

Prevention of Musculoskeletal Disorders in Healthcare Workers: Safe Patient Handling and Mobility Programs

The ability of the U.S. healthcare system to respond to pandemics and other health emergencies depends on the availability of nurses and other healthcare workers. This workforce is significantly strained, however, due to injuries and stressors that reduce their ability to work and are leading many to leave the profession. Recommendations are provided for reducing unnecessary work-related injuries to maintain an effective healthcare workforce.

Background

Manual Patient Handling Causes Injuries and Burnout in Healthcare Workers

More musculoskeletal disorders (MSDs) occur in healthcare than any other occupational sector, with nurses and nursing assistants ranking in the top five occupations with the most MSDs⁶. According to the Bureau of Labor Statistics, 41 MSD cases resulting in lost workdays were reported for every 10,000 healthcare and social assistance workers compared to 34.4 in 2019, with the highest incident rates reported for nursing and residential care facilities⁷. Specifically, the hospital subsector saw 62 MSD cases resulting in lost workdays for every 10,000 workers, a 16.8% increase in MSDs from 2019 to 2020.⁷

Nurses are being injured

- 55% report back injuries
- 44% report shoulder injuries

Pain & injury affects nurse retention

- 32% with back pain change roles
- 12% who leave nursing cite back pain as a reason

A 2015 review found that on average 55% of nurses reported pain or injury to the back, and 44% reported pain or injury to the shoulder in their past year of work⁹. *Most of these injuries are caused by manual patient handling, which involves lifting, moving, or repositioning dependent patients*²⁴. Lost workdays and job turnover caused by pain and MSDs further strain the US healthcare system which is already experiencing a shortage of bedside nurses^{11,22}. For example, an examination was conducted of the hazards related to musculoskeletal injuries faced by personnel involved in routine and mass fatality mortuary operations during the initial wave of COVID-19 in New York City hospitals. The researchers documented various musculoskeletal risks encountered by healthcare and deathcare workers, such as manually lifting deceased individuals onto elevated or lower surfaces, assuming non-neutral body postures, maneuvering heavy equipment, and exerting push/pull forces while transporting the deceased²¹.

Injuries and fatigue have historically been among the leading causes of nurses leaving the profession. The National Council of State Boards of Nursing (NCSBN) recently reported that one fifth of nurses are projected to leave the workforce by 2027, with 49.7% reporting fatigue as a contributing



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factor²⁰. This is reinforced by older studies of nurses finding that 32% with back pain changed roles or were considering a transfer²³, and 12% of those leaving their jobs cited back pain as a contributing factor²⁸. Injuries and back pain are also more likely to occur when there is inadequate staffing¹⁸ and with higher levels of fatigue and increased work hours²⁵. These problems were found to be significantly exacerbated with the recent COVID-19 pandemic when the healthcare sector reported significantly increased labor shortages, worker turnover, and longer shift work.^{2,4,5,8,18,26}

Safe Patient Handling Programs Decrease Pain and Injury

Safe patient handling and mobility (SPHM) programs provide a systematic, organizational approach to reducing risks of MSDs to healthcare workers.¹ These programs promote a culture of safety and leverage training and SPHM equipment, which reduces the physical stresses on caregivers.³¹ Based on the analysis of injuries in healthcare facilities from 2012 to 2014, 82% of patient handling injuries were found to occur when lift equipment was not used.¹⁴ A meta-review of 27 studies found that SPHM programs reduced caregiver injuries by 56%.²⁹ A study of seven healthcare facilities found the cost of SPHM equipment was recouped within 1.25 years on average based on workers' compensation savings alone.¹³

Safely Mobilizing Patients Improves Patient Outcomes and Reduces Healthcare Costs

SPHM programs provide a means for safely mobilizing hospital patients, which counteracts the harmful effects of bedrest and allows patients to maintain or regain functional status during their hospital stay. Organizations that implement mobility programs achieve a consistent reduction in length of stay and total cost of care, as shown in a longitudinal review including 26 studies¹⁵. A mobility initiative at the Cleveland Clinic reduced hospital length of stay by 33% and overall hospital costs by 30%.¹⁹ Mobility programs also increase the likelihood that patients are discharged to home rather than skilled nursing facilities.¹⁹

Safe Patient Handling Programs

- Reduce healthcare worker injuries by 56%
- Provide payback of equipment in as little as 15 months from reduced injury costs
- Support patient mobility programs that reduce hospital stays and costs by 30%

Unfortunately, mobilizing patients is one of the most frequently neglected nursing tasks due to limited staffing and equipment.¹⁶ SPHM equipment has been shown to facilitate mobilization. Patients who had lifts used during their care were twice as likely to be observed out of bed compared to similar patients for whom lifts were not used.¹⁷ SPHM equipment also reduces the number of staff needed to reposition patients compared to manual repositioning, thereby also reducing the usage of personal protective equipment (PPE) and exposure to infectious disease.³¹

Barriers to Implementing Safe Patient Handling and Mobility Programs

Despite the benefits to workers, patients, and the healthcare system, organizations often struggle to implement and maintain SPHM programs. For example, a recent study found that only 11% of patients with limited physical mobility in acute care settings had lifts used during their care.¹⁷ Barriers to lift use include the cost of equipment and associated training. Employers often struggle to adequately classify

MSD injuries, which hides the problem and weakens the financial justification of SPHM programs³. A final barrier to SPHM adoption is a general lack of legislative requirements, with only 12 states having legislation addressing injuries related to patient handling. Such legislation appears to increase adoption of SPHM,²⁰ with patients in these states 60% more likely to be moved using SPHM equipment.¹⁷

Recommendations

The following actions will help to prevent pain and injury in healthcare workers and preserve the availability of the U.S. healthcare workforce.

- 1) Legislation to implement grant programs that provide incentives for the purchase of SPHM equipment (including training in its use) in (i) healthcare facilities, and (ii) schools and colleges that train healthcare workers.
- 2) Direct OSHA to:
 - a) Develop and implement a national standard for Safe Patient Handling and Mobility (SPHM) that requires all healthcare facilities that are responsible for moving and assisting patients/residents to implement a SPHM program prioritizing the use of equipment that reduces the burden on those providing care.
 - b) Promote SPHM education and training as part of the curriculum at the nursing, rehabilitation and allied health colleges and universities, including selection and use of the appropriate patient handling equipment and devices.
 - c) Promote the accurate measurement of musculoskeletal disorders (MSDs) by adding a corresponding category to the current list of injury and illness types on the OSHA 300 form which is used for reporting work-related injuries.
 - d) Update and expand resources for healthcare facilities that provide the latest best practices for SPHM.
 - e) Develop training for OSHA investigators to be used by the OSHA Training Institute that allows inspectors to identify opportunities and recommend best practices related to patient handling.
- 3) Increase funding for NIOSH to:
 - a) Develop programs that allow facilities with well-developed SPHM programs to share resources and best practices with other organizations in order to expedite the broad implementation of SPHM.
 - b) Expand research efforts on the etiology of MSDs in healthcare workers,
 - c) Research methods to improve the accuracy of injury reporting for MSDs,
 - d) Research the most effective training methods for SPHM in both nursing schools, rehabilitation and allied health colleges and healthcare facilities,
 - e) Research the effectiveness of new and emerging SPHM technologies,



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- f) Support NIOSH Education Research Centers (ERC) and Training Project Grants (TPG) to ensure a pipeline of investigators skilled at performing research to reduce MSDs in healthcare workers.

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