CDC
Workplace Safety and Health

Worker Health Chartbook, 2004

DEPARTMENT OF HEALTH AND HUMAN SERVICES
Centers for Disease Control and Prevention
National Institute for Occupational Safety and Health

NIOSH

Excerpts from:

Worker Health Chartbook, 2004

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Abstract

The *Worker Health Chartbook, 2004* is a descriptive epidemiologic reference on occupational morbidity and mortality in the United States. The *Chartbook* includes more than 400 figures and tables describing the magnitude, distribution, and trends of the Nation's occupational injuries, illnesses, and fatalities. This 2004 edition of the *Worker Health Chartbook* builds on the foundation established in the first edition, published in 2000. The *Chartbook* is intended as a resource for technical and nontechnical audiences, including agencies, organizations, employers, researchers, workers, and others who need to know about occupational injury and illness. This concise, chart-based document consolidates information from the network of monitoring systems that forms the cornerstone of injury and illness surveillance in the United States. The document is intended to fulfill the NIOSH strategic goals for preventing occupational injury and illness and to guide research and prevention efforts.

The *Worker Health Chartbook, 2004* contains five chapters and three appendices. Chapter 1 describes the U.S. labor force and the health status of workers. Chapter 2 focuses on the demographic characteristics of workers (age, sex, occupation, industry, and case severity) and 33 types of occupational injuries and illnesses that affect them: amputations; anxiety, stress, and neurotic disorders; asbestosis; asthma; back, including spine and spinal cord; bloodborne infections and percutaneous exposures; bruises and contusions; byssinosis; carpal tunnel syndrome (CTS); coal workers' pneumoconiosis (CWP); cuts and lacerations; dermatitis; disorders due to physical agents; disorders associated with repeated trauma; dust diseases of the lungs; fatal injuries; fractures; hearing loss; heat burns and scalds; hypersensitivity pneumonitis; lead toxicity; mesothelioma; musculoskeletal disorders; nonfatal injury; pneumoconioses; poisoning; respiratory diseases; respiratory conditions due to toxic agents; silicosis; skin diseases and disorders; sprains, strains, and tears; tendonitis; and tuberculosis. Chapter 2 also examines the magnitude, trends, and geographic distribution of these conditions. Chapter 3 focuses exclusively on agriculture, presenting data on fatal and nonfatal injuries among adults and children in agriculture and examining selected health conditions of farm workers. Chapter 4 concentrates on high-risk industries and occupations and reflects NIOSH research priorities in mining and construction. Chapter 5 addresses special populations, exploring available occupational injury and illness data on young workers, older workers, and Hispanic workers.

The three appendices complement the chapters with details about source data and programs. Appendix A describes the 21 survey and surveillance programs used by the contributors; it includes program contacts and reference citations for follow-up by users. Appendix B examines various aspects of data collection, analysis methods, and dissemination practices that limit the uses and inferences of data. Appendix C provides a bibliography of reference materials from the public domain, including data tables, report forms and documentation, government news releases, and research articles.

Chapter 4 • High-Risk Industries and Occupations

The National Institute for Occupational Safety and Health (NIOSH) conducts comprehensive surveillance and research programs focused on selected high-risk industrial sectors such as agriculture, mining, and construction. Historically, workers in these industries have suffered the highest rates of fatal injury. The most recent data from the Bureau of Labor Statistics (BLS) Census of Fatal Occupational Injuries (CFOI) reveal that fatal injury rates in these high-risk industries range from 3.0 to 5.6 times the private industry rate of 4.2 per 100,000 workers (Figure 4–1) [BLS 2003a].

Except for mining, these high-risk industries also have elevated rates of nonfatal occupational injuries and illnesses, as shown by data from the BLS annual Survey of Occupational Injuries and Illnesses (SOII) (Figure 4–2).

This chapter provides data on nonfatal and fatal injuries and illnesses in the mining* and construction industries as well as associated occupations. Similar data for the agriculture industry are provided in Chapter 3.

*The Mine Safety and Health Administration (MSHA) provides BLS with data conforming to the Occupational Safety and Health Administration (OSHA) definitions for "mining operators in coal, metal, and nonmetal mining." Readers should note the following within the BLS data: (1) mining includes oil and gas extraction, and (2) independent mining contractors are excluded from the coal, metal, and nonmetal mining industries.

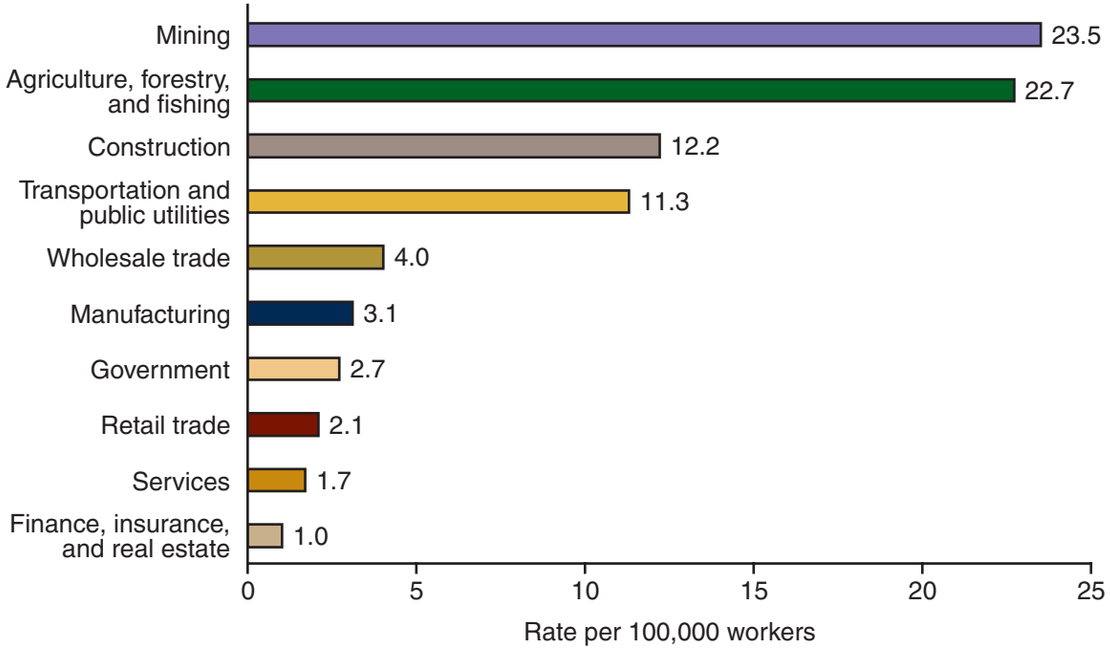


Figure 4–1. Fatal occupational injury rates by industry division, 2002. Fatal occupational injury rates in 2002 were highest in mining (23.5 per 100,000 workers), agriculture, forestry, and fishing (22.7), construction (12.2), and transportation and public utilities (11.3). The rate for all private industry was 4.2 per 100,000 workers. ***(Source: BLS [2003a].)***

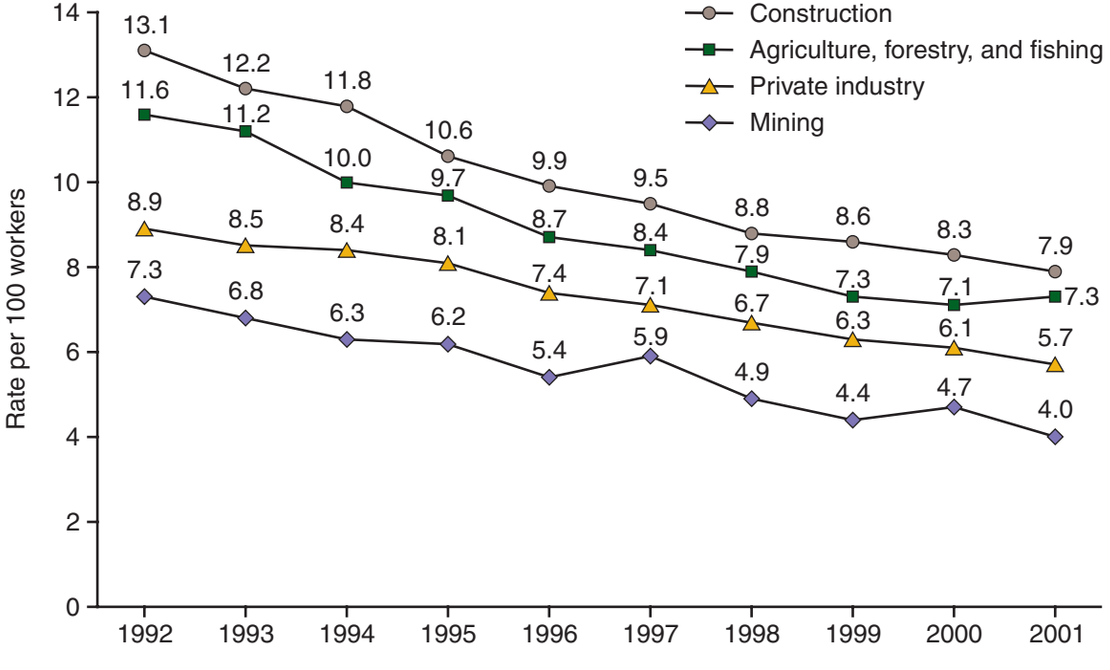


Figure 4–2. Incidence rates of nonfatal occupational injuries and illnesses in private industry and in high-risk industrial sectors, 1992–2001. During 1992–2001, the rates of total recordable injuries and illnesses in construction and agriculture exceeded those for all private industry by an average of 37% and 22%, respectively. However, the rates all decreased by similar percentages during this period—36% for all private industry, 40% for construction, and 37% for agriculture, forestry, and fishing. ***(Source: BLS [2002a].)***

Construction Trades

This section provides data for tracking trends in fatal and nonfatal occupational injuries and illnesses among workers in the construction trade. An estimated 9.6 million persons were employed in the construction industry in 2001. Most of these workers were aged 25–54 (75.4%), male (90.3%), and white (90.8%) [BLS 2001].

Over the years, construction has ranked among industries with the highest rates of both fatal and nonfatal occupational injuries. BLS reported that the number and rate of fatal occupational injuries in the construction sector in 2001 were the highest recorded since the inception of CFOI (1,225 fatal occupational injuries with an incidence rate of 13.3 per 100,000 employed workers) [BLS 2002b]. For the same year, BLS reported that the construction industry experienced 481,400 nonfatal injuries and illnesses at a rate of 7.9 per 100 full-time workers in the industry [BLS 2002a].

Since the early 1990s, NIOSH has supported extensive extramural surveillance and research on the construction sector of private industry. The Center to Protect Workers' Rights (CPWR) is a principal partner of NIOSH in conducting these activities. Early efforts focused on surveillance data and surveillance research, including the preparation of the first of three chart books focusing on construction safety and health issues [Pollack and Chowdhury 2001].

The underlying data for Figures 4–20 through 4–52 come from a number of the BLS statistical programs, including the Current Population Survey (CPS), CFOI, and SOII. The CPS provides data for estimating the construction trade occupation denominators used for many of the rate estimates. The CPWR uses CFOI to characterize occupational fatalities and SOII to characterize nonfatal injuries and illnesses. Twelve construction trade occupations are the principal focus of this section:

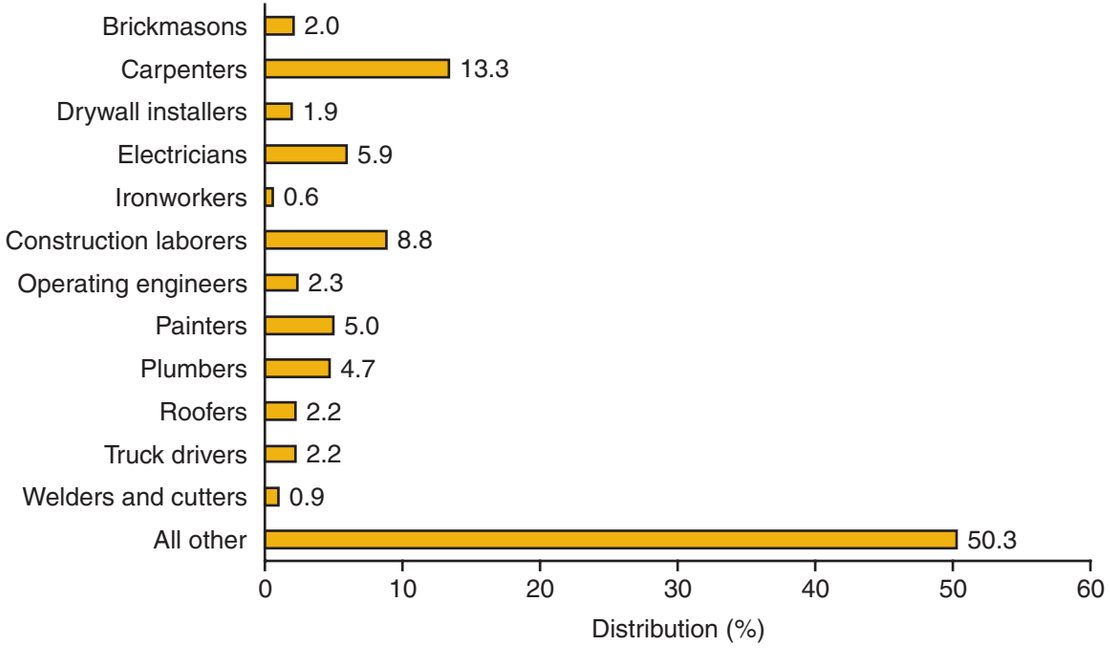
- Brickmasons
- Carpenters
- Drywall installers
- Electricians
- Ironworkers
- Construction laborers
- Operating engineers
- Painters
- Plumbers
- Roofers
- Truck drivers
- Welders and cutters

Among the trades monitored by CPWR, the estimated distribution of employed construction workers by trade ranged from 0.6% to 13.3% during 1992–2001. Carpenters made up the largest proportion of construction workers (13.3%), followed by construction laborers (8.8%) and electricians (5.9%) (Figure 4–20). The construction workforce has been growing older: In 2001, the average age for construction workers was 38.7 (1.5 years older than it was in 1992). In addition, the median age increased from 35 to 39 during this 10-year period. The aging of the construction workforce is reflected in the distribution of fatal occupational injuries in this group by age (Figure 4–21). From 1992 to 2001, the largest proportion of fatal occupational injuries shifted from construction workers aged 25–34 to those aged 35–44. For construction workers aged 25 or 34, the proportion with fatal injuries declined (from 27.8% to 21.7%), whereas it increased for workers aged 65 or older (from 3.9% to 5.9%).

Fatal occupational injury rates in the construction trades for 2001 ranged from 6.0 per 100,000 full-time workers for drywall installers

to 75.6 for ironworkers—more than a 12-fold difference (Figure 4–23). Falls to lower level accounted for the highest number of fatal injuries among construction workers (410 or 4.3 per 100,000 full-time workers), and highway accidents accounted for the next highest number (161 or 1.7 per 100,000 full-time workers) (Figure 4–25). This section includes figures that chart fatal injury rates for each of the 12 construction trades that form our focus. For each trade, the figure contrasts fatal occupational injury rates for all construction workers during each year from 1992 through 2001 (Figures 4–29, 4–31, 4–33, 4–35, 4–37, 4–39, 4–41, 4–43, 4–45, 4–47, 4–49, and 4–51).

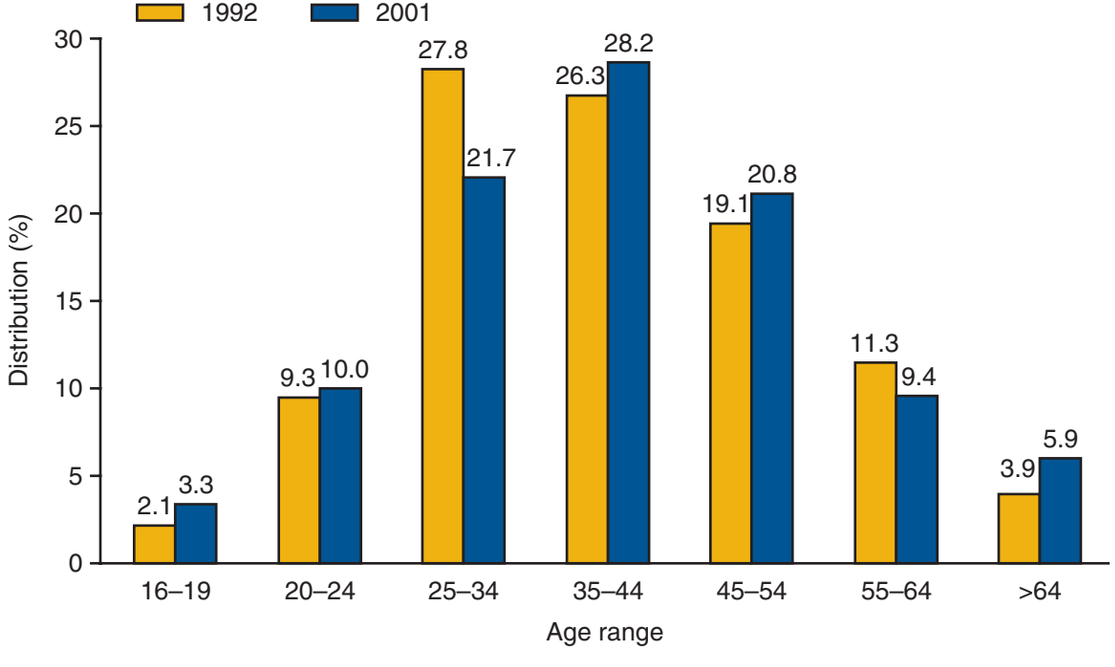
Rates of nonfatal injuries and illnesses involving days away from work in the construction trades in 2001 ranged from 131.2 per 10,000 full-time workers for painters to 751.8 for ironworkers—nearly a 6-fold difference (Figure 4–27). Injuries and illnesses associated with ergonomic events or exposures made up 26.5% (49,237 of 185,662) of all nonfatal occupational injuries and illnesses involving days away from work in the construction industry in 2001 [BLS 2003c]. The rate of bending, climbing, crawling, reaching, twisting injuries in construction was 15 per 10,000 full-time workers—nearly double the rate of 8 for all private industry that year (Figure 4–28). This section includes figures that chart nonfatal injury and illness rates for each of the 12 construction trades that form our focus. For each trade, the figure contrasts nonfatal injury and illness rates for all construction workers during each year from 1992 through 2001 (Figures 4–30, 4–32, 4–34, 4–36, 4–38, 4–40, 4–42, 4–44, 4–46, 4–48, 4–50, and 4–52).



Distribution of Construction Workers by Trade

How were construction workers distributed by major construction trade during 1992–2001?

Figure 4–20. Average distribution of full-time construction workers by trade, 1992–2001. Among the trades monitored by CPWR, the estimated distribution of employed construction workers by trade ranged from 0.6% to 13.3% during 1992–2001. Carpenters made up the largest proportion of construction workers (13.3%), followed by construction laborers (8.8%) and electricians (5.9%). (*Notes:* (1) Apprentices are included for some trades when data were available. (2) *All other* includes managers, professionals, supervisors, clerical workers, sales personnel, and trades that each totaled less than 1% of the industry. (3) Computations were based on a definition of full-time work as 2,000 employee hours per year.) ***(Sources: BLS [2002c]; Dong et al. [2004].)***



Fatal Injuries

Age

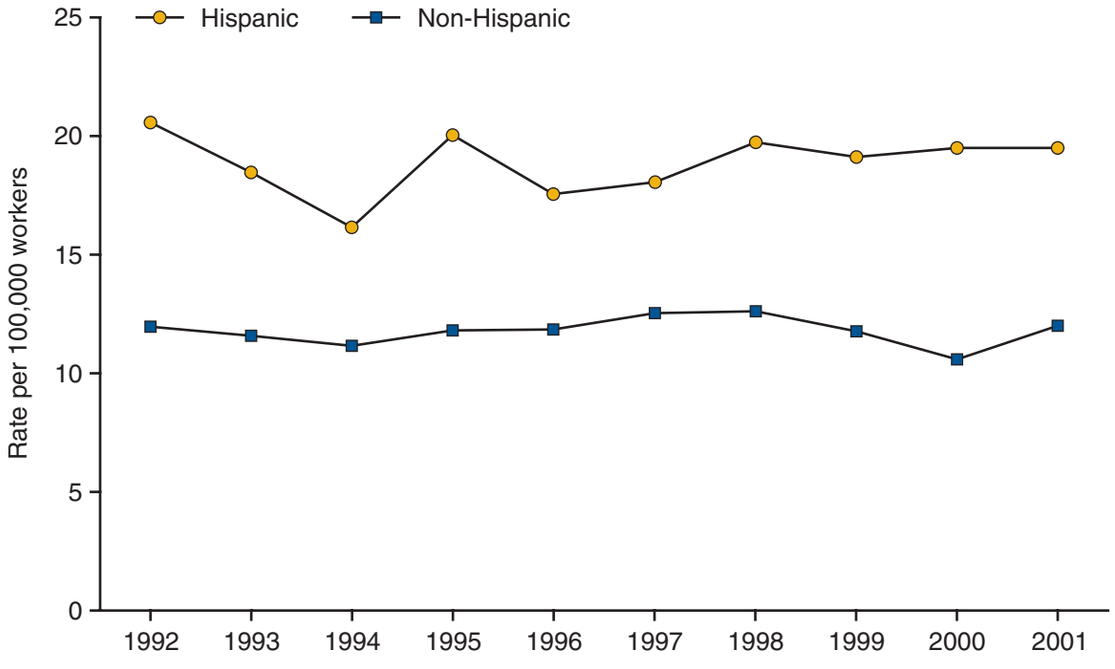
How did the numbers and rates of fatal occupational injuries in construction workers vary by age during 1992 and 2001?

Figure 4–21. Distribution of fatal occupational injuries among construction workers by age, 1992 and 2001. The construction workforce has been growing older: In 2001, the average age for construction workers was 38.7 (1.5 years older than it was in 1992). In addition, the median age increased from 35 to 39 during this 10-year period. The aging of the construction workforce is reflected in the distribution of fatal occupational injuries in this group by age. From 1992 to 2001, the largest proportion of fatal occupational injuries shifted from construction workers aged 25–34 to those aged 35–44. For construction workers aged 25 or 34, the proportion with fatal injuries declined (from 27.8% to 21.7%), whereas it increased for workers aged 65 or older (from 3.9% to 5.9%). ***(Sources: BLS [2002b,c]; Dong et al. [2004].)***

Race/Ethnicity

How did fatal occupational injury rates differ between Hispanic and non-Hispanic construction workers during 1992–2001?

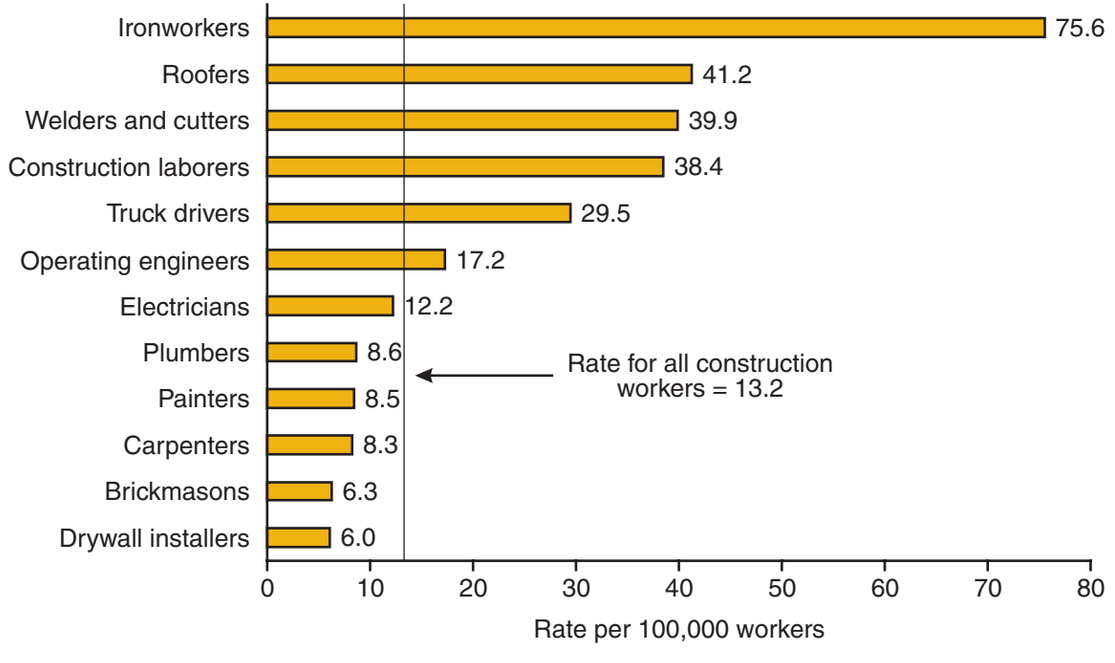
Figure 4–22. Fatal occupational injury rates among Hispanic and non-Hispanic workers in the construction industry, 1992–2001. Fatal occupational injuries among Hispanic construction workers increased from 108 in 1992 to 281 in 2001. Since 1992, Hispanic construction workers have had markedly higher fatal occupational injury rates than their non-Hispanic counterparts. In 2001 (the most recent year measured), the rate of work-related deaths from construction injuries for Hispanics was 19.5 per 100,000 full-time workers—62.5% higher than the rate of 12.0 for non-Hispanic construction workers. During 1990–2001, Hispanic employment in the U.S. construction industry increased greatly, from 649,800 in 1990 to 1.5 million (or 15.6% of the construction workforce) in 2001. ***(Sources: BLS [2002b,c]; Dong et al. [2004].)***

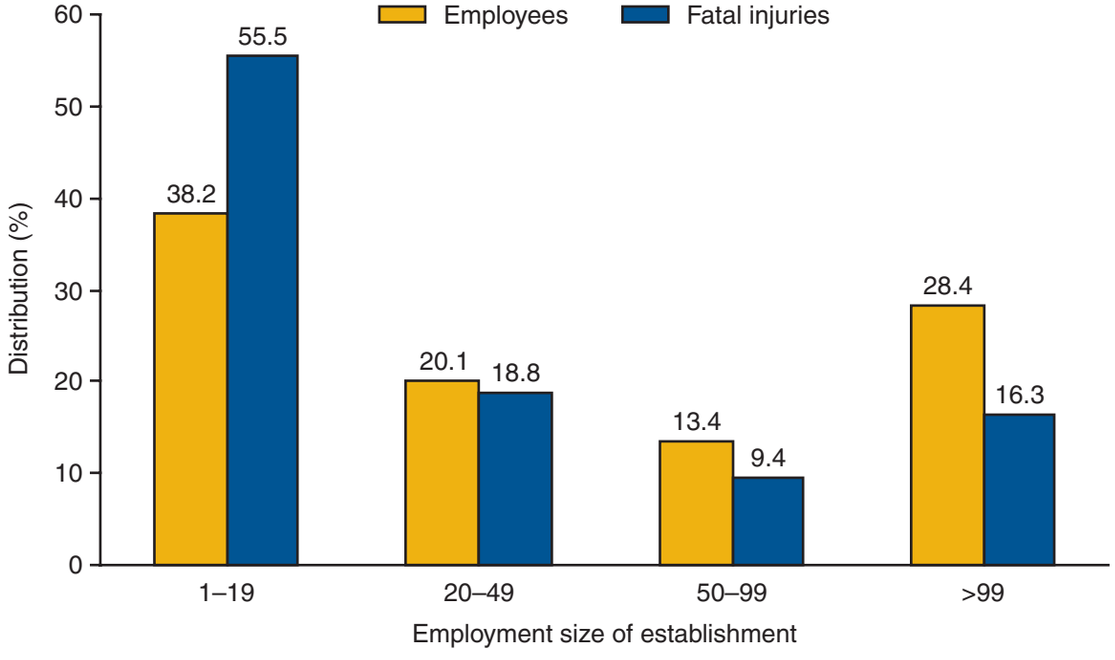


Occupation

How did the fatal occupational injury rates differ by construction trade in 2001?

Figure 4–23. Fatal occupational injury rates by construction trade, 2001. Fatal occupational injury rates in the construction trades for 2001 ranged from 6.0 per 100,000 full-time workers for drywall installers to 75.6 for ironworkers—more than a 12-fold difference. ***(Sources: BLS [2002b,c]; Chowdhury and Dong [2002].)***

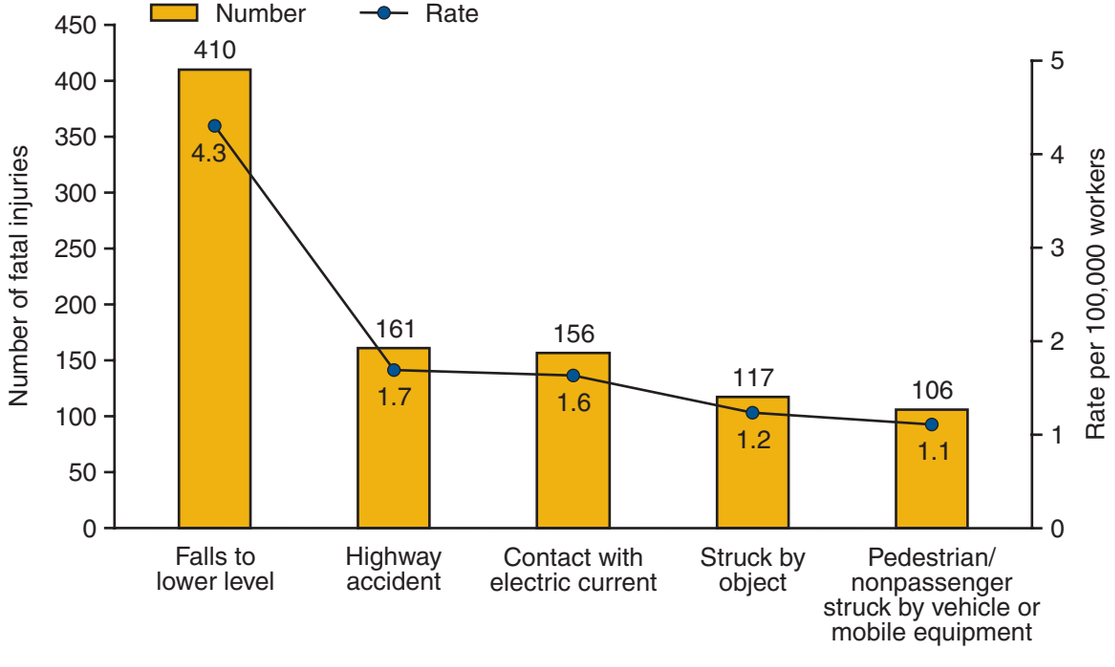




Establishment Size

How did fatal occupational injury rates vary by employment size of establishment?

Figure 4–24. Distribution of construction workers and fatal occupational injuries by employment size of establishment, 2001. In 2001, more than 80% of construction establishments had fewer than 10 employees, and establishments with fewer than 20 employees employed only 38.2% of the wage-and-salary workforce. However, fatal occupational injuries among these smaller establishments accounted for more than 55.5% of fatal occupational injuries in 2001. (*Note:* The calculation excludes the self-employed workers and deaths reported without establishment-size information.) ***(Sources: BLS [2002b,c]; Census [2003]; Dong et al. [2004].)***



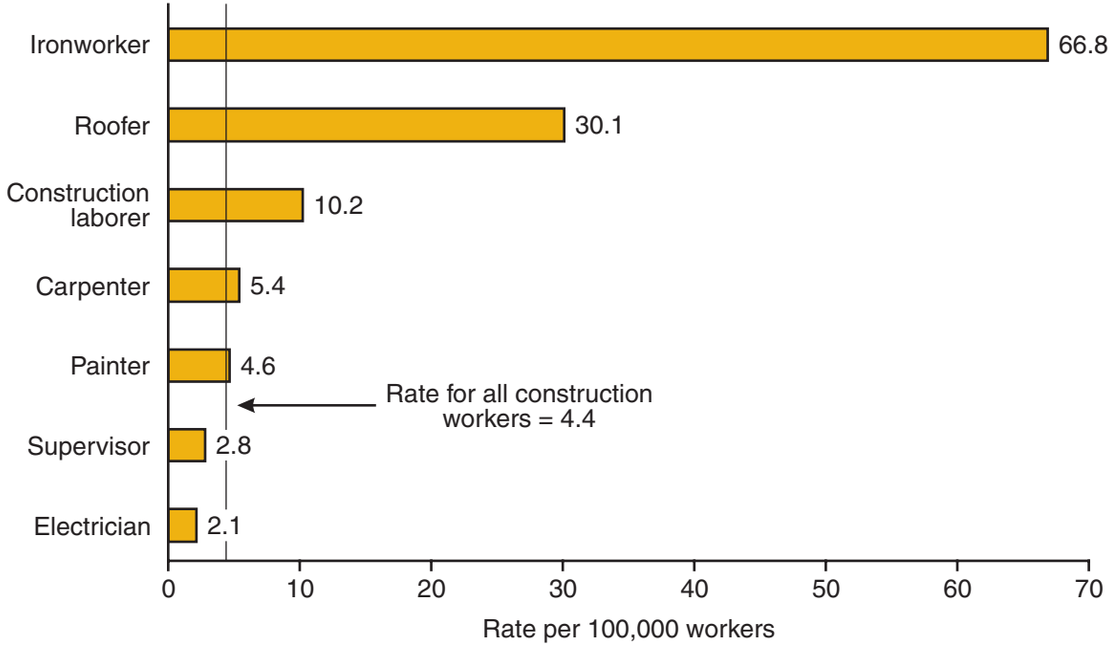
Event or Exposure

How did the numbers and rates of fatal occupational injuries differ by fatal event in 2001?

Figure 4–25. Numbers and rates of fatal occupational injuries among construction workers by fatal event, 2001. In 2001, falls to lower level accounted for the greatest number of fatal occupational injuries among construction workers (410 fatalities or 4.3 per 100,000 full-time workers). Highway accidents accounted for 161 deaths, a fatal injury rate of 1.7 per 100,000 full-time workers. ***(Sources: BLS [2002b,c]; Dong et al. [2004].)***

How did fatal fall rates differ by construction trade in 2001?

Figure 4–26. Fatal occupational fall rates by selected construction trade, 2001. The 2001 rate for fatal occupational falls among ironworkers was 66.8 per 100,000 workers—15 times the average rate for all construction. For roofers, the fatal fall rate was 30.1, or 7 times the average rate for all construction. *(Sources: BLS [2002b,c]; Dong et al. [2004].)*

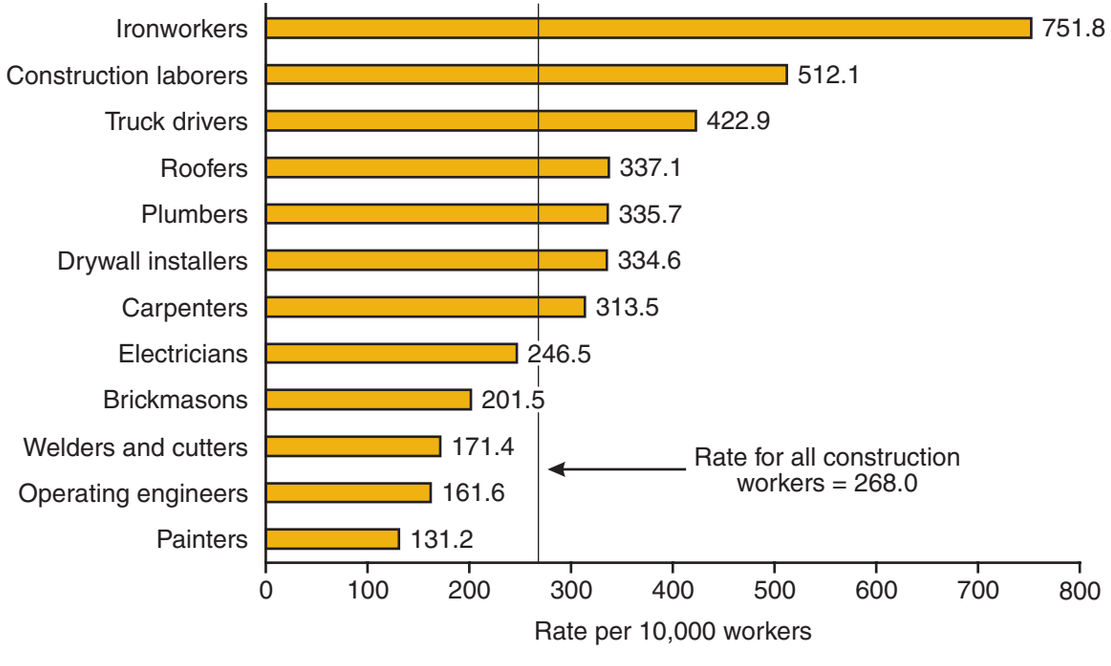


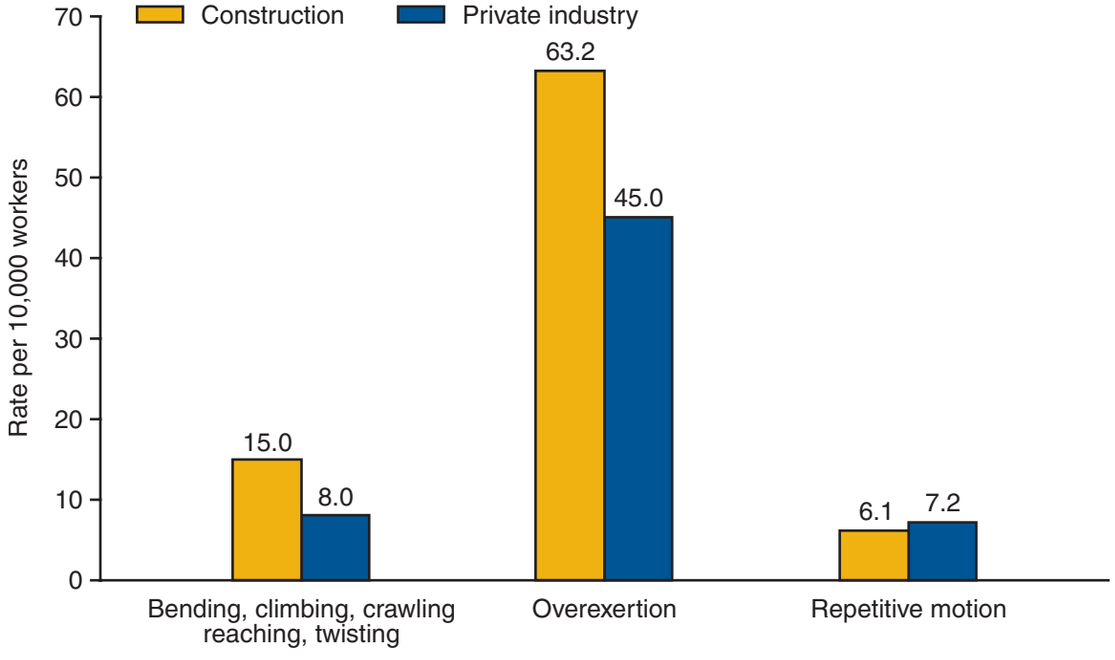
Nonfatal Injuries and Illnesses

Occupation

How did the rate of nonfatal occupational injury and illness differ by construction trade in 2001?

Figure 4–27. Rate of nonfatal occupational injury and illness cases with days away from work by construction trade, 2001. In 2001, the rate of nonfatal injuries and illnesses involving days away from work ranged from 131.2 per 10,000 full-time workers among painters to 751.8 for ironworkers—nearly a 6-fold difference. *(Sources: BLS [2002c; 2003b]; Pollack and Chowdhury [2001]; Dong et al. [2004].)*





Event or Exposure

How did rates of nonfatal occupational injury and illness differ by type of ergonomic exposure in construction and all private industry in 2001?

Figure 4–28. Rates of nonfatal occupational injury and illness cases with days away from work in construction and private industry by selected ergonomic events or exposures, 2001. Injuries and illnesses associated with ergonomic events or exposures made up 26.5% (49,237 of 185,662) of all nonfatal occupational injuries and illnesses involving days away from work in the construction industry in 2001. The rate of bending, climbing, crawling, reaching, twisting injuries in construction was 15 per 10,000 full-time workers—nearly double the rate of 8 for all private industry that year. ***(Sources: BLS [2002c; 2003b,c]; Dong et al. [2004].)***

Brickmasons

Fatal Injuries

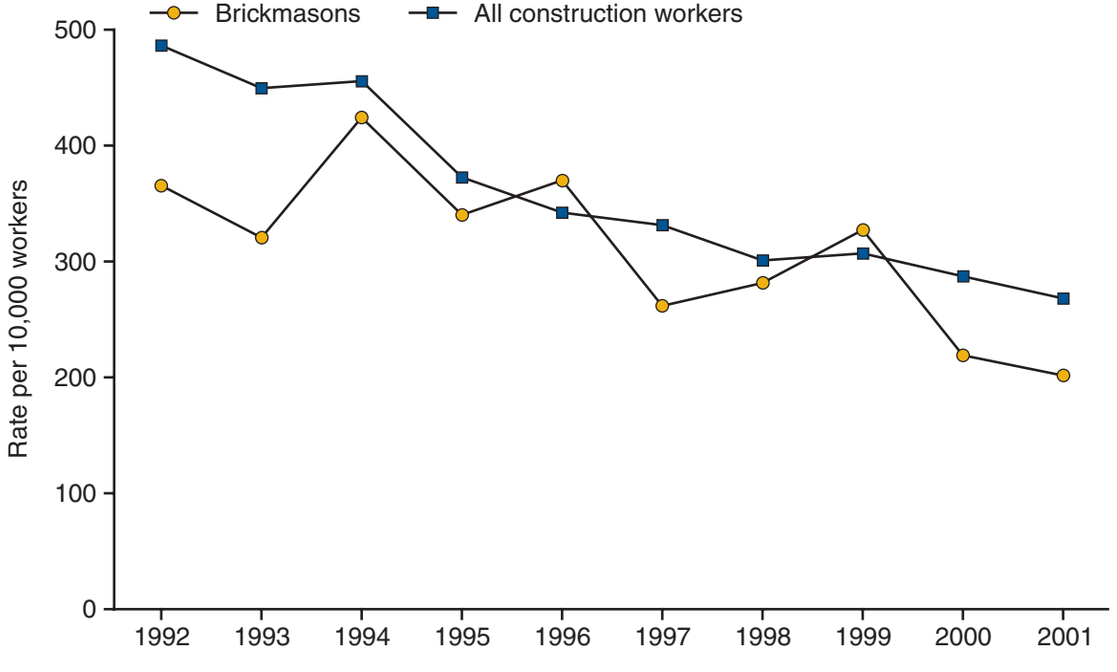
How did the fatal occupational injury rates for brickmasons compare with those for all construction workers during 1992–2001?

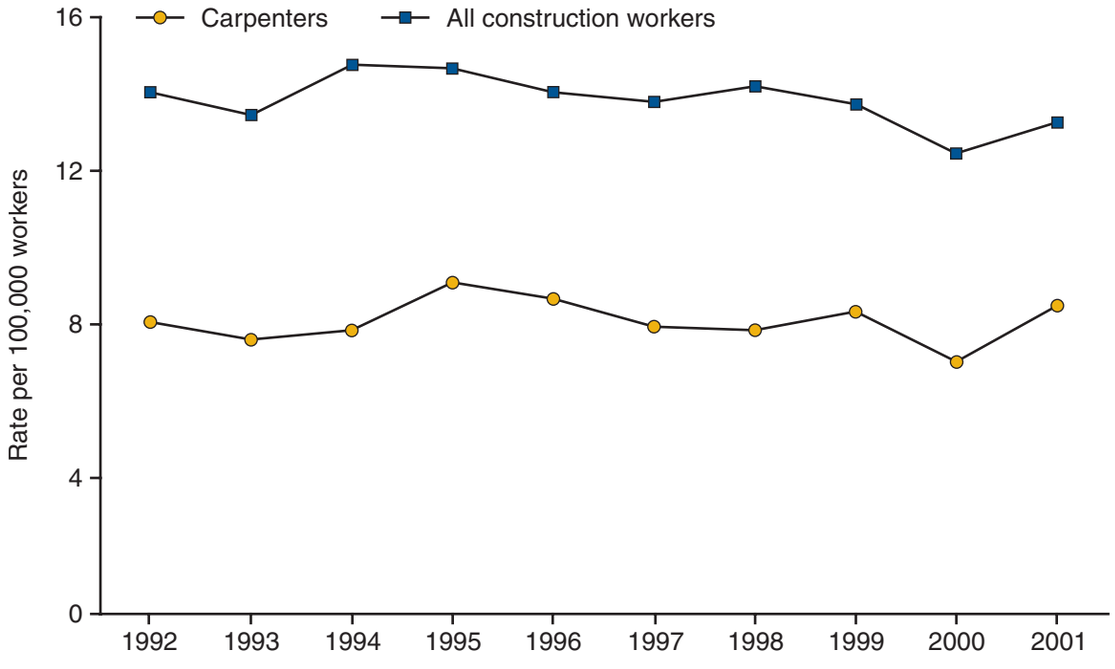
Figure 4–29. Fatal occupational injury rates for brickmasons and all construction workers, 1992–2001. During 1992–2001, fatal occupational injury rates for brickmasons were generally lower than those for all construction workers. Rates for brickmasons showed an up-and-down decreasing pattern, varying from 6.3 per 100,000 full-time workers in 2001 to 15.2 in 1995. BLS reported 145 fatal occupational injuries among brickmasons during this 10-year period—an average of 14 fatalities per year. ***(Sources: BLS [2002b,c]; Pollack and Chowdhury [2001]; Chowdhury and Dong [2003].)***

Nonfatal Injuries and Illnesses

How did the rates of nonfatal occupational injuries and illnesses for brickmasons compare with those for all construction workers during 1992–2001?

Figure 4–30. Rates of nonfatal occupational injuries and illnesses involving days away from work for brickmasons and all construction workers, 1992–2001. During 1992–2001, rates of nonfatal occupational injuries and illnesses involving days away from work were generally lower for brickmasons than for all construction workers. Rates for brickmasons showed a downward trend from a 424 per 10,000 full-time workers in 1994 to 201 in 2001. BLS reported 36,172 nonfatal occupational injuries and illnesses among brickmasons during this 10-year period—an average of 3,617 nonfatal cases per year. ***(Sources: BLS [2002c; 2003b]; Pollack and Chowdhury [2001]; Dong et al. [2004].)***



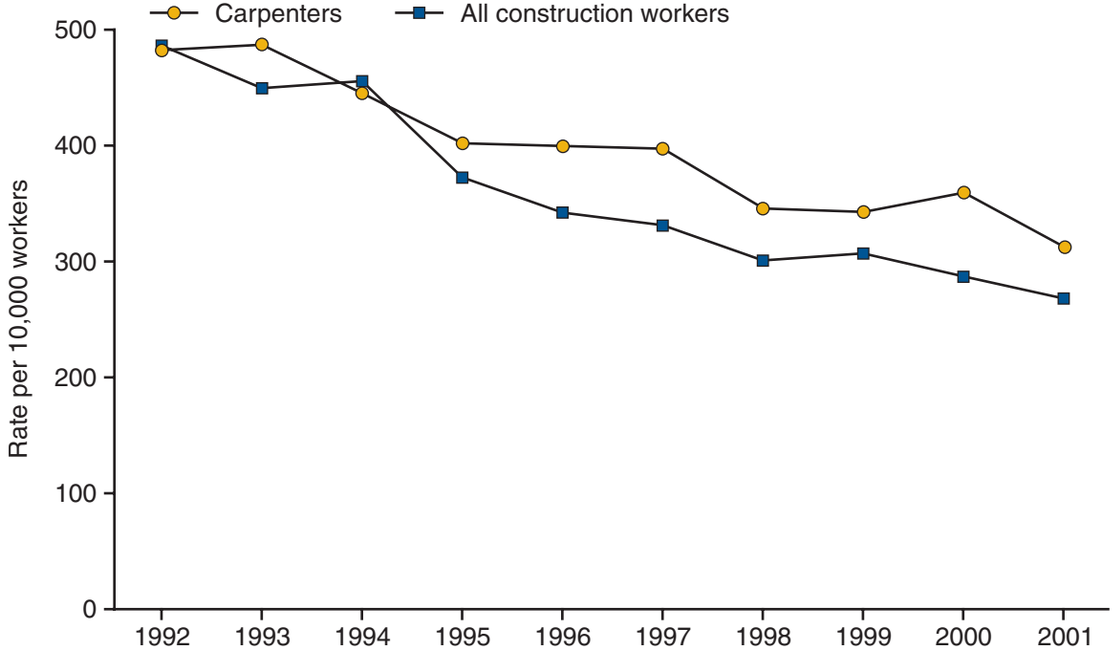


Carpenters

Fatal Injuries

How did the fatal occupational injury rates for carpenters compare with those for all construction workers during 1992–2001?

Figure 4–31. Fatal occupational injury rates for carpenters and all construction workers, 1992–2001. During 1992–2001, fatal occupational injury rates for carpenters were parallel to and consistently lower than rates for all construction workers. Rates for carpenters varied within a narrow range, from 8.9 per 100,000 full-time workers in 1995 to 6.7 in 2000. BLS reported 848 fatal occupational injuries among carpenters during this 10-year period—an average of 85 fatalities per year. ***(Sources: BLS [2002b,c]; Pollack and Chowdhury [2001]; Chowdhury and Dong [2003].)***



Nonfatal Injuries and Illnesses

How did the rates of nonfatal occupational injuries and illnesses for carpenters compare with those for all construction workers during 1992–2001?

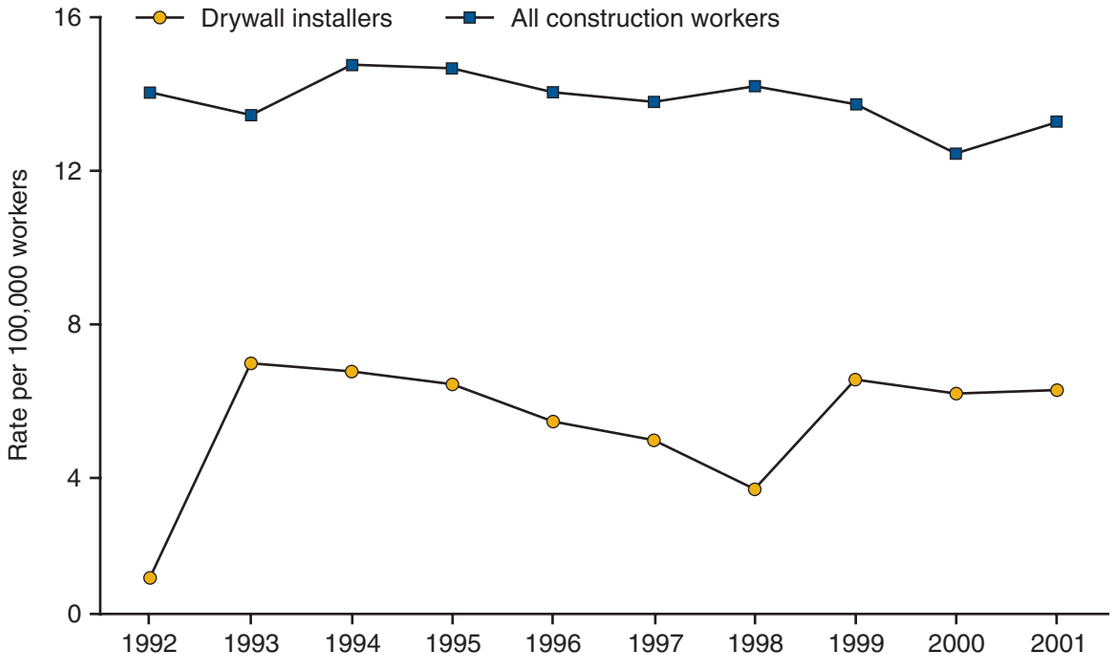
Figure 4–32. Rates of nonfatal occupational injuries and illnesses involving days away from work for carpenters and all construction workers, 1992–2001. During 1992–2001, rates of nonfatal occupational injuries and illnesses involving days away from work were slightly higher for carpenters than for all construction workers, but they were comparable in overall magnitude. Rates for carpenters showed a downward trend, from 489 per 10,000 full-time workers in 1993 to 313 in 2001. BLS reported 285,705 nonfatal occupational injuries and illnesses among carpenters during this 10-year period—an average of 28,570 nonfatal cases per year. ***(Sources: BLS [2002c; 2003b]; Pollack and Chowdhury [2001]; Dong et al. [2004].)***

Drywall Installers

Fatal Injuries

How did the fatal occupational injury rates for drywall installers compare with those for all construction workers during 1992–2001?

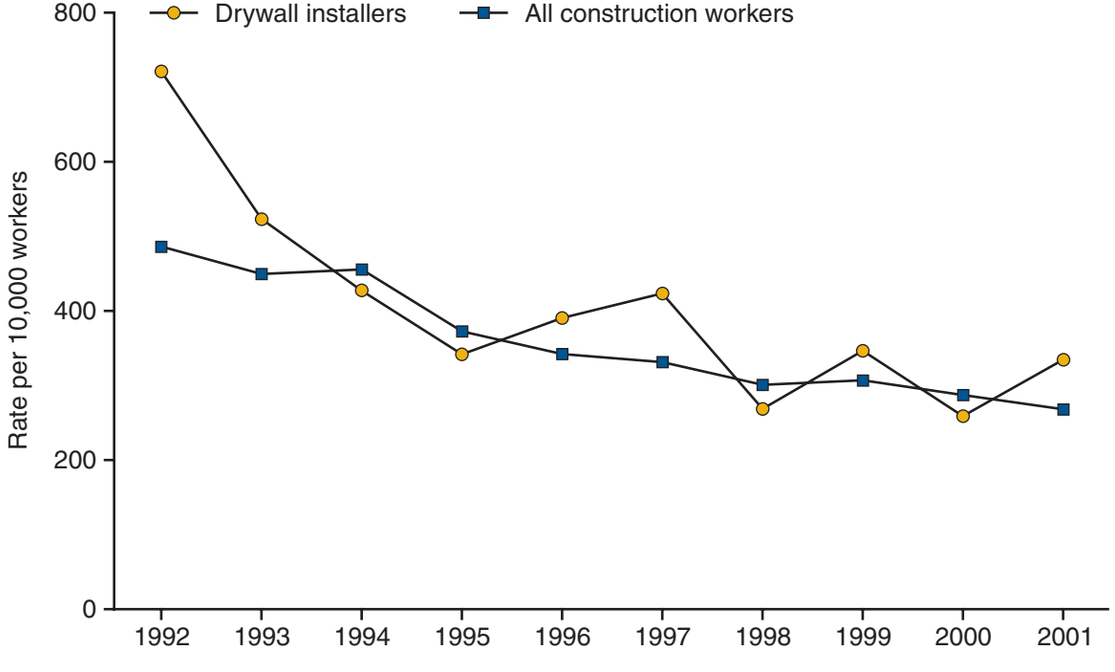
Figure 4–33. Fatal occupational injury rates for drywall installers and all construction workers, 1992–2001. Fatal occupational injury rates for drywall installers were consistently lower than those for all construction workers during 1992–2001. Except for 1992, the rates for drywall installers varied within a narrow range, from 6.7 per 100,000 full-time workers in 1993 to 3.4 in 1998. BLS reported 80 fatal occupational injuries among drywall installers during this 10-year period—an average of 10 fatalities per year. ***(Sources: BLS [2002b,c]; Pollack and Chowdhury [2001]; Chowdhury and Dong [2003].)***

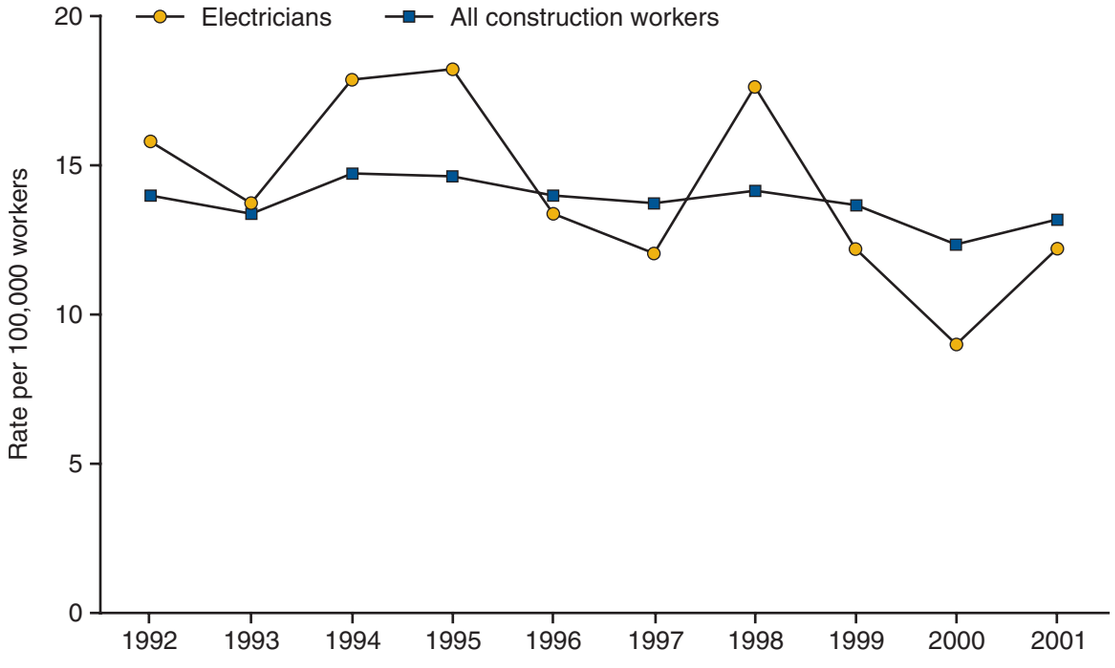


Nonfatal Injuries and Illnesses

How did the rates of nonfatal occupational injuries and illnesses for drywall installers compare with those for all construction workers during 1992–2001?

Figure 4–34. Rates of nonfatal occupational injuries and illnesses involving days away from work for drywall installers and all construction workers, 1992–2001. Rates of nonfatal occupational injuries and illnesses involving days away from work for drywall installers showed a downward trend during 1992–2001, from 720 per 10,000 full-time workers in 1992 to 259 in 2000. BLS reported 43,575 nonfatal occupational injuries and illnesses among construction workers during this 10-year period—an average of 4,357 nonfatal cases per year. ***(Sources: BLS [2002c; 2003b]; Pollack and Chowdhury [2001]; Dong et al. [2004].)***



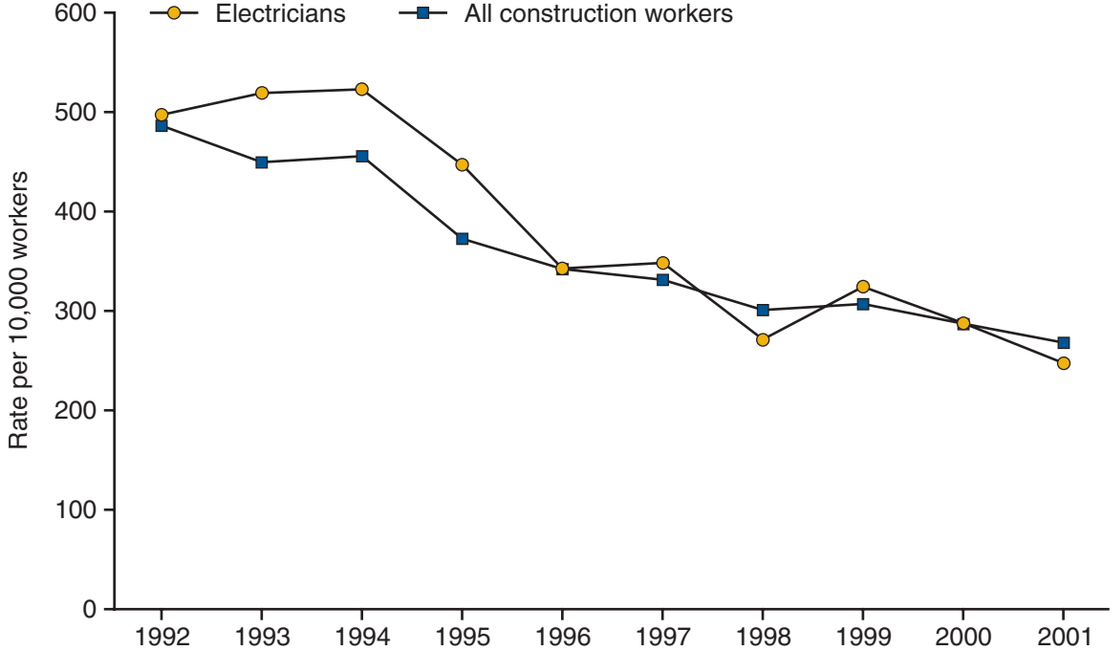


Electricians

Fatal Injuries

How did the fatal occupational injury rates for electricians compare with those for all construction workers during 1992–2001?

Figure 4–35. Fatal occupational injury rates for electricians and all construction workers, 1992–2001. Fatal occupational injury rates for electricians during 1992–2001 were comparable with those for all construction workers. Rates for electricians showed an up-and-down decreasing pattern, from 18.3 per 100,000 full-time workers in 1995 to 9.0 in 2000. BLS reported 671 fatal occupational injuries among electricians during this 10-year period—an average of 67 fatalities per year. ***(Sources: BLS [2002b,c]; Pollack and Chowdhury [2001]; Chowdhury and Dong [2003].)***



Nonfatal Injuries and Illnesses

How did the rates of nonfatal occupational injuries and illnesses for electricians compare with those for all construction workers during 1992–2001?

Figure 4–36. Rates of nonfatal occupational injuries and illnesses involving days away from work for electricians and all construction workers, 1992–2001. During 1992–2001, rates of nonfatal occupational injuries and illnesses involving days away from work for electricians were slightly higher but comparable with those for all construction workers. Rates for electricians showed a downward trend, from 522 per 10,000 full-time workers in 1994 to 246 in 2001. BLS reported 142,811 nonfatal occupational injuries and illnesses among electricians during this 10-year period—an average of 14,281 nonfatal cases per year. ***(Sources: BLS [2002c; 2003b]; Pollack and Chowdhury [2001]; Dong et al. [2004].)***

Ironworkers

Fatal Injuries

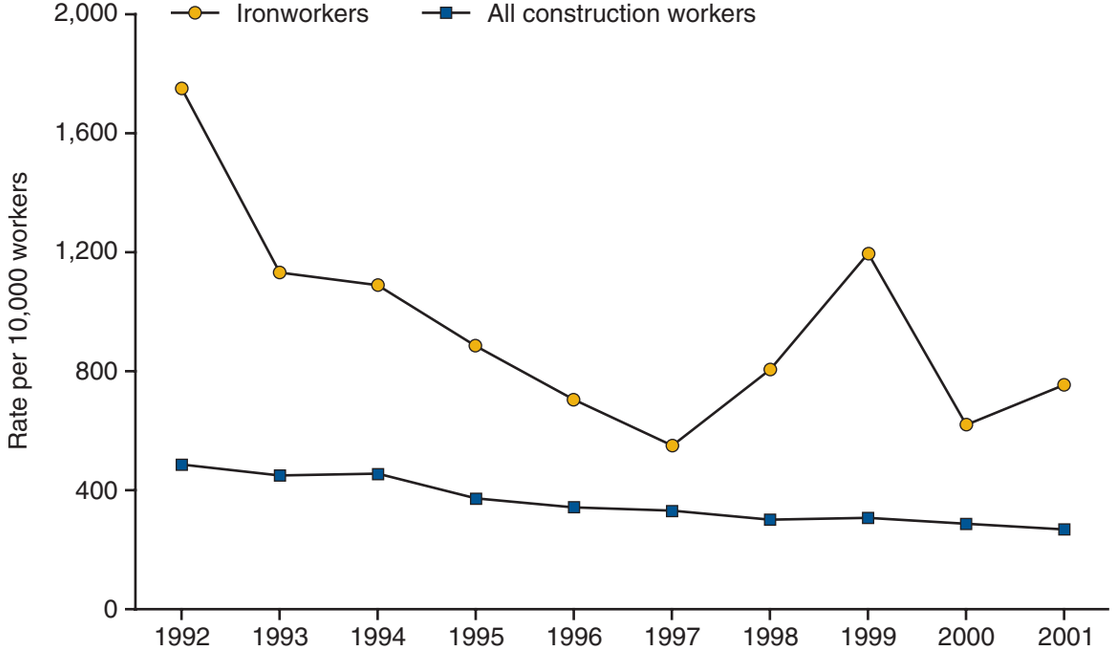
How did the fatal occupational injury rates for ironworkers compare with those for all construction workers during 1992–2001?

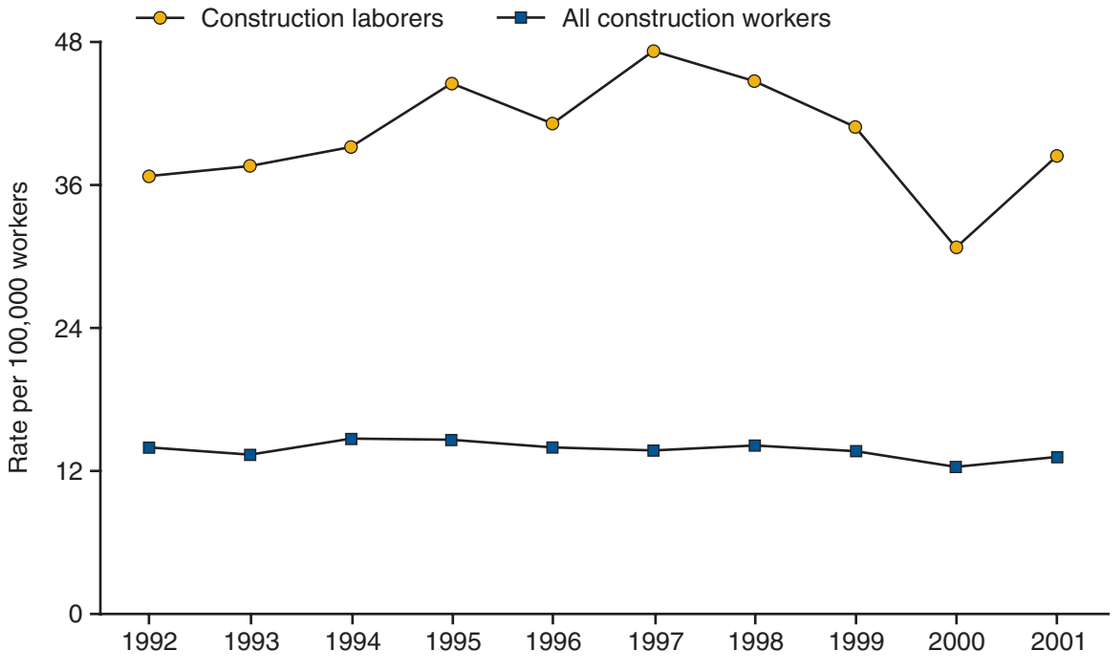
Figure 4–37. Fatal occupational injury rates for ironworkers and all construction workers, 1992–2001. Fatal occupational injury rates for ironworkers during 1992–2001 were substantially greater (4.8–10.5 times greater) than those for all construction workers. Rates for ironworkers showed a downward trend, from 147.6 per 100,000 full-time workers in 1992 to 60.0 in 2000. BLS reported 424 fatal occupational injuries among ironworkers during this 10-year period—an average of 42 fatalities per year. ***(Sources: BLS [2002b,c]; Pollack and Chowdhury [2001]; Chowdhury and Dong [2003].)***

Nonfatal Injuries and Illnesses

How did the rates of nonfatal occupational injuries and illnesses for ironworkers compare with those for all construction workers during 1992–2001?

Figure 4–38. Rates of nonfatal occupational injuries and illnesses involving days away from work for ironworkers and all construction workers, 1992–2001. Rates of nonfatal occupational injuries and illnesses involving days away from work for ironworkers during 1992–2001 were consistently greater (1.7–3.9 times greater) than those for all construction workers. Rates for ironworkers showed a downward trend, from 1,750 per 10,000 full-time workers in 1992 to 550 in 1997. The 2001 rate of 752 per 10,000 full-time workers represents a 57% decrease from the 1992 rate of nonfatal injury and illness for ironworkers. BLS reported 40,173 cases of nonfatal occupational injuries and illnesses among ironworkers during this 10-year period—an average of 4,017 nonfatal cases per year. ***(Sources: BLS [2002c; 2003b]; Pollack and Chowdhury [2001]; Dong et al. [2004].)***



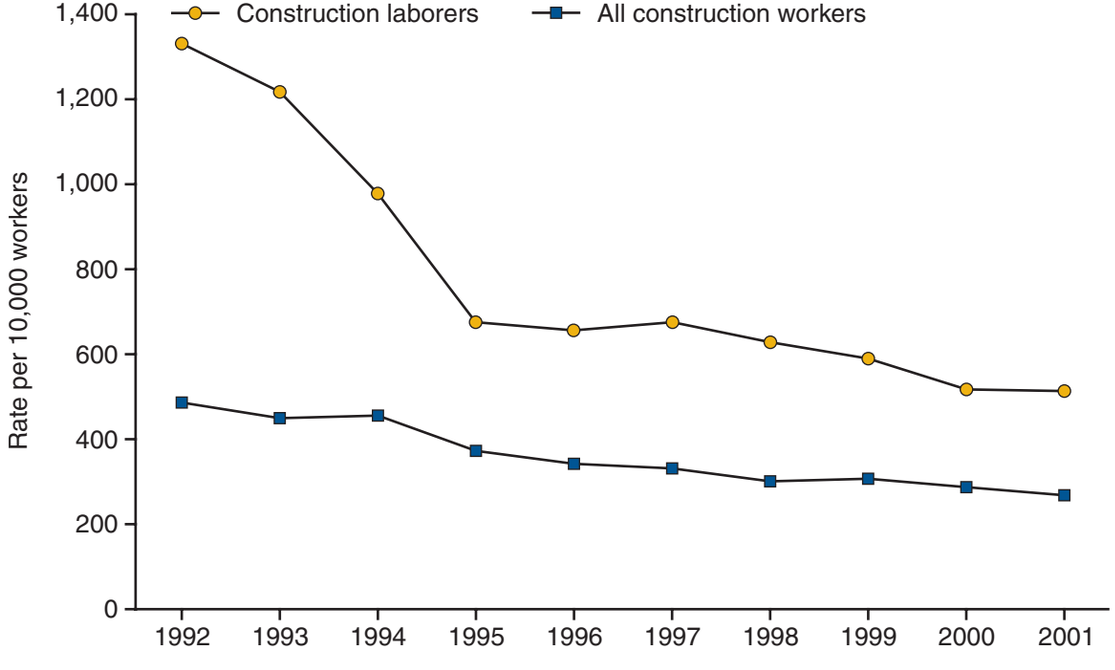


Construction Laborers

Fatal Injuries

How did the fatal occupational injury rates for construction laborers compare with those for all construction workers during 1992–2001?

Figure 4–39. Fatal occupational injury rates for construction laborers and all construction workers, 1992–2001. Fatal occupational injury rates for construction laborers during 1992–2001 were substantially greater (2.5–3.4 times greater) than those for all construction workers. Between 1992 and 1997, rates increased from 36.8 per 100,000 full-time workers to 47.3, then decreased to a low of 30.8 in 2000. BLS reported 2,873 fatal occupational injuries among construction laborers during this 10-year period—an average of 287 fatalities per year. ***(Sources: BLS [2002b,c]; Pollack and Chowdhury [2001]; Chowdhury and Dong [2003].)***



Nonfatal Injuries and Illnesses

How did the rates of nonfatal occupational injuries and illnesses for construction laborers compare with those for all construction workers during 1992–2001?

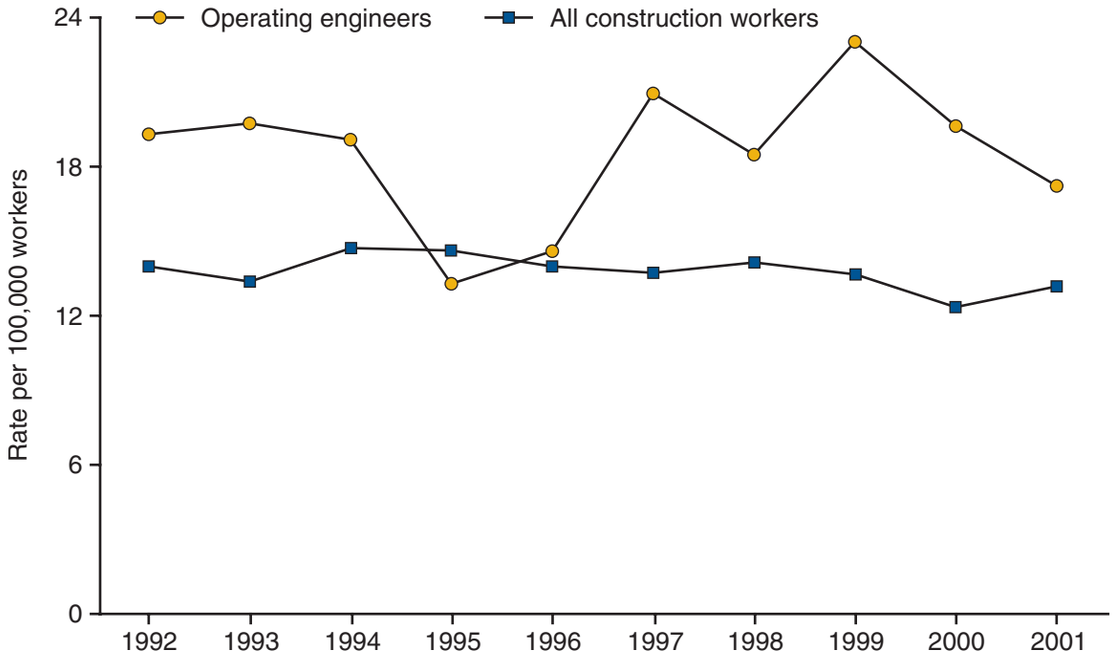
Figure 4–40. Rates of nonfatal occupational injuries and illnesses involving days away from work for construction laborers and all construction workers, 1992–2001. Rates of nonfatal occupational injuries and illnesses involving days away from work for construction laborers during 1992–2001 were consistently greater (1.8–2.7 times greater) than those for all construction workers. Rates for construction laborers showed a downward trend, from 1,330 per 10,000 full-time workers in 1992 to 512 in 2001. The 2001 rate represents a 62% decrease from the 1992 rate. BLS reported 467,258 nonfatal occupational injuries and illnesses among construction laborers during this 10-year period—an average of 46,726 nonfatal cases per year. ***(Sources: BLS [2002c; 2003b]; Pollack and Chowdhury [2001]; Dong et al. [2004].)***

Operating Engineers

Fatal Injuries

How did the fatal occupational injury rates for operating engineers compare with those for all construction workers during 1992–2001?

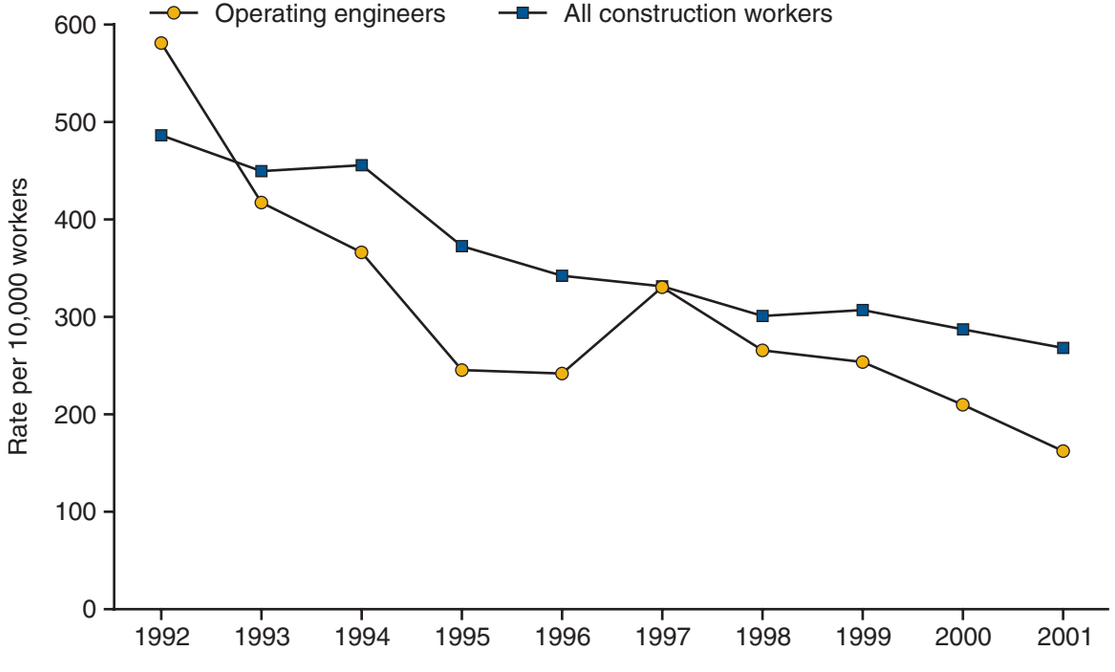
Figure 4–41. Fatal occupational injury rates for operating engineers and all construction workers, 1992–2001. Fatal occupational injury rates for operating engineers during 1992–2001 exceeded those for all construction workers except during 1995. Rates for operating engineers showed an increasing trend, varying between 12.2 per 100,000 full-time workers and 23.0 (compared with 12.4 and 14.8 per 100,000 full-time workers for all construction workers). BLS reported 342 fatal occupational injuries among operating engineers during this 10-year period—an average of 34 fatalities per year. ***(Sources: BLS [2002b,c]; Pollack and Chowdhury [2001]; Chowdhury and Dong [2003].)***

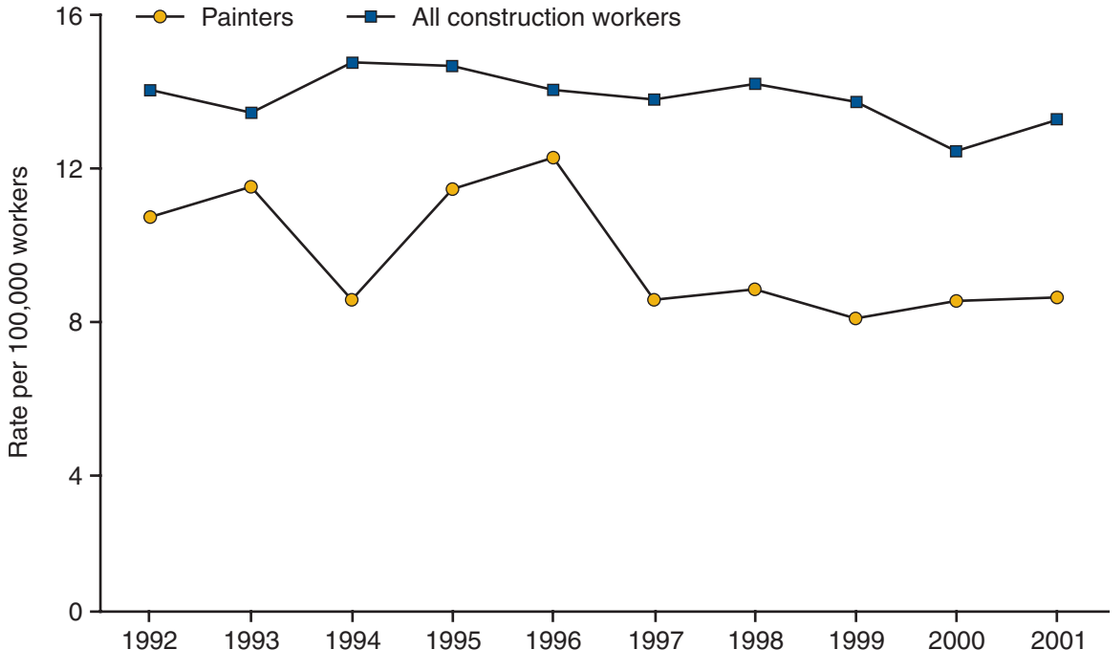


Nonfatal Injuries and Illnesses

How did the rates of nonfatal occupational injuries and illnesses for operating engineers compare with those for all construction workers during 1992–2001?

Figure 4–42. Rates of nonfatal occupational injuries and illnesses involving days away from work for operating engineers and all construction workers, 1992–2001. During 1992–2001, rates of nonfatal occupational injuries and illnesses involving days away from work were lower for operating engineers than for all construction workers, but both rates were comparable in overall magnitude. Rates for operating engineers showed a downward trend, from 581 per 10,000 full-time workers in 1992 to 162 in 2001. BLS reported 37,431 nonfatal occupational injuries and illnesses among operating engineers during this 10-year period—an average of 3,743 nonfatal cases per year. ***(Sources: BLS [2002c; 2003b]; Pollack and Chowdhury [2001]; Dong et al. [2004].)***



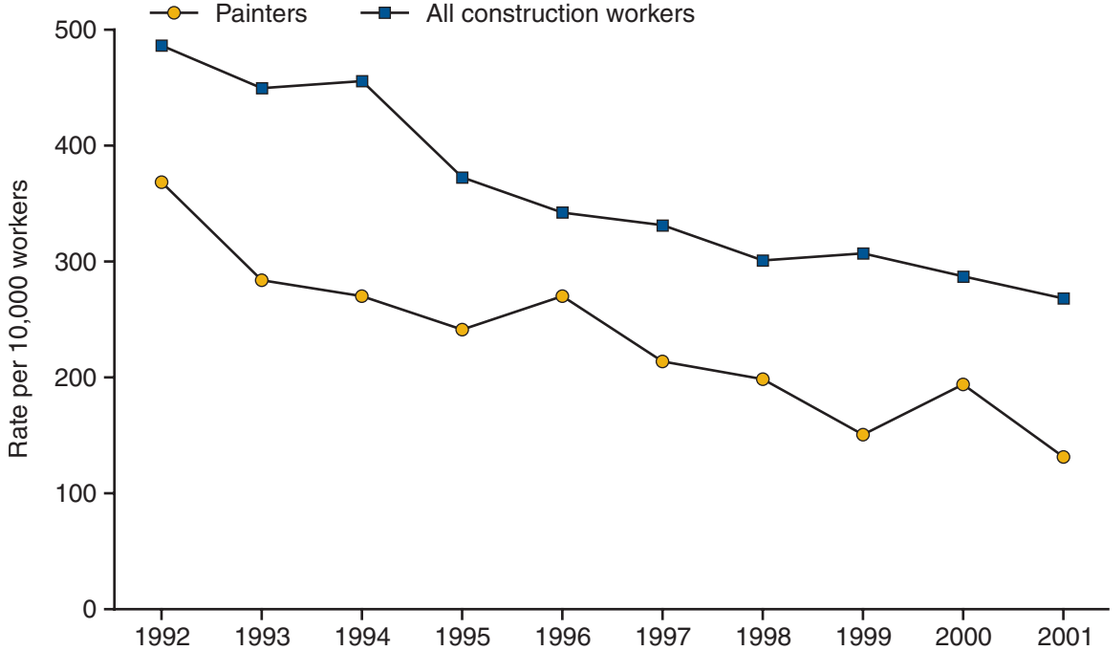


Painters

Fatal Injuries

How did the fatal occupational injury rates for painters compare with those for all construction workers during 1992–2001?

Figure 4–43. Fatal occupational injury rates for painters and all construction workers, 1992–2001. During 1992–2001, fatal occupational injury rates for painters were lower than those for all construction workers. Rates for painters showed an up-and-down decreasing pattern, varying from 12.2 per 100,000 full-time workers in 1996 to 7.9 in 1999. BLS reported 384 fatal occupational injuries among painters during this 10-year period—an average of 38 fatalities per year. ***(Sources: BLS [2002b,c]; Pollack and Chowdhury [2001]; Chowdhury and Dong [2003].)***



Nonfatal Injuries and Illnesses

How did the rates of nonfatal occupational injuries and illnesses for painters compare with those for all construction workers during 1992–2001?

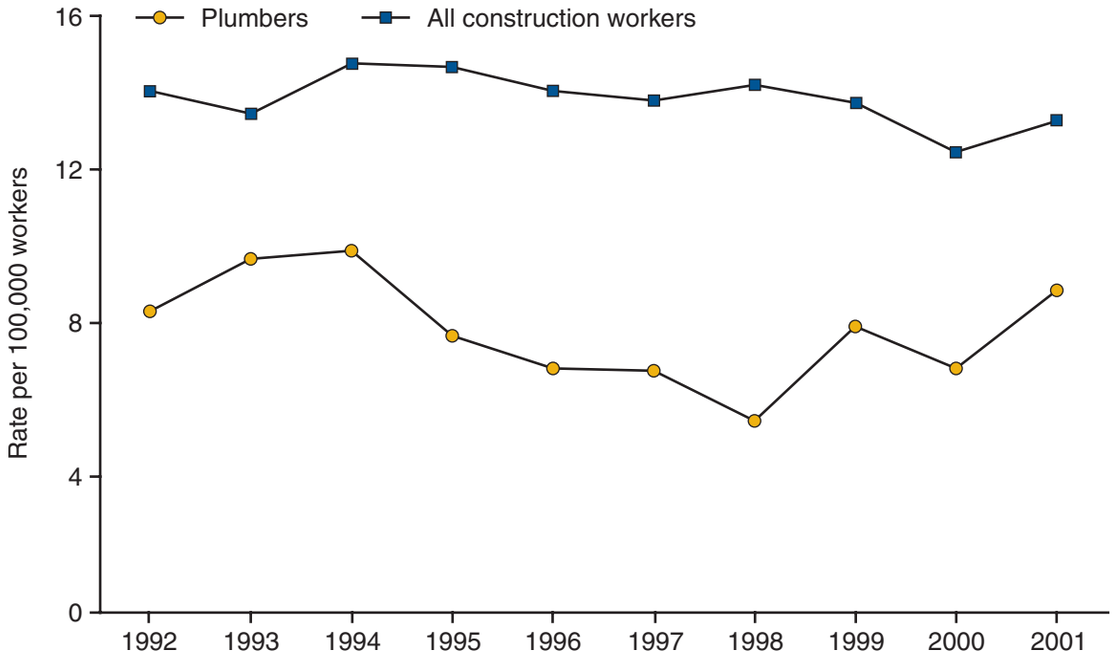
Figure 4–44. Rates of nonfatal occupational injuries and illnesses involving days away from work for painters and all construction workers, 1992–2001. During 1992–2001, rates of nonfatal occupational injuries and illnesses involving days away from work for painters were consistently lower (0.5 to 0.8 times lower) than those for all construction workers. Rates showed a downward trend, from 368 per 10,000 full-time workers in 1992 to 131 in 2001. The 2001 rate of 131 per 10,000 full-time workers represents a 64% decrease in rates since 1992. BLS reported 50,264 nonfatal occupational injuries and illnesses among painters during this 10-year period—an average of 5,026 nonfatal cases per year. ***(Sources: BLS [2002c; 2003b]; Pollack and Chowdhury [2001]; Dong et al. [2004].)***

Plumbers

Fatal Injuries

How did the fatal occupational injury rates for plumbers compare with those for all construction workers during 1992–2001?

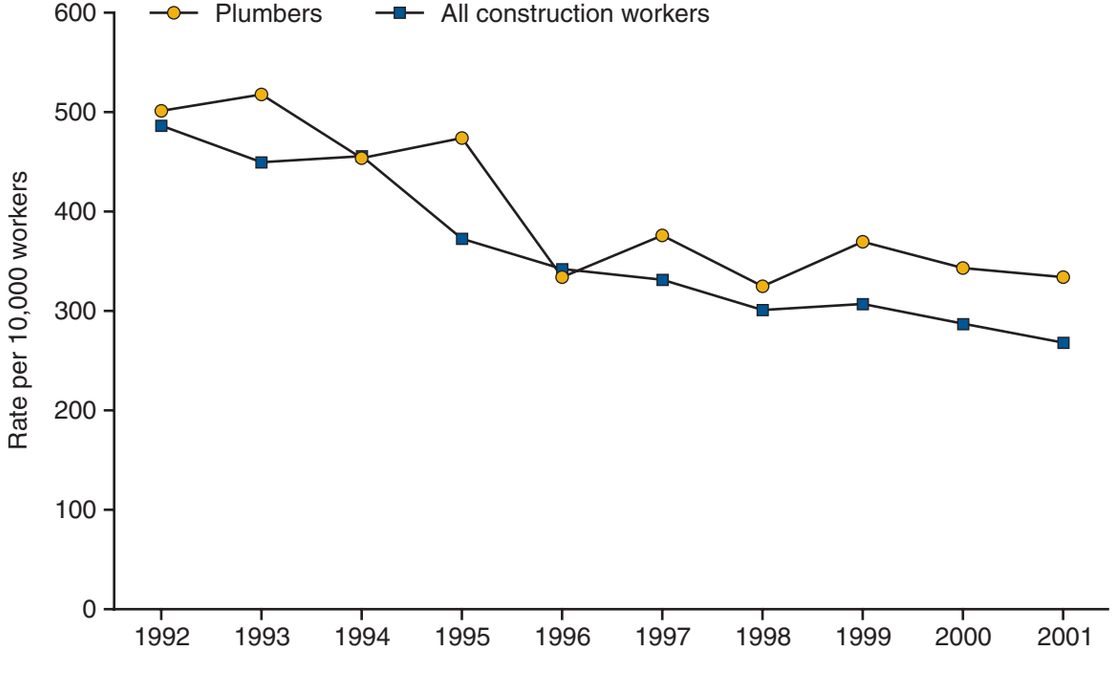
Figure 4–45. Fatal occupational injury rates for plumbers and all construction workers, 1992–2001. During 1992–2001, fatal occupational injury rates for plumbers were lower than those for all construction workers. Rates for plumbers showed a downward trend, from 9.7 per 100,000 full-time workers in 1994 to 5.1 in 1998. BLS reported 284 fatal occupational injuries among plumbers during this 10-year period—an average of 28 fatalities per year. ***(Sources: BLS [2002b,c]; Pollack and Chowdhury [2001]; Chowdhury and Dong [2003].)***

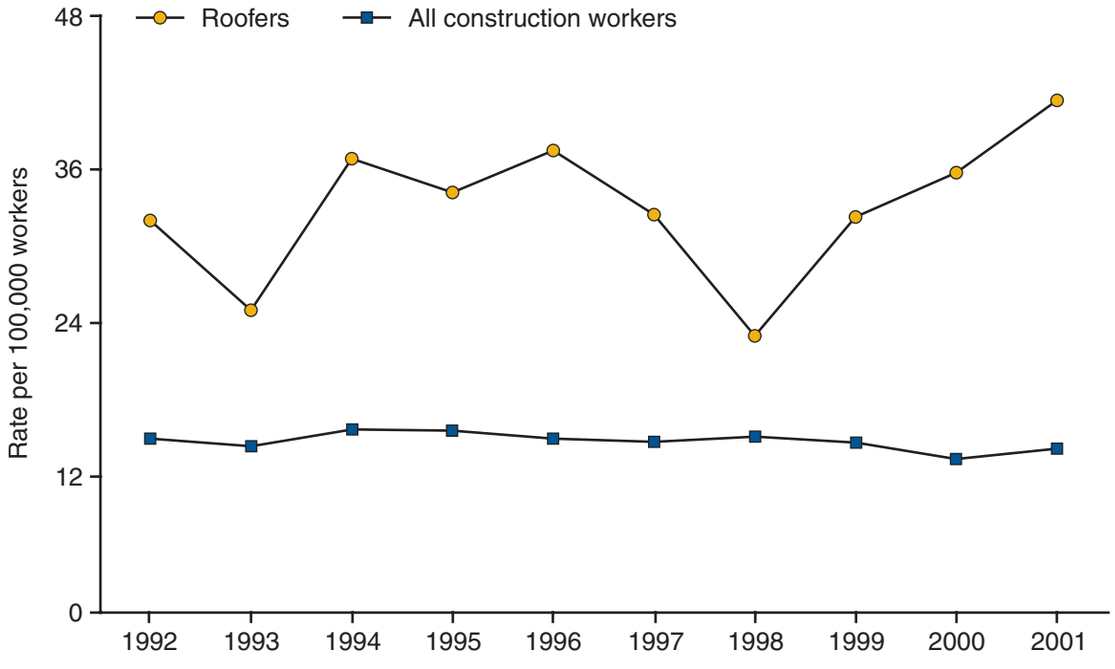


Nonfatal Injuries and Illnesses

How did the rates of nonfatal occupational injuries and illnesses for plumbers compare with those for all construction workers during 1992–2001?

Figure 4–46. Rates of nonfatal occupational injuries and illnesses involving days away from work for plumbers and all construction workers, 1992–2001. During 1992–2001, rates of nonfatal occupational injuries and illnesses involving days away from work for plumbers were slightly higher than those for all construction workers, though they were comparable in overall magnitude. Rates for plumbers showed a downward trend, from 504 per 10,000 full-time workers in 1992 to 326 in 1998. BLS reported 113,679 nonfatal occupational injuries and illnesses among plumbers during this 10-year period—an average of 11,370 nonfatal cases per year. ***(Sources: BLS [2002c; 2003b]; Pollack and Chowdhury [2001]; Dong et al. [2004].)***



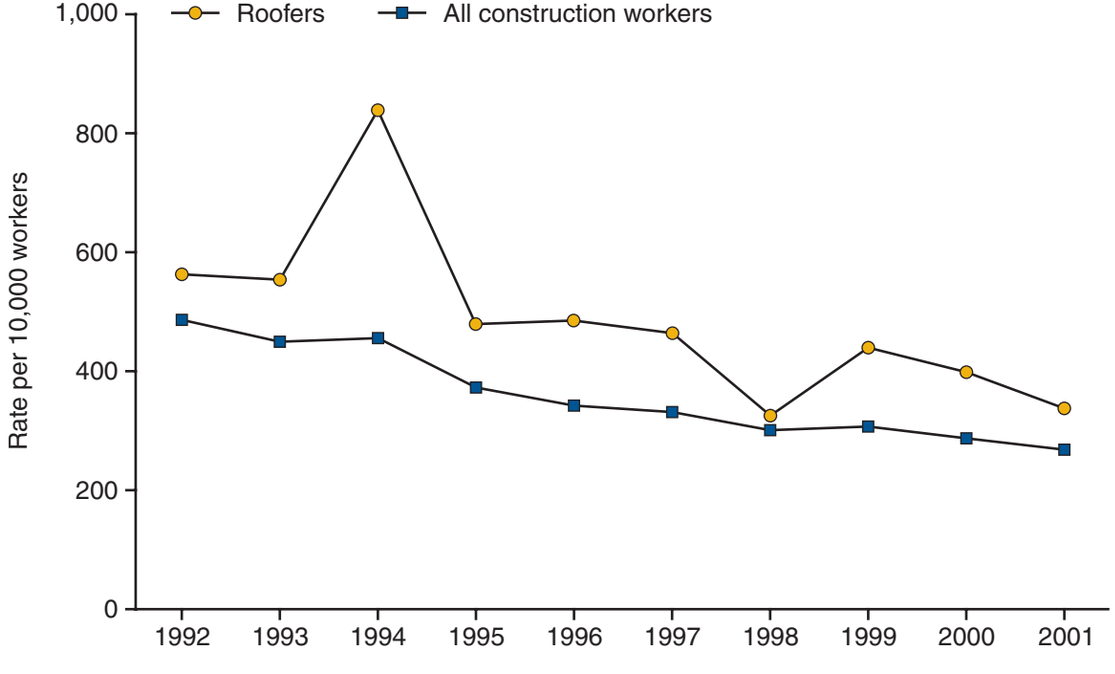


Roofers

Fatal Injuries

How did the fatal occupational injury rates for roofers compare with those for all construction workers during 1992–2001?

Figure 4–47. Fatal occupational injury rates for roofers and all construction workers, 1992–2001. Fatal occupational injury rates for roofers were 1.6–2.8 times greater than those for all construction workers during 1992–2001. Rates followed an up-and-down increasing pattern, with a high of 41.2 per 100,000 full-time workers in 2001 and a low of 22.3 in 1998. BLS reported 569 fatal occupational injuries among roofers during this 10-year period—an average of 57 fatalities per year. ***(Sources: BLS [2002b,c]; Pollack and Chowdhury [2001]; Chowdhury and Dong [2003].)***



Nonfatal Injuries and Illnesses

How did the rates of nonfatal occupational injuries and illnesses for roofers compare with those for all construction workers during 1992–2001?

Figure 4–48. Rates of nonfatal occupational injuries and illnesses involving days away from work for roofers and all construction workers, 1992–2001. During 1992–2001, rates of nonfatal occupational injuries and illnesses involving days away from work were consistently greater for roofers (1.1–1.8 times greater) than for all construction workers. Rates for roofers showed a downward trend, from 838 per 10,000 full-time workers in 1994 to 325 in 1998. BLS reported 61,539 nonfatal occupational injuries and illnesses among roofers during this 10-year period—an average of 6,154 nonfatal cases per year. ***(Sources: BLS [2002c; 2003b]; Pollack and Chowdhury [2001]; Dong et al. [2004].)***

Truck Drivers

Fatal Injuries

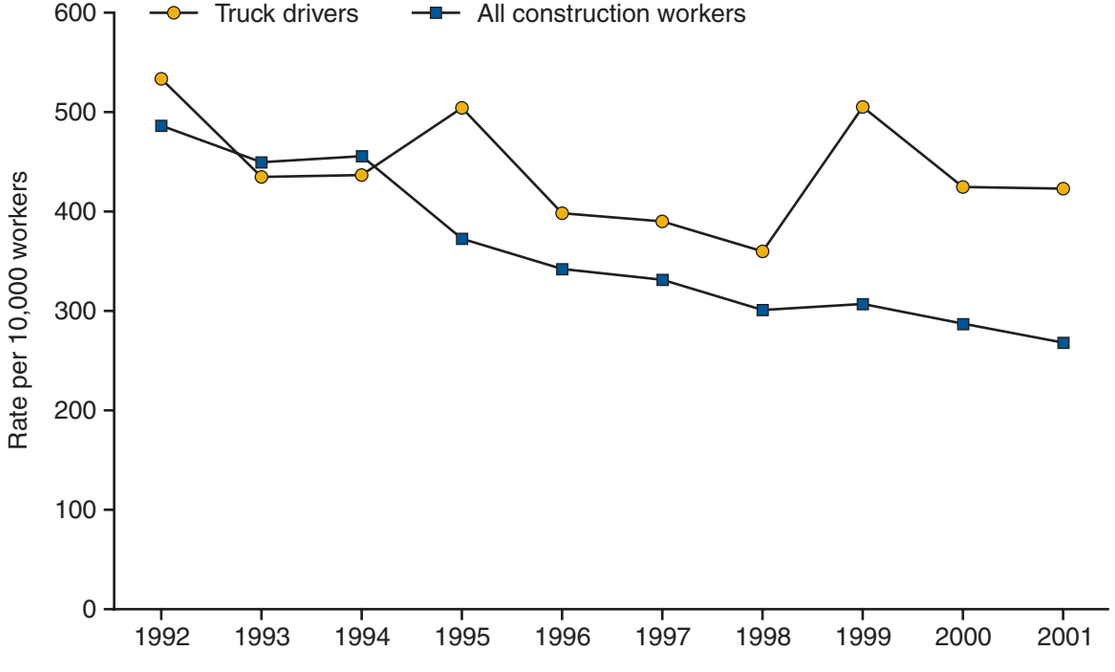
How did the fatal occupational injury rates for truck drivers compare with those for all construction workers during 1992–2001?

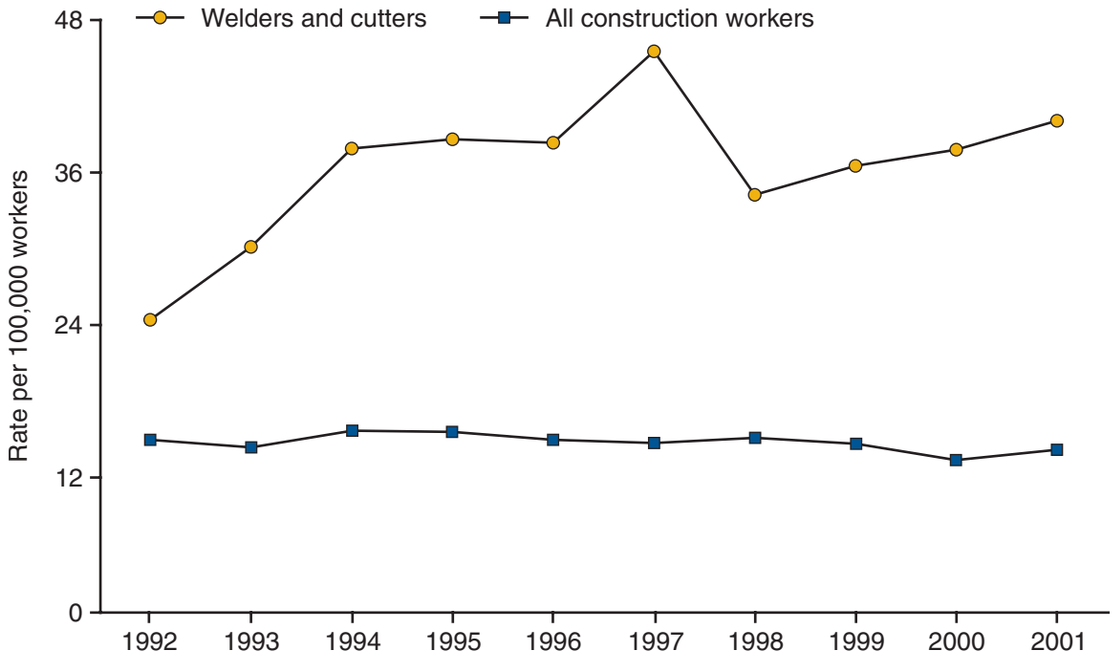
Figure 4–49. Fatal occupational injury rates for truck drivers and all construction workers, 1992–2001. Fatal occupational injury rates for truck drivers were 1.3–2.9 times greater than those for all construction workers during 1992–2001. Rates for truck drivers showed a down-and-up pattern, with a low of 17.0 per 100,000 full-time workers in 1993 and a high of 39.2 in 1999. BLS reported 479 fatal occupational injuries among truck drivers during this 10-year period—an average of 48 fatalities per year. ***(Sources: BLS [2002b,c]; Pollack and Chowdhury [2001]; Chowdhury and Dong [2003].)***

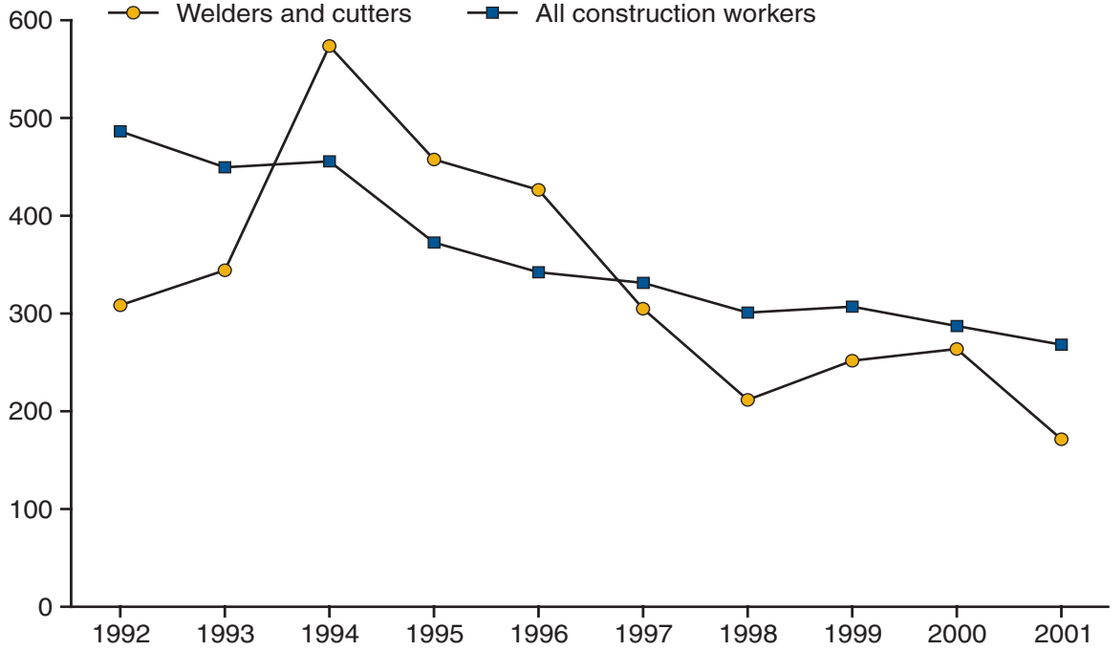
Nonfatal Injuries and Illnesses

How did the rates of nonfatal occupational injuries and illnesses for truck drivers compare with those for all construction workers during 1992–2001?

Figure 4–50. Rates of nonfatal occupational injuries and illnesses involving days away from work for truck drivers and all construction workers, 1992–2001. During 1992–2001, rates of nonfatal occupational injuries and illnesses involving days away from work for truck drivers usually exceeded rates for all construction workers. Rates for truck drivers varied from 533 per 10,000 full-time workers in 1992 to 359 in 1998. BLS reported 57,999 nonfatal occupational injuries and illnesses among truck drivers during this 10-year period—an average of 5,800 nonfatal cases per year. ***(Sources: BLS [2002c; 2003b]; Pollack and Chowdhury [2001]; Dong et al. [2004].)***







Welders and Cutters

Fatal Injuries

How did the fatal occupational injury rates for welders and cutters compare with those for all construction workers during 1992–2001?

Figure 4–51. Fatal occupational injury rates for welders and cutters and all construction workers, 1992–2001. Fatal occupational injury rates for welders and cutters were 1.7–3.3 times greater than those for all construction workers during 1992–2001. Rates for welders and cutters showed an increasing trend, from 23.7 per 100,000 full-time workers in 1992 to 45.4 in 1997. The 2001 fatal injury rate of 39.9 per 100,000 full-time workers was 3 times the rate for all construction workers and represented a 68% increase from 1992. BLS reported 257 fatal occupational injuries among welders and cutters during this 10-year period—an average of 26 fatalities per year. ***(Sources: BLS [2002b,c]; Pollack and Chowdhury [2001]; Chowdhury and Dong [2003].)***

Nonfatal Injuries and Illnesses

How did the rates of nonfatal occupational injuries and illnesses for welders and cutters compare with those for all construction workers during 1992–2001?

Figure 4–52. Rates of nonfatal occupational injuries and illnesses involving days away from work for welders and cutters and all construction workers, 1992–2001. During 1992–2001, rates of nonfatal occupational injuries and illnesses involving days away from work for welders and cutters show an overall decreasing trend, ranging from 573 per 10,000 full-time workers in 1994 to 171 in 2001. BLS reported 21,940 nonfatal occupational injuries and illnesses among welders and cutters during this 10-year period—an average of 2,194 nonfatal cases per year. ***(Sources: BLS [2002c; 2003b]; Pollack and Chowdhury [2001]; Dong et al. [2004].)***

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