

National Estimates of Home Care Workers Nonfatal Emergency Department–Treated Injuries, United States 2015–2020

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Objective: Home care workers (HCWs) are a critical resource contributing to the well-being of others. Presented are data on HCWs nonfatal emergency department (ED)–treated injuries. **Methods:** Nonfatal injuries among HCWs were extracted from the NEISS-Work data between 2015 and 2020. **Results:** Review of NEISS-Work data indicated 117,000 HCWs with nonfatal ED-treated injuries; female HCWs accounted for 93%. Overexertion and bodily reactions accounted for 52% of the injuries. Violence and other injuries by persons or animals accounted for 15% and falls, slips, and trips also accounted for 15% of the HCWs ED-treated injuries. **Conclusions:** The growing demand for home care services is increasing the number of workers at risk for injury. Future analyses should prioritize injury events among HCWs to gain a better understanding of the events contributing to injuries among HCWs.

Keywords: health care, home health aides, personal care aides, injury, work, surveillance

Home care services in the United States (US) are a critical resource that promotes independence or addresses health needs for individuals with challenges related to illness, aging, or disabilities.^{1–3} The number of home health and personal care aides is expected to grow 25%, from 3.6 million workers in 2021 to 4.6 million workers in 2031.^{4,5} The growth within these occupations is much faster than the average for all occupations.⁵ Home health and personal care aides, per the Bureau of Labor Statistics (BLS), typical duties include assisting clients with daily personal tasks, housekeeping and other household duties, and assisting with their clients' schedules and appointments.⁵ Home health aides may provide basic health care such as checking the client's pulse, temperature, and respiration, assistance with exercises, giving medication, and changing bandages or dressings.⁵

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LEARNING OUTCOMES

- After reading this article, readers should be able to: critically analyze the potential impact on workplace injuries due to the anticipated increase in demand for home health care workers over the next decade.
- After reading this article, readers should be able to: accurately compare the leading home care workers (HCWs) nonfatal emergency department–treated injuries of overexertion and bodily reaction; violence and other injuries by persons and animals; and falls, slips, and trips during this study period.
- After reading this article, readers should be able to: formulate a plan to focus prevention strategies on the hazards faced by HCWs and train them how to identify hazards and manage the home care work environment to protect current workers and the predicted increase of new workers over the next decade.

Several factors, such as longer life expectancy, decreasing inpatient hospital stays, and increasing use of outpatient services have contributed to a growing need for home care services.^{3,6} Home care and home health services provide a range of medical, therapeutic and personal care such as assistance with activities of daily living (bathing, dressing, transferring clients) and medical care (administering medications, changing dressings, assistance with medical equipment).^{2,3,6} These services are provided by a variety of occupations such as nurses, therapists, health aides, personal care aides, and social workers,⁶ who will herein be referred to as home care workers (HCWs). Home care workers rarely work from an office or have in-person contact with a supervisor or co-workers and often conduct home visits alone.² These circumstances may leave HCWs responsible for recognizing, reporting, and addressing unsafe work conditions in private home settings without resources and support found in institutional health care facilities.

While OSHA does not regulate the private home as a workplace, their website provides safety guidelines for healthcare providers such as preventing workplace violence as well as additional resources that may improve the safety of HCWs.⁷ Home care workers experience unique work environments within their client's home that are often out of the HCWs' control or their employer's.⁶ They commonly lift or move clients, often without the aid of lifting equipment, and lift or carry medical equipment or furniture.^{2,8} Home care workers may also encounter unexpected and unpredictable hazards, such as pets or pests; poor hygiene of clients; lack of appropriate utilities; exposure to household cleaning agents; cluttered or tight spaces, often due to excessive furniture; and firearms or other weapons.^{2,6,9–11} They may also be exposed to verbal abuse as well as physical assaults by clients or clients' family members.^{12–15} In addition, HCWs must travel from home to home, which presents hazards such as fatigue, severe weather conditions, or the risk of injury due to vehicular incidents.^{6,8} Without proper equipment or training, these hazards may result in various injuries from overexertion, violence, falls, exposures, or motor vehicular incidents.^{2,6}

While HCWs contribute to the well-being of others, studies suggest that these workers are frequently exposed to a variety of potential risks or hazards that may cause physical harm.^{1,9} In 2007, the National Home Health Aide Survey (NHHAS) was the first nationally representative survey of home health aides (HHAs) conducted by the Centers for Disease Control and Prevention (CDC), National Center for Health Statistics in partnership with the HHS's Office of the Assistant Secretary for Planning and Evaluation.³ NHHAS, a two-stage probability sample survey, was a supplement to the 2007 National Home and Hospice Care Survey.³ Of the HHAs who participated in the study, 12% reported at least one work-related injury in the previous 12 months.³ Among the HHAs reporting work-related injuries, 83% had only one injury.³ Of those with at least one injury, the most common types were back injuries (44%) and other strains or pulled muscles (43%).³

As the home care industry continues to grow, a better understanding of the injuries these HCWs experience is needed to identify potential prevention measures and ensure this workforce is sustainable in the future. This article presents national estimates and rates of HCW nonfatal injuries treated at hospital emergency departments (EDs) in the US during 2015–2020.

METHODS

Study Sample

Home care workers nonfatal ED-treated injuries or exposures from 2015 through 2020 were extracted from the National Electronic Injury Surveillance System Occupational Supplement (NEISS-Work) during 2022. The NEISS-Work data are collected by the National Institute for Occupational Safety and Health (NIOSH) in collaboration with the Consumer Product Safety Commission (CPSC). The CPSC hospital coders abstracted the injury incident details from the ED and hospital medical records. These data are securely transmitted electronically to CPSC. Data collected through the NEISS-Work provide information on workers treated for nonfatal work-related injuries or exposures from a nationally stratified, probability sample of approximately 67 US hospitals with a 24-hour ED.¹⁶ The NEISS-Work has no restrictions based on the types of workers captured (eg, by age, industry, employment status, or workers' compensation claims); therefore, the system includes workers excluded from other national surveillance systems (eg, self-employed workers, volunteers). The NEISS-Work excludes cases involving institutionalized persons, active-duty military, ED revisits for the same injury, and cases that involve illnesses that are not due to a work-related exposure. The NEISS-Work does not capture injuries sustained while the worker is commuting to their workplace; however, an injury is captured if the worker was traveling between worksites such as clients' homes.

The NIOSH classifies event or exposure and the source of injury for each case using the BLS Occupational Injury and Illness Coding System (OIICS), version 2.01.¹⁷ Industry is categorized based on the Bureau of the Census (BOC) 2012 industry code categories.¹⁸ Case information contained in NEISS-Work does not allow coding to the detailed codes within the North American Industrial Classification System; thus, the less detailed BOC industry codes were used for NEISS-Work.

This report summarizes NEISS-Work 2015–2020 surveillance data for HCWs nonfatal ED-treated injuries or exposure. Because NEISS-Work cases are not classified by BOC occupation codes, HCWs were identified in NEISS-Work by selecting cases that were assigned BOC industry codes 8170 (home health care services) and 8370 (individual and family services without medical care). Cases within these two industries were reviewed to identify key words for the occupations of interest. Occupations were identified that provided home care services such as health care, assistance with mobility, and activities of daily living.^{2,3,6} These occupations included nurses, home health aides, certified nursing assistants, hospice aides,

and personal care aides. Using the identified key words, the occupation, business type, employer, location of injury, and injury narrative variables were searched for HCW cases regardless of industry. All cases identified using the key word search were manually reviewed to verify the worker was performing home care tasks when injured.

Statistical Analysis

Each NEISS-Work case is assigned a statistical weight that represents the inverse probability of the hospital being sampled. These weights are summed to produce national estimates of work-related injuries treated in an ED. Estimates are presented with 95% confidence intervals (CIs) to account for the variance from the hospital sample.

Nonfatal injury rates were calculated using employment data from the BLS's Current Population Survey (CPS).¹⁹ The CPS provides information on the number of full-time equivalent (FTE) workers based on number of hours worked. Denominator data were extracted based on the BOC 2012 industry codes 8170 and 8370 and subset to the 2010 occupation codes of 3600 (nursing, psychiatric, and home health aides) and 4610 (personal care aides).¹⁹ Workers younger than 17 years were also removed to match the injury numerator data. Nonfatal injury rates were calculated as the estimated number of nonfatal injuries involving HCWs divided by the estimated HCW FTEs and expressed as injuries per 10,000 FTE workers. The 95% CIs for rates were calculated by pooling the variances for the NEISS-Work injuries and CPS data.

RESULTS

A review of NEISS-Work data between 2015 and 2020 identified approximately 117,000 (95% CI: $\pm 38,000$) HCWs experienced nonfatal ED-treated injuries or exposures with an injury rate of 176 per 10,000 HCW FTEs (95% CI: ± 57) (Table 1). Female HCWs accounted for 93% of ED-treated injuries, approximately 109,000 injuries with a rate of 182 per 10,000 female HCW FTEs. Those aged 35 to 44 years experienced the highest rate of injury (212 per 10,000 HCW FTEs) but the largest proportion of injuries (26%) were among those aged 45 to 54 years. Younger HCWs, aged 17 to 24 years, accounted for 9% of the injuries and had an injury rate of 153 per 10,000 HCW FTEs; however, HCWs aged 55 to 64 years had an injury rate of 149 per 10,000 HCW FTEs but accounted for 17% of the injuries. Those aged 25 to 34 and 45 to 54 years had similar injury rates of 186 and 199, respectively, per 10,000 HCW FTEs.

Overexertion and bodily reactions resulted in more than half (52%) of the HCWs' nonfatal ED-treated injuries with a rate of 92 per 10,000 HCW FTEs (Table 1). Violence and other injuries by persons or animals accounted for 15% of the HCWs ED-treated injuries (Table 1). Falls, slips, and trips also accounted for 15% of the HCWs ED-treated injuries (Table 1).

Table 2 describes a more detailed analysis of injury event or exposure based on the OIICS¹⁶ two-digit event codes that found overexertion injuries involving an outside source (eg, lifting or moving a client) accounted for 42% of all HCW ED-treated injuries with a rate of 74 per 10,000 HCW FTEs. Falls on the same level accounted for 11% of HCW injuries with a rate of 20 per 10,000 HCW FTEs. Exposures to harmful substances accounted for 9% with a rate of 16 per 10,000 HCW FTEs. When examining the primary source of injury using OIICS¹⁶ two-digit codes, persons other than the injured worker (eg, clients) were the most frequent source (48%) with a rate of 84 per 10,000 HCW FTEs. The second and third leading sources of injuries were floors, walkways, and other ground surfaces (13%), as well as animals (6%).

Overexertion and bodily reaction accounted for at least 31% of the total injury events or exposures for each age group (Fig. 1). Violence

TABLE 1. National Estimates of Nonfatal ED-Treated Injuries Among HCWs

Characteristic	NE ^a	95% CI	%	Rate per 10,000 FTE ^b	95% CI
Total	117,000	±38,000	100%	176	±57
Sex					
Male	8,000	±3,000	7%	98	±40
Female	109,000	±37,000	93%	182	±63
Age group in years					
17–24	10,000	±3,000	9%	153	±55
25–34	24,000	±7,000	21%	186	±59
35–44	27,000	±9,000	23%	212	±75
45–54	31,000	±13,000	26%	199	±90
55–64	20,000	±8,000	17%	149	±64
>65	5,000	±2,000	4%	94	±36
Injury event or exposure (OIICS V2.01, 1-digit) ¹⁹					
Overexertion and bodily reaction ^c	61,000	±24,000	52%	92	±36
Violence and other injuries by persons or animals	18,000	±7,000	15%	26	±10
Falls, slips, trips ^d	17,000	±5,000	15%	26	±7
Exposure to harmful substances or environments	11,000	±4,000	10%	17	±6
Contact with objects and equipment	7,000	±2,000	6%	11	±3
All other events ^e	3,000	±1,000	2%	4	±2

Source: National Electronic Injury Surveillance System Occupational Supplement, United States 2015–2020.

^aEstimate may not sum to total because of rounding.

^bDenominator data to calculate rates are based on HCW FTE number of hours worked.

^cCodes in this division apply to cases, usually non-impact, in which injury or illness resulted from free bodily motion, from excessive physical effort, from repetition of a bodily motion, from the assumption of an unnatural position, or from remaining in the same position over a period.¹⁹

^dIncludes slips and trips without a fall.

^eIncludes transportation incidents, fires and explosions, and nonclassifiable.

CI, confidence interval; FTE, full time equivalent; NE, national estimate.

by other persons or animals was the second most common injury event among HCWs younger than 45 years. Those aged 17 to 24 years incurred a higher percentage of injuries related to violence, 27%, compared with 15% among those aged 25 to 44 years and 12% among those aged 45 to 64 years (Fig. 1). Among HCWs 65 years and older, falls, slips, and trips (46%) were the leading cause of injury and the second most common injury among those 45 to 64 years (17%). Falls,

slips, and trips were the third most common injury among those aged 25 to 44 years (11%) (Fig. 1).

The most common HCW ED-treated injury diagnoses were sprains or strains (32%), contusions, abrasions, or crushes (10%), as well as lacerations or punctures (8%) (Table 3). The body parts that sustained the largest proportion of injuries included the trunk (back, chest, and abdomen) and neck (42%). Other body parts injured included

TABLE 2. National Estimates of Nonfatal ED-Treated Injuries Among HCWs, Event and Source

Injury Event and Source	NE ^a	95% CI	%	Rate per 10,000 FTE ^b	95% CI
Injury event or exposure (OIICS V2.01, 2-digit) ¹⁹					
Overexertion involving outside sources ^c	49,000	±20,000	42%	74	±30
Falls on same level	13,000	±4,000	11%	20	±6
Exposure to other harmful substances	11,000	±4,000	9%	16	±5
Intentional injury by person	7,000	±3,000	6%	11	±5
Other exertions or bodily reactions	7,000	±3,000	6%	10	±4
Animal and insect related incidents	7,000	±3,000	6%	10	±5
All other events ^d	23,000	±7,000	20%	35	±10
Primary source of injury (OIICS V2.01, 2-digit) ¹⁹					
By other person	56,000	±20,000	48%	84	±30
Floors, walkways, ground surfaces	15,000	±4,000	13%	23	±6
Animals	7,000	±3,000	6%	10	±5
All other sources ^e	39,000	±13,000	33%	58	±20

Source: National Electronic Injury Surveillance System Occupational Supplement, United States 2015–2020.

^aEstimate may not sum to total due to rounding.

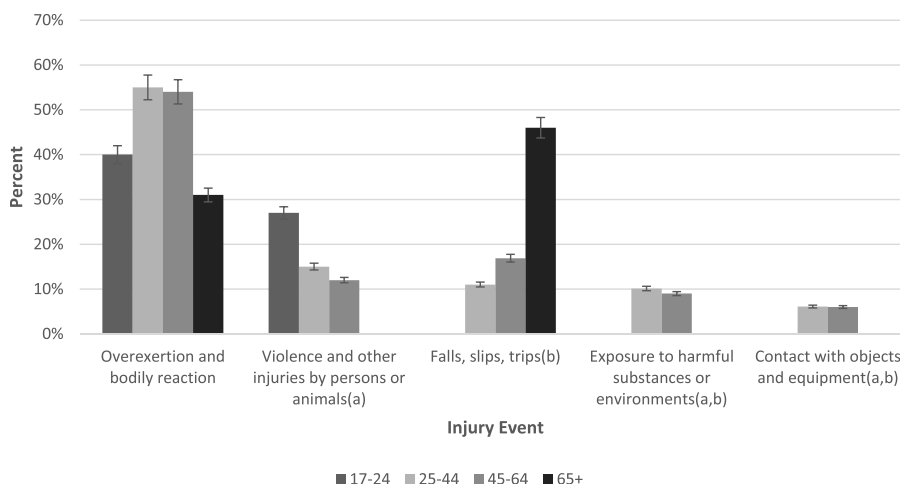
^bDenominator data to calculate rates are based on HCW FTEs.

^cCodes in this division apply to cases that are usually non-impact, in which the injury resulted from excessive physical effort directed at an object or person. The physical effort may involve lifting, pulling, pushing, turning, welding, holding, carrying, or throwing the source of injury. Typically, if the injury resulted from an object or person being carried or lifted, the event is overexertion involving an outside source.¹⁹

^dIncludes unintentional injury by person, transportation incidents, fires, and explosions, slip or trip without a fall, falls and jumps to lower level, exposure to electricity, temperature extremes, contact with objects and equipment, repetitive motion, and nonclassifiable events.

^eIncludes chemicals and chemical products, containers, furniture and fixture, machinery, parts and materials, plants, trees and vegetation, buildings and structures, tools, instruments and equipment, vehicles, other, and nonclassifiable sources.

CI, confidence interval; ED, emergency department; FTE, full time equivalent, HCW, home care worker; NE, national estimate.



Footnote:

Source: National Electronic Injury Surveillance System Occupational Supplement, United States 2015-2020.

^aEstimates for ages 65+ years did not meet the NEISS-Work minimum reporting requirements.

^bEstimates for ages 17-24 years did not meet the NEISS-Work minimum reporting requirements.

FIGURE 1. Percent of select ED-treated injury events among HCWs by age group.

upper extremities (32%), lower extremities (18%), and the head or face (6%) (Table 3).

DISCUSSION

Home care workers are the frontline workforce providing direct care for clients whose needs are greater than can be met through the health care system alone.²⁰ Home care workers are often asked to perform tasks that go beyond their formal role.²⁰ While these activities are critical in allowing clients to remain in their own homes, they may result in additional occupational hazards for the HCWs and potential negative impact on their job satisfaction if they are unable to meet client needs.^{2,20,21} With an aging population and the continued increase in the demand for home care services, HCWs may face increasing and complex challenges,^{5,20} such as caring for clients when lifting devices or other safety devices are needed but not available or wanted.^{6,22} Home care workers may think that safety devices are time consuming or too difficult to operate. Clients may fear that assistive devices will be unsafe or uncomfortable.⁶ The tradeoff, however, when not using assistive devices, includes the HCW experiencing an overexertion injury, or the client being injured by being unintentionally dropped or jarred during an unassisted transfer.⁶

While the NEISS-Work surveillance system allows for the analysis of demographic and injury characteristics for HCWs who seek treatment at hospital EDs for nonfatal injuries, this system does not capture days away from work resulting from injury. The differences in case capture between NEISS-Work and the BLS Survey of Occupational Injuries and Illnesses (SOII) result in different estimates of injuries among workers. The BLS defines days away from work (DAFW) cases as those that result in one or more days away from work beyond the day of injury. The BLS SOII reported 40,080 nonfatal occupational injuries and illnesses involving DAFW among home health and personal care aides in 2020.²³ The injuries reported in SOII resulted in a median of 13 DAFW, slightly higher than the 12 median DAFW observed for all occupations.²³ The BLS DAFW is an indirect means to measure the severity of the injuries sustained by HCWs. Thus, these data suggest that HCWs experience somewhat more severe injuries than those experienced by other workers reported in SOII.

Data from this study indicated the leading HCWs nonfatal ED-treated injury events included overexertion and bodily reaction; violence and other injuries by persons and animals; and falls, slips,

and trips. Other studies have found similar results. A study of Washington state workers' compensation claims for all in-home care services from 2012 to 2016 found that among all accepted workers' compensation claims, leading injury events were work-related musculoskeletal disorders, 34.3%; falls on the same level, 16.7%; violence, 13.3%; and struck by or against object or equipment, 12.6%.² Another study that collected data through focus groups found that 44% of the participants reported injuries associated with transferring clients, including back and shoulder strains and 31% of the participants reported injuries involving falls that resulted in sprains, twists, and cuts.²⁴

The current study found that female HCWs accounted for 93% of the ED-treated injuries and had a larger rate of 206 per 10,000 HCW FTE compared with males who had a rate of 105 per 10,000 HCW FTE (Table 1). A study of direct care workers in the US provided key facts on HCWs, who are personal care aides and home health aides that support clients in private homes.²⁵ Of these HCWs, 85% were female.²⁵ While the current study did not report results by race or ethnicity, the earlier study of HCWs found that 37% were White, 27% were Black or African American, 9% were Asian or Pacific Islander, and 23% were Hispanic or Latino (any race),²⁵ indicating that minority populations represent greater proportions in the home care and residential care workforce than the total US workforce.²⁶ This same study found that more than half of HCWs had no formal education beyond high school and only approximately 63% were employed full-time, which may put them at risk for occupational health and safety inequities.²⁵ In 2021, per the BLS, home health and personal care aides had a median pay of \$29,430 per year with an hourly rate of \$14.15 per hour.⁵

Additional work and research are needed to prevent injuries among HCWs. Home care workers' training should include information on how to effectively assess home hazards that may result in occupational injuries or exposures, and occupational health nurses can assist agencies in taking measures to address these hazards and improve the safety of the work environment for HCWs.¹⁰ Home care workers often mentioned resource constraints or lack of agency policy implementation as barriers to effective management of hazards, all too often resulting in HCWs perceiving a need to "make do" with a hazardous situation.²⁷ Future training for HCWs should include specific approaches to managing hazards that may be addressed within the client homes and how to effectively engage assistance from their agencies.¹⁰

TABLE 3. National Estimates of Nonfatal ED-Treated Injuries Among HCWs, Injury Type and Body-Part

Variable	NE ^a	95% CI	%
Type of injury (diagnosis)			
Strain or sprain	38,000	±13,000	32%
Contusion, abrasion, crushing	12,000	±4,000	10%
Laceration, puncture	9,000	±3,000	8%
Dislocation, fracture	3,000	±1,000	3%
All other ^b	55,000	±24,000	47%
Body-part injured ^c			
Trunk and neck	50,000	±19,000	42%
Upper extremity ^d	37,000	±14,000	32%
Lower extremity ^e	21,000	±6,000	18%
Head and face ^f	8,000	±2,000	6%
Percent of body (25%–50%, >50%)	2,000	±1,000	1%

Source: National Electronic Injury Surveillance System Occupational Supplement, United States 2015–2020.

^aEstimate may not sum to total due to rounding.

^bIncludes ingested or aspirated foreign object, burns, amputation, avulsion, concussion, foreign body, hematoma, dental, nerve damage, internal, anoxia, hemorrhage, electric shock, other, and not stated.

^cThe all other category data did not meet NEISS-Work minimum reporting requirements.

^dIncludes shoulder/arm/elbow/wrist/hand/fingers.

^eIncludes leg/knee/ankle/foot/toes.

^fIncludes head/face/eyes/nose/mouth/ears.

CI, confidence interval; ED, emergency department; HCW, home care worker; NE, national estimate; NR, nonreportable.

This may include agencies development or reinforcement of policies to assist HCWs and their clients to improve hazardous conditions. Other suggested prevention strategies for reducing injuries among HCWs include working predictable hours; working with clients and established care plans with which they are familiar; having complete background information on clients; and having sufficient training that is appropriate for their work environment to address a client's needs.¹³

A few agencies are working to train or improve the knowledge of these workers. One such training is the home health care interactive virtual simulation training system (HH-VSTS) that promotes accurate detection of health and safety hazards in client homes.^{10,27,28} Part of the project was to assess what environmental health and safety hazards were encountered and how were the hazards distributed across specific rooms within client homes.¹⁰ The most common hazards identified throughout the home were trips, slips, and lifts.¹⁰ Other serious hazards encountered were exposure to biohazards, tobacco smoke, pests and rodents (bedbugs, mice), pets, inadequate ventilation and air quality, and the lack of proper equipment to assist clients.¹⁰

The evaluation of the efficacy of the HH-VSTS to assess the usability, usefulness, and desirability asked participants to identify hazards, why it is a hazard, and what to do.²⁸ Participants correctly identified hazards related to trips, slips, or lifts, what makes this a hazard, and what to do more often than the other two hazard types; electric, fire, burns; and environmental.²⁸ Participants indicated that the HH-VSTS was helpful for identifying all three categories of hazards and the “what to do” information was useful. In addition, the majority agreed that they would like this type of training at the workplace.²⁸

The NIOSH also provides resources for HCWs to care for themselves such as the Caring for Yourself While Caring for Others handbook, which includes a checklist of potentially hazardous work tasks, along with a collection of practical tips and tools for keeping a home safe for both the HCW and client.¹ The handbook also addresses communication strategies and workplace stress.¹ To assist with individual hazards among HCWs, the NIOSH created Fast Facts cards to provide brief explanations of potential hazards and preventative steps.¹ Topics include how to prevent violence on the job, musculoskeletal disorders, and exposure to unsafe conditions.¹

Another project, the Community of Practice and Safety Support (COMPASS) program was developed to prevent injuries and advance the health and well-being of HCWs.²⁹ “The purpose of the COMPASS pilot study was to develop and test the feasibility of the Total Worker Health™ intervention for HCWs and estimate intervention effects on workers’ well-being, and health and safety behaviors.”²⁹ The COMPASS intervention provides a supportive work structure for HCWs, particularly for those who do not have safety and health resources typically provided by employers.²⁹ After a successful pilot study and randomized controlled trial, COMPASS was adapted for the Oregon Home Care Commission’s training system for statewide dissemination.²⁹ The preliminary training evaluation indicated that workers like the program, find the content useful, and intend to make changes after the training.²⁹

Limitations

Although a manual review was conducted to identify HCWs in the NEISS-Work data, it is possible that some HCWs were missed during review because of lack of information within the case narrative. The NEISS-Work data rely on the patient reporting the injury as work-related and that information as well as occupation and business type are not always recorded or recorded accurately in the medical record. Information on occupation is known to be incomplete in NEISS-Work; therefore, identifying the specific occupations of interest may have been hampered by missing information. Furthermore, the NEISS-Work data are limited to those who present to an ED for treatment and exclude injuries seen in other medical venues such as urgent care facilities; therefore, these results could also underestimate the true estimates and rates of injuries sustained by HCWs. Rates may also be impacted by the different methods of case identification for NEISS-Work and CPS data.

CONCLUSIONS

The growing demand for home care services is increasing the number of workers at risk for injury. Although HCWs are one of the fastest growing occupations, there are limited data that identify injury trends and describe injury events occurring among HCWs. Future analyses should prioritize nonfatal injury events such as overexertion; falls, slips, trips; exposure to environmental conditions and bodily fluids; and violence to gain a more thorough understanding of the events that are contributing to the largest number of injuries among HCWs. A better understanding of the occupational health and safety risks of HCWs and how those risks are managed will enable the development or improvement of programs to assist with training, education, and support of these workers.

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REFERENCES

1. National Institute for Occupational Safety and Health Science Blog. The unique occupational environment of the home healthcare worker. CDC. Published September 2020. Accessed August 2023. <https://blogs.cdc.gov/niosh-science-blog/2020/09/29/hhcw/>
2. Howard NL, Adams D. In-home care services: an examination of the Washington state workers’ compensation claims data, 2012–2016. In-home care services: an examination of the Washington State Workers’ Compensation Claims Data, 2012–2016. Published January 2019. Accessed March 2019.
3. Bercovitz A, Moss A, Sengupta M, et al. National Center for Health Statistics, Division of Health Care Statistics. An overview of home health aides: United

- States, 2007. National health statistics reports. no.34; DHHS publication; no (PHS) 2011–1250. Available at: <https://stacks.cdc.gov/view/cdc/13188>. Published May 2011. Accessed February 2022.
4. Bureau of Labor Statistics (January 2022). U.S. Department of Labor, National Employment Matrix-Projections. U.S. Department of Labor. Available at: <https://www.bls.gov/data/#projections>. Accessed February 2022.
 5. Bureau of Labor Statistics, U.S. Department of Labor. Occupational Outlook Handbook, home health and personal care aides. Available at: <https://www.bls.gov/ooh/healthcare/home-health-aides-and-personal-care-aides.htm>. Accessed February 11, 2022.
 6. NIOSH Hazard Review, Occupation Hazards in Home Healthcare. January 2010. U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health. DHHS (NIOSH) Publication No. 2010–125, 2010:1–54. Available at: <https://www.cdc.gov/niosh/docs/2010-125/>. Accessed January 2022.
 7. Occupation Safety and Health Administration. Safety and health topics: home healthcare - overview. Available at: <https://www.osha.gov/home-healthcare>. Accessed August 2023.
 8. Hittle B, Agbonifo N, Suarez R, et al. Complexity of occupational exposures for home health- care workers: nurses vs. home health aides. *J Nurs Manag* 2016; 24:1071–1079.
 9. Markkanen P, Quinn M, Galligan C, et al. There's no place like home: a qualitative study of the working conditions of home health care providers. *J Occup Environ Med* 2007;49:327–337.
 10. Polivka BJ, Wills CE, Darragh A, et al. Environmental health and safety hazards experienced by home health care providers: a room-by-room analysis. *Workplace Health Saf* 2015;63:512–522.
 11. Markkanen PK, Galligan CJ, Quinn MM. Safety risks among home infusion nurses and other home health care providers. *J Infus Nurs* 2017;40:215–223.
 12. Ridenour ML, Hendricks S, Hartley D, et al. New Jersey home health care aides survey results. *Home Health Care Manag Pract* 2019;31:172–178.
 13. Karlsson ND, Markkanen PK, Kriebel D, et al. Home care aides' experiences of verbal abuse: a survey of characteristics and risk factors. *Occup Environ Med* 2019;76:448–454.
 14. Byon HD, Lee M, Choi M, et al. Client history and violence on direct care workers in the home care setting. *Am J Ind Med* 2016;59:1130–1135.
 15. Quinn MM, Markkanen PK, Galligan CJ, et al. Occupational health of home care aides: results of the safe home care survey. *Occup Environ Med* 2016;73: 237–245.
 16. Derk SJ, Marsh SM, Jackson LL. Nonfatal occupational injuries and illnesses—United States, 2004. *MMWR Morb Mortal Wkly Rep* 2007;56: 393–397.
 17. U.S. Bureau of Labor Statistics, Handbook of Methods, Survey of Occupational Injuries and Illnesses. *Overview: Handbook of Methods*. U.S. Bureau of Labor Statistics; 2020. Available at: <https://www.bls.gov/opub/hom/soii/home.htm>. Accessed April 19, 2022.
 18. Bureau of Labor Statistics, U.S. Department of Labor. Current occupational and industry classifications. 2012 Census Industry Titles and Code List. 2018.
 19. NIOSH [2018]. Analysis of the current population survey. Morgantown, WV: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health. Unpublished. U.S. Bureau of Labor Statistics. Labor force statistics from the current population survey. Current Population Survey (CPS). Available at: <https://www.bls.gov/cps/home.htm>. Accessed February 2022.
 20. Karlsson ND, Markkanen PK, Kriebel D, et al. “That’s not my job”: a mixed methods study of challenging client behaviors, boundaries, and home care aide occupational safety and health. *Am J Ind Med* 2020;63:368–378.
 21. Markkanen PK, Quinn MM, Galligan CJ, et al. Characterizing the nature of home care work and occupational hazards: a developmental intervention study. *Am J Ind Med* 2014;57:445–457.
 22. Hamadi H, Probst JC, Khan MM, et al. Determinants of occupational injury for US home health aides reporting one or more work-related injuries. *Inj Prev* 2018;24:351–357.
 23. Bureau of Labor Statistics, U.S. Department of Labor, Survey of Occupational Injuries and Illnesses, in cooperation with participating state agencies. TABLE R66. Number of nonfatal occupational injuries and illnesses involving days away from work by occupation and number of days away from work, and median number of days away from work, private industry, 2020 (bls.gov). 2021
 24. Butler SS. Exploring relationships among occupational safety, job turnover, and age among home care aides in Maine. *New Solut* 2018;27:501–523.
 25. PHI National. Direct care workers in the United States: key facts – PHI. Available at: <http://www.phinational.org/resource/direct-care-workers-in-the-united-states-key-facts-3/>. September 26, 2022.
 26. U.S. Bureau of Labor Statistics, Current Population Survey. BLS reports, Table 7. 2020. Labor force characteristics by race and ethnicity, 2020. Available at: <https://www.bls.gov/opub/reports/race-and-ethnicity/2020/home.htm>. Accessed on November 15, 2022.
 27. Wills CE, Polivka BJ, Darragh A, et al. “Making do” decisions: how home healthcare personnel manage their exposure to home hazards. *West J Nurs Res* 2016;38:411–426.
 28. Polivka BJ, Anderson S, Lavender SA, et al. Efficacy and usability of a virtual simulation training system for health and safety hazards encountered by healthcare workers. *Games Health J* 2019;8:121–128.
 29. Olson R, Hess JA, Parker KN, et al. From research-to-practice: an adaptation and dissemination of the COMPASS program for home care workers. *Int J Environ Res Public Health* 2018;15:2777.