

Amputations: A Continuing Workplace Hazard

by [Jeffery D. Brown](#)

Bureau of Labor Statistics

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During the period 1992-99, there were on average more than 21 fatal and more than 11,000 nonfatal workplace amputations annually. Fifty-three percent of these nonfatal amputations occurred in manufacturing alone, resulting in a rate of amputations for that industry that was more than two and one-half times higher than the national average in 1999. Operators, fabricators, and laborers accounted for more nonfatal amputations than all other occupations combined.

There were 171 fatal workplace amputations and nearly 88,500 nonfatal workplace amputations reported during the period 1992-99.¹ (See table 1.) Although workplace amputations represented less than 1 percent of all fatal or nonfatal cases over this 8-year period, the severity of these injuries often impacts workers and employers much more profoundly than other injuries. Consequently, these injuries have received increased attention in recent years.

During the period 1996-97, amputation injuries were the most costly worker claims by nature of injury, averaging \$18,120 per claim.² However, costs to workers and to employers resulting from these injuries involved more than expensive monetary claims - their severity can be seen by other measures as well. For instance, in 1999, the median number of days away from work for cases involving nonfatal amputations was 18 days (25 days when amputations of just the fingertip were excluded), compared with only 6 days for all injuries and illnesses combined.³

Additionally, more than one-third of nonfatal workplace amputation cases resulted in 31 or more days away from work in 1999. (See chart 1.) In contrast, less than 20 percent of all injury and illness cases involving days away from work required 31 or more days to recuperate. (See chart 2.) When comparing amputations with other major disabling injuries and illnesses, only carpal tunnel syndrome and fractures required more days away from work (27 days and 20 days, respectively).⁴

Two-thirds of all fatal workplace amputations over the 1992-99 period occurred in three major industry divisions: transportation and public utilities (23.4 percent), agriculture (21.6 percent), and manufacturing (21.1 percent). In contrast, the majority of nonfatal amputations were concentrated in a single major industry division - manufacturing, where 53 percent of nonfatal amputations occurred.

Although the manufacturing industry accounted for the majority of nonfatal amputations, it represented less than 19 percent of total employment⁵ during this period. Moreover, as its proportion of total employment declined steadily - from nearly 20 percent in 1992 to about 17 percent in 1999 - manufacturing's share of nonfatal amputations increased slightly over the period. (See chart 3.) In addition to accounting for disproportionately high numbers of amputations, manufacturing had a rate⁶ of nonfatal workplace amputations in 1999 (2.9 per 10,000 full-time workers) that far exceeded the national average that year (1.1 per 10,000 workers), as well as the rates for most other major industry divisions.⁷ (See table 2.)

Trends In Numbers And Rates

While the overall number of workplace fatalities has decreased in recent years, there has been no matching decline in the number of fatal workplace amputations. Over the 1992-99 period, the number of fatal amputations ranged from a low of 15 cases in 1996 to a high of 27 cases in 1997.

In contrast, the rate of nonfatal workplace amputations declined by 32 percent over the period - from 1.6 amputations per 10,000 full-time employees in 1992 to 1.1 per 10,000 employees in 1999. Although the rate of amputations experienced a downward trend over this 8-year period, its decline slowed in more recent years. (See chart 4.) In addition to the decline in the rate of amputations, the number of reported cases also fell by 19 percent over the period.

Analogous to changes in the rate of amputations experienced in all industries combined, the rate of amputations in manufacturing - where the majority of cases occurred - declined significantly over the 1992-99 period. Rates in manufacturing

fell by nearly 17 percent, declining from 3.4 cases per 10,000 full-time workers in 1992 to 2.9 cases in 1999. Also, as with trends in the overall rate of amputations, the rate of amputations in manufacturing declined more slowly during the latter half of the period than in earlier years. However, the decline experienced by manufacturing over this 8-year stretch was smaller than that for all industries combined.

Although the rate of amputations in manufacturing as a whole declined over the 1992-99 period, several industries within the manufacturing division - including lumber and wood products (SIC 24), furniture and fixtures (SIC 25), primary metal industries (SIC 33), and fabricated metal products (SIC 34) - consistently recorded some of the highest rates of amputation across all industries throughout this 8-year period. (See table 3 and chart 5.) The extensive use of heavy industrial cutting machinery and equipment with exposed moving parts made it more likely that these industries would have a higher risk of amputations. However, none of these industries saw significant changes in their respective rates of amputations over this stretch, despite being targets of safety inspections by the Occupational Safety and Health Administration (OSHA).

In addition to the manufacturing division, the mining, trade, and services divisions all experienced declines in the rate of amputations over the 1992-99 period. The most significant changes occurred in wholesale trade, where the rate of amputations in 1999 was half of what it was in 1992, a greater decline than that for all industries combined. In contrast, the rate of amputations in agriculture, construction, and transportation and public utilities remained relatively unchanged during the period.⁸

Case And Selected Worker Characteristics

The detailed case and worker characteristics of fatal and nonfatal workplace amputations indicate many similarities among reported cases, but also highlight some surprising differences. In order to present a representative picture, the fatality data in the sections that follow cover the period 1992-99. Because the nonfatal amputation cases were relatively similar from year to year over the 8-year period, only the 1999 data are presented.

Occupational summary groups and occupations. The occupational summary group operators, fabricators, and laborers accounted for nearly half of all fatal amputations during the period 1992-99, averaging more than 10 fatal amputations annually. (See chart 6.) Truck drivers suffered more fatal amputations than any other specific occupation over the period. Farming, forestry, and fishing occupations accounted for another quarter of fatal amputations, averaging 5 fatalities per year.

Similarly, in 1999, operators, fabricators, and laborers accounted for a majority (53 percent) of all nonfatal workplace amputations. (See table 4 and chart 7.) Within this group, miscellaneous machine operators (not elsewhere classified) accounted for the highest number of nonfatal amputations in 1999. Other occupations reporting significant numbers of nonfatal amputations included laborers (excluding construction), assemblers, and truck drivers.

Event. During the period 1992-99, just two categories of events were jointly responsible for nearly three-quarters of all fatal workplace amputations. Workers being caught in or compressed by equipment accounted for 42 percent of the 171 fatal amputations; most of these (62 cases) were associated with workers being caught in running equipment or machinery. Transportation accidents accounted for another 37 percent of fatal amputations, with the largest number of these coming from highway accidents.

Similar to fatalities, two-thirds of all nonfatal workplace amputations reported in 1999 resulted from workers being caught in or compressed by equipment. More specifically, 44 percent of all nonfatal amputations resulted from workers being caught in running equipment or machinery, with 72 percent of these cases occurring in manufacturing. Other common events resulting in nonfatal amputations included workers being struck by objects and body parts being struck against objects. (See chart 8.)

Source. Motorized highway vehicles were the most common source of amputation fatalities over the period 1992-99, accounting for one-fifth of such incidents. This group includes automobiles, buses, motorcycles and mopeds, motor homes, recreational vehicles, trucks, and vans. In contrast, metal, woodworking, and special material machinery was the most likely source of nonfatal amputations during the period. This category includes stationary sawing machinery, such as arm saws, radial saws, band saws, and table saws.⁹

Gender. Over the 1992-99 period, 94 percent of fatal workplace amputations involved male workers. Similarly, 87 percent of all nonfatal amputations reported in 1999 involved male workers, even though they accounted for only 54 percent of the workforce that year.¹⁰ In manufacturing - the largest source of nonfatal amputations - 83 percent of all amputations involved male employees, who represented only 68 percent of all manufacturing workers. In contrast, female manufacturing workers, who accounted for 32 percent of the division's workforce, were involved in only 16 percent of nonfatal amputations.

Age of worker. The distribution of nonfatal amputations generally was consistent with the distribution of employment among the different worker age groups.¹¹ In contrast, the distribution of fatal amputations behaved much differently. (See table 5.) Probably the greatest divergence in fatal and nonfatal amputations was between younger and older workers. Workers under age 25, who made up nearly 18 percent of the workforce in 1999, accounted for 15 percent of all nonfatal amputations in that year, but only slightly more than 6 percent of all fatal amputations during the 1992-99 period.

At the other extreme, older workers, those aged 65 and over, made up less than 3 percent of the nation's workforce in 1999. In contrast to their younger cohorts, older workers accounted for less than 2 percent of nonfatal amputations that year, but more than 13 percent of amputation fatalities during the 1992-99 period. Workers in the 25- to 44-year age group represented 51 percent of all workers and logged nearly 46 percent of fatal workplace amputations over the 8-year period. Comparatively, workers in this age group accounted for 52 percent of all nonfatal amputations reported in 1999. Finally, workers aged 45 to 64 accounted for 29 percent of total employment, and they were involved in 35 percent of fatal workplace amputations during the 1992-99 period and 31 percent of nonfatal amputations in 1999.

Part of Body Affected. More than one-third of the 171 fatalities resulting from workplace amputations during the period 1992-99 were decapitations, and another 30 percent were amputations of the lower extremities. In comparison, 94 percent of all nonfatal amputations in 1999 involved fingers, with more than 71 percent of these being amputations of fingertips.

Response To Workplace Amputations

A detailed analysis of the causality of workplace amputations falls outside of the scope of this article. However, one can imagine that such injuries might be attributed to any number of causes, including employee error, equipment failure, or employer failure to maintain a safe workplace. While worker carelessness may be difficult to prove and often goes undocumented, OSHA does record safety infractions on the part of employers and responds in kind. For instance, OSHA has cited numerous employers over the past several years for violations resulting in workplace amputations, levying substantial monetary fines.¹²

Many of the OSHA citations resulted from willful violations on the part of employers, meaning they were previously cited for violations, but failed to take corrective actions to protect workers who subsequently were injured. Such violations included failure to have effective lockout/tagout procedures¹³ to prevent the accidental start-up of machinery during maintenance, missing and improper use of machine guards designed to protect workers against dangerous machine parts, and failure to properly inspect power presses and to properly train employees to set up and operate such equipment.¹⁴

The Department of Labor, primarily through OSHA compliance programs, has made several efforts to address workplace amputations, including the creation of an interactive program on the Internet dealing with the Lockout/Tagout standard and the awarding of grants to provide training for the prevention of amputations. In 2000, OSHA awarded \$8 million in grants for the provision of safety and health training programs.¹⁵ Several of these were renewal grants for preventing amputations in manufacturing, the industry where the highest number of nonfatal amputations occurred throughout the 1990s. Furthermore, the Department of Labor pledged to remain focused on reducing workplace amputations through further employer consultation, training, education, and outreach programs.¹⁶

In 1997, OSHA launched a program to combat the high number of injuries associated with mechanical power press injuries, targeting industries with high amputation rates, particularly in manufacturing. Given the potential for injury associated with operating machinery with exposed moving parts, as with mechanical power presses, machine guards that separate the worker from the hazards of moving machine parts has been a main focus. In spite of the attention given to this area,

violations associated with improper use of machine guards continuously rank among the citations most frequently issued by OSHA each year.¹⁷

Recognizing the need to reduce the occurrence of such severe injuries, the Department of Labor's goal has been to reduce the number of workplace amputations by 3 percent over the period 1993-99. Strategic goals at the Department have maintained a constant focus on amputations in recent years, and in 2001, OSHA expanded its goal to reduce workplace injuries, illnesses, and fatalities even further in order to help ensure quality workplaces.¹⁸ Additionally, OSHA is developing a guide for small businesses to identify equipment that cause amputations in various industries with the aim of reducing the prevalence of these injuries.¹⁹

The continuing focus on amputations illustrates OSHA's acknowledgement of the severity of these injuries and its intentions to reduce their occurrence, launching programs designed to do just that. For example, site-specific targeting of safety inspections in industries with high rates of amputations illustrates OSHA's efforts to reduce the number of amputations in specific targeted industries.²⁰

Safety inspections have concentrated on employers with machines associated with the highest number of amputations: power presses, shears, slitters, slicers, and saws.²¹ Of the 10 industries mentioned in a 1997 OSHA press release aimed at mechanical press injuries (many of which were amputations), all were manufacturing industries, including several in fabricated metal products, manufactured furniture, and motor vehicle parts and accessories.²² However, in spite of OSHA's efforts, manufacturing industries continued to experience some of the highest numbers and rates of nonfatal workplace amputations among all industries in 1999.²³

Jeffery D. Brown

Economist, Office of Safety, Health, and Working Conditions, Bureau of Labor Statistics.

Telephone: (202) 691-6179, E-mail: Brown_Jeff@bls.gov

End Notes

¹ Data for fatal amputations include cases involving private sector workers, age 16 years and older. Data for nonfatal amputations include cases of injuries and illnesses involving private sector wage and salary workers, age 16 years and older, that required at least one day away from work to recuperate, not including the day of the incident.

Data on fatal work injuries are from the Bureau of Labor Statistics Census of Fatal Occupational Injuries (CFOI). CFOI data cover all fatal work injuries; however, only cases involving private sector workers are considered in this paper. The CFOI program has collected occupational fatality data nationwide since 1992, using diverse sources to identify, verify, and profile fatal work injuries. Information concerning each workplace fatality (industry, worker demographics, equipment involved, and circumstances surrounding the event) is obtained by cross-referencing source documents, such as death certificates, workers' compensation records, and reports to Federal and State agencies. This method ensures that the data are as complete and accurate as possible.

Data on nonfatal injuries and illnesses are from the Bureau of Labor Statistics Survey of Occupational Injuries and Illnesses (SOII). This program currently collects information from a random sample of about 175,000 establishments representing most private industry wage and salary workers, excluding self-employed and workers on small farms. Case and demographic data are collected only for those workers sustaining injuries and illnesses that required at least one day away from work to recuperate. Because the scope and methodology of the CFOI and SOII programs are slightly different, comparisons of fatal and nonfatal data may be problematic. Additional information can be obtained from the Bureau of Labor Statistics Internet site at <http://www.bls.gov/iif/> or via email at cfoistaff@bls.gov or oshstaff@bls.gov.

² National Council on Compensation Insurance, Issues Report, Fall 1999, on the Internet at <http://www.ncci.com/nccisearch/Prodsserv/Publications/Assets/avgclaim.pdf>.

³ Includes all injury and illness cases involving at least one day away from work to recuperate, not including the day of the incident.

⁴ *Lost-Worktime Injuries and Illnesses: Characteristics and Resulting Time Away From Work, 1999*, USDL 01-71 (Bureau of Labor Statistics, March 28, 2001).

⁵ Percentage is based on annual average private sector employment and is derived primarily from the BLS-State Covered Employment and Wages program.

⁶ The rate represents the number of amputations per 10,000 full-time workers and was calculated as follows: $(N/EH) \times 20,000,000$, where N = the number of nonfatal workplace amputations
EH = total hours worked by all private sector wage and salary workers during the year
20,000,000 = base for 10,000 equivalent full-time workers (working 40 hours per week, 50 weeks per year).

- 7 The rates for agriculture and construction were not significantly different statistically from the rate for manufacturing.
- 8 Data were not available for finance, insurance, and real estate for all years and therefore are not discussed here.
- 9 The category excludes construction, logging, and mining machinery, which is coded separately.
- 10 The average number of workers was calculated using employed private sector wage and salary earners from the Current Population Survey (CPS) employment data.
- 11 Employment based on 1999 CPS data of private wage and salary workers, age 16 years and older.
- 12 See OSHA's Web site for citations involving amputations, on the Internet at <http://www.osha.gov>, visited January 31, 2002.
- 13 See Control of Hazardous Energy (Lockout/Tagout) on the Internet at <http://www.osha.gov/SLTC/controlhazardousenergy/index.html>, visited January 31, 2002.
- 14 See The National Council on Compensation Insurance, Safety Watch, on the Internet at http://www.ncci.com/ncci/web/news/infostop/safework/sw06_2000_4b.htm, visited January 31, 2002.
- 15 OSHA National News Release, *OSHA Awards \$8 Million in Grants to Provide Safety and Health Training Programs*, USDL 00-248 (OSHA, August 25, 2000) on the Internet at <http://www.osha.gov/media/oshnews/aug00/national-20000825.html>, visited January 31, 2002.
- 16 U.S. Department of Labor, *Annual Report Fiscal Year 1999* (Washington, DC, 1999), p. 71.
- 17 See *Machine Guarding* on the Internet at <http://www.osha-slc.gov/SLTC/machineguarding/index.html>, visited January 31, 2002.
- 18 See *Appendix B, Details of FY 2001 Performance Goals, Indicators & Baselines* on the Internet at http://www.dol.gov/dol/_sec/budget/appdxb2001.htm, visited January 31, 2002.
- 19 See U.S. Department of Labor, *Department Strategic Goals. Strategic Goal Three - Quality Workplaces: Foster Quality Workplaces That Are Safe, Healthy and Fair; Outcome Goal 3.1: Reduce Workplace Injuries, Illnesses, and Fatalities* on the Internet at http://www.dol.gov/_sec/stratplan/3.htm, visited January 31, 2002.
- 20 See OSHA Directive Number 00-05 (CPL 2), *Site Specific Targeting 2000 (SST-MM) Revised*. This replaced directive number 99-3 (CPL 2).
- 21 U.S. Department of Labor, *Annual Report Fiscal Year 1999*, p. 70.
- 22 OSHA National News Release, *OSHA Aims to Reduce Power Press Injuries*, USDL 97-73 (OSHA, March 5, 1997) on the Internet at <http://www.osha.gov/media/oshnews/mar97/osha9773.html>, visited January 31, 2002.
- 23 Data for 1999 were the latest available at the time this study was completed.

Table 1. Number of fatal and nonfatal amputations by major industry division, private industry, 1992-99

	1992	1993	1994	1995	1996	1997	1998	1999	Total
Fatal amputations, all industries	26	16	24	20	15	25	27	18	171
Agriculture	7	—	—	9	5	—	—	—	37
Mining	—	—	—	—	—	—	—	—	7
Construction	—	—	—	—	—	—	—	—	19
Manufacturing	5	6	7	—	—	8	—	—	36
Transportation and public utilities	—	—	6	5	—	5	7	9	40
Wholesale and retail trade	—	—	—	—	—	—	—	—	12
Finance, insurance, and real estate	—	—	—	—	—	—	—	—	—
Services	—	—	—	—	—	—	5	—	15

Footnotes:

(1) Total does not include 1998 estimate since data for that year were not available.

NOTE: Because of rounding, components may not add to totals. Dash indicates data not available.

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, Survey of Occupational Injuries and Illnesses and Census of Fatal Occupational Injuries

	1992	1993	1994	1995	1996	1997	1998	1999	Total
Nonfatal amputations, all industries	12,352	11,342	12,222	11,309	10,167	10,852	10,243	9,985	88,472
Agriculture	652	271	376	278	272	344	291	264	2,748
Mining	175	189	204	129	98	245	119	90	1,249
Construction	1,063	1,133	1,035	1,224	1,216	1,178	923	1,358	9,130
Manufacturing	6,054	6,218	6,715	6,021	5,535	5,568	5,757	5,289	47,157
Transportation and public utilities	520	411	552	621	375	568	504	550	4,101
Wholesale trade	945	895	1,088	983	919	825	595	508	6,758
Retail trade	1,342	1,075	1,180	951	1,071	1,394	1,349	941	9,303
Finance, insurance, and real estate	228	260	106	54	91	55	—	161	(1)955
Services	1,375	891	966	1,046	591	677	696	824	7,066

Footnotes:

(1) Total does not include 1998 estimate since data for that year were not available.

NOTE: Because of rounding, components may not add to totals. Dash indicates data not available.

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, Survey of Occupational Injuries and Illnesses and Census of Fatal Occupational Injuries

Table 2. Incidence rates⁽¹⁾ of nonfatal workplace amputations by major industry division, private industry, 1992–99

Industry	1992	1993	1994	1995	1996	1997	1998	1999
Total private	1.6 (2)	1.4 (2)	1.5 (2)	1.4 (2)	1.2 (2)	1.3 (2)	1.2 (2)	1.1 (2)
Agriculture	6.5 (6)	2.6 (9)	3.5 (10)	2.2 (13)	2.1 (17)	2.6 (15)	2.1 (17)	1.8 (16)
Mining	2.7 (5)	3 (5)	3.2 (7)	2.1 (10)	1.6 (9)	4 (12)	1.9 (9)	1.6 (9)
Construction	2.7 (5)	2.7 (4)	2.3 (7)	2.7 (-7)	2.5 (-8)	2.3 (-9)	1.7 (-10)	2.3 (-8)
Manufacturing	3.4 (2)	3.5 (2)	3.7 (2)	3.3 (2)	3 (2)	3 (3)	3.1 (3)	2.9 (3)
Transportation and public utilities	1 (8)	0.8 (8)	1 (9)	1.1 (10)	0.6 (13)	0.9 (11)	0.8 (11)	0.9 (10)
Wholesale Trade	1.6 (8)	1.6 (7)	1.8 (8)	1.6 (9)	1.5 (10)	1.3 (12)	0.9 (13)	0.8 (14)
Retail Trade	0.9 (7)	0.7 (7)	0.8 (8)	0.6 (10)	0.7 (10)	0.9 (10)	0.8 (10)	0.6 (11)

Footnotes:

(1) The rate represents the number of amputations per 10,000 full-time workers and was calculated as follows: $(N/EH) \times 20,000,000$, where N = the number of nonfatal workplace amputations, EH = total hours worked by all private sector wage and salary workers during the year, and 20,000,000 = base for 10,000 equivalent full-time workers (working 40 hours per week, 50 weeks per year).

NOTE: The percent relative standard error for each estimate appears in parentheses; dash indicates data not available.

SOURCE: Bureau of Labor Statistics, Survey of Occupational Injuries and Illnesses.

Industry	1992	1993	1994	1995	1996	1997	1998	1999
Finance, insurance and real estate	0.4 (16)	0.4 (13)	0.2 (17)	0.1 (25)	0.2 (21)	0.1 (31)	—	0.2 (18)
Services	0.6 (6)	0.4 (7)	0.4 (7)	0.5 (7)	0.2 (11)	0.3 (10)	0.3 (10)	0.3 (9)

Footnotes:

(1) The rate represents the number of amputations per 10,000 full-time workers and was calculated as follows: $(N/EH) \times 20,000,000$, where N = the number of nonfatal workplace amputations, EH = total hours worked by all private sector wage and salary workers during the year, and 20,000,000 = base for 10,000 equivalent full-time workers (working 40 hours per week, 50 weeks per year).

NOTE: The percent relative standard error for each estimate appears in parentheses; dash indicates data not available.
SOURCE: Bureau of Labor Statistics, Survey of Occupational Injuries and Illnesses.

Table 3. Rate(1) of nonfatal workplace amputations in manufacturing and selected manufacturing industries, 1992–99

	1992	1993	1994	1995	1996	1997	1998	1999
Total private	1.6 (2)	1.4 (2)	1.5 (2)	1.4 (2)	1.2 (2)	1.3 (2)	1.2 (2)	1.1 (2)
Manufacturing	3.4 (2)	3.5 (2)	3.7 (2)	3.3 (2)	3 (2)	3 (3)	3.1 (3)	2.9 (3)
Lumber and wood products	9.1 (5)	8.2 (5)	10.5 (7)	7 (9)	6.7 (10)	7.6 (11)	7.4 (10)	6.5 (11)
Furniture and fixtures	5.2 (9)	6.3 (7)	7.3 (9)	6.4 (9)	5.8 (11)	4.1 (15)	6.2 (11)	4.9 (11)
Primary metal industries	4.5 (8)	5.9 (6)	4.8 (9)	4.7 (9)	4.9 (9)	4.2 (12)	5.2 (10)	5.2 (10)
Fabricated metal products	5.6 (5)	6.7 (4)	6.4 (7)	5.4 (7)	5.4 (7)	6.6 (8)	6.2 (8)	5.2 (9)

Footnotes:

(1) The rate represents the number of amputations per 10,000 full-time workers and was calculated as follows: $(N/EH) \times 20,000,000$, where N = the number of nonfatal workplace amputations, EH = total hours worked by all private sector wage and salary workers during the year, and 20,000,000 = base for 10,000 equivalent full-time workers (working 40 hours per week, 50 weeks per year).

NOTE: The percent relative standard error for each estimate appears in parentheses.
SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, Survey of Occupational Injuries and Illnesses

Table 4. Nonfatal workplace amputations by occupational summary group, private industry, 1992–99

Occupation	1992	1993	1994	1995	1996	1997	1998	1999	Total(1)
Total nonfatal amputations	12,352	11,432	12,222	11,309	10,167	10,852	10,243	9,985	88,472

Footnotes:

(1) Components may not sum to totals due to rounding and unspecified data.

SOURCE: Bureau of Labor Statistics, Survey of Occupational Injuries and Illnesses.

Occupation	1992	1993	1994	1995	1996	1997	1998	1999	Total(1)
Managerial and professional specialty	239	271	314	289	158	255	299	231	2,056
Technical, sales, administrative support	775	771	482	290	615	560	325	335	4,153
Service occupations	627	771	872	557	434	740	967	809	5,777
Farming, forestry, and fishing	721	282	503	334	548	280	282	332	3,282
Precision, production, craft, and repair	3,697	2,910	2,896	3,101	2,671	2,463	2,502	2,971	23,211
Operators, fabricators, and laborers	6,209	6,309	7,089	6,666	5,660	6,483	5,849	5,250	49,515

Footnotes:
 (1) Components may not sum to totals due to rounding and unspecified data.

SOURCE: Bureau of Labor Statistics, Survey of Occupational Injuries and Illnesses.

Table 5. Age distribution of workers involved in fatal and nonfatal workplace amputations, private industry, 1999(1)

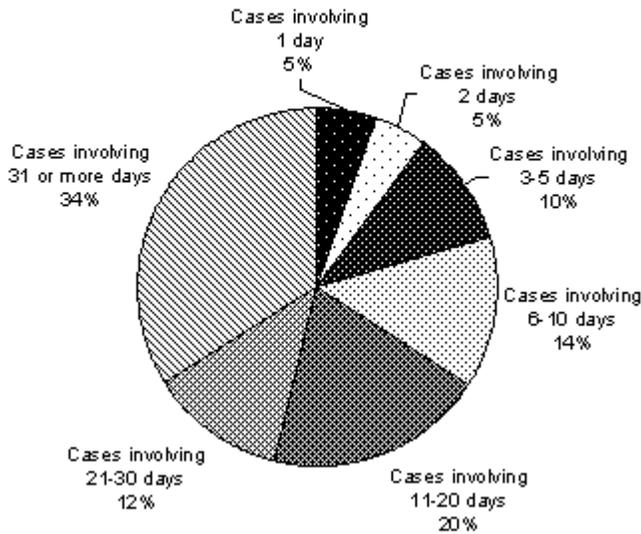
Age of workers	Percentage of workers(2)	Percentage of fatal amputations	Percentage of nonfatal amputations
Less than 25 years	18	6	15
25 to 44 years	51	46	52
45 to 64 years	29	35	31
65 years and older	3	13	2

Footnotes:
 (1) Percentages for fatal amputations cover the period 1992-99.
 (2) Percentages based on 1999 CPS data of private wage and salary workers, age 16 years and older.

NOTE: Because of rounding, percentages may not sum to 100.
 SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, Survey of Occupational Injuries and Illnesses and the Census of Fatal Occupational Injuries

Chart 1. Distribution of days away from work cases for nonfatal workplace amputations, private industry, 1999

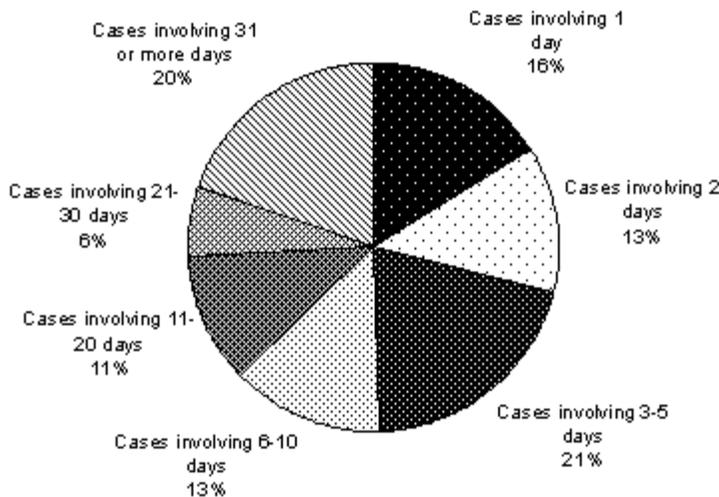
There were 9,985 nonfatal workplace amputations in 1999



SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, Survey of Occupational Injuries and Illnesses

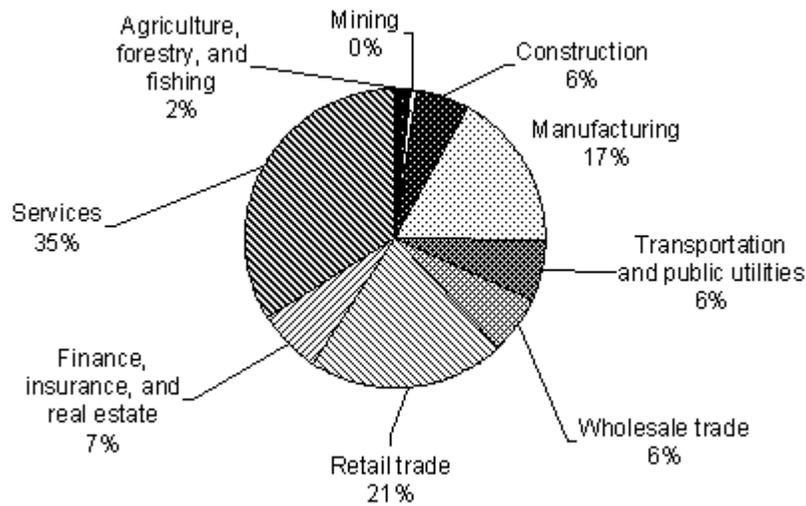
Chart 2. Distribution of days away from work cases for all nonfatal injuries and illnesses combined, private industry, 1999

There were 1,702,470 nonfatal workplace injury & illness cases in 1999



SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, Survey of Occupational Injuries and Illnesses

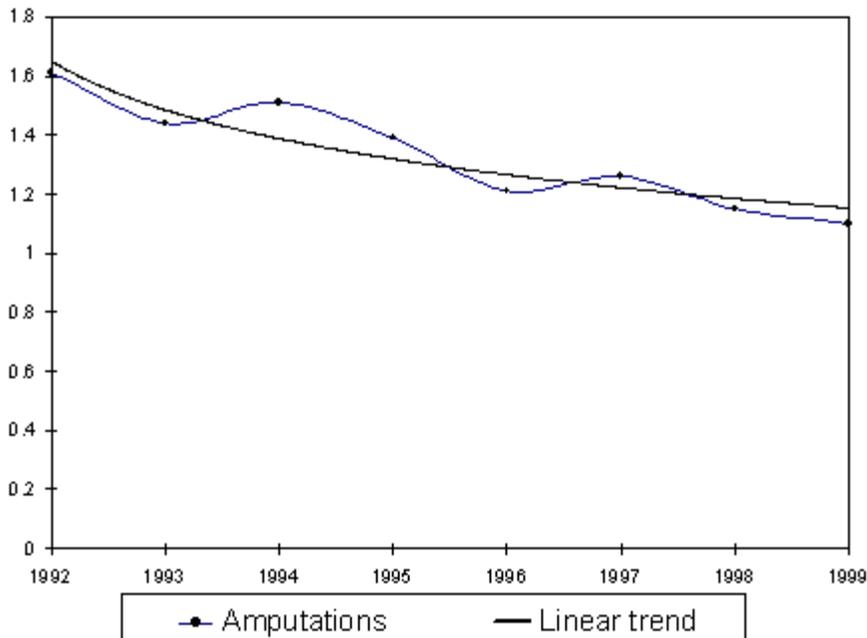
Chart 3. Employment^[1] distribution by major industry division, private industry, 1999



[1] Percentages are based on annual average employment and are derived primarily from the BLS-State Covered Employment and Wages program.

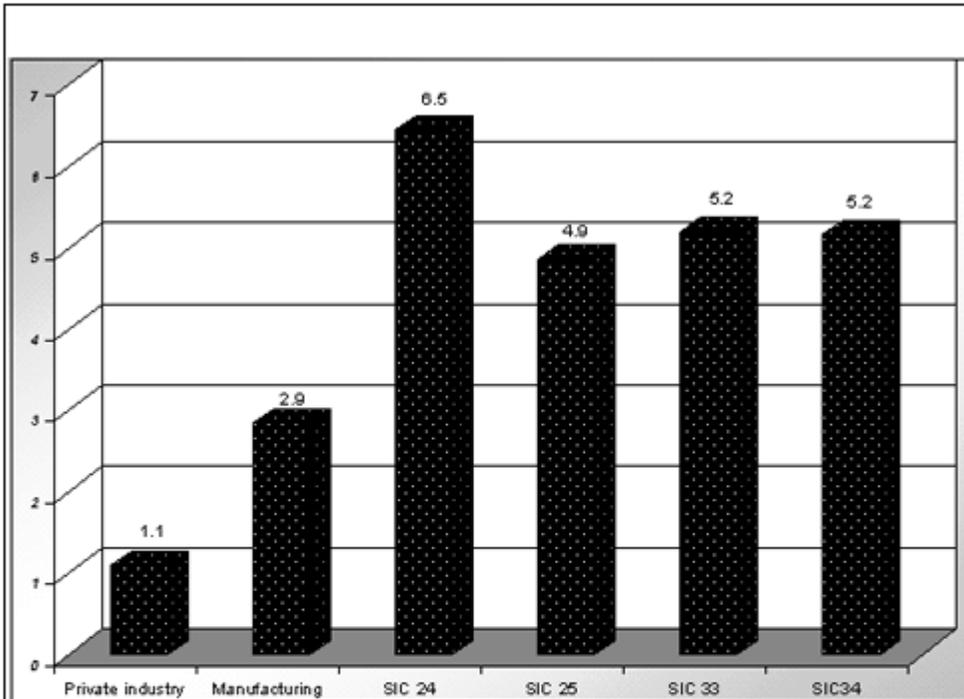
SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, Survey of Occupational Injuries and Illnesses

Chart 4. Trend in the rate of nonfatal workplace amputations, private industry, 1992--99



SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, Survey of Occupational Injuries and Illnesses

Chart 5. Rates^[1] of amputation in private industry, manufacturing, and selected manufacturing industries,^[2] 1999



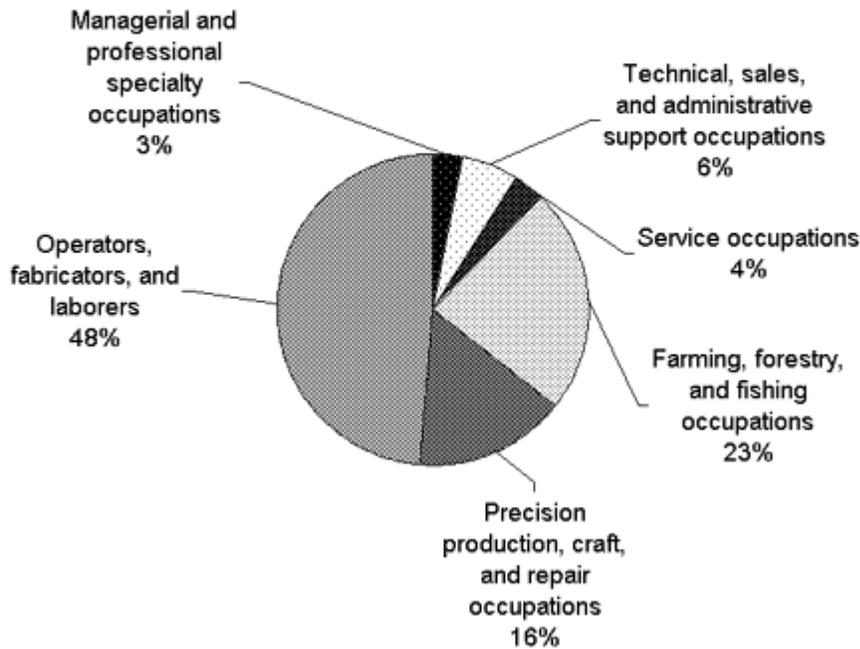
[1] The rate represents the number of amputations per 10,000 full-time workers and was calculated as follows: $(N/EH) \times 20,000,000$, where
 N = the number of nonfatal workplace amputations
 EH = total hours worked by all private sector wage and salary workers during the year
 20,000,000 = base for 10,000 equivalent full-time workers (working 40 hours per week, 50 weeks per year)

[2] These select manufacturing industries are SIC 24 (Lumber and wood products); SIC 25 (Furniture and fixtures); SIC 33 (Primary metal industries); and SIC 34 (Fabricated metal products).

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, Survey of Occupational Injuries and Illnesses

Chart 6. Distribution of fatal amputations by occupational summary group, private industry, 1992-99

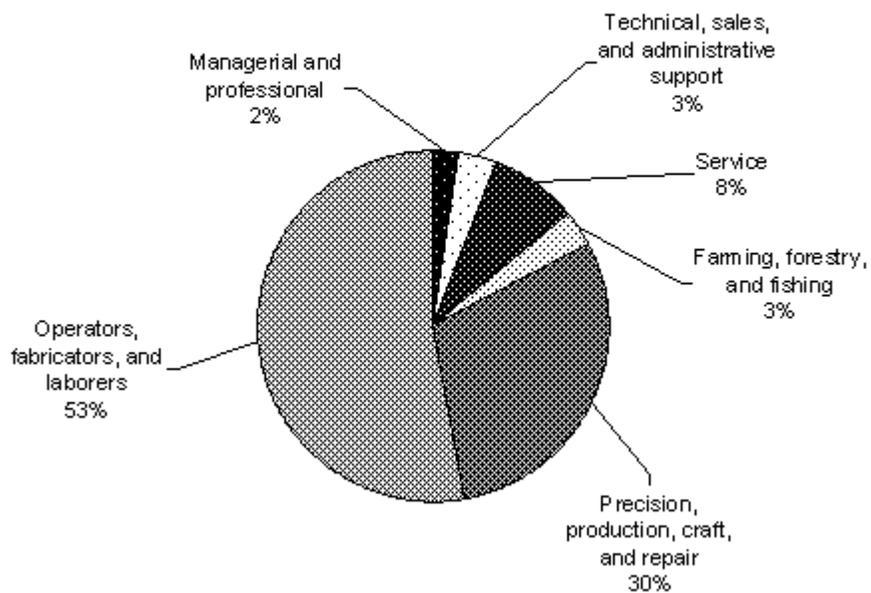
There were 171 fatal workplace amputations over the 1992-99 period



SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, Survey of Occupational Injuries and Illnesses

Chart 7. Distribution of nonfatal amputations by occupational summary group, private industry, 1999

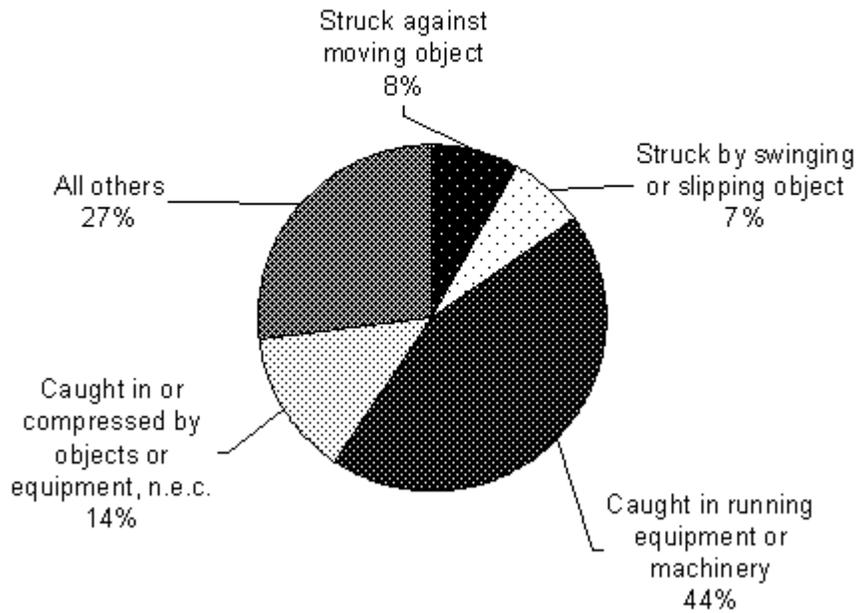
There were 9,985 nonfatal workplace amputations in 1999



SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, Survey of Occupational Injuries and Illnesses

Chart 8. Distribution of nonfatal workplace amputations by event of injury, private industry, 1999

There were 9,985 nonfatal workplace amputations in 1999



SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, Survey of Occupational Injuries and Illnesses