

Deaths in industry, 1985: BLS survey findings

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Occupational injuries and illnesses resulted in 3,750 work-related deaths in private sector establishments with 11 employees or more in 1985. These estimates on occupational fatalities were taken from the Bureau of Labor Statistics' Annual Survey of Occupational Injuries and Illnesses. Within the scope of the survey, work-related fatalities are relatively rare events. In 1985, the fatality rate was 6.2 per 100,000 full-time workers. (See table 1.) About 330 of the 3,750 reported deaths were attributable to a job-related illness.¹

Work-related deaths are classified by industry division and by broad causal categories. The fatality rate per 100,000 full-time workers was highest in the mining industry; however, the largest number of deaths occurred in construction. (See table 2.) Both the lowest rate and smallest number of fatalities were reported in finance, insurance, and real estate. Two-thirds of all fatalities occurred in construction, manufacturing, and transportation and public utilities industries. The leading cause of death was attributed to car and truck accidents, accounting for nearly one-third. (See table 3.) Cases involving highway vehicles accounted for at least 1 of every 5 fatalities in 7 of the 8 industry divisions.

Employers participating in the survey provided various data, including the number of fatalities and a brief description of the object or event which caused the fatality. Estimates based on these results present a wide range of analytical problems. Thus, caution should be used in drawing conclusions about year-to-year changes. In order to increase the reliability of data relating to cause of death by industry, the distributions are based on the total number of reported cases for the 1984 and 1985 surveys combined. (See tables 3 and 4.)

Analysis by industry

Agriculture, forestry, and fishing. Highway vehicles accounted for 1 of 4 deaths. (See table 3.) Industrial vehicles or equipment, heart attacks, and aircraft crashes each accounted for more than 1 of 10 fatalities.

Mining—oil and gas extraction only. Industrial vehicles or equipment and highway vehicles each accounted for 1 of every 5 deaths. Objects, other than vehicles or equipment, were another major source.

Construction. Highway accidents and electrocutions were

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Table 1. Number and rate of occupational fatalities for employers with 11 employees or more, private sector, 1974-85

Year	Annual average employment (thousands)	Number of fatalities	Incidence rate per 100,000 full-time workers ²
1974	54,272	4,970	9.8
1975	52,693	4,570	9.4
1976	53,693	3,940	7.9
1977	56,333	4,760	9.1
1978	59,297	4,590	8.2
1979	61,660	4,950	8.6
1980	61,677	4,400	7.7
1981	62,895	4,370	7.6
1982	61,646	4,090	7.4
1983	63,981	3,100	5.6
1984	68,008	3,740	6.4
1985	70,263	3,750	6.2

¹ Employment is expressed as an annual average and is derived primarily from the BLS-State Current Employment Statistics program. Employment estimates have been adjusted based on data provided by the Annual Survey of Occupational Injuries and Illnesses to exclude establishments with fewer than 11 employees.

² The incidence rates represent the number of fatalities per 100,000 full-time workers and were calculated as: $(N/EH) \times 200,000,000$, where

N = number of fatalities
EH = total hours worked by all employees during calendar year
200,000,000 = base for 100,000 full-time equivalent workers (working 40 hours per week, 50 weeks per year).

each responsible for 17 percent of the fatalities. Industrial vehicles or equipment and falls were each a factor in 16 percent of the deaths.

Manufacturing. Twenty percent of the deaths involved highway vehicles. Industrial vehicles or equipment were another leading cause.

Transportation and public utilities. Almost one-half were attributable to highway vehicles. All other causes were each involved in less than 10 percent of the cases.

Wholesale and retail trade. Highway accidents accounted for 36 percent of the deaths. Assaults accounted for 15 percent of the fatalities; accidents involving industrial vehicles or equipment were cited in 12 percent of the deaths; and heart attacks, 10 percent.

Finance, insurance, and real estate. Highway vehicles caused the majority of the fatalities, accounting for 29 percent. Falls and heart attacks accounted for another large portion.

Services. Highway vehicles were the major cause of death, 28 percent, followed by electrocutions, 17 percent, and heart attacks, 16 percent.

Analysis by cause

The largest share of occupational fatalities were attributable to highway accidents, 29 percent. Industrial vehicles or equipment, heart attacks, falls, and electrocutions, combined, accounted for 2 of every 5 fatalities. The remainder were related to entrapments, aircraft crashes, explosions, assaults, gas inhalation, fires, accidents involving plant machinery operations and objects other than vehicles

Table 2. Number and rate of occupational fatalities for employers with 11 employees or more, by industry division, 1984 and 1985

Industry division	1984		1985	
	Fatalities	Incidence rate ¹	Fatalities	Incidence rate ¹
Private sector	3,740	6.4	3,750	6.2
Agriculture, forestry, and fishing	110	16.3	100	14.9
Mining	370	41.4	260	31.1
Construction	660	22.8	980	30.8
Manufacturing	800	4.4	820	4.5
Transportation and public utilities	770	16.9	730	16.0
Wholesale and retail trade	440	3.1	440	3.0
Finance, insurance, and real estate	80	1.9	70	1.6
Services	510	3.9	340	2.5

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 N = number of fatalities
 EH = total hours worked by all employees during calendar year
 200,000,000 = base for 100,000 full-time equivalent workers (working 40 hours per week, 50 weeks per year).

NOTE: Because of rounding, components may not add to totals.

or equipment, and other causes.

Highway vehicles were the leading cause of death in all but 1 of the 8 industry divisions. They were responsible for the largest percentage of fatalities in all of the industries except mining. About 36 percent of these accidents occurred in transportation and public utilities. (See table 4.)

Industrial vehicles or equipment, such as tractors and high-lift trucks, were involved in nearly 12 percent of all

fatalities. Workers in the construction and manufacturing industries accounted for 31 and 29 percent of the cases.

Falls were responsible for nearly 9 percent of all fatalities. About 2 of 5 of these fatalities involved construction workers and 1 of 5 involved those in manufacturing.

Electrocutions were the cause of about 9 percent of all fatalities. Electrocutions most frequently occurred in construction, services, and manufacturing industries.

Deaths resulting from heart attack were most common in manufacturing, 22 percent, followed by services, 20 percent, and construction, 18 percent.

With the exception of 3 of the remaining 9 causal categories, the majority of cases occurred in either construction or manufacturing. However, the majority of cases involving aircraft crashes and gas inhalation occurred in transportation and public utilities, while the majority of assaults occurred in wholesale and retail trade.

The "all other" category, accounting for 4 percent of total fatalities, includes deaths involving contact with carcinogenic or toxic substances, drowning, train accidents, and various occupational illnesses.

Reliability of estimates

The 1985 survey was comprised of a random sample of 280,000 units. The relative standard errors, a measure of sampling error in the estimates, are presented in the following tabulation (in percent) and are to be used only in conjunction with the numbers of fatalities or the incidence rate for 1985. (See tables 1 and 2.) The relative standard error of

Table 3. Distribution of occupational fatalities by cause for employers with 11 employees or more, private sector, 1984-1985¹
 [In percent]

Cause ²	Total private sector ³	Agriculture, forestry, and fishing	Mining-oil and gas extraction only	Construction	Manufacturing	Transportation and public utilities ⁴	Wholesale and retail trade	Finance, insurance, and real estate	Services
Total, all causes	100	100	100	100	100	100	100	100	100
Highway vehicles	29	25	20	17	20	49	36	29	28
Industrial vehicles or equipment	12	15	21	16	14	6	12	11	2
Heart attacks	9	13	8	8	9	7	10	18	16
Falls	9	7	9	16	7	3	8	24	5
Electrocutions	9	5	5	17	7	5	2	5 ¹	17
Caught in, under, or between objects other than vehicles or equipment	6	3	2	10	6	5	4	0	2
Aircraft crashes	5	11	2	2	5	7	4	11	8
Explosions	4	1	6	2	7	5	5	0	3
Struck by objects other than vehicles or equipment	4	5	14	3	8	5 ¹	2	5 ¹	5 ¹
Assaults	4	2	0	(6)	2	2	15	2	12
Gas inhalation	3	0	6	3	2	6	0	0	5 ¹
Fires	2	5	5	2	2	(6)	5 ¹	0	5 ¹
Plant machinery operations	2	0	0	(6)	6	5 ¹	(6)	0	5 ¹
All other ⁷	4	8	3	4	5	4	2	3	7

¹ It is difficult to estimate year-to-year changes for the causal categories precisely because sampling errors are large at the industry division level. Therefore, the results are for both years rather than a comparison between them.
² Cause is defined as the object or event associated with the fatality.
³ Excludes coal, metal and nonmetal mining, and railroads, for which data are not available.
⁴ Excludes railroads.
⁵ Data rounded to 1 percent.
⁶ Between .1 and .5 percent.
⁷ The "All other" category includes, for example, contact with carcinogenic or toxic substances, drowning, train accidents, and various occupational illnesses.
 NOTE: Because of rounding, percentages may not add to 100.

Table 4. Distribution of occupational fatalities by industry division for employers with 11 employees or more, private sector, 1984-1985¹
[In percent]

Cause ²	Total private sector ³	Agriculture, forestry, and fishing	Mining—oil and gas extraction only	Construction	Manufacturing	Transportation and public utilities ⁴	Wholesale and retail trade	Finance, insurance, and real estate	Services
Total, all causes	100	3	5	22	23	21	12	2	12
Highway vehicles	100	3	4	13	16	36	15	2	12
Industrial vehicles or equipment	100	4	10	31	29	10	13	2	2
Heart attacks	100	5	5	18	22	15	13	4	20
Falls	100	3	6	41	20	8	12	6	7
Electrocutions	100	2	3	40	18	12	3	(5)	22
Caught in, under, or between objects other than vehicles or equipment	100	2	2	41	27	18	8	0	3
Aircraft crashes	100	7	2	9	22	28	8	5	18
Explosions	100	8 ¹	8	10	39	22	13	0	7
Struck by objects other than vehicles or equipment	100	4	21	16	46	5	5	(5)	3
Assaults	100	2	0	2	9	11	42	1	33
Gas inhalation	100	0	12	22	17	47	0	0	3
Fires	100	9	17	25	35	4	4	0	6
Plant machinery operations	100	0	0	3	84	8	2	0	4
All other ⁷	100	6	3	22	24	20	6	2	18

¹ It is difficult to estimate year-to-year changes for the causal categories precisely because sampling errors are large at the industry division level. Therefore, the results are for both years rather than a comparison between them.

² Cause is defined as the object or event associated with the fatality.

³ Excludes coal, metal and nonmetal mining, and railroads, for which data are not available.

⁴ Excludes railroads.

⁵ Between .1 and .5 percent.

⁶ Data rounded to 1 percent.

⁷ The "All other" category includes, for example, contact with carcinogenic or toxic substances, drowning, train accidents, and various occupational illnesses.

NOTE: Because of rounding, percentages may not add to 100.

7 percent for the private sector means that the chances are 2 out of 3 that a complete census would have produced a number between 3,490 and 4,010.

Industry	Relative standard error
Private sector	7
Agriculture, forestry, and fishing	30
Mining	13
Construction	9
Manufacturing	6
Transportation and public utilities	15
Wholesale and retail trade	26
Finance, insurance, and real estate	57
Services	43

Background of the survey

The 1985 Annual Survey of Occupational Injuries and Illnesses is authorized by the Occupational Safety and

Health Act of 1970. The survey includes all employers except the self-employed, farmers with fewer than 11 employees, private households, Federal, State, and local government agencies, employers with fewer than 11 employees in low-risk industries, and those establishments in which working conditions are covered by other Federal safety and health laws.

Since 1977, the published data on occupational fatalities reflect only those deaths in establishments with 11 employees or more. The 1984 report on the survey of occupational fatalities, entitled "Work-related deaths in 1984: BLS survey findings," was published in the *Monthly Labor Review*, May 1986, pp. 42-44. □

FOOTNOTE

¹ Chronic and long-term latent illnesses, which are often difficult to recognize or relate to the workplace, are included in the estimate but may be understated.