or comparison groups. Intervention consisted of general written recommendations, technical assistance to enhance engineering, administrative methods to control wood dust, and worker training. The design of the intervention elements was based on results of a thorough initial pilot study of five wood working shops, which the authors believed added considerably to the effectiveness of the intervention.<sup>(10)</sup> The comparison group received general written recommendations alone.

Changes from baseline in dust concentration, dust control methods, and worker behavior were compared between groups at the 1-year follow-up. At that time, the workers in the intervention group reported greater awareness, increases in stage of readiness, and behavioral changes consistent with dust control. With reference to changes in baseline dust concentrations at follow-up, the workers in the intervention group also recorded a greater reduction in median wood dust concentrations (lower by 19.8%) than those in the control group (10.4%), although the reduction was not as great as the researchers had hoped (i.e., 26%).

### Florida OSHA Construction Accident Reduction Emphasis (CARE) Program

In 1999, the OSHA area offices in Florida initiated a special emphasis program to address increasing numbers of fatalities

in Florida in the construction industry. The Construction Accident Reduction Emphasis (CARE) Program was established with the mission of reducing the number of construction fatalities by focusing resources on enforcement, partnership, and outreach activities. OSHA research showed that the number of deaths in construction had risen from 50 in 1996 to 68 in 1998, and that 76% of these deaths occurred in small construction firms with fewer than 100 workers.<sup>(13)</sup> Leading causes identified by the research were falls, electrical hazards, and being caught in or struck by materials or equipment. Strategies for addressing the challenge included ambitious outreach activities, with regional town hall informational meetings, training classes and materials, posters, and pocket cards. The CARE program further established partnerships with employers, academic institutions, labor organizations, and advocacy groups (e.g., religious organizations, non-English-speaking media outlets). The program sought to use a broad range of media tools to publicize the program at the local, regional, and national levels, thereby drawing attention to the issue of hazards in construction and creating awareness for the target audience in the Florida construction industry and beyond.

### West Virginia Fall-Safe Construction Program

Researchers at West Virginia University devised a partnership program between the university and individual construction contractors as a mechanism for preventing construction falls in West Virginia. The program was designed to provide the contractors with knowledge, a fall hazard control management accountability system, and incentives to decrease fall hazards.<sup>(14)</sup> The Fall-Safe Intervention Program requires participating contractors to demonstrate a commitment to the program by maintaining a set of standards established in the partnership contract with the university. Results of the intervention

program reported by Becker et al.<sup>(14)</sup> indicated that audit score improvements for Fall-Safe participants were greater than for the control (nonparticipant) contractor group. The researchers concluded that in the construction industry, fall prevention performance can be improved by third-party intervention. Such intervention and outreach might be applied to other hazards and other industries.

## DISCUSSION

More than 97% of all businesses in private industry have fewer than 100 employees. Of these, nearly 87% have fewer than 20 employees. Despite differences between small and large employers, providing a safe and healthy workplace for all employees remains a common challenge. Although small businesses often operate as a family, with concern for protecting each employee against harm that may occur as a result of exposure to workplace hazards, these same businesses frequently lack the expertise of occupational safety and health professionals for identifying specific hazards and preventing them. In addition, small business establishments have been traditionally underserved by occupational health initiatives and are exempt from many occupational safety and health regulations, which are devised to protect employees from recognized hazards. As a result, problems associated with particular industries may be more readily resolved in large businesses by complying with standards and using additional resources. Smaller businesses may be unable to recognize hazards as readily and therefore may be unable to develop solutions or find information for particular work-related hazards.

### International Perspective

The safety and health challenges faced by small businesses do not appear to be unique to the United States. Throughout the European Union there has been an emphasis on addressing the occupational safety and health priorities in small- and medium-sized enterprises (SMEs), which account for 99% of all businesses and employ about 65% of the entire working population of Europe. Within the European Union the risk of fatal accidents in businesses with fewer than 50 workers (or 99% of all businesses) is nearly double that for larger companies.<sup>(3)</sup>

In Canada, over one-third of the labor force is employed in firms with fewer than 50 employees. Although small businesses in Canada share most of the safety and health challenges described for small businesses in the United States and European Union countries, some research suggests that small businesses in Canada may employ a disproportionate number of workers considered "at risk" because of their lack of job experience and limited power in the labor market (e.g., young workers, new immigrants, and nonunionized workers).<sup>(15,16)</sup>

In Australia, a survey of 331 small construction firms found that repeated face-to-face delivery of information and advice is

more effective than mailed information or legislative changes in occupational health regulations.<sup>(17)</sup>

### Outreach and Intervention

Development of improved safety awareness for employers and workers will have to consider how best to reach these many small worksites. For example, it may be useful to poll a sample of these employers to learn if they have web access for learning examples of other serious accidents in their industry for educating their employees. Small businesses in particular can benefit from additional information on protecting the safety and health of their employees. The number of small businesses is expected to increase, as the U.S. workforce is predicted to grow to an estimated 147 million by the year 2005, with minorities representing 28% of the workforce and women approximately 48%. Federal agencies, in focusing on the important contributions of small businesses in the United States, have begun to develop programs that provide services and assistance to small businesses. Examples include: the Small Business Regulatory Enforcement Fairness Act of 1996; the Occupational Safety and Health Administration (OSHA) programs in consultation, Voluntary Protection, and Expert Advisor materials; the Department of Labor Office of Small Business Programs One Stop approach to providing information on enforcement programs that apply to small business; and the Small Business Administration Office of Advocacy programs of financial assistance and information for small businesses. These and other programs reflect a commitment to ensuring that small businesses remain productive and safe.

Many believe that "tailgate meetings" conducted at small worksites, with very specific safety examples, have the potential to be effective. But further attention is needed on how best to persuade small employers to allocate brief periods of time on a routine basis to this form of education. There may be a role here for workers' compensation insurers to persuade small firms to do this more often. NIOSH Fatality Assessment and Control Evaluation (FACE) program investigators have noted that for best results these meetings have to be concrete and encourage participation. So-called "cookie cutter" meetings, with a supervisor merely reading from a safety manual, are thought to have limited usefulness.

### Evaluating Effectiveness

For many years MSHA has been publishing brief illustrated summaries (Fatalgrams) of fatal mining incidents, including prevention ideas, but improved evaluation is needed to learn why they seem not to be reaching the intended audience. Some of the incidents reported indicate similar characteristics that suggest recurring hazardous events: one example involves ore moving (powered haulage) equipment that rolled out of control, striking an object and killing the operators. Similar illustrated summaries may very well be effective in construction and other nonmining industries, but they are not well known outside the mining industry.

One study of hazardous outcomes during excavation and trench work in construction evaluated the effect of an updated

regulatory standard (the 1989 OSHA excavation and trenching standard, 29 CFR 1926 Subpart P) on fatality rates by size of construction firms.<sup>(18)</sup> Among the findings reported by the researchers were that OSHA's emphasis on trenching fatalities in construction has been somewhat effective over the past 10 years. Additional research indicates that an observational, rather than experimental, evaluation method has also shown that in Australia if safety responsibilities are explicitly in someone's job description, then injuries are reduced.<sup>(19)</sup>

### Limitations and Needs for Additional Research

There are some limitations in the data that prevent us from presenting data for a few very specific industry sectors, since CFOI is available only at the 3-digit SIC level. For example, longshoring is thought to have a higher fatality rate than work in marinas, but those fatalities are combined in a single 3-digit SIC category, that is, 449 for marine services. We have also not presented data on fishing and agricultural fatalities, even though those industries are also known to be very dangerous, since those data are not compiled in the sources we used.

Further research is needed to clarify if new workers are at increased risk or if veteran workers also suffer comparable risks, perhaps from overconfidence. Effective education may need to be different for these two groups. Additional work is also needed to learn if the increasing use of subcontractors in construction sites is increasing the risk of serious injury and fatality. In some areas of the United States, many of these subcontractors' employees have very limited English skills, adding one more barrier to effective safety education.

### Impact on Industry

Effective educational methods will have to supplement OSHA enforcement to improve safety performance in those sectors dominated by many small businesses with constantly changing working conditions. Even OSHA recognizes that their few inspections and the threat of fines are not sufficient when both good judgment and reasonable compliance are needed to prevent serious accidents.

In addition to evaluating whether improved training increases safety awareness, methods need to be developed for outcome-oriented effectiveness research to see whether improved training actually results in reduced injuries or fatalities. Admittedly, such evaluations are not easy to do in the face of worker turnover and incomplete recordkeeping in small businesses, but new observational methods show promise.<sup>(19)</sup>

### ACKNOWLEDGMENTS

The authors are grateful to Lisa Brosseau, University of Minnesota, and Mark Fullen, West Virginia University, for providing technical review and comments.

### REFERENCES

1. **National Institute for Occupational Safety and Health (NIOSH):** *Identifying High-Risk Small Business Industries: The Basis for Preventing Occupational Injury, Illness, and Fatality*. DHHS (NIOSH) Pub. No. 99-107. 1999.
2. **Okun, A.H., T.J. Lentz, P.A. Schulte, L.T. Stayner:** Identifying high-risk small business industries for occupational safety and health interventions. *Am. J. Ind. Med.* 39:301-311 (2001).
3. "Small, safe and productive—How to strengthen the prevention culture in Europe's SMEs." February 10, 2003. [Online] Available at [http://agency.osha.eu.int/news/press\\_releases/en/02\\_10\\_2003/index.htm](http://agency.osha.eu.int/news/press_releases/en/02_10_2003/index.htm) (Accessed October 3, 2003).
4. **Hinze, J.W., and J.A. Gambatese:** Factors that influence the safety performance of specialty contractors. *J. Construct. Eng. Manage. ASCE* 129(2):159-164 (2003).
5. "1997 Economic Census Construction Industry Series: Selected Statistics for Establishments with Payroll by Employment Size Class." [Online] Available at <http://factfinder.census.gov/> (Accessed September 24, 2003).
6. "1992-2001, Census of Fatal Occupational Injuries" (revised data). [Online] Available at <http://stats.bls.gov/iif/oshwc/cfoi/cftb0166.pdf> (Accessed February 2004).
7. "Mine fatality rates by size." [Online] Available at [http://www.cdc.gov/niosh/mining/data/images/d\\_fres.gif](http://www.cdc.gov/niosh/mining/data/images/d_fres.gif) from the NIOSH Spokane Research Laboratories (Accessed November 29, 2003).
8. **Wojcik, S.M., P.S. Kidd, M.B. Parshall, and T.W. Struttman:** Performance and evaluation of small construction safety training simulations. *Occup. Med.* 53:279-286 (2003).
9. **Mays, J.:** Developing partnerships to promote workplace safety. *Occup. Hazards* (May 5, 2000).
10. **Brosseau, L.M., D. Parker, D. Lazovich, S. Dugan, T. Milton, and W. Pan:** Inhalable dust exposures, tasks, and use of ventilation in small woodworking shops: A pilot study. *Am. Ind. Hyg. Assoc. J.* 62:322-329 (2001).
11. **Brosseau, L.M., D.L. Parker, D. Lazovich, T. Milton, and S. Dugan:** Designing intervention effectiveness studies for occupational health and safety: The Minnesota Wood Dust Study. *Am. J. Ind. Med.* 41:54-61 (2002).
12. **Lazovic, D., D.L. Parker, L.M. Brosseau, et al.:** Effectiveness of a worksite intervention to reduce an occupational exposure: The Minnesota Wood Dust Study. *Am. J. Publ. Health* 92:1498-1505 (2002).
13. "CARE/Florida—Construction Accident Reduction Emphasis" OSHA Newsletter Vol. 1, No. 1, May 1999. [Online] Available at <http://www.osha.gov/doc/newsletter.html> (Accessed December 18, 2003).
14. **Becker, P., M. Fullen, M. Akladios, and G. Hobbs:** Prevention of construction falls by organizational intervention. *Inj. Prev.* 7(Suppl 1):i64-i67 (2001).
15. **Sutcliffe, P., and J. Kitay:** Small business and employment relations. *Lab. Ind.* 1(3):516-550 (1988).
16. **Eakin, J.M., and E. MacEachen:** Health and the social relations of work: A study of health-related experiences of employees in small workplaces. *Soc. Health Illness* 20(6): 896-914 (1998).
17. "Research identifies effective ways to help small business." [Online] Available at <http://www.nohsc.gov.au/ohsinformation/nohscpublications/> (Accessed November 24, 2003).
18. **Suruda, A., B. Whitaker, D. Bloswick, P. Phillips, and R. Sesek:** Impact of the OSHA trench and excavation standard on fatal injury in the construction industry. *J. Occup. Environ. Med.* 44:902-905 (2002).
19. **Gun, R.T., and C.F. Ryan:** A case-control study of possible risk factors in the causation of occupational injury. *Safte. Sci.* 18:1-13 (1994).