

# MSI Risk Assessment and Control for Client Handling

This guide is for facilities and organizations whose workers handle clients during the course of their work. It is designed to help you assess the associated risk of musculoskeletal injury (MSI) and develop a framework for minimizing that risk.

The guide contains the following information:

- Background information related to client handling and assessing and controlling the related MSI risk
- A template for demonstrating how the risk was assessed and the plans for minimizing the risk
- A sample table featuring a typical client handling task, and the factors to consider when deciding on appropriate equipment and procedures for moving a client
- Regulatory requirements related to MSI prevention and the use of mechanical lifts

## Background

### What is client handling?

Client or patient handling, as referred to in this guide, is any activity requiring force to push, pull, lift, lower, transfer, or in some way move or support a person or body part (as defined by the International Standards Organization, ISO/TR 12296:2012).

Handling and moving clients who require more than minimal assistance, such as verbal cueing, puts significant force and postural stress on workers' bodies.

### What is an MSI risk assessment for client handling?

An MSI risk assessment for client handling is a process for determining the risk of injury associated with physically helping clients move. *Clients* includes residents, patients, students, and any individuals under care.

An assessment considers a number of MSI risk factors. Determining the level of risk to workers will help establish the safest method for handling clients.

Note that an MSI risk assessment is also required for many physical activities not related to client handling, such as laundry, custodial, food services, and furniture moving.

## Who completes the MSI risk assessment?

An MSI risk assessment must be completed by people knowledgeable of your work and the control methods associated with the MSI risk factors. This could include care staff, clinical educators, rehabilitation staff, ergonomists, and equipment suppliers.

The process also requires that you consult with the following people:

- Workers reporting signs and symptoms of MSIs
- A representative sample of workers who carry out the work
- The joint health and safety committee (or worker health and safety representative)

## What should an MSI risk assessment include?

Handling and moving clients who need more than minimal assistance imposes a significant risk of injury. An MSI risk assessment is an essential step toward minimizing that risk. An assessment describes the work and how it affects the risk of MSI to workers. Include a list of the client handling tasks that pose a risk of injury to workers, and look at other factors that may increase the risk.

Include the following in the MSI risk assessment:

- An overview of your facility, including types, quantity, and availability of equipment
- Current research and best practices
- Existing MSI prevention policies and procedures
- A description of the work (tasks) and the associated MSI risk factors

## How are risk control measures determined?

After collecting and analyzing data, the next steps are to determine how to perform the tasks in a way that minimizes risk to the worker and the client, and also meets the client's needs. Keep in mind that not all control measures reduce risk factors equally.

Merely completing the template in this guide does not necessarily mean that the risk to workers has been minimized. To determine which control measure will minimize the risk of MSI (or reduce the risk to the lowest practicable level), it's best to research industry best practices and consult with equipment suppliers and other employers doing similar work.

The following questions from guideline [G4.50-2](#) (Minimizing the risk of MSI when moving a physically dependent person) may help you determine which control measures will minimize risk:

- Will the equipment allow the worker to conduct all required tasks?
- Is the equipment suitable for the space where the tasks will take place?
- Have you minimized the risk factors identified in the risk assessment?
- Does the equipment create new hazards to the worker or the person being lifted?

Controlling the risk of MSI while moving a physically dependent client also requires effective policies and procedures, including the following:

- Provision for emergency situations
- Complementing equipment, such as adjustable beds, wheelchairs, and tubs
- Appropriate equipment maintenance and inspection
- Adaptive clothing
- Effective training and supervision

Training workers on the appropriate selection and use of available controls is an important part of reducing MSIs. Training in body mechanics and manual handling on its own does not minimize the risk of MSI and is not considered a control measure.

Keep in mind too that when looking at MSI control measures, you should consider the needs of both your current and future client populations.

### **What are the steps in the risk assessment and control process?**

Steps in the process can include the following:

- Assign a person or team to manage the process.
- Look at where and how client handling currently occurs, and where it might in the future.
- Document specific client handling: where they occur, client capabilities, the equipment used, and the procedures that support safe client handling.
- Incorporate client assessments into the overall facility assessment.
- Identify equipment and practices that minimize the risk of injury to your workers.
- Assign tasks to close the gaps between current practice and the practices needed to minimize the risk of injury. Develop interim measures in those instances where longer-term solutions are required.

## Template

Your risk assessment document should contain the following elements.

### Cover page

A typical cover page includes the following:

- Employer's name and the specific location for which the risk assessment applies
- The date the document was created, when it was last reviewed, and the date it will be reviewed next
- The names of those involved in the risk assessment process, including joint health and safety committee members, workers who carry out client handling tasks, and workers with signs and symptoms of MSI

### Overview

A typical overview includes the following:

- A short description of your facility or unit, what it does, and who it serves
- The number of clients and their typical care needs as they relate to mobility levels
- A description of clients' other conditions, such as cognition levels, that impact their ability to move

### Current research and best practices

Review any current research on the risk related to client handling tasks and how to minimize or control them. For example, research has shown that, due to its cumulative nature, lifting more than 16 kilograms under ideal conditions exposes workers to a high risk of MSI.<sup>1</sup> Other research has shown that pushing floor-based mechanical lifts causes unsafe shear forces on the spine, and that overhead lifts do a better job of minimizing risk.<sup>2</sup>

Investigate current best practices for client handling. New equipment and new practices are constantly being introduced. Equipment suppliers may be able to advise you on specialized solutions to complex challenges. Best practices, such as the [Provincial Safe Patient Handling Standards for Musculoskeletal Injury Prevention in British Columbia](#), can also provide guidance.

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<sup>1</sup> Waters, T.R. (2007) When is it safe to manually lift a patient? *The American Journal of Nursing*, 107:8, 53-58.

<sup>2</sup> Marras, W. S., Knapik, G. G. and Ferguson, S. (2009) Lumbar spine forces during manoeuvring of ceiling-based and floor-based patient transfer devices, *Ergonomics*, 52: 3, 384-397.

## Existing MSI prevention policies and procedures

Your current client handling procedures can be attached as an appendix. They may include the following:

- Mobility assessment tools
- Point-of-care assessments
- Safe use of equipment
- Adaptive clothing
- Methods of documenting and communicating risk to staff
- Planned client re-assessments
- Education and training on client handling provided to workers

## Nature of risk

The following approach allows you to break down the work at your facility into tasks that involve client handling, the risk factor(s) associated with each task, and the factors that impact the risk associated with each task. It also allows you to note control measures for each task, such as assistive equipment and procedures. A sample completed table is provided at the end of this section of the guide.

## Task

List client handling tasks where there is a risk of MSI. Include both tasks that are frequently performed (e.g., transfers, repositioning), and those that are done less frequently (e.g., assisting a client who has fallen in a common area, assisting a client into a car).

Typical care tasks include:

- Transfers
- Repositioning (in bed, chair)
- Toileting
- Bathing
- Dressing
- Falls

## Risk factors

Most client handling tasks require workers to reach, bend, and twist. Add to that the weight of most clients or their limbs (small babies may be an exception) and the forces imposed on workers' bodies are significant.

## Mobility level

The risk of MSI associated with a client handling task is greatly affected by the client's mobility level. An accurate description of the client's mobility level for each task is crucial for determining the risk to workers. Workers who handle clients requiring physical assistance will need mechanical equipment to perform their jobs safely.

Your organization may have different classifications of mobility, but generally they include:

- Independent (client requires no assistance)
- Supervision (client requires verbal cueing)
- Assist
- Dependent

## Layout and conditions

The physical layout and condition of the area where workers lift or move clients can affect the force and working posture required, and may affect the options for safe handling. Some factors to consider include:

- Configuration
- Furniture
- Clutter
- Flooring material and condition

## Other factors

Factors related to a client's medical condition may affect the risk of MSI and the safest method for handling the client. For example, a client who is unable to consistently follow instructions may require a higher level of mechanical assistance when being moved or lifted.

Other factors to consider include:

- Cognitive impairment
- Physical limitations (e.g., stroke)
- Amputee

## Assistive equipment

In this column, list the type of equipment required to minimize the risk associated with the client handling task. The equipment must be able to perform the task safely.

Possible equipment options include:

- Overhead mechanical lift
- Slings, including universal, repositioning, and band slings
- Non-mechanical assistive devices, including transfer boards and slider sheets

## **Procedures**

Identify the procedures for performing each task safely, based on the mobility level, layout and physical conditions, equipment, and other considerations.

## **Action items**

After completing the risk assessment, you should be able to determine whether the risk of MSI to your workers is as low as practicable, and to identify any gaps in your MSI prevention program. Document your findings and recommendations, and include an action plan with responsibilities assigned and completion dates for each task. Examples of action item headings could include:

- Equipment procurement
- Changes to workplace layout
- Scheduling alterations
- Policy and procedural recommendations
- Education and training recommendations

## Sample Nature of Risk Table

Risk factors	Assessment considerations			Control measures	
	Mobility level	Layout and conditions	Other factors	Assistive equipment	Procedures
<b>Task:</b>					
<b>Transfers — from bed to walker or wheelchair</b>					
N/A	Independent	N/A	N/A	N/A	N/A
N/A	Supervision	N/A	N/A	<ul style="list-style-type: none"> <li>Transfer board</li> <li>Transfer pole</li> </ul>	<ul style="list-style-type: none"> <li>Point-of-care assessment</li> <li>1-person assist</li> <li>Verbal cueing</li> </ul>
<ul style="list-style-type: none"> <li>Force: lifting limbs</li> <li>Awkward postures: bending at back, reaching at shoulders</li> <li>Duration: 12-hour shifts</li> </ul>	Assist	<ul style="list-style-type: none"> <li>Configuration: access to both sides of bed, manoeuvring space for wheelchair</li> <li>Furniture: doesn't impede access to bed</li> <li>No objects around bed</li> <li>Flooring: linoleum in good condition</li> </ul>	<ul style="list-style-type: none"> <li>Cognitive impairment</li> <li>Resistive</li> <li>Physical limitations (e.g., stroke)</li> <li>Amputee</li> <li>Language</li> </ul>	<ul style="list-style-type: none"> <li>Overhead lift: X-Y gantry</li> <li>Sling: universal, hygiene, walking</li> <li>Adjustable bed</li> </ul>	<ul style="list-style-type: none"> <li>Point-of-care assessment</li> <li>2-person assist</li> <li>Safe work procedure for lift</li> <li>Verbal cueing</li> <li>Remove obstacles around bed</li> <li>WC/WW placement</li> </ul>
<ul style="list-style-type: none"> <li>Force: lifting limbs</li> <li>Awkward postures: bending at back, reaching at shoulders</li> <li>Duration: 12-hour shifts</li> </ul>	Dependent	<ul style="list-style-type: none"> <li>Configuration: access to both sides of bed, manoeuvring space for wheelchair</li> <li>Furniture: doesn't impede access to bed</li> <li>No objects around bed</li> <li>Flooring: linoleum in good condition</li> </ul>	<ul style="list-style-type: none"> <li>Cognitive impairment</li> <li>Combative</li> <li>Physical limitations (e.g., stroke)</li> <li>Amputee</li> </ul>	<ul style="list-style-type: none"> <li>Overhead lift: X-Y gantry</li> <li>Sling: universal</li> <li>Adjustable bed</li> </ul>	<ul style="list-style-type: none"> <li>Point-of-care assessment</li> <li>2-person assist</li> <li>Safe work procedure for lift</li> <li>Remove obstacles around bed</li> <li>WC/WW placement</li> </ul>



## Regulatory requirements

The following table lists some of the regulatory requirements related to client handling from the ergonomics (MSI) sections of the Occupational Health and Safety Regulation. This list is by no means exhaustive.

Regulation section	Additional details
4.47 MSI risk identification	For client handling, the risk factors usually include the force required, working postures, and duration.
4.48 MSI risk assessment	Handling clients who require more than minimal assistance poses a considerable risk to workers and must be assessed.
4.49 MSI risk factors	<p>An MSI risk assessment must consider:</p> <p>The force required, repetition, duration, work postures, and local contact stresses that occur when handling clients</p> <p>Aspects of the layout and condition of the workplace, including working reaches, working heights, and floor surfaces</p> <p>Characteristics of the client being handled, including size, weight, mobility, and cooperation</p> <p>Characteristics of the organization of work, including work-recovery cycles, task variability, and work rate</p>
4.50(1) MSI risk control	Typical MSI risk control measures that have been shown to minimize the risk to workers include mechanical aids, such as X-Y gantry overhead lifts.
4.51(1) & (2) MSI education & training	Workers must be educated in the risk factors associated with client handling, and trained in the use of equipment and the procedures to minimize the risk.
4.52(1) MSI evaluation	<p>An evaluation of the compliance measures typically requires consideration of:</p> <ul style="list-style-type: none"> <li>• Evidence of reduced exposure to MSI risk factors</li> <li>• Reduction in worker discomfort</li> <li>• Reduction of MSI complaints</li> <li>• Reduction of MSI claims</li> </ul>

Regulation section	Additional details
4.53(1) & (2) MSI consultation	<p>The joint committee or worker health and safety representative must be consulted throughout the MSI-prevention process.</p> <p>Front-line staff, especially those with signs and symptoms, must be consulted during the risk assessment process.</p>

Overhead lifts must adhere to the following regulatory requirements from Part 14 (Cranes and Hoists) and Part 15 (Rigging) of the Occupational Health and Safety Regulation.

- 14.3(1) Identification
- 14.5(1) Rated capacity indication
- 14.11(1) Support structure
- 14.12(2) Manual and instructions
- 14.13(1) Inspection, maintenance and repair
- 14.13(2) Inspection, maintenance and repair
- 14.15(1) Modifications
- 14.28(1) Controls
- 15.5(1) Component identification
- 15.52 Sling identification
- 15.10(1) Open hook restriction
- 15.31 Inspection before use
- 15.54 Synthetic web sling rejection criteria

You must also adhere to manufacturer's instructions for the safe operation of mechanical lifts and slings.

Regulatory requirements related to internal responsibilities — including supervision, incident investigations, and work practice inspections — also apply.