Utilities
(NAICS 22)

Number, Rate, and Costs of Occupational Fatal Injuries in the U.S. Utilities Industry by Selected Characteristics, 2003-2006.

Characteristic	Number of fatalities	Fatality rate (per 100,000 workers)	Costs (2006 Dollars) Mean (thousands)	Median (thousands)	Total (millions)
All U.S. Industries	22,197	3.9	$960	$944	$21,316
All Transportation, Warehousing, and Utilities	3,704	12.9	944	974	3,496
All Utilities	225	4.8	1,250	1,290	281
Year					
2003	42	3.5	1,141	1,153	48
2004	64	5.5	1,300	1,296	83
2005	46	3.9	1,228	1,302	57
2006	73	6.2	1,283	1,313	94
Sex					
Male	219	6.0	1,239	1,285	271
Female	6	0.6	1,639	1,557	10
Age Group					
16-24	11	5.1	1,214	1,280	13
25-34	35	4.8	1,575	1,611	55
35-44	56	4.2	1,510	1,542	85
45-54	77	4.5	1,314	1,298	101
55-64	38	5.7	690	653	26
65+	8	9.4	93	75	1
Race					
White	199	4.9	1,258	1,300	250
Black	16	3.3	1,107	1,193	18
Other[1]	10	5.1	1,319	1,215	13
Ethnicity[2]					
Not Hispanic	214	4.9	1,254	1,296	268
Hispanic	--	--	--	--	--
Selected SOC Occupation Group					
Architecture and Engineering	11	3.1	1,431	1,570	16
Construction and Extraction	33	7.8	1,085	1,192	36
Installation, Maintenance, and Repair	107	14.3	1,317	1,411	141
Management	9	1.7	2,256	2,218	20

DEPARTMENT OF HEALTH AND HUMAN SERVICES
Centers for Disease Control and Prevention
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CDC Workplace Safety and Health

Utilities (continued)
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Characteristic	Number of fatalities	Fatality rate (per 100,000 workers)	Costs (2006 Dollars) Mean (thousands)	Median (thousands)	Total (millions)
Production	35	4.2	1,088	1,131	38
Transportation and Material Moving	18	9.7	830	733	15
Selected Event or Exposure					
02 Struck by object	14	0.3	1,013	896	14
03 Caught in or compressed by equipment or objects	5	0.1	1,045	1,012	5
11 Fall to lower level	31	0.7	1,168	1,222	36
31 Contact with electric current	56	1.2	1,413	1,444	79
38 Oxygen deficiency, n.e.c.	6	0.1	1,010	980	6
41 Highway accident	45	1.0	1,245	1,196	56
43 Pedestrian, nonpassenger struck by vehicle, mobile equipment	13	0.3	1,061	1,111	14
46 Aircraft accident	5	0.1	1,551	1,679	8
51 Fire--unintended or uncontrolled	6	0.1	1,187	1,439	7
52 Explosion	13	0.3	1,228	1,333	16
Selected Source of Injury					
1* Containers	8	0.2	996	1,154	8
34 Material handling machinery	9	0.2	1,022	816	9
42 Fasteners, connectors, ropes, ties	8	0.2	1,356	1,417	11
44 Machine, tool, and electric parts	45	1.0	1,427	1,463	64
5* Persons, plants, animals, and minerals	6	0.1	1,401	1,326	8
62 Floors, walkways, ground surfaces	34	0.7	1,123	1,197	38
64 Structures	8	0.2	1,134	896	9
81 Air vehicle	5	0.1	1,551	1,679	8
82 Highway vehicle, motorized	64	1.4	1,215	1,173	78
91 Ammunition	6	0.1	1,582	1,436	9
93 Atmospheric and environmental conditions	6	0.1	1,187	1,439	7

NOTE: Dashes indicate data that do not meet publication criteria.
Asterisks denote a summary level code not assigned to individual cases.
[1]This category includes all other races, such as American Indian and Asian, as well as unknown or missing races.
[2]Numbers are not reported for "unknown", "not classified" or "not reported" categories.

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NIOSH

Fatal Occupational Injury Cost Model

Theoretical Basis of Cost Estimation

The cost to society of a workplace fatality was estimated using the cost-of-illness approach, which combines direct and indirect costs to yield an overall cost of an occupational fatal injury. For these calculations, only medical expenses were used to estimate the direct cost associated with the fatality. The indirect cost was derived by calculating the present value of future earnings summed from the year of death until the decedent would have reached age 67, accounting for the probability of survival were it not for the premature death. (For more information, see Biddle, E [2004]. Economic Cost of Fatal Occupational Injuries in the United States, 1980–1997. Contemporary Economic Policy 22(3):370–381 or Biddle, E [2009]. The Cost of Fatal Injuries to Civilian Workers in the US, 1992-2001 and Biddle E and Keane P [2011]. The Economic Burden of Occupational Injuries to Civilian Workers in the United States, 1992-2002. Cincinnati, OH: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, DHHS.)

Mathematical Representation of Indirect Costs

$$PVF = \sum_{n=y}^{67} P_{y,q,s}(n)\,[Y_{s,j}(n) + Y_s^h(n)] * (1+g)^{n-y} / (1+r)^{n-y}$$ ***where:***

PVF	= present discounted value of loss per person due to an individual occupational fatal injury
$P_{y,q,s}(n)$	= probability that a person of age y, race q, and sex s will survive to age n
q	= race of the individual
s	= sex of the individual
n	= age if the individual had survived
$Y_{s,j}(n)$	= median annual compensation of an employed person of sex s, specific occupation j, and age n (includes median annual earnings, benefits, and wage growth adjustments)
j	= specific occupation of individual at death
$Y_s^h(n)$	= mean annual imputed value of household production (h) of a person of sex s and age n
g	= earnings growth rate attributable to overall productivity
y	= age of the individual at death
r	= real discount rate (3%)

Data Sources

Fatality data: Bureau of Labor Statistics (BLS) Census of Fatal Occupational Injuries (CFOI). This research was conducted with restricted access to Bureau of Labor Statistics (BLS) data. These data exclude military personnel, decedents with unknown age or sex, and fatalities occurring in New York City. The views expressed here do not necessarily reflect the views of the BLS.
Probability of survival: National Center for Health Statistics, Division of Vital Statistics.
Median annual earnings: BLS Occupational Employment Statistics Survey. Wage data are based on the occupation of the decedent and the year and State of death adjusted by the Gross Domestic Product (GDP) Deflator to the base year of dollar. The wage growth adjustment, which is the rate of change in wages between age groups, was calculated by NIOSH using BLS Current Population Survey data.
Benefits: BLS Employer Cost for Employee Benefits. Benefits data are based on the year of death adjusted by the GDP Deflator.
Mean annual home production: Expectancy Data. Data are derived through a time diary study sponsored by the U.S. Environmental Protection Agency and conducted by the University of Maryland.
Earnings growth rate: BLS Employment Compensation Index (ECI).
Medical costs: National Council on Compensation Insurance. This is a single 4-year average medical cost.
Employment estimates for rate calculations: BLS Current Population Survey.

Fatality Rate Calculations

Fatality rates were calculated by NIOSH and may differ from previously published BLS CFOI rates. Fatality rates were calculated as deaths per 100,000 workers. Fatality rates for sex, race, age group, and occupation were calculated using employment estimates by the individual characteristic within the specific industry. Employment estimates for the specific industry were used to generate rates for event and source.

Classification Systems

Industry: 2002 National Industry Classification System (NAICS)
Occupation: 2000 Standard Occupational Classification System (SOC)
Event and Source: 1992 BLS Occupational Injury and Illness Classification System (OIICS)