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# Nonfatal work-related injuries treated in hospital emergency departments in the U.S., 2012–2023

Suzanne M. Marsh *, Susan J. Derk, Kitty J. Hendricks

*Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, Division of Safety Research, Surveillance and Field Investigations Branch, Morgantown, WV, USA*

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ABSTRACT

*Introduction:* Work-related injury surveillance is an important mechanism to measure occupational injuries and exposures. Although there is no single source of nonfatal occupational injury surveillance data, the Occupational Supplement to the National Electronic Injury Surveillance System (NEISS-Work) has been used for many years. Calendar year 2023 was the final year of data collection for NEISS-Work. This paper provides an overview of NEISS-Work data from 2012 to 2023 and compares the earliest year of results (1998) to the final year (2023). *Methods*: Nonfatal workplace injuries treated in U.S. emergency departments (EDs) were analyzed using data from NEISS-Work. Data from the U.S. Current Population Survey were used as denominators in the calculation of rates per full-time equivalents (FTE). *Results:* From 2012 to 2023, an estimated 29 million (±5.3 million) work-related injuries were treated in hospital EDs, resulting in a rate of 163 ED-treated injuries per 10,000 FTE. Male workers incurred 65% of the total injuries. Workers aged 15–19 years had the highest injury rate of 330 per 10,000 FTE. Contact with objects and equipment; overexertion/bodily reaction; and falls, slips, and trips combined represented 75% of worker injuries treated in EDs. Workplace violence events were the only injury category that increased over this period. *Conclusions:* Findings from this study suggest that nonfatal work-related injuries have decreased. The drivers of this decrease are unclear and may include improvements in workplace safety or lingering effects of the pandemic. *Practical Applications:* NEISS-Work data have played a critical role in the surveillance of nonfatal occupational injuries in the United States for 25 years. NEISS-Work data are no longer collected. Future surveillance efforts may begin identifying other sources of nonfatal occupational injury data that complement existing resources.

## 1. Introduction

Work-related injury surveillance is an important mechanism to measure the magnitude and burden of occupational injuries and exposures (Academies and of Sciences, Engineering, and Medicine, 2018). Surveillance data are used to identify high-risk work environments, and provide details on the incident events, circumstances, and contributing factors that are crucial for prevention and intervention efforts. Surveillance data are also used to assess trends and identify emerging issues. Work-related injury surveillance plays a key role in identifying demographic factors such as age, sex, and race that may increase workers' risk for injury or exposure (hereinafter injury [or injuries]).

There is not a single source of surveillance data for nonfatal occupational injuries. Thus, nonfatal occupational injury research relies on multiple systems each with their own inclusion criteria. Over the past several decades, the Occupational Supplement to the National Electronic Injury Surveillance System (NEISS-Work) has been one of these systems. NEISS-Work captures data on workers treated for nonfatal work-related injuries in U.S. hospital emergency departments (EDs). These data have been used to assess trends (Lundstrom et al., 2023; Hendricks et al., 2025) and to summarize nonfatal occupational injuries for specific worker populations and events, including young workers, older workers, nail gun related injuries, workplace violence, inhalations, traumatic brain injuries, and burns (Estes et al., 2010; Guerin et al., 2020; Hartley et al., 2012; Hendricks et al., 2022; Konda et al., 2015; Layne & Landen, 1997; Reichard et al., 2015).

Calendar year 2023 was the final year of data collection for NEISS-Work due to loss of funding. Considering the culmination of this important source of nonfatal occupational data, this paper provides an overview of work-related injuries from NEISS-Work for the most recent

* Corresponding author at: 421 Foxchase Way, Morgantown, WV 26508, USA.
*E-mail address:* suzanne@pleasantdaycare.com (S.M. Marsh).

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12-year period of data (2012–2023). In addition, data for 2023 will be compared to the first year of results for NEISS-Work (1998) to identify notable changes in ED-treated occupational injuries from the initial data year to the final year.

## 2. Methods

NEISS-Work data were collected by NIOSH in collaboration with the U.S. Consumer Product Safety Commission (CPSC) (National Institute for Occupational Safety and Health (NIOSH), 2023a). Data for NEISS-Work were collected from a nationally stratified, probability sample of ~ 67 U.S. hospitals with 24-hour EDs. The sample included very large, large, medium, and small hospitals, as well as children's hospitals. The number of hospitals varied over time as ED services changed and/or hospitals closed. Hospital abstractors identified work-related cases from ED records and entered case information from the ED records, and other medical records that were part of patient medical records and available to the abstractors such as ambulance run sheets, admission records, and physician notes. Cases were included in NEISS-Work when the injury involved non-institutionalized, civilian workers of any age who were working for pay or compensation, working on a farm, or volunteering for an organized group (e.g., volunteer firefighters, child advocates, administrative workers). To be included in NEISS-Work, workers were not restricted by employer size, type of employer (e.g., public or private), or industry. NEISS-Work also included all levels of government workers, all injuries regardless of days away from work, and all payor types (including but not limited to workers' compensation). Hospital abstractors collected data including information on diagnosis and body part variables, prioritizing the more severe injury or the injury that occurred first. While NEISS-Work had no age limitations, for this analysis, age was limited to those ≥ 15 years to match employment estimates. This activity was reviewed by CDC, deemed not research, and was conducted consistent with applicable federal law and CDC policy.[1]

From 2012 to 2023, NEISS-Work injury event/exposure information was assigned standard numerical codes based on the Bureau of Labor Statistics (BLS) Occupational Injury and Illness Classification System (OIICS), version 2.01 (U.S. Department of Labor Bureau of Labor Statistics (BLS), 2012) by trained coders contracted by NIOSH. Assessing changes over extended time periods by injury event or exposure is complicated as prior years of NEISS-Work data used OIICS v1.0 to code injuries. To compare 1998 data to 2023 data, injury event codes for cases from 1998 were cross-walked at the one-digit level to OIICS v2.01 (version assigned to 2023 data) to assess each injury event's overall contribution to ED-treated workplace injuries. To assess trends from 1998 to 2023, the effect was considered unlikely to be due to chance, indicating statistical significance, if the CI did not contain zero. Additionally, to ensure that any identified changes were not a result of misidentification during the crosswalk process, data for 2012, the first year NEISS-Work implemented OIICS v2.01 coding, were compared to data for 2023. NEISS-Work industry narratives for 2014–2019 were coded to the 2012 Bureau of the Census (BOC) industry classification code (U.S. Census Bureau, 2024). NEISS-Work industry narratives for 2020–2023 were coded to the 2017 BOC industry classification codes (U.S. Census Bureau, 2024). Unstructured text fields containing employment information included in NEISS-Work were used to manually assign industry codes by a trained coder. Both industry coding versions (2012 and 2017) include the same major industry sub-groups. Industry codes for data prior to 2014 were not assigned; occupation codes are not available.

Each NEISS-Work case was assigned a statistical weight representing the inverse probability of the hospital being sampled. National estimates were obtained by summing weights for all cases of injured workers who sought ED treatment. Rates were calculated based on employed labor force estimates from the U.S. Current Population Survey, a household survey that includes workers ≥ 15 years (National Institute for Occupational Safety and Health (NIOSH), 2023b). Denominators were calculated as full-time equivalent (FTE) hours based on the presumption that 2,000 h worked in a year is equivalent to 1 full-time employee. Rates were calculated as the number of injuries and exposures per 10,000 FTE hours worked. SAS® Proc Survey (SAS, 2024) was used for the calculation of all 95% confidence intervals (CIs) to incorporate the stratified sample design of NEISS-Work. All statistical significance determinations were based on CIs.

## 3. Results

Between 2012 and 2023, an estimated 29 million (±5.3 million) occupational injuries among workers 15 years of age and older were treated in U.S. EDs, accounting for a rate of 163 injuries per 10,000 FTE. Annually, the ED-treated injury estimates ranged from a low of 1.8 million in 2020 to a high of 2.8 million in 2016 (Fig. 1). Male workers accounted for 65% of ED-treated injuries with an injury rate of 189 per 10,000 FTE, which was nearly 1.5 times the rate for female workers (Table 1).

Young workers aged 15–19 years experienced the highest occupational injury rate at 330 injuries per 10,000 FTE (Table 1). Workers aged 65 years or older had the lowest estimated number of ED-treated injuries and the lowest injury rate at 108 per 10,000 FTE, more than 3 times lower than the rate for young workers (Table 1).

Three event or exposure categories accounted for 75% of the ED-treated injuries among workers: contact with objects and equipment accounted for a third of the injuries; overexertion/bodily reaction accounted for 27%; and falls, slips, and trips accounted for 16% (Table 2). Similarly, these three event or exposure categories had the highest injury rates. The leading primary sources of injury among workers were persons, plants, animals, and minerals (OIICS source code = 5) with an injury rate of 46 per 10,000 FTE (Table 2).

The leading diagnosis for work-related injuries and exposures for workers treated in EDs were sprains and strains, accounting for 21% of the total ED-treated injuries, while lacerations and punctures accounted for 19% of the total ED-treated injuries (Table 3). The hand or finger were the leading body parts injured with 6.5 million injuries, followed by trunk with 6.1 million injuries, and head, face, or neck, with 5.4 million injuries (Table 3).

From 2014 through 2023, the educational services, and healthcare and social assistance, and the construction industry sectors accounted for the largest percentages of nonfatal occupational ED-treated injuries among workers (18% and 11%, respectively) (Table 4). The highest rate of injury was in the agriculture, forestry, fishing and hunting industry sector with a rate of 274 per 10,000 FTE (Table 4).

### 3.1. Comparison of 2023 and 1998 NEISS-Work

In 1998, NEISS-Work estimated 3.6 million (95% CI, 2.9–4.3 million) injuries treated in hospital EDs with a rate of 281 injuries per 10,000 FTE (95% CI, 225–338). In 2023, this estimated number of ED-treated injuries decreased by 36% to 2.3 million (95% CI, 1.7–2.9 million) and the injury rate declined at a statistically significant level to 149 per 10,000 (95% CI, 110–188). Injury rates for both male and female workers saw statistically significant decreases between 1998 and 2023. Male workers, who accounted for 70% (95% CI, 68.5–71.5) of work-related ED-treated injuries, had an injury rate of 339 per 10,000 FTE (95% CI, 269–409) in 1998. In 2023, the percentage of male injuries fell slightly to 64% (95% CI, 62.8–66.0), and their injury rate declined significantly to 171 per 10,000 (95% CI, 126–217), an almost 50% decrease from the 1998 rate. In 1998, female workers had an injury rate of 203 per 10,000 FTE (95% CI,163–243). This rate also declined significantly to a rate of 120 per 10,000 (95% CI, 90–151) in 2023.

[1] See e.g., 45C.F.R. part 46.102(l)(2), 21C.F.R. part 56; 42 U.S.C. §241(d); 5 U.S.C. §552a; 44 U.S.C. §3501 et seq.

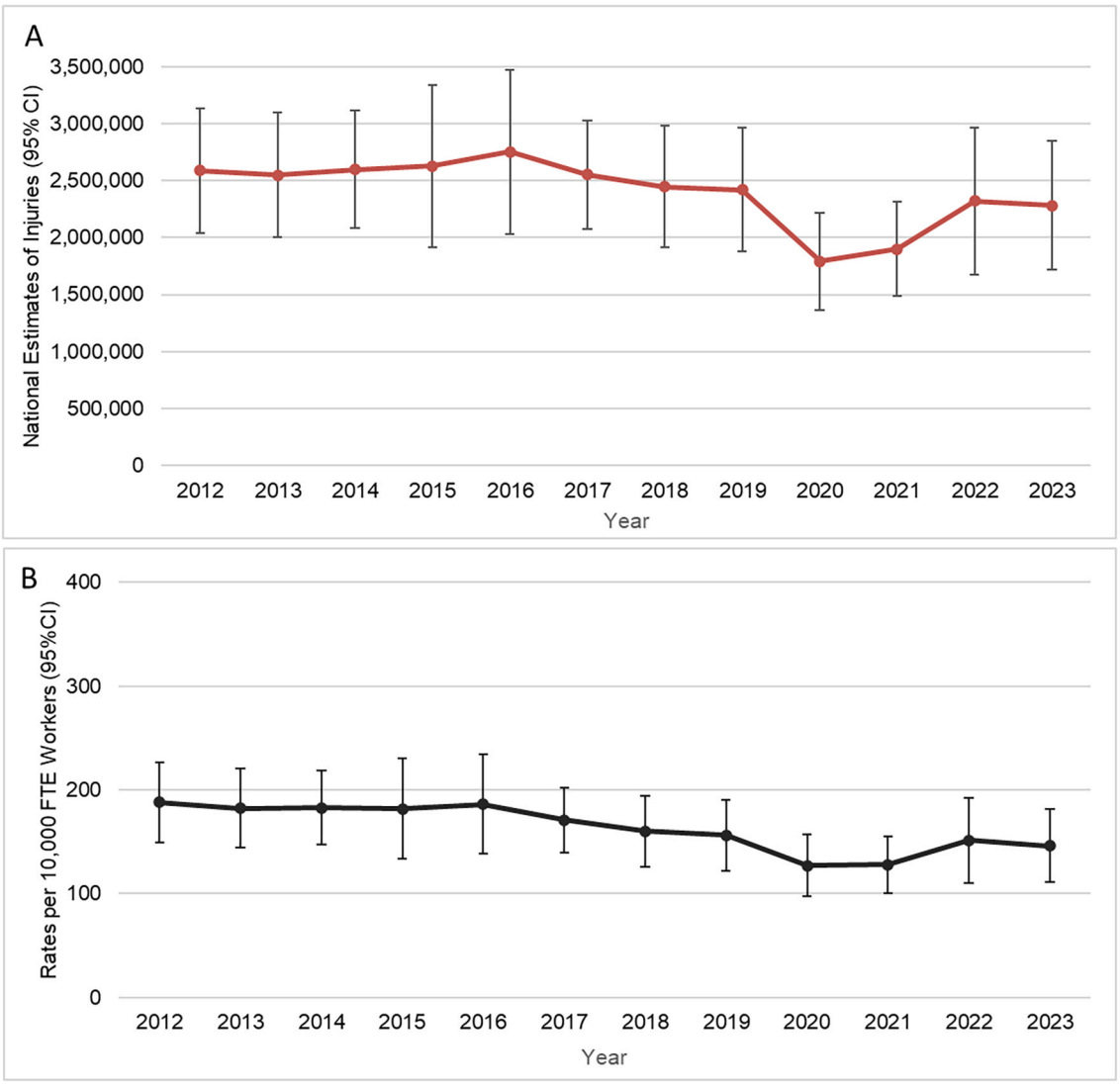


**Fig. 1.** National estimates and rates per 10,000 FTE of work-related injuries treated in EDs among workers 15 years and older, 2012–2023.

A comparison of injuries by age group found that in 1998, 66% (95% CI, 58–74%) of ED-treated injuries occurred to workers less than 35 years of age. In 2023, these workers were treated for 34% (95% CI, 26–42%) of injuries, a statistically significant decrease. The largest change by age group was found among older workers. In 1998, workers aged 55–64 years accounted for 5% (95% CI, 4.9–5.7%) of injuries treated, and workers 65 years of age and older accounted for just 1% of injuries (95% CI, 0.8–1.2%). In 2023, these proportions increased significantly. Injuries to workers aged 55–64 accounted for 13% (95% CI, 12.1–13.5%) of injuries, and injuries to workers 65 years and older increased to 5% (95% CI, 4.2–5.1) of total injuries treated (Fig. 2).

In 1998, workers 15–24 years of age had the highest rate of ED-treated injuries at 517 per 10,000 FTE (95% CI, 375–659). This finding was true for both males and females, with young male workers having an injury rate of 656 per 10,000 FTE (95% CI, 471–842), more than three times the rate for older male workers (55–64 years; 167 per 10,000 FTE; 95% CI, 135–199). The rate for female workers aged 15–24 years at 340 injuries per 10,000 FTE (95% CI, 249–430) was nearly 2.5 times the rate for older female workers (137 per 10,000 FTE; 95% CI, 110–165). In 2023, the injury rate for workers 15–24 years of age (245 per 10,000; 95% CI, 180–310) was more than twice the rate for workers 55–64 years (113 per 10,000; 95% CI, 82–144) and those 65 years and older (118 per 10,000; 95% CI, 88–149). When examining age groups by sex, in 2023, both male and female young worker rates were still two times higher than rates for older workers.

Based on the one-digit crosswalk of the 1998 data from OIICS v1.0 to OIICS v2.01, the most common injury event in 1998 was contact with objects and equipment, which accounted for nearly half of all ED-treated work injuries (47%; 95% CI, 45–49). This was followed by injuries resulting from overexertion and bodily reactions (20%; 95% CI, 18–22) and falls, slips and trips (14%; 95% CI, 13–15). In 2023, these three injury events remained the most common. Although the proportions changed, the sequence was consistent. The largest change, by injury event, was found among injuries related to violence. In 1998, workplace violence injuries accounted for just 3% of ED-treated injuries (95% CI, 2.6–3.6). In 2023, 11% (95% CI, 8.6–12.7) of worker injuries were violence related. To confirm that these increases were not due to changes introduced by the different versions of OIICS, injury events for 2012 (the first year NEISS-Work implemented OIICS v2.01 coding) were compared to data for 2023. Based on this comparison, injuries from fires and explosions decreased by more than 41%, followed by overexertion and bodily reactions (30%) and contact with objects and equipment (19%). Transportation-related injuries decreased by 13%. The only injury event category that increased was violence and other injuries by persons or animals, where injuries increased by more than 12% (Fig. 3). As a proportion of total injuries, violence-related ED-treated injuries

**Table 1**
Work-related injuries treated in emergency departments (EDs) among workers 15 years and older by select demographics, 2012–2023.

| Characteristic | National Estimates[a] (95% CI[b]) | Percent[a] | Rate per 10,000 (95% CI[b]) |
|---|---|---|---|
| **Total** | 28,829,000 (23,557,000–34,100,000) | 100 | 163 (134–192) |
| **Sex** | | | |
| Male | 18,760,000 (15,276,000–22,244,000) | 65 | 189 (154–223) |
| Female | 10,068,000 (8,218,000–11,917,000) | 35 | 130 (107–154) |
| **Age group** | | | |
| 15–19 Years | 1,244,000 (1,022,000–1,465,000) | 4 | 330 (273–388) |
| 20–24 Years | 3,751,000 (3,080,000–4,422,000) | 13 | 261 (215–307) |
| 25–34 Years | 7,834,000 (6,383,000–9,285,000) | 27 | 194 (159–229) |
| 35–44 Years | 6,204,000 (4,986,000–7,421,000) | 22 | 158 (128–188) |
| 45–54 Years | 5,315,000 (4,301,000–6,330,000) | 18 | 135 (110–160) |
| 55–64 Years | 3,482,000 (2,848,000–4,117,000) | 12 | 115 (94–135) |
| 65 Years and Older | 999,000 (801,000–1,197,000) | 3 | 108 (87–129) |
| **Discharged or admitted to hospital** | | | |
| Treated and released | 27,811,000 (22,717,000–32,905,000) | 96 | 157 (129–186) |
| Treated and admitted or transferred | 1,018,000 (718,000–1,318,000) | 4 | 6 (4–7) |

Source: National Electronic Injury Surveillance System —- Occupational Supplement (NEISS-Work).
[a] Numbers may not sum to total due to rounding.
[b] Confidence interval (CI).

**Table 2**
Work-related injuries treated in emergency departments (EDs) among workers 15 years and older by event and source, 2012–2023.

| OIICS Event and Source of Injury[a] | National Estimates[b] (95% CI[c]) | Percent[b] | Rate per 10,000 (95% CI[c]) |
|---|---|---|---|
| **Event of Injury** | | | |
| Contact with objects and equipment | 9,568,000 (7,895,000–11,240,000) | 33 | 54 (45–63) |
| Overexertion and bodily reaction | 7,803,000 (5,988,000–9,618,000) | 27 | 44 (34–54) |
| Falls, slips, trips | 4,573,000 (3,715,000–5,432,000) | 16 | 26 (21–31) |
| Exposure to harmful substances or environments | 2,943,000 (2,277,000–3,609,000) | 10 | 17 (13–20) |
| Violence and other injuries by persons or animals | 2,644,000 (2,049,000–3,238,000) | 9 | 15 (12–18) |
| Transportation incidents | 900,000 (735,000–1,066,000) | 3 | 5 (4–6) |
| Fires and explosions | 189,000 (151,000–227,000) | 1 | 1 (1–1) |
| **Source of Injury** | | | |
| Persons, plants, animals, and minerals | 8,067,000 (6,609,000–9,526,000) | 28 | 46 (38–54) |
| Structures and surfaces | 4,124,000 (3,424,000–4,824,000) | 14 | 23 (19–27) |
| Tools, instruments, and equipment | 3,013,000 (2,419,000–3,607,000) | 10 | 17 (14–20) |
| Containers, furniture, and fixtures | 2,910,000 (2,368,000–3,453,000) | 10 | 16 (13–19) |
| Parts and materials | 2,112,000 (1,682,000–2,542,000) | 7 | 12 (10–14) |
| Vehicles | 1,839,000 (1,522,000–2,157,000) | 6 | 10 (9–12) |
| Machinery | 1,708,000 (1,404,000–2,012,000) | 6 | 10 (8–11) |
| Chemicals and chemical products | 736,000 (600,000–872,000) | 3 | 4 (3–5) |

Source: National Electronic Injury Surveillance System —- Occupational Supplement (NEISS-Work).
[a] Occupational Injury and Illness Classification System (U.S. Department of Labor BLS, 2012).
[b] Numbers may not sum to total due to rounding.
[c] Confidence interval (CI).

occurring at work increased steadily from 8% in 2012 to 11% in 2023 (Suppl. Fig. 1). A more detailed examination of this category found that ED-treated injuries resulting from intentional injuries by persons increased by 27% over this time, and injury rates rose from 9 injuries per 10,000 FTE (95% CI, 5–13) in 2012 to 10 per 10,000 (95% CI, 6–13) in 2023.

## 4. Discussion

The findings from this study suggest that the number and rate of nonfatal occupational injuries treated in EDs were notably lower in 2023 compared to 1998. Consistent with previous research (Hendricks et al., 2025; Biswas et al., 2022; Carey & Hendricks, 2023), we found that younger workers and males had higher rates of nonfatal occupational injuries treated in EDs. The comparison of the 1998 and 2023 results identified a statistically significant increase in the proportion of workplace injuries experienced by older workers. The employment rate among older adults has gradually increased since the 1990 s, and workers aged 75 and older are the fastest-growing age group in the workforce (Pew Research Center, 2023). These changing employment demographics may be a factor in the significant increase in workplace injuries experienced among older workers. Although older workers experienced the lowest injury rate, the significant increase in the proportion of older worker injuries is noteworthy. This change may be related to extended lifespans and the fact that many workers are staying in the workforce longer. Although older workers are exposed to the same injury hazards and risks as young workers, their injuries are often more severe and require more days away from work to recover (Rogers and Wiatrowksi, 2005) and have a higher percentage of hospitalizations (Layne & Pollack, 2004).

Another national data source that has been historically used to assess nonfatal occupational injuries and illnesses is the BLS Survey of Occupational Injuries and Illnesses (SOII). While the inclusion criteria for NEISS-Work and SOII differ, results from the BLS SOII also suggest that the rate of recordable nonfatal occupational injuries and illnesses has decreased. A decrease was also found in a study of severe injuries reported to OSHA from 2015 to 2022 (Williams & Marc, 2024), which found a decrease as well. However, the authors also noted the complexity of understanding if long-term safety and injury prevention efforts have impacted workplace safety compared to other changes such as the lingering impacts of the pandemic and how the pandemic changed work and the work environment.

A key finding in this study was the noted increase in workplace violence events, which was the only injury event category that increased from 1998 to 2023. Although fatal occupational injury research suggests that workplace homicide rates declined from 1994 to 2014, but then remained fairly consistent between 2014 and 2021, the findings also point out that workplace homicides occurring during a criminal act or those that involved a shooting began to increase towards the end of the study period (Hendricks et al., 2024). Hendricks et al. (2024) point to workplace violence prevention programs and other initiatives leading to improvements in fatal workplace violence, as well as the fact that many were unable to work in their usual workplaces during the pandemic.

**Table 3**
Work-related injuries treated in emergency departments (EDs) among workers 15 years and older by diagnosis and body part injured, 2012–2023.

| | National Estimates[a] (95% CI[b]) | Percent[a] | Rate per 10,000 (95% CI) |
|---|---|---|---|
| **Diagnosis** | | | |
| Sprains or strains | 5,947,000 (4,409,000–7,486,000) | 21 | 34 (25–42) |
| Lacerations or punctures | 5,367,000 (4,366,000–6,367,000) | 19 | 30 (25–36) |
| Contusions, abrasions | 4,085,000 (3,325,000–4,844,000) | 14 | 23 (19–27) |
| Fractures, dislocation | 2,209,000 (,1808,000–2,611,000) | 8 | 13 (10–15) |
| Burns | 751,000 (618,000–885,000) | 3 | 4 (4–5) |
| Foreign body | 659,000 (503,000–815,000) | 2 | 4 (3–5) |
| Nerve damage | 520,000 (366,000–674,000) | 2 | 3 (2–4) |
| Amputation or avulsion | 377,000 (310,000–443,000) | 1 | 2 (2–3) |
| Concussions | 344,000 (270,000–418,000) | 1 | 2 (2–2) |
| Poisoning | 265,000 (212,000–317,000) | 1 | 1 (1–2) |
| Other diagnoses | 8,305,000 (6,576,000–10,034,000) | 29 | 47 (37–57) |
| **Body Part** | | | |
| Trunk, neck, or shoulder | 8,586,000 (6,759,000–10,413,000) | 30 | 49 (38–59) |
| Hand or fingers | 6,512,000 (5,386,000–7,638,000) | 23 | 37 (31–43) |
| Lower extremity | 5,131,000 (4,211,000–6,051,000) | 18 | 29 (24–34) |
| Head or face | 4,665,000 (3,839,000–5,491,000) | 16 | 26 (22–31) |
| Upper extremity | 2,925,000 (2,406,000–3,444,000) | 10 | 17 (14–19) |
| All other body parts or not stated | 1,010,000 (742,000–1,277,000) | 4 | 6 (4–7) |

Source: National Electronic Injury Surveillance System —- Occupational Supplement (NEISS-Work).
[a] Numbers may not sum to total due to rounding.
[b] Confidence interval (CI).

**Table 4**
Work-related injuries treated in emergency departments (EDs) among workers 15 years and older by industry sector, 2012–2023.

| | National Estimates[a] (95% CI[b]) | Percent[a] | Rate per 10,000 (95% CI[b]) |
|---|---|---|---|
| **Industry Sector** | | | |
| Educational Services, & Health Care & Social Assistance | 4,222,000 (3,249,000–5,195,000) | 18 | 134 (104–165) |
| Construction | 2,571,000 (1,530,000–3,611,000) | 11 | 235 (142–328) |
| Manufacturing | 2,392,000 (1,703,000–3,082,000) | 10 | 149 (107–191) |
| Arts, Entertainment & Recreation & Accommodation, & Food Services | 2,271,000 (1,652,000–2,890,000) | 10 | 199 (146–252) |
| Retail Trade | 2,101,000 (1,493,000–2,708,000) | 9 | 142 (102–182) |
| Transportation, Warehousing, & Utilities | 1,340,000 (1,001,000–1,680,000) | 6 | 152 (114–189) |
| Professional, Scientific, & Management, & Administrative, & Waste Management Services | 1,276,000 (833,000–1,719,000) | 5 | 69 (45–92) |
| Public Administration | 1,177,000 (896,000–1,457,000) | 5 | 160 (123–198) |
| Agriculture, Forestry, Fishing, and Hunting | 673,000 (455,000–892,000) | 3 | 274 (187–362) |
| Other Services (exc Public administration) | 654,000 (486,000–821,000) | 3 | 99 (74–124) |
| Wholesale Trade | 449,000 (285,000–613,000) | 2 | 123 (79–167) |
| Finance, Insurance, Real Estate, & Rental & Leasing | 240,000 (156,000–325,000) | 1 | 23 (15–31) |
| Information | 112,000 (82,000–143,000) | 0.5 | 40 (29–50) |
| Mining, Quarrying, and Oil and Gas Extraction | 93,000 (33,000–153,000) | 0.4 | 104 (39–169) |
| Other or Not Stated | 4,119,000 (2,938,000–5,301,000) | 17 | NA |

Source: National Electronic Injury Surveillance System —- Occupational Supplement (NEISS-Work).
[a] Numbers may not sum to total due to rounding.
[b] Confidence interval (CI).

Studies of nonfatal injuries, however, have suggested that workplace violence was more of an issue during the pandemic as businesses dealt with an anxious public and were required to enforce mask mandates (Marsh et al., 2022; Tiesman et al., 2022). In addition, workplace violence among healthcare workers also increased during the pandemic as the number of patients increased, and stress and anxiety increased among medical staff as well as patient families (Zhang et al., 2023). Further research may help understand the details of these nonfatal events and identify potential drivers of this increase to inform prevention measures.

## 5. Limitations

When interpreting the results, there are a few limitations that that should be considered. First, changes made to the larger NEISS sample design from 1998 to 2023, including the introduction of the NEISS All Injury Program (NEISS-AIP) in 2000 (Centers for Disease Control and Prevention, National Center for Injury Prevention and Control, 2025), resulted in changes to the sampling design for NEISS-Work. While these changes may not have impacted estimates, the changes likely have resulted in larger CIs. While illnesses were a small portion of cases from 1998 to 2011, changes in data captured from 2012 forward resulted in almost all nonwork-related illnesses being excluded. Thus, caution should be used when comparing estimates that cross this break. Second, the small number of hospitals in the NEISS-Work sample contributes to large confidence intervals. Third, NEISS-Work data represent only injuries treated in EDs, omitting injuries treated in other medical venues and self-treated injuries. As an example, an increasing number of urgent care facilities may have impacted the number of workers seeking care in ED settings (Allen et al., 2021; Jain, 2024). Additionally, results from this analysis related to workplace violence should be interpreted with caution. Since NEISS-Work data are based on ED-treated injuries, violence-related injuries are biased toward violence that results in physical injuries, which does not include things like verbal and emotional abuse. Finally, case capture relies on information found in the ED medical record identifying the case as work-related, and inaccuracies may occur due to the lack of information provided by the worker, incomplete medical records, or errors in abstracting the information from the record.

## 6. Conclusions

Findings from this study suggest that nonfatal work-related injuries have decreased overall from 2012 to 2023. However, injuries related to workplace violence saw a significant increase over the same period. Additional research to explore the decrease in nonfatal work-related

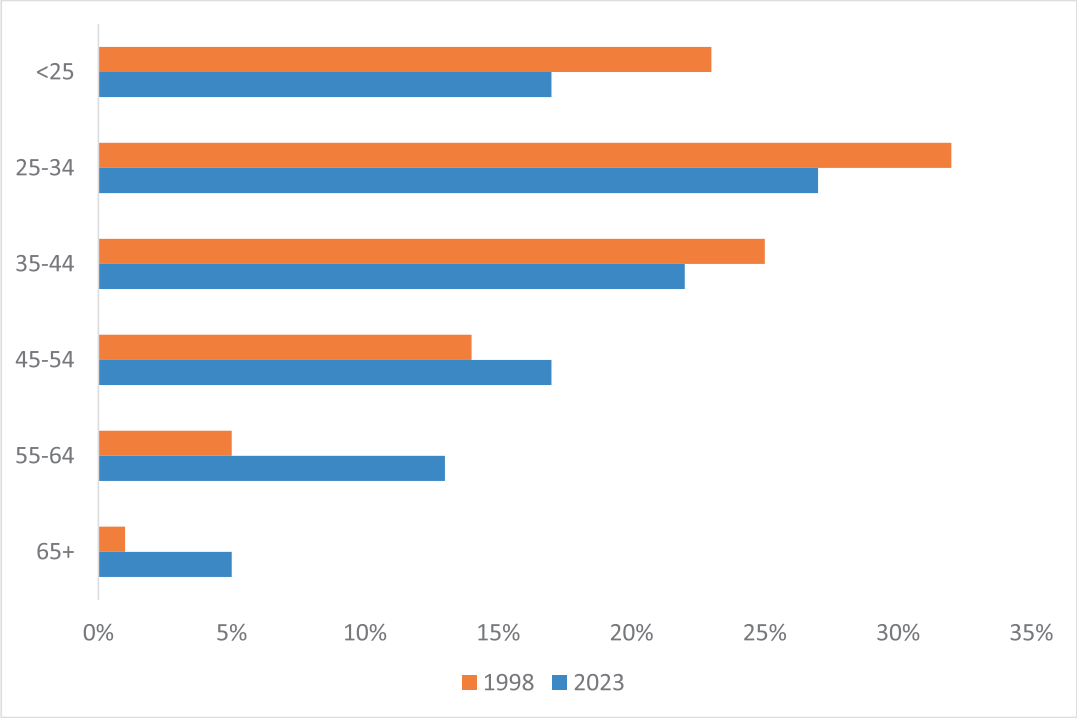


**Fig. 2.** Comparison of the percentage of work-related injuries treated in U.S. emergency departments among workers 15 years and older by age group, 1998:2023.

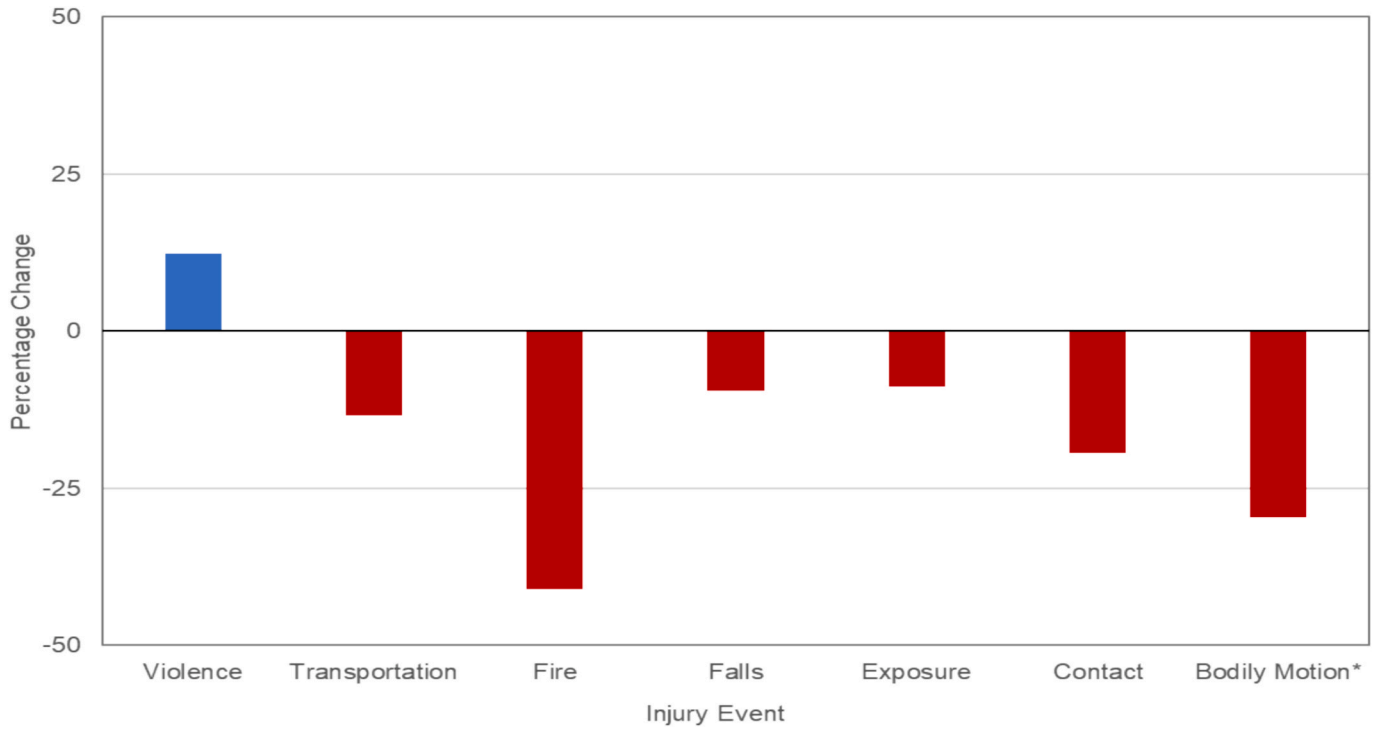


**Fig. 3.** Percent change in the number of workplace injuries treated in U.S. emergency departments among workers aged 15 years and older by injury event type, 2012 vs. 2023. *Bodily motion includes overexertion and bodily reactions.

injuries, assess the factors associated with the increase in workplace violence injuries, and provide guidance on existing workplace violence injury preventions programs that have proven successful may provide more insight into these results. Since NEISS-Work will no longer serve as a national data source for nonfatal occupational injury surveillance due to the loss of funding, the identification and use of alternate data sources that include industry and occupation information may be explored. Additionally, existing viable data sources may simultaneously advocate for and consider the inclusion of industry and occupation data in sources that do not currently contain these important work-related variables.

## 7. Practical Applications

There is not a single source of nonfatal occupational injury data. Over the years, multiple sources have been used to fully understand the prevalence and burden of occupational injuries. NEISS-Work data have played a critical role in furthering the understanding of nonfatal occupational injuries in the United States by providing insight into ED-treated occupational injuries. Given the fact that the NEISS-Work data are no longer being collected, other sources of nonfatal occupational injury data that complement existing data may be identified.

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**Disclaimer:** The findings and conclusions in this report are those of the author(s) and do not necessarily represent the official position of the National Institute for Occupational Safety and Health, Centers for Disease Control and Prevention.

## Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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## Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.jsr.2025.12.012.

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**Suzanne M. Marsh**, MPA, is a former research statistician and team lead in the National Institute for Occupational Safety and Health's (NIOSH) Division of Safety Research. Over Suzanne's 35.5-year career with NIOSH, she has completed several occupational health epidemiological studies.

**Susan Derk** is a former researcher and data manager for the National Institute for Occupational Safety and Health's Division of Safety Research.

**Kitty Hendricks** is a former Research Health Scientist for the National Institute for Occupational Safety and Health's Division of Safety Research.