Physical Hazards and Controls for Rehabilitation Professionals

Module 4

What is a physical hazard?

- A physical hazard is any physical or environmental situation, condition, or thing that may be dangerous to the safety or health of workers.
- Physical hazards include biomechanical hazards, radiation, noise, extreme temperatures, pressurized systems, confined spaces, falling hazards, electrical hazards

Types of physical hazards

- Biomechanical hazards (to be addressed separately in Module 5)
- Radiation
- Falling hazards
- Cutting hazards
- Extreme temperatures
- Pressure hazards
- Electrical hazards
- Mechanical hazards
- Vehicle driving hazards
- Noise hazards
Legislation related to physical hazards

- According to Alberta OHS legislation, all workplace hazards must be identified and assessed.
- There are specific OHS Codes that apply to physical hazards. These include:
  - Falling Hazards - Part 8 of the Code
  - Mechanical Hazards – Part 15 of the Code
  - Noise Hazards – Part 16 of the Code
  - Vehicle Driving Hazards – Part 19 of the Code
  - Radiation - Part 20 of the OHS Code as well as the Radiation Protection Act and Regulation
  - Cutting Hazards – Part 35 (Health Care and Industries with Biological Hazards)

Hazard assessment – physical hazards

- List all work-related tasks and activities.
- Identify potential physical hazards associated with each task. Remember to consider the range of clients or patients, which may impact the potential hazard.
- Assess the risk of the hazard by considering the severity of consequences of exposure, the probability that the exposure will occur, and the frequency the task is done.

Decreasing effectiveness of controls

- Engineering
- Administrative
- Personal Protective Equipment (PPE)
Hazard control

- Identify appropriate controls following the hierarchy of controls.
- Communicate the information to workers and provide training.
- Evaluate the effectiveness of controls and improve them as required.

Microwave or radiofrequency radiation

- Exposure to microwave or radiofrequency radiation when performing diathermy treatments
- Controls

  | Engineering controls | Workplace design to prevent scatter of radiation, equipment design including visible/audible signals that the equipment is operating, non-conductive tables |
  | Administrative controls | Proper maintenance of equipment, worker education, safe work procedures, treatment provided by authorized personnel only, removal of any flammable materials from vicinity |

Laser beams

- Exposure to laser beams during laser therapy procedures
- Controls

  | Engineering controls | Workplace design to ensure no reflective surfaces, fail-safe systems, lock/key access for activation |
  | Administrative controls | Radiation safety program, worker education, safe work procedures, restricted work areas, laser safety program |
  | PPE | Gloves, gowns, and eye protection based on specific parameters of laser in use |
Falling hazards

- Exposure to falling hazards associated with slips, trips and falls
- Controls
  
  **Engineering controls** – Installation of slip resistant flooring, design of stairwells according to accepted safety standards, adequate lighting
  
  **Administrative controls** – Regular maintenance on flooring, stairwells, hallways, handrails, inspection of ladders prior to use, worker education, implementation of a spill cleanup program, good housekeeping practices and minimization of clutter and tripping hazards
  
  **PPE** – Appropriate footwear with gripping soles and good support

Controls for tripping hazards
Cutting hazards

- Exposures associated with the use of sharp instruments including medical instruments, scissors, equipment, saws, knives
- Controls

<table>
<thead>
<tr>
<th>Engineering controls</th>
<th>Avoiding use of sharps when not required, replacement of sharps with safety engineered medical devices, proper storage and disposal of sharps and machine guarding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrative controls</td>
<td>Worker education and safe work procedures including using safety cutters, cutting away from the body, and ensuring appropriate lighting</td>
</tr>
<tr>
<td>PPE</td>
<td>Gloves and eye protection, as appropriate</td>
</tr>
</tbody>
</table>

Controls for cutting hazards

Control for cutting hazards
Extremes of temperature

- Exposures associated with the use of diathermy and other heat-producing equipment
  
  **Controls**
  
  - **Engineering controls** – Proper connection of diathermy and other heat-producing equipment
  - **Administrative controls** – Worker education, safe work procedures, and appropriate signage
  - **PPE** – Insulated gloves, as appropriate

Controls for extreme temperatures

Pressure hazards

- A variety of hazards including fire, projectiles, or physical injury if oxygen gas cylinders are damaged, dropped or mishandled
  
  **Controls**
  
  - **Engineering controls** – Proper securing and restraining of cylinders, installation of a protective valve cap (if possible) when cylinder is not in use
  - **Administrative controls** – Safe work procedures that include use, care, maintenance, storage and transportation of cylinders, and worker education
Electrical hazards

- Exposures associated with the use of electrical cords, appliances, and equipment
- Controls
  - **Engineering controls** – Use of ground fault circuit interrupters (GFCIs) when used near water sources
  - **Administrative controls** – Safe work procedures that include the inspection and use of electrical cords, power bars, and appliances, facility approval standards for electrical equipment, and worker education.

Control of electrical hazards

Mechanical hazards

- Bruises, contusions as a result of the use of tools, getting caught in pinch points, eye injuries as a result of projectiles
- Controls
  - **Engineering controls** – Equipment selection, machine guards, and design of work area
  - **Administrative controls** – Safe work procedures, and worker education
  - **PPE** – Gloves, goggles, as appropriate
Control of mechanical hazards

Vehicle driving hazards

- Motor vehicle collisions from driving vehicles
- Controls

**Engineering controls** – Purchasing standards for vehicles, winter tires

**Administrative controls** – Safe work procedures for driving including restriction of cell phone use, confirmation of driver qualifications, driver training, motor vehicle incident reporting process, maintenance and inspection of vehicles, work scheduling to prevent fatigue and a safe driving education program
Legislated requirements

- 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 driver requirements of provincial legislation, and
  (b) the worker must ensure that the vehicle is maintained in sound mechanical condition.

Part 19, Alberta OHS Code

Noise

- Noise from equipment or environmental noise from activities and people
- Controls

  **Engineering controls** – Design features of area to include noise reduction partitions, location of noisy equipment, maintenance of equipment
  **Administrative controls** – Purchase of equipment that produces less noise, low volume ringers on telephones, encouraging the use of soft-soled shoes, worker education about noise
  **PPE** – Earplugs, earmuffs

What can you do to prevent exposures to physical hazards?

- Participate in the hazard identification and assessment process.
- Become educated and aware of physical hazards and controls, including all safe work procedures.
- Use all controls to minimize your exposure to physical hazards.