

associated with the overall risk of injury to employees from these two separate components are discussed.

Washington State's Late Night Retail Worker Crime Protection Regulation: Relationships with Employer Practices—Nelson N, Mendoza CT, Silverstein BA, Kaufman JD

Washington's Late Night Retail Worker Crime Protection regulation, which became effective in February of 1990 and is enforced by the state OSHA program, was intended to prevent injuries by deterring violent crimes in retail establishments. We investigated whether the regulation was associated with businesses' violence prevention activities. 1,516 employers at high risk of robbery, including gas stations, groceries, convenience stores, hotels, restau-

rants, and taverns, were surveyed in 1995 to determine whether they had violence prevention training programs for their employees (a requirement for businesses covered by the standard). Overall, awareness of the regulation was low (4.4%). Employers covered by the regulation were more likely to have training programs (OR=1.4), as were those aware of a regulation (OR=3.4). State OSHA plan contact (in the form of a compliance inspection or consultation visit) was also associated with having a training program (OR=1.9). There was some suggestion that chain businesses were more likely to have programs (more specifically, those chains that had experienced a robbery). Despite low awareness of the standard, results suggested that regulatory efforts to protect high-risk employees were associated with employers' robbery and crime prevention activities.

Day Three--Friday, October 17, 1997

Session 31: Injuries and Fatalities in Retail Trade

Workplace Deaths in the Retail Industry, US 1992-1995—Peek-Asa C

Introduction. In many urban areas of the United States retail is among the fastest growing economic sectors and employs a growing percentage of the overall workforce. Although retail has not traditionally been identified as a high-hazard industry, it is among industries with the highest number of workplace deaths. The Bureau of Labor Statistics reported that 17% of all workplace deaths in 1994 were among retail workers. This presentation will examine workplace deaths in the retail industry in order to identify specific types of workplace hazards.

Methods. Workplace deaths reported to the Bureau of Labor Statistics's Census of Fatal Occupational Injuries from 1992 through 1995 were examined. The retail industry was identified using Standard Industrial Codes 5210 through 5999; types of retail establishments were further divided by SIC. Characteristics of deaths including age, gender, occupation, activity, and type of injury were compared between retail and other industries.

Results. The three leading causes of workplace death in the retail industry were violence (69.8%), motor vehicle crashes (18.9%) and falls (3.1%). Workers killed in the retail industry were 9.0 times more likely to die because of a violent event than workers in other industries (95% CI = 8.38 - 9.66). Although violence-related deaths decreased slightly over the study period they remain the leading cause of retail deaths. Among different types of retail establishments deaths attributable to violence ranged from 22.4% (building supply) to 98.9% (liquor stores). Females, younger workers, occupations dealing with money and the public were at highest risk of a violence-related death. Risk factors, types of injuries, and activities during injury will be examined in the presentation.

Discussion. Workers in the retail industry are at lower risk of most types of workplace deaths but have a markedly increased risk of death by violent means. As workplace violence becomes a larger proportion of workplace deaths and the industries at greatest risk of workplace violence increase in number and size, prevention

measures will need to be identified and evaluated. Prevention measures must be flexible to fit a variety of workplace settings.

Fatal Occupational Crushing and Amputation Injuries in Scrap Balers and Compactor—Moore PH, Smith EO

Purpose. Scrap balers and compactors reduce large amounts of solid waste to small units by means of powered rams or compacting panels. These machines are used by manufacturing companies to handle large amounts of scrap and waste materials such as paper, cotton and metals, by retail and service establishments to compress paper and cardboard boxes, and by government agencies for refuse collection, disposal and recycling. Stationary compactors and balers are commonly used in recycling centers, manufacturing facilities, and retail stores, while mobile compactors are used in refuse collection. The goal of the presentation is to describe the circumstances and risk factors associated with crushing and amputation injuries due to baling and compacting equipment, and to provide recommendations which employers and workers can use to prevent future injuries.

Research Data. Data sources were the National Traumatic Occupational Fatalities (NTOF) surveillance system, the Census of Fatal Occupational Injuries (CFOI), and the Fatality Assessment and Control Evaluation (FACE) project. NTOF is based upon death certificates, CFOI identifies fatalities through multiple sources, and FACE combines surveillance of occupational fatalities with site investigation of selected fatality types.

Hypothesis. Crushing and amputation injuries sustained due to baling and compacting equipment are preventable. Determination of circumstances and identification of risk factors can lead to the development of prevention strategies.

Method. Fatalities were identified through key word searching of all three databases and were further classified by machine type (stationary or mobile). Field investigations conducted by the New Jersey FACE program evaluated the circumstances of three of these fatalities. Risk factors identified were addressed by the development of recommendations for injury prevention.

Results. The NTOF identified 58 fatalities involving compacting