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Fatal Occupational Injuries — United States, 2005

Data from the annual Census of Fatal Occupational Injuries (CFOI), collected by the Bureau of Labor Statistics (BLS), provide information on fatal occupational injuries that occur in the United States. CDC's National Institute for Occupational Safety and Health (NIOSH) uses CFOI data to support research and evaluation activities related to the National Occupational Research Agenda (NORA), a partnership between the public and private sectors to encourage workplace safety and health research (*1*). Since 1992, when BLS first introduced CFOI, BLS has annually reported data on fatal occupational injuries from all 50 states and the District of Columbia. For 2005, BLS reported a total of 5,702* work-related fatal injuries and a rate of 4.0 deaths per 100,000 workers (*2*); compared with 1992, this represents an 8% decline in the number of deaths (from 6,217 in 1992) and a 23% decline in the fatality rate (from 5.2 in 1992). This report summarizes the 2005 data, which indicated that the highest percentages of fatal workplace injuries were attributed to highway incidents, followed by falls, being struck by an object, and homicides. Since 1992, the number of deaths resulting from highway incidents, falls, and being struck by an object has increased, and the number of homicides has decreased. To reduce the number of workplace deaths, transportation measures targeting workers (e.g., truck safety and highway work-zone safety) should be enhanced by state and local transportation agencies and coordinated with highway-safety measures for the general public.

CFOI collects data on fatal occupational injuries from various federal, state, and local source documents, including death certificates, workers' compensation reports, medical examiner reports, and police reports. More than 95% of cases are verified by at least two independent sources (*2*). To be included in CFOI, the decedent must have been employed at the time of the event, been engaged in a legal work activity,† or been present at a site as a job requirement. Public- and private-sector noninstitutionalized workers (i.e., wage and salary, self-employed, and volunteer) are included. CFOI excludes deaths that occurred during a worker's normal commute to and from work and deaths related to occupational illnesses (e.g., lung disease or cancer). Incident characteristics from the various CFOI source documents were used to code the event or exposure that directly caused the death, according to the Occupational Injury and Illness Classification System (OIICS) (*3*). The industry in which the decedent worked is coded according to the North American Industry Classification System (NAICS) (*4*). For NORA, the detailed codes from the 20 NAICS sectors are combined into eight industry sectors (*1*) according to the similarity of their occupational safety and health risks: 1) agriculture, forestry, and fishing; 2) mining; 3) construction; 4) manufacturing; 5) wholesale and retail trade; 6) transportation, warehousing, and utilities; 7) services; and 8) health care and social assistance.

For this analysis, fatality rates were calculated using estimates of employed civilian workers from the 2005 Current Population Survey (CPS) (*5*) and numbers of military personnel residing in the United States provided by the U.S.

* Preliminary 2005 CFOI data, which were used in this analysis, were released in August 2006. Final 2005 CFOI data will be released in spring 2007 and available at http://www.bls.gov/iif.

† Reported deaths of undocumented workers were included if their deaths were confirmed as work related.

INSIDE

DEPARTMENT OF HEALTH AND HUMAN SERVICES
CENTERS FOR DISEASE CONTROL AND PREVENTION

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Department of Defense (2005 data)[§]; rates are expressed as number of work-related deaths per 100,000 workers. CPS is a monthly household survey of the U.S. civilian, noninstitutionalized population aged ≥16 years that includes wage and salary, self-employed, and part-time workers, in addition to unpaid workers in family-operated enterprises (e.g., farms and small businesses) (*5*). Rates are reported for workers aged ≥16 years; numbers of deaths are reported for all ages.[¶]

In 2005, U.S. workers died from an injury while at work at a rate of 4.0 per 100,000 workers. Males accounted for 93% of all deaths and had a work-related fatality rate approximately 12 times the rate for females (6.9 per 100,000 workers versus 0.6). Workers aged 35–54 years accounted for 46% of workplace deaths. Rates increased with age, from 2.3 per 100,000 workers for those aged 16–19 years to 11.3 for workers aged ≥65 years.

Approximately 43% of fatal work-related injuries resulted from transportation incidents (Table); 58% (1,428) of these deaths involved highway incidents (i.e., incidents that occurred on public roads and surrounding areas such as roadway shoulders, excluding incidents in parking lots or on commercial or farm properties). The majority of the remaining transportation-related deaths involved workers who were struck by vehicles or mobile equipment and workers who were vehicle occupants in nonhighway incidents (i.e., transportation incidents that occurred or originated entirely off the highway or that occurred or originated on industrial, commercial, residential, or farm premises). The remaining categories with the highest rates of fatal occupational injuries were contact with objects or equipment (e.g., being struck by a falling object such as a tree, being crushed during a cave-in while digging ditches, or getting caught in running machinery) (18%), assaults and violent acts (14%), and falls (13%).

During 1992–2005, highway incidents remained the leading cause of fatal occupational injury, with rates that remained nearly constant, from 0.96 per 100,000 workers in 1992 to 1.0 in 2005. During the same period, rates for falls also remained nearly constant, from 0.50 per 100,000 workers in 1992 to 0.54 in 2005. The homicide rate decreased 55%, from 0.87 per 100,000 in 1992 to 0.39 in 2005.

In 2005, one NORA industry sector had a lower fatality rate than other sectors but a high number of fatal injuries (the services sector, with 1,494 deaths) (Table). Similarly, one sector had a higher fatality rate but fewer deaths (the mining sector, with 159 deaths). Sectors with both high numbers of

[§] BLS routinely reports fatality rates by industry, occupation, and other selected worker characteristics. For this report, CDC used BLS data to calculate rates by type of injury event or exposure.

[¶] Per BLS publication requirements, numbers of deaths are reported for workers of all ages. Rates in this report are presented per 100,000 workers aged ≥16 years. In 2005, a total of 24 deaths involved workers aged <16 years.

TABLE. Number and rate* of fatal occupational injuries, by selected event or exposure† and NORA industry sector§ — United States, 2005

Event or exposure	Total fatal injuries		NORA industry sector: Agriculture, forestry, fishing		Mining		Construction		Manufacturing		Trade		Transportation, warehousing, utilities		Services		Health care, social assistance	
	No.	(%)	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate
Total¶	**5,702**	**(100)**	**718**	**31.6**	**159**	**25.5**	**1,238**	**11.1**	**394**	**2.4**	**602**	**2.8**	**967**	**13.1**	**1,494**	**2.2**	**119**	**0.7**
Transportation	**2,480**	**(43)**	349	15.2	60	9.6	348	3.1	109	0.7	223	1.0	706	9.6	621	0.9	64	0.4
Highway incidents	**1,428**	**(25)**	93	4.2	35	5.6	161	1.4	52	0.3	175	0.8	524	7.1	352	0.5	36	0.2
Worker struck by vehicle or equipment	**390**	**(7)**	23	1.0	—	—	116	1.0	20	0.1	27	0.1	83	1.1	113	0.2	—	—
Nonhighway incidents	**340**	**(6)**	162	7.1	—	—	53	0.5	18	0.1	11	0.1	16	0.2	64	0.1	—	—
Contact with objects and equipment**	**1,001**	**(18)**	220	9.7	—	—	250	2.2	138	0.8	74	0.3	98	1.3	163	0.2	—	—
Struck by object	**604**	**(11)**	154	6.9	—	—	134	1.2	69	0.4	46	0.2	61	0.8	110	0.2	—	—
Falls	**767**	**(13)**	31	1.4	11	1.8	396	3.5	48	0.3	53	0.2	46	0.6	167	0.2	13	0.1
Falls to lower level††	**662**	**(12)**	26	1.2	—	—	386	3.4	42	0.3	35	0.2	33	0.4	124	0.2	—	—
Assaults and violent acts	**787**	**(14)**	50	2.2	5	0.8	36	0.3	35	0.2	212	1.0	62	0.8	354	0.5	29	0.2
Homicides	**564**	**(10)**	6	0.3	—	—	24	0.2	21	0.1	187	0.9	44	0.6	262	0.4	—	—
Exposure to harmful substances or environments§§	**496**	**(9)**	51	2.3	16	2.6	166	1.5	35	0.2	23	0.1	45	0.6	149	0.2	10	0.1
Contact with electric current	**250**	**(4)**	17	0.8	—	—	109	1.0	17	0.1	16	0.1	16	0.2	64	0.1	—	—
Fires and explosions	**158**	**(3)**	16	0.7	—	—	41	0.4	27	0.2	13	0.1	10	0.1	35	0.1	—	—
Fires	**91**	**(2)**	13	0.6	—	—	27	0.2	11	0.1	9	<0.1	—	—	21	<0.1	—	—

* Per 100,000 workers aged ≥16 years. Rates were calculated based on the number of fatalities from the Bureau of Labor Statistics (BLS) Census of Fatal Occupational Injuries in 2005; the number of employed workers from the BLS Current Population Survey, 2005; and the number of resident military personnel from the Department of Defense (2005 data). Per BLS publication requirements, numbers of deaths are reported for workers of all ages, whereas rates are for workers aged ≥16 years. In 2005, a total of 24 deaths involved workers aged <16 years.

† Event or exposure according to the BLS Occupational Injury and Illness Classification System.

§ National Occupational Research Agenda. Industry in which the decedent worked was coded according to the 2002 North American Industry Classification System (NAICS). For NORA, the detailed codes from the 20 NAICS sectors are combined into eight industry sectors according to the similarity of their occupational safety and health risks: 1) agriculture, forestry, and fishing; 2) mining; 3) construction; 4) manufacturing; 5) wholesale and retail trade; 6) transportation, warehousing, and utilities; 7) services; and 8) health care and social assistance.

¶ Totals for major events or exposures include subcategories not shown separately. Dashes indicate no data reported or data that do not meet BLS publication criteria.

** Examples include being struck by a falling object such as a tree, being crushed during a cave-in while digging ditches, or getting caught in running machinery.

†† Examples include falling from a ladder, roof, or scaffold; falling down stairs or steps; or falling through a floor or roof.

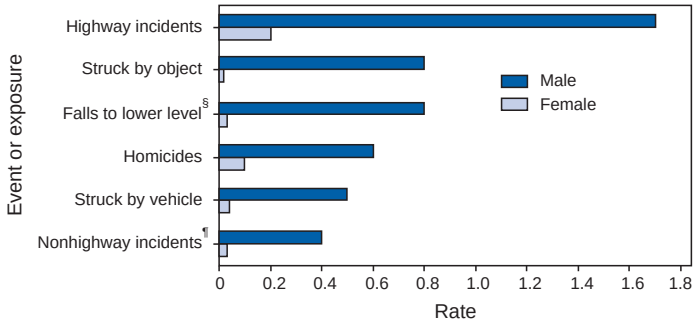
§§ Examples include heat stroke or hypothermia, poisoning through inhalation or ingestion of harmful substances, insect stings and animal bites, and non-transportation–related drownings.

deaths and high fatality rates included construction; transportation, warehousing, and utilities; and agriculture, forestry, and fishing.

Transportation incidents resulted in the highest rate of fatal occupational injuries for six of the eight NORA sectors (Table). Falls resulted in the highest rate in the construction sector, and contact with objects and equipment resulted in the highest rate in the manufacturing sector. Assaults and violent acts resulted in the second-highest rate for three sectors (trade, services, and health care and social assistance).

Highway incidents resulted in the highest fatal occupational injury rate for both sexes (Figure 1). However, for men, a fall to a lower level (e.g., falling from a ladder, roof, or scaffold; falling down stairs or steps; or falling through a floor or roof surface) had the second-highest fatality rate; for women, workplace homicide had the second-highest rate. Rates by type of event or exposure were similar among age groups, with highway incidents accounting for the highest rate among all age groups (Figure 2). However, workers aged ≥65 years had the highest rate for all types of fatal events.

FIGURE 1. Rate* of fatal occupational injuries, by selected event or exposure† and sex — United States, 2005



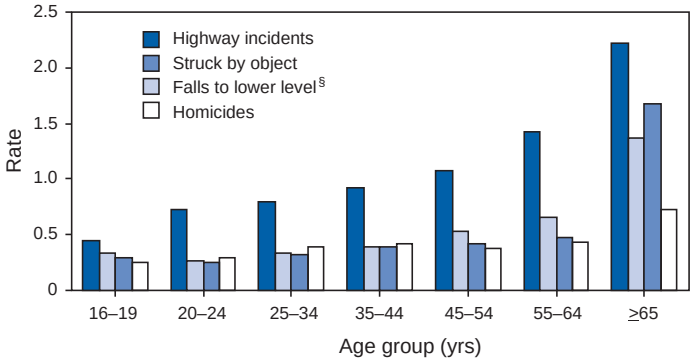
* Per 100,000 workers aged ≥16 years. Rates were calculated from the number of fatalities from the Bureau of Labor Statistics (BLS) Census of Fatal Occupational Injuries in 2005; the number of employed workers from the BLS Current Population Survey, 2005; and the number of resident military personnel from the U.S. Department of Defense (2005 data).

† Event or exposure according to the BLS Occupational Injury and Illness Classification System.

§ Examples include falling from a ladder, roof, or scaffold; falling down stairs or steps; or falling through a floor or roof.

¶ Nonhighway transportation incidents that occur or originate entirely off the highway or that occur or originate on industrial, commercial, residential, or farm premises.

FIGURE 2. Rate* of fatal occupational injuries, by selected event or exposure† and age group — United States, 2005



* Per 100,000 workers aged ≥16 years. Rates were calculated from the number of fatalities from the Bureau of Labor Statistics (BLS) Census of Fatal Occupational Injuries in 2005; the number of employed workers from the BLS Current Population Survey, 2005; and the number of resident military personnel from the U.S. Department of Defense (2005 data).

† Event or exposure according to the BLS Occupational Injury and Illness Classification System.

§ Examples include falling from a ladder, roof, or scaffold; falling down stairs or steps; or falling through a floor or roof.

Reported by: *S Pegula, MS, Bur of Labor Statistics, US Dept of Labor. SM Marsh, MPA, LL Jackson, PhD, Div of Safety Research, National Institute for Occupational Safety and Health, CDC.*

Editorial Note: The CFOI data in this report are comparable to other data on work-related deaths collected by CDC. CDC compiles mortality statistics based on data from U.S. death certificates and categorizes deaths according to codes from the *International Classification of Diseases, Tenth Revision* (ICD-10) (*6*). For 2004, the most recent data available, CDC reported 160,150 injury-related deaths among the U.S. population aged ≥15 years (*7*); 5,157 of all deaths were attributed to injuries at work.** CFOI uses death certificates as a primary data source, but CFOI also identifies occupational-injury deaths from other sources; thus, the number of work-related injury deaths reported by CDC was approximately 89% of the number reported from CFOI for 2004 (5,764). CFOI also might exclude some deaths that were indicated as work related by CDC because CFOI could not use multiple sources to verify that the deaths were work related.

Although differences in the CDC cause-of-death classification codes and CFOI event classification codes preclude direct comparisons in work-related mortality trends, basic comparisons indicate similar trends in causes of death for workers and the general population (*7*). Because the distribution of deaths for workers and the general population by cause of death is comparable (with the exception of suicide and unintentional poisoning), prevention strategies that simultaneously target both populations, such as those related to traffic safety (e.g., promotion of safety-belt use and prevention of impaired driving), might reduce unintentional injury deaths overall (*8*). This strategy might be advantageous in areas that frequently include both workers and the general population, such as highway work zones. Similarly, measures to reduce workplace violence should be integrated with broader communitywide violence-prevention strategies.

The findings in this report are subject to at least three limitations. First, 2005 CFOI data are preliminary. A certain number of additional deaths might be included before finalization of the data in 2007. Second, less than 5% of CFOI cases could not be verified by a second source; however, because initial source documents provided sufficient job-related information, the cases were included and might have resulted in an overestimation; conversely, exclusion of unsubstantiated or misidentified cases might have resulted in an underestimation. Finally, although CFOI data can include volunteers (e.g., hospital aides and firefighters), the CPS and military population data used for the rate denominator do not include volunteers; therefore, the difference in numerator and denominator populations used for calculations in this report might have resulted in an overestimation of the actual fatality rate.

Although substantial improvements have been made, preventable deaths from work-related injuries continue to occur at a rate of nearly 16 deaths per day. These findings suggest that workers continue to be at high risk for fatal highway-related incidents and falls. Implementation, evaluation, and dissemination of strategies to prevent workplace deaths should continue to focus on persons who are exposed to these risks.

** The 5,157 CDC work-related deaths were those with the "injury at work" check box marked on the death certificate. Injury-related deaths were those assigned an ICD-10 underlying cause-of-death code of V01–Y89. Some "injury at work" deaths might have been assigned a noninjury ICD-10 code, leading to exclusion from the 160,150 injury-related deaths reported by CDC.

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Prevalence of Fruit and Vegetable Consumption and Physical Activity by Race/Ethnicity — United States, 2005

Diets high in fruits and vegetables and participation in regular physical activity are associated with a lower risk for several chronic diseases and conditions (*1*). The National Cholesterol Education Program and the American Cancer Society both emphasize lifestyle modifications that include diet and physical activity to reduce disease risk.* These are also two of the strategies implemented by states participating in CDC's Nutrition and Physical Activity Program to Prevent Obesity and Other Chronic Diseases. To examine the combined prevalence of 1) consumption of fruits and vegetables five or more times per day and 2) regular physical activity among U.S. adults by race/ethnicity, CDC analyzed self-reported data from the 2005 Behavioral Risk Factor Surveillance System (BRFSS). This report describes the results of that analysis, which indicated that the combined prevalence of these two behavioral strategies was higher among men of multiple/other races (16.5%) compared with non-Hispanic white men (12.6%). In addition, only 12.6% of non-Hispanic black women and 14.8% of Hispanic women, compared with 17.4% of non-Hispanic white women, engaged in these two behavioral strategies. These results underscore the need to promote diets high in fruits and vegetables and regular physical activity among all populations in the United States and among racial and ethnic minority communities in particular.

BRFSS is a state-based, random-digit–dialed telephone survey of the noninstitutionalized U.S. civilian population aged ≥18 years. In 2005, the survey, which used a stratified, multistage probability sampling design, was administered to a nationally representative sample of adults from the 50 states and the District of Columbia, Puerto Rico, and the U.S. Virgin Islands (N = 356,112). The median state response rate† was 51.1%, and the median cooperation rate§ was 75.1%, when calculated using Council of American Survey and Research Organizations guidelines.¶ Data were weighted to the respondents' probabilities of being selected and to the age-, race-, and sex-specific populations from the states' annually adjusted census results to provide national estimates for the combined prevalence of the two behavioral strategies.

Respondents were asked to report their race and ethnicity; six categories are included in this report: non-Hispanic white, non-Hispanic black, Hispanic, American Indian/Alaska Native (AI/AN), Asian/Pacific Islander (A/PI), and multiracial/other. Any respondent who reported being of Hispanic ethnicity was categorized as Hispanic regardless of race. After excluding 1) respondents who were from Puerto Rico or the U.S. Virgin Islands (n = 6,211), 2) respondents for whom information on race or ethnicity was missing or who replied "don't know" regarding race or ethnicity (n = 3,349), and 3) respondents who were missing information on physical activity (n = 24,136) or consumption of fruits and vegetables (n = 5,115), a total of 317,301 participants remained to constitute the final study sample.

To measure consumption of fruits and vegetables, respondents were asked, "How often do you drink fruit juices such as orange, grapefruit, or tomato?" "Not counting juice, how often do you eat fruit?" "How often do you eat green salad?" "How often do you eat potatoes, not including French fries, fried potatoes, or potato chips?" "How often do you eat carrots?" and "Not counting carrots, potatoes, or salad, how many servings of vegetables do you usually eat?" After the responses were summarized, respondents were classified as eating or not eating fruits and vegetables five or more times per day.

To measure physical activity, respondents were asked how often they engaged in physical activities of moderate intensity (i.e., brisk walking, bicycling, vacuuming, gardening, or anything else that causes small increases in breathing or heart rate) and vigorous intensity (i.e., running, aerobics, heavy yard work, or anything else that causes large increases in breathing or heart rate) for at least 10 minutes at a time in a usual week. Respondents were classified as being regularly active if they

* Additional information available at http://www.nhlbi.nih.gov/guidelines/cholesterol/atp3xsum.pdf and http://caonline.amcancersoc.org/cgi/content/full/56/5/254.

† The percentage of persons who completed interviews among all eligible persons, including those who were not successfully contacted. Rates available at http://www.cdc.gov/brfss/technical_infodata/2005qualityreport.htm.

§ The percentage of persons who completed interviews among all eligible persons who were contacted.

¶ Available at http://www.cdc.gov/brfss/technical_infodata/quality.htm.