

fatalities (18%); and 144 other traumatic fatalities (35%). The latter group included 68 fatalities that were associated with structures, typically involving collapses, trapped firefighters, or rapid fire progression. Despite modern equipment and training, this group of fatalities has not decreased over recent years. Additional efforts are needed to help firefighters determine when an interior attack must be abandoned before catastrophic conditions develop.

### F3.4

**Title:** *Analysis of Mine Fires and Fire Injuries at U.S. Underground and Surface Mines: 1999-2001*

Author: De Rosa MI

Fire and fire injury and fatality data from MSHA accident reports and verbal discussions with mine personnel were analyzed for the period 1990-2001 to arrive at fire incidence and injury risk rates for underground and surface coal and metal/nonmetal mines. The analysis also discusses other variables such as ignition sources, detection and suppression methods, and major types of equipment involved. During this period, 1,041 fires occurred, resulting in 488 injuries and 7 fatalities, and 50,957 lost workdays (included are 6,000 lost workdays for each fire fatality). While there is some overlap of major ignition sources and equipment involved in injuries reported for underground coal mines compared to underground metal/nonmetal mines, the analysis also identifies several major differences in the ignition sources and equipment for the two mining sectors.

For surface operations, the analysis indicates that the ignition sources and equipment involved were essentially the same for both coal and metal/nonmetal mining sectors. The analysis represents an essential tool for assessing fire research and prevention needs for both coal and metal/nonmetal mines.

### Session: F4.0

#### **Title: Occupational Injuries: Social and Economic Issues**

Moderator: Laura Blanciforti

### F4.1

**Title:** *Comparing Costs of Fatalities from Two Fatal Occupational Injury Surveillance Systems in the United States*

Authors: Biddle EA, Marsh SM

There are currently two national surveillance systems compiling occupational fatal injury data: the National Institute for Occupational Safety and Health (NIOSH) National Traumatic Occupational Fatalities (NTOF), and the Bureau of Labor Statistics (BLS) Census of Fatal Occupational Injuries (CFOI). Both systems were designed to capture the number and circumstances of all work-related fatal injuries and are used by re-

searchers to illustrate the burden of occupational fatalities. NIOSH developed a model to estimate the costs of fatalities from either system providing researchers another measure of this burden.

Because each system uses a different approach to count fatalities, the annual number of fatal occupational injuries reported varies by system. A comprehensive comparison (Biddle and Marsh, 2002) concluded that using death certificates alone, NTOF identified approximately 84% of the total count obtained by CFOI. Furthermore, counts differed by case and worker characteristics. A contributing factor to the differences was that NTOF reports usual industry and occupation while CFOI reports industry and occupation at the time of injury.

Cost estimates from the NIOSH model are driven by the number of fatalities reported and earnings of the employee at the time of death. Because earnings are dependent on the occupation and industry reported by the fatality surveillance system, costs of fatalities by system also vary. For example, during 1992-1997 CFOI reported 3,091 fatalities in services occupations and the mean cost estimate was \$767,695; NTOF reported 2,473 fatalities in that occupation group but the mean cost estimate was \$770,215. Similarly, the number and mean cost for manufacturing was 4,471 and \$797,372 compared to 4,364 and \$768,149 for CFOI and NTOF respectively.

The surveillance system selected to calculate the counts and costs of occupational fatal injuries will impact the resulting estimates and thus the injury prevention and control program planning, policy analysis, evaluation, and advocacy efforts.

### F4.2

**Title:** *Challenges for Workplace Injury Prevention in a Changing Canadian Health Care Sector*

Author: Alberg NM

Canadian health care reform strategies in the 1990's concentrated on a transition from in-patient care to community based care. After initial downsizing of acute care beds and reductions in staffing, the resultant mix of patients and caregivers took on a different look. This new picture brought changes in the profiles of workplace injuries for health care providers. The injured workers, although "new" to the job, were still older than "new" workers in other industry sectors.

The difference in the type of care and in the mix of staff between acute care facilities and Personal Care Homes (PCH) has generated two streams of workplace injury. Both frequency and pattern of injury are different when Health Care is dichotomized into acute and long term care facilities. This presents distinct issues for intervention planning by safety and health professionals. The multiplicity of tasks in acute care facilities brings a wide range of safety and health concerns. In contrast, the

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