



Taking the Burden Off Their Backs

Technology and Sensible Systems Greatly Reduce Risk of Injuries to Caregivers While Improving Patient Safety

Acknowledgments

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Introduction

Nurses are responsible for maneuvering and handling patients in all sorts of ways. For example, transferring patients to stretchers, turning them, lifting their limbs for wound care, positioning them to use toilets, showering them, and more.

The sheer weight of the human body renders these tasks challenging. The body's irregular shape and the awkward nature of building quarters enhance the difficulty. The result is that health care workers suffer more injuries requiring time away from work than members of any other profession.¹ As the first report in this series, "Nursing: A Profession in Peril," showed, these injuries can end careers and leave their victims in permanent pain.²

Not surprisingly, nurses have long suffered injuries from lifting and repositioning patients. Historically, these outcomes were blamed on the nurses, themselves. For instance, a textbook written in 1898 said: "Occasionally the complaint is made that a nurse has injured her back or strained herself in some way in moving a patient. This will generally be because she has failed to do the lifting properly"³

Gradually, a consensus has emerged among experts that proper mechanics, alone, cannot reliably prevent injuries. Guidelines published by the federal government's National Institute for Occupational Safety and Health (NIOSH) in 1994 said that no worker should lift more than 51 pounds, and said that this was too much for health care workers because the loads they lift are apt to be unstable or pose other challenges.⁴

A subsequent paper by a co-author of those NIOSH standards concluded that the limit in health care settings should be 35 pounds, and less for work conducted in restricted spaces.⁵

Now, there is question about whether any substantial amount of lifting is safe over the long haul, especially when involving particularly heavy patients. "The magnitude of these forces that are on your spine are so large that the best 'body mechanics' in the world are not going to keep you from getting a back problem," William Marras, director of the Spine Research Institute at Ohio State University, told National Public Radio. "There is no safe way to do it

¹ See, e.g., *Numbers of Nonfatal Occupational Injuries and Illnesses by Case Type and Ownership, Selected Industries*, 2013, U.S. DEPARTMENT OF LABOR, BUREAU OF LABORS STATISTICS (Dec. 4, 2014), <http://1.usa.gov/1FLSfPv>.

² TAYLOR LINCOLN, PUBLIC CITIZEN, THE HEALTH CARE INDUSTRY'S CASTOFFS (June 9, 2015), <http://bit.ly/1B8sfTh>.

³ I. HAMPTON NURSING: ITS PRINCIPLES AND PRACTICE (1898), as cited in SAFE PATIENT HANDLING AND MOBILITY INTERPROFESSIONAL NATIONAL STANDARD ACROSS THE CARE CONTINUUM, AMERICAN NURSING ASSOCIATION (2013), hereinafter ANA.

⁴ Thomas R. Waters, Vern Putz-Anderson and Arun Garg, APPLICATIONS MANUAL FOR THE REVISED NIOSH LIFTING EQUATION (1994), as cited in ANA, *supra*.

⁵ Thomas R. Waters, *When Is It Safe to Manually Lift a Patient? The Revised NIOSH Lifting Equation Provides Support for Recommended Weight Limits*, 107 AMERICAN JOURNAL OF NURSING 53 (August 2007). (Cited in ANA, *supra*.)

with body mechanics.”⁶ Similarly, the American Nurses Association has flatly opined: “Manual patient handling is unsafe and is directly responsible for musculoskeletal disorders suffered by nurses.”⁷

Yet, as the first report in this series showed, nurses who are not able to fulfill significant lifting expectations can be at risk of losing their jobs.⁸

Not surprisingly, technology exists to take the burden off of nurses’ backs. When implemented sensibly, safe patient handling programs reduce injuries to caregivers significantly. But, experts counsel, successful programs rely on numerous cultural factors, in addition to technology.

This report will review some of the technologies and policies recommended by experts to prevent injuries to caregivers.

Technological Aids for Safe Patient Handling

The following is a non-comprehensive list of the tools that properly equipped facilities might provide caregivers to reposition and move patients safely:

Ceiling-mounted lifts are mounted above a patient’s bed. Slings are placed under the patient and connected to the infrastructure above. A power source permits the caregiver to elevate, turn or otherwise reposition the patient without exertion. Lifts equipped with tracks in the ceiling facilitate moving patients throughout a room, such as to bathrooms. Different types of slings may be used for different purposes, such as moving a patient to a shower or transferring from a bed to a chair.⁹

Floor-based lifts operate much like ceiling lifts but, as their name suggests, are based on the floor. Different types of slings can be used to fulfill specialized purposes, such as elevating a surgical patient’s limb. For some products, a simple unfitted bed sheet can be used for many functions, such as turning patients.¹⁰ Some floor-based lifts can be moved from room to room.¹¹

⁶ Daniel Zwerdling, *Even ‘Proper’ Technique Exposes Nurses’ Spines To Dangerous Forces*, NATIONAL PUBLIC RADIO (Feb. 11, 2015), <http://n.pr/1SbwFg2>.

⁷ ANA, *supra*.

⁸ TAYLOR LINCOLN, PUBLIC CITIZEN, THE HEALTH CARE INDUSTRY’S CASTOFFS (June 9, 2015), <http://bit.ly/1B8sfTh>.

⁹ AUDREY L. NELSON, KATHLEEN MOTACKI, AND NANCY NIVISON MENZEL, THE ILLUSTRATED GUIDE TO SAFE PATIENT HANDLING AND MOVEMENT (Springer Publishing Co.: 2009).

¹⁰ E-mail to author from Elizabeth White, Founder and Clinical Strategist, ErgoNurse Inc. (June 12, 2015).

¹¹ AUDREY L. NELSON, KATHLEEN MOTACKI, AND NANCY NIVISON MENZEL, THE ILLUSTRATED GUIDE TO SAFE PATIENT HANDLING AND MOVEMENT (Springer Publishing Co.: 2009)

Powered sit-stand devices help patients stand up and can assist them in moving from their bed to a chair or commode. A sling is used to secure the patient to the device.¹²

Friction-reducing sheets are made of slippery fabrics or gel-filled plastics that allow patients to be easily slid over a surface. They can be used in lateral transfers, such as from a bed to a stretcher, and can more easily facilitate turning or repositioning a patient.¹³

Slide boards, made of wood or plastic and sometimes incorporating rollers, can be used to reduce friction when sliding patients between two surfaces. They also are helpful in bridging gaps between surfaces, and can be used in conjunction with other assistive devices, such as friction-reducing sheets.¹⁴



This photo shows the transfer of a patient from air-inflated lifting device (blue) to a bed via an inflated lateral transfer device (maroon and blue). The bottom of the lateral transfer device includes numerous tiny perforations that allow air to escape. The flow of air causes the inflated mattress nearly to float, greatly reducing the exertion needed to transfer the patient. *(Photo courtesy of HoverTech International)*

Air-assisted lateral transfer devices are essentially air mattress with small perforations on their bottom sides. As the mattress is inflated by a mechanical pump, tiny holes on the

¹² *Safe Patient Handling in Health Care: Patient Orientation*, OREGON COALITION FOR HEALTH CARE ERGONOMICS (undated), <http://bit.ly/1ToDc8Q>.

¹³ *Transfer Assist Devices for the Safer Handling of Patients*, WORKERS' COMPENSATION BOARD OF BRITISH COLUMBIA (undated), <http://bit.ly/1Fjff8A>.

¹⁴ *Id.*

bottom of the mattress emit air, causing it to nearly float. This permits a caregiver to move the patient by exerting effort equal to only about 10 to 15 percent of the patient's weight.¹⁵

Air-assisted lifting devices are designed to lift patients by incorporating several inflatable sections in their design. They are placed under a patient's body. As the sections are inflated, the patient is gradually lifted to a suitable height to be transferred to a rolling stretcher or other surface. These devices can be used by emergency caregivers arriving at a patient's house or to lift patients who have fallen in a caregiving facility.¹⁶

Successful Programs Require a Culture of Safety

Experts say that provision of equipment alone is not sufficient to ensure a safe environment for health care workers. Successful programs also require implementation of systems to ensure that equipment is regularly and properly used. A demonstrated commitment by management is central to the fulfillment of those systems. What follows is a summary of 10 recommendations, largely taken from the American Nurses Association and Massachusetts Hospital Ergonomics Task Force.

1. Management must demonstrate a commitment to safety starting with a written policy that expresses objectives and a dedication to meeting those objectives. "The policy should establish that manual movement of patients should be minimal, occurring only during medical emergencies," the Massachusetts Ergonomics Task Force said. Additionally, management should exhibit equal commitment to the safety of workers and patients and maintain "a system of accountability for all involved, including managers/supervisors and employees."¹⁷

2. A safe patient handling committee should be formed to "oversee all aspects of the development, implementation and evaluation of the SPH program, including review of injury data and the evaluation and selection of patient handling equipment and other appropriate controls."¹⁸

3. Baseline data associated with patient handling injuries prior to implementation of a safe patient handling program should be collected.¹⁹

¹⁵ Demonstration witnessed by author, Rayburn House Office Building, Washington, D.C. (May 12, 2015) and Isabelle Werkheiser, Director of Marketing, HoverTech International, interview with author (May 21, 2015).

¹⁶ Demonstration witnessed by author, Rayburn House Office Building, Washington, D.C. (May 12, 2015).

¹⁷ MOVING INTO THE FUTURE: PROMOTING SAFE PATIENT HANDLING FOR WORKER AND PATIENT SAFETY IN MASSACHUSETTS HOSPITALS, REPORT OF THE MASSACHUSETTS HOSPITAL ERGONOMICS TASK FORCE OCCUPATIONAL HEALTH SURVEILLANCE PROGRAM, MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH (December 2014), <http://1.usa.gov/1Fdfm4V>. [Hereinafter *Massachusetts*]

¹⁸ *Id.*

¹⁹ *Id.*

4. **Employee input should be solicited** “to encourage healthcare workers to report hazards, errors, incidents, and accidents.”²⁰ Employers should reassure workers that “they can raise concerns without fear of negative repercussions.”²¹

5. **Management should ensure that assistive equipment** is available in sufficient supplies, properly maintained and located in places that are accessible to workers.²²

The number one problem I hear is that the equipment isn’t available,” Diane Brown, a health and safety specialist for the American Federation of State, County, and Municipal Employees (AFSCME), told Public Citizen.²³ “And so the nurses do what they always do, which is move the patients manually.”

6. **Training should be conducted** at the outset of the program, annually and whenever new technical solutions are introduced.²⁴

7. **Sufficient staffing should be ensured** by using an “an evidence-based system ... to determine safe and appropriate caseloads.”²⁵

8. **An injury measurement system** should be implemented to quantify “the frequency, severity, and cost of health care worker injuries associated with lifting, transfers, repositioning, and mobility.” Data from that system should be analyzed, with findings applied to developing strategies to prevent future injures.²⁶

9. **Employees should be provided a right to refuse**, without fear of repercussions, to engage in any transfer, repositioning, or mobility assignment that puts the healthcare recipient or the healthcare worker at risk for injury.”²⁷

10. **Injured workers should be accommodated by matching** “the physical capability of an injured healthcare worker to the physical demands of a job.” Employers also should have return-to-work programs that ensure that recovering employees’ lifting “restrictions are honored, preventing harm and expediting recovery during the restricted work activity period.”²⁸

Safe Patient Handling Programs Work ...

When properly implemented, a comprehensive safe patient handling program can dramatically reduce injuries to caregivers. Consider the case of the New York State

²⁰ ANA, *supra*.

²¹ MASSACHUSETTS, *supra*.

²² ANA, *supra*.

²³ Interview between author and Diane Brown (June 12, 2015).

²⁴ ANA, *supra*.

²⁵ *Id.*

²⁶ *Id.*

²⁷ *Id.*

²⁸ *Id.*

Department of Health Veterans Home at Batavia, N.Y. In 2004, prior to implementation of the program, the facility had an average of 9 full-time employees out work per day for injuries sustained while lifting, moving or transferring patients. The facility subsequently implemented a comprehensive safe patient handling program. In 2010, the facility had an average of just 0.5 workers out of work for injuries related to patient handling, a 94 percent reduction.²⁹

... But Such Programs Are Not Common

Definitions of comprehensive safe patient handling programs vary, making it difficult to quantify the prevalence of them. But experts indicate that adoption of generally recognized safe practices is occurring at a crawling pace.

We asked three experts to estimate the rate of hospitals that have adopted comprehensive safe patient handling programs. Their estimates ranged from just 3 to 25 percent of hospitals.³⁰

Diane Brown, of AFSCME, conducted three patient handling workshops for nurses earlier this year. About one-third of nurses reported having little or no modern patient handling technology at their facilities, Brown told Public Citizen.³¹

Conclusion

In 1898, injured nurses were accused of causing their plight by failing to use proper body mechanics in lifting or repositioning patients. By 2015, experts have long since concluded that proper body mechanics cannot protect workers from the risk of getting injured when engaging in strenuous or awkward lifting procedures.

Yet, many caregivers are forced to rely on 1898 technology to carry out the health care work of the 21st century. These archaic methods stand in stark contrast to the cutting-edge technologies that permeate our modern health care system.

Some professions, such athletics pursuits and the performance arts, can require robust physical strength to succeed. Nursing should not be among these professions. Nurses deserve to be provided the tools necessary to carry out their careers safely and in good health.

²⁹ *Safe Patient Handling* video, posted by CSEALocal1000 (Aug. 27, 2012) (You tube), <http://bit.ly/1I9wwCO>.

³⁰ Experts consulted were Lynda Enos, Co-Chair, Oregon Coalition for Healthcare Ergonomics (May 20, 2014); James Collins, National Institute for Occupational Safety and Health (NIOSH) (May 21, 2014), Ed Hall, senior director of risk management controls and education for Stanford Risk Authority (June 5, 2014) and Elizabeth White, Founder and Clinical Strategist, ErgoNurse (June 1, 2015).

³¹ Interview between author and Diane Brown (June 12, 2015).