



# Injury rates before and after the implementation of a safe resident handling program in the long-term care sector



Alicia Kurowski\*, Rebecca Gore, Yaritza Roberts, Kendra Richardson Kincaid, Laura Punnett

Department of Work Environment, University of Massachusetts Lowell, Lowell, MA, USA

## ARTICLE INFO

### Article history:

Received 20 February 2015  
Received in revised form 15 October 2016  
Accepted 19 October 2016  
Available online 9 November 2016

### Keywords:

Intervention studies  
Safe resident handling program  
Healthcare ergonomics  
Musculoskeletal disorders  
Workers' compensation claims

## ABSTRACT

Manual resident handling (RH) tasks increase risk of musculoskeletal disorders (MSDs) for clinical staff in nursing homes. To reduce the incidence and cost of MSDs, a large healthcare corporation instituted a Safe Resident Handling Program (SRHP) comprising purchase of mechanical lifting equipment, worker training, and detailed usage/maintenance protocols. The program was initially administered by a third-party company; after three years, program responsibility shifted to individual centers.

Workers' compensation claim rates were compared before and after SRHP implementation. Claims and FTEs were classified as "pre-SRHP," "first post period" (up to 3 years post-SRHP), or "second post period" (4–6 years post-SRHP), based on claim date relative to implementation date for each center.

Complete data were available for 136 nursing homes with average annual employment of 18,571 full-time equivalents. Over the 8-year period, 22,445 claims were recorded. At each time period, the majority of RH claims affected the back (36% low, 15% other) and upper extremity (26%). Workers' compensation claims were reduced by 11% during the first post period and 14% during the second post period. RH-related claims were reduced by 32% and 38%, respectively. After six years, the rate for all claims had decreased in 72% of centers, and RH claim rates decreased in 82%. Relative risk for post-/pre-SRHP injury rates increased for centers with less developed wellness programs, unionized centers, and centers with higher LPN turnover pre-SRHP. Injury reduction among these nursing home workers is plausibly attributable to the introduction of mechanical lifting equipment within the context of this multi-faceted SRHP.

© 2016 Elsevier Ltd. All rights reserved.

## 1. Introduction

According to the Bureau of Labor Statistics (BLS) in 2014, the incidence rate of non-fatal occupational injuries and illnesses for nursing care facilities was 7.1/100 full-time workers (total recordable cases); the rate for cases involving days away from work, job transfer, or restriction was 4.3/100 (U.S. Department of Labor, 2015a). In contrast, the rates for construction workers were 3.6/100 for total recordable cases and 2.0/100 for cases involving days away from work, job transfer, or restriction (U.S. Department of Labor, 2015a). Compared to all occupations, nursing assistants suffered the second-highest number of lost-time musculoskeletal disorder (MSD) cases in 2014 (U.S. Department of Labor, 2015b). In that job group, 54% of lost-time incidents were classified as MSDs, compared to 26% among construction workers (U.S. Department of Labor, 2015b).

In nursing homes, caregivers perform heavy lifting, transferring, and repositioning of residents, a task which often exceeds the lifting capacity of most nursing staff (Collins et al., 2004). Several factors contribute to the difficulty of resident transfers, including residents' weight, combativeness, and tendency to fall or lose balance (Collins et al., 2006). Resident or patient handling has been identified as one of the main causes of back injury among nursing personnel (Trinkoff et al., 2003; Smedley et al., 1997); in addition to the lifting itself, this activity often involves non-neutral postures, such as trunk flexion and rotation, and sudden movements (Engkvist et al., 1998). Upper extremity pain in nursing personnel has also been associated with physical demands such as lifting, stooping, and other awkward postures (Trinkoff et al., 2003). The rising rate of obesity in the United States (Centers for Disease Control and Prevention (CDC), 2007) – affecting nursing home residents as well – raises concerns about further increases in risk of injury for workers that handle these residents (Lapane and Resnik, 2006).

Mechanical lifting equipment has produced significant reductions in biomechanical loading during patient handling in laboratory trials (Zhuang et al., 1999; Elford et al., 2000; Nelson et al.,

\* Corresponding author at: 1 University Ave., Kitson Hall, Room 200, Lowell, MA 01854, USA

E-mail address: [Alicia\\_Kurowski@uml.edu](mailto:Alicia_Kurowski@uml.edu) (A. Kurowski).

2003). In addition, safe handling programs – including training programs for proper use and maintenance of the equipment – have shown benefits for worker health in hospitals (Trinkoff et al., 2003; Engkvist, 2006; Li et al., 2004; Evanoff et al., 2003; Lipscomb et al., 2012; Hunter et al., 2010; Black et al., 2011; Schoenfisch et al., 2013) and nursing homes (Collins et al., 2004; Evanoff et al., 2003; Park et al., 2009; Nelson et al., 2006; Engst et al., 2005; Garg, 1999; Restrepo et al., 2013). The nursing home studies, in particular, have reported reductions in a variety of outcome measures: injury rates (Evanoff et al., 2003; Nelson et al., 2006; Garg, 1999); resident handling (RH) injury rates (Collins et al., 2004); claims for repositioning injuries (Garg, 1999); lost workday injuries (Collins et al., 2004; Evanoff et al., 2003; Nelson et al., 2006; Garg, 1999); OSHA 200 log incidents (Collins et al., 2004; Evanoff et al., 2003); self-reported injury rates (Collins et al., 2004); and workers' compensation (WC) claim costs (Collins et al., 2004; Park et al., 2009; Nelson et al., 2006; Engst et al., 2005; Garg, 1999; Restrepo et al., 2013).

Most nursing home studies included only a few facilities. One study (Park et al., 2009) covered 887 nursing homes in the state of Ohio; however, the interventions varied from center to center and only 10.6% of employers purchased equipment as part of their intervention programs. Typical post-intervention follow-up periods for nursing home studies have been around two years (Collins et al., 2004; Evanoff et al., 2003; Park et al., 2009; Garg, 1999), however one study of six nursing homes (and one hospital) had follow-up periods that ranged from three to five years, but the sample was small and interventions and pre-and post-intervention periods were not uniform (Garg and Kapellusch, 2012). Analysis of longer pre- and post-intervention periods in a larger sample would better describe long-term sustainability and diminish the likelihood that any apparent benefits are artifacts of short-term changes in injury reporting. This paper details the findings of an eight-year prospective intervention study of a multi-component safe resident handling program (SRHP) in a chain of more than 200 nursing homes. The primary goal was to assess whether rates of injury among nursing home staff were reduced in the six years following SRHP implementation.

## 2. Methods

### 2.1. Program and study design

A large nursing home corporation instituted a SRHP to reduce the incidence and cost of musculoskeletal problems among the clinical nursing staff. This program entailed purchase and installation of mechanical resident handling aids as well as staff training in the use of the devices and detailed protocols for equipment maintenance, sling laundering, and battery recharging. The program was implemented in March, 2004, by a risk management company specializing in SRHPs.

The implementation process for each center began with a department head meeting (DHM), to inform staff of their roles in the changes necessary for an effective program. During the same visit, the risk management company provided education on resident assessment for equipment needs to the clinical nursing staff. Immediately following the DHM, each resident was assessed to determine whether they were ambulatory or would require mobility assistance from floor-based portable sit-stand lifts or total body lifts of 204-kg or 272-kg capacity. Residents were also assessed upon admission and readmission, following significant changes in health, and in quarterly reviews. Documentation for each resident indicated the type of equipment and number of staff required for handling tasks. Equipment was then purchased to accommodate each center's needs.

The risk management company provided initial training on equipment use, maintenance, and program policies, then made follow-up visits after 2 weeks, 4 weeks, 10 weeks, 20 weeks, 30 weeks, 40 weeks, and 50 weeks. Six follow-up visits were made in the program's second year, and 4 were made in the third year. Hands-on training at follow-up visits varied, and included skills check-off, equipment demonstrations during peak resident transfer times, train-the-trainer sessions, resident/family council meetings, reinforcing policies and procedures, and investigating program-related injuries. Clinical staff were required to demonstrate competency in the use of handling equipment at each visit.

At the end of three years, management of the SRHP was passed from the risk management company to representatives at individual centers. Typically nurse educators were identified as SRHP trainers in the centers. No information from the corporation indicates that there was any form of standardization across centers for program maintenance or compliance.

For each center, the time period beginning on January 1, 2003, until the initial DHM was defined as pre-SRHP. The time period starting on the DHM and ending three years later was considered the first post period. The three years following program hand-off were categorized as the second post period.

### 2.2. Study population and data sources

Initially, all centers owned or jointly managed by the corporation from 2003 through 2006 were selected to take part in the study. Several inclusion criteria were applied: (1) The center had to be a skilled nursing facility (SNF), as opposed to an assisted-living facility. (2) The date of the initial DHM had to be recorded. (3) Data on WC claims and annual average workforce size (number of full-time equivalents (FTEs)) had to be available for the entire eight-year study period.

A total of 165 skilled nursing facilities were owned or operated by the company. WC data were not available from West Virginia, so 23 centers were excluded from analysis. Three centers closed during the study period, and three other centers had discrepancies in the number of FTEs. Thus 136 centers in 11 states met all criteria for inclusion.

Descriptive data received annually for each center from January 1, 2003, to December 31, 2010, included facility name, address, business unit number, location code, type(s) of service, workforce size (beginning January 1, 2004), and number of beds. These data were compiled and the unique business unit number and location code for each center were used to match data files by center across years.

### 2.3. Data management and analysis

#### 2.3.1. Workers' compensation data

WC claims for all employees were received from the corporation for the time period January 1, 2003 to December 31, 2010. Each claim record included the center name and number, date of incident, description of the cause, nature of the injury, body part (s) injured, and associated medical costs. Job titles of claimants were not available in all years.

WC claims within each center were designated with regard to the center's implementation dates as pre-SRHP, first post period, or second post period. The numbers of all claims pre-SRHP, first post period, and second post period were summed by time period and center, and also aggregated corporate-wide.

The subset of claims associated with RH was identified using the 'cause of injury' field. Four causes were coded: "Resident Handling - Helping Into/Out of Bed," "Resident Handling - Helping Chair/Toilet," "Resident Handling - Into/Out of Bath," and "Resident Handling - Not Otherwise Classified (NOC)." A post hoc quality

Download English Version:

<https://daneshyari.com/en/article/4981332>

Download Persian Version:

<https://daneshyari.com/article/4981332>

[Daneshyari.com](https://daneshyari.com)