SCRIPPS GERONTOLOGY CENTER
BRIEF REPORT
MIAMI UNIVERSITY

WORKER INJURIES AND SAFETY EQUIPMENT IN OHIO NURSING HOMES

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Fast Facts

- Nursing home workers are injured on the job at rates higher than most other industries.
- Nursing home employees have an injury rate of 6.6 injuries per 100 workers. The most common employee injuries are musculoskeletal and may be associated with resident transfer (e.g., from bed to chair, from bed to toilet).
- Larger nursing homes, facilities that are part of chains, and facilities with a high proportion of wheelchair bound residents (a measure of transfer care needs) have higher injury rates than their counterparts.

Background

In a recent U.S. Department of Labor Bureau of Labor Statistics report, nursing homes ranked 3rd in terms of industries with the highest rate of worker injury[1]. Among all industries with 100,000 or more injuries a year, the nursing home worker injury rate is the highest.

Ohio has more than 900 licensed nursing homes serving more than 75,000 residents on any given day (ranking 7th nationally). A workforce of about 60,000 RNs, LPNs and nurse aides provides direct care to these residents. Many of the care tasks involve assistance with activities of daily living such as assistance with bathing and getting to the toilet; these activities often involve the transfer of residents (e.g. from bed to wheelchair or toilet). The lifting and turning of residents may lead to worker injuries, particularly musculoskeletal injuries.

Study Approach

The Scripps Gerontology Center conducted a survey of Ohio nursing homes in 2006. The survey asked facilities to provide the information that they report to the Occupational Safety and Health Administration (OSHA) on Form 300A, a summary of work-related injuries and illnesses[2] along with a variety of other information about facility characteristics, availability of safety equipment, and utilization. Of the 950 facilities contacted, 850 responded to the survey (a response rate of 89%).

The survey reported the presence of safety equipment but did not provide information as to the frequency of the use of this equipment or the extent of availability of the equipment. This report provides a description of Ohio nursing homes along with an exploration of the factors that might be associated with worker injury rates. Additional investigation into the patterns of equipment use at facilities would be a natural next step for future study.

Worker Injuries Defined and Nursing Home Characteristics Measured

The total number of injuries[3] and injury rates at each nursing home were the primary outcomes of interest in this analysis. Other injury-related measures included the number of days away from work due to injury and the number of days of job transfer or restriction per year.

[1]http://www.bls.gov/news.release/osh.t01.htm (accessed: March 2008).
[2]http://www.osha.gov/pls/publications/publication.html (accessed: June 9, 2008).
[3]OSHA Form 300A definition of injury can be found at http://www.osha.gov/recordkeeping/new-osha300form1-1-04.pdf (accessed: July 21, 2008).

Approximately 75% of the non-hospital based nursing homes surveyed were for-profit organizations. A majority, 55%, were part of a chain of nursing homes. Other nursing home characteristics that were examined in this study included: total number of licensed beds, average daily occupancy, and number of admissions. Selected characteristics of the nursing homes that responded are shown in Table 1. The median size of these facilities was 100 beds, with a range in size from 12 to 427. The median number of employees at these facilities was 114, with a range from 10 to 440.

Table 1
Summary of Selected Ohio Nursing Home Characteristics

Characteristic	Minimum	Median	Mean	Maximum
Licensed beds	12	100	102	427
Admissions in 2005 per licensed bed	< 0.1	1.4	1.7	10.8
Number of employees	10	114	127	440
Average # of hours per employee per month	50	127.4	126.9	196.1

What do Ohio Nursing Homes do to Promote Worker Safety?

Facilities were also asked to report which types of safety equipment were available (e.g., electric beds, lift hoists, transfer belts). Strategies for reducing the risk of transfer injuries include providing safety equipment or employing no lift or two-person lift policies. Table 2 shows a list of nine types of safety equipment available in Ohio nursing homes along with the relative frequency of each. Total lift hoists are used for lifting residents from bed to chair or vice versa and may be mounted to the ceiling or be mobile[4]. Mechanical lateral transfer aids are used to help slide a resident on and off a bed or gurney. In contrast, gait transfer belts wrap around the waist of a resident and these provide handles to assist resident movement. Friction reducing lateral transfer aids are positioned beneath the resident and provide a low friction surface to assist with transfers. Bath lift/easy access bath tubs are designed to help the resident with maneuvering and accessing controls. Powered sit-to-stand devices help the residents switch between standing and sitting without a worker's help, while electric beds allow the resident to change their position or allow a staff member to raise or lower the bed to a comfortable height for transferring.

The two types of safety equipment most frequently present in the surveyed nursing homes are gait transfer belts and portable lift hoists. Mechanical lateral transfer aids are found in approximately 29% of the facilities, friction reducing lateral aids in 36%, and easy access bath tubs in more than 50% of the facilities. Approximately 63% of nursing homes had powered sit-to-stand devices, 80% had toilet seats adjusted to the height of wheelchairs and 90% of the homes had electric beds. Only 7% of facilities had ceiling-mounted lift hoists.

Table 2
Relative Frequency of Safety Equipment Present in Nursing Homes in Ohio

Safety equipment	Percent
Total lift hoist (ceiling mounted)	7.4
Mechanical lateral transfer aids	28.5
Friction reducing lateral aids	36.0
Bath lift/easy access bath tubs	54.9
Powered sit-to-stand devices	63.4
Toilet seat adjusted to height of wheelchairs	79.7
Electric beds	89.6
Total lift hoist (portable)	96.5
Gait transfer belts	99.1
N = 789	

[4]See Nelson & Fragala (2004) for a more detailed description of the use of safety equipment in nursing care.

Summary of Ohio Nursing Home Characteristics and Worker Injuries

Worker injuries in Ohio nursing homes occurred at a median annual rate of 5.7 injuries reported per 100 workers (25th percentile = 2.9; 75th percentile = 9.2). More severe injuries such as those requiring the employee to miss at least one day from work or requiring job transfer or restriction occurred at the median rates of 1.6 and 1.7 injuries per 100 workers, respectively (Table 3).

Regarding equipment and injuries in Ohio nursing homes, the absolute number of safety devices in the facility appeared to have little or no relationship to the rate of employee injury in this cross-sectional study. While some studies have demonstrated a reduction in nursing home worker injuries due to the use of safety devices[5], this was not observed in this survey of Ohio nursing homes.

Table 3
Injury Characteristics of Ohio Nursing Homes

Characteristic	Minimum	Median	Mean	Maximum
Per injury summaries				
# of days of job transfer or restriction	0	0.3	0.7	18.6
# of days away from work	0	0.1	0.4	7.0
Per facility summaries				
Injury rate*	0	5.7	6.6	40.0
Missing at least 1 day from work rate*	0	1.6	2.3	23.3
Other recordable cases rate*	0	1.4	2.8	97.5
Job transfer or restriction rate*	0	1.7	3.0	122.1
Other illnesses rate*	0	0.0	0.3	37.5
Injuries per 2000 working hours	0	0.1	0.1	0.8
*per 100 workers per year; number of responding facilities at least 584.				

Facility Characteristics and Nursing Home Worker Injuries

We conducted a more in-depth statistical analysis to examine if worker-injury rates were associated with facility-specific factors such as the number of beds, the proportion of residents who are bedfast, lifting policies, and the availability of various types of safety equipment.

Injury rates are observed to be higher in larger facilities and in facilities with a larger proportion of residents who are bedfast. The injury rate for facilities with 50 beds or fewer is 35% lower than for facilities with 125 beds or more. The injury rate for workers in nursing homes that are not part of a chain is 13.5%, lower than for facilities that are part of a chain (controlling for all other predictor variables in the model). The injury rate for nursing home workers was predicted to increase by 3% with each 10% increase in the number of residents using a wheelchair.

While it might seem reasonable to assume that injury rates would decrease as the number of available types of safety equipment increases, this was not suggested in the analysis. None of the safety equipment is individually associated with differences in injury rates at the nursing homes after accounting for a set of facility characteristics, although such an analysis may be artificial since most facilities have multiple safety equipment options.

[5]See Garg & Owen (1992) for a more detailed description of back injury prevention approaches.

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Future analyses may consider alternative methods for examining the joint impact of safety equipment on injury rates. The relationship between worker injury rates is more complicated than can be resolved by a simple cross-sectional look at safety equipment availability. For example, a facility with an excess of worker injuries might respond by investing in additional safety equipment. In this case, the availability of safety equipment may signal a facility with higher than average rates of injury. In addition, facilities that have residents with greater care needs may require more resident transfers, and thus workers at such facilities may be at higher risk.

Considerations for Nursing Homes

Larger nursing homes reported relatively higher worker injury rates. One conjecture is that this may reflect a decrease in staff-to-resident ratios in larger facilities. A review of direct care practice might lead to insights and possible explanations for the differences in injury rates between larger and smaller facilities. An alternative explanation is that larger facilities may have a more established process for the completion of OSHA logs for worker injuries than smaller facilities. Thus, larger facilities may be more accurate in reporting injuries than smaller facilities. Nursing homes that are part of multiple-facility chains experience higher worker injury rates than independent nursing homes. Are there organizational characteristics that might lead to different injury risks for workers employed by chain vs. independent facilities or are there differential reporting of injuries in these different types of facilities?

Nursing homes with a higher proportion of residents in wheelchairs experience higher worker injury rates. Does this reflect more exposure to musculoskeletal stress and strain associated with resident transfer? Should staffing ratios and availability of resident transfer equipment be indexed to resident transfer needs as indicated by wheelchair proportion or another index?

While this study has not been able to definitively explain the linkage between worker injuries and nursing home safety equipment, this research documents the range of injury rates across Ohio nursing homes along with the range of safety equipment currently in use. Future studies can now examine the nursing homes with the highest and lowest rates of worker injury in an effort to better understand how to reduce these rates. Given the high cost of nursing home care in Ohio, efforts that can improve quality and decrease costs are critical for state policy makers and the industry overall. In addition, efforts that reduce injuries may also assist Ohio's nursing homes in retaining staff so critically needed to meet the care needs of older Ohioans.

References

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