Home healthcare hazard training through virtual simulation.
Polivka BJ; Darragh A; Lavender S; Sommerich C; Stredney D; Wills C
https://ntrl.ntis.gov/NTRL/dashboard/searchResults/titleDetail/PB2018101541.xhtml

Abstract
The growing number of Home Health Aides and Personal Care Aides is expected to exceed 4.1 million by 2026. Increases in home healthcare services and workers are attributed to the aging population, increased outpatient care, decreased hospital lengths of stay, cost savings, and patient preferences. Home environments are more challenging and variable than other healthcare work environments. In 2015 the Bureau of Labor Statistics reported incidence rates for home health aides and personal care assistants, at 117.9 and 132, respectively, exceeded the average rate of 93.9 cases per 10,000 workers for private industry as a whole. 60% of home health aide injuries have been reported to occur inside patient homes and are associated with patient handling tasks, medical devices, equipment, and other environmental factors. Given the increase in healthcare provided in homes, and hazards faced by home healthcare workers (HHWs), it is critical that these workers receive appropriate occupational safety and health training to be able to identify, assess, and respond to hazards in client’s homes. This project addressed this training need by developing and assessing the efficacy of an appealing, interactive, widely-distributable, virtual simulation training system (VSTS). Using a rigorous, interdisciplinary, participatory, and iterative design process and mixed methods research approach, a VSTS was created that includes a tutorial, orientation, three training modules (Electrical/Fire/Burn, Slip/Trip/Lift, and Environmental hazards) and Assessment module that trains and assesses ability of HHWs to identify and respond to occupational health and safety hazards in client homes. Key findings:
Phase 1: Interviews and focus groups with 68 experienced HHWs confirmed that they encounter a wide range of hazards in client homes, including fall/trip/slip hazards, biohazards, air quality issues, allergens, pests/rodents, and burning candles; each was mentioned by >50% of participants. Data analysis also revealed that >50% of hazard management decisions discussed by participants were less than optimal, confirming the need for training to go beyond hazard identification to include response training. Phase 2: Results from usability assessments of the VSTS were used, in an action research approach, to address usability issues as they were identified. Phase 3: Training program efficacy was demonstrated through an experiment, wherein 54 HHW and 39 healthcare profession students (occupational or physical therapy, or nursing) were randomly allocated to experimental training (VSTS) or standard training (training information printed on paper with illustrations). Performance results were similar between the groups (e.g. similar numbers of hazards correctly identified). The experimental group also provided usability assessments that showed large majorities of users found the VSTS to be easy to use and anticipated that their co-workers would quickly learn how to use it. Further analysis revealed that VSTS usability was not affected by computer use history or computer gaming experience. Analysis also revealed opportunities for improving the VSTS (e.g., providing alternative channels for conveying content, given the significant amount of reading currently required when using the VSTS). The VSTS is accessible to anyone who would like to use it, and plans are being developed for broader scale effectiveness testing.
Keywords Home health care; Health care workers; Risk assessment; Medical personnel; Injury prevention; Training research; Hazard identification; Effectiveness research; Virtual reality; Simulation methods; Communication systems
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Abstract
Home healthcare workers (HHWs) are routinely exposed to occupational safety hazards when servicing patients in their homes that put them at risk for injury. These hazards can be broadly classified as "electric, fire and burn," "environmental," or "slip, trip, and lift" hazards. To better train HHWs regarding their potential exposure to these hazards, a home healthcare virtual simulation training system (HH-VSTS) was developed. The HH-VSTS contains three training modules, corresponding to the aforementioned hazard categories, and an assessment module. In each training module, the trainee must navigate the virtual space, via a mouse click, and identify items or conditions that represent hazards. Once an item has been clicked on, the HH-VSTS asks the user if the item or condition is a hazard. For items or conditions that are hazards, additional text boxes present material to the user as to why the item constitutes a hazard and potential remediation approaches. Thus, it is important that hazards be identified and clicked on for the trainee to receive the educational component of the training system. This article evaluated the ability of 49 HHWs to find hazards in each of the three categories. In all modules, participants found the most salient hazards (e.g., clutter on stairs, unattended candles, biohazard stains) but struggled to find some of the less salient hazards. Several less salient hazards included the pet food bowls in the path of travel, the frayed electrical cord, oxygen tube leaking into a mattress, hot water that was too hot, and elevated room temperatures. Overall, this analysis found that most of the hazards within the training modules could be found by naïve HH-VSTS users. These data suggest the need for including hints that guide users toward hazards with which they are less familiar.

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Environmental Health and Safety Hazards Experienced by Home Health Care Providers: A Room-by-Room Analysis.
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Abstract
The number of personnel providing in-home health care services is increasing substantially. The unique configuration of environmental hazards in individual client homes has a significant impact on the safety and health of home health care providers (HHPs). This mixed-methods study used data from a standardized questionnaire, focus groups, and individual interviews to explore environmental health and safety hazards encountered by HHPs in client homes. The participant sample (N = 68) included nurses, aides, therapists, and owners/managers from a variety of geographic locations. The most often-reported hazards were trip/slip/lift hazards, biohazards, and hazards from poor air quality, allergens, pests and rodents, and fire and burns. Frequency of identified key hazards varied by room, that is, kitchen (e.g., throw rugs, water on floor), bathroom (e.g., tight spaces for client handling), bedroom (e.g., bed too low), living room (e.g., animal waste), and hallway (e.g., clutter). Findings indicate the need for broader training to enable HHPs to identify and address hazards they encounter in client homes.

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KEYWORDS:
health surveillance; occupational hazards; occupational health; occupational safety; research; workforce

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Abstract
This study describes the decision-making processes home healthcare personnel (HHP) use to manage their personal health and safety when managing hazards in client homes. A professionally diverse national sample of 68 HHP participated in individual semi-structured interviews and focus group discussions, and described their decision making and strategies for hazard management in their work environments. HHP described 353 hazard management dilemmas within 394 specifically identified hazards, which were clustered within three broader categories: electrical/fire, slip/trip/lift, and environmental exposures. HHP described multiple types of "making do" decisions for hazard management solutions in which perceived and actual resource limitations constrained response options. A majority of hazard management decisions in the broader hazards categories (72.5%, 68.5%, and 63.5%, respectively) were classifiable as less than optimal. These findings stress the need for more support of HHPs, including comprehensive training, to improve HHP decision making and hazard management strategies, especially in context of resource constraints.

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KEYWORDS:
decision making; home environmental hazards; home healthcare personnel; simulation training

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Risk of Sharps Injuries to Home Care Nurses and Aides: A Systematic Review and Meta-Analysis.

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Abstract

OBJECTIVE:
To evaluate all available literature and develop a pooled estimate of the risk of sharps injuries (SI) among home care (HC) nurses and aides.

METHODS:
A systematic literature search was conducted and relevant articles were reviewed following Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. Primary outcome data from studies identified by the systematic review were pooled using a random effects model to calculate a summary measure of SI risk for nurses and for aides.

RESULTS:
Five articles were included in the final analysis. Nurses had a 5.25% weighted average risk of experiencing at least one SI in the past year while working in HC (95% confidence interval [CI]: 3.11% to 7.40%); aides pooled SI risk was 1.74% (95% CI: 0.72% to 2.77%).

CONCLUSIONS:
Combining findings of all available studies demonstrates that there is a serious risk of SI among both the HC nurses and aides.

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Free PMC Article
Exploring Relationships Among Occupational Safety, Job Turnover, and Age Among Home Care Aides in Maine.
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Abstract
As the U.S. population ages, the number of people needing personal assistance in the home care setting is increasing dramatically. Personal care aides and home health workers are currently adding more jobs to the economy than any other single occupation. Home health workers face physically and emotionally challenging, and at times unsafe, work conditions, with turnover rates ranging from 44 percent to 65 percent annually. As part of a mixed-method, longitudinal study in Maine examining turnover, interviews with 252 home care aides were analyzed thematically. Responses to interview questions regarding the job's impact on health and safety, the adequacy of training, and the level of agency responsiveness were examined. Emergent themes, indicating some contradictory perspectives on workplace safety, quality of training, and agency support, were compared across three variables: job termination, occupational injury, and age. Implications for increasing occupational safety and job retention are discussed.

KEYWORDS:
direct care workers; home care aides; home care workers; occupational injury; turnover

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Workforce implications of injury among home health workers: evidence from the National Home Health Aide Survey.
McCaughey D1, McGhan G, Kim J, Brannon D, Leroy H, Jablonski R.

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Abstract
PURPOSE OF STUDY:
The direct care workforce continues to rank as one of the most frequently injured employee groups in North America. Occupational health and safety studies have shown that workplace injuries translate into negative outcomes for workers and their employers. The National Institute for Occupational Safety and Health (NIOSH) Organization of Work and Occupational Safety and Health framework is used to examine (a) relationships between injuries and work outcomes as reported by home health aides (HHAs) and (b) the likely efficacy of employee training and supervisor support in reducing worker risk for injury.

DESIGN AND METHODS: Data for this analysis were drawn from the 2007 National Home Health Aide Survey, a nationally representative survey. Ordinary least squares regression and multinomial logistic regression were used to examine relationships between worker injury and (a) worker outcomes and (b) organizational outcomes and to examine ratings of training and supervisory support relative to risk of injury.

RESULTS: Injured aides had lower job satisfaction, higher turnover intent, and poor employment and care quality perceptions. HHA perceptions of poor training and poor supervisory support were significantly related to higher risk for workplace injuries.

IMPLICATIONS: The current study suggests that workplace training has an important role in helping reduce direct care worker injuries, thereby decreasing organizational expenses related to injury, such as workers’ compensation, sick time, and turnover. The NIOSH Organization of Work and Occupational Safety and Health framework offers a mechanism by which occupational health and safety interventions may be derived to reduce incidents of injury.

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Antecedents to workplace injury in the health care industry: A synthesis of the literature.

McCaughey D, Kimmel A, Savage G, Lukas T, Walsh E, Halbesleben J.

Abstract

BACKGROUND:
The U.S. Department of Labor has identified the health care industry as a major source of all U.S. workplace injuries. Studies have shown that injury within the health care workforce is related to high turnover rates, burnout, poor job satisfaction, and leaving the health care workforce permanently, thus contributing to the existing health care workforce shortages.

PURPOSE:
The purpose of this synthesis of the literature was twofold. The first was to conduct a comprehensive evaluation of the occupational health and safety literature to determine the key antecedents to health care provider injury. The second was to utilize the National Institute for Occupational Safety and Health (NIOSH) framework to organize the findings.

METHODOLOGY:
Empirical studies published between 1985 and 2013 examining work-related injuries sustained by nurses and nurses' aides were systematically reviewed and evaluated for inclusion in the synthesis of the literature. Thirty-six studies met the criteria for inclusion. Using the NIOSH framework, antecedent variables to workplace injury were identified and then grouped into three broad categories that were highlighted during the synthesis: organization of work, job characteristics, and safety programs and training. A fourth category, individual characteristics, was added based on its use by many studies.

FINDINGS:
Over half of the studies (n = 20) included factors within the organization of work category. Over two thirds of the studies (n = 26) included job characteristics such as task and demand. Nine studies contained information related to safety programs and training, whereas 17 studies included information on individual factors. The findings suggest that the NIOSH framework, with the addition of individual characteristics, provide a foundation for conceptually organizing occupational health and safety studies.

PRACTICE IMPLICATIONS:
Health care administrators and leaders should be aware and understand the antecedents to workplace injury that will assist their organizations in developing training programs to reduce the current excessive rates of health care provider injury.

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**Editors**
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**Source**

**Excerpt**

**Introduction:** Home health care is the fastest growing sector in the health care industry, with an anticipated growth of 66 percent over the next 10 years and with over 7 million patients served each year. With the increasing acuteness of care provided in home health care and the increasing number of frail elderly that make up this patient population, it is important to identify risk factors that affect patient health and safety in this setting. **Methods:** A convenience sample of 1,561 home health aides, attendants, and personal care workers completed a risk assessment survey. Items addressed personal, patient, and home characteristics and health hazards. All activities had prior Institutional Review Board approval. **Preliminary Results:** Ninety-five percent of home health care workers (HHCWs) were female with an average of 8 years experience. The majority of clients were elderly, with a smaller percentage of adult (26 percent) and pediatric (7 percent) cases. HHCWs reported the following exposures at their clients’ homes: cockroaches (33 percent), cigarette smoke (30 percent), vermin (23 percent), irritating chemicals (17 percent), and peeling paint (15 percent). The following conditions were also described: clutter (17 percent), temperature extremes (9 percent), unsanitary (12 percent) and unsafe (6 percent) conditions in the home, neighborhood violence/crime (11 percent), and aggressive pets (6 percent). Two percent of respondents reported the presence of guns in the home. Additionally, 12 percent of HHCWs reported signs of abuse of their clients. **Conclusion:** Both HHCWs and home care patients appear to be at potential risk due to a variety of health hazards/exposures in the clients’ homes. Given the growing population of both HHCWs and recipients, it is important to document this risk as an important first step in prevention and management.

**Sections**
- Introduction
- Methods
- Results
- Discussion
- Conclusion
- References

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Home care aides' experiences of verbal abuse: a survey of characteristics and risk factors.

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Abstract

OBJECTIVE:
Violence from care recipients and family members, including both verbal and physical abuse, is a serious occupational hazard for healthcare and social assistance workers. Most workplace violence studies in this sector focus on hospitals and other institutional settings. This study examined verbal abuse in a large home care (HC) aide population and evaluated risk factors.

METHODS:
We used questionnaire survey data collected as part of a larger mixed methods study of a range of working conditions among HC aides. This paper focuses on survey responses of HC aides (n=954) who reported on verbal abuse from non-family clients and their family members. Risk factors were identified in univariate and multivariable analyses.

RESULTS:
Twenty-two per cent (n=206) of aides reported at least one incident of verbal abuse in the 12 months before the survey. Three factors were found to be important in multivariable models: clients with dementia (relative risk (RR) 1.38, 95% CI 1.07 to 1.78), homes with too little space for the aide to work (RR 1.52, 95% CI 1.17 to 1.97) and predictable work hours (RR 0.74, 95% CI 0.58 to 0.94); two additional factors were associated with verbal abuse, although not as strongly: having clients with limited mobility (RR 1.35, 95% CI 0.94 to 1.93) and an unclear plan for care delivery (RR 1.27, 95% CI 0.95 to 1.69). Aides reporting verbal abuse were 11 times as likely to also report physical abuse (RR 11.53; 95% CI 6.84 to 19.45).

CONCLUSIONS:
Verbal abuse is common among HC aides. These findings suggest specific changes in work organisation and training that may help reduce verbal abuse.

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KEYWORDS:
home care; home health aides; occupational health; verbal abuse; workplace violence

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Occupational health of home care aides: results of the safe home care survey.
Quinn MM, Markkanen PK, Galligan CJ, Sama SR, Kriebel D, Gore RJ, Brouillette NM, Okyere D, Sun C, Punnett L, Laramie AK, Davis L.

Abstract
OBJECTIVES:
In countries with ageing populations, home care (HC) aides are among the fastest growing jobs. There are few quantitative studies of HC occupational safety and health (OSH) conditions. The objectives of this study were to: (1) assess quantitatively the OSH hazards and benefits for a wide range of HC working conditions, and (2) compare OSH experiences of HC aides who are employed via different medical and social services systems in Massachusetts, USA.

METHODS:
HC aides were recruited for a survey via agencies that employ aides and schedule their visits with clients, and through a labour union of aides employed directly by clients or their families. The questionnaire included detailed questions about the most recent HC visits, as well as about individual aides’ OSH experiences.

RESULTS:
The study population included 1249 HC aides (634 agency-employed, 615 client-employed) contributing information on 3484 HC visits. Hazards occurring most frequently related to musculoskeletal strain, exposure to potentially infectious agents and cleaning chemicals for infection prevention and experience of violence. Client-hired and agency-hired aides had similar OSH experiences with a few exceptions, including use of sharps and experience of verbal violence.

CONCLUSIONS:
The OSH experience of HC aides is similar to that of aides in institutional healthcare settings. Despite OSH challenges, HC aides enjoy caring for others and the benefits of HC work should be enhanced. Quantification of HC hazards and benefits is useful to prioritise resources for the development of preventive interventions and to provide an evidence base for policy-setting.
Ensuring Safety When Pets Are in the Home.
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Abstract
This article discusses safety issues involved when home healthcare clinicians visit the homes of patients with pets, particularly cats and dogs. Threats to the safety of home care clinicians are explored and concerns such as animal bites, animal scratches, and infection control are detailed in this article. Although it is acknowledged that pets can provide positive health benefits to owners, the focus is on the responsibility of the pet owners to secure pets when clinicians visit in order to keep the clinician and patient safe during the home visit. A proposed Pet Policy Agreement is presented whereby the pet owner as patient bears some responsibility for ensuring the safety of home healthcare clinicians.

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Home Health Care Patients and Safety Hazards in the Home: Preliminary Findings

https://www.ncbi.nlm.nih.gov/books/NBK43619/

Ohio Model agreements
https://kb.osu.edu/handle/1811/79017

Oregon Safety Manual
https://apps.state.or.us/Forms/Served/de9062.pdf

NIOSH Hazard Review

NIOSH Curriculum: Caring for Yourself While Caring for Others
1. Module 1: An Introduction to Homecare Health and Safety
2. Module 2: Tips for Reducing Strains, Sprains, and Falls While Doing Housekeeping and Caring for Clients
4. Module 4: Tips for Reducing Exposure to Bloodborne and Other Infectious Diseases
5. Module 5: Tips for Staying Safe When Working with Clients with Dementia
6. Module 6: Tips for Setting Healthy and Safe Boundaries to Reduce Stress
7. Module 7: Tips for Safely Handling Threatening Behavior When Providing Homecare

NIOSH has created a series of 6 Fast Facts cards that provide brief explanations of individual hazards to home healthcare workers and preventative steps. These were designed to be used by employers for training and to be kept by the workers for quick reference. They are available in English, Spanish, Chinese, and Polish.

- How to Prevent Violence on the job
- How to Prevent Latex Allergies
- How to Prevent Musculoskeletal Disorders
- How to Prevent Exposure in Unsafe Conditions
- How to Prevent Driving-Related Injuries
- How to Prevent Needlestick and Sharps Injuries

A free curriculum is available to assist trainers in meeting the health and safety training needs for homecare workers and to enhance communication between homecare workers and their clients. The activities in this curriculum are designed to encourage participants in promoting safe and healthy work environments for their clients and for themselves.

- Caring for Yourself While Caring for Others