

# SAFETY & HEALTH IN Nursing Homes

## A Pennsylvania Perspective

By **LAURA H. RHODES** and **DAVID P. RHODES**

**Nursing homes are one of the country's fastest growing industries. Nursing home workers have incurred injuries and illnesses at an alarming rate. What are the causes and how can they be addressed?**

**A**s the proverb implies, living longer can be a mixed blessing, especially for those so chronically ill or frail that they require around-the-clock assistance with basic functions. Absent alternative care, many of these dependent elderly reside in nursing and personal care facilities, where their physically demanding needs are both a challenge and a hazard to nursing aides and other caregivers. In recent years, such circumstances have led nursing home employees in Pennsylvania, and throughout the U.S., to sustain frequent and severe workplace injuries (BLS "Monthly Labor").

Nursing homes are one of the country's fastest growing industries. Not only are more Americans residing in such facilities, but the workforce is expanding rapidly as well. "Nationwide, there are 1.6 million nursing home workers in more than 21,000 facilities. That's more than the auto and steel industries combined" (Kane 10-12). In Pennsylvania, more than 790 skilled-care nursing homes employ more than 116,000 people (PA-BLS 1998). According to 1998 U.S. Census estimates, 15.87 percent of Pennsylvania's population is age 65 or older (PANPHA 2).

Nursing home workers have incurred injuries and illnesses at an alarming rate. According to 1998 data from the U.S. Bureau of Labor Statistics (BLS), nursing homes (SIC 8050-Nursing and Personal Care facilities), have a higher frequency and severity rate than the average for private industry (Table 1).

Although a clear picture of the exact number of nursing home employee injuries and illnesses that has occurred in Pennsylvania is not available, during 1999, a total of 82,676 lost-time work injuries and illnesses were reported to the Pennsylvania Bureau of Workers' Compensation. The health services community, which includes nursing homes, accounted for 8,247 of these injuries and illnesses—nearly 10 percent of the total. The leading type of injury/illness among this group was strains or sprains, which accounted for 5,350 or 65 percent of the lost-time injuries and illnesses (BLS "Workplace Injuries").

This article reviews the findings and recommendations developed as a result of safety and health surveys conducted at nursing homes located within the Commonwealth of Pennsylvania by the PA/OSHA Consultation Program. Difficulties nursing homes have encountered in developing and implementing pro-

grams to reduce resident handling injuries, as well as successful approaches used to overcome these challenges, are discussed as well.

### **PA/OSHA PROGRAM BACKGROUND**

Since 1983, Indiana University of Pennsylvania (IUP) has been the officially designated agency in the Commonwealth of Pennsylvania for providing occupational and health consultative services made available through federal regulations (29 CFR 1908). The program is designed to help private-sector employers understand and voluntarily comply with federal safety and health regulations.

The PA/OSHA Consultation Program has provided services to nursing homes since its inception. In 1996, OSHA announced a seven-state initiative (including Pennsylvania) to protect nursing home workers. Through this initiative, the PA/OSHA program conducted onsite consultation visits to nursing homes, provided off-site technical assistance and participated in conferences sponsored by OSHA.

In August 1997, the program held a safety and health seminar at IUP that was attended by some 200 nursing home personnel. During the seminar, PA/OSHA

# According to BLS statistics, nursing home workers suffer most injuries when handling residents. Some 58 percent of their injuries are strains and sprains.

**TABLE 1**

Incidence Rate(s)	Nursing Home	Private Industry
Incidence rate of occupational injury and illnesses per 100 full-time workers	14.2	6.7
Incidence rate of lost workdays per 100 full-time workers	8.1	3.1

**TABLE 2**  
**10 Most-Identified OSHA Violations In Pennsylvania Nursing Homes - 1998**

Rank	Standard	Description
1	1910.1030	Bloodborne Pathogen
2	1910.1200	Hazard Communication
3	1910.0303	Electrical Systems Design, General Requirements
4	1910.0132	Personal Protective Equipment
5	1910.0305	Electrical, Wiring Methods, Components & Equip.
6	1910.0147	The Control of Hazardous Energy, Lockout/Tagout
7	1910.0304	Electrical Wiring Design & Protection
8	1910.0151	Medical Services & First Aid
9	1910.0215	Abrasive Wheel Machinery
10	1910.1020	Access to Employee Exposure & Medical Records

consultants and an OSHA enforcement representative outlined common-sense approaches to identifying workplace hazards and preventive strategies. The benefits of a comprehensive safety and health program were also shared.

### INSPECTIONS REVEAL HAZARDS

From January 1996 through September 2000, the PA/OSHA program performed 285 safety and health surveys of nursing homes located within the Commonwealth. Surveys performed during 1998 and 1999 were reviewed in order to determine which OSHA standards were violated most frequently (Tables 2 and 3).

Table 4 lists the 10 violations cited most often in nursing homes from October 1998 through September 1999. Hazards identified are consistent with those identified by OSHA compliance officers during inspections of nursing homes. These findings also illustrate that uncontrolled hazards exist in Pennsylvania nursing homes that, left uncontrolled, could cause employee injuries and illnesses—and lead to significant citations and fines.

According to the surveys, electrical violations are prevalent and account for more than 30 percent of the top 10 violations identified during consultation surveys and enforcement inspections. In some

cases, these violations present a hazard to both residents and employees. Hazards identified include reverse wiring of electrical conductors and improperly wired ground fault circuit interrupters.

OSHA offers various tools to help employers identify and properly control electrical and other hazards. For example, "Framework for a Comprehensive Safety and Health Program in Nursing Homes: Anatomy of a Nursing Home with Potential Hazards" depicts a typical nursing home floor plan and highlights hazards characteristic of those particular areas.

The agency has also developed an electronic compliance assistance tool (eCAT) that helps employers identify hazards and controls specific to the nursing home setting. The eCAT reviews common facilities—including dietary, laundry, maintenance, whirlpool/shower and utility areas—and highlights potential hazards in these areas; it also provides information on development of a comprehensive safety and health program.

Based on findings of the consultation surveys, the framework document and eCAT should be reviewed with new employees during orientation training. These materials will create an increased awareness of hazards and help communicate management's commitment to injury prevention from the onset of employment.

In addition, nursing home personnel should utilize the eCAT to identify potential hazards in their workplace on a routine basis. In 1997, Johnson reported that 93 percent of healthcare businesses, the largest percent of all business types surveyed, have safety committees (15+). Many states, including Pennsylvania, offer reductions in workers' compensation (WC) premiums in exchange for implementation of effective safety committees. To optimize their effectiveness, committee members who perform inspections should incorporate the hazards detailed in the eCAT into their hazard checklists (Rhodes).

### BEYOND THE CITATIONS

Although the most-cited hazard violations can contribute to injuries and illnesses, they are not the leading cause of injuries in nursing homes. According to 1994 BLS statistics, nursing home workers suffer most injuries (51.2 percent) when handling residents. Some 58 percent of their injuries are strains and sprains. While back injuries account for 27 percent of all injuries in the private sector, they account for 42 percent of all injuries in nursing homes. Of the 10 occupations with the largest number of injuries and illnesses, nursing aides and orderlies are exceeded only by truck drivers and non-construction laborers. Back injuries average more than \$8,400 each in WC expenses (BLS).

As noted, many nursing home residents depend on staff members to provide for their activities of daily living (ADL), such as dressing, bathing and feeding. Each of these activities involves multiple interactions with handling or transferring residents and could result in employee injury. In most cases, nurses aides are primarily responsible for assisting residents with ADL. These tasks can expose the aides to ergonomic risk factors including force, awkward posture and repetition. When a mismatch exists between a job's physical requirements and the worker's physical capacity, work-related musculoskeletal (WMSDs) disorders can result.

On Nov. 14, 2000, OSHA issued the Ergonomics Program Standard, which was designed to reduce musculoskeletal disorders (MSDs) developed by workers whose jobs involve repetitive motions, force, awkward postures, contact stress and vibration. Although Congress has since revoked the rulemaking, the principles of ergonomics remain an important element in ensur-

# Nursing home administrators must determine the underlying cause(s) of lifting-related injuries and strive to identify reasons for non-compliance with the no-lift policy.

ing employee safety—particularly in a nursing home environment.

OSHA offers useful guidelines and reference material (many available online) to help nursing home employers minimize employee exposure to ergonomic risk factors. The agency also offers information on how to recognize, evaluate and control ergonomic risk factors, including a sample program on resident handling injuries. The non-facility-specific program reviews key elements of an effective ergonomics program—including management leadership and employee participation, workplace analysis, accident and record analysis, hazard prevention and control, resident handling (assistive) devices, workpractice/administrative controls, medical management, and employee safety and health training.

Furthermore, when the agency released the Ergonomics Standard, it included several nursing home success stories (*Federal Register* 68711). In one case, a nursing care facility began to strengthen its ergonomics program in order to address risks associated with lifting patients. The site installed mechanical lifting equipment and began an intensive training program that covered both equipment use and proper lifting mechanics. The facility also implemented a progressive disciplinary program to ensure that new policies were followed. As a result, the facility reduced its rate of related occupational injuries by more than 75 percent from 1995 to 1997.

OSHA offers other solutions for avoiding costly back injuries when transferring residents as well.

- Provide a lift assist with scales for totally dependent patients.
- Encourage patients with some strength to sit up in the transfer process.
- Provide slide boards for moves in and out of a chair.
- Use “partial lift assist” for patients with upper body strength.
- Encourage the use of electric beds to raise residents into an upright position.
- Provide walking belts for residents who are able to stand.

To reposition patients confined to bed:

- Install blocks or bars for residents with upper arm strength to hold and pull themselves up.
- Use low-friction repositioning sheets for residents who are immobile.

Many nursing homes in Pennsylvania have instituted “no-lift” or similar policies. Simply stated, employees are not

**TABLE 3**  
**10 Most-Identified OSHA Violations**  
**In Pennsylvania Nursing Homes - 1999**

Rank	Standard	Description
1	1910.0147	The Control of Hazardous Energy, Lockout/Tagout
2	1910.0305	Electrical, Wiring Methods, Components & Equip.
3	1910.0215	Abrasive Wheel Machinery
4	1910.0132	Personal Protective Equipment
5	1910.0303	Electrical Systems Design, General Requirements
6	1910.0304	Electrical Wiring Design & Protection
7	1910.1200	Hazard Communication
8	1910.0038	Emergency Action & Fire Prevention Plans
9	1910.212	General Requirements for All Machines
10	1910.0151	Medical Services & First Aid

**TABLE 4**  
**10 Most-Cited OSHA Violations**  
**In Nursing Homes - Oct. 1998 to Sept. 1999**

Rank	Standard	Description
1	1910.1030	Bloodborne Pathogens
2	1910.305	Electrical Wiring Methods, Comp nets & Equip.
3	1910.147	The Control of Hazardous Energy, Lockout/Tagout
4	1910.303	Electrical Systems Design, General Requirements
5	1910.1200	Hazard Communication
6	1900.304	Electrical, Wiring Design & Protection
7	1910.151	Medical Services & First Aid
8	1904.002	Log & Summary of Occupational Injuries/Illnesses
9	1910.037	Means of Egress, General
10	1910.212	Machines, General Requirements

permitted to lift patients from tubs, toilets or wheel chairs, or for dressing. Mechanical assistance devices are readily available and, although some are costly, many are reasonably priced and are a wise investment considering the costs associated with ergonomic injury.

During a June 2000 meeting to discuss OSHA’s ergonomic regulations, many nursing home administrators described the success of their own ergonomic policies. These administrators overwhelmingly agreed that upper management support is essential for the elimination of ergonomic hazards. Capital resources are crucial as are employee involvement and an organizational culture that supports efforts to eliminate manual lifting tasks.

Most nursing homes surveyed by PA/OSHA have some type of mechanical lift. In most cases, the investment has paid off in terms of reduced WC claims and associated costs. However, challenges will arise when implementing a no-lift policy.

For example, residents and their fami-

lies may resist mandatory use of mechanical and other lifting aids. One nursing home creatively changed the opinion of a questioning spouse by demonstrating the device and showing that it maintained the dignity of his loved one. Resolution of any such concerns is imperative to the success of a no-lift policy in Pennsylvania, as the state’s residents rights legislation provides for proper care and maintenance of the resident’s dignity (Commonwealth “Residents’ Rights”). In addition, some employees resist mandatory use of lifts (Rhodes). Their objections may be based on ineffective training; poor location of the devices; and improper maintenance.

To combat employee resistance, nursing home administrators must determine the underlying cause(s) of lifting-related injuries and strive to identify reasons for non-compliance with the no-lift policy. To facilitate these efforts, an investigation report should be completed for any transfer that results in an employee injury or near-hit to determine the underlying or root cause.

## Identifying Risk Factors for Occupational Injuries & Illnesses In Nursing Homes

Underlying an incident or a trend of occupational injuries or illnesses are risk factors that contribute to their occurrence or development. A combination of risk factors rather than any single risk factor may be responsible. Prevention of the work-related injury or illness may be accomplished by controlling employee exposure to the workplace risk factors that can cause them. Through observation, environmental monitoring and discussions with the workers, all the risk factors that may be present in the job should be identified. Then controls that will eliminate or reduce the identified risk factors can be selected.

The first step in identifying risk factors is to examine injury and illness records to determine any trends with regard to occupation, nature of disabling condition, part of the body affected, event or exposure causing the injury or illness, and the source directly producing the disability.

*Example: Suppose that an analysis of the OSHA 200 and associated workers' compensation records for a nursing home show a trend of nursing assistants with low back pain associated with lifting or transferring residents. Low back pain is a musculoskeletal disorder.*

*Moving residents is not the same as lifting in most industrial jobs. Variables such as distance, force required, frequency and coupling (good place to grasp) do not stay constant. In addition, the resident may actively resist being moved.*

### POTENTIAL RISK FACTORS FOR RESIDENT HANDLING BACK INJURIES

#### Weight

Moving a person who has limited ability to assist has caused low back pain and disability among healthcare workers. There are many reasons why the injury occurs, including overexertion, fitness, skill, work conditions, resident condition, and moves per shift. An adult resident who has a limited ability to assist with a transfer or lift, weighs enough to cause a back injury to the worker.

#### Distance

Weight is important, but increasing the distance between the lower back and the hands has the effect of multiplying the weight moved by the back. Therefore, factors that separate the worker from the resident contribute to back injuries. Some factors would include but are not limited to the following:

- IV bag stands;
- bed rails;
- wheelchairs without moveable arms;
- geri-chairs;
- furniture near the bed.

#### Activity

Moving a resident can bring together the elements of weight, distance and awkward posture that result in a back injury. The most common activities associated with back injury include but are not limited to the following:

- moving a totally dependent resident;
- moving a combative resident;
- transfer from the floor;
- lateral transfer—moving a resident from one horizontal position to another;
- bed-to-chair or chair-to-bed transfer (i.e., to/from Clinitron bed);
- chair-to-chair transfer (i.e., to/from geri-chair, toilet);
- bathing;
- repositioning in bed or chair;

- weighing a resident;
- positioning a bed pan or changing incontinence pads;
- attempting to stop a resident's fall.

Nursing assistants who routinely move residents are well-qualified to identify which tasks they find most stressful to their backs. The easiest way to learn which tasks are the most difficult is to ask the workers; this can be done individually or at the debriefing session between shifts.

Other elements that increase the risk of injury when moving a resident include but are not limited to the following:

- floor conditions [such as cluttered, uneven, wet/slippery (water, urine, etc.)];
- not enough room to maneuver;
- carrying for more than three feet a resident who cannot bear much weight;
- poor lighting;
- poorly maintained equipment;
- poor grip on the resident due to special medical conditions;
- fatigue from handling residents more than a total of 20 times per shift;
- pushing and pulling while repositioning or moving wheelchairs or carts;
- pushing or pulling a gel mattress;
- grasping a lift sheet or sling without handles;
- grasping a gait belt.

In addition to the risk factors that relate directly to the lifting activity, awkward postures, separately or in combination with forward exertions may cause or contribute to an injury/illness of the back. To be considered a risk factor, an awkward posture needs to last more than one hour continuously, or a total of four hours in the workshift and occur during three or more workshifts per week. Postures determine which muscles are used in an activity and how forces are translated from the muscles to the object being handled.

- More muscular force is required when awkward postures are used because muscles cannot perform efficiently.
- Fixed awkward postures (i.e., holding the arm out straight for several minutes) contribute to muscle and tendon fatigue, and joint soreness.
- Forces on the spine increase when lifting, lowering or handling objects with the back bent or twisted. This occurs because the muscles must handle the body weight in addition to the load in the hands.

While awkward postures can create risk factors, it is important to allow flexible joints like the back to move. A good rule of thumb for flexible joints is to use them, or lose them, but don't abuse them. Therefore, the combination of the risk factors should be considered.

Awkward back postures include bending backward (hyperextension >20), mild forward bending (20 to 45), severe forward bending (>45 back flexion), bending to either side (lateral bending) and twisting of the back. Activities that can put the back in an awkward posture include but are not limited to the following:

- lifting/lowering;
- stooping over to change sheets;
- manually adjusting the position of the bed;
- bending to bathe a resident.

*Source: "Framework for a Comprehensive Safety & Health Program in Nursing Homes." OSHA.*

In several nursing homes visited by one of the authors, employees were deemed to be engaged in unsafe behaviors—they were not following the no-lift policy. As a result, they were required to attend training designed to reinforce the importance of the policy. According to the facility's management, the training has helped eliminate the unsafe behavior and, thus, has reduced the incidence of

WMSDs. It should be noted, however, that this is a reactive approach, focusing on negative feedback to employees, and may not have long-term impact.

### PREVENTION MEASURES Behavior-Based Safety

One safety management tool that has proven to be effective in the prevention of unsafe acts is the implementation of a

behavior-based safety program (Jegerlehner 389). Implemented correctly, such a program is designed to create an injury-free environment in which people support each other. The first step is to set behavioral expectations. Everyone—supervisors, managers and employees—must know which behaviors are needed to remain safe. Next, people need to look for those behaviors in the workplace and



reinforce them—through a simple word of encouragement or a pat on the back (OSHA “Safety and Health Program”).

Many nursing homes have reached an accident plateau created by their inability to reduce WMSDs. Many continue to struggle to reduce lost-workday injury and illness rates, and injury and illness incidence rates. These rates are adversely impacted by WMSDs, which may be caused in part by an ineffective no-lift policy. In the authors’ opinion, these nursing homes should consider a behavioral safety initiative that targets unsafe behaviors—specifically, failure to comply with the no-lift policy. Many companies have cut their accident rates as a direct consequence of implementing the techniques associated with behavioral safety (Cooper).

A BBS program requires “buy-in” by all participants. Initially, management should inform nurses aides and other personnel that it intends to implement the program and why (e.g., to target unsafe behaviors during the resident transfer process). During these meetings, management should stress that the goal is to eliminate unsafe behaviors—with an emphasis on providing feedback on positive behaviors observed. Next, the focus group should identify tasks to be observed and behaviors expected during those tasks. All involved—both managers and employees—must be trained to conduct objective observations (with positive feedback outweighing the negative feedback).

#### **Employee Perception Survey**

In addition, employers should periodically assess the site’s safety climate and culture to identify strengths and disconnects. For example, an employee who resists a safety policy is disconnected from the organization and, thus, is not an active participant or contributor to management’s goal to reduce WMSDs.

Here, an employee perception survey can help. A properly designed and skillfully conducted survey can reveal a wealth of information that can be used to improve the workplace. Furthermore, simply conducting a survey can send a positive message to employees (Faure).

OSHA’s Form 33, “Safety and Health Program Assessment Worksheet,” is a valuable resource when developing a perception survey. Elements and sub-elements of this tool come from the agency’s safety and health program guidelines; OSHA’s consultation projects use it to evaluate a facility’s safety and health program—especially key elements such as management participation and leadership, workplace analysis, hazard prevention and control, and safety and health training.

The perception survey can be given to a select group of the workforce, such as a joint labor/management safety committee that represents all departments or (prefer-

ably) to all employees. Results can be used to identify strengths and weaknesses of the safety and health program and help increase an organization’s overall success.

#### **Risk Management Program**

A comprehensive risk management program is another essential component. Through such a program, a facility plans, organizes and controls the resources and activities it needs to protect itself from the adverse effects of accidental loss (Head and Horn 69). According to the Insurance Institute of America, an effective risk management program includes the following steps.

- Identify and analyze exposures to accidental and business losses that might interfere with an organization’s basic objectives.
- Examine feasible alternative risk management techniques for dealing with those exposures.
- Select the best risk management techniques available.
- Implement the selected techniques.
- Monitor results to ensure that the program remains effective (Head and Horn 5).

#### **CONCLUSION**

Nursing homes have inherent hazards, many of which are controllable. Many of these facilities have reached an accident plateau thanks in large part to their inability to control ergonomic risk factors. By using safety and health best practices—including a BBS initiative, employee perception survey and comprehensive risk management program—nursing homes can confront and reduce injury/illness and incidence rates. These best practices will simultaneously improve working conditions for employees and enhance patient safety. ■

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*Laura H. Rhodes, Ed.D., CSP, is an assistant professor in the Safety Sciences Dept. at Indiana University of Pennsylvania (IUP). She is a member of ASSE’s Technical Publications Advisory Committee. She holds a B.S. in Safety Sciences, an M.S. in Industrial and Labor Relations from IUP and an Ed.D. from the University of Pittsburgh. Rhodes is a professional member of ASSE’s Western Pennsylvania Chapter.*

*David P. Rhodes, M.A., CPCU, CSP, PHR, is a full-time instructor and safety consultant with the Pennsylvania OSHA Consultation Program administered by the Safety Sciences Dept. at IUP. He holds a B.S. in Safety Sciences and an M.S. in Industrial and Labor Relations from IUP. Rhodes is a professional member of ASSE’s Western Pennsylvania Chapter.*

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