

2011

# Handbook of Occupational Hazards and Controls for Community Clinics and Doctors' Offices

Government  
of Alberta ■



### Credits

This document has been developed by the Government of Alberta and derived as a profession-specific summary of information contained in the five volumes of Best Practices in Occupational Health and Safety in the Health Care Industry. Full text of these documents can be found at <http://www.employment.alberta.ca/SFW/6311.html>

### Copyright and Terms of Use

This material, including copyright and marks under the Trade Marks Act (Canada) is owned by the Government of Alberta and protected by law. This material may be used, reproduced, stored or transmitted for noncommercial purpose. However, Crown copyright is to be acknowledged. If it to be used, reproduced, stored or transmitted for commercial purposes, written consent of the Minister is necessary.

### Disclaimer

Information in this document is provided solely for the user's information and is provided strictly on an "as is" basis and without any warranty of any kind. The Crown, its agents, employees or contractors will not be liable for any damages, direct or indirect, or lost profits arising out of use of information provided in this document or for information provided at any of the resource sites listed in this document.

## Table of Contents

Introduction .....	3
Hazard Assessment Process .....	4
Potential Hazards and Recommended Controls .....	4
Biological Hazards and Controls.....	5
Notes about controls for biological hazards .....	6
Chemical Hazards and Controls .....	15
Notes about controls for chemical hazards .....	21
Physical Hazards and Controls.....	27
Notes about controls for physical hazards .....	29
Psychological Hazards and Controls .....	36
Notes about controls for psychological hazards.....	40
APPENDIX 1 - OHS-related Competencies for Community Clinic and Doctors' Office Personnel.....	46
APPENDIX 2 - Additional Resources .....	50
APPENDIX 3 - Learning Objectives for this Module.....	53
APPENDIX 4 - Test Your Knowledge.....	54
INDEX .....	56

# Occupational Health and Safety Hazards and Controls for Community Clinics and Doctors' Offices

## 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 healthcare workers (HCW) with workplace hazards and appropriate control measures. Five documents have been produced; each developed with the input of a multidisciplinary stakeholder group. The documents are available on the Alberta Employment and Immigration website <http://www.employment.alberta.ca/SFW/6311.html> as follows:

*Overview of Best Practices in Occupational Health and Safety in the Healthcare Industry Vol. 1*

[http://www.employment.alberta.ca/documents/WHS/WHS-PUB\\_bp009.pdf](http://www.employment.alberta.ca/documents/WHS/WHS-PUB_bp009.pdf)

*Best Practices for the Assessments and Control of Biological Hazards Vol. 2*

[http://www.employment.alberta.ca/documents/WHS/WHS-PUB\\_bp010.pdf](http://www.employment.alberta.ca/documents/WHS/WHS-PUB_bp010.pdf)

*Best Practices for the Assessments and Control of Chemical Hazards, Vol. 3*

[http://www.employment.alberta.ca/documents/WHS/WHS-PUB\\_bp011.pdf](http://www.employment.alberta.ca/documents/WHS/WHS-PUB_bp011.pdf)

*Best Practices for the Assessments and Control of Physical Hazards, Vol. 4*

*Best Practices for the Assessments and Control of Psychological Hazards, Vol. 5*

In an effort to focus the hazard assessment and control information for specific healthcare 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 for workers providing services in community clinics or doctors' offices. Some of this information may also be useful for other workers providing client care in community settings, such as therapists.

## Hazard Assessment Process

Workers in community clinics and doctors' offices 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 a variety of individual factors including client-related factors as well as environmental issues. 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
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 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), and 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 periodically to ensure they are effective.

## Potential Hazards and Recommended Controls

The following charts summarize potential hazards for workers in community clinics and doctors' offices and recommended controls to reduce the risk of exposure to the hazards.

## Biological Hazards and Controls

In this section the most commonly encountered biological hazards for workers in community clinics and doctors' offices 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 biological hazards most frequently encountered by workers in community clinics and doctors' offices.

### Note:

The following chart provides basic information about control strategies for commonly occurring biological hazards. Administrative controls are based on the risk assessment. Worker education and good communication processes are important 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.

Potential Hazards	Summary of Major Control Strategies		
	Engineering	Administrative	PPE
<b>Exposure to bloodborne pathogens through needle stick injuries, contaminated items and surfaces, exposure to mucous membranes</b>	Medical history of patients. Dedicated handwashing sink. Waterless hand sanitizers. Engineered needle stick prevention devices. Availability of sharps containers for disposal. Vaccines.	Compliance with all infection prevention and control practices. Immunization program. Worker education. Post-exposure procedures.	Gloves, protective clothing, eye and face protection.
<b>Exposure to airborne biological agents through contact with secretions from infectious patients (coughing, sneezing, etc.) or air contaminated with infectious biological agents</b>	Medical history of patients. Vaccines.	Scheduling of patients. Limit access to patients by workers not immune. TB screening. Compliance with all infection prevention and control practices immunization program. Worker education.	PPE where warranted based on level of risk may include gloves, protective clothing, face and eye protection, respiratory protection.
<b>Exposure to droplets containing infectious biological agents through</b>	Medical history of patients. Vaccines. Disinfection of	Good housekeeping practices. Compliance with all infection	PPE based on the risk assessment may include

<b>contact with patient secretions, skin to skin contact, or contaminated environmental surfaces or equipment</b>	equipment. Cleaning of toys.	prevention and control practices. Immunization program. Proper waste disposal. Worker education.	gloves, eye and face protection and other protective clothing (fluid resistant).
<b>Exposure to environmental biological contaminants from ventilation systems, water or food</b>	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.	Infection prevention and control practices related to building maintenance and food preparation. Protocols for construction and renovation projects that reduce contamination. Worker education.	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 healthcare worker. Controls include any mechanisms to reduce the potential for exposure to infectious agents and the immunization of all direct caregivers against infectious diseases to which they may be exposed.

### *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 clients. Good engineering controls such as the use of needleless systems and engineered needle stick prevention devices, and effective biological waste handling 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. Engineering controls related to the design of the work area are not often elements that are within the worker's control. However, in some cases, modifications may be suggested that provide a safer environment for both client and provider.

### *Safe Needle Devices*

Safe needle devices have built-in engineering features that assist in preventing injuries during and after use of the device. Examples of safe needle devices that have built-in engineering features include:

- Needleless connectors for IV delivery systems
- Protected needle IV connectors

- Needles that retract into a syringe or vacuum tube holder
- Hinged or sliding shields attached to syringes
- Self-blunting phlebotomy and winged steel needles
- Blunt tip suture needles
- Retractable finger/heel-stick lancets

While some engineered safe needle devices have been available for some time, new engineered safe needle devices continue to be introduced for the healthcare industry. Sharps disposal containers assist in protecting HCWs from injuries when handling and transporting waste sharps. The CSA standard *Z316.6-07 Evaluation of Single-use and Reusable Medical Sharps Containers for Biohazardous and Cytotoxic Waste* should be consulted when selecting sharps containers.

### Decontamination<sup>1</sup> 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. 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. Work areas, client rooms, and pieces of equipment may also require decontamination.

### General ventilation

Ventilation in offices is most often general ventilation, with heating, ventilation and air conditioning (HVAC) systems. Where humidifiers are in use, accumulations of water could stagnate in humidifier trays and are sources of potential biological contamination. Regular maintenance of humidifiers is required to reduce the risk of microbial growth. Mould growth in the indoor environment can be affected by relative humidity levels. 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.

---

<sup>1</sup> This section was modified from Laboratory Safety: CSMLS Guidelines, sixth edition; Gene Shematek & Wayne Wood; Canadian Society for Medical Laboratory Science; 2006.

## *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, and that workers in community clinics and doctors' offices are trained to use the proper procedures. 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 (IPC) efforts across all sites and operations. A comprehensive system should include the following components:

- A process that ensures site-specific 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
- Consistent standards for the cleaning, disinfection and sterilization of equipment, procedures, and policies including Routine Practices, Additional Precautions, hand hygiene policies and available materials, client 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;
- Required orientation and ongoing education
- Biomedical waste handling procedures and policies
- 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 clients is another good control, though this is not always possible for workers in community clinics and doctors' offices. 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 client sources by treating all contacts as potential risks.

**Infection Prevention and Control Definitions:**

- **Routine Practices** include a recommended pattern of behaviours to form the foundation of limiting the transmission of microorganisms in all health care settings and is generally accepted care for all clients. Elements of Routine Practices are: hand hygiene: risk assessment related to client symptoms, care and service delivery, including screening for infectious diseases; risk reduction strategies through the use of PPE, cleaning environment, laundry, disinfection and sterilization of equipment , waste management, safe sharps handling, client placement and healthy workplace practices; and education of healthcare providers, clients and families, and visitors.
- **Additional precautions** are practices used to prevent transmission of infectious agents that are spread by direct or indirect contact with the client or client's environment that are necessary in addition to Routine Practices for certain pathogens or clinical presentations. These precautions include Contact Precautions, Droplet Precautions, and Airborne Precautions that are based on the method of transmission.

For more information: <http://www.health.alberta.ca/documents/IPC-MRSA-Standards-2008.pdf>

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.

In some circumstances, identification of the specific organism responsible for the infection may take considerable time, during which client care is required. In these cases, it is prudent to apply the most stringent precautions until evidence indicates that less are required. In cases where the transmission route or organism has not yet been identified, it is prudent to assume all routes of transmission may be possible, as this would drive the highest level of precautions available and appropriate. Once more information is known about the organism, precautions can be revised to take that knowledge into account.

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. Workers must be trained in all decontamination procedures specific to their activities and should know the factors influencing the effectiveness of the treatment procedure.

### 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 IPC and OHS professionals.

### Considerations in the use of chemical disinfectants

- Choose the disinfectant carefully. More than one may be required. Keep in mind the items to be disinfected, and the properties and limitations of the various available disinfectants. If more than one disinfectant is required, ensure that those selected are chemically compatible.
- Follow the manufacturer's directions for making the proper dilutions of the disinfectants.

- The effective life of disinfectants can vary depending on the formulations and the conditions of usage. Follow the manufacturer's directions.
- The effective exposure time that the disinfectant must be in contact with the contaminant will also vary with conditions of usage. Often overnight exposure may be recommended to ensure effective decontamination.
- Understand the health and safety hazards that may be posed by a particular disinfectant and ensure appropriate precautions are taken. Wear disposable gloves when using any disinfectants. Wear other personal protective equipment or clothing as necessary, depending upon the disinfectants. Consult Material Safety Data Sheets for details.
- Workers in community clinics and doctors' offices with particular sensitivities to specific disinfectants should avoid using those disinfectants.
- Perform tests of the disinfectants to ensure effective disinfection.

### Spill response procedures

The efficient and effective control of a biological spill requires that all workers in community clinics and doctors' offices 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.

### To handle biological spills, it is prudent to have these items available:

- Biological liquid solidifying agent
- Disinfectant - small quantities, made fresh daily if phenolics or hypochlorites (such as bleach)
- Forceps for picking up broken glass
- Paper towels, swabs, disposable and heavy-duty gloves
- Metal or polypropylene (autoclavable) dust pan
- Heavy-duty polyethylene bags

### Training

Training in biological hazards and controls should be provided to all health care workers (HCWs). Each HCW must understand the employer's IPC and OHS programs as they relate to their job duties. For newly hired HCWs all relevant IPC and OHS policies and procedures must be provided before they start work. To ensure that HCWs 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 HCWs. Competency assessments should be provided for all training, and training records should be maintained.

### *HCW immunization and health surveillance*

An immunization policy and program is a proactive mechanism to reduce risk of communicable diseases for HCWs. Each healthcare organization should have an immunization and health surveillance program in place that is appropriate to the size and type of workplace. These programs must be applicable to workers in community clinics and doctors' offices, as appropriate to the risk assessment of their tasks. 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 HCW 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 HCWs exposed to, colonized by, or infected with microorganisms; an outbreak management process for exposures and/or HCWs 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 HCW exposures. This is an important procedure for workers in community clinics and doctors' offices, who are often not working in a hospital facility when exposure occurs.

### *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 by community clinic and doctors' office personnel. 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 client care activities require non-sterile gloves, whereas any invasive procedure should be performed using sterile surgical 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 healthcare. 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<sup>2</sup>, 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 bloodborne pathogens, length of use, amount of stress on the glove, presence of latex allergy, fit, comfort, cost, length of cuffs, thickness, flexibility, and elasticity.”*

### **Safe Practices for Glove Use<sup>3</sup>**

- 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.
- 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.

<sup>2</sup> Recommendations for Canadian Health Care and Public Service Settings; found at <http://www.phac-aspc.gc.ca/publicat/ccdr-rmtc/97vol23/23s3/index.html>

<sup>3</sup> Modified from information provided in Preventing the Transmission of Blood Borne Pathogens in Health Care and Public Service Settings. Found at <http://www.phac-aspc.gc.ca/publicat/ccdr-rmtc/97vol23/23s3/index.html> (See Supplement)

- Change gloves when they become soiled, during lengthy procedures, and between clients.
- 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.

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 most commonly used by workers in community clinics and doctors' offices include safety glasses and goggles. 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. Masks protect the mucous membranes of the nose and mouth from exposure to large droplets that may contain infectious materials. Masks are commonly used to contain droplets at the source (for example, the HCW or client with a cough). Masks should fully cover the nose and mouth and fit snugly. Masks worn by clients reduce exposure through droplet containment at the source, and respirators worn by health care workers reduce exposure to the respiratory system.

*The Difference between a Surgical or Procedure Mask and a Respirator (Adapted from OSHA 2007- Guidelines on Preparing Workplaces for an Influenza Pandemic)*

Surgical or Procedural Masks	Respirators (i.e. NIOSH approved N95)
<ul style="list-style-type: none"> <li>• Surgical Masks are <u>not</u> designed to seal tightly against the HCW's face or certified to prevent inhalation of small droplets/particles.</li> <li>• When the HCW inhales, contaminated small droplets can pass through gaps between the face and surgical mask.</li> </ul>	<ul style="list-style-type: none"> <li>• A fit-tested NIOSH approved respirator provides a proper seal at the HCW's face, forcing inhaled air to be pulled through the filter material and not through gaps between the face and the respirator.</li> </ul>
<ul style="list-style-type: none"> <li>• Surgical masks provide a physical barrier for protection from splashes of large droplets of blood or body fluids.</li> <li>• Surgical masks are used for several purposes including:               <ul style="list-style-type: none"> <li>○ Prevention of accidental contamination of clients wounds with pathogens normally present in mucus or saliva</li> <li>○ Placed on sick clients to limit spread of infectious respiratory secretions to others</li> <li>○ Protection from splashes or sprays of blood or body fluid</li> <li>○ Assist to keep HCWs contaminated hands from contacting their own mucous membranes.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Respirators are designed to reduce HCW's exposure to airborne contaminants.</li> <li>• Fit tested NIOSH approved respirators are used when required, based on hazard assessment.</li> </ul>

## Chemical Hazards and Controls

This section will provide a brief overview of selected chemicals that workers in community clinics and doctors' offices may come into contact with. **Note that this list is not extensive or all-inclusive.** In the control column, E, A and P are used to designate Engineering, Administrative and PPE controls. 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 (<http://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 workers in community clinics and doctors' offices.

*Chemicals used for cleaning and disinfection*

Chemical (category or group)	Common Uses and Examples	Exposure and Health Effects Information	Controls	For more information:
<p>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 MSDSs, information provided by the manufacturer or supplier, or other sources. Individual reactions to chemicals must also be considered in determining appropriate controls.</p>				
<b>Alcohol hand sanitizers</b>	Hand hygiene when water is not available and hands are not visibly soiled	May cause skin dryness. Product is flammable.	<b>A-</b> Appropriate storage of product (away from ignition sources and incompatible products). Provision of hand cream to soothe hand dryness.	<a href="http://www.ottawa.ca/residents/health/emergencies/pandemic/hand/faq_gel_en.html">http://www.ottawa.ca/residents/health/emergencies/pandemic/hand/faq_gel_en.html</a>  <a href="http://employment.alberta.ca/documents/WHS/WHS-PUB_fex002.pdf">http://employment.alberta.ca/documents/WHS/WHS-PUB_fex002.pdf</a>  <a href="http://www.municipalaffairs.alberta.ca/documents/ss/STANDATA/fire/fcb/97fcb026.pdf">http://www.municipalaffairs.alberta.ca/documents/ss/STANDATA/fire/fcb/97fcb026.pdf</a>
<b>Detergents</b>	Cleaning a variety of surfaces	Possible eye, skin, and respiratory irritants. Some products may cause allergic dermatitis or contain sensitizers such as nickel or limonene. May react with other products to create hazardous products.	<b>E-</b> Substitution with less harmful product. Properly designed and maintained ventilation systems. Automatic diluting machines. <b>A-</b> Practice to purchase products in ready to use concentrations to minimize handling. Safe work procedures. WHMIS program and maintenance of MSDSs. Worker education. Accommodation for sensitized workers or those with health issues, <b>P-</b> Gloves and eye protection.	<a href="http://www.hercenter.org/hazmat/cleaningchems.cfm">http://www.hercenter.org/hazmat/cleaningchems.cfm</a>  <a href="http://www.museo.unimo.it/ov/fdrEdete.htm">http://www.museo.unimo.it/ov/fdrEdete.htm</a>
<b>Low Level Disinfectants</b>	Chlorine compounds, alcohols, quaternary ammonium salts, iodophors, phenolic compounds,	Most are eye, skin, and respiratory irritants, particularly when concentrated. Some products may produce sensitization. Toxic effects depending on nature of chemical. May	<b>E-</b> Substitution with less harmful product. <b>A-</b> Safe work procedures. WHMIS program and maintenance of MSDSs. Worker education. Accommodation for sensitized workers or those with health issues. <b>P-</b> Gloves and eye protection.	<a href="http://ehs.virginia.edu/biosafety/bio_disinfection.html">http://ehs.virginia.edu/biosafety/bio_disinfection.html</a>  <a href="http://www.cdc.gov/niosh/topics/chemical.html">http://www.cdc.gov/niosh/topics/chemical.html</a>  <a href="http://cms.h2e-online.org/ee/hazmat/hazmatconcer">http://cms.h2e-online.org/ee/hazmat/hazmatconcer</a>

	hydrogen peroxide used widely for disinfection; usually prepared and used in low concentrations.	react with other products to create hazardous products.		<a href="#">n/steril/</a> <a href="http://www.mtpinnacle.com/pdfs/disinfectant-selection-guidelines.pdf">http://www.mtpinnacle.com/pdfs/disinfectant-selection-guidelines.pdf</a>
<b>Soaps and waxes</b>	General cleaning and floor maintenance	May cause skin and eye irritation. Some waxes may be a respiratory irritant if ventilation is insufficient. May react with other products to create hazardous products.	<b>E-</b> Elimination of waxes. Substitution with less harmful product. <b>A-</b> Safe work procedures. WHMIS program and maintenance of MSDSs. Worker education. <b>P-</b> Gloves and eye protection when skin or mucous membrane contact is possible.	<a href="http://www.hercenter.org/hazmat/cleaningchemicals.cfm">http://www.hercenter.org/hazmat/cleaningchemicals.cfm</a>

### Chemicals used in treatment

Chemical	Common Uses; Examples	Exposure and Health Effects Information	Controls	For more information:
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 MSDSs, information provided by the manufacturer or supplier, or other sources. Individual reactions to chemicals must also be considered in determining appropriate controls.				
<b>Antineoplastics, cytotoxic and other hazardous drugs, antibiotics, aerosolized drugs, hormonal drugs</b>	Antineoplastics used to treat cancer and other neoplasms; antibiotics and aerosolized drugs used to treat infections. Examples –	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	<b>E-</b> Engineered needle stick prevention devices. Adequate ventilation in dedicated rooms when administering aerosolized drugs. Segregation of contaminated items. <b>A-</b> Safe work procedures including spill procedures with consideration to the specific product and manufacturer's instructions. Waste handling procedures. Education of workers in the	<a href="http://www.cdc.gov/niosh/docs/2004-165/2004-165b.html#j">http://www.cdc.gov/niosh/docs/2004-165/2004-165b.html#j</a> <a href="http://www.cdc.gov/niosh/topics/hazdrug/">http://www.cdc.gov/niosh/topics/hazdrug/</a> <a href="http://www.cdc.gov/niosh/docs/2004-165/">http://www.cdc.gov/niosh/docs/2004-165/</a> <a href="http://www.cdc.gov/niosh/topics/anti">http://www.cdc.gov/niosh/topics/anti</a>

	cancer treatment drugs, aerosolized pentamidine or ribavirin	contact/absorption exposures may occur when reconstituting or making up the drug, administering the drug, handling contaminated materials, and disposing of drugs or contaminated materials, including client waste.	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). <b>P-</b> Eye protection and face shields when splashing is possible. Protective clothing (gowns) and gloves. Respirators may be required based on hazard assessment.	<a href="#">neoplastic/</a> <a href="http://www.mtpinnacle.com/pdfs/safe-handling-hazardous-drugs.pdf">http://www.mtpinnacle.com/pdfs/safe-handling-hazardous-drugs.pdf</a> <a href="http://www.osha.gov/dts/osta/otm/otm_vi/otm_vi_2.html">http://www.osha.gov/dts/osta/otm/otm_vi/otm_vi_2.html</a> <a href="http://www.ashp.org/DocLibrary/BestPractices/PrepGdlHazDrugs.aspx">http://www.ashp.org/DocLibrary/BestPractices/PrepGdlHazDrugs.aspx</a> <a href="http://www.osha.gov/dts/tib/tib_data/tib20011221.html">http://www.osha.gov/dts/tib/tib_data/tib20011221.html</a> <a href="http://www.irsst.qc.ca/en/_publication/nirsst_100390.html">http://www.irsst.qc.ca/en/_publication/nirsst_100390.html</a>
--	--	--	---	--

### Other chemicals and substances

Chemical	Common Uses; Examples	Exposure and Health Effects Information	Controls	For more information:
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 MSDSs, information provided by the manufacturer or supplier, or other sources. Individual reactions to chemicals must also be considered in determining appropriate controls.				
<b>Latex</b>	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.	<b>E-</b> Substitution with less harmful product. <b>A-</b> Safe work procedures. Education of workers in the nature of the hazard, hand washing after glove removal, proper glove donning and removal. <b>P-</b> As per hazard assessment.	<a href="http://www.worksafebc.com/publications/health_and_safety/by_topic/asets/pdf/latex_allergies.pdf">http://www.worksafebc.com/publications/health_and_safety/by_topic/asets/pdf/latex_allergies.pdf</a> <a href="http://www.ccohs.ca/oshanswers/diseases/latex.html?print">http://www.ccohs.ca/oshanswers/diseases/latex.html?print</a>
<b>Mercury</b>	Metallic mercury may be found in thermometers, pressure	Exposure is through inhalation of vapours, ingestion and skin absorption. Skin sensitizer. Corrosive as	<b>E-</b> Elimination of mercury containing equipment. Substitution with less harmful product. Enclosed mercury sources. <b>A-</b> Safe work procedures including spill	<a href="http://employment.alberta.ca/documents/WHS/WHS-PUB_ch003.pdf">http://employment.alberta.ca/documents/WHS/WHS-PUB_ch003.pdf</a> <a href="http://www.cdc.gov/niosh/npg/npgd0383.html">http://www.cdc.gov/niosh/npg/npgd0383.html</a>

	gauges (manometers), other medical devices and dental fillings, etc.	liquid. Target effects to the nervous system, kidneys, cardiovascular and eyes.	procedures. Education of workers in the nature of the hazard. Appropriate storage of products to decrease exposure. <b>P-</b> Protective clothing, gloves, eye and face protection, and respiratory protection based on hazard assessment.	<a href="http://www.mtpinnacle.com/pdfs/MERCURY-USE-%20HOSPITALS-AND-CLINICS.pdf">http://www.mtpinnacle.com/pdfs/MERCURY-USE-%20HOSPITALS-AND-CLINICS.pdf</a>
<b>Personal care products, scents and fragrances</b>	A wide range of products including personal care items such as shampoos, soaps, perfumes, creams, deodorants, etc. Also contained in, cleaning products.	May cause a variety of mild to severe symptoms. Allergic, asthmatic and sensitive workers may experience reactions.	<b>E-</b> Elimination of scented products. Substitution with less harmful products. <b>A-</b> Development, implementation of scent-free awareness policies. Communication with clients. Worker education.	<a href="http://www.ccohs.ca/oshanswers/hs/programs/scent_free.html">http://www.ccohs.ca/oshanswers/hs/programs/scent_free.html</a>
<b>Second-hand tobacco smoke</b>	May be present in public places where smoking is permitted. Also may be encountered in homes or establishments where workers in community clinics and doctors' offices or public health workers provide services.	Lung cancer and other cancers. Associated with heart disease, respiratory irritation, aggravation of allergies and other pre-existing conditions. Impacts developing foetus.	<b>E-</b> Isolation of areas where smoking is permitted. Substitution with smoking cessation aids. <b>A-</b> Development, implementation and enforcement of no smoking policies and policies related to worker exposure in homes. Collection of client smoking information on client intake forms in home or community settings. Worker education. Good housekeeping. Provision of services in an alternate location if client is uncooperative with no smoking policies.	<a href="http://www.lung.ca/protect-protegez/tobacco-tabagisme/second-secondaire/index_e.php">http://www.lung.ca/protect-protegez/tobacco-tabagisme/second-secondaire/index_e.php</a> <a href="http://www.ccohs.ca/oshanswers/ps/ychosocial/ets_health.html">http://www.ccohs.ca/oshanswers/ps/ychosocial/ets_health.html</a>
<b>Vehicle exhaust (e.g., Carbon monoxide)</b>	Carbon monoxide and other contaminants are present in	A variety of components of exhaust produce acute and chronic effects, including irritation of respiratory	<b>A-</b> Development and enforcement of polices and procedures that require vehicle engines to be shut off when not in use. Vehicle maintenance to reduce emissions. Education of vehicle	<a href="http://www.osha.gov/SLTC/dieselexhaust/">http://www.osha.gov/SLTC/dieselexhaust/</a> <a href="http://erd.dli.mt.gov/images/stories/pdf/safety_health/programs/dieselexh">http://erd.dli.mt.gov/images/stories/pdf/safety_health/programs/dieselexh</a>

	vehicle exhaust and concentrations may vary considerably.	tract, eye, nose and throat, neurological impacts, and may be carcinogenic; exposure may occur if vehicles are idling or improperly maintained.	operators (workers, clients, clients or residents families, visitors and suppliers) in the nature of the hazard for areas when entrainment of vehicle exhaust into a building may be an issue. <b>P-</b> PPE not typically required.	<a href="#">aust.pdf</a> <a href="http://employment.alberta.ca/documents/WHS/WHS-PUB_ch031.pdf">http://employment.alberta.ca/documents/WHS/WHS-PUB_ch031.pdf</a>
--	---	---	---	---

In this section the chemical exposure hazards most commonly encountered by workers in community clinics and doctors' offices and methods to control them are presented. Employers should carefully evaluate the potential for exposure to chemical hazards in all community clinic and doctors' offices 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 workers in community clinics and doctors' offices.

**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 tasks carried out in community clinics and doctors' offices. 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.

Potential Chemical Hazards	Summary of Major Control Strategies		
	Engineering	Administrative	PPE
<b>Contact with mercury through broken mercury-containing devices</b>	Elimination of mercury containing equipment. Substitution with less harmful product. Enclose mercury sources. Maintain adequate general ventilation.	Safe work procedures including spill procedures. Educate workers in the nature of the hazard. Purchasing controls to restrict mercury containing materials from entering facility. Monitor work environment following a spill. Ensure good hygiene practices. Store products appropriately to	Protective clothing, gloves, eye and eye protection, and respiratory protection.

		decrease exposure.	
<b>Exposure to latex from contact with latex gloves or components of medical devices</b>	Substitution with less harmful product. Maintain adequate general ventilation.	Purchasing controls to limit latex containing materials from entering facility. Educate workers in the nature of the hazard, hand washing after glove removal, proper glove donning and removal. Periodic screening of workers.	
<b>Exposure to a variety of disinfecting and cleaning agents in routine cleaning activities related to patient care</b>	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.
<b>Exposure to scented products that may induce sensitization</b>	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.	

## 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)
- Isolation/enclosed processes
- Proper chemical storage
- Facility design

For workers in community clinics and doctors' offices, many of the usual engineering controls employed in hospitals are not feasible. However, chemical exposures may be limited by ensuring the adequate storage for any chemicals used and increased ventilation such as through opening windows when chemicals are used. Where possible, choosing an effective substitute that is less hazardous is a desirable engineering control.

### Elimination

Elimination of a hazardous chemical is always desirable but not always possible. For example, drugs must still be prepared and administered, disinfectants are required when biological hazards are present and cleaning solutions are necessary to maintain hygienic conditions.

Some examples of elimination of chemical hazards in healthcare:

- Purchasing fragrance-free products
- Use of alternative cleaning products that have less hazardous ingredients

### 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 healthcare:

- 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.

## **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 wastes appropriately. Workers in community clinics and doctors' offices may come into contact with a number of chemicals through exposure to clients contaminated with chemicals, 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 workers in community clinics and doctors' offices. In addition, emergency call lines that provide expertise and advice regarding toxic chemicals should be made available.

### WHMIS Program

A 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 access to current Material Safety Data Sheets, ensuring all products are appropriately labelled and ensuring that all workers are instructed on how to use the chemicals safely.

### 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 exposures. In the first case, emergency response equipment for workers in community clinics and doctors' offices consists of an eyewash apparatus or drench hose, as well as a first aid kit.

### Medical follow-up of the exposed worker

A worker who has had a 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. 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.

### 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 and individual HCWs. 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

Gloves are the most frequently used PPE by workers in community clinics and doctors' offices to prevent exposure to chemicals.

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 performing the task
- Extent of protection needed (to wrist or higher)
- Decontamination and disposal requirements

Rules for glove use for chemicals<sup>5,6</sup>

- 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.

---

<sup>5</sup> OSH Answers- Chemical Protective Clothing – Gloves; <http://www.ccohs.ca/oshanswers/prevention/ppe/gloves.html>

<sup>6</sup> Glove Use in Laboratories; University of Florida Chemical Hygiene Plan; <http://www.ehs.ufl.edu/Lab/CHP/gloves.htm>

- 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.
- Non-disposable/reusable gloves must be washed and dried, as needed, and then inspected for tears and holes prior to reuse.
- Remove gloves before touching personal items, such as phones, computers, pens and one's skin.
- Do not wear gloves into and out of client homes. 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 some workers in community clinics and doctors' offices who use chemicals, goggles may be necessary. In most cases, goggles are considered re-usable. 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)

### Protective Clothing

Chemical protective clothing is available as gowns, aprons, uniforms, 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 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.

OHS Code, Part 4, Section 23

## Physical Hazards and Controls

There are many potential physical hazards to which workers in community clinics and doctors' offices 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, cuts, and electrical hazards.

In this section the physical hazards most commonly encountered by workers in community clinics and doctors' offices and methods to control them are presented. Employers should carefully evaluate the potential for exposure to hazards for all community clinic and doctors' office 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 in community clinic and doctors' office work. 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.

Potential Physical Hazards	Summary of Major Control Strategies		
	Engineering	Administrative	PPE
<b>Ergonomic hazards associated with computer use or workstation design</b>	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.	
<b>Ergonomic hazards associated with material handling of equipment, furniture and supplies including lifting, carrying, pushing, pulling, etc.</b>	Ergonomically designed storage areas with adequate space. Ergonomically designed equipment and furniture with appropriate casters and handles. Provision of appropriate material handling equipment such as carts, trolleys, etc.	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.	
<b>Falling hazards associated with slips, trips and falls</b>	Install slip resistant flooring. Design stairwells according to accepted safety standards. Ensure adequate lighting.	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 cleanup, use of warning signs, etc. Maintain good housekeeping practices and minimize clutter and tripping hazards.	Appropriate footwear with gripping soles and good support.
<b>Cuts from sharp instruments, including medical instruments and scissors</b>	Avoid use of sharps when not required. Replace sharps with Safety Engineered Medical Devices. Proper storage of sharps.	Worker education. Safe work procedures.	
<b>Exposure to cryogenic agents in cryosurgical procedures (dermatology, gynecology clinics)</b>	Substitution (CO <sub>2</sub> instead of N <sub>2</sub> O) where possible). Proper storage of containers, including exhaust ventilation, scavenging systems, storage away from moisture, ignition sources and	Worker education. Safe work practices. Spill and exposure emergency response equipment and procedures. Oxygen depletion monitoring (depending upon hazard assessment).	Faceshields, goggles, insulated gloves, and protective clothing as required based on hazard assessment. Earplugs if venting gases.

	flammable materials. Use of proper lifting and transfer devices (hand truck or cart). Containers with pressure relief valves. Equipment maintenance. Restricted access.		
<b>Burns from handling recently heat-sterilized equipment</b>	Work process design to manage equipment turnover.	Safe work procedures. Sufficient number and rotation of supplies.	Heat-resistant gloves.
<b>Fire, projectiles, or physical injury if Oxygen gas cylinders damaged, dropped or mishandled</b>	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.	Safe work procedures that includes use, care, maintenance, storage and transport. Worker training.	
<b>Electrical hazards arising from use of electrical cords and appliances</b>	Ground fault circuit interrupters when used close to water sources.	Safe work procedures that include use of electrical cords, power bars and appliances that includes facility approval requirements. Worker training.	

## Notes about controls for physical hazards

---

### *Engineering Controls*

#### *Ergonomic hazards – Computer Workstations*

One of the most commonly encountered physical hazards for clinic and office personnel is associated with computer ergonomics. The use of computers is ubiquitous in a variety of HCW positions and healthcare settings, including workers in community clinics and doctors' offices. The key biomechanical risk factors for computer use are awkward postures, excessive force, repetition and compression and impact forces. In addition to biomechanical risk factors, there may be other risk factors related to the work environment (e.g. lighting, noise), workstation design and personal factors. Examples of personal risk factors include state of health, fitness level, casual addictions (e.g. caffeine and smoking), poor posture, poor typing technique (e.g. pounding the keys), and poor typing posture (e.g. bent wrists). In addition to MSIs, it should be noted that the signs and symptoms related to poor computer workstation ergonomics may include eye fatigue and discomfort, and in some cases headaches.

A self assessment is a useful tool to assist workers to evaluate biomechanical risk factors related to their computer workstations and to provide recommendations for control measures. Ideally, healthcare organizations should provide workers with self assessment

tools and, when concerns persist, an ergonomics assessment should be performed by someone with specialized training. The goal of the hazard assessment is to identify hazards and control strategies to reduce the risk of injury.

#### **Computer workstation ergonomics resources**

OSHA, e-tools: Computer workstation checklist, 04/04/2008 [www.osha.gov/SLTC/etools/computerworkstations/checklist.html](http://www.osha.gov/SLTC/etools/computerworkstations/checklist.html)

Occupational Health Clinics for Ontario Workers, Office Ergonomics Handbook, 5<sup>th</sup> Ed., May 2008

[www.ohcow.on.ca/resources/workbooks/ergonomics.pdf](http://www.ohcow.on.ca/resources/workbooks/ergonomics.pdf)

UCLA, Computer workstation self evaluation; [www.ergonomics.ucla.edu/Seval\\_Gen.cfm](http://www.ergonomics.ucla.edu/Seval_Gen.cfm)

WCB – Alberta, Office Ergonomics: Think Detection, Think Prevention, Think Activity, 2007;

[www.wcb.ab.ca/pdfs/public/office\\_ergo.pdf](http://www.wcb.ab.ca/pdfs/public/office_ergo.pdf)

Engineering controls related to computer ergonomics include

- Providing ergonomically designed equipment and furniture – The goal is to purchase and provide equipment and furniture that will support ergonomically correct work postures and behaviours.
- Designing workstation layout and arrange equipment to minimize biomechanical risk factors. For example, frequently accessed equipment and materials should be located in easy reach (and located to minimize awkward postures).

Engineering controls related to manual materials handling include:

- Eliminate the need to push/pull/carry.
- Use mechanical aids such as carts.
- Avoid carrying wide or tall (bulky) loads.

#### *Trips, Slips and falls*

Trips, slips and falls are common injuries for workers in community clinics and doctors' offices. In order to prevent slips, trips and falls, adequate lighting should be available. Cords and other tripping hazards should not be in the path of traffic. Ensure that driveways and outdoor walkways are cleared of snow and ice. Avoid the use of throw rugs that do not have slip-resistant backings.

The following are common engineering controls used to reduce the risk of slips, trips and falls in client care areas:

- Layout equipment to minimize cords and avoid creating tripping hazards.
- Position the client with adequate space to accommodate portable equipment without creating tripping hazards.

- Keep hallways clear of obstructions.
- Suggest cord covers over electrical cords, as necessary.
- Where possible, suggest the use of non-slippery surfaces on the whole steps or at least on the leading edges.
- Ensure nothing is sticking out of surfaces on the stairs, handrails or banisters (e.g. nails or splinters).
- Maintain lighting levels.

### Cuts

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

- Substitution of medical sharps with safety engineered medical devices (SEMDs)
- Substitution of a sharp instrument with a less sharp alternative (e.g. engineered sharps injury prevention devices)
- Safety cutters as bag and box openers
- Carts or carrying trays for carrying breakable items
- Proper storage and disposal of sharps

### Temperature Extremes

Heat-related burns may occur through contact with hot surfaces, fire, or steam. Engineering controls are aimed at reducing contact with hot surfaces or steam. These include reducing proximity to hot surfaces, providing sufficient space to work and move around hot equipment, auto shut-off features of equipment and mechanical devices (tongs, etc.) for manipulating hot items.

To reduce the exposure to cryogenic hazards, substitution with a less hazardous freezing agent would be the engineering control of choice if possible. Other engineering controls include local exhaust ventilation where cryogenics are stored and used (the type depending upon the hazard assessment), effective general ventilation to dilute any vapours, design of storage area to ensure proper segregation of chemicals, use of proper and well-maintained storage vessels, restricted access to storage areas, proper calibration and maintenance of equipment, pressure release valves, and alarm systems.

### 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. All cylinders must be restrained from tipping by means of racks 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 rather than workers. All overloading devices must be of sufficient ratings. 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.

### Motor Vehicle Collisions

Employers should provide information and encourage the use of safety features in all vehicles used by staff who travel. When selecting new vehicles, collision-worthiness and overall safety rating should be part of the selection criteria. Engineering controls to prevent collisions are often designed into vehicles. Vehicles should be chosen that have safety features. Vehicles should be well maintained to ensure all safety features function properly. Snow tires are an important consideration for vehicular safety in Alberta in the winter.

### ***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. Examples include the following:

- Establish ergonomic purchasing standards for tools and equipment, including client lifting devices and vehicles.
- 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.

### Trips, Slips and falls

Administrative controls to prevent slips, trips and falls include:

- Education of workers and enforcement of the use of proper footwear
- Timely clean-up of any spills
- Eliminating the use of extension cords that may pose tripping hazards
- Maintaining 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
- Choice of appropriate tool
- Safe disposal of all sharps, including broken glass.

### Temperature Extremes

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.

Administrative controls for cryogenic hazards include worker education about the nature of the hazard and how to work safely with cryogenic agents, safe work practices (including insertion of materials so that boiling and splashing can be avoided, avoiding

touching the skin with any part of the equipment, purchasing appropriate vials for freezing and thawing, etc.), and emergency response procedures for spills or exposures.

### 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.

### Motor Vehicle Collisions

Healthcare employers should consider a workplace driving safety program that targets driving safety in the workplace as well as outside working hours. Key components of a driving safety program include senior management commitment and employee involvement, written policies and procedures, driver qualifications, driver agreements, incident reporting and investigation, vehicle maintenance and inspection, driver training and communication and work scheduling.<sup>7</sup> The use of winter tires is recommended to improve safety during winter driving conditions. Workers should prepare for potential emergencies by having a winter driving emergency kit in their vehicles.

---

<sup>7</sup> United States Department of Labor - OSHA; *Steps to Workplace Driving Safety*; January 26, 2009; <http://blog.nationalsafetycompliance.com/2009/01/steps-to-workplace-driving-safety-part.html>

## ***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.

### *Trips, Slips and falls*

The use of appropriate footwear by workers in community clinics and doctors' offices is essential to prevent trips, slips and falls. Workers should be encouraged to wear flat or low-heeled shoes with non-slip soles that offer good support. (To prevent chemical exposure in the event of a spill, footwear should cover the entire foot and be of non-porous material.)

### *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 of the feet to sharps from broken glassware or dropped sharps. Gloves are usually required as PPE to protect workers from cuts. The selection of gloves depends on the nature of 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*

For traveling in cold environments, PPE includes layers of clothing, mittens rather than gloves if possible, head and face covers, insulated footwear. All PPE should be kept dry. Water repellent clothing is important for workers who may be exposed to cold and wet conditions.

PPE for hot environments must take into account the work that is being done, the dexterity required, and the safety factors related to clothing and personal equipment.

PPE is often used to prevent burns. Insulated gloves, potholders, protective clothing, foot protection, and eye/face protection should be chosen based on the hazard assessment.

PPE to protect workers from cryogenic hazards include non-porous and non-woven protective clothing, full foot protection, insulated gloves, safety glasses or a face shield (based on nature of the task).

## Psychological Hazards and Controls

Each doctor's office or community clinic should systematically conduct hazard assessments for tasks performed by workers in community clinics and doctors' offices and identify if and where the potential exists for psychological hazards. In this section, examples are provided of psychological hazards that may be encountered by workers in community clinics and doctors' offices, and possible control measures will be suggested. 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 some of the reported psychological hazards in healthcare 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.

Potential Psychological Hazards or Effects of Workplace Stressors	Summary of Major Control Strategies		
	Engineering	Administrative	Personal
<b>Abuse by clients or members of the public</b>	Alarm systems and panic devices.	Management policies and procedures related to no tolerance of violence or abuse. Worker education in violence awareness, avoidance and de-escalation procedures. Liaison and response protocols with local police. Working alone policies. Reporting procedures for incidents and near misses.	Ability to request support. Use of counselling services.
<b>Abuse by co-workers</b>	Alarm systems and panic	Management policies and procedures	Assertiveness training.

	buttons. Video surveillance.	related to no tolerance of violence or abuse. Worker education in violence awareness, avoidance and de-escalation procedures. Working alone policies. Reporting and investigation procedures for incidents and near misses.	Use of mediation and/or counselling services.
<b>Hazards related to working alone</b>	Communication devices. Vehicle design considerations. Panic alarms. Bright lighting.	Scheduling to avoid having workers work alone. Worker training. Working alone policies.	
• <b>Threat of violence</b>			
• <b>Medical emergencies when alone</b>			
<b>Stress related to critical incidents</b>		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 as appropriate.	Development of support systems to assist in dealing with stress. Use of counselling services.
<b>“Technostress” related to the introduction of new technology</b>	Design of instruments or equipment with user-friendly features.	Selection procedures to ensure user-friendly technology choices. Provision of sufficient training for workers. Worker participation in selection and implementation of new technology. Provision of problem solving resources and support workers. Back-up plans in the event of failures. Change management strategy for introduction of new technology. Realistic expectations regarding use of communication technology. Limit use of technological monitoring of worker productivity. Setting and communication of priorities.	Self-education concerning new technologies. Time management strategies. Open communication about stress related to change. Healthy lifestyles. Setting realistic goals. Limiting the need to multi-task. Technology “time outs”. E - vacations.
<b>Substance abuse as a response to excessive workplace stressors</b>		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.	Increase awareness of substance abuse signs and symptoms. Communication with counsellors. Report to family physician. Participate in treatment

		Provision of counselling services and return to work plans.	programs and return to work programs.
<b>Depression, anxiety, sleep disorders, other mental illness as a response to excessive workplace stressors</b>		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.	Programs to maintain or build resilience or coping skills. Development of support system. Communication with family physician.
<b>Hazards related to impacts of aging on workers</b>	<ul style="list-style-type: none"> <li>Mechanical devices and power equipment for lifting / moving. Vehicle design – storing objects at appropriate heights, packing in smaller quantities or containers. Supportive, adjustable seating and workstations. Cell phones and pagers that incorporate vibration. Proper lighting.</li> </ul>	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.	Healthy lifestyle. Use of client and material handling equipment. Adequate sleep. Awareness of potential side effects of medication.
<b>Hazards related to shiftwork, excessive workload and hours of work</b>	Appropriate lighting levels. Lighting levels that are adjustable by workers. Appropriate thermal environment.	Management policies and procedures to address working hours and shift design. Worker involved in design of shift schedule. Limit hours of work and overtime. Shifts designed so workers get enough rest between shifts. Split shifts are avoided, if possible. Train workers and management in fatigue and shift work issues. Work shift schedules designed to minimize fatigue (e.g. maximum number of consecutive night shifts, forward rotation, etc.). Quality breaks are in place. Policies to encourage the reporting of concerns associated with fatigue. Thorough investigation of incidents and near	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 work. Plan for family and friends. Use of stimulants and sedatives are minimized. Alertness strategies are utilized (e.g. bright

		misses with fatigue as a possible cause.	lighting levels, regular short breaks, communication with co-workers, etc.).
<b>Stress related to work-life conflict</b>		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 demands issues. Reliance on paid and unpaid overtime is reduced. Supportive management culture. Work-life balance policies are communicated to workers. The use and impact of work-life balance policies is measured.	Time log used to track time. Work-life balance programs are utilized. Work activities are isolated from home time. Time is effectively managed. Days off are protected. Appropriate sleep habits. Social support system is in place.
<b>Exposure to nuisance or irritating noise levels that may induce stress</b>	Any engineering controls required to abate noise to allowable levels, if over PEL. Sound absorber panels. Personal communication devices rather than overhead pagers. Maintenance and repair of facility equipment, including the ventilation system. Lubrication of equipment with moving parts. Design considerations related to noise reduction in new/renovated facilities. Padded chart holders and pneumatic tube systems. Sound-masking technology.	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.	
<b>Exposure to poor indoor air quality that may induce stress</b>	Proper ventilation system design. Ventilation system maintenance activities.	Selection of low-pollutant cleaning chemicals. Cleaning schedules. Infection prevention and controls standards. Rules regarding the use of personal appliances that may impact 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 IAQ issues and what is being done to resolve them.

## **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. Included in the topic are environmental factors such as noise and indoor air quality and their impacts on personal health, as well as outcomes of workplace stress that may impact personal health such as substance abuse, depression, anxiety, sleep disorders and other mental illness, and age-related factors. This section includes controls for workers in community clinics and doctors' offices.

### *Program elements for preventing or controlling violence and 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 doctors' offices and community clinics:

- 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 to the badge to reduce risk to workers.
- Client intake information gathering processes that include a risk assessment.

- ❑ 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 strategies and panic buttons should occur. Once any alarm systems are provided, all workers should be trained on how to use them and how to respond to alarms.
- ❑ Identification and correction of high risk facility issues (e.g., isolated areas, parking lots, low lighting, no escape routes, etc.). There are many risk factors posed by the design of the facility. Personnel in doctors’ offices and community clinics should identify risk factors and work to reduce the risk in the areas. A checklist would be useful to help identify issues contributing to worker risk.
- ❑ Training programs that include non-violent crisis intervention and assault management techniques.

Working alone

Working alone is addressed in the Alberta OHS Code 2009.

**Controls required**

Employers must, for any worker working alone, provide an effective communication system consisting of

- radio communication,
- and land line or cellular telephone communication, or
- some other effective means of electronic communication that includes regular contact by the employer or designate at intervals appropriate to the nature of the hazard associated with the worker’s work.

If effective electronic communication is not practicable at the work site, the employer must ensure that

- the employer or designate visits the worker, or
- the worker contacts the employer or designate at intervals appropriate to the nature of the hazard associated with the worker’s work.

Alberta OHS Code 2009, Part 28

### Work-Life balance, including reduction of excessive workloads

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 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 healthcare 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 by choosing schedules and routes optimally.
- 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, make themselves available to answer worker questions, set clear expectations, listen to worker concerns and give recognition for a job well done.

### Technostress (stress resulting from the introduction of new technologies)

The primary controls an organization employs to reduce the potential of technostress are administrative controls. While major engineering control opportunities exist in the design and development of technology to make it easier to use, an employer's choice of technology is an administrative control.

Administrative controls an organization can use to reduce the risk of technostress include:

- Selection of technology that is designed to be easy for the user
- Worker participation in selection, trial and implementation of technology and the provision of feedback as to its use
- Sufficient worker training to ensure that workers feel confident and competent to use the technology
- Provision of problem-solving resources and support to workers
- Back-up plans in the event of technology failure
- Influential, credible supporter for the introduction of the new technology (executive support)
- Use of a change management strategy for organization-wide technology change
- Setting of realistic expectations for the use of communication technology
- Reduced use of technological monitoring of worker productivity
- Setting and communicating priorities to relieve stress in multi-tasking
- Updates of hazard assessments each time new technology is introduced.

Personal controls for reducing the risk of technostress include:

- Self-education concerning new technologies
- Open communication about stress related to change
- Time management
- Setting priorities
- Healthy lifestyle including good nutrition, exercise and getting enough sleep
- Setting realistic goals
- Limit the need to multi-task
- Technology "time-outs" (avoiding being "plugged in" continually)
- Relaxation, meditation and taking vacations (especially e-vacations)

## Shiftwork

The following guidelines will assist in reducing the psychological impacts of shift work.

### **Good Practice Guideline for Shift Work Schedule Design<sup>8</sup>**

- 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 they 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 AM, 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 5-7 days.
- For long work shifts (>8 hours), for night shifts and for shifts with early morning starts, consider limiting consecutive shifts to 2-3 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.

---

<sup>8</sup> Adapted from Government of the U.K; Health and Safety Executive; Managing shift work HSG256; 2006;  
[www.hse.gov.uk/pubns/priced/hsg256.pdf](http://www.hse.gov.uk/pubns/priced/hsg256.pdf)

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.

## APPENDIX 1 - OHS-related Competencies for Community Clinic and Doctors' Office Personnel

### **OHS – related Competencies for Health Care Aides**

Alberta Health and Wellness provides these competencies related to OHS in the Competency Profile for Health Care Aides. For more details, please consult [www.health.alberta.ca/documents/HC-Aides-Competency-2001.pdf](http://www.health.alberta.ca/documents/HC-Aides-Competency-2001.pdf)

Competency
A-3-1 Recognize the importance of personal wellness:
A-3-2 Understand stress management techniques
B-2-1 Demonstrate appropriate conflict management skills
D-1-1 Demonstrate proper body mechanics:
D-2-1 Use equipment safely
D-3-1 Recognize safety hazards and dangerous conditions in the work environment
D-4-1 Comply with infection control practices
D-4-2 Recognize preventative initiatives and follow-up procedures of occupational hazards
D-5-1 Dispose of hazardous wastes safely
D-6-1 Follow guidelines for the prevention of fire and electrical accidents
D-7-1 Respond appropriately to emergency situations:
D-8-1 Report incidents and accidents
H-3-1 Assist with positioning <ul style="list-style-type: none"> <li>• Take relevant safety precautions to minimize risks to client, self and other staff members (e.g., apply principles of good body mechanics).</li> </ul>
H-5-1 Assist client with lifts and transfers <ul style="list-style-type: none"> <li>• Take safety precautions to protect self during lifts and transfers, including:</li> <li>• applying principles of good body mechanics</li> <li>• requesting assistance when activity required is beyond one's ability or job description.</li> </ul>
I-11-1 Practice safe household waste disposal <ul style="list-style-type: none"> <li>• Identify and observe relevant safety techniques (e.g., WHMIS &amp; Standard Practice)</li> </ul>

### **OHS – related Competencies for Licensed Practical Nurses**

The College of Licensed Practical Nurses of Alberta provides these competencies related to OHS in the Competency Profile for Licensed Practical Nurses. For more details, please consult

<http://www.clpna.com/Members/ContinuingCompetencyProgram/CompetencyProfileforLPNs2ndEdition/tabid/149/Default.aspx>

<b>Competency</b>
C-1-1 Demonstrate ability to apply critical thinking and clinical judgment in response to a fire emergency.
C-1-2 Demonstrate knowledge of fire safety policy, procedures, and staff responsibilities in the event of a fire in the health care setting.
C-1-2 Demonstrate knowledge of fire safety policy, procedures, and staff responsibilities in the event of a fire in the health care setting.
C-1-4 Demonstrate knowledge and ability to respond to a fire situation, e.g., (REACT)
C-2-1 Demonstrate ability to apply critical thinking and clinical judgment in response to a disaster emergency.
C-2-3 Demonstrate knowledge to initiate the appropriate response to the emergency.
C-2-6 Demonstrate knowledge of policy, procedures, and staff responsibilities in the event of a disaster in the health care setting.
C-2-11 Demonstrate ability to recognize that personnel directly involved in facility response may require critical incident stress debriefing.
C-3-2 Demonstrate knowledge and ability to adhere to agency policy regarding a bomb threat.
C-5-1 Demonstrate knowledge and ability to properly use personal protection devices while interacting and providing care to clients, visitors, and families.
C-5-2 Demonstrate the knowledge and ability to properly remove, clean and / or dispose of contaminated personal protection devices.
C-5-3 Demonstrate knowledge and ability to use protective / safety equipment
C-6-1 Demonstrate knowledge and ability to demonstrate the application of the principles of standard precautions:
C-8-1 Demonstrate knowledge of the facility / organization policy for disposal of sharps.
C-8-3 Demonstrate knowledge and ability to use precautions in handling of sharps and follow agency protocol regarding: <ul style="list-style-type: none"><li>• disposal of needles</li><li>• removal of needles from disposable syringes</li><li>• removal of scalpel blades from handle.</li></ul>

C-8-4 Demonstrate knowledge and ability to immediately report needlestick injury to appropriate personnel as per agency protocol.
C-9-1 Demonstrate knowledge and ability to apply Workplace Hazardous Materials Information System (WHMIS) guidelines and regulations
C-10-2 Demonstrate knowledge of agency policies regarding handling of bio-medical waste.
C-13-1 Demonstrate the knowledge and ability to comply with workplace policies regarding Occupational Health and Safety.
C-13-4 Demonstrate knowledge and ability to apply self protection / prevention techniques.
C-13-7 Demonstrate knowledge and ability to apply the principles of non-violent crisis intervention.

### **OHS – related Competencies for Registered Nurses**

The College and Association of Registered Nurses of Alberta provides these Entry to Practice Competencies related to OHS for Registered Nurses. For more details, please see <http://www.nurses.ab.ca/Carna-Admin/Uploads/Entry-to-Practice%20Competencies.pdf>

Competency
Professional Accountability and Responsibility 11. Uses basic conflict resolution strategies in which situations of conflict are transformed into healthier interpersonal interactions.
13. Protects clients through recognizing and reporting unsafe practices when client or staff safety and well-being are potentially or actually compromised.
16. Identifies, reports and takes action on actual and potential safety risks to clients, themselves or others.
Specialized Body of Knowledge 23. Has a knowledge base about workplace health and safety including body mechanics, safe work practices, prevention and management of aggressive or violent behaviour.
30. Knows how and where to find evidence to ensure personal safety and safety of colleagues in the workplace.
Collaborates with Clients to Develop Plans of Care 50. Anticipates potential staff safety concerns and initiates appropriate action.
Provides Registered Nursing Care 71. Consistently applies safety principles, evidence-informed practices and appropriate protective devices when providing

nursing care to prevent injury to clients, self and other health-care workers.
72. Implements preventive strategies related to the safe and appropriate use and administration of medication.
73. Implements preventive and therapeutic interventions safely (e.g., positioning, managing intravenous therapies, drainage tubes, skin and wound care).
Service to the Public
104. Uses safety measures to protect self and colleagues from injury or potentially abusive situations (e.g., aggressive clients, appropriate disposal of sharps, lifting devices, low staffing levels, increasing workload and acuity of care).
106. Uses health-care resources appropriately to ensure a culture of safety (e.g., client lifting devices, safer sharps).
Professional Self-Regulation
115. Understands the significance of the concept of fitness to practice in the context of individual self-regulation and public protection.

The Alberta College of Physicians and Surgeons provides these OHS- related standards in their Standards of Practice. For more detail, please consult <http://www.cpsa.ab.ca/Resources/standardspractice.aspx>

<b>Competency</b>
3 Collaboration in Patient Care (2) A physician must treat other healthcare providers with dignity and respect.
4 Supervision of Restricted Activities (4) A physician may supervise a regulated healthcare professional, an unregulated worker or a student performing a restricted activity only if the physician is satisfied that: (a) it is safe and appropriate for the supervised person to perform the restricted activity on the particular patient, (b) the equipment and resources available to perform the restricted activity are safe and appropriate.
32 Self Reporting to the College (1) A physician must report the following personal circumstances to the College at the time of registration or whenever the physician becomes aware thereafter: (a) any transmissible blood-borne infection, (b) serious health issues that impairs the physician's ability to care safely for a patient including, but not limited to: (i) substance or chemical abuse or dependency, and (ii) medical conditions that impair the physician's judgment or cognition

## APPENDIX 2 - 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

<http://www.employment.alberta.ca/SFW/6311.html>

Alberta Employment and Immigration; No Unsafe Lift! Workbook; 2008 [http://employment.alberta.ca/documents/WHS/WHS-PUB\\_nounsafelift\\_workbook.pdf](http://employment.alberta.ca/documents/WHS/WHS-PUB_nounsafelift_workbook.pdf)

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

Alberta Workplace Health and Safety *Preventing Violence and Harassment at the Workplace*, Bulletin VAH001, 2006, retrieved from <http://www.employment.alberta.ca/documents/WHS/WHS-PUB-VAH001.pdf>

American Chemical Society – Chemical Storage Resources

[http://portal.acs.org/portal/acs/corg/content?\\_nfpb=true&\\_pageLabel=PP\\_ARTICLEMAIN&node\\_id=2231&content\\_id=WPCP\\_012310&use\\_sec=true&sec\\_url\\_var=region1&\\_uuid=dae6dbb6-9d03-4590-8995-5325374e8844](http://portal.acs.org/portal/acs/corg/content?_nfpb=true&_pageLabel=PP_ARTICLEMAIN&node_id=2231&content_id=WPCP_012310&use_sec=true&sec_url_var=region1&_uuid=dae6dbb6-9d03-4590-8995-5325374e8844)

American College of Surgeons; Statement by the American College of Surgeons – *Statement on Sharps Safety; October 2007*

[http://www.facs.org/fellows\\_info/statements/st-58.html](http://www.facs.org/fellows_info/statements/st-58.html)

BC Centre for Disease Control – A Guide for the Selection and Use of Disinfectants <http://www.mtpinnacle.com/pdfs/disinfectant-selection-guidelines.pdf>

Bilsker, D., Gilbert, M., Myette, T.L., and Stewart-Patterson, C. *Depression & Work Function: Bridging the gap between mental health care & the workplace*; Retrieved from [www.comh.ca/publications/resources/dwf/Work\\_Depression.pdf](http://www.comh.ca/publications/resources/dwf/Work_Depression.pdf)

Canadian Centre for Occupational Health and Safety (CCOHS), *OHS Answers: Fatigue* July 2007; Retrieved from [www.ccohs.ca/oshanswers/psychosocial/fatigue.html](http://www.ccohs.ca/oshanswers/psychosocial/fatigue.html)

Canadian Centre for Occupational Health and Safety (CCOHS), *OSH Answers – Safety Glasses and Face Protectors*; <http://www.ccohs.ca/oshanswers/prevention/ppe/glasses.html>

Canadian Centre for Occupational Health and Safety (CCOHS), *OSH Answers- Chemical Protective Clothing – Gloves*; <http://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](http://www.ccohs.ca/oshanswers/psychosocial/substance.html)

Canadian Centre for Occupational Health and Safety (CCOHS), *OSH Answers – How Do I Work Safely with Compressed Gasses?* Updated July 8, 2008; [http://www.ccohs.ca/oshanswers/prevention/comp\\_gas.html](http://www.ccohs.ca/oshanswers/prevention/comp_gas.html)

Canadian Centre for Occupational Health and Safety (CCOHS), *OSH Answers – Electrical Safety Basic Information*; updated June 1, 2000; [http://www.ccohs.ca/oshanswers/safety\\_haz/electrical.html](http://www.ccohs.ca/oshanswers/safety_haz/electrical.html)

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

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

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

Canadian Centre for Occupational Health and Safety; *OSH Answers – Microwave Ovens*; last updated November 2, 2004; [http://www.ccohs.ca/oshanswers/phys\\_agents/microwave\\_ovens.html](http://www.ccohs.ca/oshanswers/phys_agents/microwave_ovens.html)

Canadian Centre for Occupational Health and Safety; *OSH Answers – Cryogenic Liquids and their Hazards*; document confirmed September 1, 2008; <http://www.ccohs.ca/oshanswers/chemicals/cryogenic/cryogen1.html?print>

Canadian Centre for Occupational Health and Safety; *OSH Answers – How Do I Work Safely with Cryogenic Liquids?*; Document updated September 1, 2008; <http://www.ccohs.ca/oshanswers/prevention/cryogens.html>

Centers for Disease Control and Prevention, USA; *Guideline for infection control in health care personnel*; [http://www.cdc.gov/ncidod/dhqp/gl\\_hcpersonnel.html](http://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; <http://www.hse.gov.uk/pubns/hsis2.pdf>

Health Canada *Best Advice on Stress Management in the Workplace, Part 1*;, 2001; retrieved from [www.hc-sc.gc.ca/ewh-semt/pubs/occup-travail/stress-part-1/index-eng.php](http://www.hc-sc.gc.ca/ewh-semt/pubs/occup-travail/stress-part-1/index-eng.php)

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

Health Canada, Nosocomial and Occupational Infectious Section; *Development of a resource model for infection prevention and control programs in acute, long term, and home care settings: Conference proceedings of the Infection Prevention and Control Alliance*; Am J Infect Control 2004;32:2-6.

NIOSH; *Alert Preventing Needlestick Injuries in Healthcare Settings*; 2000-108, November, 1999.  
<http://www.cdc.gov/niosh/docs/2000-108/>

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

WorkSafeBC; *Understanding the Risks of Musculoskeletal Injury (MSI)*; 2008;  
[http://www.worksafebc.com/publications/Health\\_and\\_Safety/by\\_topic/assets/pdf/msi\\_workers.pdf](http://www.worksafebc.com/publications/Health_and_Safety/by_topic/assets/pdf/msi_workers.pdf)

## APPENDIX 3 - Learning Objectives for this Module

1. Understand the need for and the procedure for conducting site hazard assessments and risk evaluations.
2. Identify significant biological hazards that may impact workers in community clinics and doctors' offices.
3. Identify significant chemical hazards that may impact workers in community clinics and doctors' offices.
4. Identify significant physical hazards that may impact workers in community clinics and doctors' offices.
5. Identify potential psychological hazards that may impact workers in community clinics and doctors' offices.
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 4 - Test Your Knowledge

1. In what way can workers in community clinics and doctors' offices be exposed to biological hazards?
2. What is meant by the "hierarchy of controls"?
3. What controls can be used to reduce the risk of slips, trips and falls?
4. Does working alone legislation apply to doctors' offices?
5. What is the most common physical hazard for medical office workers?
6. Give two examples of engineering controls often used to reduce the risk of violence in offices.
7. Give three examples of administrative controls.
8. Give three examples of personal protective equipment.
9. List three controls that may reduce the risk of vehicular collisions.
10. What is "technostress"?

### **Test Your Knowledge - Answers**

1. Workers in community clinics and doctors' offices may be exposed to biological hazards through contact with clients and their families, or through contaminated products or contaminated equipment or furniture.
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. Trips, slips and falls can be prevented by ensuring there are non-skid surfaces, removal of rugs that do not have non-slip backings, ensuring there are no cords or clutter posing tripping hazards, wearing appropriate footwear that has non-slip soles, ensuring that ice and snow are removed from driveways and walkways, etc..
4. Yes, working alone legislation applies to all workers. Employers must, for any worker working alone, provide an effective communication system consisting of
  - radio communication,
  - and land line or cellular telephone communication, or
  - some other effective means of electronic communication that includes regular contact by the employer or designate at intervals appropriate to the nature of the hazard associated with the worker's work.
5. Ergonomic issues related to workstation set up and computer ergonomics.
6. Panic alarms, barricades, office design related to placement of doors, access points
7. Administrative controls include policies and procedures, worker training, signage, purchasing standards, etc.
8. Protective eyewear, gloves, gowns, dedicated footwear, etc.
9. Proper selection and maintenance of vehicles, driver training, snow tires, safe driving program, cell phone use policies, etc.
10. Psychological stress related to the introduction and use of new technologies.

## INDEX

### A

Alarm systems, co-workers 36  
Appliances 29, 34  
Awkward postures 29-30

### B

Biological hazards 2, 5-6, 8, 10-11, 22, 53-5  
Blood 13-14  
Body fluids 13-14  
Burns 29, 31, 33, 35

### C

Chairs 27-8  
Chemical hazards 2-3, 15, 20-2, 53  
Clothing 8, 11, 25, 35  
Computer ergonomics 29-30, 55  
Computer workstations 29  
Contaminated materials 7, 18  
Contamination 6-7, 23  
Cords 30-2, 34, 55  
    electrical 29, 31-2  
Cryogenic Liquids 51  
Cut-resistant gloves 35  
Cuts 28, 31, 33, 35  
Cylinders, compressed gas 31, 34

### D

De-escalation procedures 36-7  
Decontamination 7-8, 11, 15, 24-5  
Depression 38, 40  
Design 6, 31, 38-9, 41, 43-4  
    office 55  
Devices 6, 20, 22, 32  
Disinfectants 10-11, 22, 50  
Disinfection 5, 7-9, 16-17, 25  
Disposable gloves 11, 25

### E

Effects of Workplace Stressors 36  
Electrical Safety Basic Information 51  
Electricity 32  
Emergency response equipment 23  
Ergonomic 27-8, 33  
Ergonomic hazards 27-9, 32, 35  
Extension cords 33-4  
Eye protection 5-6, 12, 14, 16-18, 20-1, 35

### F

Fatigue 38-9, 50  
Footwear, appropriate 28, 35, 55  
Furniture 28, 30, 55

## **G**

GFCIs (Ground fault circuit interrupters) 29, 32  
Gloves 5-6, 12-14, 16-21, 24-5, 35, 50, 55  
Goggles 14, 25, 28  
Ground fault circuit interrupters (GFCIs) 29, 32

## **H**

Hazards  
  cryogenic 31, 33, 35  
  electrical 27, 29, 32, 34  
  tripping 28, 30, 55  
Healthy lifestyle 37-8, 43  
Hierarchy 4, 6, 24, 53, 55

## **I**

Immunizations 6, 8, 12  
Infection prevention 5-6, 8-10, 39, 52  
Infectious materials 7, 10, 13-14  
Inhalation 14, 17-18  
Injuries 7, 23, 30, 49

## **L**

Latex allergies 13, 24

## **M**

Masks, Surgical 14

Mercury 18, 20  
MSDSs, maintenance of 16-17, 21  
Musculoskeletal Injury (MSIs) 29, 33, 52

## **N**

Needles 47  
New technologies 37, 43, 55  
Noise 29, 39-40

## **O**

Offices 3-5, 7-8, 11-12, 14-15, 19-20, 22-5, 27, 29-30, 35-6,  
40-1, 53-5

## **P**

Panic buttons 36, 41  
Policies 8, 11, 19, 22, 32, 34, 36-8, 40, 42, 47, 55  
  smoking 19  
PPE (personal protective equipment) 4-6, 9, 11-15, 18, 20,  
24-5, 27, 35, 50, 53-5  
Products, cleaning 19, 22  
Protection, respiratory 5-6, 12, 19-20  
Protective clothing 5-6, 12, 18-20, 24-5, 28, 35  
Psychological hazards 2-4, 36, 40, 45

## **R**

Respirators 14, 18, 24-5  
Risk assessment 5, 9, 12, 15, 20, 27, 36, 40  
Routes of transmission 9-10, 12

Routine Practices and Additional Precautions 8

## **S**

SEMDs (safety engineered medical devices) 28, 31

Sharps 28, 31, 33, 35, 47, 49

Shift schedule 38, 44

Skin absorption 17-18

Sleep disorders 38, 40

Smoking 19, 25, 29

Spill procedures, including 17, 19-20

Storage 28-9, 31, 34

    chemical 21, 50

Substance abuse 37, 40, 51

Substance abuse signs 37

Surfaces, hot 31

## **T**

Technostress 37, 43, 54

Temperature Extremes 31, 33, 35

Tripping hazards □ 33

Trips 27-8, 30, 33, 35, 51, 54-5

## **V**

Vehicle exhaust 19-20

Ventilation 7, 17, 20-1, 31

Violence 37, 40, 54

## **W**

WHMIS program 16-17, 21, 23

Workers

    aging 38

    pregnant 18, 23

Workload 39, 42, 44

Workplace Driving Safety 34

Workstations 27-8, 38, 44