Safe Patient Handling
A Summary of the Issue and Solutions: The Evidence Base

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The Issue:

Work Related Musculoskeletal Disorders (MSDs) in Nursing persist as the **leading and most costly** occupational health problem in the United States.[1]

Work Related Musculoskeletal Disorders in health care can cause **life altering, career ending, disabling, and chronic conditions** to nurses and other health care workers such as aides, orderlies, physical therapists , in home health aides, and emergency medical workers. [3,4,5,6,7,8,9]

The **leading** cause of these injuries in health care is the result of repeated manual lifting, transferring, and repositioning of patients and residents. [10,11]

MSDs due to manual patient handling occur in **all health care** environments from acute care, nursing homes, outpatient clinics, home health settings to emergency medical services. [12,13]

The U.S. Department of Labor defines a musculoskeletal disorder (MSD) as an injury or disorder of the muscles, nerves, tendons, joints, cartilage, or spinal discs. They represent a wide range of disorders, which can differ in severity from mild periodic symptoms to severe chronic and debilitating conditions. Examples include carpal tunnel syndrome, tenosynovitis, tension neck syndrome, and low back pain. [14]

Consider the Facts:

MSD Frequency and Severity – Nurses and Health Care Workers

In 2007, direct-care registered nurses ranked **seventh** among all occupations for the number of cases of musculoskeletal disorders resulting in days away from work in the US—8,580 total cases.

Nursing aides, orderlies, and attendants had 44,930 days-away-from-work cases and a rate of 465 cases per 10,000 workers.

Nursing aides, orderlies, and attendants had a MSD rate of 252 cases per 10,000 workers, a rate more than **seven times** the national MSD average for all occupations.

Back injuries due to manual patient handling remain the **#1 injury** reported in **health care**

General medical and surgical hospitals reported more injuries and illnesses than any other industry in 2007 i.e., more than 253,500 cases. [15,16]

Data from more than 80 studies show that every year, **40 to 50 percent** of nurses experience back injuries. At any point in time, 17 percent of nurses are injured wordlwide. [17]

Research on the impact of musculoskeletal injuries among nurses shows the following: [18,19]

- 31% of nurses reported having personally experienced a back or musculoskeletal injury while working as a nurse
- 52 percent complain of chronic back pain
- 12 percent of nurses "leaving for good" because of back pain as main contributory factor
- 20% transferred to a different unit, position, or employment because of lower back pain
- 12 percent considering leaving profession because of lower back pain
- 38 percent suffered occupational-related back pain severe enough to require leave from work; and

- 6 percent, 8 percent, and 11 percent of RNs reported even changing jobs for neck, shoulder and back problems, respectively.

In a national survey by the American Federation of Teachers, 56% of nurses and 64% of x-ray technicians suffered lifting-related injuries, chronic pain, or both. This study revealed their work has become so physically demanding that nurses and technicians report they have considered leaving patient care as a result. [20]

Unfortunately the number of MSD injuries reported by health care workers is probably low because many injuries are **unreported**. In fact, it is estimated as many as 50 percent may go unreported. [21,22,23]

MSDs can begin when a **student nurse** or health care worker is in school and become aggravated in their first year of practice. [24]

The Cost to Health Care Workers and the US Health Care Industry

Healthcare worker back injuries alone excluding other musculoskeletal disorders are estimated to cost **$20 billion** annually in direct and indirect costs. [25,26]

The estimated direct U.S. workers' compensation costs for **the most disabling workplace injuries** and illnesses in 2006 were $48.6 billion, according to the 2008 Liberty Mutual Workplace Safety Index. [27]

The number one cause of the most disabling injuries is overexertion. This event category, which includes injuries related to **lifting, pushing, pulling, holding, carrying**, (which are common tasks performed in healthcare settings and are defined as "high risk tasks" and are performed by direct care workers every day millions of times per day across this country). This category has historically accounted for more than one-quarter of the overall national burden each year. **In 2005, these injuries cost businesses $12.7 billion in direct costs.** [28]

The impact of these disabling injuries in nurses and other health care workers is not only costly for health care organizations in terms of workers compensation cost but negatively **impacts retention and recruitment of health care workers.** [30,31]

The Workplace Safety and Insurance Board (2002) reported that nurses' injuries are costly to hospitals in terms of **lost productivity, work flow disruption**, and claims paid and costly to nurses in terms of pain, stress, and possible employment loss. **Protecting nurses from disabling injury will be key to recruitment and retention.** [32]

The Joint Commission reported in 2002 that the top reason nurses **leave the profession,** aside from retirement, is to seek a job that is less physically demanding. [33]

1 in 3 nurses younger than 30 was planning to **leave his or her job** within the next year due to physical demands of the job. [34]

As our **nursing workforce ages** (average age 46.8 years) and we face a critical nursing shortage in this country (an expected 20% shortage by 2015 and 30% by 2020), preserving the health of our nursing staff and reducing back injuries in healthcare workers is critical. [35]

Older nurses (especially work place injured nurses) will not be able to tolerate the physical demands of patient care that require them to turn, lift, or provide weight provide weight-bearing support to patients and residents. [36]

If **staffing** is insufficient, the nurse or health care worker is less likely to try and get assistance to lift or move a patient or resident further increasing their risk of injury. If the staffing levels are not safe for the nurses, they will not be safe for the patients. [37]

Conversely, when staffing is insufficient, health care workers may not move or reposition a patient or resident especially if the patient is very heavy.

Currently, 90% of long-term care facilities **lack sufficient nursing staff** to provide even the most basic care. [38]

The Impact on Patient Care

Unsafe patient handling can contribute to **patient injury** such as **falls** during transfers and **skin tears** and damage when pushing and pulling a patient or resident from bed to chair or repositioning in bed. [39,40]

Manual handling can be **painful** or aggravate existing pain and discomfort for the patient. A patient's **dignity and privacy** can be compromised during difficult manual patient-handling situations.

Why is Manual Patient Handling so Unsafe?

The cumulative weight a nurse may have to lift (patient lifts or transfers) within an **8- hour shift** is equivalent to **1.8 tons** (*that is the equivalent of a Subaru Forrester with a 600lb passenger load)* or **9 tons per week** *(that is equivalent to three F350 trucks with 4 passengers).* [41]

In addition, nurses and other health care workers often have to use **forceful physical exertion** to push or pull wheeled equipment such as beds and guerney's on carpeted and or sloping floor surfaces. [42]

High risk patient handling tasks such as, transferring a patient or resident from a bed to chair, repositioning a patient or resident in bed or lifting a patient of resident from the floor require lifting excessive loads using sustained and extremely awkward postures such as bending and twisting. In addition, patients or residents can move unexpectedly increasing the stress on the workers body. [43,44,45,46]

Extensive research has documented **high levels of stress** on the bones, joints and tissues of the back, neck hands and wrists of health care workers when performing **manual patient lifting and handing tasks**. The physical effort required to repeatedly lift and move patients manually is greater than the musculoskeletal system can tolerate. [47,48,49,50,51,52]

The evidence shows that there is no safe way to perform manual patient handling.

The CDC's Behavioral Risk Factor Surveillance System (BFRSS) has confirmed that our U.S. patient population from 1985-2007 has seen a dramatic increase in obesity. The problem of lifting patients is compounded by the **increasing weight of patients** to be lifted and the rapidly increasing number of older people who require assistance with the activities of daily living. [53,54,55]

Nurses and other health care workers have been taught for decades that "proper body mechanics" would prevent their injuries during transfers. However, 35 years of research show that there is **no evidence** that **body mechanics alone** will protect health care workers from MSDs when manually lifting patients and residents. [56,57,58]

In fact the **safe lift limit for manual handling of patients is only 35lbs** (if the patient or resident is cooperative). [59]

How Do We Effectively Address the Problem? – Evidence Based Solutions:

The **good news** is that **injuries** to nurses, health care workers and patients due to manual lifting and

handling are **preventable.** [60,61,62,63,64]

Multifaceted, participatory programs have been shown to be effective in reducing risk of MSDs in health care environments.

Effective programs include: [65, 66, 67,68,69, 70,71,72]

- Active involvement of direct care nurses, and other health care workers throughout the program
- Visible administrative support
- Use of equipment to safely lift, move, reposition and transport patients or residents and reduce or eliminate the injury risk such as, height-adjustable electric beds, mobile mechanical patient lifts, ceiling-mounted lifts, friction-reducing devices/lateral transfer aids, bed repositioning devices
- Equipment is chosen that 'fits' the needs of the patient, task to be performed, caregiver and facility
- Training on proper use of patient/resident handling equipment/devices
- Clinical tools, such as algorithms and patient assessment protocols for Safe Patient Handling programs
- Use of unit/dept. SPH coaches or mentors
- Education of staff and support for culture change in nursing practice
- No manual lifting policies
- SPH procedures that guide processes for safe lifting and movement of patients and residents with variety of clinical needs including consideration for patients of size.

Given the complexity of this high-risk, high-volume, high-cost problem, multifaceted programs are more likely to be effective than any single intervention, indicating the need to build a culture/climate of safety into the organization and employ more than one evidence-based approach. [73]

Do SPH Programs Work? The Benefits for Health Care Workers and Employers

Extensive Evidence shows that SPH Programs decrease: [74,75,76,77,78,79,80]

- Patient-handling workers' compensation injury rates (30-95%)
- Lost workday injury rates (66 - 100%),
- Restricted workdays (up to 38%),
- Workers compensation costs by 30-75%
- Insurance premiums dropped 50%
- The number of workers suffering from repeat injuries

Research has also shown an **increase in caregiver job satisfaction**, and a **decrease in "unsafe" patient handling practices performed** and reports of significant **reductions in staff turnover**. [81,82,83]

Safe Patient Handling Programs and Equipment are Cost Effective.
Initial investment for purchase of equipment and training costs is can be **recovered less than 2-3 years** SPH. [84,85,86,87,88,89,90,91]

A **positive relationship on staffing** is observed when less staff is required to lift or move a patient or resident when using some types of lift equipment such as ceiling lifts. The patient handling task can be performed more quickly when using ceiling lifts.

Do SPH Programs Work? The Benefits for Patients

- **Decrease in combativeness** with use of lifting equipment [92]
- Patients report feeling more **comfortable and secure** [93,94,95]
- **Reduced shearing** injury in patients, which lead to skin damage and exacerbate pressure ulcers
- **Reduction in falls** (LTC)
- **Increase in physical functioning** and activity level [96,97]

- Patients or residents are more likely to be moved and repositioned more often which may reduce the risk of pressure ulcers and skin tears.
- **Patient dignity** is protected by using assistive equipment and devices..

Assistive patient-handling equipment can be selected to match a patient's ability to assist in his or her own movement, thereby promoting patient autonomy and rehabilitation. [98]

The Bottom Line….

Exposure to occupational injury is simply not an acceptable risk associated with patient care.
Patient safety cannot be adequately addressed if employee safety is not being adequately addressed .

Repeated manual lifting and moving of patients and residents cannot be performed safely by any health care worker regardless of age, gender or level of fitness.

Injuries associated with manual patient or resident handling:

1. Can cause nurses and health care workers:
   - Permanent disability
   - Chronic pain and suffering
   - Shortened careers
   - Loss of livelihood
2. Have negative impact on patient safety and clinical outcomes
3. Are extremely costly for health care organizations

Safe patient/resident handling programs can:

1. Reduce healthcare worker injuries
2. Improve the quality of patient or resident care
3. Help to stem the exodus of experienced nurses from the bedside
4. Help attract new nurses to the profession
5. Reduce workers compensation premiums
6. Save employers and taxpayers millions of dollars each year.

Lastly, Federal Legislation and Grant money to support the financing of this equipment will enable the healthcare industry to provide a safe and healthy work environment and the safest patient environment.

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Safe Patient/Resident Handling Programs can:

7. Reduce healthcare worker injuries
8. Improve the quality of patient care
9. Help to stem the exodus of experienced nurses from the bedside,
10. Help attract new nurses to the profession,
11. Reduce workers compensation premiums, and
12. Save employers and taxpayers millions of dollars each year.

Lastly, Federal Legislation and Grant money to support the financing of this equipment will enable the healthcare industry to provide a safe and healthy work environment and the safest patient environment

The nation's leading healthcare organizations endorse safe lift equipment to prevent injuries to nurses and patients.

- Joint Commission on Accreditation of Healthcare Organization (JCAHO or Joint Commission)
- The Institute of Medicine
- Veterans Health Administration (VHA)
- Occupational Health and Safety Administration (OSHA) of the U.S. Department of Labor
- National Institute for Occupational Safety and Health (NIOSH)
- The American Nurses Association
- Facilities Guidelines Institute – Health Care Design and Construction Guidelines

JCAHO: *Healthcare at the Crossroads: Strategies for Addressing the Evolving Nursing Crisis*, August 2002. Recommendation to Hospitals: "Adopt information, ergonomic and other technologies designed to improve workflow and reduce risks of error and injury" and: "…health care organizations will find it a basic necessity to acquire ergonomic technologies that reduce the risk of physical strain and injury in the delivery of patient care. Such acquisitions must logically go hand-in-hand with efforts to increase staffing levels. If nurses are too few and, subsequently, too busy on a shift, a nurse may be reluctant to call on colleagues…to turn or lift a patient. If the staffing levels are not safe for the nurses, they will not be safe for the patients. [99]

In November 2008, **the Joint Commission** released a white paper *'Health Care at the Crossroads: Guiding Principles for the Development of the Hospital of the Future'* which proposes principles and actions to guide future hospital development. Design of the Physical Environment is one of the 5 major issues the JC identified that must be addressed so that hospitals can enhance health care for all patients. The report states that 'a great deal of heavy lifting, turning, and transporting patients goes on in hospitals that could be alleviated by proper hoists and other ergonomic technologies. [100]

In the 2004 report '*Keeping Patients Safe: Transforming the Work Environment of Nurses' the* **Institute of Medicine (IOM)** stated that "Ergonomic patient and staff furniture and work tools will be needed to decrease the risk of injuries to patients (and nurses as well)." [101]

Veterans Health Administration (VHA): *Patient Care Ergonomics Resource Guide: Safe Patient Handling and Movement,* November 2003 (Revised 2005). An extensive and detailed resource to "reduce the incidence and severity of job-related injuries related to patient handling and moving tasks…derived from best practices within and outside health care (and) tested with the VHA." [102]

In 2008, the VHA has funded a three-year **$205 million initiative** to implement a **comprehensive safe patient handling programs** at all VA Hospitals. It is reported that there is a plan to get ceiling lifts over most inpatient beds, outpatient exam rooms, therapy clinics and diagnostic areas. Unit Peer Leaders and Facility Champions are being designated as part of the program.

OSHA: *Ergonomics for the Prevention of Musculoskeletal Disorders: Guidelines for Nursing Homes,* March 2003. The number and severity of injuries resulting from physical demands in nursing homes—and associated costs—can be substantially reduced. Providing an alternative to manual resident lifting is the primary goal of the ergonomics process in the nursing home setting and of these guidelines. **OSHA recommends that manual lifting of residents be minimized in all cases and eliminated when feasible.** OSHA further recommends that employers develop a process for systematically addressing ergonomics issues in their facilities, and incorporate this process into an overall program to recognize and prevent occupational safety and health hazards. [103]

NIOSH advocates a safe lifting program that includes three main components: mechanical lifting equipment; training on the use of the equipment; and written lifting policies. NIOSH lifting guidelines sets the maximum recommended weight when patient handling is 35 pounds in the best of circumstances. [104]

The American Nurses Association

In response to the significant number and severity of work-related back injuries and other musculoskeletal disorders among nurses, in 2004 the **American Nurses Association (ANA)** launched the **Handle With Care®** campaign*. The campaign seeks to build a health care industry-wide effort to prevent back and other musculoskeletal injuries. This is being done through developing 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 nurses. In the absence of ergonomics regulations at national or state levels that protect health care workers, ANA has taken on alternative approaches to encourage a movement to control ergonomic hazards in the health care workplace and prevent back injuries among the nation's nursing workforce. [105]

NIOSH/ANA Nursing Education programs

Despite the obvious advantages to using lifting equipment, schools of nursing continue to teach, and nurses' licensure exams continue to include, outdated and unsafe manual patient handling techniques. This is due in large part to outdated books and curricula which promote unsafe patient handling practices. To address this, a team of experts from NIOSH, the American Nurses Association, and the Veterans Health Administration developed and evaluated an evidence-based training program on safe patient handling for educators at schools of nursing. The study found that when using the curriculum, nurse educator and student knowledge improved significantly as did the intention to use mechanical lifting devices in the near future. The curriculum module, which won the 2008 National Occupational Research Agenda (NORA) Partnership Award, is ready for broad-scale dissemination across nursing schools to reduce the risk of MSDs among nurses.

There are 26 nursing colleges across the United States have partnered with NIOSH and the ANA to offer skill labs in their nursing programs. The nurses are graduating with safe patient handling education on ergonomics and engineering solutions, i.e. lift equipment knowledge. The graduates are being encouraged to work for organizations with safe patient handling programs and lift equipment. [106,107]

Facilities Guidelines Institute – Health Care Design and Construction Guidelines

The **2010 Edition of the Guidelines for Design and Construction of Health Care Facilities** to be published in January 2010, includes for the first time recommendations for facility requirements for safe patient handling and movement**.** [108]

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