



**Division of Health Promotion and Chronic Disease Prevention  
Bureau of Health Care Access  
Center for Health Workforce Planning**

**Best Practices in Safe Patient Handling:  
A Compilation of Resources to Minimize Health Worker Injuries  
December 1, 2004**

The Impact of Work-Related Injury on the Health Workforce

Work-related musculoskeletal disorders are a major occupational health problem impacting workers who provide direct patient care. Compared to other occupations, nurses and nursing assistive personnel are among the highest at risk for back, neck, shoulder, wrist and knee injuries. In a study conducted by the U.S. Department of Labor in 2002, nursing aides, orderlies and attendants ranked second and registered nurses sixth in a list of at-risk occupations for strains and sprains that included truck drivers, laborers and construction workers.

In *Keeping Patients Safe* (2003), the Institute of Medicine reported “the loss of strength and agility that often accompanies aging affects the ease with which nurses can perform patient care activities that require them to turn, lift or provide weight-bearing support to patients.” Research findings that illustrate the impact of musculoskeletal disorders on the nursing workforce identify that

- 12% of nurses were “leaving for good” because of back pain as a contributory factor (Stubbs, Buckle, Hudson, Rivers, Baty, 1986).
- 20% transferred to a different unit, position or employment because of low back pain, and 12% considered leaving the profession (Owen, 1989).
- 38% suffered occupational-related back pain severe enough to leave work (Owen, 2000).
- 6%, 8%, and 11% of RNs changed jobs for neck, shoulder and back problems, respectively (Trinkoff, Liscomb, Geiger-Brown, Storr, Brady, 2003).

In Iowa, where the majority of the health workers are over age 40 and provide direct patient care, similar findings are supported in surveys and focus groups conducted by the Center for Health Workforce Planning. A 2003 survey of Iowa RNs and LPNs 51-60 years of age demonstrated that nurses nearing retirement age would consider extending their careers in direct patient care if accommodations to their work environment were made.

This paper provides a synopsis of current research and best practices in the area of patient care ergonomics. It identifies resources for employers, care providers and policy makers who seek to

minimize injuries among health workers who provide direct patient care in health facilities and homes.

### Patient Care Ergonomics: Best Practices and New Initiatives

*Handle with Care* is a national campaign established in September 2003 by the American Nurses Association to develop and implement a plan to promote safe patient handling and prevention of musculoskeletal disorders among nurses in the United States. The campaign seeks to educate, advocate and facilitate change from traditional practices of manual patient handling to new technology-oriented methods. This will be accomplished through partnerships and coalitions, education and training, increasing use of assistive equipment and patient-handling devices, reshaping nursing education to incorporate safe patient handling, and pursuing federal and state ergonomics policy by highlighting technology-oriented safe-patient handling benefits for patients and health workers. The overarching goal of the *Handle with Care* campaign is to motivate the health care industry to take actions that reduce the incidence of musculoskeletal injuries among nurses while improving the quality of nursing care in the context of patient handling.

A principal partner for the campaign is the Tampa Veterans Health Administration Patient Safety Center of Inquiry ([www.patientsafetycenter.com](http://www.patientsafetycenter.com)). Under the leadership of Audrey Nelson, PhD, RN, FAAN, this research laboratory is the nation's leading center that studies safe patient handling. The Center has developed several resources that can be used to support the implementation of a safe patient handling program in health care institutions, including an ergonomic hazard assessment tool for health care settings, safe patient handling algorithms, an evaluation of lifting equipment and devices, and an example of a No Lift policy. These items and others are contained in a *Patient Care Ergonomics Resource Guide* that is available online at no cost (Patient Safety Center, 2001). Additionally, the Patient Safety Center, University of South Florida and American Nurses Association, co-sponsor an annual Safe Patient Handling and Movement Conference that features presentations from international experts on health care ergonomic hazards, health care organizations with successful safe patient handling programs, specialists on the economics of safe patient handling, leaders in health policy, and evaluators of safe patient handling equipment and devices.

In 2003, the U.S. Department of Labor, Occupational Safety and Health Administration, released ergonomics guidelines for nursing homes (U.S. Department of Labor, OSHA, 2002) to reduce the number and severity of work-related musculoskeletal disorders. These advisory recommendations include the following:

- Manual lifting of residents should be minimized in all cases and eliminated where feasible.
- Employers should implement an effective ergonomics process that provides management support, involves employees, identifies problems, implements solutions, addresses reports of injuries, provides training and evaluates ergonomics efforts.

## Reduction in Worker Injuries

A growing number of health care facilities have incorporated safe patient handling programs with technology solutions and have reported positive results (Evanoff, Wolf, Aton, Canos, Collins, 2003; Haiduven, 2003; Hefti, Farnham, Docken, Bentaas, Bossman, Schaefer, 2003; Hignett, 2001; Holliday, Fernie, Plowman, 1994, Mutch, 2004; Owen, Keene, Olsen, 2002; Yassi, Cooper, Tate, Gerlach, Muir, Trottier, 2001). The research shows that a work environment that values an ergonomic approach and applies a formal program can effectively minimize injury. Additional benefits have been reported, including decreased fatigue, increased job satisfaction, and retention in careers that provide direct patient care.

## Cost-Savings for Employers

Cost-benefit analyses have shown that assistive patient handling technology successfully reduces workers compensation and medical treatment costs for musculoskeletal disorders (Collins and Bell, 2003; Garg, 2003; Nelson, Owen, Lloyd, Fragala, Matz, Amato, 2003). Savings are viewed as a function of eliminating indirect costs such as time for investigation, lost work days, loss of productivity, modified duty time, education and training of new hires to replace injured employees, liability costs, overtime pay to those covering shifts, and other operational costs. Case examples revealed that employers experience significant cost-savings after implementing a safe patient handling program (Collins, Wolf, Hsiao, 2003; Fragala 1995; Nelson, Fragala, Matz, in press).

## Evidence-Based Solutions for High Risk Patient Handling Tasks

There is a growing body of evidence to support new interventions that are effective or show promise in reducing musculoskeletal pain and injuries in care providers. In 2004, Nelson and Baptiste organized potential solutions (controls) into three solution categories: engineering-based, administrative and behavioral. For each intervention, the authors provide the level of evidence to support its use.

*Engineering controls* are changes made to the work environment, layout, tools or equipment used on the job, or changing the way a job is done to avoid hazards (Virginia Polytechnic Institute and State University, 2004). These controls are the preferred solution because they create permanent changes that eliminate risk at the source. Examples include the use of patient handling technology, such as lateral transfer aids or hospital bed improvements.

*Administrative controls* are management-dictated work practices and policies that reduce or prevent exposure to ergonomic risk factors. Administrative strategies include (a) modification of job rules and procedures such as scheduling more rest breaks, (b) job rotation, or modified duties or length of shift, and (c) training workers to recognize ergonomic risk factors so they can adopt stress reduction techniques while performing their tasks (Centers for Disease Control and Prevention, 1997). Examples include No-Lift policies, patient care assessment protocols and use of clinical tools such as algorithms.

*Behavioral or work practice controls* are those that involve training of staff in body mechanics, or other joint protection principles (Shepherd, 2001). Such techniques include manual patient lifting, training in proper use of lifting equipment/devices and the use of unit-based peer leaders.

To date, the interventions with the strongest level of evidence are being implemented in a growing number of facilities. These evidence-based solutions include the following:

- Use of patient handling equipment/devices
- Patient care ergonomic assessment protocols
- No lift policies
- Patient lift teams

Promising new interventions that are still being tested include the use of unit-based peer leaders and clinical tools such as algorithms and patient assessment protocols. The authors strongly recommend the need to change curricula in schools of nursing to address evidence-based strategies and expose students to new technologies that reduce risk in the workplace.

#### Iowa Department of Public Health Initiatives

In fall 2004, the Center for Health Workforce Planning provided a competitive funding opportunity to minimize injuries among health workers who provide direct patient care. The grants support the purchase of equipment and training in Iowa's long-term care facilities and home care agencies. This funding opportunity was based on findings of surveys and focus groups conducted by the Center for Health Workforce Planning that confirm that injuries related to patient handling are a concern to both Iowa health workers and employers. Iowa is experiencing a simultaneous aging of long-term care patients and residents, and the health workers who turn, lift and transport them. The Iowa Department of Public Health supports strategies that increase the ability of older workers to remain in the workforce while decreasing the incidence of injury to the recipients of care.

#### Conclusion

Strategies to prevent or minimize work-related musculoskeletal injuries among health workers who provide direct care are often based on tradition and personal experience. Today there is evidence that the most common patient handling approaches in the United States need to be replaced by new evidence-based practices, including patient handling equipment and devices, patient care ergonomic assessment protocols, No Lift policies, training on proper use of patient handling equipment and patient lift teams. Given the complexity of this high-risk, high-volume, high-cost problem, multifaceted programs are more likely to be effective than any single intervention. The nation's primary researchers on this topic are calling for action that produces systematic change in health care facilities across the continuum of care and new curricula for schools that prepare health workers to provide direct patient care.

The Center for Health Workforce Planning encourages all Iowa health facilities to review the findings of the national experts, assess the risk of work-related injury among their staff who provide direct patient care, implement selected engineering, administrative and work practice changes, and share best practices throughout the state.

*The Center for Health Workforce Planning was created in the Iowa Department of Public Health, Bureau of Health Care Access, to assess and forecast health workforce supply and demand, address barriers to recruitment and retention, support strategies developed at the local level that prevent shortages, and engage in activities that assure a competent, diverse health workforce in Iowa. Funding for the center, fueled through the efforts of U.S. Senator Tom Harkin, is administered through the Bureau of Health Professions, Health Resources and Services Administration, U.S. Department of Health and Human Services.*

[http://www.idph.state.ia.us/hpcdp/workforce\\_planning.asp](http://www.idph.state.ia.us/hpcdp/workforce_planning.asp)

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