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Leading Work-Related Diseases and Injuries- -United States

The National Institute for Occupational Safety and Health (NIOSH) has developed a suggested list of the 10 leading work-related diseases and injuries. Summaries of three of these categories ("Occupational Lung Diseases," "Musculoskeletal Injuries," and "Occupational Cancers") have recently been published (1-3). The fourth category "Amputations, Fractures, Eye Loss, Lacerations, and Traumatic Death," is summarized below. SEVERE OCCUPATIONAL TRAUMATIC INJURIES

Severe occupational traumatic injuries usually occur suddenly on the job and are either fatal or require immediate medical care. Data on these events are available from several different sources, including: the National Electronic Injury Surveillance System (NEISS) of the Consumer Product Safety Commission (4); the Supplementary Data System (SDS) of the Bureau of Labor Statistics (BLS) (5); the Annual Survey of Occupational Injuries and Illnesses conducted by the BLS (6); and the National Safety Council (7). The National Safety Council and the Annual Survey of the BLS estimate occupational traumatic deaths.

These sources report different aspects of the problem because of differences in the scope of events that each system tries to reflect. NEISS reports cases of occupational trauma from a representative sample of U.S. hospital emergency rooms. SDS records information from Workers' Compensation claims filed in 33 states. As required by the Occupational Safety and Health Administration, the Annual Survey of the BLS reports traumatic events occurring in the private sector; thus, it does not include traumatic events in the public sector, on farms with 10 or fewer employees, and in firms regulated by other federal health and safety laws. The National Safety Council reports data from the National Health Survey (based on 41,000 annual interviews with heads of households) and data from several participating public and private organizations. The definition of "recordable injury" varies considerably among these systems.

Because of these differences, it is not easy to achieve a reliable national composite of severe occupational traumatic injuries. Within the limitations of these data sources, NIOSH estimates

that at least 10,000,000 persons suffer traumatic injuries on the job each year. About 30% (at least 3,000,000) of these injuries are severe, and at least 10,000 are fatal.

Traumatic Deaths: Each year, an estimated 10,000 persons are killed on the job. The major causes of these deaths are (1) highway motor-vehicle incidents, including to and from work and job-related travel (34%); (2) falls (13%); (3) nonhighway industrial-vehicle incidents (11%); (4) blows (other than by vehicles or equipment) (8%); and (5) electrocutions (7%) (Table 1). Industries with the highest estimated rates of fatal traumatic injury are (1) mining and quarrying, (2) agriculture (including forestry and fishing), and (3) construction (Table 2).

Amputations: Although amputations account for less than 1% of estimated injuries, they often impair a worker's skills. An estimated 21,000 workers suffered amputations in 1982. Based on NEISS data, approximately 93% of these amputations were of fingers (8); and 4%, of hands and toes. Amputations of fingers most frequently resulted from fingers being caught in machines or hand tools (11%) or cut by moving objects, such as saws or slicers (10%). Other important sources of amputations included presses (6%), belts (5%), powered hand tools (2%), and doors or gates (2%). Other specific sources accounted for less than 2% each of occupational amputations.

According to SDS data, amputations occurred in a wide range of industries and occupations. The largest single proportion of amputations (2%) occurred in the manufacture of miscellaneous plastic products, and machine operators had the largest proportion of occupational amputations (8%).*

Fractures: Falls and blows from falling objects produce many types of injuries, the less severe forms being contusions, abrasions, and sprains. During 1982, an estimated 400,000 work-related fractures occurred. SDS data for 1980 included approximately 208,000 compensation claims for fractures. The most frequently listed sources of fractures included floors (13%), the ground (10%), and metal items (7%), suggesting falls as the main cause of such injuries. Specifically, falls to a working surface accounted for 15% of the fractures; blows from unspecified or falling objects accounted for 31%. Fractures occurred most frequently among truck drivers (5%), miscellaneous laborers (4%), and construction laborers (3%).*

Eye Loss: Although it is difficult to measure the extent of eye loss or blindness among workers, NIOSH estimates (based on NEISS data) indicate that approximately 900,000 occupational eye injuries occurred in 1982. For 84% of these, the trauma was minor, caused mostly by foreign bodies (e.g., pieces of metal, wood, or glass) in the eyes. Burns and avulsions--44% of which were caused by chemicals or acids--accounted for nearly 15% of the estimated occupational eye injuries.*

Lacerations: An estimated 2,250,000 work-related lacerations occurred in 1982, representing 24% of all job-related injuries treated in hospital emergency rooms. Data from compensation claims described in SDS indicate that fingers (48%), arms (24%), legs (13%), and the head and neck (9%) were most likely to be seriously lacerated. These lacerations resulted primarily from being struck by an object (32%) or from striking against a stationary object (25%). The major sources of lacerations are knives (13%), other sharp metal items (13%), saws (6%), glass items (5%), nails (5%), and machines (3%). The settings in which workers incurred the largest proportion of lacerations were eating and drinking establishments (7%), grocery stores (4%), general building

construction (2%), and meat packing (2%).* Reported by Div of Safety Research, National Institute for Occupational Safety and Health, CDC.

Editorial Note

Editorial Note: Recent analyses of potential life lost due to various causes indicate that "accidents and adverse effects" are the leading cause of the loss of potential years of life in this country (9). Occupational injuries occur at a rate** twice that of injuries in the home or in public places (7), and severe traumatic injuries are an important component of all occupational injuries. Severe occupational trauma is second only to motor-vehicle incidents as a cause of unintentional death in the United States (7).

Despite the number of occupational injuries, effective prevention is practiced in many workplaces, and approximately 48% of all employment establishments report no recordable injuries in a given year (6). As with other occupational health hazards, the prevention of severe occupational traumatic injuries rests on the basic principles of control technology: engineering controls, work practices, personal protective equipment, and monitoring of the workplace for emerging hazards. Severe occupational traumatic injuries can be prevented by such specific measures as physical barriers between the worker and the source of injury (e.g., machine guards, light curtains, worker-independent safety circuits, proximity sensors on robots); changes in the design of tools (e.g., knives and slicers) and tasks to reduce the hazard; use of personal protective equipment (e.g., seat belts, protective eye- and footwear, helmets, harnesses); training of workers in the safe performance of tasks; and repeated systematic inspection of the workplace for emerging or previously undetected hazards. A visible, serious, and persistent commitment to safety by both management and labor appears crucial for preventing severe occupational traumatic injuries.

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9. CDC. Table V. MMWR 1984;33:209. *The remaining percentages are divided among a variety of specific categories, each accounting for less than the smallest percentage given.
**Injuries per million exposure hours.

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