

Patient handling techniques to prevent MSDs in health care

Introduction

Work-related musculoskeletal disorders (MSDs) are a serious problem among hospital personnel, and in particular the nursing staff. Of primary concern are back injuries and shoulder strains, which can both, be severely debilitating. The nursing profession has been shown to be one of the most at risk occupation for low back painⁱ. The primary cause for MSDs is patient handling tasks such as lifting, transferring, and repositioning of patients.ⁱⁱ

This article provides recommendations and examples for nursing staff to help reducing the number and severity of MSDs due to patient handling. The implementation of proper lifting and repositioning methods may achieve considerable success in reducing work-related injuries and associated workers' compensation costs. In addition, it may lead to more benefits, including reduced staff turnover, training and administrative costs, reduced absenteeism, increased productivity and improved employee morale.ⁱⁱⁱ

Why can patient handling activities be hazardous?

There are several factors, which make patient handling activities hazardous and hereby increase the risk of injury. These risk factors are related to different aspects of patient handling:

Risks related to the task:

- o Force: The amount of physical effort required to perform the task (such as heavy lifting, mulling and pushing) or to maintain control of equipment and tools
- o Repetition: Performing the same motion or series of motions continually or frequently during the working day
- o Awkward positions: Assuming positions that place stress on the body, such as leaning over a bed, kneeling or twisting the trunk while lifting

ⁱ ,Silvia C. et al. An ergonomic comparison between mechanical and manual patient transfer techniques, 2002, Work, 19 (19-34)

ⁱⁱ American Nurses Association "Handle With Care" Campaign Fact Sheet. Available at: <http://www.nursingworld.org/handlewithcare/>

ⁱⁱⁱ OSHA. Guidelines for Nursing Homes – Ergonomics for the Prevention of Musculoskeletal disorders, 2003. Available at: <http://www.osha.gov/ergonomics/guidelines/nursinghome/index.html>



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Risks related to the patient: Patients can not be lifted like loads; so safe lifting “rules” do not always apply^{iv}

- o Patients can not be held close to the body
- o Patients have no handles
- o It is not possible to predict what will happen while handling a patient
- o Patients are bulky

Risks related to the environment:ⁱⁱⁱ




- o Slip, trip and fall hazards
- o Uneven work surfaces
- o Space limitations (small rooms, lots of equipment)

Other risks: ⁱⁱⁱ

- o No assistance available
- o Inadequate equipment
- o Inadequate footwear and clothing
- o Lack of knowledge or training

Different patient handling techniques

Patient handling refers to the lifting, lowering, holding, pushing or pulling of patients. The methods for patient handling may be divided into three categories according to the different ways of performing them:

<p>1. Manual transfer methods</p> <p>These are carried out by one or more caregivers using their own muscular force and, wherever possible, any residual movement capacity of the patient involved</p>	 <p>Copyright Prevent</p>
<p>2. Transfer methods using small patient handling aids</p> <p>These are patient handling techniques carried out by means of specific aids such as low-friction fabric sheets, ergonomic belts, rotatable footboards, a trapeze bar attached above the bed, etc</p>	 <p>Copyright Prevent</p>
<p>3. Transfer methods using large patient handling aids</p> <p>These handling techniques are carried out by means of electro-mechanical lifting equipment</p>	 <p>Copyright Prevent</p>

^{iv} American Nurses Association “Handle With Care” Campaign. Safe patient handling and movement. Available at: www.cdc.gov/niosh/review/public/safe-patient/patienthandling2.html



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Choosing the proper patient handling technique

Determination of the proper patient handling technique involves an assessment of the needs and abilities of the resident involved. The resident assessment should include examination of factors such as: ⁱⁱⁱ

The level of assistance the resident requires

- o For example, a resident who is non-cooperative (a tetraparetic patient, a bedridden elderly person, a patient under general anaesthesia or in coma, a patient resistance to mobilization, etc) needs a mechanical lift, while a resident who is able and willing to partially support his own weight may be able to move from his bed to a chair using a standing assist device

The size and weight of the resident

- o For example, a resident may weigh too much for the caregiver to lift without mechanical assistance

The ability and willingness of the resident to understand and cooperate

Any medical conditions that may influence the choice of methods for lifting or repositioning

- o For example, abdominal wounds, contractures, presence of tubes, pregnancy make transfer or repositioning tasks more challenging.

It should be noticed that manual patient handling places nurses at increased risk for MSDs:

- o Patients' bodies have an asymmetric distribution of weight and do not possess available, stable areas to grip. Therefore it's difficult for the nurse to hold a patient's weight close to the own body
- o In some occasions, patients are agitated, combative, non-responsive, or can offer limited levels of cooperation increasing the risk for injury^v
- o The structural physical environment of care may necessitate awkward positions and postures further increasing the susceptibility of developing a musculoskeletal disorder.

Altogether, these factors merge to create an unsafe load for nurses to manage in a good manner. Even with assistance from additional staff members, it is critical to note that the exposure to the hazard persists.^{vi}

^v Owen, B. & Garg, A. (1993). Back stress isn't part of the job. American Journal of Nursing, 93(2), 48-51.

^{vi} Position Statement on Elimination of Manual Patient Handling to Prevent Work-Related Musculoskeletal Disorders, Nursing World, Available at: <http://nursingworld.org/readroom/position/workplac/pathand.htm>



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Therefore, **manual lifting of residents should be minimized in all cases and eliminated when feasible. The use of large patient handling aids should be always encouraged.**

However, in some situations, manual patient handling can not be avoided:

- o Nurses may be presented with exceptional or life-threatening situations prohibiting the use of assistive patient handling equipment
- o Manual patient handling may be performed if the action does not involve lifting most or all of a patient's weight
- o Other exceptions include the care of paediatric (infant or small child) or other small patients and the use of therapeutic touch.^{vi}

Basic principles for adequate patient handling techniques

Any kind of handling operation, even when using patient handling aids, involves several basic principles:

1. Always seek the help of assistants where necessary

Handling operations involving immobilized patients must be carried out by several caregivers (at least two) and if necessary, by means of a sheet laid out underneath the patient or even better, by using specific aids such as slide sheets.

2. Before starting any kind of handling activity, the caregiver should position himself as close as possible to the patient, also by kneeling on the patient's bed if necessary

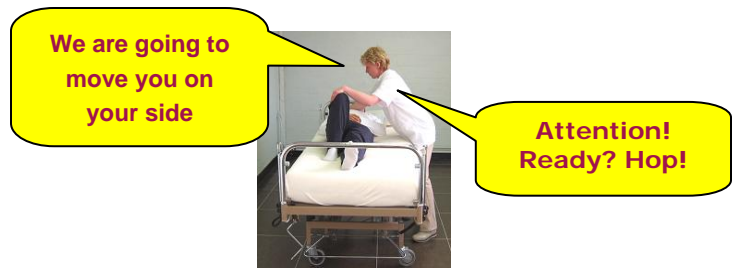
This will enable the caregiver to avoid having to bend or stretch across the bed during patient lifting and transfer, thus making the necessary physical efforts while his back is bent or twisted.



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3. Before starting any kind of handling operation, explain the procedure to the patient while also encouraging him to cooperate as much as possible in the course of the handling activity

This is advantageous for both, the patient who will be able to improve his muscular tropism and the caregiver too, as the patient, being capable of moving by himself, however slightly, will then be able to carry out some operations on his own in which case the caregiver's function will be simply to direct this movement



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4. Keep a correct posture during patient handling operations

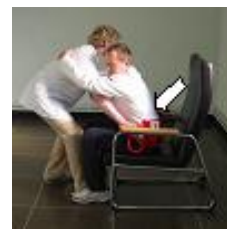
More specifically, before starting the patient lifting or transfer, the caregiver should position himself with his legs slightly apart and with one foot placed a little bit forward in order to ensure a wider base of support. During patient lifting, leg and hip muscles should be used instead of using the upper body muscles, first bending and then slowly straightening the knees while lifting the patient. The spinal column should be kept in a position following its natural curve, taking care to avoid overloading it when stretching or bending. Moreover, the caregiver should always try to shift his weight according to the direction of the movement he is performing.



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5. Get a good grip during patient handling operations

Never grasp a patient only with fingers but always use the whole hand instead and try to identify the areas allowing a secure grip. Grasp the patient around the pelvic area, waist, shoulder blades and never grasp the patient's arms or legs. For a better grip, some caregivers might require handling patients by grasping their pyjama trousers or, even better, by using specific aids such as belts with handles.



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6. Wear suitable footwear and clothing

It is important to use footwear with a good grip, therefore high-heeled shoes, clogs or slippers are not recommended. Clothing should not restrict the caregiver's movements.

Characteristics of manual handling of loads which may involve a risk of back injury (Annexes I and II of European Directive 90/269/EEC) and elements of good practice in the manual handling of patients	
Annexes I and II – Council Directive 90/269/EEC	Good practice
The load is positioned in a manner requiring it to be held or manipulated at a distance from the trunk, or with a bending or twisting of the trunk	Positioning oneself as close as possible to the patient
The load is unwieldy or difficult to grasp	Getting a good grip
The physical effort is made with the body in an unstable posture	Keeping a correct posture
The place of work or the working environment prevents the handling of loads at a safe height or with good posture by the worker	Adjusting bed height
The worker does not have adequate or appropriate knowledge or training	Implementing training and education programmes
The worker is wearing unsuitable clothing, footwear or other personal effects	Wearing suitable footwear



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Examples of adequate patient handling techniques for different transfers

In the following part, different patient handling techniques (manual, small and large aids) for the different transfers are illustrated.

It is important to note that:

- o Any kind of handling operation, even when using patient handling aids, involves the basic principles described above
- o Determination of the proper patient handling technique involves an assessment of the needs and abilities of the resident involved as mentioned above
- o Manual lifting of residents should be minimized in all cases and eliminated when feasible.

Transfers involving sitting positions

Example: Bed - (Wheel) chair transfer

Manual transfer method

1. One caregiver



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Points to remember:

- o Place the bed and the (wheel)chair close together
- o Ensure that the (wheel)chair wheels are locked in place
- o Remove any obstacles (armrests, footrests, footboards)
- o Properly adjust the height of the bed according to your own height
- o Ask the resident to look at his feet. This will increase abdominal muscular tension leading to more cooperation
- o Ask the patient to lean forward and push on his legs during the transfer. This will ease lifting the patient from sitting to standing position
- o Use leg and hip muscles during patient lifting instead of using the upper body muscles. Firstly, bend and then slowly straight the knees while lifting the patient
- o Counterbalance the patient's weight with your own weight
- o If necessary, hold the knee of the resident between your own legs/ knees to guide the movement.

2. Two caregivers



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Points to remember:

- o Place the bed and the (wheel)chair close together
- o Ensure that the (wheel)chair wheels are locked in place
- o Remove any obstacles (armrests, footrests, footboards)
- o Properly adjust the height of the bed according to your height
- o Use leg and hip muscles during patient lifting instead of using the upper body muscles
- o Movements of both caregivers should be synchronised while carrying out the patient transfer. Communication between both caregivers is very important.

Using small patient handling aids

The same methods discussed above may be accompanied by the use of small patient handling aids while performing the operations:

Trapeze bar
Ergonomic belt
Sliding board or sheet
Rotatable footboard



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Using large patient handling aids



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Mechanical lift, sit-standing lift.

Points to remember:

- o There are many types of manual handling aids. Each producer has specific operation instructions for using the aids
- o Be sure to ask about infection control strategies before using a piece of patient handling equipment.

Repositioning

Example: Move a patient side-to-side in the bed

Manual transfer method

1. One caregiver



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Points to remember:

- o Properly adjust the height of the bed according to your own height
- o Split the transfer in three parts: legs – middle – shoulder
- o Pull over the patient's weight while using your own weight. Use leg and hip muscles instead of using the upper body muscles
- o Ask the resident to look at his feet. This will increase abdominal muscular tension leading to more cooperation.

2. Two caregivers



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Points to remember:

- o Properly adjust the height of the bed according to your own height
- o Both counterbalance the patient's weight with your own weight
- o Movements of both caregivers should be synchronised while carrying out the patient transfer. Communication between both caregivers is very important.



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Example: Move a patient up in the bed	
Manual transfer method	
1. One caregiver	
<p style="text-align: center;">Copyright Prevent</p>	
<p>Points to remember:</p> <ul style="list-style-type: none"> o Properly adjust the height of the bed according to your own height o Ask the resident to flex the knee, to look at his feet and finally to push on his foot. This will increase the resident's cooperation o During the transfer, switch your own weight from one side to the other, while keeping a straight back. 	
2. Two caregivers	
<p style="text-align: center;">Copyright Prevent</p>	<p>Points to remember:</p> <ul style="list-style-type: none"> o Ask the patient to place his hands on top of the bed and to pull on the top of the bed during the transfer when pushing on his feet o During patient lifting, use leg and hip muscles instead of using the upper body muscles, first bend and then slowly straight the knees while lifting the patient o Movements of both caregivers should be synchronised while carrying out the patient transfer. Communication is very important.
Example: Move a patient up in the chair	
Manual transfer method	
1. One caregiver	
<p style="text-align: center;">Copyright Prevent</p>	

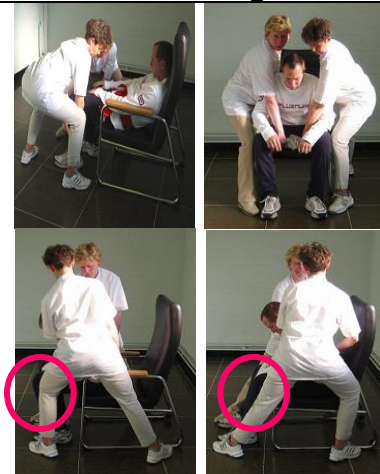


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Points to remember:

- o Before starting, make sure that the patient's feet are as close as possible to the chair
- o Ask the patient to lean forward as far as possible, helping him by putting his arms around your middle
- o Ask the patient to lean forward and push on his legs during the transfer. This will ease lifting
- o Use leg and hip muscles instead of using the upper body muscles.

2. Two caregivers



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Points to remember:

- o During patient lifting, use leg and hip muscles instead of using the upper body muscles, first bend and then slowly straighten the knees while lifting the patient
- o During the transfer, switch your own weight from one side to the other, while keeping a straight back
- o Movements of both caregivers should be synchronised while carrying out the patient transfer. Communication between both caregivers is very important.

Using small patient handling aids

The same methods discussed above may be accompanied by the use of small patient handling aids while performing the operations:

- o Trapeze bar
- o Sliding board or sheet.



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Using large patient handling aids



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Mechanical lift

Points to remember:

- o There are many types of manual handling aids. Each producer has specific operation instructions for using the aids
- o Be sure to ask about infection control strategies before using a piece of patient handling equipment.



Patient handling techniques to prevent MSDs in health care

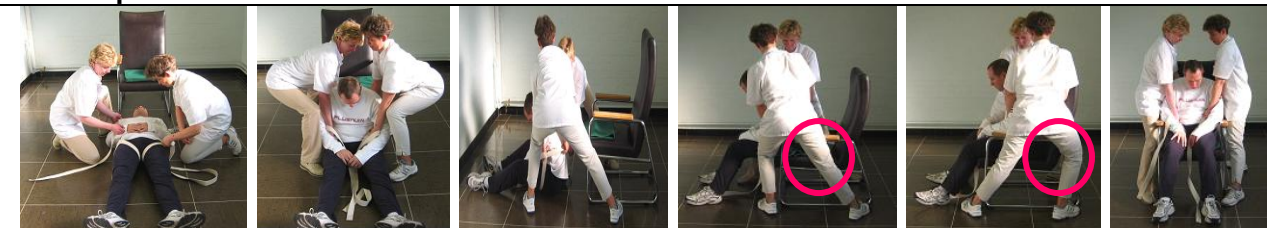
Moving a patient who has fallen on the floor

Example: Move a patient who has fallen on the floor to the chair

Manual transfer method

1. Two caregivers

NB: An even number of operators is always required for this kind of handling technique.



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Points to remember:

- o Firstly, bring the patient to a sitting position. Use leg and hip muscles instead of using the upper body muscles
- o During the transfer from the ground to the chair, switch your own weight from one side to the other, while keeping a straight back
- o Ask the resident to pull on his feet. This will lead to more cooperation
- o Movements of both caregivers should be synchronised while carrying out the patient transfer. Communication between both caregivers is very important.

Using small patient handling aids

The same methods discussed above may be accompanied by the use of small patient handling aids while performing the operations:

- o Sliding board or sheet
- o Blanket: more than 2 caregivers.

Using large patient handling aids



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Mechanical lift

Points to remember:

- o There are many types of manual handling aids. Each maker has specific operation instructions for using the aids
- o Be sure to ask about infection control strategies before using a piece of patient handling equipment.

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