

HEALTHCARE WORKERS PATIENT HANDLING



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MUSCULOSKELETAL INJURY AMONG HEALTH CARE WORKERS:

- According to the Canadian Labour Force Survey, nurses have the highest number of lost workdays and the highest percentage of lost work time attributable to illness and injury among the major occupational groups in Canada.⁽¹⁾
- Occupational back injuries are a serious problem worldwide, accounting for considerable morbidity and cost.⁽²⁾
- In a Canadian study that monitored the health of nurses in Canada, 90 % of study participants cited musculoskeletal conditions/injuries as a major health concern for nurses.⁽³⁾
- Patient lifts and transfers were found to be the most common cause of reported back injury among health care workers.⁽⁴⁾

WHAT CAUSES MUSCULOSKELETAL INJURY?

- A single high load incident.
- Awkward postures for sustained periods of time.
- Lifting continuously all day long without significant rest of the tissues.
- Chronic strain to muscles and joints.
- Imbalance of activities: repetitive and sustained activities in one direction.
- Stressful living: smoking and poor nutrition.
- Repetitive wear and tear: reduction of spine's flexibility.
- Psychosocial factors: time pressures, monotonous work, heavy responsibilities, too many tasks, not enough breaks from work, low control, little autonomy, poor social support from peers and supervisors.⁽⁵⁾

COMMON BACK MUSCULOSKELETAL DISORDERS

STRAINED LIGAMENTS

High, fast forces such as slipping and falling on your behind can tear or strain ligaments. Slower forces can tear ligaments from the bone. Recently it has been shown that prolonged stretch of ligaments (*such as from prolonged slouching*) can cause muscle spasms. It is important to have a proper seating set up and to change positions often.⁽⁶⁾

STRAINED MUSCLES

Muscle strains usually occur during activities that require the muscle to tighten forcefully. The muscle is strained either because it is not properly stretched, or warmed up, before the activity; it is too weak; or because the muscle is already injured and not allowed time to recover. Muscle strains can occur during exercise, sports activities and when lifting heavy objects.⁽⁶⁾

There are other types of back injuries that can occur including disc degeneration. Please refer to OHCOW's *"How Your Back Gets Injured: A Technical Guide to Preventing Injury"* for more information.

WHAT ARE WORK RELATED MUSCULOSKELETAL DISORDERS?

- Work Related Musculoskeletal Disorders (WMSDs) is a term that defines injuries to muscles, tendons or nerves that are caused or aggravated by work.⁽⁴⁾
- These types of injuries are also commonly referred to as Repetitive Strain Disorders, Cumulative Trauma Disorders, Repetitive Stress Disorders and Work-related Upper Limb Disorders.⁽²⁾
- Some of the risk factors could include workplace organization such as intensified work load, stressful work environments with stressful deadlines, working in awkward postures for extended periods of time and repetitive loading or lifting.⁽⁴⁾

RULES FOR SAFE LIFTING

Use the following acronym as a guide when engaging in client handling procedures:

**Back Straight
Avoid Twisting
Close to Body
Keep Smooth**

BACK STRAIGHT

- Discs can tolerate larger compressive loads when the back is straight.
- Discs are weaker when lifting in a flexed position.
- Maintain the spine's neutral curves.
- Keeps spine aligned and moving smoothly.
- Minimizes stress on spine.
- Imaginary line to maintain curves in balance

AVOID TWISTING

- Discs are weaker when lifting is combined with twisting.
- Joints are designed to prevent rotation.
- If you twist when you lift the joints become inflamed and sore.

CLOSE TO YOUR BODY

- If an object is at a greater distance from your body for lifting, your back muscles and joints have to work harder to lift the weight creating greater stress on your back.
- If you keep the exact same load close to your body, the lesser distance creates a lighter load and less stress on your back.

KEEP SMOOTH

- Jerking increases the load on the discs.

SOME OTHER THINGS TO THINK ABOUT

- Always consider the use of a mechanical aid.
- During client handling, use your leg and hip muscles and knee joints to lift.
- When lifting a client or object, tighten your abdominal and pelvic muscles and keep the client or object close to your body to prevent injury.
- Avoid reaching over your head to lift to prevent strain on joints located along your spine.
- Lift in stages if you need to. If the person or object slips, lower them gently to the floor while tightening your abdominal muscles and avoid rotation.
- Follow the general lifting guidelines recommended by the National Institute for Occupational Safety and Health (NIOSH) which states, the most a person can lift with minimal risk of injury under ideal conditions is 23 kg or 51 pounds.⁽⁷⁾
- Refer to NIOSH lifting fact sheet for more information.

WHAT IS A MINIMAL LIFT PROGRAM?

- A minimal lift program is a program that will help to reduce the unnecessary risk of injury for clients and staff through the reduction of manual lifting of clients.
- The goal of a minimal lift program is to provide employees with a policy that will promote an environment where the usage of assistive equipment is encouraged and expected.
- These goals can be achieved by providing staff with access to an appropriate number of assistive devices for patient handling. These could include: walking belts, total lifts, sit stand lifts, shower chairs, transfer boards and slide sheets.
- Training can involve policy implementation goals through hands on teaching/training program and practice sessions.⁽⁵⁾

**If your agency is interested knowing more about a Minimal Lift Program and Policies, we can help. Please refer to contact information at the end of this booklet.*

DEFINING TRANSFERS, LIFTS, AND REPOSITIONING

- Transfers are guiding and/or assisting the patient from one surface to another. The patient is able to bear some weight in the legs and/or arms, and/or a part of the weight is borne by an assistive device such as a transfer board, walker or cane.
- Lifts are any procedure where the patient's entire body weight is borne by someone or something other than the patient (i.e.: a mechanical lifting device) for purposes of repositioning or moving to another surface.
- Repositioning is shifting, adjusting or changing the patient's position in bed, wheelchair, chair, or other supportive surface. ⁽⁵⁾

ASSESSMENT:

Completing an assessment before a transfer or lift is important because it:

- Helps to determine risk for injury.
- Promotes continuity of care.
- Helps you to be prepared for possible risks.
- Helps to minimize the risk of injury for the health care worker and the client.

ASSESSMENT OF THE WORK AREA:

- The work area should allow easy access to patients.
- A room should not be cluttered with furniture or equipment.
- A cluttered room increases the potential for trips and falls.
- A small room, such as a bathroom, may not allow natural body movements.

- Transfer patients onto a shower chair outside the bathroom to reduce transfers in crowded spaces.
- In small rooms, there may not be enough room for a portable lifting device. There are fixed lifting aids on tracks which do not require a lot of space.
- There should be enough clearance around beds and toilets to allow access on either side (at least 90 cm).
- A highly polished or wet floor does not provide good traction or a safe base for lifting (i.e. *shower*). Slips are more likely to occur on a highly polished or wet floor.
- Cover floors that get wet with a non-slip material.

PURCHASING OF EQUIPMENT:

- Purchase furniture with patient handling in mind.
- Removable arm and foot rests on wheelchairs and shower chairs make transfers easier.
- Beds that can be raised or lowered also make transfers easier.
- Adaptive clothes are needed for patients who are toileted using the hoist.
- The shower and toilets should be designed so pushing and pulling shower chairs into position is as easy as possible (i.e. *reduce height changes in the floor*).

STAFFING:

- Ensure there are enough nurses and nursing assistants available to perform patient handling tasks safely especially during high activity periods.

CLIENT COGNITION:

- Assess the client's senses, state of mind, memory, communication medical status and physical condition before engaging in client handling procedure.



Figure 1.



Figure 2.



Figure 3.



Figure 4.



Figure 5.



Figure 6.

INFORMATION ABOUT TRANSFERS, LIFTS AND REPOSITIONING

The following logos provide recommended guidelines for patient handling.

INDEPENDENT TRANSFERS: *Figure 1.*

- This should be used when a client is able to mobilize without risk of injury and the client is comfortable with the use of mobility aids. ⁽⁵⁾

SUPERVISED TRANSFERS: *Figure 2.*

- This should be used when the client is able to mobilize, but may require verbal or minimal physical cueing. Transfer belts should be used in all cases. ⁽⁵⁾

ONE-PERSON TRANSFER BELT/ PIVOT TRANSFER: *Figure 3.*

- This should be used when a client can stand unsupported or weight bear with assistance of one person who will provide less than 40 pounds (18 kg) of assistance. ⁽⁵⁾
- This transfer can also be performed if the physician orders feather, toe-touch or partial weight bearing.
- For safe handling a transfer belt must be used. ⁽⁵⁾

TWO-PERSON STANDING PIVOT TRANSFER: *Figure 4.*

- This transfer should be used when a client can bear weight through the legs but is heavy and unreliable. This technique requires two health care workers, with the tall person behind the patient. A transfer belt must be used. ⁽⁵⁾

WALKER TRANSFER: *Figure 5.*

- Walker transfer should be used when a client can bear weight through at least one leg, and whose upper extremity strength and mobility are adequate. This can also be used if the physician orders feather, toe-touch, or partial weight bearing. ⁽⁵⁾

SIT-STAND MECHANICAL LIFT (SARA LIFT): *Figure 6.*

- This lifting technique should be used when a client can sit with minimal support at the edge of the bed and is able to bear some weight. The client may be cognitively predictable and reliable. The client is able to tolerate harness under his/her arms. This should not be used with clients who have a hemiplegic arm. ⁽⁵⁾

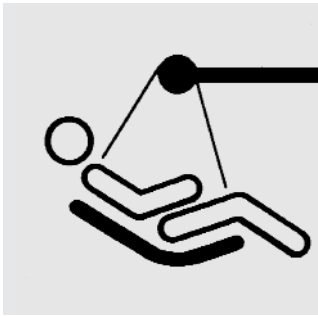


Figure 7

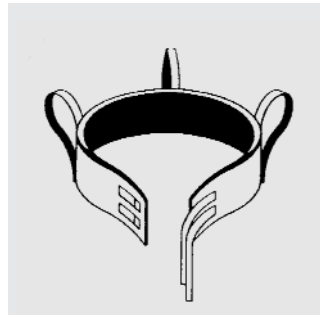


Figure 8.

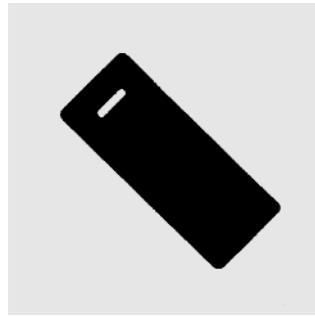


Figure 9.

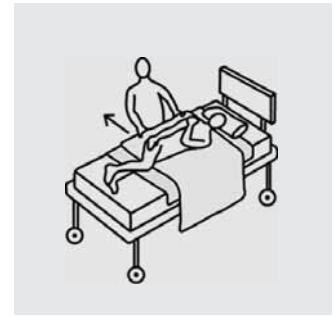


Figure 10.

TOTAL MECHANICAL LIFT: *Figure 7.*

- A total mechanical lift should be used when a client can only minimally transfer or is not able to assist with weight bearing. This should also be used if the client is cognitively unreliable or uncooperative, has poor head control or sitting balance or is extremely large or heavy and requires assistance.⁽⁵⁾

TRANSFER BELT: *Figure 8.*

- Transfer belts should be used when a client needs assistance with any transfer or for mobilization. ⁽⁵⁾

SLIDE BOARD/TRANSFER BOARD: *Figure 9.*

- Slide boards/Transfer boards should be used when transferring between equal height surfaces. Slide boards should also be used to facilitate transfer to wheelchair and for a client with excessive weakness in their lower limbs.⁽⁵⁾

SLIDE SHEETS: *Figure 10.*

- Slide sheets should be used in repositioning a client in bed who is unable to move themselves independently. Two caregivers are required for use. Slide sheets can also be used to move a client from bed to stretcher or in an emergency situation where the client has fallen in a confined space or the mechanical lift or other transfer methods cannot be employed. ⁽⁵⁾

PREVENTION:

- Examine your work environment.
- Avoid awkward or sustained postures or repetitive movements by varying your work activities throughout your day.
- Avoid forceful movements with a high load to avoid back injury.
- Maintain a neutral relaxed posture.
- Maintain client handling equipment.
- Ensure adequate staff to client ratios when considering engaging in client handling procedures.
- Ensure that staff has access to appropriate patient handling devices and ensure that all devices are in good working order.
- Ensure that your work area provides easy access to clients. (*i.e. transfer patients onto a shower chair outside the bathroom to reduce transfers in crowded spaces*).
- Plan ahead to ensure that you have considered all of the factors before engaging in a client-handling procedure.
- Adjust the working height of equipment to avoid bending stretching or twisting.
- Consider the use of a mechanical aid for client transfers.
- Exercise such as strength and conditioning helps maintain functional ability and helps prevent muscle sprains, low back pain, osteoarthritis, osteoporosis, shoulder instability and knee stability and pain.
- Stretching should be incorporated into an exercise program to help improve flexibility.
- Do not lift anything immediately after sitting for an extended period of time. Walk around and loosen up.

BOTTOM LINE:

- Reducing the chance of injury when handling patients requires a combination of equipment, training, and policy.
- If staff members are not properly trained on how and when to use ergonomic equipment, they will not use it.
- Health care workers should be involved in selecting equipment and creating policies since they are the patient handlers.
- For more information on equipment, handling techniques, and policies, read the booklets listed in the “Additional Resources” or contact the nearest OHCOW.

1. Akyeampong, E., & Usalcas, J. (1998).
Work Absence Rates, 1980 to 1997. Statistics
Canada, Catalogue no.71-535-MPB, no. 9
2. Hagen, K., & Thune, O. (1998).
*Work incapacity from low back pain in the general
population*. *Spine*, 23, 2091-2095.
3. Kerr, M., Laschinger, H., Severin, C., Almost, J.,
Thomson, D., O'Brien-Pallas, L., Shamien, J.,
McPerson, D., Koehoorn, M., & LeClair, S. (2002).
Monitoring the Health of Nurses in Canada. Ottawa:
Canadian Health Services Research Foundation.
4. Institute for Work & Health (2005),
IWH fact sheet work-related musculoskeletal disorders.
<http://www.iwh.on.ca/media/wmsd.php>
5. Health Care Health and Safety Association (2003).
*HCHSA Handle with Care: A Comprehensive
Approach to Developing and Implementing a Client
Handling Program*.
6. McGill, S
*Low back disorders : evidence-based prevention and
rehabilitation*. Champaign, IL, Human Kinetics; 2002.
7. Waters, T., Putz Anderson, V., Garg, A. & Fine, L. (1993).
*Revised NIOSH equation for the design and evaluation
of Manual lifting tasks*. *Ergonomics*, 36(7), 749-776.

ADDITIONAL OHCOW RESOURCE BOOKLETS:

1. *Work-related Musculoskeletal Disorders*.
2. *Working on Your Feet*.
3. *Franklin Gothic Book Oblique*

OHCOW OFFICES

If you need further assistance, call the Occupational Health Clinic for Ontario Workers Inc. Closest to you.

HAMILTON

848 Main Street East
Hamilton, ON
L8M 1L9
(905)-549-2552
Toll Free: 1-800-263-2129
Fax: (905)-549-7993
E-mail: hamilton@ohcow.on.ca

SARNIA-LAMBTON CLINIC

171 Kendall Street
Point Edward, ON
N7V 4G6
(519)-337-4627
Fax: (519)-337-9442
E-mail: sarnia@ohcow.on.ca

SUDBURY

1300 Paris St.
Suite 4
Sudbury, ON
P3E 3A3
(705)-523-2330
Toll Free: 1-800-461-7120
Fax: (705)-523-2606
E-mail: sudbury@ohcow.on.ca

TORONTO

970 Lawrence Ave. West
Main Floor
Toronto, ON
M6A 3B6
(416)-449-0009
Toll Free: 1-888-596-3800
Fax: (416) 449-7772
E-mail: toronto@ohcow.on.ca

WINDSOR

3129 Marentette Avenue
Unit #1
Windsor, ON
N9A 4N1
(519)-973-4800
Toll Free: 1-800-565-3185
Fax: (519)-973-1906
E-mail: windsor@ohcow.on.ca

PROVINCIAL OFFICE

15 Gervais Drive
Suite 601
Don Mills, ON
M3C 1Y8
(416)-443-6320
Fax: (416)-443-6323
Toll Free : 1-877-817-0336
E-mail: info@ohcow.on.ca

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