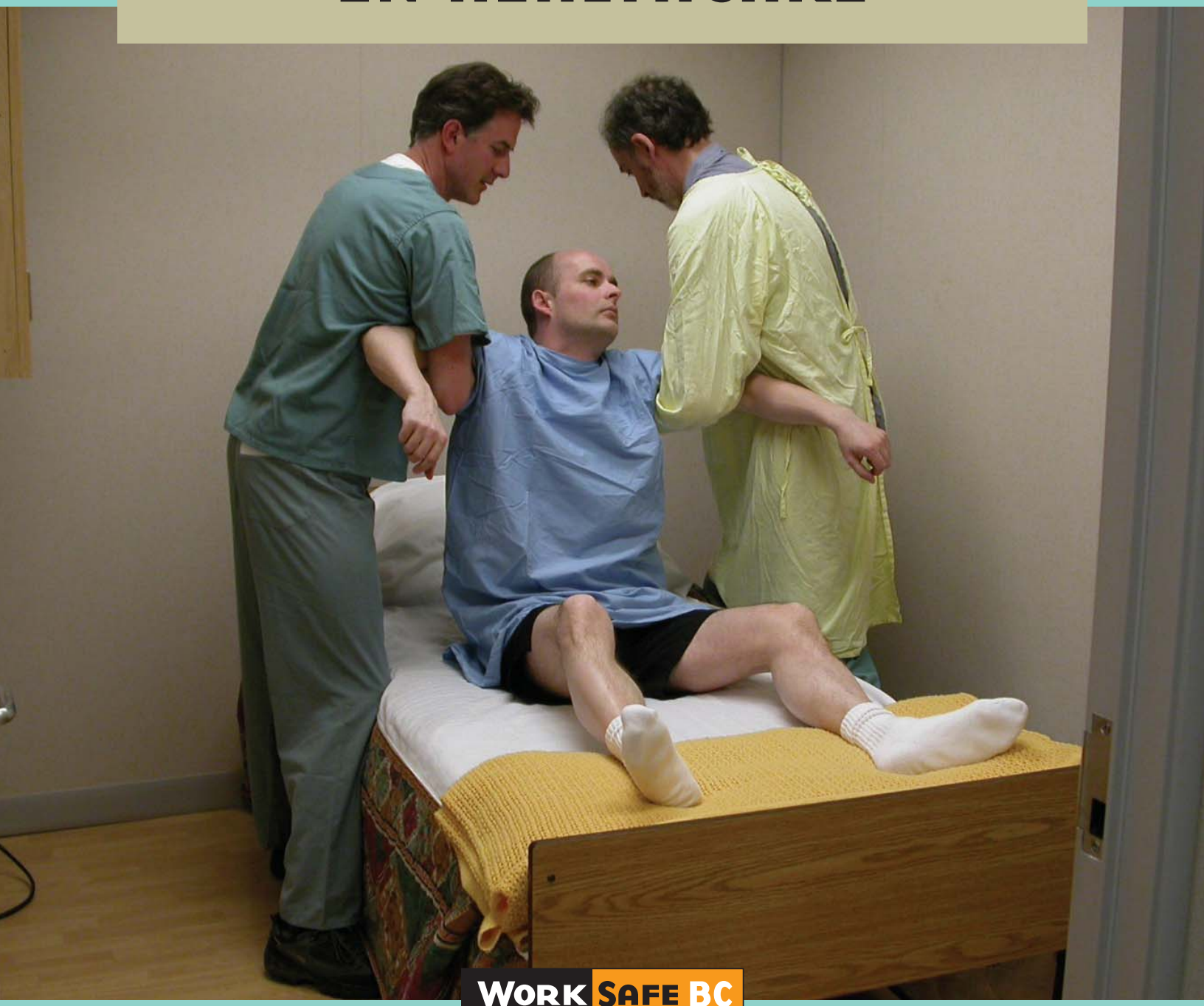
# High-Risk Manual Handling of Patients in Healthcare



WorkSafeBC

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Workers' Compensation Board of B.C.

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WorkSafeBC (the Workers' Compensation Board) is an independent provincial statutory agency governed by a Board of Directors. It is funded by insurance premiums paid by registered employers and by investment returns. In administering the *Workers Compensation Act,* WorkSafeBC remains separate and distinct from government; however, it is accountable to the public through government in its role of protecting and maintaining the overall well-being of the workers' compensation system.

WorkSafeBC was born out of a compromise between BC's workers and employers in 1917 where workers gave up the right to sue their employers or fellow workers for injuries on the job in return for a no-fault insurance program fully paid for by employers. WorkSafeBC is committed to a safe and healthy workplace, and to providing return-to-work rehabilitation and legislated compensation benefits to workers injured as a result of their employment.

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## WorkSafeBC publications

Many publications are available on the WorkSafeBC web site. The Occupational Health and Safety Regulation and associated policies and guidelines, as well as excerpts and summaries of the *Workers Compensation Act,* are also available on the web site: WorkSafeBC.com

Some publications are also available for purchase in print:

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# Contents

# Introduction

This guide has been written to provide information on patient moving and handling techniques that present higher risks of musculoskeletal injury (MSI) to healthcare workers. Information on safer patient-handling strategies is also reviewed.

An Appendix provides readers with a series of questions to consider when determining whether or not proper patient-handling practices are being used.

For further information on the process of identifying, assessing, and controlling the risks of MSI associated with patient handling, see *Handle with Care: Patient Handling and the Application of the Ergonomics (MSI) Requirements.* This WorkSafeBC publication is intended to help health care employers, managers, and workers interpret and apply the requirements of the Occupational Health and Safety Regulation, including factors to consider when performing a patient-handling risk assessment. A copy of *Handle with Care* can be located at WorkSafeBC.com.

MSI's are injuries or disorders of the muscles, tendons, ligaments, joints, nerves, blood vessels, or related soft tissue, including sprains, strains, and inflammation.

## Types of patient-handling activities

In this guide, "patient handling" refers to the lifting, lowering, holding, pushing, or pulling of the patient using bodily force of the care provider. The term "patient" is used to describe a client or resident.

Patient handling can be divided into two objectives, both of which may require manual lifting:

1. *Transferring*—moving the patient from one surface to another
2. *Repositioning*—moving the patient on the same surface

These objectives can be achieved by:

- Assisting the patient to move independently
- Providing minimal/moderate assistance with transfer assist devices
- Using mechanical lifts

Manual lifting is defined as lifting the whole or large part of the patient's weight. Eliminating/reducing the forces in these activities will significantly reduce the risk of injury.

## High-risk, patient-handling practices

It may be necessary to manually lift patients:

- In life-threatening situations
- Where the use of mechanical lifting devices is medically contraindicated for patient care

The following pages show specific patient-handling practices that are sometimes used when transferring or repositioning patients in a care environment. For each patient lift and transfer technique, the MSI risk factors are listed and an overall level of MSI risk (High, Moderate) is given.

Examples of safer patient-handling alternatives to high-risk practices are provided at the end of each lift or transfer technique. There are a number of options available to the employer depending on the degree of patient dependence (such as, ceiling lift, slide sheet, or pivot disc).

# Transfers and Repositions

**This section describes nine transfers and repositioning techniques:**

- Fore/aft lift
- Chicken or drag lift
- Cradle lift or basket lift
- Three-person lift
- Belt lift (raising a fallen patient from the floor)
- Blanket lift
- Two-person through arm lift or towel lift
- One-person through arm lift (repositioning a patient in bed)
- Australian shoulder lift (repositioning a patient in bed)

# Fore/aft lift

**Risk level: high**

This two-person lift has been used to move a patient from bed to chair or vice versa.

## Risk factors

*Lifting force*

- The rear-facing worker applies most of the lifting force, taking most of the patient's weight.
- The patient is supported at a distance away from the base of both workers' spines. This long lever effect places high levels of compression force on the workers' spinal discs and associated support tissues.

*Awkward postures*

- The front-facing worker is required to adopt an awkward posture, flexing forward at the waist while lifting, supporting, and carrying the patient's legs.
- In the final stages of the transfer, both workers may adopt awkward postures—twisting and lateral bending at the waist—while positioning the patient on the bed.

The Fore/aft lift is still routinely used by Emergency Medical Services personnel. However, this should only occur in situations of last resort, where an assessment has determined that there is no alternative to the manual lifting of patients.

## Safer patient-handling alternatives

- A mechanical lift provides a safer method of transfer.

# Chicken or drag lift

The chicken lift has been used for transferring a patient from bed to chair, lifting a patient up from the floor after falling, and repositioning the patient. Variations on this method employ the use of transfer belts, which are used to bind the patient's knees and thighs together to act as "handles." The use of belts does not eliminate or reduce the MSI risk factors.

**Risk level: high**

## Risk factors

*Lifting force*

- The load is taken at a distance from the spine.

*Awkward postures*

- The worker has to forward flex and rotate the spine while supporting the weight of the patient.
- The workers lift the patient by placing their arms under the axilla of the patient.
- This type of lifting can result in patient pain and shoulder dislocation. Accordingly, patients may react and strike back against the workers.

## Safer patient-handling alternatives

- *Transfer from bed to chair*
  A sit/stand mechanical lift can be used if the patient has sitting balance, can hold onto the lift handles, position and hold their feet on the lift footplate, and follow instructions. If the patient cannot do all of the above, then a mechanical lift should be used.

- *Reposition in bed*
  A low-friction slide sheet, or a mechanical lift and repositioning sling, can be used to reposition a patient in the bed.

# Cradle lift or basket lift

**Risk level: high**

This high-risk technique has been used to transfer a patient from bed to chair or reposition a patient in a chair. Two workers lift the patient by placing their hands under the thighs and axilla of the patient or clasping hands behind the patient's back.

There are variations of this lift that involve placing a transfer belt around the waist and/or thighs of the patient. (The use of the transfer belt does not eliminate or reduce the risk of MSI.)

## Risk factors

*Lifting force*

- The weight of the patient is at a distance from the worker's spine, resulting in high levels of force being supported by the worker's spinal discs.
- Workers must lift, hold, and carry the patient.

*Awkward postures*

- This lift requires the workers to flex and bend sideways at the waist while supporting the patient.
- At the end of the lift, the workers have to twist at the waist.

## Safer patient-handling alternatives

A sit/stand lift can be used if the patient has sitting balance, can hold on to the handles, position and hold their feet on the lift foot plate, and follow instructions. If the patient cannot do all of the above, then a mechanical lift should be used.

# Three-person lift

The three-person lift has been used to transfer a patient from bed to stretcher. This lift requires distributing the patient's weight between three workers.

**Risk level: high**

## Risk factors

*Lifting force*

- Reaching under the patient results in the load being supported at a distance from the spines of the workers, placing excessive strain on the workers' spinal discs, shoulders, and upper backs.
- The patient may also be in pain and therefore more likely to react during the lift. This changes the patient's centre of gravity, thus increasing the risk.
- Most of the load is taken by one or two workers.

*Awkward postures*

This lift requires workers to bend forward at the waist while holding a load.

## Safer patient-handling alternatives

There are many types of sliding boards/sheets that are designed to reduce the force during the lateral transfer from one surface to another. For more information on slide sheets, see *Transfer Assist Devices for the Safe Handling of Patients* at WorkSafeBC.com.

# Belt lift (raising a fallen patient from the floor)

**Risk level: high**

The transfer belt lift is a two-person lift used for raising a fallen patient from the floor. The lift involves the use of interlocking transfer belts. One belt is put around the patient, and the other is attached to the belt around the patient to act as a long lever arm for the worker to pull on.

When a patient falls to the floor, workers should not feel compelled to move a patient quickly, unless there is a life-threatening situation. Workers should make the patient comfortable and call for medical assistance.

## Risk factors

### Standing worker

*Lifting force*

- The worker has to apply force primarily by pulling on the transfer belt.
- The worker has a degree of lateral (sideways) bending at the waist.

*Awkward postures*

- Pulling on the transfer belt results in the worker's shoulder adopting an awkward abducted posture.
- Lateral bending increases in the course of pulling the patient to an upright posture. This twisting under load increases the risk of injury to the worker's lower back.

### Squatting worker

*Lifting force*

- The worker is required to support the patient during the raising process.
- The worker should act as a guide, though there is a temptation to assist by trying to lift the patient.

## Safer patient-handling alternatives

- If the patient can assist enough to get into a four-point kneeling position, then a chair can be used to provide a support for the patient as they assist themselves to their feet or to a sitting position. This should require minimal assistance from the workers. Care workers can be trained in methods of assisting patients to a sitting or standing posture using a chair as a support device for the patient. This, however, requires specific training in this technique. This technique may be an alternative in a domestic environment.
- If the patient cannot or will not assist, then a mechanical lift should be used.

# Blanket lift

**Risk level: moderate**

The blanket lift has been used to lift patients when physicians indicate that there are medical contraindications for a mechanical lift.

A blanket is placed under the patient. Then, four to six workers each grab one corner of the blanket, and lift the blanket with the patient onto a stretcher or bed.

## Risk factors

*Lifting force*

The force required to lift the patient places a high level of stress on the muscles and soft tissues of the wrist, shoulders, and back.

*Awkward postures*

The workers must bend forward at the waist while lifting.

This technique is not without risk, both to the worker and the patient, and should only be used as a technique of last resort.

## Safer patient-handling alternatives

If the patient cannot stand up with minimal assistance, then a mechanical lift with a supine support frame that has the ability to go to the floor should be used.

In an attempt to minimize the risk of injury, workers may place the patient on a stretcher on the floor and then lift the stretcher. This technique will not eliminate the lifting force required during lift.

# Two-person through arm lift or towel lift

This technique has been used to reposition the patient in bed or lift the patient from one surface to another. It involves placing a towel under the thighs of the patient to act as a sling support. Transfer belts are sometimes used as an additional handle, even though they should not be used this way.

**Risk level: high**

## Risk factors

### *Lifting force*

The workers lift the patient manually by applying force through the patient's arms, shoulders, and under the thighs.

### *Awkward postures*

The worker lifts with an extended reach, with lower back flexed at the waist.

## Safer patient-handling alternatives

- *Patient able to assist*
  If able, the patient should be encouraged to assist in turning and moving in bed. Transfer assist devices (such as, slider [repositioning] sheets, bed handles, bed ladders) can be used to assist such patients.
- *Patient not able to assist (dependant)*
  In order to minimize the risk of injury when repositioning, dependent patients require a transfer assist device, such as a low-friction slide sheet, mechanical lift, or roller board.

Soaker (incontinence) pads are still routinely used for repositioning patients in bed. Soaker pads are not designed for use as transfer devices. Even with good body mechanics, there is still a high degree of force needed to complete the movement. As such, their use does not reduce the risk of injury to workers compared to that of low-friction transfer assist devices.

# One-person through arm lift (repositioning a patient in bed)

**Risk level: high**

The through arm lift (one-person) has been used to reposition a patient in bed, or transfer a patient from bed to chair.

## Risk factors

### *Lifting force*

Because the worker cannot use leg muscles to perform an effective weight shift, the application of force is generated by a "shrugging" of the worker's shoulders.

### *Awkward postures*

The worker's lower back can be in a forward flexed and twisted posture.

## Safer patient-handling alternatives

- *Patient able to assist*
  If able, the patient should be encouraged to assist in turning and moving in bed. Transfer assist devices (such as, slider [repositioning] sheets, bed handles, bed ladders) can be used to assist such patients.
- *Patient not able to assist (dependant)*
  In order to minimize the risk of injury when repositioning, dependent patients require a transfer assist device, such as a low-friction slide sheet, mechanical lift, or roller board.

# Australian shoulder lift (repositioning a patient in bed)

The shoulder lift has been used to reposition a patient in bed or to transfer a patient from bed to chair. Workers link one arm around the waist or under the thighs of the patient and support the patient's trunk by placing their shoulder under the patient's axilla. The worker's free arm is placed on the bed for support.

**Risk level: high**

## Risk factors

*Lifting force*

- Each of two workers must lift the patient by using one shoulder as the support for the load. This puts a high level of force through the shoulder of the patient and the lower backs of the workers.
- Elbows and wrists are also exposed to high levels of lifting force.
- The load is supported at a distance from the base of the workers' spines.

*Awkward postures*

- The workers must adopt a forward flexed position at the beginning and end of the lift.
- The workers can twist their lower backs while supporting the load of the patient.
- The arm that supports the unloaded shoulder/arm of the worker (the strut arm) twists as the patient is moved up in bed.
- The workers are supporting and carrying an unbalanced load on one side of their trunk.

## Safer patient-handling alternatives

Safer patient-handling alternatives are the same as those on page 12.

# Pivot Transfers

Some transfers require a greater level of skill to perform than others. What may be a straightforward activity for an occupational or physical therapist may not be for a care aide. This is because some transfer techniques, like the pivot transfers, place greater reliance on the patient to understand what they have to do—achieve and maintain a weight-bearing stance and cooperate with the care worker at critical moments during the transfer. Failure to assess the patient's ability to do both of these tasks significantly increases the risk of injury to the worker.

### There are two standard methods used to accomplish pivot transfers:

- Two-person pivot
- One-person pivot

# Two-person pivot transfer

**Risk level: moderate**

The two-person technique has been used to transfer a patient from one surface to another, and involves the patient turning 90–180 degrees while standing or semi-squatting (low pivot) (i.e., moving from bed to chair). One worker stands in front of the patient and uses her or his weight to counterbalance the patient's weight, while the rear worker guides the patient between surfaces.

**For this transfer, the patient must be able to weight bear on at least one leg.** However, because the patient has little room to maneuver, he or she is limited in the ability to assist during the transfer.

## Risk factors

There is a general belief that when a patient is too dependant for a one-person assist, then a two-person transfer will reduce the risk. This is not always the case.

### Front worker

*Lifting force*

- Workers performing this technique often have a tendency to lift the client to a standing position rather than using their weight to counterbalance the patient's weight.
- If the patient fails to weight bear, this places a sudden force on the lower back of the worker.

*Awkward postures*

The worker must perform the weight shift at a distance from the base of the spine, thereby increasing the stress on the soft tissues of the lower back.

### Rear worker

*Lifting force*

In this transfer, the rear worker is at greatest risk of MSI. Though the workers are supposed to guide the patient, if the patient fails to weight bear, the rear worker will be tempted lift and support the patient.

*Awkward postures*

- The worker is in an unstable posture with one leg on the floor and the other on the bed. During the transfer, the worker adopts a twisted posture at the waist, wrist, and shoulder.
- The worker adopts an awkward posture of the lower back and shoulder as the transfer is carried out.

## Safer patient-handling alternatives

- A floor-ceiling pole or bed handles can be used by a patient to pull on when attempting to stand.
- A "Samhall Turner" is a transfer assist device that can be used to pivot and turn the patient in place of a manual pivot transfer.
- A sit/stand mechanical lift can be used, although the patient must be able to fulfill the criteria for the safe use of such equipment (the patient has sitting balance, can hold onto the lift handles, and can position and hold their feet on the lift footplate).
- Lateral transfer boards with sliding discs can also be used.

While the use of a transfer belt reduces the reach distance for the worker, it does not minimize the significant force to the lower back of the worker if the patient fails to weight bear.

# One-person pivot transfer (hands around neck)

**Risk level: high**

This transfer, a variation of the one-person pivot transfer, involves the placement of the patient's arms around the worker's neck. This poses a high risk of injury to the worker's neck and upper back if the patient fails to weight bear. The patient should also never be permitted to place their hands on the worker's shoulders during a pivot transfer because the patient can quickly move their hand position to the worker's neck. If unable to reach around to the transfer belt, the worker should reassess his or her ability to perform the transfer safely.

## Risk factors

Risk factors for this technique are the same as those for "One-person pivot transfer (hands around waist)."

## Safer patient-handling alternatives

- A floor-ceiling pole or bed handles can be used by a patient to pull on when attempting to stand.
- A "Samhall Turner" is a transfer assist device that can be used to pivot and turn the patient in place of a manual pivot transfer.
- A sit/stand mechanical lift can be used, although the patient must be able to fulfill the criteria for the safe use of such equipment (the patient has sitting balance, can hold onto the lift handles, and can position and hold their feet on the lift footplate).
- Lateral transfer boards with sliding discs can also be used.

# One-person pivot transfer (hands around waist)

This transfer has been used to move weight-bearing patients from one sitting position to another. It is critical for the safe conclusion of this transfer that the patient is able to weight bear and move to a full standing position.

The technique enables the patient to be transferred in a semi-squatted position. *In theory*, the worker uses the counterbalancing force of his or her own body to counter the weight of the patient. However, because the transfer happens quickly, even if the patient can assist, there is no time or opportunity for them to assist.

Though pivot transfers are classified as moderate risk, this technique can quickly transition to a high-risk activity if the patient fails to weight bear or it is done incorrectly by the worker. Even though workers receive training in this technique, they still may be tempted to lift the patient.

**Risk level: moderate/high**

## Risk factors

### *Lifting force*

- Workers performing this technique can have a tendency to lift the patient rather than performing a weight transfer.
- If the patient fails to weight bear, this places a sudden force on the lower back of the worker.
- Workers are often taught to block the flexion of the patient's knees, to prevent the patient from collapsing. This gives the worker a very narrow base of support for the weight transfer. If the patient fails to weight bear, the patient can collapse onto the unbalanced worker.

### *Awkward postures*

- The worker must perform the weight shift at a distance from the base of the spine, thereby increasing the stress on the soft tissues of the lower back. A transfer belt reduces the reach distance, but does not reduce the weight of the load.

## Safer patient-handling alternatives

Safer patient-handling alternatives are the same as those on page 18.

# Appendix

# Questions to consider when evaluating patient-handling situations

## Patient Assessment

- ❑ Has a risk assessment been completed for each of the handling activities?
- ❑ If a risk assessment was completed, did it address MSI risk factors required by the Occupational Health and Safety Regulation?

## Equipment

- ❑ Has appropriate equipment been provided to lift dependant patients?
- ❑ Is the equipment easily accessible?
- ❑ Do workers use the equipment? If so, to what extent?
- ❑ Is the equipment being used correctly? (For example, transfer belts are designed to enable the worker to get closer to the patient while ambulating or as an assist to help the patient to stand. They should not be used as handles to lift or drag the patient.)

## Training

- ❑ Does worker training include high-risk, patient-handling practices such as manual lifting?
- ❑ Do workers know what types of techniques have been approved by the physiotherapist, occupational therapist, or patient-handling assessor?
- ❑ Do workers know what types of handling procedures are prohibited?
- ❑ Does training cover the use of mechanical lifts or transfer assist devices?
- ❑ Have workers received sufficient training in the identification of MSI risk factors in their handling practices?
- ❑ Are workers ignoring safer work procedures in preference for high-risk techniques?
- ❑ Do supervisors require additional training?

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