

Nonfatal Occupational Injuries — Continued

6. Hendricks KJ, Layne LA. Adolescent occupational injuries in fast food restaurants: an examination of the problem from a national perspective. *J Occup Environ Med* 1999;41:1146–53.
7. Layne LA, Castillo DN, Stout N, Cutlip P. Adolescent occupational injuries requiring hospital emergency department treatment: a nationally representative sample. *Am J Public Health* 1994;84:657–60.
8. US Department of Health and Human Services. *Healthy people 2010* (conference ed, 2 vols). Washington, DC: US Department of Health and Human Services, 2000.
9. US Department of Health and Human Services. *Promoting safe work for young workers: a community-based approach*. Cincinnati, Ohio: US Department of Health and Human Services, 1999: DHHS publication no. 99-141.

Fatal Occupational Injuries — United States, 1980–1997

CDC monitors deaths from occupational injuries through the National Traumatic Occupational Fatalities (NTOF) surveillance system (1,2). This report provides an overview of traumatic occupational deaths among civilian workers from NTOF from 1980 through 1997, the most recent year for which data are available. The data presented in this report indicate a decrease in occupational deaths over this period with mining, agriculture/forestry/fishing, and construction having the highest death rates; motor-vehicle crashes were the leading cause of injury-related deaths for U.S. workers. State health departments and others involved in prevention of occupational injuries can use the data to prioritize intervention programs.

NTOF contains information obtained from death certificates from the vital statistics reporting units in the 50 states, New York City, and the District of Columbia (1).^{*} Crude death rates per 100,000 workers were calculated as the number of deaths among civilian workers for each year divided by the number of employed civilians for each year. Employment estimates for rate calculations were obtained from the Bureau of Labor Statistics' (BLS) Current Population Survey (CPS), a population-based, household-sample survey of the civilian, noninstitutionalized population. These data were extracted from the BLS *Employment and Earnings*[†] and the CPS monthly microdata files (3). Employment data used for rate calculations were based on the number of workers.

National Estimates

During 1980–1997, 103,945 civilian workers died in the United States from occupational injuries, an average of 16 work-related deaths per day. The annual number of traumatic occupational deaths declined 28%, from 7343 in 1980 to 5285 in 1997. The rate for occupational injury deaths for all workers decreased 45%, from 7.4 per 100,000 workers in 1980 to 4.1 in 1997.

Males accounted for 93% of all deaths, with a death rate approximately 11 times that of females (Table 1). Although 85% of civilian workers who died were white, blacks had a higher fatality rate (5.6 per 100,000 workers) than whites (5.0). Workers aged 25–34 years accounted for the largest number of occupational injury deaths, and workers aged ≥65 years had the highest age-specific death rate (Table 1).

^{*}Inclusion criteria for death certificate submission to the NTOF database include 1) age ≥16 years; 2) external cause of death (*International Classification of Diseases, Ninth Revision*, codes E800–E999); and 3) "Injury at Work?" item marked positive by the certifier.

[†]Employment estimates were based on household data annual averages from the BLS monthly publications of the *Employment and Earnings*. These estimates are extracted from each of the January issues for 1980–1997.

*Fatal Occupational Injuries — Continued***TABLE 1. Number and rate* of traumatic occupational deaths, by sex, race, and age group — United States, 1980–1997**

Characteristic	No.	(%)	Rate
Sex			
Male	97,053	(93)	8.6
Female	6,886	(7)	0.8
Unknown	6	(<1)	—
Race			
White	88,392	(85)	5.0
Black	11,478	(11)	5.6
Other	3,167	(3)	4.8
Unknown	908	(1)	—
Age group (yrs)			
16–17	969	(1)	2.1
18–19	2,714	(3)	3.8
20–24	10,791	(10)	4.5
25–34	26,390	(25)	4.7
35–44	22,881	(22)	4.5
45–54	18,213	(18)	5.2
55–64	14,108	(14)	6.9
≥65	7,779	(7)	13.3
Unknown	100	(<1)	—
Total	103,945	(100)	5.1

*Per 100,000 workers. Rates not calculated for “unknown” or “not classified” categories.

Since 1980, motor-vehicle crashes accounted for 24% of deaths and were the leading cause of injury-related death for U.S. workers. In 1990, homicides became the second leading cause of occupational injury deaths (14%), surpassing machine-related deaths (13%). Deaths caused by falls and electrocutions accounted for 10% and 7% of work-related deaths, respectively.

The industries in which the largest numbers of deaths occurred were construction (19,179 deaths [19% of reported deaths]), transportation/communications/public utilities (17,489 [17%]), and manufacturing (15,490 [15%]). Industries with the highest death rates were mining (30 per 100,000 workers), agriculture/forestry/fishing (19), and construction (15).

The risk for specific causes of death varied by industry. Machinery was the leading cause of death in agriculture/forestry/fishing, mining, and manufacturing. Falls were the most prevalent in construction, followed by motor-vehicle crashes, and machinery. Motor-vehicle crashes were the leading cause of death in transportation/communications/public utilities, wholesale trade, and public administration. Homicide was the leading cause of death in retail trade, finance/insurance/real estate, and services.

The occupation categories in which the largest number of deaths occurred were precision production/craft/repairers (21,412 deaths [21%]), transportation/material movers (18,251 [18%]), and farmers/foresters/fishers (13,597 [13%]). Occupation categories with the highest death rates were farmers/foresters/fishers (21.4 per 100,000 workers), transportation/material movers (21.3), and handlers/equipment cleaners/helpers/laborers (13.4).

State Estimates

The greatest number of fatal occupational injuries occurred in California (10,712 deaths [10%]), Texas (10,294 [10%]), Florida (6,269 [6%]), Illinois (4,582 [4%]), and Pennsylvania

Fatal Occupational Injuries — Continued

(4,402 [4%]). Fatal occupational injury rates were highest in Alaska (22.7 per 100,000 workers), Wyoming (15.8), Montana (11.8), Idaho (10.4), and West Virginia (10.1). The leading causes of death varied for each of these five states. For example, water transport accounted for the most deaths in Alaska (33%), compared with approximately 2% for the United States, and air transport was the second or third leading cause of death in four of the five states, compared with being the seventh overall cause of death nationally.

Reported by: Div of Safety Research, National Institute for Occupational Safety and Health, CDC.

Editorial Note: The findings in this report indicate a general decrease during 1980–1997 in the annual number of deaths and the annual rates of occupational deaths in the United States. In addition, the leading causes of death have changed through the 1990s. Although surveillance data cannot identify reasons for these temporal trends, changes in the workplace (e.g., increased and better targeted regulations, improved hazard awareness, new technology, and mechanization) are possible factors (4). In addition, changes in the economy, the industrial mix, and the distribution of the workforce (4) and improvements in acute trauma care for injured workers may have contributed to these decreases.

NTOF is the only surveillance system with comprehensive fatal occupational injury data for the United States during the 1980s. NTOF provides data for examining temporal trends and analyzing data by cause of death and industry, both useful tools for identifying injury patterns and suggesting targets for interventions.

The findings in this report are subject to at least four limitations. First, only 67%–90% of all fatal occupational injuries can be identified using death certificates as the source of case identification (1). Second, standardized guidelines for coding the “Injury at Work?” item on the death certificates were introduced in 1992;⁵ as a result, earlier application of this item may have been inconsistently applied. Third, information derived solely from death certificates lacks the level of detail found in multisource databases, resulting in increased potential for misclassification. Finally, the rates presented in this report do not reflect the difference in exposure for groups that commonly work <40 hours per week (e.g., youth and older workers).

In 1992, BLS began collecting data on work-related deaths from all 50 states and the District of Columbia through the Census of Fatal Occupational Injuries (CFOI), a multi-source surveillance system that incorporates information from various sources, including death certificates, workers’ compensation reports, medical examiner and coroner reports, news media, motor-vehicle incident reports, information from other federal agencies, and follow-up questionnaires (5). CFOI uses multiple data sources and requires that work-relatedness be substantiated by at least two of these sources, leading to improvements in both case ascertainment and data accuracy. NTOF and CFOI identified similar patterns from 1992 through 1997, the years for which data collection for the two systems overlapped; however, NTOF identified 32,368 deaths, compared with 37,875 by CFOI (6).

One of the national health objectives for 2010 is to reduce the rate of work-related injury death to 3.2 per 100,000 workers (objective 20-1a) (7). Surveillance data, such as those gathered through NTOF and CFOI, provide the basis for strategies to prevent traumatic work-related deaths by profiling high-risk worker groups and leading causes of death. This information can be used to develop targeted injury-prevention efforts.

⁵ In 1992, national guidelines for completing the “Injury at Work?” item were developed and disseminated by the Association for Vital Records and Health Statistics (now the National Association for Public Health Statistics and Information Systems), NIOSH, the National Center for Health Statistics, and the National Center for Environmental Health (1).

Fatal Occupational Injuries — Continued

Additional information about NTOF is available from NIOSH, telephone (800) 356-4674 or (513) 533-8328; or at <http://www.cdc.gov/niosh/homepage.html>.

References

1. Jenkins EL, Kisner SM, Fosbroke DE, et al. Fatal Injuries to workers in the United States, 1980–1989: a decade of surveillance, national and state profiles. Cincinnati, Ohio: US Department of Health and Human Services, Public Health Services, CDC, 1993; DHHS publication no. (NIOSH)93-108S.
2. CDC. Fatal occupational injuries—United States, 1980–1994. *MMWR* 1998;47:297–302.
3. Bureau of Labor Statistics. BLS handbook of methods. Washington, DC: US Department of Labor, Bureau of Labor Statistics, 1992. (BLS Bulletin 2414).
4. Stout NA, Jenkins EL, Pizatella TJ. Occupational injury mortality rates in the United States: changes from 1980 to 1989. *Am J Public Health* 1996;86:73–7.
5. Bureau of Labor Statistics. Fatal workplace injuries in 1992: a collection of data and analysis. Washington, DC: US Department of Labor, Bureau of Labor Statistics, 1994. (Report 870).
6. Bureau of Labor Statistics. Fatal workplace injuries in 1997: a collection of data and analysis. Washington, DC: US Department of Labor, Bureau of Labor Statistics, 1999. (Report 934).
7. US Department of Health and Human Services. Healthy people 2010 (conference ed, 2 vols). Washington, DC: US Department of Health and Human Services, 2000.

Progress Toward Global Poliomyelitis Eradication, 2000

In 1988, the World Health Assembly resolved to eradicate poliomyelitis globally by 2000 (1). Substantial progress toward this goal has been reported from all six World Health Organization (WHO) regions*; 20 countries reported poliovirus transmission in December 2000 compared with 30 in 1999. WHO has prepared a global action plan that anticipates certification of polio eradication in 2005 (2). This report summarizes the status of the eradication effort and describes the remaining tasks to be completed to reach global polio eradication.

Among infants aged <12 months worldwide, 79% and 78% were vaccinated with three doses of oral poliovirus vaccine (OPV) in 1998 and 1999, respectively. Africa reported the lowest routine vaccination rates (51% in 1998 and 49% in 1999). Among most of the 20 countries where polio is endemic (Figure 1), routine vaccination was <50%.

Three activities supplement routine vaccination: national vaccination days (i.e., nationwide mass campaigns), subnational vaccination days (i.e., mass campaigns conducted in large areas of a country), and mopping-up (i.e., focal mass campaigns in high-risk areas). The supplemental rounds last several days to weeks and usually target children aged <5 years who are administered two OPV doses. Since 1999, countries where polio is endemic have increased the number and improved the quality of supplemental rounds; 10 priority countries held 50% more rounds in 2000 than in 1999, and an additional 10%–40% of children received OPV from health-care workers going house-to-house. During January 1999–May 2000, the number of countries where polio is endemic decreased from 30 to 24 (13 in Africa, seven in the Eastern Mediterranean, and four in the South-East Asia) (Figure 1). Transmission was detected in 20 countries during the second half of 2000.

Despite improved surveillance, the number of reported polio cases decreased by 60% from 7141 in 1999 to 2849 as of April 3, 2001 (Table 1). From 1999 to 2000, the global

*Africa, the Americas, Eastern Mediterranean, Europe, South-East Asia, and Western Pacific.

MMWRTM
**MORBIDITY AND MORTALITY
WEEKLY REPORT**

- 309** Workers' Memorial Day — April 28, 2001
309 Baler and Compactor-Related Deaths in the Workplace — United States, 1992–2000
313 Nonfatal Occupational Injuries and Illnesses Treated in Hospital Emergency Departments — United States, 1998
317 Fatal Occupational Injuries — United States, 1980–1997
320 Progress Toward Global Poliomyelitis Eradication, 2000

Workers' Memorial Day — April 28, 2001

Workers' Memorial Day, April 28, 2001, is a designated time to remember workers who have died from work-related injuries or illnesses. Although there have been substantial improvements in occupational health and safety (1), work-related injuries and deaths continue to be a major public health concern. During 1980–1997, 103,945 workers died from work-related injuries, an average of 16 deaths per day. In 1999, the most recent year for which data are available, economic costs of fatal and nonfatal unintentional work-related injuries were an estimated \$122.6 billion (2).

This year, the date also marks the 30th anniversary of the Occupational Safety and Health Act and the establishment of the Occupational Safety and Health Administration and CDC's National Institute for Occupational Safety and Health (NIOSH). NIOSH was established to conduct research and make recommendations to prevent work-related injuries, illnesses, and deaths.

Additional information on causes and prevention of work-related injury and illness is available from CDC, telephone (800) 356-4674 or at <http://www.cdc.gov/niosh/homepage.html>.

References

1. CDC. Improvements in workplace safety—United States, 1900–1999. *MMWR* 1999;48:461–9.
2. National Safety Council. Injury facts, 2000 edition. Itasca, Illinois: National Safety Council, 2000.

**Baler and Compactor-Related Deaths in the Workplace —
United States, 1992–2000**

Equipment that compacts and bales loose solid waste materials into denser, more easily transported units is common in refuse disposal and recycling and is used routinely at recycling centers, manufacturing facilities, and retail and wholesale stores to compress paper, textiles, metals, plastic, and other material*. Persons operating balers and compactors can become caught by the powered rams of the compression chambers while using these machines. Risk factors resulting from these incidents have been identified through surveillance findings and results of investigations conducted by CDC's National Institute for Occupational Safety and Health (NIOSH) Fatality Assessment and

*This report considers only stationary machines.