Lightening the Load: Ergonomic Solutions that Reduce Patient Lifting Injuries

Elise Condie, M.S., PT (Aust)
Jessica Ellison, M.S., CSP, CPE
Environmental and Occupational Risk Management, Inc
San Jose, California

Introduction

If healthcare organizations have been teaching and practicing good body mechanics and safe lifting techniques, as well as investing in expensive lifting apparatus for years, why aren’t worker injury rates going down? Sprains and strains continue to top the list of healthcare worker injuries.

Healthcare organizations are discovering that it requires more than a training class, reminder posters on the walls and a couple of portable lifts to measurably impact worker injury rates. With the average patient body weight and size on the increase, and recommended lifting weight limits on the decrease – now at 35 pounds – different solutions need to be applied in this industry to make a substantial impact.

This article will review the challenges healthcare organizations face in achieving significant and long-lasting reductions in injury rates, and will articulate the culture shift that needs to occur in order to implement a successful safe patient handling program. We will also present several case studies demonstrating how some hospitals are successfully making this culture shift and tackling the challenge of training staff on new equipment and procedures. Real world examples will be shown of different types of lifting, transferring, and repositioning equipment that does not require any manual maneuvering and places minimal physical demands on the staff.

Key Statistics Around Injuries and Patient Populations
In 2012, musculoskeletal diseases (MSDs) made up 42% of workers’ compensation cases of nursing staff in the United States. This equates to a rate of 55 cases per 10,000 full time workers. Nursing assistants were involved in 44,100 days-away-from-work cases with 55% due to overexertion (U.S. Bureau of Labor Statistics). Nursing assistants were one of seven occupations with a case frequency rate greater than 375 cases per 10,000 full time workers.

Back sprains and strains resulting from patient handling and movement comprise around 75% of all nursing staff injuries, and up to 85% of all reported injuries. Patient handling and movement injuries comprise up to 93% of all workers’ compensation costs (Garg, 1999). Many healthcare institutions provide ‘safe lifting’ or ‘manutention’ training to healthcare workers, but their effectiveness has not been demonstrated in nursing practice. It is thought this may be due to
wide variability of patient presentations, caregiver ability, and work environments. (Garg et al. 1992).

On the patient side, falls are a leading cause of hospital-acquired injury, and frequently prolong or complicate hospital stays. They are the most common adverse event reported in hospitals. Reviews of observational studies in acute care hospitals show that fall rates range from 1.3 to 8.9 falls/1,000 patient days and that higher rates occur in units that focus on eldercare, neurology and rehabilitation (Degelau et al. 2012).

Reduced mobility in patients can lead to a number of complications, including muscle contractures, decreased muscle strength, loss of bone mass (leading to an increased risk of fracture in the event of a fall), increased incidence of constipation, increased risk of atelectasis and subsequent pneumonia, venous thrombosis, reduced cardiovascular reserve, and neuropathy (Harper and Lyles 1988).

Improving safe patient handling will not only protect the staff but it will improve care for the patient at the same time. This is a key to starting the culture shift and gaining support for an effective and sustaining safe patient-handling program.

Review of Key Legislation for Safe Patient Handling

Ten states in the U.S. have enacted legislation or adopted regulations relating to safe patient handling. They are California, Illinois, Maryland, Minnesota, New Jersey, New York, Ohio, Rhode Island, Texas and Washington, plus a resolution in Hawaii. Of those, nine states require a comprehensive program in health care facilities (California, Illinois, Maryland, Minnesota, Missouri, New Jersey, Rhode Island, Texas and Washington), in which there is a requirement for an established policy, guidelines for securing appropriate equipment and training, collection of data, and evaluation. Massachusetts and Florida presently have draft legislation pending approval.

States that do not have specific legislation or regulation relating to safe patient handling remain subject to OSHA’s general duty clause, which requires employers to provide a workplace free from recognized hazards which could cause serious harm. The general duty provisions are used in inspections only where there are no specific standards applicable to the particular hazard involved. Any recognized hazard created in part by a condition not covered by a standard may be cited under the general duty clause (OSHA 2014).

Additionally, the Joint Commission, the accrediting body for healthcare institutions in the United States, recognizes the importance of safe patient handling programs in reducing both patient and caregiver injuries, and considers a safe patient handling program to be a means of assisting healthcare institutions to perform as a high reliability organization (The Joint Commission 2012). A falls prevention program is also one of the Joint Commission’s Patient Safety Goals (PSGs). Acknowledging the relationship between patient safety and caregiver safety pertaining to patient handling, the Joint Commission and OSHA entered into an alliance in 2004 to promote the implementation of safe patient handling programs (AOHP OSHA Alliance 2006).

Review of Challenges in Hospital and Healthcare Settings

Institutions that have implemented a safe patient handling program have encountered challenges and barriers to sustainable implementation (Joint Commission 2012). These are wide ranging,
including resourcing, management commitment, facility design, equipment availability, and caregiver compliance. Some commonly encountered barriers are discussed here.

Management Commitment
Gaining and sustaining management commitment is a key feature to the success of all improvement initiatives, in all industries. This remains the case when looking to implement a safe patient handling program. Insufficient management commitment results in insufficient program resourcing, a lack of reinforcement of accountability, and it is less likely that members of the organization will take action to support the program.

Consider the adage ‘I care about that which my manager cares about’ - this remains true when considering safe patient handling programs. Ensuring management is providing visible support of the program will assist in fostering a culture of concern and commitment at all levels of the organization, and help the program secure resources of time, training, and tools (i.e., equipment, assessment algorithms, etc.).

A number of states require healthcare facilities to establish a Safe Patient Handling Committee for consultation on program development and implementation, equipment selection, facility redesign, and other decision making processes which impact caregivers. Demonstration of management commitment in this forum is crucial to gaining buy-in from staff and ensuring a sustainable program.

Resourcing
Resourcing the program can be broken into the three Ts: time, training, and tools (West 2005). Time refers to the amount of time individuals have to dedicate to the demands placed on them by the program. Frontline caregivers require time to participate in training, perform safe patient handling tasks, and provide feedback to program managers. Program coordinators require sufficient time to comprehensively develop, implement and review program elements, which can be a challenge if the program coordinator manages the safe patient handling program in conjunction with another role. If a ‘peer leader’ approach is taken, these caregivers require the time and resources to participate in coaching and mentoring with their peers. This may require paying overtime, having additional staff during busy shifts, etc. to allow the staff to have the time that they need to complete these tasks.

Training refers to the amount of training provided to develop caregiver competency in the area of safe patient handling. Insufficient or incorrectly developed training can lead to noncompliance with safe patient handling procedures, stemming from a lack of confidence in using the equipment. A lack of training can also result in caregiver or patient injury, stemming from incorrectly performed patient handling procedures. Insufficient ongoing training can result in gradually deteriorating compliance over time, which in turn can result in increased injury rates to patients and caregivers.

Tools refers to the tools and equipment caregivers use to execute safe patient handling procedures, as well as the tools program coordinators use to implement and sustain the program. For caregivers, insufficient or incorrect patient handling equipment usually leads to noncompliance with safe patient handling procedures and a lack of engagement with the program. A lack of patient assessment tools and algorithms leads to ill equipped decision making when determining whether to use equipment or assist a patient manually. Insufficient provision of equipment and decision-making tools usually results in increased injury rates in patients and staff. For program coordinators, tools include staff resources (e.g., access to unit managers), consultation committees, training rooms, and other resources required to implement and sustain
the program. A lack of sufficient tools for the program coordinator can result in an unsustainable program, or an inability to sustain staff engagement and compliance with the program.

**Facility Design**
The Veterans Health Administration (VHA) has provided ample guidance to its network facilities on designing to incorporate safe patient handling requirements. Insufficient facility design for equipment use, storage, and planning for future requirements could lead to difficulty in accessing and using equipment, in turn resulting in caregiver disengagement and noncompliance.

Even if facilities are not planning a refurbishment or redesign as part of a safe patient handling program, process design should incorporate aspects of facility design, by considering where equipment will be stored, how it will be moved through the facility (including travel distances), how it will be maneuvered around a patient’s room, and how it will be integrated into care processes such as patient mobilization, dressing, bathing, and toileting.

**Equipment Availability**
Equipment availability and facility design are closely interlinked. Thoughtful facility design affords easier access to equipment, resulting in higher rates of utilization and improved patient and caregiver safety. Lack of equipment availability is commonly cited as a significant contributor to non-usage of equipment during patient care and transfer activities, particularly equipment capable of transferring bariatric patients. ‘Equipment availability’ refers to the powered equipment itself, a well located charging station, and accessories such as slings.

Making the right equipment available is also a barrier to successful program implementation. Selection of appropriate equipment is highly important, however equipment is often selected without adequate consultation with caregivers. Ensuring the right quantity and type of equipment is purchased will greatly assist in ensuring program success (Washington State Dept. of Labor and Industry 2009).

**Caregiver Compliance**
Caregiver compliance is largely a function of ensuring that the barriers described above are addressed and function as intended. The challenge of instilling a culture where safe patient handling is robust and valued hinges on strong, committed leadership, a well resourced program, adequate training and equipment, strong consultation, and a spirit of continuous improvement within the healthcare facility.

**Case Studies**
This section details the approaches taken by various facilities when designing and implementing their Safe Patient Handling programs. It also details some of the challenges these facilities faced, and how they were overcome.

**Lancaster General Hospital, Lancaster, Pennsylvania**
This facility proudly earned Voluntary Prevention Program (VPP) accreditation through strong leadership commitment and effective consultation, management became aware of difficulties posed by bariatric admissions.

A community survey was conducted by the hospital, inviting bariatric patients who had recently been admitted, to provide feedback. The hospital learned that the facility did not have a mechanism for identifying bariatric patients on admission; that existing room design did not
always accommodate bariatric patients; and that staff did not appear confident in using SPH equipment when assisting bariatric patients.

A systematic review of the program was performed, taking into account those barriers identified above. A review of caregiver education and training was performed, and improvements were made to the education provided around the management of the bariatric patient. This included information around cultural sensitivity. Admission processes were reviewed and improved to ensure better identification of bariatric patients on admission. This assisted in ensuring that appropriately weight rated equipment would be made available to the patient on admission to their room.

Mobilization assessment tools were reviewed, and integrated into the fall prevention risk assessment already in use, to eliminate overlap in documentation. Bariatric patient rooms were designed and constructed, to include ceiling mounted equipment capable of moving patients up to 600lb in some rooms, and 1,000 lb in other rooms. Equipment storage provisions were also reviewed, to ensure equipment was kept in accessible locations which minimized the amount of walking staff would need to do when fetching the equipment.

These improvements were designed and implemented with ample consultation from caregivers, admissions clerks, previous patients, and other stakeholders, resulting in a 30% decrease in OSHA recordable injuries between 2007 and 2009. This equated to a roughly $21,000 in yearly savings, based on an average injury cost of $3,000 (Joint Commission 2012).

Manning Base Hospital, New South Wales, Australia

Manning Base Hospital is a 174-bed facility, employing around 400 nursing staff. It provides acute care services, along with community based care. The hospital implemented a SPH program, providing some basic SPH equipment, but no training in its use was provided when the equipment was introduced.

This facility commenced a systematic review of all patient handling activities. It was determined that the program required:

- additional resources to support the program;
- increased consultation and communication with caregivers;
- development of a SPH policy;
- algorithms to assist caregiver decision making;
- a review of caregiver training and competency;
- a review of SPH equipment, and
- a process for systematic review and improvement.

A Manual Handling Coordinator was appointed to manage improvements to the program. This was a staff member with considerable nursing experience, who already worked at the facility and had good credibility amongst staff. Safe patient handling processes were redesigned, in consultation with caregivers, and trialed on one unit of the hospital before implementation within the rest of the facility. Considerable consultation also occurred within the community care team, to identify solutions that were practical within the home visitation environment.

Coaching was provided to Nurse Unit Managers on behaviors that demonstrate active support for the SPH program. A Patient Mobility Assessment System (known as the ‘Red Dot’...
system) provided an improved mechanism for identifying and communicating which patients required SPH equipment, without jeopardizing patient confidentiality.

The facility saw a 85% reduction in injuries resulting from safe patient handling post implementation, and a reduction in slips, trips and falls in the patient population, despite an increase in the incidence of bariatric admissions (Workcover NSW 2005).

Mt Wilga Private Hospital, New South Wales, Australia
Mt Wilga is an 80 bed rehabilitation hospital, providing rehabilitation to orthopedic, neurological, lymph edema and medical patients. The average length of stay is 3-4 weeks. Patient handling training was originally provided during staff professional development sessions, however the facility was not experiencing any change in injury rates relating to safe patient handling.

The facility trained four senior registered nurses (RNs) as safe patient handling trainers and competency assessors, and developed annual training plans, specific to the caregiver’s role (e.g. RN, CNA, PT, OT). Training opportunities were provided to staff, on the wards, on a daily basis. Competency assessors were provided training in adult learning principles, competency based assessment, and SPH specific training and assessment methodologies. An annual retraining and competency assessment process was implemented, and all caregiver staff were required to maintain a current assessment (Workcover NSW 2005).

Creative Examples of Safe Patient Handling Equipment

This section describes some alternative safe patient handling equipment, developed to solve specific caregiver problems. Implementing solutions such as these can assist with caregiver compliance, and improve the care experience for patients.

Hygiene/ Toileting/ Bathing
A number of slings have been developed for use when toileting or bathing. Hygiene slings provide an opening around the gluteal and perineal area, to allow for use of the toilet without needing to remove the sling from the patient. This also assists in keeping the sling clean when used in hygiene care situations.

Exhibit 1. Hygiene sling: hill-rom.com

Hygiene vests are also available, which are more suitable for amputees or those patients with low muscle tone. It is also suitable for patients with spasticity and high muscle tone.
Amputees and Other Orthopedic Presentations
Amputee slings are specially designed to accommodate single and double-leg above knee amputees, using a shorter thigh support. This style of sling is also suitable for patients with contractures, including patients whose contractures result in a fixed fetal position. Amputee slings can also be suitable for total hip replacement patients, when used with side bars.

Gait Training
Vest-style slings can be used with overhead ceiling lifts or mobile lifts to commence early gait training, eliminating concerns of patient falls, and reducing caregiver effort to stabilize the patient, allowing for more meaningful facilitation and manual feedback. Some facilities use the vest style sling in conjunction with a treadmill when performing gait training.
Exhibit 5. Vest style sling: hill-rom.com

Lift ‘pants’ can be used for patients with sternal precautions, such as coronary artery bypass graft (CABG) patients, or those with other truck and/or upper limb pathologies.

Exhibit 6. Lift pants: hill-rom.com

Summary and conclusion

Safe patient handling programs are an effective method of preventing caregiver and patient injury. Early patient mobilization can prevent complications in care arising from extended bed rest and improve patient outcomes at discharge. A number of states require the implementation of safe patient handling programs, but even in states where specific legislation has not been enacted, the OSHA general duty clause still applies. Additionally, the Joint Commission standards for fall prevention encourage the implementation of a safe patient handling program.

A number of barriers to successful program implementation have been identified. Management commitment is crucial, along with adequate resourcing, training, consultation, equipment, and facility design. All these elements combined can assist a facility to achieve sustainable culture change in relation to patient handling. A number of case studies demonstrate methods to overcoming these barriers to deliver a successful, sustainable program implementation. Additionally, many innovative product solutions are now available to assist in mobilizing various patient presentations.
Bibliography


