Handbook of Occupational Hazards and Controls for Rehabilitation Professionals

Occupational Health and Safety Hazards and Controls for Audiology, Occupational Therapy, Physiotherapy and Speech-Language Pathology Workers
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SECTION 1

Introduction
Section 1 – Introduction

As part of the Alberta Healthcare Initiative, a series of Best Practice documents were produced by Alberta Employment and Immigration – Workplace Health and Safety to better acquaint health-care workers with workplace hazards and appropriate control measures.

Five documents have been produced; each was developed with the input of a multidisciplinary stakeholder group. The documents are available on the Alberta Employment and Immigration website www.employment.alberta.ca/SFW/6311.html as follows:

<table>
<thead>
<tr>
<th>Title</th>
<th>URL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Best Practices for the Assessments and Control of Psychological Hazards, Vol. 5</td>
<td>(In development)</td>
</tr>
</tbody>
</table>

In an effort to focus the hazard assessment and control information for specific health-care professions, a series of short summaries of relevant information have been produced using excerpts from the five best practice documents. Readers are directed to the original documents for more details and more comprehensive information. Please note that hyperlinks are provided to reference documents for the convenience of the reader. These links are functional at the time of first availability of this document, but due to the changing nature of web information, may not be functional at a later date. The Government of Alberta does not assume responsibility for updating hyperlinks.

This document focuses on hazards and controls in Audiology (Aud), Occupational Therapy (OT), Physiotherapy (PT), and Speech-Language Pathology (SLP). This document will use the term “Rehabilitation Professionals” to encompass professionals and support personnel in all of these disciplines.
**HOW THIS HANDBOOK IS ORGANIZED**

This Handbook is designed as a reference manual. Rehabilitation Professionals and those who employ them may consult individual sections to obtain information related to general OHS issues, such as legislation and programs, as well as specific hazards that are categorized as biological, chemical, physical and psychological. In each of the hazard sections, charts are provided for a more rapid reference to specific hazards and controls. Hazards are linked to work tasks and controls (the equipment and procedures used to reduce an employee’s exposure to a hazard) are listed for each hazard. Due to the desire to have this Handbook used as a reference, there may be some repetition in places where the same controls are described for different hazard classes.

**MANAGING OCCUPATIONAL HEALTH AND SAFETY**

For most Rehabilitation Professionals, the top priority is the safe and effective rehabilitation of a client or patient. It is not uncommon that the Professional’s own safety is sometimes compromised when it comes to providing services. Rehabilitation Professionals may be subject to a wide range of hazards that may impact their ability to work. These include (but are not limited to) ergonomic issues, working alone, driving hazards when going to clients’ homes, the potential for abusive behaviour from clients or co-workers, exposure to chemical and biological agents, and physical hazards such as noise, trips and falls, radiation, etc. As a result of workplace incidents, many Rehabilitation Professionals sustain work injuries each year. The following list summarizes the impact of worker injuries for an employer:

- Health-related costs of treating the injured worker
- Temporary (or permanent) loss of an experienced professional
- Time and money spent on hiring and training a replacement worker
- Pain and suffering of the injured worker
- Inconvenience for the family of the injured worker, and
- Lowered morale in the workplace

To identify and reduce the potential for exposure to various hazards, an organization is advised to ensure adequate and appropriate health and safety programs are implemented. A good health and safety program is well-integrated into the employer’s culture and reflects the high value the employer places on those who work there.

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1 The terms *client* and *patient* may be used together or interchangeably throughout this document to reflect the receiver of rehabilitation services.
Occupational Health and Safety – A Joint Effort

The employer and the workers of the organization are partners in managing the health and safety of the workplace. Each has a significant role to play to ensure an effective system.

<table>
<thead>
<tr>
<th>Management</th>
<th>Workers</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Establishes, implements, communicates and enforces policies and safe work procedures</td>
<td>• Are aware of health and safety policies and safe work procedures</td>
</tr>
<tr>
<td>• Monitors workplace safety and health</td>
<td>• Follow company policies, rules, and safe work practices</td>
</tr>
<tr>
<td>• Identifies and corrects workplace hazards</td>
<td>• Attend training</td>
</tr>
<tr>
<td>• Provides training</td>
<td>• Report all hazards and incidents</td>
</tr>
<tr>
<td>• Follows up on reported incidents</td>
<td>• Cooperate with management in OHS program development and implementation</td>
</tr>
</tbody>
</table>

In addition to the moral rationale for implementing occupational health and safety policies, programs and practices, there is a legal imperative for all employers to ensure the health and safety of all those in the workplace.

The Legal Imperative

Occupational health and safety legislation sets minimum standards for workplace health and safety and designates legal accountabilities. In large multidisciplinary organizations, rehabilitation services often rely on the larger organization to identify relevant legislation and ensure that programs and activities meet legal standards. For independent rehabilitation service providers it is critical that there is a basic understanding of applicable legislation and that programs are implemented to ensure compliance.
The following section, excerpted from *Volume 1 – Overview of Best Practices in Health and Safety in the Healthcare Industry,* provides concise information and references related to OHS legal requirements.

The Government of Alberta’s *Employer's Guide to the Occupational Health and Safety Act* includes discussion of the following employer responsibilities:

- Identification, communication and control of workplace hazards
- Maintenance of equipment in safe working order
- Proper labelling and storage of chemicals
- Development and enforcement of safe work practices
- Provision of Material Safety Data Sheets and proper labels for controlled substances
- Training of workers
- Implementation of appropriate protective measures

The Government of Alberta’s *Worker's Guide to the Occupational Health and Safety Act* includes discussion of the following worker rights and responsibilities:

- The right to know about the hazards and controls in the workplace

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• The responsibility to participate in training and apply knowledge to the job
• The right to access the employer’s safe work procedures or codes of practice
• The responsibility to follow health and safety rules
• The responsibility to report unsafe situations and refuse to perform work that puts the worker or co-workers in imminent danger

Serious Injuries and Incidents
Employers must report serious injuries and incidents to Workplace Health and Safety as soon as possible. The types of reportable incidents are detailed in the Occupational Health and Safety Act. Workplace Health and Safety’s contact line for reporting serious incidents or injuries anywhere in Alberta is 1-866-415-8690. When workers are injured in workplace incidents, workers and employers must follow the Workers’ Compensation Act regarding the filing of claims.

Imminent Danger
“Imminent danger” refers to any danger that a worker would not normally face in their tasks or any dangerous conditions under which a worker

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wouldn’t normally carry out their work. Workers must refuse to perform any task they believe would put them or their fellow workers in imminent danger.

If a worker refuses work due to imminent danger, the employer must protect other workers exposed to the hazard and undertake an investigation into the cause of the work refusal. The investigation must be documented and actions taken to rectify the cause of the work refusal. If the worker is not satisfied with the employer’s actions, the worker may take the matter to Alberta Employment and Immigration, Workplace Health and Safety for an OHS Officer to investigate.

Employers need to inform workers of their right and duty to refuse work that they believe presents imminent danger. For most organizations, educating employees about these responsibilities is achieved by including information on imminent danger in orientations that are provided to newly hired employees. Similarly, management personnel need to be aware of imminent danger provisions and what procedure to follow if a worker refuses work due to imminent danger. Employers should have procedures in place before imminent danger is ever reported by a worker. These procedures should identify the steps to follow and who should be involved in the investigation, communications and follow-up.

**Role of Government of Alberta OHS Officers**

Alberta Employment and Immigration OHS Officers enforce the *OHS Act*, *OHS Regulation* and *OHS Code* in Alberta workplaces. Officers work with employers to ensure compliance with legislative requirements. Officers may provide information to assist employers in understanding and applying legislative requirements to their workplaces.

The Workplace Health and Safety division of Alberta Employment and Immigration operates a 24-hour contact line where employers and workers can obtain health and safety information, or report serious incidents or concerns regarding their workplaces. When a worker contacts Workplace Health and Safety, an OHS Officer may complete a follow-up including contacting the worker, employer and/or inspecting the worksite.

**Worksite Inspections**

An OHS Officer may inspect a worksite for the purposes of identifying workplace hazards because of a reported concern or because of a serious injury or incident.
If an OHS Officer tours the physical worksite, the employer should appoint a management representative to escort the Officer through the premises to facilitate the inspection and to respond to any enquiries. The Officer may request that the worker who reported the concern or a labour representative also participate in the inspection.

Alberta OHS legislation empowers OHS Officers with significant authority on worksites. An Officer may enter work premises to perform inspections. Officers may also request and review health and safety documentation, interview workers, take measurements, seize equipment, take photographs and stop work at the worksite to protect the health and safety of workers or to preserve investigative evidence.

The following chart summarizes major Alberta legislation applicable to Rehabilitation Providers:

<table>
<thead>
<tr>
<th>Part #</th>
<th>Title</th>
<th>Application</th>
</tr>
</thead>
</table>
| 2      | Hazard Assessment, Elimination and Control                 | • Requires employers to assess a worksite and identify existing or potential hazards before work begins. A written report must include the results of the hazard assessments and the methods used to eliminate or control the hazards.  
• Employers are required, if reasonably practicable, to involve workers in the assessment, control and elimination of hazards.  
• Employers are required to eliminate hazards if reasonably practicable to do so. If elimination is not reasonably practicable, employers must apply the hierarchy of controls first by implementing engineering controls, followed by administrative controls and finally, as a last option by using personal protective equipment. |
| 4      | Chemical Hazards, Biological Hazards and Harmful Substances | • Requires employers to ensure that worker exposure to a harmful substance is kept as low as reasonably practicable/reasonably achievable and does not exceed the substance’s Occupational Exposure Levels (Schedule 1, Table 2).  
• Requires employers to assess worker exposure to harmful substances and establishes monitoring requirements. |
<table>
<thead>
<tr>
<th>Part #</th>
<th>Title</th>
<th>Application</th>
</tr>
</thead>
</table>
| 7     | Emergency Preparedness and Response | • Employers are required to establish an emergency response plan for responding to emergencies that may require rescue or evacuation. The emergency response plan must be written and available to workers.  
• Part 7 defines the minimum elements to be included in the emergency response plan. |
| 11    | First Aid                    | • Requires employers to provide first-aid services, supplies and equipment in accordance with the applicable requirements of Schedule 2, Tables 3–7.  
• The first-aid requirements that an employer must meet are based on a combination of three factors — how hazardous the work is: the time taken to travel from the worksite to a health-care facility (a measure of the remoteness of the worksite); and the number of workers on each shift.  
• If an acute illness or injury occurs at the worksite, Part 11 requires the affected worker to report the illness or injury to the employer as soon as is practical. The employer is required to maintain a written record of every illness or injury reported. |
| 14    | Lifting and Handling Loads   | • The intent of this section is to reduce or eliminate the manual handling of materials and therefore the possibility of injury.  
• Requires employers to provide, where reasonably practicable, appropriate equipment for lifting, lowering, pushing, pulling, carrying, handling or transporting heavy or awkward loads.  
• Requires that patient handling equipment be incorporated into the design and construction of health-care facilities.  
• Requires employers to develop and implement a patient handling program if workers are required to lift, transfer or reposition patients. |
| 18    | Personal Protective Equipment (PPE) | • Outlines the requirements for PPE including eye protection, foot protection, and respiratory protective equipment.  
• If the hazard assessment indicates the need for PPE, the employer is required to ensure workers wear the appropriate type of PPE and that they use and wear the PPE correctly. The employer is required to ensure that workers are trained in the correct use, care, limitations and maintenance of PPE.  
• Workers are required to use and wear appropriate PPE in accordance with training and instructions received. Workers are also required to inspect PPE before use and not use PPE that is unable to perform the function for which it was designed. |
## Alberta OHS 2009 Code Requirements

<table>
<thead>
<tr>
<th>Part #</th>
<th>Title</th>
<th>Application</th>
</tr>
</thead>
</table>
| 25     | Tools, Equipment and Machinery     | • Defines the responsibilities of the employer and workers in operating tools, equipment and machinery.  
• Requires operators of machinery to ensure that the starting and operating the machinery will not endanger the operator or other workers.  
• Includes specific requirements for grinders, circular saw blades, bandsaw blades, etc.                                                                                                                 |
| 27     | Violence                           | • For the purposes of the OHS Code, violence means the threatened, attempted or actual conduct of a person that causes or is likely to cause physical injury.  
• Part 27 requires employers to develop written policies and procedures respecting potential workplace violence.  
• Requires employers to:  
  o Instruct workers how to recognize workplace violence  
  o Communicate the organization’s policy and procedures related to workplace violence  
  o Develop appropriate responses to workplace violence  
  o Develop procedures for reporting, investigating and documenting incidents of workplace violence.  
• Employers are required to investigate incidents of workplace violence.                                                                                                                                   |
| 28     | Working Alone                      | • The working alone requirements of Part 28 apply when both of the following conditions are met:  
  1. A worker is working by himself or herself, and  
  2. Assistance is not readily available to the worker if there is an emergency or the worker is injured or ill.  
• Employers are required to include working alone as a hazard in the hazard assessment process required by Part 2.  
• Employers are required to provide an effective communication system for workers working alone.  
• If effective electronic communication is not practicable, the employer must implement other controls such as visits to the worker or scheduled worker contacts. |
| 29     | WHMIS                              | • Employers must ensure that controlled products are used, stored, handled or manufactured at a worksite in accordance with Part 29.  
• Requires employers to provide training to workers who work with or near controlled products. The Part defines the specific topics that must be included in the training.  
• Outlines labelling requirements for controlled products including decanted products, placards, laboratory samples, etc.  
• Defines the requirement to provide material safety data sheets for controlled products.                                                                                                                      |
### Alberta OHS 2009 Code Requirements

<table>
<thead>
<tr>
<th>Part #</th>
<th>Title</th>
<th>Application</th>
</tr>
</thead>
</table>
| 35     | Health Care and Industries with Biological Hazards                    | • Addresses hazards associated with bloodborne pathogens and other biohazardous materials.  
• Requires employers to control exposures to biological hazards according to the hazard elimination and control requirements of Part 2, Section 9.  
• Employers are required to provide safety-engineered medical sharps to minimize the risk of exposure unless the safety-engineered medical device is not clinically appropriate in the circumstances or not available in the commercial market.  
• Employers are required to establish safe work procedures for the use and disposal of medical sharps. Workers must be trained in the safe work procedure. Workers are required to use and dispose of medical sharps in accordance with the training they have received.  
• Part 35 deals with the requirement to provide sharps containers and a prohibition on the recapping of waste needles.  
• Employers are required to establish policies and procedures addressing the storage, handling, use and disposal of biohazardous materials.  
• Employers must implement policies and procedures for post-exposure management of workers exposed to biohazardous material. |


In addition to legislation, rehabilitation providers should also be aware of the Alberta Healthcare Health and Safety Initiative, which was established to help reduce workplace injuries in the health-care industry. An important component of this initiative is the Healthcare Compliance Strategy, which includes inspections of health-care industry employers by government officers. More details about this program can be found at http://employment.alberta.ca/documents/WHS/WHS-PUB_healthcare_strategy.pdf.

**Occupational Health and Safety (OHS) Committees**

Though not a legal requirement for most employers in Alberta, an OHS Committee can be an effective forum for management and workers to work together to ensure and improve health and safety in the workplace. When workers and management have the same health and safety goals, the cooperative atmosphere assists in promoting and improving health and safety. Most health-care organizations in Alberta have OHS Committees, as this is a requirement in some collective agreements. While the collective agreements specify the entitlement of union members to participate in OHS
Committees, the employer is responsible for making sure that the committees are established and are effective.

The OHS Committee does not remove the legal responsibility of the employer to provide a safe and healthy work environment, nor does it provide a mechanism to bypass the normal chain of command in an organization. The OHS Committee is not responsible for issuing policies, but may have a role in reviewing policy drafts in some organizations. In establishing the committee, the roles and responsibilities of the committee should be well defined and documented.

When an OHS Committee is effective, there is greater likelihood that a safety culture is developed in an organization. An effective committee can monitor the internal responsibility system by reviewing outcomes of health and safety processes. It also helps to develop and promote organizational values related to health and safety.

**Workers’ Compensation Board — Alberta (WCB)**

For the majority of employers in Alberta, an account with the WCB is compulsory. The purpose of WCB insurance is to ensure coverage of wage replacement, and medical and rehabilitation costs for workers injured on the job. It provides no-fault insurance coverage and protects the employer from lawsuits should an injury occur during an activity that is part of the employer’s regular insured activities. Some industries are exempt from coverage, though they are eligible to obtain optional coverage. The WCB offers a multitude of services and information to assist employers in the reduction and management of injury. Rehabilitation Professionals working with Alberta Health Services are covered under AHS WCB accounts. Physiotherapy (as a stand-alone service) is considered an exempt industry and all private employers may not have WCB accounts. For more information about the WCB, consult the web pages at [www.wcb.ab.ca](http://www.wcb.ab.ca).

**Occupational Health and Safety Management Systems**

Over the past 20 years, the development and implementation of occupational health and safety management systems (OHSMS) has become widespread. A well-implemented OHSMS focuses the organization on prevention of workplace injuries and illness rather than on the more traditional approach of reacting to health and safety incidents. To effectively prevent workplace injuries and illness, a management system uses the approach of continuous improvement. It has clearly defined responsibilities, worker participation and a focus on risk management through the proactive identification of hazards and controls.
Most OHSMS have similar themes. These include:

- Management leadership
- Written policies and procedures
- Roles, responsibilities and accountabilities
- Worker participation
- Training
- Measurement of performance and outcomes
- Identification of required action to ensure continuous improvement

In Alberta, WorkSafe Alberta and the Alberta Workers’ Compensation Board work together with industry associations and employers to promote the development and implementation of OHSMS through the Partnerships in Injury Reduction (PIR) Program that grants Certificates of Recognition (COR). Employers who successfully implement an OHSMS may receive a COR and are eligible to receive WCB rebates. The OHSMS is assessed through periodic audits, which focus on the following major elements of a successful program:

- Management leadership and commitment
- Hazard identification and assessment
- Hazard control
- Workplace inspections
- Worker competency and qualifications
- Emergency response
- Incident reporting and investigation
- Program administration

**HAZARD ASSESSMENT PROCESS**

**Hazard Identification and Assessment**

One of the key activities in a good OHS management system is the proactive identification and assessment of hazards. Though this often requires much effort on the part of many people in the organization, it provides the greatest reward as it enables control of a hazard before it becomes a significant issue. Some organizations perform hazard assessments only for “high risk” jobs. However, to derive the best benefit of the hazard identification and assessment process, it should be a systematic process that looks at all jobs/tasks in the organization. An inventory of positions/jobs/tasks is necessary to ensure that all hazards are identified. Assessment of the hazards assists in classifying hazards by risk level, which helps to address high priority hazards promptly. Key features of hazard identification and assessment process include:
• Inclusion of all types of hazards – biological, chemical, physical and psychological

• Classification of each hazard as to its:
  o frequency of occurrence (numbers of people exposed to the hazard or how often they are exposed);
  o severity potential (how severe the consequences would be if exposure were to occur); and
  o probability of occurrence (how often the hazard is likely to lead to exposure).

Numerical values for each of these factors are given and either added or multiplied together to determine a risk level.

• Participation of workers who actually perform the jobs/tasks to ensure accuracy of identification and assessment.

Controls are broken down into three types – engineering, administrative and personal protective equipment (PPE) controls. In occupational health and safety there is a well-established “hierarchy” of controls that describes which controls are more effective.

<table>
<thead>
<tr>
<th>Engineering Controls</th>
<th>designed to “engineer out” the hazard; for example, substituting a safer chemical for one that is toxic; using better ventilation such as fume hoods or extraction fans; machine guards to prevent contact with moving parts, etc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrative Controls</td>
<td>implementing policies and safe work procedures, company rules, scheduling plans, training programs, worker orientation, etc.</td>
</tr>
<tr>
<td>Personal Protective Equipment (PPE)</td>
<td>items worn or used directly by the worker to reduce contact with hazardous substances. Examples include gloves, goggles, proper shoes, protective clothing, etc.</td>
</tr>
</tbody>
</table>
Rehabilitation Professionals may be exposed to a variety of workplace hazards in the course of performing their functions. The type and degree of exposure is dependent upon the type of therapy, the type of patients or clients, and the specific tasks performed. A key component of a health and safety program is to identify and assess hazards and determine appropriate controls. A systematic approach to hazard assessment includes the following steps:

1. List all work-related tasks and activities.
2. Identify potential biological, chemical, physical and psychological hazards associated with each task. Remember to consider the range of clients or patients, which may impact the potential hazard.
3. Assess the risk of the hazard by considering the severity of consequences of exposure, the probability that the exposure will occur and the frequency that the task is done.
4. Identify the controls that will eliminate or reduce the risk. The hierarchy of controls should be followed. This means that engineering controls are the most effective, followed by administrative controls (such as training and rules), followed by personal protective equipment (PPE).
5. Implement the controls for each hazard.
6. Communicate the hazard assessments and required controls to all workers who perform the tasks.
7. Evaluate the controls when there are changes to the processes or equipment as well as periodically to ensure they are effective.

<table>
<thead>
<tr>
<th>Hazard Identification and Assessment – Components of an Effective System</th>
<th>Yes</th>
<th>No</th>
<th>Required Follow-up (What should be done)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Has an inventory been taken of all jobs in the organization?</td>
<td>☐</td>
<td>☐</td>
<td></td>
</tr>
<tr>
<td>Are health and safety hazards identified for all jobs listed in the inventory?</td>
<td>☐</td>
<td>☐</td>
<td></td>
</tr>
<tr>
<td>Have health and safety hazards been evaluated for risk and prioritized based on risk?</td>
<td>☐</td>
<td>☐</td>
<td></td>
</tr>
<tr>
<td>Are workers actively involved in the hazard identification and control process?</td>
<td>☐</td>
<td>☐</td>
<td></td>
</tr>
<tr>
<td>Do workers have access to the hazard assessment records?</td>
<td>☐</td>
<td>☐</td>
<td></td>
</tr>
<tr>
<td>Is training provided for those conducting the hazard identification and assessment process?</td>
<td>☐</td>
<td>☐</td>
<td></td>
</tr>
<tr>
<td>Hazard Identification and Assessment – Components of an effective system</td>
<td>Yes</td>
<td>No</td>
<td>Required Follow-up (What should be done)</td>
</tr>
<tr>
<td>---------------------------------------------------------------</td>
<td>-----</td>
<td>----</td>
<td>----------------------------------------</td>
</tr>
<tr>
<td>Are the hazard identification and assessment records reviewed periodically or when changes are made to the jobs/tasks?</td>
<td>☐</td>
<td>☐</td>
<td></td>
</tr>
<tr>
<td>Are the results of the hazard identification and assessment records communicated to all workers who perform the job/task?</td>
<td>☐</td>
<td>☐</td>
<td></td>
</tr>
</tbody>
</table>
SECTION 2

Potential Hazards
and Recommended Controls
Section 2 – Potential Hazards and Recommended Controls

The charts in the following sections summarize potential hazards for Rehabilitation Professionals and recommended controls to reduce the risk of exposure to the hazards. The charts are followed by notes to further describe specific control measures.

BIological Hazards and controls

In this section the biological hazards most commonly encountered by Rehabilitation Professionals and methods to control them are presented. Employers should carefully evaluate the potential for exposure to biohazardous materials in all tasks and ensure that they have an effective hazard control plan in place. This information will be useful for inclusion into hazard assessments. Please note, this is not designed to be an exhaustive treatment of the subject, but is rather an overview summarizing the most frequently encountered biological hazards for Rehabilitation Professionals.

Note: The following chart provides basic information about control strategies for commonly occurring biological hazards. Administrative controls include Routine Practices that are to be used as a minimum and additional precautions as warranted based on the risk assessment. Worker education and good communication processes are also critical administrative controls. Any PPE selected must be based upon the risk assessment of the task and the environment in which it is used. All legislation related to the selection and use of controls must be followed.

Controls listed in the following chart are categorized as Engineering, Administrative and Personal Protective Equipment (PPE) controls. Remember to follow the hierarchy of controls in choosing the most appropriate controls. This chart illustrates the decreasing effectiveness of controls. Several categories of controls may be used simultaneously to reduce risk of exposure.
### Potential Hazards

<table>
<thead>
<tr>
<th>Potential Hazards</th>
<th>Summary of Major Control Strategies</th>
</tr>
</thead>
</table>
| **Exposure to blood and body fluids through sharps injuries, including acupuncture needles** | *Engineering*  
Well-designed work area. Well designed equipment.  
*Administrative*  
Safe work procedures including standard precautions, sharps handling and disposal procedures. Worker education.  
*PPE*  
PPE based on risk assessment. |
| **Exposure to airborne biological agents through contact with secretions from infectious patients (coughing, sneezing, etc.) or air contaminated with infectious biological agents** | *Engineering*  
Early detection of infection status. Isolation. Vaccines.  
*Administrative*  
Compliance with all infection prevention and control practices. Immunization program. Worker education.  
*PPE*  
PPE based on the risk assessment may include eye protection, respiratory protection and other protective clothing. |
| **Exposure to droplets containing infectious biological agents through contact with patient blood or body fluids (including wounds) or contaminated environmental surfaces or equipment** | *Engineering*  
*Administrative*  
*PPE*  
PPE based on the risk assessment may include eye protection, respiratory protection and other protective clothing. |
| **Exposure to environmental biological contaminants from ventilation systems, water or food** | *Engineering*  
Maintenance of ventilation systems. Early spill clean-up. Preventive maintenance of ventilation systems and water supply systems with regular testing to ensure proper functioning. Early detection and remediation of mould.  
*Administrative*  
Infection prevention and control practices related to building maintenance and food preparation. Protocols for construction and renovation projects that reduce contamination. Worker education.  
*PPE*  
Use of proper PPE when cleaning contaminated environmental surfaces, including gloves, respiratory protection, and eye protection. |
Notes About Controls

for Biological Hazards

Exposure to biological hazards may occur for any Rehabilitation Professional in contact with patients. Controls include any mechanisms to reduce the potential for exposure to infectious agents and the immunization of all Rehabilitation Professionals against infectious diseases to which they may be exposed. For a more detailed discussion of infection prevention and control strategies for Rehabilitation Professionals, please consult Infection Prevention and Control Guidelines for Speech-Language Pathology,\(^6\) Infection Prevention and Control Guidelines for Audiology,\(^7\) and Best Practices for the Assessments and Control of Biological Hazards, Vol. 2.\(^8\)

Engineering Controls

In the hierarchy of controls, the highest level of control is directed at the source. From an occupational health perspective, the highest level of control may be immunization of workers who may come in direct contact with infected patients. Good engineering controls such as proper design and maintenance of facilities, isolation rooms, and effective biological waste containment also contribute to minimizing the transmission of infectious agents. Engineering controls, once designed and implemented, are not under the control of the worker, but are directed at the source of the hazard.

Isolation

In many health-care facilities, patients with known or suspected infectious diseases are physically isolated from other patients to prevent transmission of infectious organisms. Isolation rooms must be specifically designed and constructed to protect the unique needs of patients who are placed in isolation as well as for worker protection. Depending on the nature of the biological agents, the requirements for isolation rooms will vary in their physical design, furnishings, air handling systems and air pressurization of the room relative to adjacent areas. Rehabilitation Professionals who may


be required to treat patients in isolation areas should follow all procedures identified for working with that patient.

**Negative pressure rooms**
In addition to the requirements for isolation rooms used for droplet or contact isolation, negative pressure rooms may be required for patients with pathogens transmitted by the airborne route. These rooms should be well sealed to prevent the air from escaping into other areas. Anterooms should be incorporated as determined by assessment of risk. When isolating patients on airborne isolation, the design, operation and maintenance of air handling systems serving the room are critically important.

**Decontamination of facilities and materials**
“Decontamination” is a term used to describe procedures that remove contamination by killing microorganisms, rendering the items safe for disposal or use. Sterilization refers to the complete destruction or removal of all microorganisms by chemical or physical means, usually to provide sterile items for use. All contaminated materials must be decontaminated before disposal or cleaning for reuse. The choice of method is determined by the nature of the material to be treated. Disinfection refers to the destruction of specific types of organisms, but not all spores, usually by chemical means. Disinfection is a means of decontamination. Surfaces must be decontaminated after any spill of potentially infectious materials and at the end of the working day. Work areas, patient rooms and pieces of equipment may also require decontamination (i.e., prior to servicing, maintenance, between patients, transfer to other settings or reassignment). Easily cleanable surfaces are preferred.

**General ventilation**
General ventilation systems serving buildings must be maintained regularly and inspected for conditions that could adversely affect air quality provided to work spaces. Accumulations of water that could stagnate in humidification systems or drip trays may become sources of potential biological contamination of air handling systems that need regular monitoring and inspection.

Biohazardous organisms may be carried through general ventilation systems, potentially distributing them to other workspaces in a facility. Ultraviolet germicidal irradiation units, and or High Efficiency Particulate Air (HEPA) filtration media incorporated into air handling systems may be warranted for special circumstances.

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Mould growth in the indoor environment can be affected by relative humidity levels, which is a function of some general ventilation systems. High relative humidity levels may contribute to an increase in the growth of some moulds and lead to condensation developing on surfaces. Control of indoor relative humidity levels is an important factor in preventing mould growth.

**Administrative Controls**

The next level of controls includes administrative controls. Because it is not always possible to eliminate or control the hazard at the source, administrative controls are frequently used for biological hazards in healthcare. Administrative controls focus on ensuring that the appropriate prevention steps are taken, that all proper work procedures are documented, that Rehabilitation Professionals are trained to use the proper procedures, and that their use is enforced. Administrative controls include policies and procedures that establish expectations of performance, codes of practice, staff placement, required orientation and training, work schedules, and occupational health programs in which baseline immune status is recorded and immunizations are provided.

A comprehensive management system considers the continuum of infection prevention and control efforts across all sites and operations. It includes attention to patient, resident, visitor, contractor, volunteer and worker safety. A comprehensive system should include the following components:

- A process that ensures comprehensive hazard assessments are conducted for all sites and tasks and appropriate controls are identified
- An infection prevention and control plan with clear designation of roles and responsibilities
- Coordinated activities and policies related to Infection Prevention and Control (IPC) and OHS that ensure a consistent approach to infection prevention and control for patients, visitors, residents and workers
- Consistent standards for the cleaning, disinfection and sterilization of equipment, procedures, and policies including Routine Practices, Additional Precautions, hand hygiene policies and facilities, patient risk assessments, communication protocols, decontamination of clothing and dedicated clothing
- Outbreak prevention and management
- Adequate staffing to comply with OHS and IPC policies and procedures; work scheduling; plans to address surge capacity
- Required orientation and ongoing education
- Biomedical waste handling procedures and policies
• Supporting systems that include Engineering/Physical Plant, Housekeeping, Materials Management and Facilities Planning to ensure:
  o Adequate housekeeping and waste management services
  o Appropriate processes for cleaning, decontamination, disinfection and sterilization of patient care equipment
  o Purchasing processes to include consideration of safety factors
• A comprehensive surveillance and monitoring plan
• Record keeping and regular reporting of outcomes

**Routine Practices and Additional Precautions**
Procedural controls may include procedures that relate to detection and follow-up of infectious diseases, the use of Routine Practices and Additional Precautions as directed, baseline health assessments and periodic screening of workers, hazard identification and control processes, and outbreak management procedures. Awareness of the infectious disease status of patients is another good control, though this is not always possible for Rehabilitation Professionals. All work procedures should include the consideration and control of the risk of exposure to workers. Routine Practices and Additional Precautions (where required) greatly assist in reducing the transmission of infectious agents from both known and unknown patient sources by treating all contacts as potential risks.

Routine Practices include being attentive to all routes of transmission. Awareness of routes of transmission has led to the development of a variety of transmission route-specific strategies. Most of these are well documented in infection prevention and control plans. In particular, hand hygiene is identified as the single most important administrative strategy in infection prevention and control. Other strategies include additional precautions designed to address infections transmitted through the “airborne” route, those transmitted through “droplets” and those transmitted through “contact.” It should be noted that though some infection prevention and control plans appear to provide sharp demarcations as to what size of particle is transmitted by which route (particularly by airborne and droplet), it is highly likely that there is a continuum of particle sizes produced at any time and the determination of transmission route is more a probability than a certainty. For this reason, one must be careful in defining control strategies based solely on particle sizes.
Administrative controls related to the prevention of exposure to biological hazards include the development and implementation of infection prevention and control guidelines, including vehicle and equipment decontamination and safe work procedures.

Surfaces must be decontaminated after any spill of potentially infectious materials. Specific written protocols must be developed and followed for each decontamination process. Rehabilitation Professionals must be trained in all decontamination procedures specific to their activities and should know the factors influencing the effectiveness of the treatment procedure.
Hand hygiene is a critical component of infection prevention and control for Rehabilitation Professionals. Proper hand cleaning should be performed before and after dealing with each client, between clean and potentially contaminating activities, after removing personal protective equipment or after coming into contact with any client blood or body substances. For more details, consult the *WHO Guidelines on Hand Hygiene in Health Care*.\(^\text{10}\)

**Chemical disinfectants**

Chemical disinfectants are used to decontaminate surfaces, reservoirs of infectious material, and to clean up spills of infectious material. The choice of chemical disinfectant must be made carefully based on:

- Types of organisms, suspected or known
- Items or surfaces to be decontaminated
- Hazards posed to the worker by the disinfectant
- Cost of disinfectant
- Corrosiveness of disinfectant
- Shelf life and required dilution of disinfectant
- Material which inactivates the disinfectant

In many cases, the choice of disinfectant for specific uses may be standardized in the organization and made after evaluation by Infection Prevention and Control (IPC) and OHS professionals.

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Spill response procedures
The efficient and effective control of a biological spill requires that all staff members are trained in and have practiced the established spill response techniques. The materials and supplies that are necessary for spill clean-up and decontamination must be readily available to ensure timely spill response. Written spill response procedures should outline spill response actions and roles. The actual procedure used will vary with the size of the spill and the location of spill (including materials, equipment or environmental surfaces affected). All spill responses should be documented as incidents.
Training
Training in biological hazards and controls should be provided to all Rehabilitation Professionals. Each Rehabilitation Professional must understand the organization’s IPC and OHS programs as they relate to their job duties. For newly hired Rehabilitation Professionals, all relevant IPC and OHS policies and procedures must be provided before they start work. To ensure that Rehabilitation Professionals understand and apply this information to their jobs, specific training should also be provided to address job-specific biological hazards. Periodic refresher training to reinforce policies and procedures and introduce any new practices will benefit all workers. Competency assessments should be provided for all training, and training records should be maintained.

Worker immunization and health surveillance
An immunization policy and program is a proactive mechanism to reduce the risk of communicable diseases for workers. Each workplace should have an immunization and health surveillance program in place that is appropriate to the size and type of workplace. Immunization and health surveillance programs should include:

- Education about vaccine-preventable diseases
- Risk assessment to determine the need for immunization or surveillance based on potential exposure
- Administration of immunizations (or referral for immunizations, as appropriate)
- Documentation and follow-up of any baseline health assessments, communicable disease status and immunizations

Ideally, the immunization and surveillance programs should provide easy, authorized access to worker immune status records for follow-up of exposure incidents and outbreaks. In some cases, immunizations or baseline testing may be required prior to commencement of work.
Post-exposure follow-up management

Post-exposure management includes management of workers exposed to, colonized by, or infected with microorganisms; an outbreak management process for exposures and/or workers who are symptomatic or colonized with infectious disease; and access by Occupational Health professionals to utilize medical assessment and diagnostic services for timely follow-up for worker exposures.

Personal Protective Equipment (PPE)

Personal protective equipment such as gloves, respiratory protection and eye protection should be used based on the risk assessment. PPE is often used in conjunction with other controls (engineering and administrative) to provide additional protection to workers. The primary types of PPE are designed to protect the worker from infectious disease by breaking the chain of infection at the “portal of entry or exit” of the microorganisms. This means that all PPE is designed to reduce exposure via specific routes of transmission. Gloves, gowns and other protective clothing reduce exposure through the dermal (skin) contact route and help contain the microorganisms to the work environment.

Gloves

Gloves are the most common type of PPE used for therapy tasks. Gloves are made from a variety of materials including latex, nitrile, neoprene, copolymer, and polyethylene and are available in various levels of thickness. When dealing with infectious materials, gloves must be waterproof. Most patient care activities require non-sterile gloves. Latex gloves should be avoided due to the risk of latex allergy unless there is a demonstrated safety requirement for latex to be used. The Canadian General Standards Board (CGSB) certifies medical gloves, which is a key factor in selecting gloves for use in health-care. The choice of gloves must often balance the needs for protection and dexterity. While thicker gloves (or double gloves) may appear to provide greater protection, it may make tasks more difficult and increase the exposure risk. In Recommendations for Canadian Health Care and Public Service Settings,11 it is noted that the “selection of the best glove for a given task should be based on a risk analysis of the type of setting, type of procedure, likelihood of exposure to blood or fluid capable of transmitting blood-borne pathogens, length of use, amount of stress on the glove, presence of latex allergy, fit, comfort, cost, length of cuffs, thickness, flexibility, and elasticity.”

PPE is required when there is the potential for exposure of the face to splashes or sprays of infectious material. The selection of eyewear depends upon the tasks being conducted. Types of eye protection include safety glasses, goggles, visors, face shields and table-mounted barrier shields. Regular prescription eyewear and contact lenses are not considered effective as PPE. Safety eyewear should fit the wearer, be clean and well maintained and stored. If necessary, goggles may be fitted with prescription lenses or worn over glasses. Face shields should cover the forehead, extend below the chin, and wrap around the side of the face. Masks protect the mucous membranes of the nose and mouth from exposure to large droplets that

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**Safe Practices for Glove Use**

- Wear medical gloves when there is a risk of contact with blood, body fluids or substances, mucous membranes, open wounds or skin lesions.
- Wear gloves that are certified by the CGSB.
- Wear gloves when handling items contaminated with blood, body fluids, secretions or excretions.
- Wear gloves if you have any cuts or lesions on your hands or if you have dermatitis affecting your hands.
- Avoid latex gloves and powdered gloves to reduce sensitization or allergic reactions.
- Ensure that the gloves fit properly.
- Inspect gloves for holes or tears, discarding any damaged gloves.
- Put gloves on just before beginning the task, and remove them promptly when finished and before touching any environmental surfaces.
- Work from “clean to dirty” (touching clean sites or surfaces before dirty or contaminated ones).
- Do not touch your face or adjust PPE with contaminated gloves and avoid touching uncontaminated items such as light switches, telephones, etc. while wearing gloves.
- Change gloves when they become soiled, during lengthy procedures, and between patients.
- Remove gloves carefully according to the IPC guidelines and dispose of them properly.
- Wash hands before using and after removing gloves.
- Never reuse or wash single-use disposable gloves.

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may contain infectious materials. Masks are commonly used to contain droplets at the source (for example, the worker or patient with a cough). Masks should fully cover the nose and mouth and fit snugly. Masks worn by patients reduce exposure through droplet containment at the source, and respirators worn by health-care workers reduce exposure to the respiratory system.

### Difference Between a Surgical/Procedure Mask and a Respirator*

<table>
<thead>
<tr>
<th>Surgical or Procedural Masks</th>
<th>Respirators (i.e., NIOSH-approved N95)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Surgical masks are not designed to seal tightly against the worker’s face or certified to prevent inhalation of small droplets/particles.</td>
<td>• A fit-tested NIOSH-approved respirator provides a proper seal at the worker’s face, forcing inhaled air to be pulled through the filter material and not through gaps between the face and the respirator.</td>
</tr>
<tr>
<td>• When the worker inhales, contaminated small droplets can pass through gaps between the face and surgical mask.</td>
<td></td>
</tr>
<tr>
<td>• Surgical masks provide a physical barrier for protection from splashes of large droplets of blood or body fluids.</td>
<td>• Respirators are designed to reduce workers’ exposure to airborne contaminants.</td>
</tr>
<tr>
<td>• Surgical masks are used for several purposes including:</td>
<td>• Fit-tested NIOSH-approved respirators are used when required, based on hazard assessment.</td>
</tr>
<tr>
<td>o Prevention of accidental contamination of patients’ wounds with pathogens normally present in mucus or saliva</td>
<td></td>
</tr>
<tr>
<td>o Placed on sick patients to limit spread of infectious respiratory secretions to others</td>
<td></td>
</tr>
<tr>
<td>o Protection from splashes or sprays of blood or body fluid</td>
<td></td>
</tr>
<tr>
<td>o Assist to keep workers’ contaminated hands from contacting their own mucous membranes.</td>
<td></td>
</tr>
</tbody>
</table>

*Adapted from OSHA. (2007). Guidelines on Preparing Workplaces for an Influenza Pandemic.
Pertinent Legislation Related to Respiratory Protection

Respiratory Protective Equipment
If a worker is or may be exposed to an airborne biohazardous material, the employer must assess the worksite to determine if workers need to use respiratory protective equipment (RPE) and provide workers with the appropriate RPE where indicated. For more information refer to http://employment.alberta.ca/documents/WHS/WHS-LEG_ohsc_p18.pdf

OHS Code, Section 244

The employer must consider the nature and the exposure circumstances of any contaminants or biohazardous material. The employer must provide and ensure the availability of RPE appropriate to the worker’s exposure circumstances. Where the hazard assessment identifies the need for RPE, some of the requirements include:

Training
Employer must ensure all workers receive appropriate education, instruction or training with respect to hazards that they may be exposed to and procedures and controls used to reduce exposure.

Code of Practice
If respiratory equipment is used at a worksite, an employer must prepare a code of practice governing the selection, maintenance and use of the RPE. In the case of a health-care worker who may be exposed to airborne biohazardous material, the code of practice includes training, done on at least an annual basis, on:

- information about the airborne biohazardous materials that workers may be exposed to including their potential health effects;
- the particular respiratory protective equipment used, including information about its capabilities and limitations and how to test for a satisfactory fit; and
- how to properly put on and take off the RPE without contaminating oneself or other workers.

Approval of Equipment
Employer must ensure that RPE required at a worksite is approved by NIOSH or another standard setting and equipment testing organization, or combination of organizations, approved by a Director of Occupational Hygiene.

Effective Face Seal
Employer must ensure that RPE that depends on an effective facial seal for its safe use is correctly fitted and tested in accordance with CSA standard (z94.4-02).

OHS Act, 33 and OHS Code, Part 18
CHEMICAL HAZARDS AND CONTROLS

This section will provide a brief overview of selected chemicals that Rehabilitation Professionals may come into contact with. Note that this list is not extensive or all-inclusive. These controls are briefly summarized and the reader should link to the references provided for additional information. The proper choice of control measures must be based on a risk assessment for the specific tasks being performed. Safe work practices are administrative controls necessary for working with all harmful substances and educating workers in the practices is vital. Safe work procedures should be designed to:

- Limit the worker’s exposure time
- Reduce contact with the substance through any route of exposure to the worker
- Ensure safe disposal of substances and disposable equipment that comes into contact with harmful substances
- Ensure safe handling and decontamination of reusable equipment
- Require the use of all designated controls.

Worker education is critical for safely handling harmful substances.

General Resources – Chemical Hazards

For more information about specific chemical hazards, consult the following resources:

NIOSH Pocket Guide to Chemical Hazards
www.cdc.gov/niosh/npg/

CCOHS Cheminfo
http://ccinfoweb.ccohs.ca

Alberta Workplace Health and Safety Bulletins
http://employment.alberta.ca/SFW/136.html

The following charts, taken from Volume 3 – Best Practices for the Assessment and Control of Chemical Hazards in Healthcare, summarize important information about some of the chemical hazards that may be encountered by Rehabilitation Professionals.
### Chemicals Used for Cleaning and Disinfection

<table>
<thead>
<tr>
<th>Chemical (Category or Group)</th>
<th>Common Uses and Examples</th>
<th>Exposure and Health Effects Information</th>
<th>Controls</th>
<th>For more information:</th>
</tr>
</thead>
</table>
| **Alcohol hand sanitizers** | Hand hygiene when water is not available and hands are not visibly soiled | May cause skin dryness. Product is flammable. | **A** | [http://employment.alberta.ca/documents/WHS/WHS-PUB_fex002.pdf](http://employment.alberta.ca/documents/WHS/WHS-PUB_fex002.pdf)  
| **Low-level Disinfectants** | Chlorine compounds, alcohols, quaternary ammonium salts, iodophors, phenolic compounds, hydrogen peroxide used widely for disinfection; usually prepared and used in low concentrations. | Most are eye, skin, and respiratory irritants, particularly when concentrated. Some products may produce sensitization. Toxic effects depending on nature of chemical. May react with other products to create hazardous products. | **E** | [http://ehs.virginia.edu/biosafety/bio.disinfection.html](http://ehs.virginia.edu/biosafety/bio.disinfection.html)  
[www.cdc.gov/niosh/topics/chemical.html](http://ehs.virginia.edu/biosafety/bio.disinfection.html)  

These are examples of chemicals, uses, health effects and controls. For each chemical used in the workplace, specific information MUST be consulted to determine controls based on what the product is used for, how it is used and the environment it is used in. This may be found on Material Safety Data Sheets (MSDSs), information provided by the manufacturer or supplier, or other sources. Individual reactions to chemicals must also be considered in determining appropriate controls.
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<th>Chemical (Category or Group)</th>
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</table>
# Chemicals Used in Treatment

<table>
<thead>
<tr>
<th>Chemical</th>
<th>Common Uses; Examples</th>
<th>Exposure and Health Effects Information</th>
<th>Controls</th>
<th>For more information:</th>
</tr>
</thead>
</table>
| Antineoplastics, cytotoxic and other hazardous drugs, antibiotics, aerosolized drugs, hormonal drugs | Antineoplastics used to treat cancer and other neoplasms; antibiotics and aerosolized drugs used to treat infections. Examples — cancer treatment drugs, aerosolized pentamidine or ribaviron | May be mutagenic or carcinogenic, teratogenic or have reproductive effects, or affect target organs. Exposure may occur through inhalation, skin contact, skin absorption, ingestion, or injection. Inhalation and skin contact/absorption exposures may occur when handling contaminated materials, and disposing of drugs or contaminated materials, including patient waste. | E - Engineered needle stick prevention devices. Segregation of contaminated items.  
A - Safe work procedures including spill procedures with consideration to the specific product and manufacturer’s instructions. Waste handling procedures. Education of workers in the nature of the hazard. Availability of appropriate equipment and PPE. Accommodation for workers with special needs (pregnant workers, persons with sensitivities or other health issues).  
P - Eye protection and face shields when splashing is possible. Protective clothing (gowns) and gloves. Respirators may be required based on hazard assessment. | www.cdc.gov/niosh/docs/2004-165/2004-165b.html#j  
www.cdc.gov/niosh/topics/hazarddrug/  
www.cdc.gov/niosh/docs/2004-165/  
www.cdc.gov/niosh/topics/antineoplastic/  
www.mtpinnacle.com/pdfs/safe-handling-hazardous-drugs.pdf  
www.osha.gov/dts/osta/otm/otm_vi/otm_vi_2.html  
www.osha.gov/dts/tib/tib_data/tib20011221.html  
www.irsst.qc.ca/en/_publication/irsst_100390.html |
### Other Chemicals and Substances

<table>
<thead>
<tr>
<th>Chemical</th>
<th>Common Uses; Examples</th>
<th>Exposure and Health Effects Information</th>
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</table>
| Compressed gases  | Commonly used for patient treatment i.e., oxygen. | Asphyxiation, anaesthetic effects. Toxicity is dependant on chemical products. Other hazards include explosions, fire hazards, flying projectiles, and release of gas. | **E**- Substitution with less harmful product. Adequate ventilation. Proper storage of cylinders.  
**A**- Appropriate storage of products to decrease exposure and minimize fire and explosion hazards. Safe work procedures including transportation. WHMIS program and maintenance of MSDSs. Worker education. Good housekeeping.  
**P**- PPE based on hazard assessment. | www.ccohs.ca/oshanswers/chemicals/compressed/compress.html  
www.ccohs.ca/oshanswers/prevention/comp_gas.html |
### Other Chemicals and Substances

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| Latex    | Used in gloves, medical devices, some respirators, elastic bands, balloons, etc. | Exposure can produce irritant contact dermatitis, allergic contact dermatitis, and allergic responses including immediate hypersensitivity and shock. | **E**- Substitution with less harmful product. Properly designed and maintained ventilation systems.  
**A**- Purchasing controls to limit latex containing materials from entering facility. Safe work procedures. Education of workers in the nature of the hazard, hand washing after glove removal, proper glove donning and removal. Work reassignment for workers with latex allergies to areas where latex is not present. As per hazard assessment. | [www.worksafebc.com/publications/health_and_safety/by_topic/assets/pdf/latex_allergies.pdf](http://www.worksafebc.com/publications/health_and_safety/by_topic/assets/pdf/latex_allergies.pdf)  
[www.ccohs.ca/oshanswers/diseases/latex.html?print](http://www.ccohs.ca/oshanswers/diseases/latex.html?print) |
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| **Mercury** | Metallic mercury may be found in thermometers, pressure gauges (manometers), other medical devices, etc. | Exposure is through inhalation of vapours, ingestion and skin absorption. Skin sensitizer. Corrosive as liquid. Target effects to the nervous system, kidneys, cardiovascular and eyes. | **E**- Elimination of mercury-containing equipment. Substitution with less harmful product. Enclosed mercury sources. Properly designed and maintained ventilation systems. Local exhaust ventilation may be required.  
**A**- Safe work procedures including spill procedures. Education of workers in the nature of the hazard. Purchasing controls to restrict mercury-containing materials from entering facility. Monitoring of the work environment following a spill. Good hygiene practices. Appropriate storage of products to decrease exposure.  
[www.cdc.gov/niosh/npg/npgd0383.html](http://www.cdc.gov/niosh/npg/npgd0383.html)  
### Other Chemicals and Substances

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<tr>
<td>Wood dust</td>
<td>May be present in woodworking shops.</td>
<td>Exposure may occur to workers in areas where wood-working is conducted. Hazards depend on the types of wood and may include a wide range of toxic effects. Some types of wood are carcinogens. May cause dermatitis, asthma, sensitization, respiratory effects and hypersensitivity reactions.</td>
<td>E- Substitution with less harmful woods or other products. Local exhaust ventilation on woodworking equipment. A- Education of workers in the nature of the hazard. Safe work procedures. Purchasing controls to include choosing alternatives. Good housekeeping including wetting procedures and dust suppression for dust clean-up. Good hygiene practices. Equipment maintenance programs. P- Protective clothing, gloves, eye and face protection, and respirators based on hazard assessment.</td>
<td><a href="http://employment.alberta.ca/documents/WHS/WHS-PUB_ch045.pdf">http://employment.alberta.ca/documents/WHS/WHS-PUB_ch045.pdf</a> <a href="http://www.cdc.gov/niosh/npg/npgd0667.html">http://www.cdc.gov/niosh/npg/npgd0667.html</a></td>
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</table>
| Glues    | Joining wood or other materials together. Examples including contact adhesives, epoxy glues, formaldehyde resin glues and instant bonding glues | Depending on the types of glues, exposure could result in skin, eye and respiratory irritation. Other effects may include contact dermatitis, sensitization, skin fusion, and toxicity to specific organs. | E - Substitution with less harmful products. Avoidance of formaldehyde-based glues and choice of water-based rather than solvent-based glues. Properly designed and maintained ventilation systems. Local exhaust ventilation.  
A - Safe work procedures. WHMIS program and maintenance of MSDSs. Worker education. Airing of products which produce off-gassing prior to installation in a well-ventilated area. Appropriate use and storage of products to decrease fire hazards  
P - Gloves and eye protection. Respiratory protection may be required for some applications based on the hazard assessment. | www.angelfire.com/nc/conally/hazard.html  
www.elcosh.org/docs/hazard/chemical_adhesives.html |
### Other Chemicals and Substances

<table>
<thead>
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</thead>
<tbody>
<tr>
<td><strong>Personal care products, scents and fragrances</strong></td>
<td>A wide range of products including personal care items such as shampoos, soaps, perfumes, creams, deodorants, etc. Also contained in cleaning products.</td>
<td>May cause a variety of mild to severe symptoms. Allergic, asthmatic and sensitive workers may experience reactions.</td>
<td><strong>E</strong>- Elimination of scented products. Substitution with less harmful products. Properly designed and maintained ventilation systems. <strong>A</strong>- Development, implementation and enforcement of scent-free policies. Signage in work areas where affected workers work. Worker education.</td>
<td><a href="http://www.ccohs.ca/oshanswers/hsprograms/scent_free.html">http://www.ccohs.ca/oshanswers/hsprograms/scent_free.html</a></td>
</tr>
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In this section the most common potential chemical exposure hazards encountered by Rehabilitation Professionals and methods to control them are presented. Employers should carefully evaluate the potential for exposure to chemical hazards in all therapy tasks and ensure that they have an effective hazard control plan in place. This information will be useful for inclusion into hazard assessments. Please note, this is not designed to be an exhaustive treatment of the subject, but is rather an overview summarizing the chemical hazards most frequently encountered by Rehabilitation Professionals.

Controls listed in the following chart are categorized as **Engineering**, **Administrative** and **Personal Protective Equipment (PPE)** controls. Remember to follow the hierarchy of controls in choosing the most appropriate controls. This chart illustrates the decreasing effectiveness of controls. Several categories of controls may be used simultaneously to reduce risk of exposure.

**Note:** The following charts taken from *Volume 3 – Best Practices for the Assessment and Control of Chemical Hazards in Healthcare* provide basic information about control strategies for commonly occurring chemical hazards related to therapy tasks. The selection of controls must be based on a risk assessment of the tasks and environment. Worker education and good communication processes are critical administrative controls. All legislation related to the assessment of hazards, selection and use of controls must be followed.
<table>
<thead>
<tr>
<th>Potential Chemical Hazards</th>
<th>Summary of Major Control Strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Exposure to glutaraldehyde or other cold sterilant for whirlpool tubs or for sterilizing equipment</strong></td>
<td>Substitution with less harmful product. Maintain adequate general ventilation. Local exhaust ventilation. Enclose processes. Safe work procedures including spill procedures. Worker training. Chemical-resistant gloves, eye protection, face protection, and chemical-resistant protective clothing. Respirators for use in the event of substantial spills. Respirators if engineering controls are insufficient.</td>
</tr>
<tr>
<td><strong>Exposure to pool-cleaning chemicals</strong></td>
<td>Substitution with less harmful product. Maintain adequate general ventilation. Safe work procedures including spill procedures. Worker training. Cleaning pools when less staff are present. Chemical-resistant gloves, eye protection, face protection, and chemical-resistant protective clothing.</td>
</tr>
<tr>
<td><strong>Exposure to a variety of disinfecting and cleaning agents in routine cleaning activities related to patient care</strong></td>
<td>Maintain adequate general ventilation. Automatic diluting machines. Purchase in ready-to-use concentrations to minimize handling. Worker education. Safe work procedures. WHMIS program and maintenance of MSDSs. Gloves and eye protection.</td>
</tr>
<tr>
<td><strong>Exposure to scented products that may induce sensitization</strong></td>
<td>Elimination of scented products. Substitution with less harmful products. Maintain adequate general ventilation. Develop scent-free policies. Educate worker in the nature of the hazard. Post signage in work areas where affected workers work.</td>
</tr>
<tr>
<td>Potential Chemical Hazards</td>
<td>Summary of Major Control Strategies</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Exposure to substances used in craft activities and shops</strong></td>
<td>Substitution with less harmful products. Local exhaust and dust collection systems. Enclose processes.</td>
</tr>
<tr>
<td></td>
<td>Protective clothing, gloves, eye and face protection, and respirators based on risk assessment.</td>
</tr>
<tr>
<td><strong>Exposure to wood dust in woodworking activities (occupational therapy)</strong></td>
<td>Substitution with less harmful woods or other products. Local exhaust ventilation on woodworking equipment.</td>
</tr>
<tr>
<td></td>
<td>Educate workers in the nature of the hazard. Develop safe work procedures. Purchasing controls to include choosing alternatives. Maintain good housekeeping including wetting procedures and dust suppression for dust clean-up. Maintain good hygiene practices. Equipment maintenance programs.</td>
</tr>
<tr>
<td></td>
<td>Protective clothing, gloves, eye and face protection, and respirators based on risk assessment.</td>
</tr>
</tbody>
</table>
Notes About Controls

for Chemical Hazards

**Engineering Controls**

Many engineering controls are available for controlling the hazard at the source and along the path of transmission. For chemical hazards, common engineering controls include:

- Elimination
- Substitution
- Local exhaust ventilation
- General ventilation (only appropriate for non-toxic chemicals)
- Proper chemical storage
- Facility design

For Rehabilitation Professionals, chemical exposures may be limited by ensuring the facilities are well designed, have effective ventilation, adequate storage for any chemicals used and have easily cleanable surfaces.

**Elimination**

Elimination of a hazardous chemical from the workplace is always desirable, but not always possible. For example, disinfectants are required when biological hazards are present and cleaning solutions are necessary to maintain hygienic conditions. In some cases, exposures can be eliminated by deciding not to offer certain programs or activities.

**Substitution**

Some chemicals are chosen based on tradition or cost. In recent years, efforts have been made to find less hazardous alternatives to some of the chemicals commonly used.

Some examples of substitution of chemical hazards in health care:

- Replacing mercury-containing devices (manometers, thermometers) with non-mercury containing alternatives.
- Using hydrogen peroxide-based cleaners rather than chlorine-based cleaners.

When substituting a chemical for one that is currently in use, it is critical to ensure that the new chemical does not have properties that may make it more toxic or more flammable, etc. The choice of chemical disinfectants should include consideration of dermatological effects as well as cleaning effectiveness.
**Equipment design**
Specialized equipment such as hydrotherapy pools must be chosen to incorporate safe and effective design features. Filtration equipment, monitoring equipment and ease of cleaning should be considered.

**Local Exhaust Ventilation (LEV)**
The most common engineering control used in health-care to minimize exposure to chemicals in the air is local exhaust ventilation (LEV). LEV captures contaminants at the point where they are released or generated and mechanically removes them before workers can inhale them. Local exhaust ventilation may be used in some occupational therapy activities such as woodworking and certain crafts.

**Administrative Controls**

**Policies and procedures, training**
As administrative controls, policies and procedures should be in place to ensure that there are safe work procedures for storing and using chemicals and discarding chemical waste appropriately. Rehabilitation Professionals may come into contact with a number of chemicals through the use of products and equipment as well as chemicals that may be used in treatment and disinfection procedures. Workplace Hazardous Materials Information System (WHMIS) training should be provided to all Rehabilitation Professionals. In addition, emergency call lines that provide expertise and advice regarding toxic chemicals should be made available.

**WHMIS program**
A Workplace Hazardous Materials Information System (WHMIS) program is an administrative control to reduce the risk of exposure to chemicals in the workplace and is a legal requirement for all employers who use controlled products in Alberta. To be effective, a WHMIS program must be relevant to the workplace, presenting information and training specific to the chemicals that are used in the workplace. The components of WHMIS include having current Material Safety Data Sheets for all products in the workplace, ensuring all products are appropriately labelled and ensuring that all workers are instructed on how to use the chemicals safely.

**Equipment maintenance procedures**
Hydrotherapy pools may pose a variety of hazards, both chemical and biological. It is critical to ensure that strict cleaning and monitoring procedures are implemented and enforced to ensure the quality and turnover of water and reduction of risk for transmission of infection.

**Exposure follow-up – emergency response equipment**
Two types of exposure follow-up are considered as administrative controls. The first is the provision of appropriate emergency response equipment to reduce the impact of the exposure. The second is the medical follow-up for workers who have had chemical exposure. In the first case, emergency
response equipment for PTs, OTs, SLPs and Audiologists usually refers to emergency eyewashes or drench hoses that can provide sufficient water to dilute the contaminant before it can cause extensive damage. Wherever chemical exposure could pose a hazard to eyes and skin, emergency wash devices are required. Appropriate signage that is easily visible must be provided to indicate where the eyewashes are kept.

**Medical follow-up of the exposed worker**

A worker who has had chemical exposure may require medical follow-up. Guidelines are available to provide information on the treatment and monitoring of workers with exposure to specific chemicals.

**Health surveillance and medical monitoring in the workplace**

Health surveillance encompasses two types of individual health assessments. The pre-placement assessment considers the worker’s personal health status as it relates to potential workplace exposures. It is useful to identify if workers have any allergies or sensitivities to products that they may need to work with. Another form of health surveillance is the ongoing biological monitoring of workers who are exposed to certain chemicals or drugs in the workplace. This is not usually required for PTs, OTs, SLPs and Audiologists.

**Chemical waste handling and disposal**

Chemical wastes must be addressed with a good chemical waste management system. Municipal and or provincial codes address appropriate disposal requirements and aim to reduce contamination, possible injuries, illness or reactions related to chemical exposures.

**Additional considerations for reducing risk of exposure**

It is prudent to be aware of the need for modification of the work environment, conditions or required PPE for workers who may be medically vulnerable to the effects of some substances. Higher-risk workers may include pregnant workers, workers with allergies or those who are sensitized to certain chemicals. Some common approaches to accommodate these workers include temporary reassignment to areas or tasks where the exposure potential is eliminated; work scheduling to reduce the amount of exposure; and, changes to the PPE to accommodate limitations.

**Personal Protective Equipment**

Personal protective equipment (PPE) is considered the lowest level of protection in the hierarchy of controls. This reflects the reliance on proper selection, fit, use and maintenance of the equipment by the organization.

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13 The US Agency for Toxic Substances and Disease Registry (ATSDR) has produced medical management guidelines for acute chemical exposures, which are available at http://www.atsdr.cdc.gov/MMG/index.asp.
and individual workers. PPE is often used in conjunction with other controls (engineering and administrative) to provide additional protection to workers. PPE is designed to protect the worker from exposure to chemicals by blocking access to the route of entry into the body. Gloves, aprons and other protective clothing reduce exposure through the dermal (skin) contact route. Eye and face protection reduce exposure through skin and mucous membrane contact. Respirators reduce exposure to the respiratory system.

**Gloves**

The most frequently used PPE by workers to prevent exposure to chemicals is gloves. When choosing gloves, the following must be considered:

- The nature and concentration of the chemicals
- The amount of time the gloves will be exposed to the chemical
- Dexterity required to perform the task
- Extent of protection needed (to wrist or higher)
- Decontamination and disposal requirements

**Rules for glove use for chemicals**\(^{14,15}\)

- Wear the appropriate gloves for the task when needed; for reusable gloves, follow the manufacturer’s guidelines for care, decontamination and maintenance. Choose gloves resistant to holes and tears.
- Ensure gloves fit properly and are of the appropriate thickness to offer protection; ensure adequate supplies of gloves in appropriate sizes.
- Avoid using latex gloves (due to latex allergies).
- Do not use worn or defective gloves.
- Wash hands once gloves have been removed.
- Disposable gloves must be discarded once removed. Do not save for future use.
- Dispose of used gloves into the proper container. Have separate disposal locations for gloves contaminated with chemicals which pose a toxic hazard if mixed.
- Non-disposable/reusable gloves must be washed and dried, as needed, and then inspected for tears and holes prior to reuse.

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\(^{15}\) **Glove use in laboratories.** University of Florida Chemical Hygiene Plan. Retrieved from http://www.ehs.ufl.edu/Lab/CHP/gloves.htm
• Remove gloves before touching personal items such as phones, computers, pens and one’s skin.
• Do not wear gloves into and out of areas. If gloves are needed to transport anything, wear one glove to handle the transported item. The free hand is then used to touch door knobs, elevator buttons, etc.
• Do not eat, drink, or smoke while wearing gloves. Gloves must be removed and hands washed before eating, drinking, or smoking.
• If for any reason a glove fails, and chemicals come into contact with skin, remove the gloves, wash hands thoroughly and obtain first aid or seek medical attention as appropriate.

Eye and face protection
For most workers who use chemicals, goggles or face shields are necessary. In most cases, goggles are considered reusable. Goggles should be worn when disinfecting equipment or whirlpool tubs. All reusable PPE must be properly decontaminated and maintained. Selection of protective eyewear should take into account:
• Level of protection required
• Comfort of the wearer
• Secure fit that does not interfere with vision or movement
• Ease of cleaning and disinfection
• Durability
• Compatibility with prescription glasses and other PPE that must be worn at the same time (e.g. respirators)

Respirators
According to the Safety Update: Alberta Occupational Health and Safety Code 2009, there is a duty to provide and use respiratory protective equipment (RPE) when a hazard assessment indicates that a worker may be exposed to airborne contaminants or exposed to an oxygen-deficient environment. Employers are required to use engineering and administrative controls before using RPE (respecting the hierarchy of controls). Respirators may be required to protect workers from exposure to chemicals by inhalation.

Protective clothing
Chemical protective clothing is available as gowns, aprons, and foot covers. The choice of protective clothing relies on an accurate hazard assessment. Should protective clothing become contaminated with a chemical or damaged, the clothing must be removed and handled according to organizational procedures (disposal or proper decontamination). Residual chemicals such as acids on clothing may continue to present an exposure

hazard. Workers must not wear clothing that is contaminated with chemicals, when going home, as this may pose a danger to themselves and others.

Worker Decontamination

If a worker is contaminated by a harmful substance at the worksite, the employer must ensure that only those items that have been properly decontaminated or cleaned are taken from the worksite by the worker.
PHYSICAL HAZARDS AND CONTROLS

There are many potential physical hazards to which Rehabilitation Professionals may be exposed. The nature of the work may pose ergonomic hazards, the potential for slips, trips and falls, exposure to environmental conditions, driving hazards, hazards related to the storage and use of compressed gas cylinders, cuts, and electrical hazards.

In this section the physical hazards most commonly encountered by Rehabilitation Professionals and methods to control them are presented. Employers should carefully evaluate the potential for exposure to hazards for therapy tasks and ensure that they have an effective hazard control plan in place. This information will be useful for inclusion into hazard assessments.

Note: The following chart provides basic information about control strategies for commonly occurring physical hazards for Rehabilitation Professionals. The selection of controls must be based on a risk assessment of the tasks and environment. Worker education and good communication processes are critical administrative controls. All legislation related to the assessment of hazards, selection and use of controls must be followed.

designed to “engineer out” the hazard; for example, substituting a safer chemical for one that is toxic; using better ventilation such as fume hoods or extraction fans; machine guards to prevent contact with moving parts, etc.

implementing policies and safe work procedures, company rules, scheduling plans, training programs, worker orientation, etc.

items worn or used directly by the worker to reduce contact with hazardous substances. Examples include gloves, goggles, proper shoes, protective clothing, etc.
<table>
<thead>
<tr>
<th>Potential Physical Hazards</th>
<th>Summary of Major Control Strategies</th>
<th>PPE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ergonomic hazards associated with providing services to children in schools, etc.</strong></td>
<td>Ergonomically designed work areas including tables that allow for adult-sized chairs with child-sized legs (e.g., half-moon or kidney shaped tables that allow for the professional’s knees). Chairs with back support. Worker training in biomechanics. Stretching.</td>
<td>Comfortable shoes with good shock absorption qualities. Low/no heels. Use of knee pads when kneeling on floors.</td>
</tr>
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**Note:**
- The provided information is a summary of major control strategies for potential hazards. For detailed guidance, refer to the respective workbooks and resources mentioned.

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**Ergonomic Hazards**

1. **Ergonomic hazards associated with patient handling, including provision of treatments requiring repetitive motion, twisting and lifting as well as tasks, postures and force levels required for some manipulations.**

   - Availability of adequate sizes and types of patient-handling equipment.
   - Ergonomic criteria incorporated into facility design.
   - A comprehensive patient-handling program that incorporates the principles of the No Unsafe Lift Workbook.
   - Safe work procedures for patient handling activities.
   - Worker education and awareness sessions.
   - Risk assessment system for patient-handling tasks.
   - Early reporting of signs and symptoms of ergonomic concerns.
   - Stretches and micro-breaks.
   - Purchasing standards for patient-handling equipment.
   - Maintenance of patient-handling equipment.

2. **Ergonomic hazards associated with computer use or workstation design**

   - Ergonomically designed workstations, chairs and equipment.
   - Incorporate adjustable workstation to accommodate shared use by employees of various sizes.
   - Adjustment of workstation and chair to fit user.
   - Worker education regarding ergonomic hazards and control strategies.
   - Self-assessment tools to assist workers in identifying and controlling risk factors.
   - Safe work procedures.
   - Early reporting of signs and symptoms of ergonomic concerns.
   - Stretches and micro-breaks.
   - Purchasing standards for ergonomically designed computer workstations, chairs and equipment.
   - Ergonomic assessments.
   - Maintenance of workstations, chairs and equipment.

3. **Ergonomic hazards associated with providing services to children in schools, etc.**

   - Ergonomically designed work areas including tables that allow for adult-sized chairs with child-sized legs (e.g., half-moon or kidney shaped tables that allow for the professional’s knees).
   - Chairs with back support.
   - Worker training in biomechanics.
   - Stretching.

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**PPE**

- Appropriate footwear with gripping soles and good support.
<table>
<thead>
<tr>
<th>Potential Physical Hazards</th>
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</tr>
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</table>
| **Ergonomic hazards associated with material handling of equipment, furniture and supplies including lifting, carrying, pushing, pulling, etc.** | **Engineering**
- Ergonomically designed storage areas with adequate space.
- Ergonomically designed equipment and furniture with appropriate casters and handles. Provision of appropriate materials handling equipment such as carts, trolleys, adjustable exam tables, etc. | **Administrative**
- Safe work procedures including proper lifting procedures. Worker education and awareness sessions. Early reporting of signs and symptoms of ergonomic concerns. Stretches and micro-breaks. Purchasing standards for ergonomically designed equipment, furniture and supplies. Purchasing standards for material handling equipment. Maintenance program for equipment and furniture. | **PPE**
- **Ergonomic hazards associated with driving include sustained postures (and potentially awkward posture) and duration**
- Select an appropriately designed vehicle which incorporates ergonomic and adjustable features. Consider a retrofit back support if the lumbar support in the vehicle seat is inadequate. | **Engineering**
- Select an appropriately designed vehicle which incorporates ergonomic and adjustable features. Consider a retrofit back support if the lumbar support in the vehicle seat is inadequate. | **Administrative**
- Adjust the seat and other features of the vehicle to fit the worker. Follow safe work procedures. Early reporting of signs and symptoms of ergonomic concerns. Stretches and micro-breaks. Vary driving position and vary tasks, when possible. Maintain vehicle. | **PPE**
- **Exposure to microwave or radiofrequency radiation when performing diathermy treatments**
- Proper maintenance of equipment. Workplace design to prevent scatter of radiation. Visible/audible sign that the equipment is operating. Non-conductive heating table. | **Engineering**
- Proper maintenance of equipment. Workplace design to prevent scatter of radiation. Visible/audible sign that the equipment is operating. Non-conductive heating table. | **Administrative**
- Worker education. Safe work procedures (including turning on power only after electrodes are in place, careful placement of electrodes to minimize stray radiation, operator maintaining proper distance from electrodes and cables, etc.) Treatment provided by authorized personnel only. Removal of any flammable materials from vicinity. | **PPE**
- **Exposure to laser beams during laser therapy procedures**
- Ensure area has no reflective surfaces. Fail-safe systems. Lock/key access for activation. | **Engineering**
- Ensure area has no reflective surfaces. Fail-safe systems. Lock/key access for activation. | **Administrative**
- Radiation safety program. Worker education. Safe work procedures (including placing laser in standby mode when not in use, single-operator activation, etc.) Restricted work area. Laser safety program. | **PPE**
- Gloves, gowns, and eye protection based on specific parameters of laser in use (wavelength, pulse versus continuous, wattage, laser class/type). |
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<thead>
<tr>
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</table>
| **Falling hazards associated with slips, trips and falls**                                | **Engineering**: Install slip-resistant flooring. Design stairwells according to accepted safety standards. Ensure adequate lighting.  
**Administrative**: Perform regular maintenance on flooring, stairwells, hallways, handrails, etc. Inspect ladders prior to use. Worker education. Implement a spill cleanup program that includes prompt spill clean-up, use of warning signs, etc. Maintain good housekeeping practices and minimize clutter and tripping hazards.  
**PPE**: Appropriate footwear with gripping soles and good support. |
| **Cuts from sharp instruments, including medical instruments and scissors, or equipment, including saws, knives, etc.** | **Engineering**: Avoid use of sharps when not required. Replace sharps with Safety Engineered Medical Devices. Proper storage of sharps. Machine guards.  
**Administrative**: Worker education. Safe work procedures.  
**PPE**: Gloves, as appropriate. |
| **Burns while providing diathermy**                                                        | **Engineering**: Proper connection and handling of diathermy equipment.  
**Administrative**: Worker education. Safe work procedures including switching off equipment when not in use, appropriate signage.  
**PPE**: |
| **Fire, projectiles, or physical injury if oxygen gas cylinders damaged, dropped or mishandled** | **Engineering**: Install protective valve caps when cylinder is not in use if the cylinder is equipped with a means of attaching caps. Secure and restrain cylinders.  
**Administrative**: Safe work procedures that include use, care, maintenance, storage and transport. Worker training.  
**PPE**: |
| **Electrical hazards arising from use of electrical cords and appliances**                 | **Engineering**: Ground fault circuit interrupters when used close to water sources.  
**Administrative**: Safe work procedures that include use of electrical cords, power bars and appliances that includes facility approval requirements. Worker training.  
**PPE**: |
| **Bruises, contusions as a result of use of tools, getting caught in pinch points, etc.**  | **Engineering**: Machine guards. Equipment selection. Design of work area.  
**Administrative**: Safe work procedures. Training.  
**PPE**: Gloves, as appropriate. |
| **Eye injury as a result of projectiles.**                                                 | **Engineering**: Machine guards.  
**Administrative**: Safe work procedures.  
**PPE**: Goggles. |
Notes About Controls

for Physical Hazards

Engineering Controls

Ergonomic hazards

One of the most commonly encountered physical hazards for Rehabilitation Professionals is the use of awkward body positions as well as lifting and transferring when moving patients. Engineering controls include patient lifting devices appropriate to the required lift and for the patient, the use of ramps where possible, and ergonomically designed work areas. Hazards of manually handling patients could be reduced by a program that includes:

- Policies for risk assessment and control
- Having adequate equipment
- Having adequate staffing
- Ongoing resident handling training
- Management commitment
- Staff involvement
- Incident investigation, follow-up and communication

According to the No Unsafe Lift Workbook, three key risk assessments are required to determine what procedures or equipment should be used for patient handling. These are a workplace assessment, a patient assessment and a task assessment. For workplaces, key considerations include:

- The staff to patient ratio
- Types of patients
- Special needs patients
- Equipment available and accessible
- The existence of patient care plans that include handling requirements
- Languages required for effective communication
- Workload issues
- Workers wearing appropriate clothing and footwear
- Communication protocols for patient status information
- Patient lifting and transfer plans
- Trained staff

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• Preventive and reparative maintenance programs for equipment in place
• Sufficient space to perform tasks, including use of mechanical lifts
• Walkways free of clutter
• Floor surfaces in good order
• Stable, suitable furniture
• Adequate lighting for tasks

For patients, key factors include:

• Capability to bear weight, move normally, tolerate basic tasks
• Patient conditions that may impact risk such as history of falls, impaired movement, pain, loss of sensation, skin issues, communication issues, medical equipment used, surgical conditions, sensory deficiencies, mental state (confusion), aggression, etc.
• Types and frequency of transfers, lifts, repositioning required

For a task assessment, consideration should be given to whether the task needs to be done as well as the risks associated with the tasks. These may include:

• Static positions that may be required
• Duration of task
• Awkward postures for caregivers
• Task requiring extended reach
• Restrictions posed by protective equipment
• Inflexibility of time for task

Other engineering controls related to non-patient, manual materials handling include:

• Eliminate the need to push/pull/carry
• Provide handles to objects to be lifted
• Ensure that friction between the floor and the cart wheels is low
• Minimize the distances over which objects are to be pushed, pulled, or carried (change the layout of the workplace if necessary)
• Utilize carts or wheeled devices designed for the specific application

**Driving-related ergonomic practices**
Some Rehabilitation Professionals drive to client locations as part of their daily work tasks and must deal with the ergonomic issues associated with driving, and in many cases transporting materials in their vehicles. It is important for drivers to remember to vary their work activities and work position frequently during the work day for optimal comfort. During long periods of driving, this may mean stopping at a safe location and getting out
of the vehicle for a stretch or varying the adjustable seat controls slightly in order to maintain comfort.

**Manual handling from a motor vehicle**
Some PTs and OTs transport materials (equipment, supplies, computers, etc.) in a vehicle as part of their regular job duties. Manual handling from a vehicle is a potential risk factor for musculoskeletal injuries (MSIs) and may incorporate factors such as high forces and awkward postures. Useful strategies to reduce the risk associated with manual handling from a vehicle include:

- Use safe postures when handling a load. Obtain training if you are unsure of recommended lifting postures.
- Organize the trunk so that items can be moved with minimal reaching.
- Get as close to the material as possible to decrease forces.
- Use wheeled carts or suitcases to minimize the forces required to move the load.
- Consider making two or more trips to decrease the weight of each load.
- Ask for assistance if another person is available to help.
- Check the carrying path to ensure there are no tripping hazards.

**Radiation**
For lasers, engineering controls include ensuring the area has no reflective surfaces, the provision of fail-safe system and lock/key access for activation as well as interlock systems. Workplace design should include prevention of scatter of radiation, and non-conducting table materials when performing diathermy treatments.

Interlock systems are mechanical systems that prevent the operation of the equipment or some facet of the equipment until an action or other system is engaged or completed. Interlock systems are used extensively in radiation equipment to ensure that the equipment cannot be accidentally activated. Examples of interlock systems include the turning off of microwave generation in a microwave oven when the door is opened and a key control to activate the master switch on a laser.

The choice and the maintenance of equipment are critical engineering controls. Equipment design that includes advanced safety features (such as audible/visible signals when the equipment is operating, interlock or key/lock systems, permanent shielding, etc.) should be considered whenever possible. Equipment calibration and maintenance will ensure the equipment performs optimally and reduces the potential for accidental worker exposure.
**Trips, slips and falls**

In order to prevent trips, slips and falls, adequate lighting should be available. Cords and other tripping hazards should not be in the path of traffic. Non-slip flooring should be provided. The following are common engineering controls used to reduce the risk of trips, slips and falls in patient treatment areas:

- Designing patient care and treatment areas and equipment layout to minimize cords and to accommodate equipment without creating tripping hazards
- Designing patient care and treatment areas with adequate space to accommodate portable equipment without creating tripping hazards
- Providing adequate storage space to minimize the storage of equipment in hallways
- Keeping hallways clear of obstructions
- Using cord covers over electrical cords, as necessary
- Utilizing non-slippery surfaces on the whole steps or at least on the leading edges
- Performing regular maintenance to keep stairs in good repair. Ensure nothing is sticking out of surfaces on the stairs, handrails or banisters (e.g., nails or splinters)
- Maintaining lighting levels
- Using angular lighting and colour contrast to improve depth perception

**Cuts**

The most effective controls to reduce cuts are engineering controls. Common engineering controls include:

- Substitution of a sharp instrument with a less sharp alternative (e.g., engineered sharps injury-prevention devices)
- Safety cutters as bag and box openers
- Proper storage and disposal of sharps

**Burns**

Proper connection and handling of diathermy and other heat-producing equipment is required to prevent burns.

**Pressure**

Compressed gas cylinders are designed to safely hold their contents during regular use and the demands expected to be placed on them. Regulators, fittings and delivery systems must likewise meet manufacturers’ requirements. Oxygen cylinders should be stored away from any heat sources or combustible material; they should be stored upright and not be able to move freely or fall.
Protective valve caps are an engineering control to protect the valve head from damage when the cylinder is not in use. If the cylinder has a valve cap, the cap should always be placed on cylinders when the cylinder is not expected to be used for a period of time, such as for a work shift. All cylinders must be restrained from tipping by means of racks, chains, straps or other suitable means.

**Electrical hazards**

Insulation protects workers from contact with electricity. All equipment, wiring and cords must be maintained and used in a manner that keeps electrical insulation intact.

Electric appliances and equipment are protected from overloading by means of electric overloading devices such as fuses or circuit breakers. Although these devices will stop the flow of current when too much current flows through them, they are intended to protect equipment, but not workers. All overloading devices must be of sufficient ratings. Replacing fuses or circuit breakers with overloading devices that trip at a higher current than specified is a dangerous practice as is replacing overloading devices with a conductor. Ground fault circuit interrupters (GFCIs) are safety devices that will interrupt the flow of current by monitoring the flow of current to and from the device. GFCIs are important engineering controls that should be used in wet environments and to power tools and equipment outdoors.

Another important engineering control is grounding. Grounding of electrical equipment refers to creating an electrical path to earth (ground). Grounding provides some protection to equipment operators if there is a fault in the equipment or insulation that energizes the equipment housing; electricity would flow to ground rather than through the worker. Grounding for equipment that is plugged into electrical receptacles can be identified by the third prong on the electrical plug. Similarly electrical cords commonly have a third prong on the plug end. The third prong that facilitates grounding must not be removed or defeated. The housings of all equipment should be suitably grounded. Some electrical cords for tools or other equipment do not have a third grounding prong. This equipment is double insulated, meaning that it has been designed with additional insulating considerations to prevent the housing of the device from becoming energized.

**Administrative Controls**

**Ergonomic hazards**

Controls that focus on how work is performed and organized are administrative controls. Administrative controls include policies, procedures, work practices, rules, training, and work scheduling, including:
• Ensure risk assessments are performed that consider individual client factors, as well task, environmental and worker factors.
• Ensure all aspects of a No Unsafe Lift Program\textsuperscript{18} are implemented.
• Establish ergonomic purchasing standards for tools and equipment, including patient lifting devices and vehicles.
• Provide procedures for patient assessments.
• Conduct user trials to test new equipment and tools with input from workers.
• Maintain equipment, vehicles and tools to optimize their operation.
• Provide training programs to educate workers regarding biomechanical risk factors, signs and symptoms and safe work practices (including proper lifting methods and proper use of lifting devices).
• Provide self-assessment tools to identify and control biomechanical hazards.
• Optimize work shift scheduling to minimize extended work hours and overtime.
• Design break schedules to reduce biomechanical hazards.
• Encourage monitoring and early reporting of the signs and symptoms of MSIs.

There is often a reluctance of Rehabilitation Professionals to report their own incidents and accidents and to seek treatment as they are considered experts in biomechanics and believe they should be able to avoid such injuries. However, workload issues, the requirement to use improper postures and to lift unreasonable loads contribute to incidents, which may be largely unreported. Several studies\textsuperscript{19} have indicated that a large proportion of physiotherapists experience back pain during their careers.

**The No Unsafe Lift program**

In 2008, Alberta Immigration and Employment (WorkSafe Alberta) developed a workbook to assist organizations in designing and implementing a musculoskeletal injury prevention program in health-care facilities. The major aspects of the No Unsafe Lift Program\textsuperscript{18} are summarized here. The workbook provides much more detailed information including templates, tables, and in-depth description of all features of a successful program. It is accessible at:


\textsuperscript{19} Work-related Strain Injuries (Musculoskeletal Disorders); The Chartered Society of Physiotherapy. http://csplis.csp.org.uk/olibcgi?infile=details.glu&loid=32962
Nine Features of an Effective Musculoskeletal Injury Prevention Program for Health-care Providers

1. Management commitment, demonstrated through the setting of objectives, establishing policies, identifying roles, responsibilities and accountabilities and ensuring follow-through.
2. Employee participation, including solicitation of employee input in program design, equipment selection, program review and communication strategies.
3. Program coordination – ensuring the identification of someone accountable for coordinating all aspects of the program to ensure critical components do not “fall through the cracks.”
4. Risk assessments – including a self-assessment for the care provider, an assessment of environmental and equipment factors, a task assessment, and a client assessment. The risk assessments are not static and are required to be completed for each task and with each client. (A variety of assessment tools are provided in the workbook.)
5. Equipment consideration including the use of client-handling equipment as well as the selection, use and maintenance of equipment used in treatment activities.
6. Biomechanical consideration, with emphasis on load characteristics, individual worker capabilities, specific task requirements and environmental factors such as workload, culture, facility design and resources.
7. Training that includes proper client assessment, evaluation of environmental factors, use of equipment, effective communication as well as body mechanics. Training should include both theoretical and hands-on components. Competency should be assessed and documented.
8. Communication procedures must be well developed and broad and include change management aspects, program details, and communication of risks identified with specific clients, equipment, tasks and environment.
9. Area design considerations offer an opportunity to reduce the potential for musculoskeletal injuries by incorporating safety criteria in the selection of equipment and design of facilities. A comprehensive list of design suggestions is provided in the workbook.

In addition to a detailed description of the nine features listed above, the workbook also provides direction on program planning, implementation and administration, including developing a budget for the program, implementation considerations, change management, and program evaluation.
Driving hazards
In addition to controlling ergonomic hazards related to driving, employers must also address other legal requirements related to driving, including the use of personal vehicles for work purposes and the legislation related to distracted driving.

Use of Personal Vehicle for Work

The Alberta OHS Code includes legislative requirements for the use of personal vehicles for work purposes, licensing and mechanical inspection.

If a worker uses a personal vehicle for work purposes,
(a) an employer must ensure that the worker complies with section 256(1) by complying with the appropriate licensed driver requirements of provincial legislation, and
(b) the worker must ensure that the vehicle is maintained in sound mechanical condition.

The first requirement can be met if the employer verifies that the worker has the appropriate provincial driver’s license required to operate the type of personal vehicle being used. The second requirement can be met if the worker follows the maintenance requirements of the vehicle manufacturer.

OHS Code, Part 19

The use of cell phones has been the subject of much debate. Research indicates that personal communication devices may distract drivers and lead to motor vehicle incidents.
The use of personal communication devices, including cell phones, while driving is a major distraction that is common on our roads.

Research supports the following conclusions:
- Cell phone use (hand-held or hands-free) multiplies the risk of traffic collisions by four
- Using a cell phone while driving slows the driver’s reaction time
- Cell phone use increases the risk of rear-end collisions
- Using a cell phone while driving reduces visual field attention
- Cell phone conversations increase the probability of missing red lights

It should be noted that cell phone use is only one in a long list of potential distractions that should be managed for safe driving. Other hazardous distractions include texting, adjusting radios and iPods, eating, applying makeup, conversations with passengers, etc.

To address these issues, the Alberta Government (Ministry of Transportation) has introduced Distracted Driving Legislation, in effect September 1, 2011. Highlights of the legislation taken from the Ministry of Transportation website are summarized below.


Radiation

Administrative controls include policies and procedures and ongoing assessment of possible exposures to radiation. The policies and procedures are designed to ensure that workers are informed about the hazards of both ionizing and non-ionizing radiation and are trained in the safe work procedures necessary to prevent exposure. Some administrative controls include having a radiation safety program, a laser safety program, safe work practices, monitoring exposures and proper disposal practices. Minimize contact with body substances from patients receiving treatment with radionuclides.


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**Trips, slips and falls**
Administrative controls to prevent trips, slips and falls include:

- Education of workers and enforcement of the use of proper footwear
- Timely clean-up of any spills
- Eliminate the use of extension cords that may pose tripping hazards
- Keep walkways free of clutter

**Cuts**
Administrative controls widely used to reduce the potential for cuts include:

- Worker education
- Safe work procedures
- Keeping sharp edges away from the body
- Use of tools correctly
- Engaging all machine guards
- Choice of appropriate tool
- Restricted access to work areas
- Signs and warnings in hazardous areas, and
- Safe disposal of all sharps, including broken glass

**Burns**
To reduce the risk of burns, administrative controls include worker education, established safe work practices, assessment of work area to identify potential sources of burns, and equipment maintenance programs.

**Pressure**
Compressed gas cylinders must be handled, maintained and stored carefully to prevent cylinders from falling or a gas release. Proper transportation of cylinders must also be considered whether it be by vehicle or within a work area by use of a hand cart or other means. A safe work procedure should be developed for the use, transport, storage and maintenance of compressed gas cylinders in the workplace.

**Electrical hazards**
A major component of an electrical safety program is worker training. Extension cords are used in many applications for temporarily supplying power. Considerations to follow when using extension cords include:

- Protect cords from damage; do not allow vehicles to drive over cords.
- Never keep an extension cord plugged in when it is not in use.
- Do not use a damaged extension cord.
- Extension cords and most appliances have polarized plugs (one blade wider than the other). These plugs are designed to prevent electric shock by properly aligning circuit conductors. Never file or cut the plug blades or grounding pin of an extension cord.
• Do not plug one extension cord into another. Use a single cord of sufficient length.

Hazard assessments should guide the development of work procedures to assess and control electrical hazards.

**Personal Protective Equipment Controls**

**Ergonomic hazards**
The most important personal protective equipment to control ergonomic hazards is appropriate footwear with gripping soles and good support.

**Radiation**
Depending upon the nature of the radiation and the specific tasks the worker is performing, a range of PPE may be used as additional controls (to engineering and administrative controls) to reduce exposures. Examples include protective eyewear used when working with lasers, UV, or infrared radiation that is specifically made to reduce exposure to each type of radiation. Protective clothing is also used when working with various forms of radiation. Clothing protects against exposure to UV rays. Gloves protect workers from contamination with radioactive material and must be worn when there is the potential for contamination.

**Trips, slips and falls**
The use of appropriate footwear by Rehabilitation Professionals is essential to prevent trips, slips and falls. Workers should be required to wear flat shoes with non-slip soles that offer good support.

**Cuts**
Eye protection is important if there is any possibility that fragments of glass or other sharps may enter the eyes, and footwear must protect the wearer from accidental exposure to sharps. Gloves are usually required as PPE to protect workers from cuts. The selection of gloves depends on the nature of the task. Cut-resistant gloves are available that are made from a variety of materials including Kevlar, Dyneema, HexArmor, stainless steel and wire mesh.

**Temperature extremes**
PPE is often used to prevent burns. Insulated gloves, protective clothing, foot protection, and eye/face protection should be chosen based on the hazard assessment.
PSYCHOLOGICAL HAZARDS AND CONTROLS

Each department should systematically conduct hazard assessments for tasks performed by each type of Rehabilitation Professional and identify if and where the potential exists for psychological hazards. In this section, examples are provided of psychological hazards that may be encountered in any health-care setting, and possible control measures will be suggested. Employers should carefully evaluate the potential for exposure to hazards in all areas and ensure that they have an effective hazard control plan in place. This information will be useful for inclusion into hazard assessments. Please note, this is not designed to be an exhaustive treatment of the subject, but is rather an overview summarizing some of the reported psychological hazards in health-care settings.

Note: The following chart provides basic information about control strategies for commonly occurring psychological hazards. The selection of controls should be based on a risk assessment of the tasks and environment. Worker tolerance to stressors varies considerably. Most controls listed here relate to organizational controls with some mention of personal controls that may be useful in controlling risk. Worker education and good communication processes are critical administrative controls. All legislation related to the assessment of hazards, selection and use of controls should be followed.
<table>
<thead>
<tr>
<th>Potential Psychological Hazards or Effects of Workplace Stressors</th>
<th>Summary of Major Control Strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Abuse by clients or members of the public</strong></td>
<td><strong>Engineering</strong></td>
</tr>
<tr>
<td><strong>Abuse by co-workers</strong></td>
<td>Alarm systems and panic buttons. Video surveillance.</td>
</tr>
<tr>
<td><strong>Hazards related to working alone</strong></td>
<td>Communication devices. Restricted access. Workplace design considerations. Panic alarms. Bright lighting. Mirrors to facilitate seeing around corners or hallways, surveillance cameras.</td>
</tr>
<tr>
<td>★ Threat of violence</td>
<td>★ Medical emergencies when alone</td>
</tr>
<tr>
<td><strong>Stress related to critical incidents</strong></td>
<td>Training to increase awareness of signs and symptoms of critical incident stress. Critical incident stress team to respond to incidents. Communication and call procedures to mobilize team. Defusings and debriefings.</td>
</tr>
<tr>
<td>Potential Psychological Hazards or Effects of Workplace Stressors</td>
<td>Summary of Major Control Strategies</td>
</tr>
<tr>
<td>---------------------------------------------------------------</td>
<td>-------------------------------------</td>
</tr>
<tr>
<td><strong>“Technostress” related to the introduction of new technology</strong></td>
<td><strong>Engineering</strong></td>
</tr>
<tr>
<td><strong>Substance abuse as a response to excessive workplace stressors</strong></td>
<td>Worker involvement in substance abuse policy and procedures development. Worker education about substance abuse. Training workers and supervisors to recognize the signs of substance abuse. Procedures to limit individual access to narcotics. Provision of counselling services and return-to-work plans.</td>
</tr>
<tr>
<td><strong>Depression, anxiety, sleep disorders, other mental illness as a response to excessive workplace stressors</strong></td>
<td>Worker education about the signs and symptoms of depression, anxiety, sleep disorders, other mental illness. Elimination of workplace risk factors for depression, anxiety, sleep disorders, other mental illness. Provision of support services and programs. Benefit plans provision. Effective return to work programs.</td>
</tr>
</tbody>
</table>
### Potential Psychological Hazards or Effects of Workplace Stressors

#### Summary of Major Control Strategies

<table>
<thead>
<tr>
<th>Engineering</th>
<th>Administrative</th>
<th>PPE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hazards related to impacts of aging on workers</strong></td>
<td>Management policies and procedures that ensure no age discrimination. Proactive policies to accommodate aging workers. Training opportunities for aging workers. Education for all workers on intergenerational communication. Aging workers as trainers/mentors. Flexible work arrangement. Job redesign to accommodate aging workers.</td>
<td>Healthy lifestyle. Use of client and material handling equipment. Adequate sleep. Awareness of potential side effects of medication.</td>
</tr>
<tr>
<td><strong>Hazards related to shift work and hours of work</strong></td>
<td>Work environment designed to improve alertness (and minimize drowsiness). Appropriate lighting levels. Lighting levels that are adjustable by workers. Appropriate thermal environment. Well lit, safe and secure working environment. Work shift schedules designed to minimize fatigue (e.g., maximum number of consecutive night shifts, forward rotation, etc.) Work designed so that critical tasks are not conducted at ends of shifts or “low points” in shift. Quality breaks in place. Policies to encourage the reporting of concerns associated with fatigue. Thorough investigation of incidents and near misses with fatigue as a possible cause.</td>
<td>Appropriate sleep schedule and sleep environment. Strategies in place to promote sleep. Diet adjusted to accommodate shift schedule. Healthy lifestyle. Physical exercise. Safe plan for commute to and from work. Plan for family and friends. Use of stimulants and sedatives are minimized. Alertness strategies are utilized (e.g., bright lighting levels, regular short breaks, communication with co-workers, etc.)</td>
</tr>
<tr>
<td>Potential Psychological Hazards or Effects of Workplace Stressors</td>
<td>Summary of Major Control Strategies</td>
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<tr>
<td>---------------------------------------------------------------</td>
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<tr>
<td><strong>Stress related to work-life conflict</strong></td>
<td><strong>Engineering</strong></td>
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<tr>
<td></td>
<td>Management policies and procedures that support work-life balance (e.g., voluntary reduced hours, voluntary part-time work, phased-in retirement, telecommuting, job sharing, paid and unpaid leaves, dependent care initiatives, etc.) Work designed to address workload and work demand issues. Reduce reliance on paid and unpaid overtime. Supportive management culture. Work-life balance policies communicated to workers. Measure the use and impact of work-life balance policies.</td>
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<tr>
<td></td>
<td><strong>Administrative</strong></td>
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<tr>
<td></td>
<td>Time log used to track time. Work-life balance programs are utilized. Isolate work activities area from home time. Effective time management. Protect days off. Appropriate sleep habits. Social support system in place.</td>
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</tr>
<tr>
<td></td>
<td><strong>PPE</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Exposure to nuisance or irritating noise levels that may induce stress</strong></td>
<td>Lower rings on telephones. Encourage use of soft-soled shoes. Worker education on noise levels created by various activities. Posted reminders to reduce noise. Purchasing decisions that take into account noise levels of equipment. Location of noisy equipment to more isolated areas. Work organization at nursing stations to reduce noise.</td>
<td></td>
</tr>
<tr>
<td>Potential Psychological Hazards or Effects of Workplace Stressors</td>
<td>Summary of Major Control Strategies</td>
<td></td>
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<tr>
<td>---------------------------------------------------------------</td>
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</tr>
<tr>
<td><strong>Exposure to poor indoor air quality that may induce stress</strong></td>
<td><strong>Engineering</strong></td>
<td></td>
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<tr>
<td></td>
<td>Proper ventilation system design. Ventilation system maintenance activities. Isolation/segregation of work processes that may create contaminants.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Administrative</strong></td>
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<tr>
<td></td>
<td>Contractor requirements to reduce air contamination. Selection of low-pollutant cleaning chemicals. Cleaning schedules. Infection prevention and controls standards. Rules regarding the use of personal appliances that may impact heating, ventilation and air conditioning (HVAC) operations. Procedures to report and investigate indoor air quality complaints. Worker involvement in indoor air quality investigation. Communication to enable frank and timely discussion of Indoor Air Quality (IAQ) issues and what is being done to resolve them.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>PPE</strong></td>
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</tbody>
</table>
Notes About Controls for Psychological Hazards

Potential psychological hazards and controls vary greatly in jobs, locations and organizations and are only briefly discussed here. Personal factors impact how stressors are viewed and addressed. A comprehensive discussion of causes and impacts of psychological stressors on workers and on the organization can be found in *Best Practices for the Assessments and Control of Psychological Hazards, Vol. 5*. 

Program elements for preventing or controlling abuse towards workers in the workplace

Because the scope of abuse of workers is broad, with a wide range of potential internal and external perpetrators and a myriad of individual considerations, prevention of abuse of workers is multi-faceted. This list of prevention procedures and control techniques is not all-inclusive, but rather a sample of the complexities that should be considered in a program for Rehabilitation Professionals:

- Development, communication and enforcement of policies that indicate no tolerance for any form of violence, harassment, or abuse including bullying. Awareness sessions for all workers on abuse and violence in the workplace, reporting procedures and controls.

- Staff identification to reduce unauthorized access to areas – this includes a requirement of all workers to wear identification badges. It is suggested that information that is not necessary not be shown on the front of the badge to reduce risk to workers.

- Client guidelines and signage to emphasize that abuse will not be tolerated – this may include the preparation and dissemination of client information guidelines in which client behaviour is discussed, the commitment to no tolerance for abuse against workers and the encouragement of mutual respect are covered.

- Working alone guidelines and communications protocols. Working alone guidelines are required by Alberta occupational health and safety legislation (*OHS Code*, Part 28) and must include a written hazard assessment as well as communication protocols for workers who must work alone.

- Alarm systems and emergency communication devices (panic buttons, etc.) Identification of workers or locations that should be provided with alarm systems and panic buttons should occur. Once any alarm systems are installed or provided, all workers should be trained on how
Working alone

In some circumstances, working alone poses psychological as well as physical hazards. Psychological hazards of working alone relate to the potential threat of violence or abuse that may be increased when there is no one else present to intervene or deter acts of violence. Workers who are isolated or unable to have contact with others may also experience medical crises and be unable to obtain necessary medical treatment. In many jurisdictions, working alone legislation has been passed to address worker safety. In Alberta, the requirements for working alone are in Part 28 of the *OHS Code*.

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### Working Alone Legislation

Part 28 of the **OHS Code** (Working Alone) applies if:

- A worker is working alone at a worksite, and
- Assistance is not readily available if there is an emergency or the worker is injured or ill.

Working alone is considered a hazard that requires hazard assessment and control under Part 2.

*OHS Code, Part 28, Section 393*

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24 This section is reproduced from *Best Practices for the Assessments and Control of Psychological Hazards, Vol. 5*, which will be available at www.employment.alberta.ca/SFW/6311.html.
For Rehabilitation Professionals, workers who may need to work alone include those who travel to meet clients in the community, workers in transit who are traveling alone, and those working in isolated locations, away from public view. In determining if working alone requirements apply, it is important to consider three factors\textsuperscript{25} that impact “readily available assistance.” These are:

- awareness by other persons that a worker needs assistance
- willingness of the others to provide assistance, and
- timeliness of assistance provided.

In all cases, a risk assessment should be conducted for each task/job where a worker may work alone. If the nature of the work poses hazards with a high probability of injury, immediate assistance may be required.

**What are the considerations in a risk assessment?**

Not all working alone situations are alike. The employer should consider physical factors of the location (lighting, communication methods, accessibility of the area, and history of security problems), the hazards of the task being performed by a lone worker, a workers’ health status and the effectiveness of any existing controls in assessing the level of risk. Controls useful in some circumstances may be impractical in others. For example, a cell phone may seem like a control for almost all lone workers. However, in many circumstances taking out the phone and making a call may not be practical or safe. Involving workers in the risk assessment and determination of appropriate controls will lead to the selection of practical and effective controls.

Controls to employ for workers working alone

Elimination of the risk is the most effective control for working alone hazards. Where possible, the employer should schedule and organize work so that workers are not required to work alone. An excellent source of information about controls for working alone with clients is the CCOHS document Working Alone with Patients.26

Engineering controls for lone workers include:

- communication devices (cell phones, walkie-talkies, etc.)
- satellite tracking systems
- restricted access
- locks
- workplace design considerations
- bulletproof shields
- panic alarms
- bright lighting
- mirrors to facilitate seeing around corners or hallways
- surveillance cameras, etc.

Administrative controls include worker training, working alone policies and procedures, client intake and screening processes, repeat offender chart alerts, working in teams, communication protocols between sites,

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departments and facilities, requirement for workers to wear identification badges, check-in procedures, empowerment of home care and other workers to defer services or meet clients in alternative safe locations, provision of adequate security, accompaniment service to parking lots, well-functioning vehicles, etc.

Personal protective equipment may include personal safety alarms, pepper spray, etc.

**Working alone checklists**
To identify who may be exposed to hazards of working alone and determine appropriate controls to prevent injury, a thorough assessment should be conducted. The following checklist from *Working Alone Safely – A Guide for Employers and Employees* may be useful in developing best practices for dealing with hazards of working alone. Additional checklists for workers with other risk factors are also included in the guide.

<table>
<thead>
<tr>
<th><strong>Checklist for workers who meet clients off-site</strong></th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Worker training</strong></td>
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<tr>
<td>Are workers trained and competent to work alone?</td>
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<tr>
<td>Do workers receive training in the recognition of potentially violent situations?</td>
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<tr>
<td>Are workers trained in non-violent responses to threatening situations?</td>
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<tr>
<td>Have workers been instructed on safe work procedures for meeting clients at their premises?</td>
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<tr>
<td><strong>Safe work procedures</strong></td>
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<tr>
<td>Are the safe work procedures based on hazard assessments?</td>
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<tr>
<td>Do the safe work procedures consider client behaviour?</td>
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<tr>
<td>Do the safe work procedures consider location and physical factors of the premises?</td>
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</tbody>
</table>

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<table>
<thead>
<tr>
<th>Checklist for workers who meet clients off-site</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
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<tbody>
<tr>
<td>Do the safe work procedures consider the possible presence of dangerous weapons?</td>
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<td>Are workers required to have a safe visit plan for high-risk situations?</td>
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<tr>
<td>Does the plan include the mechanism to enable regular contact with the office?</td>
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<tr>
<td>Does the plan include a process to inform the office when arriving and leaving client premises?</td>
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<tr>
<td>Does the plan permit use of a “buddy” or second person to accompany the worker in high-risk situations?</td>
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<tr>
<td>Does the plan allow for meeting the client in an alternate, safer location?</td>
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<tr>
<td>Does the plan discuss the use of security services?</td>
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<td>Does the plan enable deferring visits until proper safety measures can be met?</td>
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</tbody>
</table>

**Communication**

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
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<tbody>
<tr>
<td>Is there an effective means of communication to enable workers to contact persons capable of providing immediate assistance?</td>
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<tr>
<td>Does the communication system ensure regular contact?</td>
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<tr>
<td>Is there a “check-in” process in place?</td>
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<tr>
<td>Is regular contact initiated by the employer or designate at intervals appropriate to the nature of the hazard?</td>
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</tbody>
</table>

**Work-life balance**

An employer should strive to develop policies and programs that support work-life balance. The following is a list of general work-life balance policies and programs to consider:

- Flexible time arrangements including alternative work schedules, compressed work week, voluntary reduced hours/part-time work and phased-in retirement
• Flexible work locations through the use of technology such as telecommuting and satellite offices
• Flexible job design through job redesign, job sharing
• Wellness programs
• Flexible benefits including paid and unpaid leaves for maternity, parental care giving, educational and sabbatical leaves
• Employer-sponsored childcare and eldercare practice and referral services

A work-life conflict issue recognized in health-care is often brought on by workload and work demands. Some strategies to reduce the impact of increased workloads and work demands include the following:

• Identify methods to reduce worker workloads. According to research, special attention is required for managers and professionals.
• Track the costs associated with understaffing and overwork (paid and unpaid overtime, increased turnover, employee assistance program use, increased absenteeism).
• Strive to reduce the amount of time workers spend in job-related travel.
• Reduce reliance on paid and unpaid overtime.
• Consider a “time in lieu” system to compensate for overtime.
• Develop norms regarding the use of technology (e.g., cell phones, PDA, laptops, email) outside of work time.
• Allow workers to say “no” to overtime without repercussions.
• Provide a limited number of days of paid leave per year for caregiver responsibilities (childcare and eldercare) and personal problems.
• Measure the use of work-life practices (e.g., job sharing, compressed work week, etc.) and reward sections of the organization with high usage. Investigate sections where usage is low.
• Increase supportive management. Specifically, organizations should increase the extent to which managers are effective at planning the work to be done, making themselves available to answer worker questions, setting clear expectations, listening to workers’ concerns and giving recognition for a job well done.

Shift work
The following guidelines will assist in reducing the psychological impacts of shift work.
Good Practice Guidelines for Shift Work Schedule Design

- Plan a workload that is appropriate to the length and timing of the shift.
- Strive to schedule a variety of tasks to be completed during the shift to allow workers some choice about the order the tasks need to be done in.
- Avoid scheduling demanding, dangerous, safety-critical or monotonous tasks during the night shift, particularly during the early morning hours when alertness is at its lowest.
- Engage workers in the design and planning of shift schedules.
- Avoid scheduling workers on permanent night shifts.
- When possible, offer workers a choice between permanent and rotating shifts.
- Use a forward-rotating schedule for rotating shifts, when possible.
- Avoid early morning shift starts before 7 a.m., if possible.
- Arrange shift start/end times to correspond to public transportation or consider providing transport for workers on particular shifts.
- Limit shifts to a maximum of 12 hours (including overtime) and consider the needs of vulnerable workers.
- Limit night shift to 8 hours for work that is demanding, dangerous, safety-critical or monotonous.
- Avoid split shifts unless absolutely necessary.
- Encourage and promote the benefit of regular breaks away from the workstation.
- Where possible, allow workers some discretion over the timing of breaks, but discourage workers from saving up break time for the end of the workday.
- In general, limit consecutive working days to a maximum of 5 to 7 days.
- For long work shifts (more than 8 hours), for night shifts and for shifts with early morning starts, consider limiting consecutive shifts to 2 to 3 days.
- Design shift schedules to ensure adequate rest time between successive shifts.
- When switching from day to night shifts (or vice versa), allow workers a minimum of 2 nights’ full sleep.
- Build regular, free weekends into the shift schedule.

For a more detailed discussion of controls to prevent or reduce psychological hazards, please consult Best Practices for the Assessments and Control of Psychological Hazards, Vol. 5.

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SECTION 3

Appendices
# APPENDIX 1 – Glossary of Terms and Abbreviations

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
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</table>
| Abuse                 | Maltreatment resulting in emotional, mental, or physical injury to its victim.  
[www.businessdictionary.com/definition/abuse.html#ixzz15qUEFQ3h](http://www.businessdictionary.com/definition/abuse.html#ixzz15qUEFQ3h) |
| Aging worker          | There is no exact, commonly recognized age at which someone is considered an older worker. Some studies have focused on people older than 55, while other studies examined those 45 years or older.  
[www.ccohs.ca/oshanswers/psychosocial/aging_workers.html](http://www.ccohs.ca/oshanswers/psychosocial/aging_workers.html) |
| Awkward postures      | Non-neutral positions adopted by a worker to perform a task.                                                                                                                                                                                                                                                                                  |
| Biological monitoring | Evaluation of chemical components or metabolic by-products through the testing of biological samples, e.g., blood, urine, hair, etc. to determine worker exposure.                                                                                                                                                                                   |
| Bullying              | Bullying is usually seen as acts or verbal comments that could 'mentally' hurt or isolate a person in the workplace. Sometimes, bullying can involve negative physical contact as well. Bullying usually involves repeated incidents or a pattern of behaviour that is intended to intimidate, offend, degrade or humiliate a particular person or group of people. It has also been described as the assertion of power through aggression.  
[www.ccohs.ca/oshanswers/psychosocial/bullying.html](http://www.ccohs.ca/oshanswers/psychosocial/bullying.html) |
| Carcinogen            | Agent identified as causing cancer (a disease characterized by uncontrolled abnormal proliferation of cells).                                                                                                                                                                                                                                   |
| Caregiver strain      | Changes in the caregiver’s day-to-day lives which can be attributed to the responsibility to provide care for the dependent.                                                                                                                                                                                                                  |
| CGSB – Canadian General Standards Board | The Canadian General Standards Board certifies medical gloves, which is a key factor in selecting gloves for use in health care.                                                                                                                                                                               |
| Chemical hazard       | A chemical that, because of its characteristics and effects, may cause harm to an individual.                                                                                                                                                                                                                                               |
| Chemical irritant     | Chemical causing an immediate reaction when the worker is exposed to it. It may affect the part of the body in contact with the chemical (skin, respiratory tract, etc.) or produce a more systemic response due to absorption of the chemical.                                                                                                                                    |
| Communicable          | Capable of being transmitted from one person to another synonymous with “infectious” and “contagious.”                                                                                                                                                                                                                                      |
| Contact (Direct)      | Direct contact transmission occurs when transfer of microorganisms results from direct physical contact between an infected or colonized individual and a susceptible host (body surface to body surface).                                                                                                                     |
Contact (Indirect) Indirect contact involves passive transfer of microorganisms to a susceptible host via an intermediate object, such as contaminated hands that are not washed between patients or contaminated instruments or other inanimate objects in the patient’s immediate environment.

Contact Precautions Contact Precautions are a set of practices used to prevent transmission of infectious agents that are spread by direct or indirect contact with the patient or the patient’s environment. Contact Precautions also apply where the presence of excessive wound drainage, fecal incontinence, or other discharges from the body suggest an increased transmission risk.

Contaminated State of having been actually or potentially in contact with microorganisms. As used in health care, the term generally refers to the presence of microorganisms that could be capable of producing disease or infection.

CIS – Critical Incident Stress Stress associated with any sudden unexpected event that has an emotional impact sufficient to overwhelm the usual effective coping skills of an individual or a group and that causes significant psychological distress in usually healthy persons.


COR – Certificate of Recognition A certificate provided through a program (Partnerships in Injury Reduction) in Alberta to a company that meets specific criteria, including attaining a specific score on an external audit.

Cut A cut is a break in the skin.

Cytotoxic Toxic action directed at cells rather than the tissue or the organism.

Debriefing A critical incident stress debriefing (CISD) is an important part of the process that usually takes place within 24 to 48 hours of the incident and includes all those who were involved in the incident. The purpose of the CISD is to have those involved meet with peer counsellors and mental health professionals to discuss the incident and begin to work through their reactions.

Decontamination The process of cleaning, followed by the inactivation of pathogenic microorganisms, in order to render an object safe for handling.

Defusing A defusing session is a short (30 to 45 minutes), non-judgmental session where one or more workers affected by the incident meets with a trained leader (called a defuser). Defusings should be held within 6 to 8 hours of the event.

<table>
<thead>
<tr>
<th><strong>Depression</strong></th>
<th>There are different kinds of depressive mood disorders, including bipolar disorder (manic-depressive illness), post-partum depression and psychosis, but clinical depression or &quot;unipolar disorder&quot; is the most common depressive disorder. Mood disorders are very real illnesses that can have serious and sometimes fatal results. They affect the entire body and not just the mind. Their physical symptoms can range from fatigue to stomach complaints or muscle and joint pain. <a href="http://www.phac-aspc.gc.ca/cd-mc/mi-mm/depression-eng.php">www.phac-aspc.gc.ca/cd-mc/mi-mm/depression-eng.php</a></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Disinfectant</strong></td>
<td>A chemical agent used on inanimate objects to destroy virtually all recognized pathogenic microorganisms, but not all microbial forms (e.g., bacterial spores).</td>
</tr>
<tr>
<td><strong>Disinfection</strong></td>
<td>A process that destroys some forms of microorganisms excluding bacterial spores; a process that kills most forms of microorganisms on inanimate surfaces.</td>
</tr>
<tr>
<td><strong>Ergonomics</strong></td>
<td>Fitting the job or task to the man.</td>
</tr>
<tr>
<td><strong>Fatigue</strong></td>
<td>Fatigue is the state of feeling very tired, weary or sleepy resulting from insufficient sleep, prolonged mental or physical work, or extended periods of stress or anxiety. Boring or repetitive tasks can intensify feelings of fatigue. Fatigue can be described as either acute or chronic. <a href="http://www.ccohs.ca/oshanswers/psychosocial/fatigue.html">www.ccohs.ca/oshanswers/psychosocial/fatigue.html</a></td>
</tr>
<tr>
<td><strong>GFCI — Ground Fault Circuit Interrupter</strong></td>
<td>Ground fault circuit interrupters are safety devices that will interrupt the flow of electrical current by monitoring the flow of current to and from the device.</td>
</tr>
<tr>
<td><strong>Hand hygiene</strong></td>
<td>Refers to the process of removing or reducing the number of microorganisms on hand surfaces with soap and water or through the use of waterless hand sanitizers.</td>
</tr>
<tr>
<td><strong>HEPA — High Efficiency Particulate Air Filter</strong></td>
<td>An air filter with an efficiency of 99.7 per cent in the removal of airborne particles 0.3u or larger in diameter.</td>
</tr>
<tr>
<td><strong>Indoor air quality</strong></td>
<td>The quality of indoor air that includes various physical parameters such as humidity, air flow, temperature, and the presence of contaminants that may impact the inhabitants of the facility.</td>
</tr>
<tr>
<td><strong>Infection</strong></td>
<td>The entry and multiplication of an infectious agent in the host that occurs when bacteria get past the person's normal defences and cause disease (e.g., skin bacteria getting into the bloodstream via an intravenous catheter).</td>
</tr>
<tr>
<td><strong>IPC – Infection Prevention and Control</strong></td>
<td>Evidence-based practices and procedures that, when applied consistently in health-care facilities and settings, can prevent or reduce the risk of transmission of microorganisms to health-care personnel, clients and visitors.</td>
</tr>
<tr>
<td><strong>LEV – Local Exhaust Ventilation</strong></td>
<td>Ventilation provided near the source of the hazard designed to draw the chemical away from the worker before it can reach the worker’s breathing zone e.g., chemical fume hoods, smoke evacuators, etc.</td>
</tr>
<tr>
<td><strong>MSDS – Material Safety Data Sheet</strong></td>
<td>Required component of a WHMIS program that provides detailed information about a controlled substance.</td>
</tr>
<tr>
<td><strong>Medical device</strong></td>
<td>Any instrument, apparatus, appliance, material, or other article, whether used alone or in combination for human beings for the purpose of diagnosis, prevention, monitoring, treatment, surgery, or alleviation of disease, injury or handicap; investigation, replacement or modification of the anatomy, or of a physiologic process; or control of conception.</td>
</tr>
<tr>
<td><strong>MSI – Musculoskeletal Injury (work related)</strong></td>
<td>An injury to the muscles, tendons, ligaments, joints, nerves, blood vessels or related soft tissues that are caused or aggravated by work and includes overexertion injuries and overuse injuries.</td>
</tr>
<tr>
<td><strong>OEL – Occupational Exposure Limit</strong></td>
<td>The airborne concentration of a substance that cannot be exceeded.</td>
</tr>
<tr>
<td><strong>OHS – Occupational Health and Safety</strong></td>
<td>An area of specialization which concerns factors such as working conditions and exposure to hazardous materials that influence the health of workers, and which is concerned generally with the prevention of disease and injury and the maintenance of fitness.</td>
</tr>
<tr>
<td><strong>OHSMS – Occupational Health and Safety Management System</strong></td>
<td>The system put in place in a company that provides the structure of the health and safety programs and identifies accountabilities for all workplace parties.</td>
</tr>
<tr>
<td><strong>Overuse or Repetitive Motion Injuries</strong></td>
<td>Injuries resulting from repeated overuse of a part of the body. While it is commonly believed that computer users experience high levels of repetitive motion injury, the problem is rarely recognized among those workers who use their hands extensively in food processing, materials handling and the professional trades.</td>
</tr>
<tr>
<td><strong>PIR – Partnerships in Injury Reduction</strong></td>
<td>A program in Alberta to encourage the implementation of occupational health and safety management systems and reduce workplace injuries and illness.</td>
</tr>
<tr>
<td><strong>PPE – Personal Protective Equipment</strong></td>
<td>Specialized equipment or protective clothing used by health-care workers to protect themselves from direct exposure to clients' blood, tissue or body fluids. Personal protective equipment may include gloves, gowns, fluid-resistant aprons, head and foot coverings, face shields or masks, eye protection, and ventilation devices (e.g., mouthpieces, respirator bags, pocket masks).</td>
</tr>
<tr>
<td><strong>Routine Practices</strong></td>
<td>The term used by Health Canada to describe an IPC system, including precautions, to reduce the risk of transmission of organisms in health care.</td>
</tr>
<tr>
<td><strong>RPE – Respiratory Protective Equipment</strong></td>
<td>Personal protective equipment designed to protect the respiratory system of the worker, such as respirators or self-contained breathing equipment.</td>
</tr>
<tr>
<td><strong>Safeguard</strong></td>
<td>A guard, shield, guardrail, fence, gate, barrier, toe board, protective enclosure, safety net, handrail or other device (excluding PPE) designed to protect workers operating equipment or machinery.</td>
</tr>
<tr>
<td><strong>Safety-engineered medical sharp</strong></td>
<td>A medical sharp that is designed to or has a built-in safety feature or mechanism that will eliminate or minimize the risk of accidental parenteral contact while or after the sharp is used.</td>
</tr>
<tr>
<td><strong>Sensitization</strong></td>
<td>An allergic response after repeated exposure to a substance.</td>
</tr>
<tr>
<td><strong>Shift work</strong></td>
<td>Working outside regular daytime hours (Monday to Friday, 7 a.m. to 6 p.m.). Shift work may include rotating shifts, overtime, extended work shifts, night and evening work, part-time work, weekend work, compressed work week, varying work hours, split shifts, seasonal work and on-call work. <a href="http://employment.alberta.ca/whs/learning/Shiftwork/index.html">http://employment.alberta.ca/whs/learning/Shiftwork/index.html</a></td>
</tr>
<tr>
<td><strong>Stress</strong></td>
<td>Any change that we have to adapt to. <a href="http://www.cmha.ca/bins/content_page.asp?cid=2-267-1320-1324&amp;lang=1">www.cmha.ca/bins/content_page.asp?cid=2-267-1320-1324&amp;lang=1</a></td>
</tr>
<tr>
<td><strong>Stressors</strong></td>
<td>Events or conditions that may cause stress.</td>
</tr>
<tr>
<td><strong>Substitution</strong></td>
<td>The process of choosing a less harmful chemical to replace a chemical with hazardous properties.</td>
</tr>
<tr>
<td><strong>Surveillance</strong></td>
<td>The ongoing systematic collection, analysis, and interpretation of health-care data essential to the planning, implementation, and evaluation of public health practice, closely integrated with the timely dissemination of these data to those contributing data or to other interested groups who need to know.</td>
</tr>
<tr>
<td><strong>Sustained postures</strong></td>
<td>Postures that are maintained for prolonged periods without giving the body a chance to change positions.</td>
</tr>
<tr>
<td><strong>Target organ</strong></td>
<td>The organ(s) in the body where a particular chemical agent exerts its toxic effects.</td>
</tr>
</tbody>
</table>
**Technostress**  
Personal stress generated by reliance on technological devices, a panicky feeling when they fail, and a state of near-constant stimulation or being constantly ‘plugged in.’


**Teratogen**  
A substance that causes developmental defects or death in a foetus.

**Violence and Abuse**  
Violence and abuse include behaviours such as:

- physical assault or aggression
- unsolicited and unwelcome comments, gestures, contact or conduct which causes offense or humiliation, or
- physical harm to any individual which creates fear or mistrust, or which compromises and devalues the individual.

Violence and abuse can come from anyone in the workplace and be directed at anyone. It can be subtle or overt.

**WCB – Workers’ Compensation Board**  
The agency that provides no-fault compensation for workers who sustained workplace injuries or illnesses. Many employers are required to have WCB accounts.

**WHMIS – Workplace Hazardous Materials Information System**  
The Canadian system to address safety of controlled products by requiring Material Safety Data Sheets, labels and worker training.

**WHS – Workplace Health and Safety**  
A division of the Alberta Government – Employment & Immigration that provides OHS information and regulation.

**WHO – World Health Organization**  
An international organization devoted to improving health throughout the world through the communication of information and guidelines.

**Work-life conflict**  
Work-life conflict is defined as a form of inter-role conflict in which work and family demands are mutually incompatible so that meeting demands in one domain makes it difficult to meet demands in the other

APPENDIX 2 – OHS-related Competencies for Rehabilitation Professionals

The Canadian Physiotherapy Association provides these Competencies related to OHS for Physiotherapists. For more details, please see www.physiotherapy.ca/public.asp?WCE=C=47%7CK=224032%7CRefrershT=222634%7CRefreshS=Container%7CRefreshD=2226341

<table>
<thead>
<tr>
<th>Essential Competency Profile for Physiotherapists in Canada</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Competency</strong></td>
</tr>
<tr>
<td><strong>Dimension One – Professional Accountability</strong></td>
</tr>
<tr>
<td>Assumes professional responsibility and demonstrates safe, ethical, culturally sensitive and autonomous professional practice.</td>
</tr>
<tr>
<td><strong>Element 1 – Conducts self within legal/ethical requirements</strong></td>
</tr>
<tr>
<td>• Complies with physiotherapy legislation, regulations and professional obligations and any other applicable legislation that may impact on practice and conduct</td>
</tr>
<tr>
<td>• Exemplifies professional behaviour and takes due care that behaviour under any circumstances is not construed as harassment or abuse of clients, colleagues, associates or employees</td>
</tr>
<tr>
<td><strong>Dimension Seven – Practice Management</strong></td>
</tr>
<tr>
<td>Manages the physiotherapist’s role and implements physiotherapy services within the diverse contexts of practice.</td>
</tr>
<tr>
<td><strong>Element 2 – Uses available physical, material and financial resources as required for safe, effective and efficient physiotherapy practice</strong></td>
</tr>
<tr>
<td>• Verifies that therapeutic equipment used is in safe working order and contributes to maintaining safety of the equipment</td>
</tr>
<tr>
<td>• Follows appropriate infection control procedures</td>
</tr>
<tr>
<td>• Exercises due precautions relating to hazards in the physical environment</td>
</tr>
<tr>
<td>• Delivers physiotherapy services in a safe physical environment</td>
</tr>
<tr>
<td>• Ensures safety of self and staff throughout</td>
</tr>
</tbody>
</table>
The Association of Canadian Occupational Therapy Regulatory Organizations (ACOTRO) provides these competencies related to OHS for Occupational Therapists. For more details, please see www.coto.org/pdf/Essent_Comp_04.pdf

<table>
<thead>
<tr>
<th>Profile of Occupational Therapy Practice in Canada</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Competency</strong></td>
</tr>
<tr>
<td>E4.1 Manage day-to-day professional practice and career</td>
</tr>
<tr>
<td>• E.4.1.4 Balance work activities, outside activities, and personal priorities.</td>
</tr>
<tr>
<td>E.4.3 Supervise support personnel in occupational therapy</td>
</tr>
<tr>
<td>• E.4.3.5 Comply with provincial regulatory and organizational document standards that apply to working with support personnel in occupational therapy.</td>
</tr>
<tr>
<td>E.7.1 Demonstrate ethical practice</td>
</tr>
<tr>
<td>• Recognize and respond appropriately to others’ unprofessional behaviours in practice.</td>
</tr>
</tbody>
</table>
Specific examples of OHS-related competencies include:

<table>
<thead>
<tr>
<th>The audiologist will be familiar with:</th>
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</thead>
<tbody>
<tr>
<td>i. Existing federal and provincial legislation regarding health, safety, and compensation relating to noise exposure and noise-induced hearing loss.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>The audiologist demonstrates knowledge of:</th>
</tr>
</thead>
<tbody>
<tr>
<td>iv. The legal and ethical considerations which affect the delivery of services within the practice of an audiologist or a speech-language pathologist.</td>
</tr>
<tr>
<td>v. The professional, institutional, and governmental measures to safeguard clients and control the quality of care.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>The audiologist demonstrates general knowledge of:</th>
</tr>
</thead>
<tbody>
<tr>
<td>iv. Supervision</td>
</tr>
<tr>
<td>v. Establishing and maintaining interprofessional relationships.</td>
</tr>
<tr>
<td>vi. Caseload management.</td>
</tr>
<tr>
<td>vii. Minimal requirements for establishment and provision of services (e.g., physical plant, human resources, operational resources).</td>
</tr>
</tbody>
</table>
APPENDIX 3 – Additional Resources

The following are useful references and links to relevant resource materials. For complete reference lists, please consult the Best Practice documents developed by Alberta Employment and Immigration available at www.employment.alberta.ca/SFW/6311.html

Alberta Employment and Immigration; No Unsafe Lift Workbook; 2008

Alberta Government legislation related to chemicals in the workplace may be accessed through the Government website at http://employment.alberta.ca/SFW/307.html

Alberta OHS Code 2009, Part 18 – Personal Protective Equipment


Canadian Centre for Occupational Health and Safety (CCOHS), OSH Answers – Safety Glasses and Face Protectors; www.ccohs.ca/oshanswers/prevention/ppe/glasses.html
Canadian Centre for Occupational Health and Safety (CCOHS), OSH Answers - Chemical Protective Clothing – Gloves;  
www.ccohs.ca/oshanswers/prevention/ppe/gloves.html

Canadian Centre for Occupational Health and Safety (CCOHS), OSH Answers: Substance Abuse in the Workplace, Retrieved from  
www.ccohs.ca/oshanswers/psychosocial/substance.html

Canadian Centre for Occupational Health and Safety (CCOHS), OSH Answers – Electrical Safety Basic Information; updated June 1, 2000;  
www.ccohs.ca/oshanswers/safety_haz/electrical.html

Canadian Centre for Occupational Health and Safety (CCOHS), OSH Answers – OHS Legislation in Canada; Basic Responsibilities:  
www.ccohs.ca/oshanswers/legisl/responsi.html

Canadian Centre for Occupational Health and Safety (CCOHS), OSH Answers – OHS Legislation in Canada; Due Diligence:  
www.ccohs.ca/oshanswers/legisl/diligence.html

Canadian Centre for Occupational Health and Safety (CCOHS), OSH Answers – OHS Legislation in Canada; Internal Responsibility System;  
www.ccohs.ca/oshanswers/legisl/irs.html

Canadian Centre for Occupational Health and Safety (CCOHS), OSH Answers – Lasers; date last updated July 4, 2003;  
www.ccohs.ca/oshanswers/phys_agents/lasers.html

Canadian Centre for Occupational Health and Safety (CCOHS), OSH Answers: Substance Abuse in the Workplace, Retrieved from  
www.ccohs.ca/oshanswers/psychosocial/substance.html

Canadian Centre for Occupational Health and Safety; OSH Answers – Microwave Ovens; last updated November 2, 2004;  
www.ccohs.ca/oshanswers/phys_agents/microwave_ovens.html

Canadian Standard Association; Standard CAN/CSA-Z386-01: Laser Safety in Health Care Facilities;  
www.shopcsa.ca/onlinestore/GetCatalogItemDetails.asp?mat=2418908&Parent=4707 or view at http://ohsviewaccess.csa.ca

Canadian Standard Association; Standard Z432-04: Safeguarding of Machinery;  

Centers for Disease Control and Prevention, USA Guideline for infection control in health-care personnel;  
www.cdc.gov/ncidod/dhqp/gl_hcpersonnel.html


Government of the U.K, Health and Safety Executive; HSE Information Sheet; Slips and trips in the health services; 09/03;
www.hse.gov.uk/pubns/hsis2.pdf

Health Canada, Best Advice on Stress Management in the Workplace, Part 2, 2000 retrieved from
www.mentalhealthpromotion.net/?i=promenpol.en.toolkit.162


Interorganizational Group for Speech-Language Pathology and Audiology; Infection Prevention and Control Guidelines for Audiology; March 2010.


Lerman, Yehuda, Jacobovich, Ruben, and Green, Manfred; Pregnancy Outcome Following Exposure to Shortwaves Among Female Physiotherapists in Israel. American Journal of Industrial Medicine, 39:499-504, 2001.

Loughborough University; Vehicle Ergonomics: Best Practice Guide; 2007
The Chartered Society of Physiotherapy;

Occupational Safety and Health Administration; A Guide for Protecting Workers from Woodworking Hazards; OSHA 3157; 1999;
www.osha.gov/Publications/osha3157.pdf
Occupational Safety and Health Administration; Concepts and Techniques of Machine Guarding OSHA 3067; 1992 (revised);
www.osha.gov/Publications/Mach_SafeGuard/toc.html

http://ajot.aotapress.net/content/59/3/285.full.pdf

www.safeliftingportal.com/hottopics/documents/csp_briefing_eru

The Chartered Society of Physiotherapy; Taking the Pain out of Driving; n.d.;
www.lboro.ac.uk/departments/hu/drivingergonomics/downloads/takethepainoutofdriving.pdf

The Chartered Society of Physiotherapy; Hazards in Hydrotherapy Pools 2001
www.pwtag.org/researchdocs/Used%20Ref%20docs/97%20csp


WCB of BC Worksafe. Handle with Care: Patient Care and the Application of Ergonomics (MSI) Requirements. July 2003;
www.healthandsafetycentre.org/pdfs/healthcare/HWC/HWC_L.pdf

WorkSafeBC; Understanding the Risks of Musculoskeletal Injury (MSI); 2008;

Wortman, Alicia; Preventing Work-related Musculoskeletal Injuries;
http://coscorm.train.org/Courses/CHL/Pages/mod10/Skeletal-Injuries.pdf
APPENDIX 4 – Learning Objectives for this Module

1. Understand the need for and the procedure for conducting hazard assessments and risk evaluations.

2. Identify significant biological hazards that may impact you as a Rehabilitation Professional.

3. Identify significant chemical hazards that may impact you as a Rehabilitation Professional.

4. Identify significant physical hazards that may impact you as a Rehabilitation Professional.

5. Identify potential psychological hazards that may impact you as a Rehabilitation Professional.

6. Identify the hierarchy of controls that should be implemented to control hazards in the workplace.

7. Identify engineering controls and describe how they work.

8. Provide examples of administrative controls.

9. Describe the important considerations when selecting personal protective equipment.

10. For each type of hazard, identify possible engineering, administrative and personal protective equipment controls.
APPENDIX 5 – Test Your Knowledge

1. In what way can Rehabilitation Professionals be exposed to biological hazards?

2. What is meant by the “hierarchy of controls”?

3. Give three examples of engineering controls.

4. Give three examples of administrative controls.

5. Give three examples of personal protective equipment.

6. What are the major physical hazards that Rehabilitation Professionals may be exposed to?

7. List at least five factors that should be considered in risk assessments related to moving patients.

8. Name the five criteria for choosing the proper gloves to use.

9. Name the six criteria for selecting appropriate eye protection.

10. What administrative controls can be put in place to reduce the risk of exposure to hazardous chemicals?
Test Your Knowledge – Answers

1. Rehabilitation Professionals may be exposed to biological hazards through contact with patients, members of the public or through contaminated products or contaminated ventilation systems.

2. The hierarchy of controls refers to a preferred order of controls for implementation. The highest level is engineering controls because these control the exposure at the source. The next level is administrative controls, which relies on worker compliance. The least effective and lowest level of control is personal protective equipment because if the equipment fails the worker is likely to be exposed.

3. Preventive maintenance of equipment, adequate ventilation, segregated areas, automated procedures, ergonomically designed work stations, machine guarding, etc.

4. Training, policies, safe work procedures, restricted access, appropriate staffing, purchasing diluted solutions, signage, purchasing standards, etc.

5. Protective eyewear, gloves, lab coats, respirators, etc.

6. Ergonomic, slips, trips, falls, burns.

7. Workplace factors including:
   - Types of patients
   - Special needs patients
   - Equipment availability and accessibility
   - The existence of patient care plans that include handling requirements
   - Languages required for effective communication
   - Workload issues
   - Workers wearing appropriate clothing and footwear
   - Communication protocols for patient status information
   - Patient lifting and transfer plans
   - Trained staff
   - Preventive and reparative maintenance programs for equipment in place
   - Sufficient space to perform tasks, including use of mechanical lifts
   - Walkways free of clutter
   - Floor surfaces in good order
7. Workplace factors including: (continued)

- Stable, suitable furniture
- Adjustable furniture
- Adequate lighting for tasks

Patient factors including:
- Capability to bear weight, move normally, tolerate basic tasks
- Patient conditions that may impact risk such as history of falls, impaired movement, pain, loss of sensation, skin issues, communication issues, medical equipment used, surgical conditions, sensory deficiencies, mental state (confusion), aggression, etc.
- Types and frequency of transfers, lifts, repositioning required

Task factors including:
- Static positions that may be required
- Duration of task
- Awkward postures for caregivers
- Task requiring extended reach
- Restrictions posed by protective equipment
- Inflexibility of time for task

8. Five criteria for glove selection include:
   1. The nature and concentration of the chemicals
   2. The amount of time the gloves will be exposed to the chemical
   3. Dexterity required performing the task
   4. Extent of protection needed (to wrist or higher)
   5. Decontamination and disposal requirements

9. Six criteria for the selection of eye protection include:
   1. Level of protection required
   2. Comfort of the wearer
   3. Secure fit that does not interfere with vision or movement
   4. Ease of cleaning and disinfection
   5. Durability
   6. Compatibility with prescription glasses and other PPE that must be worn at the same time (e.g., respirators)

10. Administrative controls may include education of workers in the nature of the hazard; availability of appropriate equipment and PPE; accommodation for workers with special needs (pregnant workers, persons with sensitivities or other health issues).
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