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Implementation of Safety and Health on Construction Sites

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What's killing carpenters? Injury and illness prevention for the future

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ABSTRACT: A pilot intervention was conducted with 79 attendees at a national conference held by the United Brotherhood of Carpenters and Joiners of America (UBCJA) in 1997. NIOSH education documents and mortality study results were provided, as well as an opportunity for participants to share their experiences. Participants were carpenters, business agents, health and safety personnel, trainers, and apprenticeship coordinators. NIOSH investigators, along with a UBCJA member led two workshops. Focus groups were used to discuss injuries, illnesses, and stresses that carpenters experience. Training needs were also discussed and results from a recently completed NIOSH mortality study of 27,362 UBCJA members was presented. Although mortality studies have been instrumental in identifying areas for further research and examination of risks, results have typically not been disseminated to workers. Suggestions for improved injury and illness prevention were made, and demonstrated the need to take into account social, economic, situational, behavioral, and environmental factors.

1 INTRODUCTION

Data from the Bureau of Labor Statistics indicate that Carpenters, the largest group of building trades workers, held about 992,000 jobs in 1994 and are employed throughout the country in almost every community. The majority worked for contractors who build, remodel or repair buildings and other structures. Most of the remainder worked for manufacturing firms, government agencies, wholesale and retail establishments, and schools. Carpenters learn their trade through on-the-job training and through formal training programs. It is expected that more than 100,000 jobs will become available each year as carpenters transfer to other occupations or leave the labor force (U.S. Dept. Of Labor, 1997).

Occupational injury rates in the construction trades, including carpentry are high compared to the general workforce in the United States. The Bureau of Labor Statistics (BLS) (U.S. Department of Labor, 1997) reported a rate for lost time due to medical injuries or illnesses of 9.9 per 100 full-time workers in the construction trades, compared with an overall rate of 7.4 per 100 full-time workers in 1996.

The United Brotherhood of Carpenters and Joiners of America (UBCJA), formed in 1881, is the leading labor representative for carpenters, joiners, and related trades in the United States. It is the largest trade union in the Building and Construction Trades Department of the AFL-CIO. The membership is composed of approximately 600,000 U.S. workers. Of these, about 475,000 members are involved in construction carpentry, including carpenters, millwrights, pile drivers, dry wall workers, and lathers. About 125,000 are involved in industrial wood processing products carpentry including wood furniture, cabinetmaking, plywood, and lumber or sawmill work. Carpenters may be employed in various industries such as building and construction, shipbuilding, manufacturing industries and mining, where they may also be exposed to hazardous materials from the work of other crafters. Carpenters encounter many hazardous exposures including asbestos, wood dust, noise, formaldehyde, elevated working areas, hyper baric pressure, wood preservatives, solvents and power tools (Robinson et al., 1996).

NIOSH evaluated the mortality of 27,362 members of the UBCJA who died 1987-1990. Elevated mortality was found for white males in the construction trades for lung cancer, bone cancer, asbestosis, emphysema, transportation injuries, and falls. Leading causes of death in the industrial wood products locals were due to stomach cancer, male breast cancer, and transportation injuries (Robinson et al., 1996).

Carpenters's work can also result in increased back, neck and shoulder problems and traumatic knee problems. Work-related musculoskeletal disorders were associated with the use of certain tools, such as overhead bolt pistols, carpet knee-kickers, and straight handled claw hammers (Albers et al. 1997). After conducting and evaluating an ergonomic education program for apprentice carpenters, Albers et al. (1997) recommended that construction safety and health education and training should be developed to improve simultaneously the capability of all stakeholders to recognize potential hazards and act to prevent their occurrence. They also recommend improving the traditional construction 'tailgate' or 'toolbox' safety meeting, such that presentations engage participants, provide information relevant to the job site and encourage discussion about potential hazards and the means to prevent injuries and illnesses.

This paper presents the results of two workshops held in Palm Springs, California in March 1997 using a focus group format to elicit the input of carpenters and related workers in identifying risks and suggesting preventive strategies for the improvement of occupational safety and health among carpenters

2 MATERIALS AND METHODS

2.1 Workshop Participants

Participants were 79 volunteer attendees at the Annual UBCJA Apprenticeship Training and Health and Safety Conference. Participants attended one of two sessions titled "What's Killing Carpenters? Injury and Illness Prevention for the Future". Because of space limitations, some potential participants were turned away once the room was full.

2.2 Methods

NIOSH investigators led two 1 ¼ hour long workshops at the UBCJA Health and Safety Conference. Each workshop had approximately 30-40 participants. Educational materials from the UBCJA and NIOSH were distributed to participants at the beginning of the workshop. During each workshop, participants divided into three focus groups to identify and discuss strategies and prevention methods for addressing the injuries, illnesses, and stresses that carpenters experience on the job. Participants provided demographic and occupational information. The workshops ended with a presentation of the NIOSH mortality study of carpenters (Robinson, 1996).

The moderators were two epidemiologists from NIOSH, and the Director of Occupational Safety and Health from the UBCJA who recorded responses on a flip chart. Questions to the participants included: What type of injuries can occur on the job? What can you do to prevent each of these injuries from occurring? What type of diseases can be caused or made worse by the work that you do? What might cause you to lose a day of work or go home feeling ill? What can you do to prevent each of these diseases or to keep from getting sick? What type of stresses are you exposed to that might put you or your co-workers at risk on the job? What can you do to prevent or deal with these stresses? What kind of training do you need to stay healthy and prevent injuries? The goals of the workshops were to involve workers' in identifying and discussing strategies and prevention methods for addressing the risks faced by carpenters.

3 RESULTS

Participants were predominantly white men, along with 2 non-white men, and 3 women drawn from 26 states across the United States. They were involved in both wood processing and construction, and included administrators, apprenticeship coordinators and directors, business representatives or agents, carpenters, health and safety trainers, and millwrights. Most had more than 10 years experience, worked more than 40 hours a week, both indoors and outdoors. The majority of participants were 40-49 years of age, followed by those 50-59 years, and more than half had some college education.

Participants provided the moderators with illnesses, injuries, prevention strategies, and training suggestions relevant to work as a carpenter. These responses have been aggregated over the six groups and presented in the tables below. Because of time and space limitations, not all responses are included in this presentation.

Table 1. Examples of Injuries and Preventive Action Identified by Workshop Participants

Injuries		Preventive Actions
Falls	➤	Guard Rails Appropriate housekeeping Use of anti-skid mats 100% tie-off
Back strain	➤	Ergonomic training Proper use of mechanical equipment Increased manpower
Blows to head	➤	Observance of lifting standards Use of personal protective equipment Use of toe boards Proper rigging of loads Guard nets and tie offs Overhead protection
Chemical burns	➤	Restricted access areas MSDS* & identification of chemicals Use of cut-off valves Chemical awareness
Lacerations	➤	Use of personal protective equipment Use of gloves and protective equipment Operative equipment guards Training to use equipment
Electrocutions	➤	Observance of lockout/tagout procedures Inspections & proper maintenance Training
Hearing loss	➤	Implementation of engineering controls Use of personal protective equipment Implementation of administrative controls
Vehicle & lift injuries	➤	Eye to eye contact Use of back-up alarms Use of seat belts Training certified drivers
Heat & welding burns	➤	Adherence to strict substance abuse policy Use of personal protective equipment Use of welding shields Safety watch Warning signs Barricades Red flag tape

*MSDS refers to material safety data sheets.

Table 2. Examples of Diseases & Preventive Action Suggested by Workshop Participants

<u>Diseases</u>		<u>Preventive Actions</u>
Lung Disease	➤	Use of personal protective equipment Implementation of engineering controls Protection against asbestos exposure Education regarding carcinogens Smoking cessation programs
Skin Disease	➤	Use of personal protective equipment Chemical substitutions Availability and use of MSDS*
Frostbite & hyperthermia	➤	Labeling & reading directions Awareness of temperature Proper attire (e.g. hard hat liners) Training and recognition
Lead poisoning	➤	Engineering controls Monitoring of workers Training
Liver damage	➤	Use of personal protective equipment Avoidance of chemical exposures Chemical substitutions Alcohol awareness Substance abuse treatment
Mental problems	➤	Identification & proper labeling of solvents Use of personal protective equipment

*MSDS refers to material safety data sheets

Table 3. Examples of Stresses Identified by Workshop Participants

Communication problems
Interpersonal conflicts
Family responsibilities and problems
Confined spaces and extreme heights
Sexual harassment
Under bidding jobs and scheduling difficulties
Labor conflicts
Disrupted sleep schedules
Excessive travel and transportation time
Economic issues - layoffs and firing

Table 4. Example of Ways to Reduce Stress Suggested by Workshop Participants

✓	Training in interpersonal problem solving
✓	Training in gender issues
✓	Counseling
✓	Availability of Employee Assistance Programs
✓	Mediation
✓	Established grievance procedures
✓	Training in healthy lifestyle factors
✓	Health check-ups
✓	Availability of health insurance

3.1 Training

Participants felt that both classroom and hands on training was needed. They stressed the need for certification, qualified people, and current updates and information. Joint labor-management classes were recommended which should include problem solving and resolution of conflicts. Other areas emphasized were first aid and cardiopulmonary resuscitation (CPR).

4 DISCUSSION

Despite their widespread use, focus groups have been the object of little systematic research in recent years. Focus groups may be used at any point in a research program, but are particularly useful for exploratory research. They are used widely because they provide useful information and offer the researcher a number of advantages (Stewart and Shamdasani, 1990). Advantages of focus groups include: (1) provision of data from a group of people more quickly and at less cost than individual interviews; (2) allowing a researcher to interact directly with respondents, including opportunities for clarification and follow-up questions; (3) providing an opportunity to obtain large and rich amounts of data in the respondents own words; (4) allowing respondents to react to and build upon the responses of other group members which may result in ideas that might not be uncovered in individual interviews and (5) results of focus groups are easy to understand.

Limitations include: (1) the convenience nature of most recruiting practices which may limit generalization to a larger population; (2) responses are not independent and results may be biased by a very dominant or opinionated member; (3) open-ended nature of responses obtained may make summarization and interpretation of results difficult and (4) the moderator may bias results by providing cues about what types of responses are desirable (Stewart and Shamdasani, 1990).

Other issues particular to this study is that of generalizability from unionized to non-unionized workers. Union workers may have safer work practices which are learned over time or in training (Lipscomb et al., 1997). Concerns raised by other focus groups include possible effects of peer pressure for women to perform comparably to men, lack of fit of basic tools for women due to smaller body, and reduced upper body strength (Lipscomb, et al., 1997).

Participants in this project were volunteers who may have had more awareness of safety and health issues or training than non-unionized workers, or non-participants. Information on the health hazards of women carpenters is badly needed. Our findings are limited by the participation of only 3 women in the groups. Minorities were also under-represented in the workshops. Moderators attempted to control more dominant participants and encourage responses from others.

Since the workshops were held, the UBCJA has obtained a grant (New England Project) from NIOSH to assist small employers by offering to do workplace inspections to identify workplace hazards, and promote accurate record keeping. The UBCJA has also been involved in several noise and hearing loss intervention projects. Investigators at NIOSH plan to develop a fact sheet to disseminate study results from the PMR study to workers and a NIOSH document for dissemination to the carpenter and construction trade community that summarizes what was learned during the focus groups.

Responses by workshop participants suggest that workers recognize the multifaceted nature of injury and illness prevention. Many of the suggestions involved increased use of personal protective equipment, implementation of administrative controls, increased training, proper housekeeping, and taking appropriate safety precautions. Future efforts toward reducing illness and injury should take into account cognitive, behavioral, social, economic, situational, and environmental factors.

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