energized vehicle frame. The authors contend that widespread use of a simple device that alarms when a vehicle frame becomes energized could have prevented many of these fatalities.

This presentation describes the results to date of a project to measure voltage differences and currents flowing on the vehicle frame as a result of accidental overhead line contact in cranes and dump-bed trucks. A practical, low-cost concept to detect the contact of mobile equipment with high voltage lines and warn those nearby is presented.

H3.5 Development of the Hazard Recognition Training Module for Construction, Maintenance, and Repair Work Activities—Barrett EA, Rethi LL

Recent studies have concluded that 39 to 65 percent of all injuries to miners occur when they perform construction, maintenance, and repair type work activities in the conduct of their jobs. The number of injuries is particularly high at surface aggregate operations; however, the problem exists for all locations and commodities. To address this issue, an interactive, 3-D slides training module was developed for teaching such workers to recognize hazards in the workplace. Twelve groups of miners, a total of 339 persons, from mining operations throughout the United States were trained using the exercise. The subjects were tested before and after the training intervention to determine if the objective of the instruction was achieved. Test results indicated that over 70 percent of them showed improvement in their test scores. Following the posttest, subjects completed a seven-item Likert-scale, self-reporting measure consisting of questions relating to exercise validity and utility of the training program. More than 93 percent of the miners indicated that they learned something new from the training exercise and they would use this information to work more safely.

Session: H4.0
Title: Traumatic Injury Studies
Category: Injury Surveillance
Moderator(s): Letitia Davis

H4.1 National Estimates of Traumatic Occupational Injury in the United States—Warner M, Fingerhut LA, Barnes P

Introduction: The National Health Interview Survey (NHIS) has been used to make national estimates of non-fatal occupational injury in the United States since its inception in 1957. The NHIS questionnaire was extensively redesigned in 1997 including changes to: 1) probe question and inclusion criteria for injuries; 2) recall period; 3) severity threshold; and 4) phasing and placement of the questions. Methods for identifying occupational injuries and the working population from the NHIS are presented.

Methods: Data from the US civilian non-institutionalized population were collected using Computer Assisted Personal Interview (CAPI) from an adult member of the sample household about all medically attended injuries occurring in the previous three-month period to any member of the family. Occupational injuries were identified by selecting the categories 'paid work', 'unpaid work', and 'working around the house or yard' from the responses to the question about what the person was doing at the time of the injury. Edited verbatim responses to the questions of how the injury occurred were also reviewed. Traumatic occupational injury episode data are presented by demographics, external cause, diagnosis, and circumstances surrounding the episode.

Results: In the United States in 1997, there were an estimated 6.27 million traumatic injury episodes requiring medical attention occurring while persons were engaged in paid work. A further .96 million episodes occurred while persons were engaged in unpaid work and 3.36 while persons were working around their house or yard.

Discussion: The redesigned NHIS is a useful source of information about medically attended non fatal traumatic occupational injuries in the United States because occupational injury experiences are reported without regard to compensation. The NHIS also includes information about injuries occurring in non traditional workplaces. The strengths and limitations of the NHIS redesign and methods for identifying occupational injuries and the working population are discussed.

H4.2 Surveillance for Nonfatal Occupational Injuries and Illnesses Treated in Hospital Emergency Departments-United States, 1998—Jackson LL

The National Electronic Injury Surveillance System (NEISS) is used by the National Institute for Occupational Safety and Health for surveillance of nonfatal occupational injuries treated in U.S. hospital emergency departments (EDs). In 1998, NEISS captured work-related injuries and illnesses treated in a 67 hospital ED sample based on a national stratified probability sample of all U. S. hospitals with a 24-hr emergency department and a minimum of six hospital beds. We made national injury/illness estimates based on statistical weighting for each NEISS case in the sample. We determined injury/illness rate estimates by using 12-month averages for full-time employees (FTE = 2,000 hrs/yr) from the 1998 Bureau of Labor Statistics Current Population Survey.

An estimated 3.6 million occupational injuries and illnesses were treated nationally in EDs. The occupational injury/illness rate for 1998 was 2.8 per 100 FTE. The injury/illness rate for men (3.4 per 100 FTE) was almost twice the rate for women (1.8 per 100 FTE). The rate was highest for the younger-aged workers with the injury/illness rate decreasing with worker age.

In 1998, hands and fingers were the most commonly injured part of the body (30%). Hand and finger injuries were treated almost twice as frequently in EDs as other anatomic groups: trunk/back/groin (18%), head/face/neck (17%), arm/wrist/shoulder (15%), and leg/knee/ankle/foot (17%). Seventy percent of the injuries involved lacerations/punctures (26%), sprain/strain (25%), and contusion/abrasion/hematoma (19%).

The magnitude and rate of ED-treated injuries/illnesses, as well as the general injury/illness patterns for 1998 were similar to those reported for 1996 from NEISS. These data are one of several yardsticks that will be used to assess a reduction in work-related injuries and illnesses as targeted by Healthy People 2010 and the National Occupational Research Agenda.

H4.3 Exposing U.S. Disabling Morbidity - The BLS Data Revisited—Courtney TK, Webster BS

The United States Bureau of Labor Statistics' (BLS) annual survey of occupational injuries and illnesses (ASOII) is one of the most frequently utilized sources of data on national occupational morbidity. In 1992 the BLS introduced a new and expanded survey method that collects more detailed data on cases with days-away-from-work (DAW). While the method provides detail on the body part, nature, extent and certain antecedents of these cases, the published data are most often presented univariately. This makes it difficult to assess the extent of many common injuries. Expanded access to the ASOII data is now available on the world-wide web. However, comprehensive data which connect exposure and event (EE) type with clearly defined injury and illness outcomes (BP-NOI) have not been available thus far.

To improve understanding of national DAW case outcomes and their related exposures, the present study utilized a special data call and reduction strategy to identify the leading BP-NOI-EE combinations for DAW cases by frequency and severity (median DAW) for 1996. Overexertion, bodily reaction, falls on the same level and struck by object were among the most common events associated with disabling injuries in 1996. The presentation will examine each of these EE groups and several others in greater detail to determine the specific nature and location of the disabling injuries attributed to each.

H4.4 Safety Impacts of Peer-to-Peer Workplace Substance Abuse Prevention—Miller TR, Spicer RS, Becker LR, Nelkin VS, Sogie-Thomas B

Since the late 1980s, a major transportation company has used a 3-pronged approach to reduce drinking and drugging in the workplace. First, they offer both Employee Assistance Program (EAP) services and referral-free access to treatment services. Second, they drug-test pre-employment, for cause, and randomly (with alcohol included in the tests since 1994). Third, union contracts have established a peer prevention and early intervention program, PeerCare, run by the unions. This program has trained more than one third of the workforce to recognize when someone is high and get them off the worksite. Employees on drugs or alcohol also can be excused from work without penalty. Upon return to work, the employee is confronted by a peer trained to assess whether the incident is indicative of a substance abuse problem and steer employees with problems to help.

A time series analysis is examining program impacts on injuries, disciplinary actions, and absenteeism, as well as on random drug test results. The analysis of injury rates uses other firms in the industry as a control group which implemented random testing without PeerCare.

Preliminary findings are that the PeerCare program, in conjunction with random drug testing, reduced injuries significantly and substantially more than random testing alone. The injury rate dropped significantly as the percentage of employees trained in PeerCare rose. Random alcohol testing had no incremental impact, but may have impacted injury rates at firms without PeerCare. The cost savings from PeerCare exceed its costs. This evaluation clearly demonstrates that substance abuse prevention at work is a cost-effective way to dramatically improve worker safety.

H4.5 Mortality Patterns at a Large U.S. Manufacturing Company From 1974 Through 1998—Reeve GR

A review of 104 occupational fatalities over a 25-year period among employees of a large manufacturing company was conducted. Established nationally recognized coding systems were used to initially describe this case series. Additional reviews of the case series was conducted to provide closer linkage to the company's existing injury prevention processes. These additional reviews resulted in the cases being classified into one of four major categories: 1)Work Practices and Processes; 2)Motorized Vehicles; 3) Issues Relating to Plant Environment and Equipment Design; and, 4) Violence in the Workplace. Half of the fatalities (n=51) involved Work Practices and Processes. In situations where workers were functioning within the general limits of acceptable work practices, the process of moving large dies or other metal stamping equipment was associated with the highest number of fatalities. Failure to lock-out or de-energize equipment during repair operations accounted for 18 fatalities. The next largest category, Motorized Vehicles, accounted for nearly 30% (n=28) of the fatalities with only 10 of them occurring inside company buildings. The other 18 occurred outside of a plant environment and involved the largest percentage of salaried employees. In the major category of Environmental or Equipment Design, nine deaths involved plant environmental hazards, such as lack of barriers to protect workers from falls or drowning, or lethal exposures to poisonous gases. A very small number of deaths (n=4) involved line workers operating equipment at their work

Pittsburgh, Pennsylvania
October 17-19, 2000

ABSTRACTS

National Occupational Injury Research Symposium

CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION

National Institute for Occupational Safety and Health
NIOSH