Perils in the Workplace

BY CENSUS OF FATAL OCCUPATIONAL INJURIES STAFF

Between 6,000 and 6,600 workers have been fatally injured each year since 1992, according to the Census of Fatal Occupational Injuries (CFOI).[1] The National Safety Council (NSC) estimates that each fatal work injury, in monetary terms, costs approximately $790,000. This figure includes lost wages, medical insurance, and administrative and indirect costs such as production downtime.[2] Furthermore, based on data from the Social Security Administration published by NSC for 1993, a total of $42.9 billion was paid for all workers' compensation claims (the latest year for which data were available). These costs are significant in both social terms and in lost productivity to the business sector.

Safety and health professionals contend that fatal occupational injuries are in large part preventable, and their occurrence indicates a failure in preventive practices. Information is available on who is fatally injured by industry and occupation; the circumstances of the incident by event and exposure; and equipment involved in these injuries. These data can play an important role in raising employer and worker awareness of potential hazards in the workplace.

These data show that outdoor occupations like fishers and timber cutters have the highest risk of fatal work injuries; among industries, construction has the largest number of work-related fatalities; almost a third of the fatal incidents occur on the streets and highways; and about 40 percent of incidents are transportation-related, including highway, off-highway, air, water, and rail accidents. (See table 1.)

This report describes the risk of incurring a fatal injury on the job and typical ways in which workers are fatally injured. This information can be used by employers, their workers, and safety and health professionals to design and implement safety programs for injury prevention.

This report was written by the CFOI staff. For more information on occupational fatalities, access the Internet site at http://stats.bls.gov/oshhome.htm or send e-mail to CFOIstaff@bls.gov

Risk of a fatal work injury

In 1995, there were 126 million workers in the United States. According to the BLS Census of Fatal Occupational Injuries, of these workers, 6,210 lost their lives.[3] These victims worked in virtually all industrial settings: Factories, farms, construction sites, and in a host of service related jobs. Some industries are more dangerous than others, and a rate is often used to compare the risk of incurring a fatal work injury for workers in various industries. In 1995, the overall rate of a fatal work injury was 5 fatalities per 100,000 workers. Employees in services and finance, insurance and real estate had the lowest risk of a fatal injury at 2 fatalities per 100,000 workers, whereas workers in mining had the highest risk at 25 per 100,000.

The risk of incurring a fatal work injury can also be compared among occupation groups or other demographic characteristics. For example, outdoor occupations such as fisher, timber cutter, and airplane pilot are among the most dangerous jobs with rates of around 100 fatalities per 100,000 workers. Yet, truckdrivers, who account for about 700 job-related fatalities each year (more than any other single occupation), have a fatality rate of 26 per 100,000 workers. This example illustrates that it is important to consider the number of fatalities, as well as rates, when determining what jobs are dangerous and where to focus prevention efforts.[4]

Industry profile of fatalities in 1995

The construction industry accounted for over 1,000 of the total fatalities—more than any other industry —representing about 17 percent of total work fatalities. Construction fatalities primarily resulted from falls, electrocutions, and vehicle-related incidents. Construction laborers as opposed to other construction trades, were involved in about 30 percent of the construction industry fatalities.

Fatalities in transportation and public utilities claimed almost as many lives—about 900 job-related fatalities or approximately 14 percent of the total. These fatalities resulted primarily from highway incidents.

Next in prevalence were the agriculture, forestry, and fishing industries, together with about 800 fatalities. For farm workers, almost one third of the fatalities involved tractors; for timber cutters, two-thirds involved being struck by fallen trees; and for fishers, drowning was the main peril.

Retail trade, manufacturing, and services accounted for about 700 fatalities each. Homicide was the major threat for workers in retail trade and service industries; contact with objects and equipment, such as falling trees and powered machines, was the leading hazard for workers in manufacturing industries.

The remainder of the job-related fatalities were distributed in government (12 percent), wholesale trade (4 percent), and finance, insurance, and real estate (2 percent).

How workers are fatally injured

Highway traffic incidents and homicides led all other fatality events accounting for 21 and 16 percent, respectively, of the total in 1995. (See chart 1.) Vehicle crashes were the main highway hazards with about half involving truckers, while robbery was the leading motive in job-related homicides, including taxicab drivers and cashiers.

Falls accounted for 10 percent of fatal work injuries in 1995. Falling from, or through roofs, accounted for one-fifth of the falls. This was the leading cause of a job-related fatal injury for carpenters, roofers, structural metal workers, and construction laborers.

Workers being struck by various objects, such as trees and falling building materials, resulted in 9 percent of the fatal injuries in 1995. About 80 timber cutters lost their lives by being struck by falling trees.

Electrocutions claimed 6 percent of the fatally injured workers, two-fifths of which resulted when workers or equipment came in contact with overhead power lines.

More than half of the 117 electricians killed in 1995 involved electrocutions.

A typical workday

Listed below are some hazards workers face each day, followed by some less common job-related hazards.

On average, 17 workers are killed each day, on the job, including:

- 3 workers killed in highway vehicle incidents:
  - 2 of whom are killed in either a collision between vehicles or between a vehicle and a stationary object, such as a tree or telephone pole;
  - the third is typically a driver whose vehicle has jack-knifed or overturned.
- 2 to 3 workers are shot, at least 1 while tending a retail establishment; 1 worker is stabbed, strangled, or beaten to death;
- 2 workers are killed from falls, typically from a ladder, roof, or scaffold;
- 1 worker is killed in a vehicle incident occurring off the public roadway, such as a farm tractor over turning in the field, or a forklift overturning on industrial premises;
- 1 worker is killed after being struck by a vehicle;
- 1 worker is killed in either an aircraft crash or a water vehicle or railway accident;
- 1 worker is killed by being struck by a falling object, such as a tree being cut down, a cinder block falling from a construction scaffold, or a vehicle falling off a jack during repair;
- 1 worker is electrocuted;
- 1 worker is killed in either a fire or explosion, from drowning, or from inhaling a toxic substance;
- 1 worker commits suicide on the job or because of a job-related incident; and
- 1 worker is killed by being caught in a machine or caught under collapsing materials, such as in a trench cave-in or engulfment in a grain bin.

A typical year

On average, each year about:

- 30 workers die from heatstroke. Often these workers are farmers and laborers;
- 30 workers die from carbon monoxide poisoning. Many are mechanics who repair vehicles in closed structures;
- 15 workers are killed by lightning. Many are farmers tending crops or livestock;
- 13 workers are killed by the accidental discharge of a firearm;
- 12 farm workers are killed when gored or trampled by bulls or other farm animals;
- 12 women are killed at work by their husbands or ex-husbands;
- 10 workers are killed by exploding tires, typically when inflating the tire;

- 10 workers are killed by methane gas emitted from manure pits or from sewers. Usually these incidents involve farmers or sanitation workers;
- 8 workers die after being burned by hot water or steam while inspecting or cleaning machinery;
- 5 workers are killed when delivering packages by bicycle;
- 4 workers are killed by debarking machinery.[5] Generally, these workers are killed trying to dislodge logs that have jammed in the machine; and
- 4 workers die from allergic reaction to bee stings. Workers include those in outdoor occupations, such as horticulturists.

Thus, fatal occupational injuries are, to some extent, predictable. But, because one does not know exactly when a fatal injury will occur, workers must be ever vigilant of potential life-threatening situations, take safety precautions, and wear appropriate safety equipment.

—ENDNOTES—

[1] Data on fatal work injuries are from the Bureau of Labor Statistics' Census of Fatal Occupational Injuries, 1995. This program, which has collected occupational fatality data nationwide since 1992, uses diverse data sources to identify, verify, and profile fatal work injuries. Information about each workplace fatality (occupation and other worker characteristics, equipment being used, and circumstances of the event) is obtained by cross-referencing source documents, such as death certificates, workers' compensation records, news accounts, and reports to Federal and State agencies. This method assures counts are as complete and accurate as possible. For more information on the CFOI program, access the World Wide Web (at stats.bls.gov/oshfat1.htm) or E-mail (cfoistaff@bls.gov).

[2] National Safety Council, *Accidents Facts, 1996 Edition*. p. 51.

[3] Toscano, Guy and Windau, Janice, "National Census of Fatal Occupational Injuries, 1995," *Compensation and Working Conditions*, Bureau of Labor Statistics, September 1996, pp. 34-45.

[4] Toscano, Guy, "Dangerous Jobs," *Compensation and Working Conditions*, Bureau of Labor Statistics, Summer 1997, pp. 57-60.

[5] Debarking machinery is equipment used to remove the bark from cut logs. In general, the process may involve either feeding the logs into a rotating drum machine where friction removes the bark, or feeding the logs through a chipper or cutter.

Chart 1: The manner in which workplace fatalities occurred, 1995

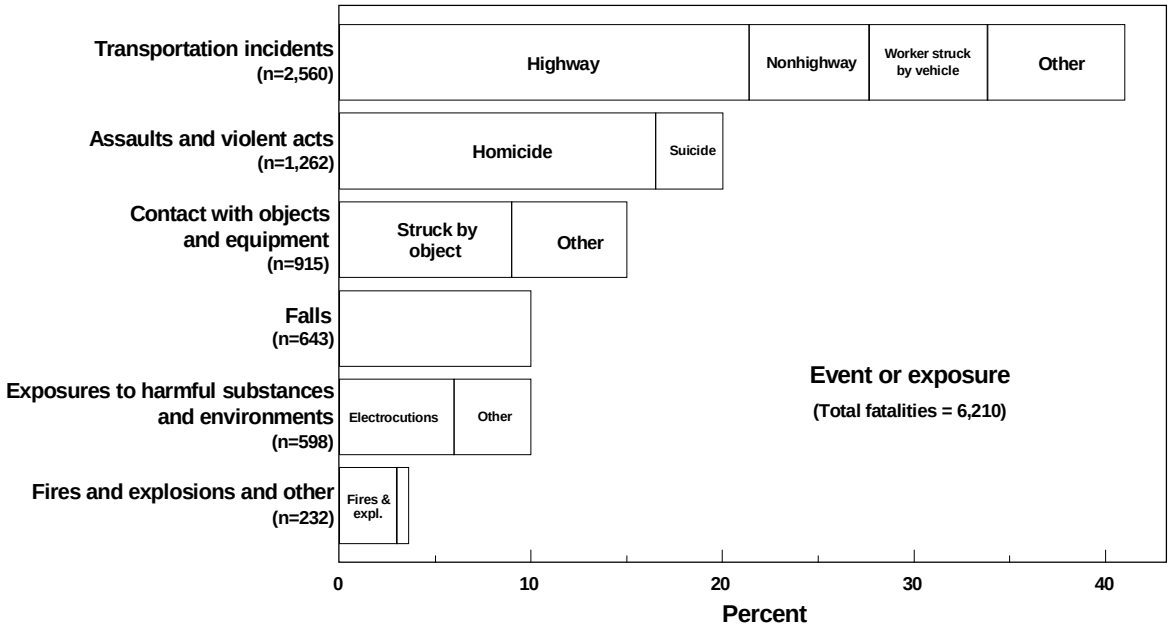

Table 1. Fatal occupational injuries by location of incident and event or exposure, 1995

Location	Fatalities		Event or exposure[1] (percent)						
	Number	Percent	Total	Transportation incidents[2]	Assaults and violent acts[3]	Contact with objects and equipment	Falls	Exposure to harmful substances or environments	Fires and explosions
Total	6,210	100.0	100.0	41.2	20.3	14.7	10.4	9.6	3.3
Street or highway	1,808	29.1	100.0	87.4	7.1	2.9	0.9	1.4	0.2
Industrial place or premise	1,439	23.2	100.0	15.8	6.4	30.9	23.7	14.2	8.9
Industrial place and premises, unspecified	189	3.0	100.0	4.8	11.1	40.2	13.2	15.3	15.3
Dockyard	40	0.6	100.0	37.5	–	40.0	–	–	–
Loading platform, factory or store	70	1.1	100.0	25.7	12.9	38.6	14.3	–	–
Railway yard, includes railway line, tracks	75	1.2	100.0	78.7	–	9.3	–	5.3	–
Warehouse	53	0.9	100.0	30.2	11.3	11.3	18.9	11.3	17.0
Construction site	508	8.2	100.0	11.4	1.4	26.2	42.3	17.3	1.4
Industrial place or premises, nec	436	7.0	100.0	7.8	10.3	34.2	16.7	15.1	15.6
Other specified place[4]	809	13.0	100.0	43.0	18.0	15.0	7.5	13.7	2.2
Parking lot, garage (employer's premises)	109	1.8	100.0	15.6	49.5	18.3	6.4	6.4	3.7
Parking lot, garage (except employer's premises)	63	1.0	100.0	25.4	47.6	–	6.3	12.7	–
River	54	0.9	100.0	48.1	–	–	–	44.4	–
Sea	81	1.3	100.0	76.5	–	4.9	–	12.3	–
Public building[5]	989	15.9	100.0	0.8	75.5	4.0	9.5	7.4	2.1
Bank	9	0.1	100.0	–	77.8	–	–	–	–
Hotel, motel	35	0.6	100.0	–	62.9	–	17.1	11.4	–
Market, grocery or other commodity	179	2.9	100.0	–	91.6	2.2	2.2	2.2	–
Office building	224	3.6	100.0	–	89.3	–	7.1	2.2	–
Restaurant, cafe	102	1.6	100.0	–	85.3	–	7.8	5.9	–
Shop, commercial, store, (except grocery)	249	4.0	100.0	–	73.9	5.6	4.8	9.2	4.8
School (State, public, private)	35	0.6	100.0	–	22.9	11.4	34.3	28.6	–
Farm	625	10.1	100.0	49.8	5.3	24.6	7.0	10.7	2.1
Farm buildings	58	0.9	100.0	8.6	10.3	34.5	19.0	22.4	–
Farm land under cultivation, fields, meadows	256	4.1	100.0	72.3	2.7	16.0	–	6.6	–
Farm pond, creek, canal, irrigation ditch	21	0.3	100.0	42.9	–	–	–	52.4	–
Private residence[6]	257	4.1	100.0	4.3	26.1	14.0	22.6	26.5	5.8
Apartment	45	0.7	100.0	–	46.7	–	22.2	20.0	–
Mine, quarry	91	1.5	100.0	26.4	–	39.6	11.0	16.5	5.5
Gravel, sand pit	12	0.2	100.0	41.7	–	50.0	–	–	–
Mine	48	0.8	100.0	16.7	–	39.6	12.5	22.9	–
Place for recreation and sport	51	0.8	100.0	23.5	23.5	15.7	–	23.5	–
Recreation, sports center on employer's premises	12	0.2	100.0	–	66.7	–	–	–	–
Recreational and sports areas	31	0.5	100.0	38.7	12.9	12.9	–	19.4	–
Residential institution[7]	21	0.3	100.0	–	38.1	–	19.0	–	–
Unspecified place	120	1.9	100.0	30.0	22.5	17.5	10.0	16.7	–

[1] Based on the 1992 BLS Occupational Injury and Illness Classification Structures. Includes other events and exposures, such as bodily reaction, in addition to those shown separately.

[2] Includes highway, nonhighway, air, water, and rail fatalities.

[3] Includes violence by persons, self-inflicted injury, and assaults by animals.

[4] Primarily includes outdoor areas such as bodies of water, woods, noncultivated fields, and parking lots.

[5] Buildings and adjacent grounds used by the general public or a particular group, such as hotels, restaurants, stores, office buildings, courthouses, and schools.

[6] These fatalities primarily occurred to repair or maintenance workers or to police while on duty.

[7] Includes children's home, dormitory, hospital, jail, nursing home, and reform school.

NOTE: Totals for major categories may include subcategories not shown separately. Percentages may not add to totals because of rounding.

Dashes indicate no data reported or data that do not meet publication criteria.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor, in cooperation with State and Federal agencies, Census of Fatal Occupational Injuries, 1995.