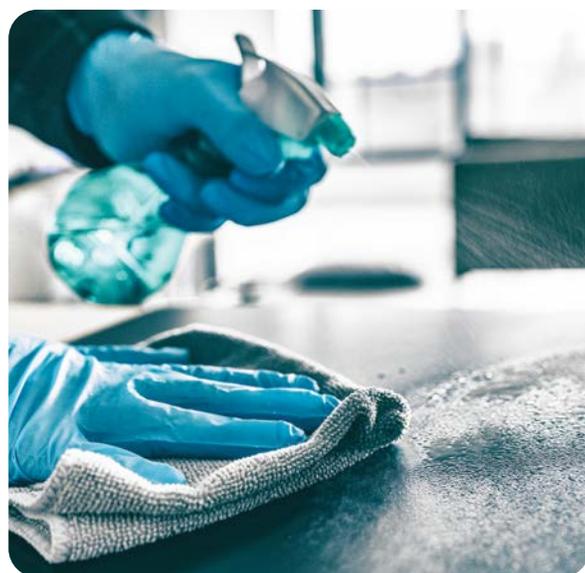


Controlling Exposure

Protecting Workers from Infectious Disease



About WorkSafeBC

At WorkSafeBC, we're dedicated to promoting safe and healthy workplaces across B.C. We partner with workers and employers to save lives and prevent injury, disease, and disability. When work-related injuries or diseases occur, we provide compensation and support injured workers in their recovery, rehabilitation, and safe return to work. We also provide no-fault insurance and work diligently to sustain our workers' compensation system for today and future generations. We're honoured to serve the workers and employers in our province.

Prevention Information Line and contact information

We provide information and assistance with health and safety issues in the workplace.

Call the information line 24 hours a day, 7 days a week to report unsafe working conditions, a serious incident, or a major chemical release. Your call can be made anonymously. We can provide assistance in almost any language.

If you have questions about workplace health and safety or the Occupational Health and Safety Regulation, call during our office hours (Monday to Friday, 8:05 a.m. to 4:30 p.m.) to speak to a WorkSafeBC officer.

If you're in the Lower Mainland, call 604.276.3100, or toll-free at 1.888.621.7233 (621.SAFE) in Canada.

Health and safety resources

You can find our health and safety resources at worksafebc.com/forms-resources. Printed copies are available for some resources and can be ordered from worksafebcstore.com.

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Handwashing illustration updated on page 26. (R11/23)

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Introduction

British Columbia's Occupational Health and Safety Regulation includes requirements for protecting workers from infectious diseases as new diseases emerge and knowledge about them evolves. The emergence of AIDS in the 1980s raised awareness of bloodborne diseases, and six pandemics since the beginning of the 20th century have increased the need to address other infectious diseases in workplace health and safety programs. Preventive action is now required for any infectious disease that is found in the workplace and may pose a risk to workers.

All employees in B.C., especially health care employees who work with people, are vulnerable to infectious diseases. In the absence of vaccines, controls such as behaviour (physical distancing), barriers, and personal protective equipment become even more important.

About this book

This updated edition of *Controlling Exposure* includes numerous communicable diseases and zoonotic diseases that were not covered in the previous edition, including coronavirus diseases, Legionnaire's disease, and Lyme disease. Some of these diseases are new. Others were known before and are included here because we now know more about them.

This book is meant to:

- Provide information about how infectious diseases spread
- Describe a variety of methods that can be used to prevent worker exposure to infectious diseases
- Describe communicable and zoonotic diseases of concern in B.C.
- Provide links to key sections of the *Workers Compensation Act* and the OHS Regulation related to infectious diseases
- Define important terms in a glossary
- Provide sample safe work procedures and information on how to develop communicable disease prevention measures and an exposure control plan

Note: *Controlling Exposure* summarizes employer responsibilities related to infectious diseases. However, when determining their legal responsibilities, employers should always refer to the relevant sections of the Act and the OHS Regulation.

OHS Regulation online

Sections of the OHS Regulation regarding biological agents include the following:

- [Section 5.1.1, Designation as hazardous substances](#)
- [Section 5.2, General information requirement](#)
- [Sections 6.33–6.40, Biological agents](#)
- [Part 30, Laboratories](#)

Visit worksafebc.com/searchable-regulation for the full OHS Regulation and associated guidelines.

Part 1:

Basic principles of infection control

The sections in this part describe the following:

- How infectious diseases are transmitted
- Employer and worker responsibilities in relation to infectious diseases
- How to manage disease risk in the workplace
- Methods for preventing worker exposure to infectious diseases, including routine practices and exposure controls
- Communicable disease prevention measures and exposure control plans
- What to do if a worker is exposed to an infectious disease

Transmission of infectious diseases

Infectious diseases are the result of biological agents entering the body. Biological agents can include viruses, bacteria, or prions that can cause an adverse health effect. Infectious diseases include communicable diseases (transmitted from human to human) and zoonotic diseases (transmitted from animal to human).

Communicable diseases are transmitted from human to human via:

- Blood and other body fluids — bloodborne diseases (e.g., HIV/AIDS, hepatitis B and C)
- Direct and indirect contact between an infected person and others — contact diseases (e.g., norovirus, *C. difficile*)
- Large or small airborne droplets (e.g., many coronavirus diseases, influenza, measles, and tuberculosis)

Some communicable diseases can be transmitted in more than one way. For example, influenza spreads through both contact and droplets in the air.

Zoonotic diseases can also be transmitted between animals and humans in various ways, via:

- Contact with skin (e.g., brucellosis, tularemia)
- Contact with saliva (e.g., rabies, Hantavirus)
- Air (e.g., Hantavirus, Q fever)
- Arthropod bites, particularly those of mosquitoes (e.g., West Nile Virus), fleas (e.g., plague), and ticks (e.g., Lyme disease, Rocky Mountain fever)

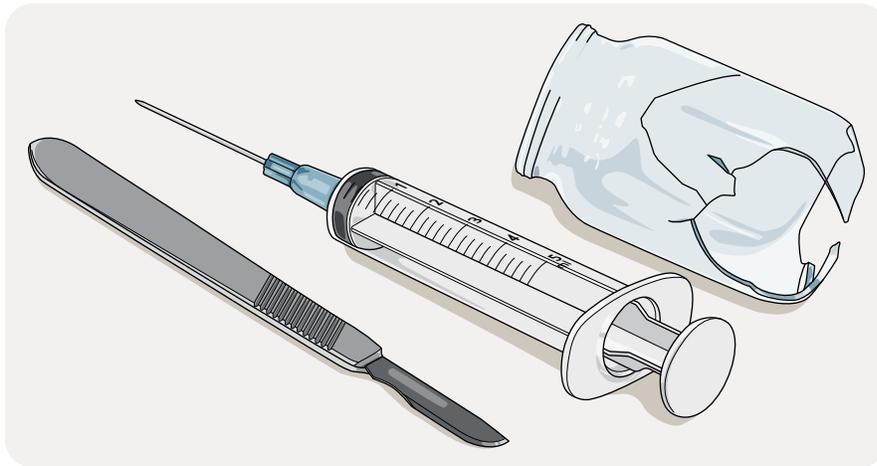
The rest of this section addresses the three main categories of communicable disease transmission: bloodborne, contact, and airborne.

Bloodborne diseases

Bloodborne diseases are infectious diseases that are transmitted through contact with infected blood or other body fluids.

Viruses such as HIV and hepatitis B and C can spread through direct contact with infected blood and certain other infected body fluids. To cause infection, the blood or body fluids containing the virus must enter the bloodstream.

The highest-risk exposures are from sharps injuries (puncture wounds from needles or cuts from scalpels) or splashes that land on a worker's mucous membranes (especially the eyes and mouth). Splashes of blood on intact skin are considered extremely low risk for infection because intact skin is an effective barrier that prevents the virus from getting in.



Injuries caused by sharps such as needles, scalpels, and broken glass specimen tubes can put workers at higher risk of exposure to bloodborne diseases, which must enter the bloodstream to cause infection.

Who is at risk?

Any worker who comes into contact with any of the body fluids that can spread bloodborne diseases is at risk. Exposure can occur through needle sticks and other sharps injuries, or through blood splashes.

Some occupations have higher risks due to the client population and the types of procedures being performed. Workers in these occupations include surgeons, nurses, operating and emergency room staff, lab workers, paramedics, firefighters, police, staff in hemodialysis units, dentists, dental hygienists, occupational first aid attendants, and janitorial and maintenance personnel.

Fortunately, contracting a disease through occupational exposure to bloodborne pathogens is rare. However, contracting one of these diseases has significant consequences and long-lasting health implications, and could result in serious illness or even death.

Contact diseases

Contact diseases are infectious diseases that are transmitted through direct or indirect contact with bacteria or viruses.

Direct contact includes physical contact with an infected person. This includes contact with blood and body fluids. Outside of the workplace, direct contact also includes sexual transmission.

Indirect contact involves touching something in the environment that has been contaminated by an infected person. This is usually an object or surface area (e.g., telephones, computers, doorknobs, elevator buttons, used tissues, or contaminated medical equipment). A person can be infected if they touch the contaminated surface and then touch their eyes, nose, or mouth. Their contaminated hands then deposit the bacteria or virus on the next object or person that they touch. Disease can also be transmitted through contaminated food or water.

Diseases transmitted through direct or indirect contact usually have temporary acute symptoms for workers. However, there may be serious consequences for clients and patients who are frail or immunocompromised. Contact diseases include norovirus and *C. difficile*.

Airborne diseases

A person can become infected by breathing in air contaminated with viruses or bacteria. While it is unlikely that a person will become infected from a brief exposure to contaminated air, it is not impossible. The chances of infection increase the longer someone is near an infected person or animal.

When an infectious person coughs, sneezes, talks, or even breathes, they expel droplets that contain viruses and bacteria. Droplets can also be generated by some aerosol-generating medical procedures, such as endotracheal intubation and airway suctioning. Larger, heavier droplets are likely to carry more viruses. Smaller, lighter droplets are less likely to carry viruses because their diameters decrease as they evaporate. However, smaller droplets can remain suspended in air for a longer period.

Droplet transmission

Large respiratory droplets generally travel only a short distance (less than 2 metres) through the air and then quickly settle out of the air. If a person breathes in these droplets, or the droplets land on the mucous membranes of their eyes, nose, or mouth, that person can become infected. Droplets can also contaminate surfaces and contribute to contact transmission. For example, influenza is mainly spread via droplet transmission and contact.

Airborne transmission

Medium-sized respiratory droplets can travel farther than 2 metres. They may accumulate and linger in the air of a small room for a short period (minutes to hours), especially if the ventilation is poor. The longer a person is exposed to the air in the room, the greater the likelihood of inhaling enough virus to cause infection. There is good evidence that some coronaviruses, such as the virus that causes COVID-19, can spread via short-range airborne transmission.

Small aerosolized droplets are extremely light and can remain suspended in the air for a long period (hours). They can travel considerable distances via air currents. Diseases that spread through the air in this way include tuberculosis, measles, and chicken pox.

Risk of infection

The risk of infection is determined by a combination of how much virus or bacteria can be transmitted and how far, and how much virus or bacteria makes up an infectious dose (enough to cause disease).

As the distance increases from an infected person, the risk of disease grows less. But the risk may increase the longer a person is exposed. If someone inhales large droplets from a nearby infectious person, the risk is high. As the distance increases, the droplet sizes get smaller and contain less virus or bacteria, so the risk becomes smaller.

The bottom line is that nearness matters. No matter what the mode of airborne transmission, close contact with an infected person poses the highest risk of transmission.

Pandemics

A pandemic is a worldwide epidemic — a rapid spread of disease to a large number of people within a particular population — that occurs when a powerful new strain of infectious disease appears. Few people have natural immunity to new viruses or bacteria, so they spread rapidly from person to person. Some people may become very ill and die.

The effects of pandemics are much more severe than for seasonal illnesses, because of the lack of immunity to the diseases. Pandemics can last from 12 to 36 months.

The first pandemic recorded was the Black Death, caused by the bacteria *Yersinia pestis*. This disease killed more than 200 million people in the mid-1300s across Europe, Asia, and North Africa. More recent pandemics and epidemics are shown in the table.

Pandemic/epidemic	Dates	Worldwide deaths
Spanish flu	1918–19	50 million
HIV/AIDS	1981–present	35 million +
Asian flu	1957–58	2–3 million
Hong Kong flu	1968–69	1–4 million
SARS	2002–04	770 +
Swine flu	2009–10	284,000
MERS	2012–present	930 +
Ebola	2013–16	11,300 +
Zika	2015–16	50 +
COVID-19	2019–21	2.3 million +

Many smaller epidemics have occurred but have been confined to a particular country or region. There has been a pandemic or potential pandemic every two to four years since 2000.

Who is at risk?

Pandemics affect all workers in all industries. At a time when many health care workers may be off sick themselves, there will be a significant need for additional health care resources. All levels of government in B.C. and Canada have developed comprehensive preparedness plans for a pandemic.

Employer and worker responsibilities

Employers are required by law to ensure that work is being conducted safely and to protect their workers from all work-related hazards, including exposure to biological agents that cause infectious diseases. [Section 21](#) of the Workers Compensation Act specifies that employers are responsible not only for their own workers but also for any other workers who may be at their workplace.

Workers also have responsibilities for reducing their risk of exposure to infectious diseases.

Employer responsibilities

The Act and the Occupational Health and Safety Regulation require employers to do the following:

- Identify biological agents that are, or may be, present in the workplace.
- Implement communicable disease prevention measures
- Develop and implement an exposure control plan when required (see Appendix B).
- Inform workers about how they may be exposed to biological agents in the workplace.
- Educate and train workers on safe work procedures, and supervise them. Safe work procedures include hand hygiene and the proper use of personal protective equipment (PPE).
- Offer vaccinations as specified in the BC Centre for Disease Control's [Communicable Disease Control Manual](#), without cost to workers who are at risk of occupational exposure.
- Purchase safety-engineered medical devices, where appropriate.
- Ensure workers report exposures, including needle-stick injuries.
- Tell workers to seek medical attention, as required.

Worker responsibilities

Worker responsibilities include the following:

- Attend education and training sessions.
- Use safe work practices and procedures. This includes hand hygiene, wearing PPE, and physical distancing.
- Don't go to work while experiencing symptoms, if applicable.
- Seek immediate first aid and medical attention after an occupational exposure.
- Report potential hazards and exposure incidents to supervisors or managers.
- Refuse work if there is reasonable cause to believe it will put the worker or others at risk.

Workers should also keep a record of personal vaccinations and ensure that their vaccinations are up to date.

Managing risk in the workplace

Managing risk in the workplace involves thinking about the hazards that might cause harm to workers and determining whether reasonable steps are being taken to prevent that harm from happening. The risk is the chance that someone could be harmed by these hazards. Rating risks as high, medium, or low will help employers decide which risks are most serious and should be dealt with first.

Effectively managing risk in the workplace involves performing the following three steps:

1. Identify the hazards present.
2. Assess the risks associated with the hazards.
3. Develop and implement risk control measures to reduce or eliminate the hazards.

The diagram on the following page shows the process of managing risk in more detail.

1. Identifying hazards

Identifying hazards is the first step toward managing risk in the workplace. It means looking at and listing all things and situations that could possibly harm workers at a facility.

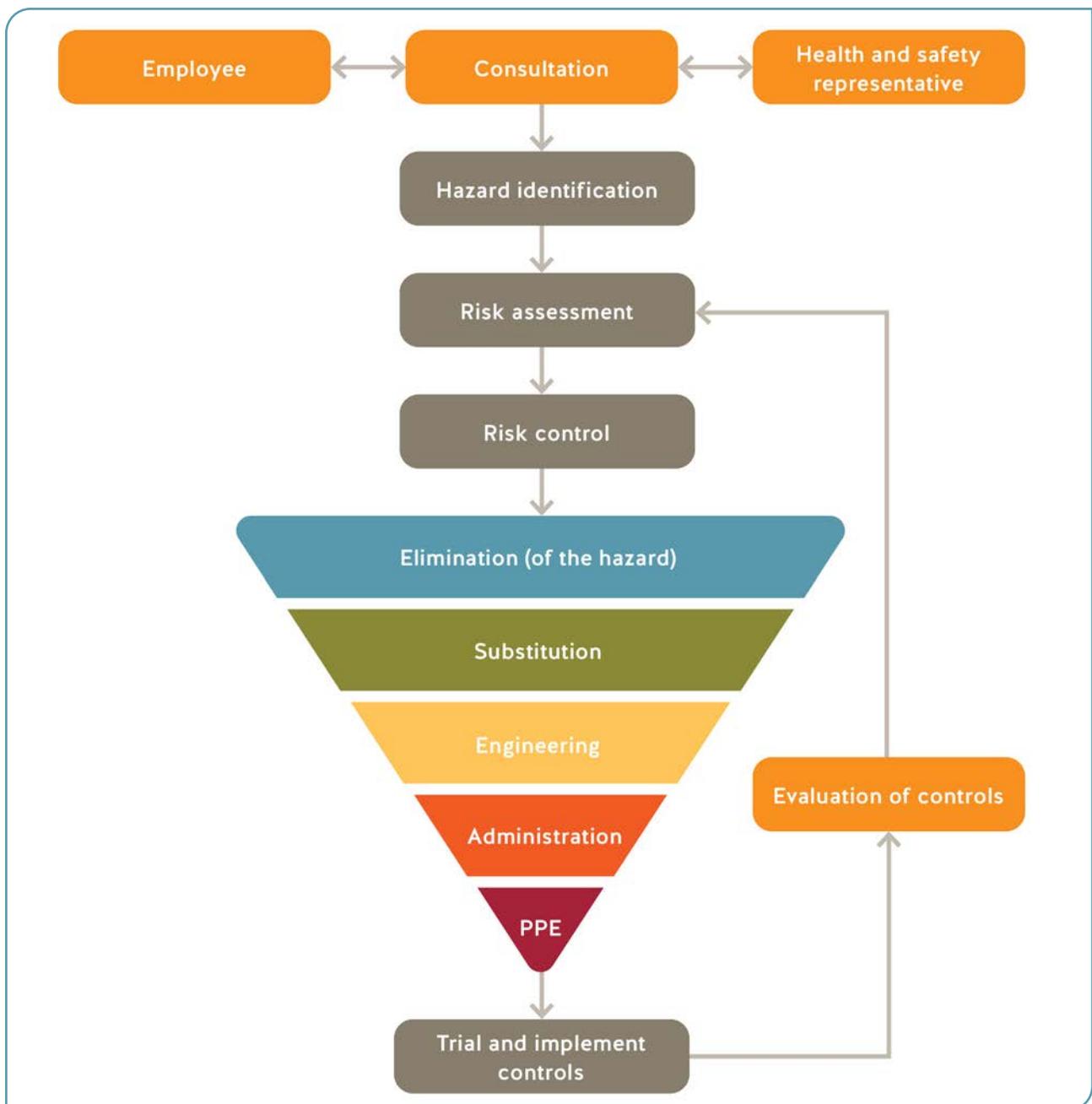
Identifying hazards begins with a workplace inspection that examines:

- Work tasks
- Equipment and the way it is used
- Substances that are present in the workplace or that might come into the workplace
- The design and layout of work areas

It's important to establish what it is about the activities, processes, or substances that could injure workers or harm their health.

2. Assessing the risks

Once the hazards have been identified, the next step is to determine which workers are at risk and the level of risk for each hazard.



A risk assessment provides a foundation for eliminating or minimizing worker exposure to workplace hazards. It involves examining the level to which workers are being exposed to identified hazards and what can be done to reduce that exposure as much as is practicable. A risk assessment is the foundation of an exposure control plan, and other safe work practices and procedures.

A risk assessment should be performed by an individual or team that — through a combination of education, training, and

experience — is knowledgeable about the work, the hazards involved, and the means to control the hazards.

Throughout the assessment process, it's essential to consult front-line workers and representatives from the joint health and safety committee (or the worker health and safety representative, as applicable). Workers and their representatives provide knowledge on how the work is being done and insight into potential solutions to problems and control measures. The most effective measures for controlling exposure will take into account the needs and knowledge of workers.

Website

See [managing risk](#) on [worksafebc.com](#) for more information on assessing risks and applying the hierarchy of controls.

3. Developing and implementing control measures

Once all hazards in the workplace have been identified and the risks assessed, the employer must choose appropriate control measures. Controls aim to eliminate the risk to workers or, if elimination is not possible, minimize the risk. Often, several controls are required. Controls must be implemented according to the following hierarchy:

1. **Elimination or substitution** involves physically removing the hazard from the workplace or replacing it with something non-hazardous or less hazardous. This usually is not possible with infectious diseases.
2. **Engineering controls** reduce risk by physically changing the work environment to minimize worker exposure to biological agents and other workplace hazards. This is often done through mechanical means, such as barriers, room ventilation, negative-pressure isolation rooms, and safety-engineered medical devices.
3. **Administrative controls** involve changing how the work is carried out through scheduling, job rotation, or work procedures to reduce exposure. Examples are hand hygiene, cough and sneeze etiquette, encouraging sick workers to stay at home, working remotely, and screening clients before they enter the office.
4. **Personal protective equipment (PPE)** controls exposure at the point of the individual worker and is considered the last line of defence. It should only be used when other controls are not practicable, or in addition to other controls. Examples of PPE are gloves, gowns, goggles, face shields, and respirators.

The appropriate controls will vary depending on the kinds of activities that workers perform.

Once controls are in place, they should be continually monitored to ensure their effectiveness. Employers should re-evaluate controls when work practices change. Some controls, such as respirator programs and exposure control plans, require annual review.

Routine practices and other precautions for preventing exposure

The use of routine practices is an approach that relies on a set of safe work procedures that applies to everyone, regardless of suspected or confirmed diagnosis. It is based on the principle that all blood, body fluids, secretions, excretions (except sweat), non-intact skin, and mucous membranes may contain transmissible pathogens. Routine practices help prevent the transmission of infectious diseases in the workplace.

Routine practices include the following:

- Practice regular hand hygiene.
- Wear disposable waterproof gloves when touching blood and body fluids, or when handling contaminated items.
- Wear other personal protective equipment (PPE), such as eye protection, face shields, and gowns, if there is a risk of splashes or sprays of blood and body fluids.
- Use mouthpieces or other ventilation devices instead of mouth-to-mouth resuscitation, whenever possible.
- Handle contaminated equipment and linens according to safe work procedures to prevent the transfer of pathogens to people and other equipment.
- Handle and dispose of sharps according to safe work procedures.
- In health care settings, assign patients to private rooms, whenever possible, if they might contaminate the environment.

In addition to these routine practices, there are also specific safe work procedures and practices for preventing transmission of bloodborne, contact, and airborne diseases.

Is there a difference between routine practices and standard precautions?

Routine practices and standard precautions describe the same processes for preventing and controlling exposure to infectious diseases. *Routine practices* is the term commonly used in Canada. *Standard precautions* is the term commonly used in the United States. Both were originally known as *universal precautions*.

Preventing exposure to bloodborne diseases

The transmission of bloodborne diseases is preventable. Preventing transmission is the same for all bloodborne diseases.

Many people who are carriers of HIV, hepatitis B, and hepatitis C are asymptomatic (have no symptoms) and do not know that they are infected. To protect workers from possible exposure to bloodborne pathogens, consider all blood to be potentially infectious. Take appropriate precautions for all contact with blood and body fluids.

Here are some additional prevention guidelines:

- Educate workers about safe work practices, the availability of a hepatitis B vaccine, the importance of reporting incidents and near misses, and their responsibilities for creating a safe workplace.
- Ensure that workers use routine practices whenever there is any possibility of exposure to blood or other body fluids.
- Ensure that workers use proper hand hygiene (see page 24). Hand hygiene is the simplest, most effective way to control the spread of infectious diseases.
- Replace conventional sharps with needleless systems or devices that have safety-engineered features (e.g., retractable needles, blunt-tip suture needles, and shielded scalpels).
- Make sharps containers readily available wherever sharps may be used. This includes at bedsides, in client homes, in first aid rooms, in the operating room, and in areas known to have discarded needles.

- Use break- and leak-resistant sample collection containers.
- Develop safe work procedures that encourage immediate disposal after using a sharp and prohibit recapping of sharps. Make use of “hands-free” (or neutral zone) methods of passing instruments.
- Ensure that waste collection includes the separation and isolation of sharps and waste. Workers should not compress garbage bags by hand. Garbage bags should be held away from the body to avoid scratches from sharps inadvertently left in the bags. Sharps disposal containers should be puncture resistant.
- Develop general cleaning and blood-spill cleanup procedures that include washing and disinfecting surfaces contaminated by blood, for example:
 - For small drops of blood, use a solution of 1 part household bleach to 50 parts water, mixed fresh daily.
 - For larger spills, use 1 part household bleach to 10 parts water, mixed fresh daily.
- Ensure that laundry soiled with blood is identified, and that workers use routine practices when handling it, including wearing gloves and gowns.
- Refer anyone who experiences a possible occupational exposure to a bloodborne pathogen to the nearest appropriate medical facility. Someone who suffers a needle-stick injury should be assessed by a physician within two hours. Provide workers with psychological support after exposures.
- Identify potential exposures by looking at workplace inspections, worker feedback, incident investigations, first aid records, and claims records.
- Investigate all exposures to help prevent recurrence.



Workers who may encounter sharps should be trained in safe disposal procedures and have access to sharps containers, gloves, and tongs.

Preventing exposure to contact diseases

The transmission of diseases via direct and indirect contact can be greatly limited by following infection prevention and control practices. Here are some guidelines:

- Develop safe work procedures that encourage infection prevention.
- Educate workers about safe work practices and procedures, and available vaccines.
- Ensure that workers use proper hand hygiene (see page 24). Hand hygiene is the simplest, most effective way to control the spread of infectious diseases.
- Develop laundry and waste collection procedures that minimize possible contamination of other surfaces.
- Develop procedures and schedules to ensure disinfection of contaminated surfaces. For example, a dilute bleach solution (1 part household bleach to 50 parts water) is sufficient.
- Encourage workers who have signs and symptoms of illness to stay home until they feel better.
- In health care facilities, ensure that workers use routine practices.
- During an outbreak, minimize unnecessary contact. Consider restricting public access to the facility, and temporarily reduce the intake of new clients.

Preventing exposure to airborne diseases

The transmission of airborne diseases must be managed through a combination of engineering controls, administrative controls (including safe work practices), and personal protective equipment. Here are some guidelines:

- Develop safe work procedures that encourage infection prevention and control practices.
- Educate workers about safe work practices and procedures.
- Ensure that workers use proper hand hygiene (see page 24). Hand hygiene is the simplest, most effective way to control the spread of infectious diseases.
- Encourage etiquette for coughing and sneezing (cough and sneeze into sleeves instead of hands). Put surgical masks on coughing people. Try to seat coughing people away from others, if possible.
- Develop laundry and waste collection procedures that minimize surface contamination.
- Develop procedures and schedules to ensure disinfection of contaminated surfaces. For example, dilute bleach solutions (1 part household bleach to 50 parts water) are usually sufficient. Alcohol-based disinfectants may suffice for small surface areas.
- Encourage workers who have signs and symptoms of illness to stay home until they feel better.
- Encourage workers to get vaccinated, if vaccines are available.
- In health care facilities, ensure that workers use routine practices.
- During an outbreak, minimize unnecessary personal contact. Consider restricting public access to the facility, and temporarily reduce intake of new clients.
- Place patients with infectious tuberculosis, chicken pox, or measles in a separate room with the door closed. In hospitals, place patients in a negative air pressure isolation room, if available.

Exposure controls

Numerous methods can be used to prevent worker exposure to infectious diseases. Preventive measures for the workplace are commonly referred to as “controls.” Three basic types of controls for infectious diseases are:

- Engineering controls
- Administrative controls
- Personal protective equipment (PPE)

Engineering controls

Engineering controls include modifications to the work environment or equipment, or the use of special equipment, to control hazards.

Physical barriers

Clear, solid barriers help protect workers from exposure to diseases. For example, clear plastic barriers attached to countertops will reduce worker exposure when dealing with the public. Clear barriers in buses and taxis provide a protective divider between drivers and passengers. Barriers must be designed, installed, and maintained correctly in order to be effective.

Ventilation

Basic principles of good indoor air quality are especially important in limiting the spread of viruses and other pathogens that spread through droplets or aerosols, such as the coronavirus that causes COVID-19.

Sections 4.70–4.80 of the Occupational Health and Safety Regulation require employers to ensure that heating, ventilation, and air conditioning (HVAC) systems are designed, operated, and maintained as per standards and specifications for ongoing comfort of workers. Preventive maintenance includes:

- Changing filters regularly
- Inspecting critical components
- Ensuring that design conditions for air flow, temperature, pressure drop noise, and vibration are met

Ensuring healthy indoor air quality during an infectious disease outbreak may mean increasing outdoor air intake by opening doors and windows as much as possible while maintaining comfortable indoor air temperature and humidity.

For workplaces without an HVAC system, air-cleaning devices with a HEPA filter will reduce particles in the air. They can be used in rooms with poor air circulation. If portable fans or air conditioning units are used, set them up to avoid blowing air directly from one person's breathing zone to other occupants of a room. Avoid horizontal cross breezes. Instead, set up devices so air flow moves downward from the ceiling.

Isolation rooms

In health care, isolation rooms are useful for patients with contact or airborne diseases. Isolation helps prevent the spread of pathogens to health care workers and other patients, as long as workers are diligent about using other precautions such as hand hygiene and using PPE when in contact with the infected patients. Patients who are infected with the same pathogen can share rooms or wards.

Specially designed isolation rooms may be used for airborne diseases. These rooms require ventilation to prevent small airborne droplets from spreading to other areas of the facility.

Generally speaking, isolation rooms should have:

- Negative air pressure
- A dilution ventilation rate of at least six air changes per hour
- HEPA filters that air passes through before it is discharged from the room

Caregivers who need to enter such an isolation room must be trained to do so safely and equipped with appropriate PPE (e.g., an approved respirator).

Sharps

Sharps such as needles and scalpels may be contaminated with infected blood or body fluids. Workers need to handle them safely and dispose of them in designated sharps containers. Workers should not pick up sharps or other items unless they have been trained to do so and have appropriate equipment and PPE. For sample safe work procedures, see Appendix A.

When designing an isolation room, consult standards such as CSA Standard Z317.2:19 (R2008) Special Requirements for Heating, Ventilation, and Air-Conditioning (HVAC) Systems in Health Care Facilities.

OHS Regulation

Section 6.36 of the OHS Regulation specifies the following:

- A clinically appropriate and commercially available needleless device or safety-engineered hollow-bore needle must be used for procedures such as withdrawing body fluids, accessing a vein or artery, or administering medications or fluids in caring for or treating a person.
- Any medical sharp used to care for or treat a person must be a safety-engineered medical sharp.
- If more than one type of safety-engineered hollow-bore needle or safety-engineered medical sharp is commercially available, the one that provides the highest level of protection must be used. This must be based on information provided by manufacturers, independent testing agencies, objective product evaluation, or other reliable sources.
- Employers must develop and implement safe work procedures and practices before safety-engineered hollow-bore needles and safety-engineered medical sharps are used.

Safer sharps

Safety-engineered hollow-bore needles and other medical sharps must be used to reduce the risk of needle-stick injuries and other puncture wounds from contaminated sharps:

- Self-sheathing needles have a built-in sheath or sleeve that extends to cover the needle.
- Retractable syringes are designed so the needle can be pulled up inside the syringe.
- Needleless systems use threaded ports on IV tubing. Health care workers can remove the needle from the syringe after drawing up medication and then simply screw the syringe directly into the port.
- Disposable safety scalpels have a built-in sheath that covers the blade between use and disposal. Suture needles for sewing tissues other than skin are available with blunted tips.

Sharps containers

Workers should dispose of sharps in rigid, puncture-resistant, leak-proof containers that have a closable lid. In situations where containers have not been installed, workers can use portable

sharps containers. Containers should be replaced when they are three-quarters full.



Workers should assume that all sharps are contaminated with infected blood or body fluids and dispose of them safely in designated sharps containers.

Administrative controls

Administrative controls include safe work procedures that workers can use to eliminate or minimize their risk of exposure. As a rule, workers should use routine practices (see page 16). Where necessary, workers should also follow bloodborne, contact, or airborne prevention guidelines (see pages 17–20).

Hand hygiene

Hand hygiene is a general term referring to any action of cleaning the hands. It relates to the removal of visible soil and transient pathogens from the hands while maintaining the good skin integrity that results from a hand-care program.

Two methods for hand hygiene are as follows:

- Sanitize hands with a hand rub that has an alcohol content of 60 to 80 percent when the hands are not visibly soiled.
- Wash hands with soap and running water when the hands are visibly soiled.

If the hands are visibly soiled and running water is not available, use a moistened towelette to remove the visible soiling, followed by an alcohol-based hand rub.

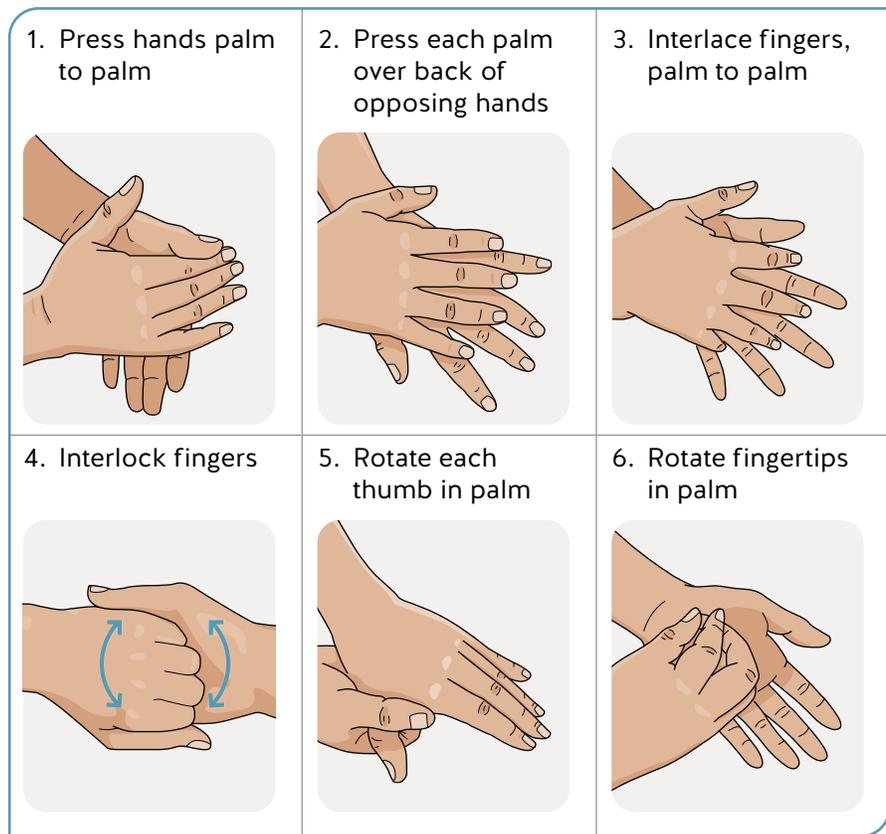
Employers should consider providing hand-sanitizer stations at workplace entrances and workplace locations where employees congregate.

Handwashing

Handwashing is one of the best ways to minimize the risk of infection. Proper handwashing helps prevent the transfer of infectious material from the hands to other parts of the body — particularly the eyes, nose, and mouth — or to other surfaces that are touched.

Hands should be washed:

- After handling materials that may be contaminated
- Before leaving a work area
- After arriving at and before leaving a patient's home
- Before and after direct contact with a patient
- If blood or body fluids come into contact with the worker's skin
- After removing gloves (even if the gloves appear to be intact)
- After removing other PPE (e.g., goggles or respirators)
- Before eating, drinking, smoking, handling contact lenses, or applying makeup



Use soap and warm running water, and wash for 20–30 seconds. The water does not have to be hot to do the job. If water is unavailable, use an alcohol-based hand rub as long as your hands are not visibly soiled. You don't need to rewash your hands with soap and water afterward.

Cough and sneeze etiquette

All workers are expected to follow cough and sneeze etiquette, which is a combination of measures that minimizes the transmission of airborne diseases. Cough and sneeze etiquette includes the following:

- Cover the mouth and nose with a sleeve or tissue when coughing or sneezing.
- Use tissues to contain secretions. Dispose of them promptly in a waste container.
- Turn the head away from others when coughing or sneezing.
- Offer surgical masks to people who are coughing.
- Wash hands regularly.

Vaccination

One of the most effective ways to protect against disease is to get vaccinated. For example, there is a vaccine for hepatitis B that is 95 percent effective. There are also effective vaccines for measles, chicken pox, influenza, and COVID-19. There are no vaccines for many diseases, including hepatitis C, HIV, MRSA, VRE, and noroviruses.

Under [section 6.39](#) of the OHS Regulation, employers must offer vaccinations to workers, at no cost, for the infectious diseases that they are or may be exposed to. This is provided the vaccination is available and listed in the BC Centre for Disease Control's *Communicable Disease Control Manual*, in [Chapter 2: Immunization](#).

Regardless of workers' vaccination status, it is important to follow infection prevention practices to avoid workers becoming infected with these diseases.

Physical distancing and mask wearing

During a pandemic, additional controls, such as physical distancing and mask wearing, may also be required.

Physical distancing means keeping workers a certain distance apart (e.g., at least 2 metres) from other workers and the public. Physical distancing may also be achieved by implementing work-from-home arrangements, establishing occupancy limits, rescheduling work tasks, rearranging workspaces and movement of people, or other means.

Mask wearing may also be required to supplement other control measures. Surgical and cloth masks do not protect the wearer from exposure. These masks may protect others from droplets and aerosols from an infected person. Masks must be selected and used correctly to ensure their effectiveness. They are not a replacement for other controls, such as physical distancing, hand hygiene, cough and sneeze etiquette, and cleaning and disinfecting.

Cleaning up spills

Workers need to be careful when dealing with spills of blood or body fluids, or any other materials that may be infectious. If a person has been exposed to blood and body fluids, they should be attended to before the spill is cleaned up.

Bleach solution for larger spills of blood

A solution of 1 part common household bleach to 10 parts water will kill most bloodborne pathogens, including HIV and the hepatitis B and C viruses, when used for larger spills.

Workers should not clean up spills of blood and body fluids unless they have been trained to do so and have appropriate equipment and PPE. Janitorial and safety-supply companies offer kits that contain all the supplies needed for cleaning up spills. For a sample safe work procedure, see Appendix A.

Disposing of garbage and other potentially infectious materials

Workers should always be careful when handling garbage because it may contain sharps or other objects contaminated with blood and body fluids. For a sample safe work procedure, see Appendix A.

It is important to dispose of contaminated materials, including PPE, correctly into the biohazardous waste stream.

Handling laundry

Although the risk of disease transmission from contaminated or soiled laundry is low, it should be handled carefully and only by workers who have been trained to do so and have appropriate PPE. Medical sharps are sometimes collected with laundry. For a sample safe work procedure, see Appendix A.

Personal protective equipment (PPE)

Personal protective equipment (PPE) provides a barrier that helps protect against exposure to infectious disease. Employers must provide workers with PPE, train them in its proper use, and make sure they use it when necessary. Workers must use PPE according to their training. Workers must also inform their supervisors if they are having difficulty using PPE.

See Appendix A for sample general procedures for putting on and taking off PPE.

Gloves

Gloves protect workers during patient care or while working with potentially infected blood and body fluids. Gloves should be appropriate for the task.

Gloves may be made of a variety of materials, including vinyl, neoprene, or nitrile rubber. Thicker gloves provide more protection, but they also make it harder to handle objects. Follow safe work procedures when putting on or removing gloves. For a sample safe work procedure, see Appendix A.

Respirators

A respirator is a device that is worn on the face, covers at least the nose and mouth, and is used to reduce the risk of inhaling hazardous gases, vapours, and aerosols. For example, approved N95 particulate respirators are used to reduce the risk of inhaling droplets or other particles containing pathogens. For more information on approved respirators, see Occupational Health and Safety guideline [G8.33\(2\)-1](#).

Respirator programs

If respirators are necessary to protect the health of workers and prevent illnesses related to breathing hazards in the workplace, a respirator program must be implemented. The respirator program must be documented and must include the following:

- A statement of purpose and responsibilities
- Written procedures for the selection, fit testing, use, inspection, cleaning, maintenance, and storage of respirators
- Education and training for workers
- Medical assessment of workers who will be wearing respirators, where required
- Details of the annual program review

Ideally, a designated program administrator who is knowledgeable about respirators should be responsible for the respirator program. The administrator can delegate parts of the program to others, but ultimately the administrator should have the final authority for running the program.



Typical filtering facepiece respirator

Medical masks (may also be called surgical or procedural masks)

A medical mask is a protective barrier that is worn on the face, covers at least the nose and mouth, and is used to protect others by preventing the spread of airborne droplets generated by the person wearing the mask.

Many health care workers still believe that medical masks provide adequate protection against airborne pathogens — this is not correct. Although medical masks do provide some protection against large droplets and splashes, they are not designed to seal to the user's face and do not provide respiratory protection against small inhalable droplets.



Fit testing

A respirator won't be effective unless it forms a seal against the worker's face. The only way to tell for sure if a respirator forms a seal is to do a fit test. Fit-test kits and equipment are available from safety suppliers.

Workers who are required to wear a respirator must be fit tested.

Follow these requirements for fit tests:

- Provide fit tests when workers are first fitted with respirators, then once a year afterward or whenever changes in the user's physical condition (such as weight loss or gain) could affect the respirator's fit.
- Use a fit test that follows a protocol that is acceptable to WorkSafeBC, such as the protocol described in CSA Standard Z94.4-18 Selection, Use, and Care of Respirators. Details of this protocol are also included in the WorkSafeBC publication *Breathe Safer*.
- Keep records of fit tests.

Eye protection

Eye protection such as goggles or a face shield is useful during procedures that are likely to generate splashes or sprays of blood and body fluids. A face shield is especially useful because it covers the nose and mouth as well as the eyes. However, it is not a substitute for a mask or respirator.

Other barriers

Other barriers that can help protect skin against exposure to infectious material include gowns, aprons, and disposable coveralls. If there's a chance that infectious material may contaminate footwear, it is a good idea for workers to wear disposable covers over shoes or boots. Disposable footwear covers should be correctly used and disposed of to prevent contaminated materials from being moved into other work areas.

Communicable disease prevention measures and exposure control plans

Communicable disease prevention measures and exposure control plans describe how workers will be protected from infectious diseases in a workplace. They include information on the nature of the hazards and the risks associated with exposure. They also describe controls such as safe work procedures that the employer will use to protect workers.

All employers need to implement communicable disease prevention measures. However, if workers are in direct contact with infected people or animals, or with a pathogen anticipated through the nature of the work, then employers may also require an exposure control plan.

Communicable disease prevention measures

Under [section 21](#) of the *Workers Compensation Act*, employers must ensure the health and safety of their workers and any other workers at their workplace. This includes protecting workers from infectious diseases.

Under [section 5.2](#) of the *Occupational Health and Safety Regulation*, employers must determine the possible effects of a disease on worker health and safety, and the precautions needed to protect workers and minimize the risk of exposure. This information must then be clearly communicated to workers, written procedures must be prepared and implemented, and all workers and supervisors must be trained accordingly.

Communicable disease prevention includes developing measures that cover the following topics:

- Develop and implement policies to support workers who have symptoms of a communicable disease.
- Promote hand hygiene.
- Maintain a clean working environment.

- Support workers in receiving vaccinations for vaccine-preventable conditions.
- Monitor the workplace and update the plan as necessary — for example, through regular inspections and ongoing supervision.

When developing and implementing CDP measures, it is important to get accurate information about the nature of the disease and the controls needed to minimize the risk of exposure for workers. Generally, the provincial health officer, the BC Centre for Disease Control, and local health authorities are responsible for communicating this information to the public.

The information should be reviewed regularly to ensure that CDP measures reflect the current state of knowledge and guidance. Employers must be prepared to implement additional prevention measures as required by a medical health officer or the provincial health officer to deal with communicable diseases in their workplaces or region, should those be necessary.

Under some circumstances, information and guidelines for employers may also be communicated by WorkSafeBC, industry health and safety associations, and professional associations and bodies.

WorkSafeBC has developed resources to support employers in implementing CPD measures. For more information, go to [worksafebc.com](https://www.worksafebc.com) and the OHS Guideline [G-P2-21](#).

Exposure control plans

Employers need an ECP if there is reasonably anticipated contact with an infectious disease that results from a worker performing duties where exposure may come from the work process itself. For example, workers who provide care to patients in a health care setting and workers employed in a laboratory or research facility that handles human pathogens have a greater risk of exposure to infectious diseases. ECPs may also be required to reduce exposure to hazardous chemicals and other biological agents.

Workplaces that typically require ECPs include:

- Hospitals
- Nursing homes, residential care facilities, home health care providers, and hospices

- Doctors' and dentists' offices
- Ambulance and paramedic services
- Law enforcement, fire and rescue, and lifesaving services
- Correctional institutions
- Research laboratories
- Veterinary clinics and animal shelters
- Poultry farms

In addition, first aid attendants in all workplaces require an ECP.

What an ECP should include

Every workplace is unique, so employers must develop ECPs that are specific to their workplaces. ECPs should only be developed by a qualified person.

What does *qualified person* mean?

According to the OHS Regulation, *qualified* means “being knowledgeable of the work, the hazards involved and the means to control the hazards, by reason of education, training, experience or a combination thereof.”

The requirements for ECPs are described in [section 5.54](#) and [section 6.34](#) of the OHS Regulation. An ECP must include the following components:

- Statement of purpose
- Responsibilities of the employer, supervisors, and workers
- Risk identification and assessment
- Control measures
- Written safe work procedures
- Worker education and training
- Written records

For more information on developing ECPs, see Appendix B.

What to do if a worker is exposed to an infectious disease

The following five steps apply to worker exposure to diseases that have serious health effects, such as hepatitis and tuberculosis. They do not apply to relatively minor illnesses, such as common colds or seasonal flu.

Note: Exposures to blood or body fluids involving non-intact skin or mucous membranes must be treated seriously, following the five steps described in this section. Exposure incidents involving airborne diseases such as tuberculosis are a bit different because they usually don't require first aid, such as washing a cut or flushing an eye.

1. Get first aid immediately

If the exposure involves an area of non-intact skin, such as a cut, wash it thoroughly with soap and water. For sharps injuries, allow the wound to bleed freely — don't squeeze the wounded area while washing. If a mucous membrane such as the eyes, nose, or mouth is affected, flush the area with lots of clean water at a sink or eyewash station.

2. Report the incident

Workers should report the incident to a supervisor and a first aid attendant as soon as possible. Reporting the incident promptly is important because there may be a recommended post-exposure treatment to reduce the risk of contracting a disease.

Note: If reporting the incident will significantly delay medical attention, skip Step 2 and report the incident as soon as possible.

3. Seek medical attention immediately

Within two hours of exposure to blood or body fluids, workers should go to the nearest appropriate medical facility that will provide treatment and evaluation. Time is of the essence — there are vaccines and medications that can help prevent infection or reduce the impact of a disease after exposure.

Note: Employers are responsible for transportation costs when a worker seeks medical attention.

4. Complete WorkSafeBC claim forms

Any time there is a work-related exposure incident that requires medical attention beyond the level of service provided by a first aid attendant, it must be reported to WorkSafeBC, even if there are no symptoms of illness. Employers must fill out and submit claim forms to WorkSafeBC. Workers should tell doctors if the injury or exposure is work related. Visit worksafebc.com for up-to-date forms.

WorkSafeBC claims

For more information on claims, visit worksafebc.com, or contact the Claims Call Centre at 604.231.8888 in the Lower Mainland or 1.888.967.5377 toll-free in Canada.

Responsibility for submitting WorkSafeBC forms

Individual	WorkSafeBC form
Employer	Employer's Report of Injury or Occupational Disease (form 7)
Worker	Application for Compensation and Report of Injury or Occupational Disease (form 6)
Doctor	Physician's Report (form 8/11)

5. Investigate the incident

Under [section 69](#) of the *Workers Compensation Act*, employers must investigate exposure incidents in any of the following cases:

- A worker required medical treatment.
- An incident had the potential to cause serious injury to a worker.
- A worker shows signs or reports symptoms of exposure to a hazardous substance present in the workplace.

Part 2:

Communicable diseases

This part contains information on some of the more common communicable diseases that workers may be exposed to in B.C. workplaces. (*Communicable diseases* are infectious diseases generally transmitted from human to human.) This part includes the following sections:

- Chicken pox
- Clostridium difficile (C. difficile)
- Coronavirus diseases
- Hepatitis
- HIV/AIDS
- Legionnaire's disease and Pontiac fever
- Measles
- Methicillin-resistant Staphylococcus aureus (MRSA)
- Mumps
- Norovirus
- Pandemic influenza
- Tuberculosis (TB)
- Vancomycin-resistant enterococci (VRE)

For more information on the communicable diseases included in Part 2, go to [worksafebc.com](https://www.worksafebc.com) and search for the disease name. If you can't find the disease you are looking for, go to [bccdc.ca](https://www.bccdc.ca) and search for it there.

Chicken pox

Chicken pox vaccine

There is a chicken pox vaccine that protects 85 to 90 percent of children completely. The vaccine protects all children from moderate to severe disease. It is not quite as effective in adults. Even if the vaccine does not completely prevent chicken pox in adults, it does prevent severe disease. All infants in B.C. are eligible to receive one dose of the vaccine between the ages of 12 and 18 months.

The medical name for chicken pox is varicella. It's easy to catch chicken pox because it spreads through the air. The tiny blisters on a child or adult who has chicken pox are filled with the chicken pox virus, which sheds into the air and can infect anyone who breathes it.

Transmission

The varicella virus infects only humans. It can be transmitted through airborne transmission or direct contact with weeping sores or contaminated hands. The virus does not live on surfaces.

Course of disease

Chicken pox is usually a relatively mild childhood illness, but it can be dangerous and more severe when contracted by adults. The first signs appear anywhere from 10 to 21 days after infection. An itchy rash usually starts on the face, chest, back, shoulder blades, or armpits. Small red bumps or pimples appear, turn clear, burst, dry up, and scab over before finally healing. It takes about five days for all of the bumps to appear and five more days until the last of them crusts over. Other symptoms include fever, tiredness, and loss of appetite.

The varicella virus remains active in the body and may reactivate as shingles later in life. The vesicles of a person with shingles are contagious to a non-immune person.

Who is at risk?

Chicken pox can occur anywhere in the population. Now that most infants receive the chicken pox vaccine, exposure is much less common. There is no risk of infection for workers who have been vaccinated or previously infected with chicken pox — they are considered immune.

Prevention

One chicken pox infection gives lifelong immunity. A person can get it only once. If a person is exposed again, antibodies will prevent another attack of chicken pox.

Clostridium difficile (*C. difficile*)

Clostridium difficile (*C. difficile*) is a bacterium that causes diarrhea and more serious intestinal conditions, such as colitis. It is the most common cause of infectious diarrhea among patients in hospitals and long-term care facilities.

Transmission

People with *C. difficile* infections carry the bacteria in their intestines, and it is shed in their feces. The bacteria can be passed from person to person through direct or indirect contact. Health care workers may carry the bacteria on their hands. As they move through a facility, they may spread it to patients or contaminate surfaces such as bedding, commodes, bedpans, sinks, rectal thermometers, and handrails.

Course of disease

Symptoms of *C. difficile* infection include:

- Watery diarrhea (at least three bowel movements per day for two or more days)
- Fever
- Loss of appetite
- Nausea
- Abdominal pain or tenderness

Severe diarrhea can lead to serious complications, including dehydration. *C. difficile* can be fatal in debilitated patients.

Who is at risk?

Healthy workers are not usually vulnerable to *C. difficile*. Patients who receive antibiotics, especially older adults, are at increased risk of acquiring *C. difficile*. Treatment with antibiotics alters the normal levels of good bacteria found in the intestines and colon. When there are fewer of these good bacteria, *C. difficile* can thrive and produce toxins that can cause infection. The combination of the presence of *C. difficile* in health care settings and the number of patients receiving antibiotics in these settings can lead to frequent outbreaks.

Prevention

Follow thorough cleaning procedures that decontaminate the environment. For example, use 1 part household bleach to 50 parts water, mixed fresh daily.

If there is an outbreak, disinfect surfaces using 1 part household bleach to 10 parts water, mixed fresh daily. Wash hands after handling contaminated waste (including diapers) and before eating, feeding, or providing personal care.

Coronavirus diseases

Coronaviruses are a group of RNA viruses that can cause disease in both mammals and birds. RNA viruses use RNA as genetic material rather than DNA. The name *coronavirus* refers to the microscopic fringe of club-shaped spikes covering the exterior of the virus. They resemble a “corona” or crown. These viruses cause respiratory infections that can range from mild (some common colds are caused by coronaviruses) to lethal (e.g., SARS, MERS, and COVID-19).

Human coronaviruses were first discovered in the 1960s, but they became much better known with the arrival of the severe acute respiratory syndrome (SARS) virus in 2003. Since then, coronaviruses have been responsible for a number of local epidemics and a pandemic.

Transmission

Coronaviruses can spread in several ways, including via airborne droplets when a person breathes, speaks, coughs, or sneezes, and via contaminated surfaces.

The risk of person-to-person transmission via droplets increases the closer people come to an infected person, the more time they spend with an infected person, and the more infected people they are exposed to. The risk of infection increases significantly when people come within 1 to 2 metres of an infected person.

The risk of surface transmission increases when many people contact the same surface and when those contacts happen over a short period. However, transmission of the virus through contact with surfaces may not be as significant as airborne droplet transmission.

Course of disease

Emerging coronaviruses, such as SARS, MERS, and SARS-CoV-2, can cause severe pneumonia. Symptoms are variable and can include fever, cough, breathing difficulties, sore throat, fatigue, nausea, diarrhea, and loss of smell and taste.

The incubation period for COVID-19 (caused by SARS-CoV-2) is about 5 to 6 days, but it can be as long as 14 days. Some studies

suggest that 1 in 10 people with COVID-19 will have symptoms that last more than a month. Longer-term problems, such as fatigue and shortness of breath, have also been reported.

Who is at risk?

Coronaviruses have been circulating within the human population for many years, so everyone is at risk of contracting a coronavirus disease. We are especially at risk when a coronavirus has only recently emerged and we have no immunity to it. The risk of severe symptoms increases with age or underlying medical conditions such as cancer, kidney disease, lung disease, heart conditions, and obesity. Fortunately, some vaccines have been developed. These may have to be given in multiple doses or annually, as with influenza vaccines.

Prevention

To reduce exposure to epidemic and pandemic coronaviruses (e.g., SARS-CoV-2, which causes COVID-19), employers may have to implement specific measures, such as working from home, physical distancing, using barriers, wearing masks, and vaccination.

The provincial health officer may mandate the use of masks in all workplaces and public spaces.

All of these measures must be supported by effective cleaning and hygiene practices, including hand hygiene, cough and sneeze etiquette, and cleaning and disinfecting.

Though all coronaviruses share similarities, it is important for employers to get the most current available knowledge and follow public health advice when responding to an emerging coronavirus threat. Accurate sources of information include the provincial health officer and the BC Centre for Disease Control.

Hepatitis

The term *hepatitis* describes any inflammation of the liver. It is generally caused by a virus, but alcohol and certain drugs can damage the liver and cause hepatitis.

The various hepatitis viruses are unrelated to one another, but they all attack and damage only the liver. Hepatitis B and C are two hepatitis viruses that are of concern because they are spread through blood and can cause long-term complications.

Hepatitis A

Hepatitis A is generally less serious than hepatitis B and C because it causes only temporary liver damage. As the infected person develops antibodies, the virus is eliminated, and the liver returns to normal with no long-term effects. Many people have very few noticeable symptoms, although people over 40 will usually have more severe symptoms.

Hepatitis A is of particular concern for sewage workers and child care workers. The virus is shed into feces, and then spreads when contaminated food or water is ingested. This is called the fecal-oral route. The virus can survive on surfaces for up to three months.

A hepatitis A vaccine is available. Under [section 6.39.2](#) of the Occupational Health and Safety Regulation, employers must offer the hepatitis A vaccine, at no cost, to workers who have or may have occupational exposure to the virus.

Hepatitis B

Transmission

The hepatitis B virus is transmitted in much the same way as HIV (the AIDS virus), but hepatitis B is much easier to catch. A drop of blood infected with hepatitis B contains enough of the virus to infect someone. Like HIV, the hepatitis B virus must enter the bloodstream to cause infection.

Course of disease

Many people have very few noticeable symptoms. The symptoms are similar to a flu-like illness: low fever, tiredness, nausea, stomach pain, and loss of appetite. A few weeks later, some

Hepatitis A and B vaccines

Under [section 6.39](#) of the OHS Regulation, employers must offer hepatitis vaccines, at no cost, to workers who are at risk of occupational exposure to the viruses.

may notice jaundice. People over 40 will usually have more severe illness. One concern with hepatitis B is the possibility of becoming a chronic carrier and developing long-term complications. People who become chronic carriers are always infectious, even though they feel fine.

Hepatitis C

Transmission

Hepatitis C is most commonly transmitted through exposure to infected blood. Outside of the workplace, intravenous drug users who share needles are at greatest risk. Unlike HIV and hepatitis B, sexual transmission of hepatitis C is rare.

Course of disease

Most people with hepatitis C do not have any symptoms of the infection and do not know that they are infected. A small percentage will have symptoms many weeks or even months after the initial infection. Feeling sick is not the main issue with hepatitis C; becoming a carrier and developing long-term complications are the real problems. Long-term liver damage from chronic hepatitis C infection can lead to death.

HIV/AIDS

Human immunodeficiency virus (HIV) attacks the immune system and can lead to acquired immune deficiency syndrome (AIDS).

Transmission

A person can become HIV infected through direct contact with HIV-infected blood, certain internal body fluids (fluid around the heart, lungs, joints, or brain), semen, or vaginal secretions.

Workers can be infected if they are stuck by a needle or other sharp object that contains HIV-infected blood, or if blood splashes in their eyes or mouth. It is also possible for HIV to enter through breaks in the skin, especially if workers do not wear gloves when they have non-intact skin (e.g., a cut or sore on their hands).

HIV/AIDS is not transmitted through casual contact (e.g., shaking hands). If it were, many more of us would be HIV infected because many workers have either knowingly or unknowingly been in close contact with HIV-infected people.

Body fluids that can spread HIV include:

- Blood
- Any body fluid with visible blood
- Amniotic fluid (fluid that surrounds the fetus in a pregnant woman's uterus)
- Cerebrospinal fluid (fluid surrounding the brain and spinal cord) and pericardial fluid (fluid around the heart)
- Peritoneal fluid (fluid in the abdomen)
- Pleural fluid (fluid in the lining of the lungs) and synovial fluid (fluid in joints)
- Semen
- Vaginal secretions

Course of disease

HIV destroys the body's ability to fight off pathogens. In the early stages, most people feel fine. Some have a brief flu-like illness for a few days or weeks when the virus enters their body. HIV-infected people look perfectly healthy. No matter what stage the disease is in, though, HIV-infected people are always considered infectious.

AIDS is the end stage of HIV infection. It is diagnosed once the virus has damaged the immune system to the point where the infected person cannot fight off other pathogens and becomes sick with a variety of illnesses. Without treatment, a person with AIDS may eventually die from overwhelming infections (such as pneumonia or tuberculosis) or cancer.

Legionnaire's disease and Pontiac fever

Legionnaire's disease and Pontiac fever are caused by bacteria in the genus *Legionella*. There are many species of these bacteria, but only a few cause disease in people. Commonly found in freshwater, groundwater, and soil, *Legionella* becomes a health risk only when people inhale the bacteria into their lungs. There have been some instances of skin infections as well.

Legionella was discovered in 1976, when a group of people attending an American Legion convention in Philadelphia became infected as a result of a contaminated air-conditioning system. Pontiac fever had been identified previously, but it was not linked to *Legionella* until public health officials showed that the same bacterium caused both diseases.

Transmission

People can get Legionnaire's disease when they breathe in a mist or vapour that contains *Legionella* bacteria. The bacteria multiply in warm water and may be found in any water system in residential, commercial, or industrial buildings, including:

- Cooling towers
- Air conditioners and dehumidifiers
- Potable water piping and fixtures
- Swimming pools, hot tubs, and spas
- Water tanks
- Decorative water features (e.g., fountains, waterfalls, and water walls)

Legionella bacteria are not spread from person to person, but from a contaminated water source to people that can result in a severe outbreak of disease.

Course of disease

Legionnaire's disease is a severe form of pneumonia, characterized by fever, dry cough, difficulty breathing, chest pain,

headache, and muscle pain. The average incubation period is five to six days. The disease can be treated with antibiotics, but if it is allowed to progress, the infection can lead to respiratory and multi-organ failure, with a mortality rate as high as 25 percent.

Pontiac fever is a much milder form of the disease, which patients usually recover from within a few days.

The incidence of Legionnaire's disease is increasing in North America.

Who is at risk?

People at risk of developing Legionnaire's disease include those who are:

- Using recreational (swimming pool) facilities
- Staying or working in buildings with water tanks or cooling towers
- Working around water mist or spray systems

People with decreased immune function or chronic lung problems are also at greater risk of developing Legionnaire's disease if they are exposed to the bacteria.

Prevention

To prevent the growth of *Legionella* bacteria, water systems must be properly cleaned and maintained. This includes the following:

- Inspect for conditions that would promote the growth of micro-organisms, such as water leaks or stagnant water pools.
- Ensure that open-water systems associated with ventilation equipment, such as cooling towers and humidifiers, are adequately treated to control biological growth.

Since *Legionella* bacteria can also contaminate potable water systems, it is particularly important to inspect water systems that have been inactive due to shutdowns or building vacancy.

People who perform inspections, cleaning, and sampling for the bacteria may require personal protective equipment, including respiratory protection.

Measles

The medical name for measles is rubeola, also known as red measles to distinguish it from German measles (rubella). Measles is one of the most highly contagious diseases known.

Transmission

When someone with measles breathes, coughs, sneezes, or talks, the virus is released into the air. It can survive on surfaces for up to two hours and in the air for about 30 minutes. If you enter a room soon after someone with measles has left, you can still catch measles from that person. Direct contact with the secretions from an infected person's runny nose, eyes, or cough can also spread the disease.

Course of disease

The first signs of measles appear about 10 days after the virus enters the body. Symptoms include:

- A high fever (as high as 40.6°C), followed by a cough
- Red, puffy, painful eyes
- A runny, stuffed-up nose

The fever lasts about six days. A rash usually appears on the second day of fever.

Who is at risk?

Like chicken pox, measles can occur anywhere in the population. Babies and older adults are usually the most seriously ill. There is no risk of infection for workers who have been vaccinated or previously infected with measles — they are considered immune.

Prevention

One measles infection gives lifelong immunity. A person can get it only once. After that, antibodies will prevent another attack of measles. The measles vaccine also gives lifelong immunity.

Methicillin-resistant *Staphylococcus aureus* (MRSA)

Community-associated MRSA (CA-MRSA)

Strains of community-associated MRSA (CA-MRSA) have emerged in recent years. CA-MRSA infections are those acquired by people who have not been hospitalized or undergone a medical procedure (e.g., dialysis, surgery, or catheter insertion) within the past year. CA-MRSA is more virulent than hospital-acquired MRSA and usually causes a mild skin infection that is often misdiagnosed as a boil or spider bite. In rare cases, the infection can cause severe invasive disease in otherwise healthy people.

Staphylococcus aureus (*S. aureus*) are bacteria normally found in the nose or on the skin in up to 30 percent of healthy people. *S. aureus* can cause a variety of infections, ranging from localized skin lesions such as impetigo, boils, or wound infections, to serious invasive disease. Methicillin-resistant *Staphylococcus aureus* (MRSA) are strains of *S. aureus* that have developed resistance to many antibiotics.

Transmission

In the past, most MRSA infections have occurred in health care facilities. Infected patients continue to be the main source of MRSA. Health care workers who care for patients with MRSA may pick it up on their hands or from contaminated surfaces, including bed rails, patient-care equipment, and over-bed tables.

Who is at risk?

A worker who provides direct patient care can be susceptible to acquiring or carrying any virus or bacteria that can be transmitted by contact. However, it is rare for MRSA to cause disease in healthy workers. MRSA poses a greater risk to clients and patients who are older, weak, or immunocompromised, and to those who are exposed to the unwashed hands of care providers.

Prevention

Wash hands with soap and water, or use alcohol-based hand rubs. Contaminated surfaces can be disinfected with a solution of 1 part household bleach to 50 parts water, mixed fresh daily.

Mumps

Mumps is caused by the mumps virus, which invades and multiplies in one or more of the salivary glands. It most commonly affects the parotid gland, causing swelling under the front of the ear lobe, between the jaw and ear. Since 1997, the incidence of mumps has declined dramatically. This is likely because of the two-dose measles, mumps, and rubella (MMR) vaccine schedule for young children, as well as booster vaccinations offered to post-secondary students and health care workers.

Transmission

Mumps does not spread as easily as chicken pox or measles. It spreads through direct contact and droplet transmission, when the saliva of an infected person contacts the mucous membranes of another person's mouth or nose.

Course of disease

Most people get swelling in the saliva gland between the jaw and ear. Swelling begins on one side of the face and may spread to the other side within one or two days.

Older children and adults usually experience symptoms for three to five days before the swelling starts. These symptoms may include fever, chills, headaches, weakness, and a general sick feeling. Young children generally have fewer symptoms before the swelling starts.

Symptoms usually develop two to three weeks after exposure. People are most infectious from two days before swelling starts to five days after. Some may be infectious for as long as seven days before and nine days after the onset of swelling.

Who is at risk?

Children under the age of two rarely get mumps. People who have not been vaccinated or not been previously infected with mumps are at risk.

Prevention

Anyone who has been infected with mumps is immune. As with measles and chicken pox, the mumps vaccine also provides lifelong immunity.

Norovirus

Norovirus, which includes the Norwalk virus, is the general name used to identify several small viruses that cause diarrhea and vomiting in all ages, especially adults. The virus group is named after an outbreak of diarrheal disease in Norwalk, Ohio, in 1968.

Norovirus is extremely common. Hundreds of outbreaks have been recorded in B.C. Next to the common cold, people get norovirus more than any other viral infection. Doctors usually refer to it as viral gastroenteritis.

Transmission

Norovirus spreads quickly through the fecal-oral route, from an infected person with unwashed hands to a susceptible person. Norovirus is spread by eating foods or drinking liquids that are contaminated with the virus, or by touching contaminated surfaces and then touching your own mouth. The virus is sturdy — it can live for days on surfaces if it is not disinfected. The good news is that norovirus does not multiply in food like salmonella does. Norovirus is easily destroyed by thorough cooking, although appropriate handling and cleanup precautions must be used.

Outbreaks commonly occur in long-term care facilities, acute-care hospitals, schools, daycare centres, summer camps, restaurants, and vacation settings, including cruise ships. Many food items have been implicated in restaurant outbreaks: oysters, salads, sandwiches, cakes, frosting, raspberries, drinking water, and ice.

Large outbreaks in hospitals have been traced to just one patient who had come into the hospital with diarrhea. The close living quarters on ships makes it easy for person-to-person transmission to occur. A passenger or crew member may bring the virus on board, and a single infected crew member can be responsible for a large outbreak as new susceptible passengers get on board every few weeks.

Course of disease

Symptoms come on suddenly — about 24 to 48 hours after ingesting the virus. The illness often starts with sudden episodes of vomiting and diarrhea. Other symptoms include abdominal cramps, tiredness, headache, and muscle aches. The illness usually lasts about two to three days.

Prevention

For regular prevention, follow these guidelines:

- Wash hands with soap and water.
- If running water is not available, use an alcohol-based hand rub.
- Surfaces can be decontaminated with a solution of 1 part household bleach to 50 parts water, mixed fresh daily.
- If suffering from diarrhea, don't prepare food until three days after recovery.

For prevention during an outbreak, follow these guidelines:

- Workers with diarrhea should stay home until 48 hours after recovery.
- Older adults, very young children, and anyone with underlying medical conditions should not visit residents and patients in health care facilities.

Pandemic influenza

Pandemic influenza is different from seasonal flu. When a powerful new strain of human influenza virus appears, few people have natural immunity to it, so it spreads rapidly from person to person, causing a pandemic (a global epidemic).

Pandemics can last for 12 to 36 months. Some people may become very ill and die from the virus. The 1918–19 Spanish flu pandemic was the worst on record. It killed close to 50 million people worldwide — mostly infants, elderly people, and people aged 20–40 years. The 1957–58 and 1968–69 pandemics were less deadly.

Transmission

Influenza viruses spread via droplet transmission when an infected person coughs or sneezes near a susceptible person. The susceptible person must be close to the infected person because large respiratory droplets generally travel only a short distance (less than 2 metres) through the air, and then settle out of the air quickly.

A person can also catch influenza from direct or indirect contact. Infected people who do not wash their hands properly will have respiratory-tract secretions filled with the virus all over their hands. The virus can live for hours in dried mucus on doorknobs, telephones, faucets, or wherever infected people with unwashed hands have been present. A person can become infected by touching any of these surfaces and then touching their eyes, nose, or mouth.

Influenza can be spread by an infected person from about one day before symptoms appear to as many as five days after symptoms appear. Children can be infectious for 10 or more days after symptoms appear.

Who is at risk?

If an influenza pandemic strikes, it will affect all workers in all industries. There will be a significant need for additional health care resources at a time when many health care workers will be sick. All levels of government in B.C. and Canada have comprehensive preparedness plans for an influenza pandemic.

Seasonal influenza (the flu)

Seasonal influenza (the flu) is a common respiratory disease caused by a highly contagious virus that changes slightly from year to year.

Common symptoms include fever, headache, cough, fatigue, aches and pains, runny nose, and sore throat. The worst symptoms usually last about five days. Most people recover from the flu fairly easily.

Annual vaccinations are available. They are based on the viral strains that are anticipated for that flu season. One dose of the vaccine is highly effective in healthy adults younger than 65 years. When the vaccine and circulating viruses are a good match, the influenza vaccine prevents laboratory-confirmed influenza among 70 to 90 percent of healthy adults under 65. Because the influenza strain mutates slightly from year to year, it is necessary to be revaccinated each flu season to remain protected.

Tuberculosis (TB)

Tuberculosis (TB) is an illness that attacks the lungs and other organs. It can result in death if untreated. TB is caused by a bacterium called *Mycobacterium tuberculosis*.

Transmission

TB spreads through the air. The sputum (mucus brought up from the lungs) of a person who has TB contains large amounts of TB bacteria. When other people nearby breathe in contaminated air, the bacteria enter their respiratory system, and they may become infected.

Most people need several days around someone with TB to breathe in enough pathogens to get the infection themselves. People living in the same household as an infectious TB patient have about a 30 percent risk of becoming infected. However, people infected with HIV can become infected with TB from brief exposures.

Course of disease

Ninety percent of those infected never develop active TB. These infected people have what is called a latent infection and are not contagious. Their bodies are able to keep the bacteria in check. Connective tissue in their lungs forms an enclosure that prevents the bacteria from reproducing and destroying the lungs. TB bacteria remain trapped in this enclosure in a dormant (latent) stage — alive, but not reproducing. In the latent stage, there are no symptoms.

If a person with latent TB suffers from another illness or their immune system falters, the live bacteria can escape the enclosure and multiply, resulting in active TB disease. This is called reactivated TB. The lifetime risk of active TB for people with latent infection is 5 to 10 percent.

People with active TB disease feel tired and weak. They cough constantly, sometimes bringing up blood. They also suffer chest pain, night sweats, fever, and fatigue. They have no appetite and lose weight. Many people become short of breath. Among older people, males typically experience worse symptoms than females.

TB screening

The BC Centre for Disease Control recommends pre-employment screening for workers at risk of exposure to TB, including hospital-based health care workers, community and home care workers, and corrections officers. Establishing baseline data for new workers helps with future TB contact screening. For more information on TB screening, go to bccdc.ca.

The incubation period for TB infection is about 4 to 12 weeks, after which a skin test will show positive or, in some cases, a lesion will appear on a chest X-ray.

Who is at risk?

Health care, social service, and prison workers who work with higher-risk population groups are at risk. In B.C., these vulnerable population groups include Indigenous communities, homeless people, and immigrants from countries with high TB rates, including parts of Eastern Europe, Asia, and Africa.

Prevention

In health care workplaces, if a patient has possible or confirmed infectious TB, they should be given a surgical mask to wear and be placed in a separate room. In acute-care hospitals, this might include a negative-pressure isolation room with adequate ventilation and sinks.

Workers should use respiratory protection (e.g., an N95 respirator) in areas where there is increased risk of exposure, including:

- Rooms where cough-inducing or dental procedures are done
- Homes of infectious TB patients
- Correctional institutions
- Interview rooms

Vancomycin-resistant enterococci (VRE)

Enterococci are bacteria that are commonly found in the gastrointestinal tract of 95 percent of healthy individuals. Vancomycin-resistant enterococci (VRE) have developed resistance to the antibiotic drug vancomycin.

Transmission

Human feces contain enterococci, which makes the fecal-oral route the most common route of transmission. VRE can be transmitted directly from patient to patient, or by a health care worker's hands to patients. It can be transmitted indirectly by contaminated medical devices, such as electronic thermometers, or contaminated environmental surfaces. The surfaces in rooms of patients infected with VRE can be covered with VRE. The VRE bacteria can survive on inanimate surfaces for up to seven days.

Course of disease

VRE rarely causes illness in healthy people. Occasionally, enterococci can cause invasive disease, particularly in severely immunocompromised patients.

Who is at risk?

A worker who provides direct patient care can be susceptible to getting or carrying any virus or bacteria transmitted by contact. However, it is rare for VRE to cause disease in healthy workers. Methicillin-resistant *Staphylococcus aureus* poses a greater risk to clients and patients who are older, weak, or immunocompromised, and to those who are exposed to the unwashed hands of care providers.

Prevention

Good hand hygiene and cleaning procedures are key parts of infection control. Thorough, daily disinfection of surfaces helps reduce the amount of bacterial contamination in the rooms of patients with VRE. Rooms of patients who have diarrhea or are incontinent can be heavily contaminated.

Part 3:

Zoonotic diseases

This part contains information on some of the zoonotic diseases that workers may be exposed to in B.C. workplaces. (*Zoonotic diseases* are infectious diseases transmitted from animals to humans.) This part includes the following sections:

- Zoonotic diseases in B.C.
- Avian influenza
- Campylobacteriosis
- Hantavirus
- Lyme disease
- Psittacosis
- Q fever
- Rabies
- West Nile virus

For more information on these and other zoonotic diseases, go to [worksafebc.com](https://www.worksafebc.com) and [bccdc.ca](https://www.bccdc.ca).

Zoonotic diseases in B.C.

Zoonotic diseases have affected human health throughout history. The bacteria that causes bubonic plague, which is transmitted by rat fleas, has caused illness and death since ancient times. It was known as the Black Death during the Middle Ages. More recently, SARS-CoV-2, West Nile virus, Lyme disease, and avian influenza have captured our attention — all of these diseases originally came from animals or continue to be transmitted by animals.

The following table shows some of the zoonotic diseases that have been identified in B.C. or have a potential to enter the province, as well as the types of pathogens that cause them. Many of these diseases, both in humans and animals, must be reported to public health authorities within a specified period. Public health authorities include the provincial health officer, the BC Centre for Disease Control, and the regional health authorities. The BC Centre for Disease Control has a list of [reportable zoonotic diseases](#).

Disease	Type of pathogen	Public health reporting requirements
Anthrax	Bacteria (<i>Bacillus anthracis</i>)	Within 24 hours
Avian influenza	Virus (Influenza H5 and H7)	Immediately
Bovine spongiform encephalopathy (BSE)	Prion (protein)	Within 24 hours
Brucellosis	Bacteria (<i>Brucella</i>)	Within 24 hours
Campylobacteriosis	Bacteria (<i>Campylobacter</i>)	
Leptospirosis	Bacteria (<i>Leptospira</i>)	
Listeriosis	Bacteria (<i>Listeria</i>)	
Lyme disease	Bacteria (<i>Borrelia</i>)	
Plague	Bacteria (<i>Yersinia pestis</i>)	Within 24 hours
Psittacosis	Bacteria (<i>Chlamydophila</i>)	Within 24 hours
Q fever	Bacteria (<i>Coxiella burnetii</i>)	Within 24 hours
Rabies	Virus	Immediately
Swine flu	Virus (Influenza A)	Within 24 hours
Tularemia	Bacteria (<i>Francisella</i>)	Within 24 hours
West Nile Virus	Virus	Within 24 hours
Zoonotic viral hemorrhagic fevers (e.g., Hantavirus)	Virus	Immediately

Who is at risk?

People who work with animals have a higher risk of acquiring a zoonotic disease. The following table lists examples of animal-handling occupations and diseases of concern:

Occupation	Diseases	
Veterinarians	<ul style="list-style-type: none"> • Anthrax • Brucellosis • Campylobacteriosis • Leptospirosis 	<ul style="list-style-type: none"> • Psittacosis • Q fever • Rabies • Tularemia
Pet-shop workers	<ul style="list-style-type: none"> • Campylobacteriosis • Leptospirosis • Psittacosis 	
Groundskeepers and wildlife researchers	<ul style="list-style-type: none"> • Campylobacteriosis • Hantavirus • Lyme disease • Plague 	<ul style="list-style-type: none"> • Q fever • Rabies • Tularemia • West Nile virus
Dairy farmers	<ul style="list-style-type: none"> • Brucellosis • Campylobacteriosis • Lyme disease 	<ul style="list-style-type: none"> • Q fever • Tularemia • West Nile virus
Poultry farmers	<ul style="list-style-type: none"> • Avian influenza • Campylobacteriosis • Psittacosis 	
Ranchers	<ul style="list-style-type: none"> • Anthrax • Brucellosis • Campylobacteriosis • Influenza A (in swine) 	<ul style="list-style-type: none"> • Lyme disease • Q fever • Tularemia • West Nile virus
Meat processors, butchers, and abattoir workers	<ul style="list-style-type: none"> • Anthrax • Brucellosis • BSE • Campylobacteriosis 	<ul style="list-style-type: none"> • Listeriosis • Psittacosis • Q fever • Tularemia

Avian influenza

Avian influenza (or “bird flu”) is a contagious disease caused by several strains of viruses. It can infect all species of birds, including wild birds (particularly waterfowl), pets, and domestic birds, such as chickens and turkeys. According to the BC Centre for Disease Control, avian influenza has been transmitted in rare cases from birds to humans and from humans to humans. Because of this possible health risk, it is important to protect humans from exposure to bird flu.

Transmission

People can be infected if they live or work close to domestic birds, or handle their manure and litter. The most likely way to be infected is through droplets (e.g., from choking or sneezing birds) that come into direct contact with a worker’s eyes, nose, or mouth. Workers can also be infected if they inhale contaminated dust. In addition, avian flu viruses can be transmitted indirectly when a person touches a contaminated object (e.g., equipment in a barn, manure, a door knob, or a telephone) and then touches their eyes, nose, or mouth.

Course of disease

Avian flu viruses that infect humans can cause mild to severe illnesses. Symptoms can include headache, fever, cough, fatigue, sore throat, sneezing, runny nose, itchy and inflamed eyes, diarrhea, nausea, and vomiting. In other cases, a mild eye infection (conjunctivitis) may be the only indication of the disease. Secondary infections, such as pneumonia or other acute respiratory diseases, may also develop.

Prevention

Anyone who has been in close contact with infected animals or contaminated surfaces must wash their hands immediately. An outbreak will require the use of safe work procedures and PPE, including rubber boots, disposable coveralls, disposable gloves, safety goggles, and respirators.

Campylobacteriosis

Campylobacteriosis is caused by *Campylobacter* bacteria, the most common agent of bacterial diarrhea in humans. In B.C. alone, there are approximately 2,300 reported cases of campylobacteriosis each year.

Transmission

Campylobacter spreads quickly through the fecal-oral route, from infected pets or farm animals to susceptible people. Transmission between people is less common. The bacteria may also be consumed in undercooked meat, contaminated food, contaminated water, or raw milk.

Course of disease

Campylobacter infection causes severe watery or bloody diarrhea, fever, abdominal cramps, nausea, and vomiting. The incubation period is usually from two to five days, depending on the number of bacteria ingested. The symptoms last from one to seven days or more.

Prevention

After handling animals or animal feces, and before preparing and eating food, wash hands with soap and water. If running water is not available, use an alcohol-based hand rub.

Hantavirus

Hantaviruses are a group of viruses carried by many different kinds of wild rodents (mainly wild rats and mice), all over the world. So far, only deer mice have been found to carry the virus in B.C. However, other rodents could be potential carriers.

Transmission

Humans typically become infected when they inhale particles of saliva, urine, or feces from infected rodents. This may happen via direct contact with the rodents or by breathing airborne dust particles generated when rodent feces are disturbed.

Course of disease

Hantavirus causes a disease called hantavirus pulmonary syndrome. It begins as a flu-like illness. As the disease progresses, fluid builds up in the lungs, making it difficult to breathe. Severe respiratory failure resulting in death can occur within a few days of the early-stage symptoms. Symptoms may appear from 5 to 45 days after exposure to the virus.

Prevention

Workers who handle rodents or clean up debris contaminated by rodent droppings must wear personal protective equipment (PPE), including a respirator. The type of PPE required will depend on the task and the amount of contaminated material present.

Lyme disease

In North America, Lyme disease is caused by bacteria (*Borrelia burgdorferi* and *B. mayonii*) that are carried by ticks. Ticks are tiny arthropods that are related to mites, spiders, and scorpions. Ticks live in forested areas, tall grass, and shrubs. Workers may be at risk of tick bites if they work outdoors or work with animals that may be carrying ticks, such as livestock and household pets.

Transmission

Ticks feed on the blood of animals and require blood meals at certain times in their developmental cycle. Feeding can last from hours to days, depending on the type of tick. If the tick is carrying a pathogen, such as the bacteria that causes Lyme disease, the tick can transmit it to a human.

Course of disease

Most people develop a skin rash at the site of the tick bite that feels warm but doesn't itch. Over a few days, the rash can look like a bull's eye and expand to 30 centimetres across. The rash is accompanied by fever, headache, muscle and joint pain, fatigue, and weakness or paralysis of facial muscles. Symptoms may appear within 3 to 30 days after the tick bite. People who are not promptly treated may develop long-term complications.

Prevention

To prevent tick bites, wear light-coloured clothing, tuck tops into pants, and tuck pants into boots or socks. Use insect repellent that contains 20 to 30 percent DEET.

After working outdoors, take a shower as soon as possible and look for ticks on your body. They are often found on the legs, thighs, back, arms, underarms, groin, behind the ears, and above the hairline.

Remove a tick by gently holding it with tweezers or forceps. Without squeezing it, lift it straight off the skin. Clean the site with soap and water, and wash your hands.

Psittacosis

Psittacosis is caused by a bacteria (*Chlamydophila psittaci*) that typically infects birds. It has been diagnosed in B.C. in pet birds, pigeons, and turkeys. Psittacosis has also been reported in dogs, cats, horses, cattle, and sheep. Humans are readily infected.

Transmission

Humans typically become infected when they inhale respiratory discharges or particles of feces from infected birds. This may happen via direct contact with the birds or by breathing airborne dust particles generated when bird droppings are disturbed.

Course of disease

Psittacosis is generally a mild illness. Symptoms appear within 5 to 14 days of exposure and can include fever, chills, headache, loss of appetite, and sore throat. If untreated, the disease may lead to serious pneumonia or other systemic illnesses.

Prevention

Anyone who has been in close contact with infected birds or surfaces contaminated with bird droppings must wash their hands thoroughly. When cleaning bedding or cages, use personal protective equipment, including respirators and disposable gloves.

Q fever

Q fever is caused by a bacteria (*Coxiella burnetii*) that infects animals, including goats, sheep, and cattle. It can also live in spore form in dust or soil for months or years. Q fever has been reported in B.C. but is quite rare.

Transmission

Humans can be infected by direct contact with infected animals or by breathing in dust contaminated by animal tissues, particularly those involved in birth. The bacteria may also be present in raw milk from infected animals. Q fever is very contagious — only a few bacteria are needed to cause an infection.

Course of disease

Q fever may be mistaken for an acute viral illness. Symptoms appear with 3 to 30 days of exposure and can include fever, chills, headache, weakness, and severe sweats. In most cases, the disease lasts less than two weeks and does not require special medical treatment. However, complications may develop in people with weakened immune systems.

Prevention

Anyone who has been in close contact with infected animals must wash their hands thoroughly. When working with potentially infected animals, especially pregnant ones, use personal protective equipment, including disposable coveralls, disposable gloves, and respirators.

Rabies

Rabies is a viral disease that is most often transmitted to humans through scratches or bites from rabid animals — usually wild animals, such as bats, raccoons, skunks, or foxes. Bats are the main reservoir for rabies virus in B.C., though very few bats carry the virus. Pets and other domestic animals are responsible for less than 10 percent of reported cases. Most of these are from dog bites.

Transmission

Rabies is contracted when saliva from an infected animal enters a bite wound and spreads to the central nervous system. It can also be transmitted if saliva or neural tissue is splattered or wiped on an open wound or into mucous membranes (e.g., the eyes, nose, and mouth). In rare cases, the virus may be spread through the air in enclosed spaces (e.g., caves or laboratories). Direct human-to-human transmission has only been documented in rare cases involving organ transplants.

Course of disease

The rabies virus incubation period in humans varies from days to years. Most human patients show symptoms within 90 days. The initial symptoms are similar to those of the flu — headache, fever, and feeling unwell or apprehensive. After 4 to 10 days, more serious symptoms develop, including hydrophobia (fear of water), agitation, paralysis, convulsions, and delirium. The illness then progresses to coma and death within 1 to 2 weeks.

Prevention

Observe animals for unusually aggressive behaviour. These animals should be adequately restrained and handled only with bite-resistant gloves. Additional personal protective equipment should include disposable gloves (inside bite-resistant gloves), protective eyewear (e.g., goggles that seal to the face or a face shield), and a surgical mask.

After handling animals, check for bites — you might not realize that you have been bitten.

If you are bitten, wash the wound well with soap and water for at least five minutes. Then see your doctor as soon as possible and have the wound examined. The biting animal should be tested for rabies.

A rabies vaccine is available and recommended for those working with animals.

West Nile virus

West Nile virus is spread from insects to people via mosquito bites. The virus enters the body as the infected mosquito bites. Only about one in five people infected with the virus will ever develop symptoms. Only a few cases of West Nile virus have been reported in B.C.

Transmission

Anyone who works outside during the summer months should take precautions to avoid mosquito bites. While the virus is not known to be transmitted from animals to people, dead animals or birds should not be handled with bare hands.

Course of disease

Symptoms appear within 3 to 14 days of exposure and can include fever, headache, muscle weakness, joint pain, rash, and sensitivity to light. Recovery usually takes about a week. Some people (less than 1 percent of infected individuals) may also develop West Nile neurological syndrome, which is very serious. It can include swelling of the brain, inflammation of the lining of the brain, and paralysis.

Prevention

Avoid working outdoors from dusk to dawn, as the mosquitoes that carry West Nile virus are most active during these times. Wear protective clothing, including long-sleeve shirts or jackets and long pants. Tuck pants into boots or socks. Use insect repellent that contains 20 to 30 percent DEET.

Glossary

administrative controls: Safe work procedures that workers can use to eliminate or minimize their risk of exposure to infectious diseases.

aerosols: Solid or liquid particles in the air.

airborne diseases: Infectious diseases that are spread through the air in large and small droplets.

airborne transmission: Transmission of pathogens by inhaling infectious aerosols. This can occur when an infected person coughs, sneezes, or talks, or during some medical procedures that generate aerosols.

alcohol-based hand rub: An alcohol-based antiseptic with a minimum 70 percent alcohol content that is applied all over the hands to reduce the number of pathogens on the hands. An alcohol-based hand rub can be used when hands are not visibly contaminated. When hands are visibly contaminated, wash first with running water and soap.

asymptomatic: Presenting no symptoms of a disease.

bacterium (plural bacteria): Member of a large group of single-cell organisms, without a bound nucleus, that includes many pathogens.

biological agent: A virus, bacterium, prion, or parasite that is classified by Health Canada as a Risk Group 2, 3, or 4 human pathogen, or a biological toxin, that causes an adverse health effect. The Occupational Health and Safety Regulation designates biological agents as hazardous substances.

bloodborne diseases: Infectious diseases that are transmitted through contact with infected blood or certain body fluids.

carrier: A person who is infected and capable of transmitting an infection to others, but who does not have symptoms of the disease. Often called asymptomatic or healthy carriers.

communicable diseases: Diseases that can be transmitted between humans.

contact diseases: Infectious diseases transmitted through direct or indirect contact with pathogens. Direct-contact transmission occurs when pathogens are transferred directly from an infected person, including from their blood or body fluids. Indirect-contact transmission involves the transfer of pathogens from something in the environment that has been contaminated by an infected person (e.g., a telephone, computer keyboard, or doorknob). It includes transmission through contaminated food or water.

contamination: The undesired presence of pathogens or toxins on a person's body or clothes, or on surfaces of inanimate objects.

control measure: A practice, procedure, or device that eliminates or minimizes the risk to workers. Also referred to as risk controls.

CSA: Canadian Standards Association.

cough and sneeze etiquette: Includes coughing or sneezing into the elbow or sleeve, not into the hands, or covering the nose and mouth with a tissue and then disposing of the tissue and washing hands.

droplet transmission: Transmission that occurs when droplets containing a pathogen are propelled a short distance through the air and deposited on mucous membranes, such as the eyes, nose, or mouth.

engineering controls: Methods of minimizing risk of exposure by physically changing the work environment to contain the source of exposure.

epidemic: The rapid spread of a disease through a community, infecting more people than usual.

exposure: The condition of being subject to an infectious disease through contact with an infected person or a contaminated environment.

exposure control plan (ECP): A document that details how a workplace will minimize exposure to biological agents, as required by the OHS Regulation.

eye protection: A component of personal protective equipment that protects the eyes from splashes or sprays of blood and body fluids. It includes goggles and face shields.

fecal-oral route: Often a "hand-to-mouth" means of transmitting pathogens. The pathogens are shed in feces and spread by hands, flies, or other means to food, water, or objects that may come into contact with a person's mouth.

fit test: Evaluation of the fit of a specific make, model, and size of a respirator to an individual. Fit testing must be done:

- Before first use of the respirator and at least annually thereafter
- Whenever there is a change in the facepiece (including brand, model, and size)
- Whenever changes in the user's physical condition, such as weight loss or gain, could affect the respirator's fit

hand hygiene: Washing hands thoroughly with soap and water for 20–30 seconds, using an alcohol-based hand rub, or using hand wipes that contain effective disinfectant.

hazard: A thing or condition that may expose a person to a risk of injury, occupational disease, or death.

HEPA filter: A high-efficiency particulate air filter providing a 99.97 percent filtration efficiency at a particle size of 0.3 micrometers.

immunity: The ability of the immune system to fight off infectious diseases.

incubation period: The interval between an initial exposure to a pathogen and the appearance of the first symptoms or signs of disease.

infectious diseases: Diseases caused by the entrance into the body of a pathogen.

isolation room: In health care, specially designed rooms for isolating patients who have contact or airborne diseases to help prevent the spread of pathogens to health care workers and other patients. These rooms require ventilation that prevents droplets from being spread through the air to other areas of the facility.

joint health and safety committee: Brings together representatives of the employer and the workers to identify and help resolve workplace health and safety issues. The joint committee supports the employer's duty to ensure a healthy and safe workplace.

medical sharp: Any object that has the potential to puncture or cut the skin (e.g., a hypodermic needle, suture needle, scalpel, or lancet). Sharps may be contaminated with an infected patient's blood or body fluids and therefore present a risk of exposure to bloodborne pathogens for workers.

mucous membrane: A moist layer of tissue that lines body cavities or passages that have an opening to the outside world. The mucous membranes referred to in this book include the eyes, nose, and mouth.

non-intact skin: Skin that has been compromised by a cut or abrasion, including a healing wound less than three days old or a skin lesion causing disruption of the outer layer of skin (e.g., acute dermatitis, a hangnail, or chapped or abraded skin).

occupational exposure: As defined in the OHS Regulation, reasonably anticipated contact with a biological agent resulting from the performance of a worker's duties.

pandemic: An epidemic that occurs worldwide.

pathogen: A micro-organism, nucleic acid, protein, or other biological agent that is transmissible and capable of causing disease or infection in humans or animals.

personal protective equipment (PPE): Specialized clothing or equipment that reduces exposure to hazardous substances by acting as a barrier. PPE is worn to protect mucous membranes, skin, and clothing from contact with biological agents. PPE includes gloves, respirators, eye protection, aprons, and gowns.

prion: A small protein-based infectious particle considered to be responsible for causing a group of neurodegenerative diseases in humans and animals known as transmissible spongiform encephalopathies.

respirator: A protective device that covers the nose and mouth, or the entire face and head, to keep airborne contaminants (including biological agents) out of the respiratory tract.

risk: The chance that someone could be harmed by a hazard. Risk can be categorized as high, medium, or low, based on the likelihood and potential seriousness of the harm.

risk assessment: A risk assessment provides the basis for eliminating or minimizing worker exposure to hazards in the workplace. It involves examining the level to which workers may be exposed to identified hazards and what can be done to reduce that exposure as much as is practicable. A risk assessment is the foundation of an exposure control plan, as well as other safe work practices and procedures.

risk group: For biological agents, a classification from 1 to 4 that describes the pathogenicity (ability to cause disease), virulence (severity or harmfulness of a disease), risk of spread, and availability of effective treatments, as well as the risk to the health of individuals and the public.

routine practices: Known in the U.S. as standard precautions. A group of infection-prevention practices that applies to all patients, regardless of suspected or confirmed diagnosis. Routine practices are based on the principle that all blood, body fluids, secretions, excretions (except sweat), non-intact skin, and mucous membranes may contain transmissible pathogens. Routine practices include hand hygiene and, depending on the anticipated exposure, the use of gloves, gowns, respirators, and eye protection.

safety-engineered hollow-bore needle: A needle that includes a self-sheathing needle device or a retractable needle system.

safety-engineered medical sharp: A medical sharp (e.g., needle, scalpel, lancet) with a built-in safety feature or mechanism that eliminates or minimizes the risk of accidental piercing of the skin or mucous membranes while or after the sharp is used.

supervisor: A person who instructs, directs, and controls workers in the performance of their duties.

surgical mask: A protective barrier that is worn on the face, covers at least the nose and mouth, and is used to contain large droplets generated when the wearer coughs or sneezes in order to minimize the spread of disease from the wearer to other people. A surgical mask is not a respirator.

virus: A submicroscopic infective agent, usually regarded as non-living, that typically:

- Consists of a protein coat surrounding RNA or DNA genetic material
- Grows and replicates only in living cells
- Can cause various diseases in humans and other organisms

zoonotic disease: A disease that can be transmitted from animals to humans.

Appendix A:

Sample safe work procedures

This section includes some sample safe work procedures that can be adapted for workplaces as part of communicable disease prevention measures or an exposure control plan. These are just a few of the possible procedures that may be needed in a plan. A risk assessment may indicate the need for further procedures to keep workers safe.

Handling and disposing of sharps

When dealing with sharps, follow these guidelines:

- Before handling a safety-engineered needle or safety-engineered medical sharp, make sure you have received instruction or training on how to properly engage the safety device before use.
- Don't pick up or handle sharps unless you have a proper container in which to dispose of them.
- Don't try to recap needles.
- Don't try to remove contaminated needles from disposable syringes. Discard them as a single unit.
- Don't dispose of sharps in regular garbage. This may create a hazard for others.
- Don't fill sharps containers to the top. When a container is about three-quarters full, replace it with a new one and properly dispose of the old one. Contact your municipality for disposal information.

To handle and dispose of sharps, follow these steps:

1. Wear disposable waterproof gloves (e.g., latex or neoprene gloves), and have a proper sharps container ready.
2. If you are using a portable sharps container, place it next to the needle or other item.
3. Use tongs or pliers to pick up the needle.
4. Place the needle in the sharps container, pointed end first, away from you. Don't insert your fingers into the opening of the container. Keep your free hand out of the way.
5. Remove and discard the gloves, then wash your hands with soap and water, or use an alcohol-based hand rub.

Cleaning up spills

To clean up spills that may contain infectious material, follow these steps:

1. Restrict access to the area.
2. Gather the necessary tools and materials (e.g., plastic bags for contaminated items and bleach or germicide for the spill).
3. Put on disposable, waterproof gloves. Other necessary personal protective equipment (PPE) may include a face shield, a gown, and waterproof covers for footwear.
4. Wipe up and dispose of visible material first (e.g., using disposable towels). If necessary, change your gloves before the next step.

5. Decontaminate the area using a disinfectant solution. Carefully pour the solution over the spill site, leave it on for 10 minutes, wipe it up with disposable towels, and dispose of the towels.
6. Clean and decontaminate all soiled and reusable equipment.
7. Wear the gloves to remove other PPE. Dispose of or clean PPE according to the manufacturer's instructions.
8. Remove and dispose of your gloves, and wash your hands.

Disposing of garbage and other potentially contaminated materials

When handling and disposing of medical waste, follow these guidelines:

- Handle garbage as little as possible.
- Use waterproof garbage bags or other appropriate containers.
- Never reach into garbage or disposal containers with your bare hands.
- Watch for sharps sticking out of bags or containers. Listen for broken glass.
- Don't compress garbage bags.
- Don't overfill garbage bags. Leave enough free space at the top so the bag is light and easy to grab.
- Don't use bare hands to pick up bags or to support them from underneath.
- Hold bags by their tops, away from your body. Don't hold them against your body.

Handling laundry

When handling soiled or contaminated laundry, follow these guidelines:

- Handle laundry carefully — there may be hidden sharps.
- Isolate contaminated laundry from other linen, and bag it separately.
- Place wet laundry in leak-proof bags or containers.
- Label or colour-code contaminated laundry bags or containers.
- Don't rinse contaminated laundry at the original location. Send it directly to the laundry room or commercial laundry.

- Wash contaminated laundry and laundry bags in hot water (at least 70°C) with detergent for 25 minutes. If using lower water temperatures, use an appropriate concentration of cold water and low-temperature detergents, which may include bleach.
- Identify for cleaners in writing any items that may pose a hazard to workers handling contaminated laundry, as well as the precautions to follow when handling the laundry.

Putting on and removing personal protective equipment

General procedures

The following sections describe general procedures for putting on and taking off personal protective equipment (PPE). Please note that these are general procedures, and procedures may differ depending on the nature of the workplace (e.g., a health care facility versus a poultry barn).

Putting on PPE

When using more than one piece of PPE, follow these steps to put it on, ignoring the steps for any PPE that is not applicable:

1. Wash your hands, or use an alcohol-based hand rub.
2. Put on a hair cover.
3. Put on a respirator.
4. Put on eye and face protection, such as goggles or a face shield.
5. Put on a gown or apron.
6. Put on foot covers.
7. Put on gloves.

Removing PPE

While still inside the work area (e.g., an isolation room), follow these steps to remove PPE, ignoring the steps for any PPE that is not applicable:

1. Remove and dispose of footwear covers.
2. Remove the gown or apron and put it in a laundry receptacle.
3. Remove gloves last.
4. Wash your hands, or use an alcohol-based hand rub.
5. Exit the room.

Immediately outside the room, follow these steps:

1. Wash your hands, or use an alcohol-based hand rub.
2. Remove eye and face protection. Clean it as necessary.
3. Remove and discard the hair cover.
4. Wash your hands, or use an alcohol-based hand rub.
5. Remove and discard the respirator, handling it by the straps.
6. Wash your hands, or use an alcohol-based hand rub.

Gloves

Using disposable, waterproof gloves is another effective way to prevent contact transmission of contaminated materials.

Putting on gloves

Gloves should always be the last piece of PPE that you put on. Follow these steps:

1. Select the appropriate type of gloves for the task in the right size for you.
2. Insert your hands into the gloves. Adjust as necessary.
3. If you are wearing an isolation gown, tuck the gown cuffs securely under each glove.

Removing gloves

For gloves to be effective, they must be removed safely to prevent exposure to blood or body fluids. Workers should remove gloves:

- After completing a task that required gloves
- Before leaving the work area
- As soon as possible if the gloves become damaged or contaminated

1. With both hands gloved, grasp the outside of one glove at the top of your wrist.



2. Peel off this first glove, peeling away from your body and from wrist to fingertips, turning the glove inside out.
3. Hold the glove you just removed in your gloved hand.



4. With your ungloved hand, peel off the second glove by inserting your fingers inside the glove at the top of your wrist.



5. Turn the second glove inside out while tilting it away from your body, leaving the first glove inside the second.



6. Dispose of the entire bundle promptly in a waterproof garbage bag. **Do not reuse the gloves.**
7. Wash your hands thoroughly with soap and water as soon as possible after removing the gloves and before touching any objects or surface.

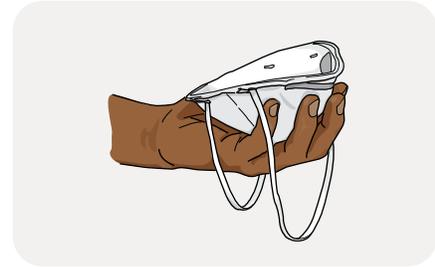


Respirators

Putting on respirators

Only use a respirator for which you have been fit tested. Seal check the respirator as instructed before using it. To put on a single-use filtering facepiece respirator, use the following procedure.

1. Cup the respirator in your hand with the nose piece at the fingertips.



2. Place the respirator over your nose, mouth, and chin.



3. Secure the respirator's top band over your head and above your ears.



4. Secure the respirator's bottom band behind your head and below your ears.



5. Mould the flexible nose piece over the bridge of your nose and adjust the respirator to fit.
6. Perform a seal check.



Removing respirators

Remember, the front of the respirator is contaminated — avoid contact with your hands. Use the following procedure.

1. Grab the bottom strap and pull it over your head.



2. Grab the top strap and pull it over your head.



3. Discard the respirator, handling it by the straps.



Gowns

Putting on gowns

Follow these steps:

1. Select the appropriate type of gown for the task in the right size for you.
2. Make sure the opening of the gown is in the back. Secure the gown at the neck and waist.
3. If the gown is too small to cover your torso fully, use two gowns. Put on the first gown with the opening in front and the second gown over the first one with the opening in the back.

Removing and disposing of gowns

Follow these steps:

1. Pull the gown off inside-out.
2. Roll the gown away from your body so the outer surface of the gown is on the inside of the roll.
3. Put the gown into a laundry receptacle or, if it is disposable, a waste receptacle.

Appendix B:

Developing an exposure control plan

Since every workplace is unique, employers need to develop exposure control plans (ECPs) that are specific to their workplaces. ECPs should only be developed by a qualified person. According to the OHS Regulation, *qualified* means “being knowledgeable of the work, the hazards involved and the means to control the hazards, by reason of education, training, experience or a combination thereof.”

An ECP must include the following components:

- Statement of purpose
- Responsibilities of the employer, supervisors, and workers
- Risk identification and assessment
- Control measures
- Written safe work procedures
- Worker education and training
- Written records

Statement of purpose

The purpose of an ECP is to prevent harmful exposure of workers to infectious diseases in the workplace. Here is an example of a typical statement of purpose:

[Name of employer] is committed to providing a safe and healthy workplace for all of our staff. A combination of measures will be used to achieve this objective, including the most effective control technologies available. Our work procedures will protect not only our workers, but also any other workers who enter our workplace. All employees must follow the procedures described in this plan to prevent or reduce exposure to infectious diseases.

Responsibilities of employers, supervisors, and workers

Employer

The employer has the following responsibilities:

- Ensure that the resources required to implement and maintain the ECP are readily available where and when they are required. Examples of resources are safe work procedures, worker training, and personal protective equipment (PPE).
- Select, implement, and document the appropriate site-specific control measures.
- Ensure that supervisors and workers are educated and trained to an acceptable level of competency.
- Ensure that workers use appropriate PPE (e.g., gloves, gowns, eye protection, and respirators).
- Conduct a periodic review of the plan's effectiveness. This includes a review of the available control technologies to ensure that they are selected and used when practical.
- Maintain records of training and inspections.
- Ensure that a copy of the ECP is available to workers.

Supervisors

Supervisors have the following responsibilities:

- Ensure that workers are adequately instructed on the controls for the hazards at the location.
- Ensure that workers follow established safe work procedures.
- Ensure that workers use appropriate PPE.
- If workers require respirators, ensure that they have been fit tested and the results are recorded.
- Direct work in a manner that eliminates or minimizes the risk to workers.

Workers

Workers have the following responsibilities:

- Know the hazards of the workplace.
- Follow established safe work procedures as directed by the employer or supervisor.
- Use any required PPE as instructed.
- Report any unsafe conditions or acts to the supervisor.
- Know how and when to report exposure incidents.

Risk identification and assessment

Risk identification and assessment begins with an understanding of the nature of infectious diseases and how they are transmitted. When identifying and assessing risks, consider factors such as the following.

Routes of transmission

These are the ways in which a virus or bacteria can infect a worker — for example, through contact or the transmission of airborne droplets.

Work methods or procedures that may result in exposure

The potential for exposure will vary from workplace to workplace and will depend on work activities. For example, in the health care industry, direct patient care activities involve a higher potential for exposure to infectious diseases than activities that involve work at a distance (e.g., cleaning, delivery of supplies, or maintenance where patients are not present). During direct activities, all routes of transmission are possible. During work at a distance, the routes are more likely to be restricted to indirect contact.

Workers who have a higher risk of exposure

Appropriate protective measures will vary according to the kinds of activities workers perform. Workers who are at risk of exposure to infectious diseases could be documented in a table such as the following:

Job title	Department or location	Task or procedure	Risk level (low, moderate, or high)

Risk levels could be interpreted as follows:

- Low risk might mean workers who rarely come into contact with potentially infected people or materials.
- Moderate risk might mean workers who rarely come into contact with infected people, but who may work in areas where infected people have been, or who handle potentially contaminated items (indirect contact).
- High risk might mean workers who work directly with people who are or may be infected.

Control measures

Control measures are used to eliminate the risk to workers or, if elimination is not possible, minimize the risk. Controls must be implemented in the following order of preference:

1. **Engineering controls** reduce risk by mechanical means.
Examples: Safety-engineered medical devices, barriers, room ventilation, negative-pressure isolation rooms
2. **Administrative controls** involve changes to scheduling, job rotation, or work procedures to reduce exposure.
Examples: Hand hygiene, cough and sneeze etiquette, encouraging sick workers to remain at home, conducting telephone interviews, screening clients before they enter the office
3. **Personal protective equipment (PPE)** is considered the last line of defence and should only be used when other controls are not practicable, or in addition to other controls. The proper use, fit checking, and disposal of PPE must also be considered.



Workers must be trained in the use of any required PPE such as gloves, goggles, respirators, and protective clothing.

Written safe work procedures

Written safe work procedures may be required, depending on the nature of the workplace (e.g., a hospital) and the exposure risks involved (e.g., working directly with infectious people). Written procedures would likely be required in a hospital isolation ward, but probably not in a small, low-risk workplace, such as a typical office environment, as long as education and training adequately address worker protection.

If facilities are needed for proper hand hygiene, they should be included in the ECP. Decontamination procedures will be needed in some higher-risk workplaces (e.g., when cleaning reusable PPE such as gowns, face shields, or goggles).

Worker education and training

Employers must ensure that workers are informed about the contents of the ECP and that they are educated and trained to work safely. ECPs should describe worker education and training, and how it will be carried out. Education and training are particularly important for new workers.

Training young or new workers

The requirements for training young or new workers are described in [sections 3.22–3.25](#) of the OHS Regulation

Written records

Written records should be kept for each component of the ECP. For example, document education and training activities — keep track of who was trained, when the training took place, and what it included. Other documentation should include:

- Workplace inspections
- Health and safety meetings
- Investigations that take place after exposure incidents
- Records of exposed workers and any health monitoring required
- Vaccination records

These records can be especially useful for demonstrating compliance with the OHS Regulation.

Reviewing the plan

Review the ECP at least once a year, and update it as necessary. During this process, consult with the joint health and safety committee or worker health and safety representative.

Additional resources

WorkSafeBC — Infectious diseases

BC Centre for Disease Control:

Communicable Disease Control Manual

Communicable Disease Control Manual (Chapter 2: Immunization)

Zoonotic diseases

College of Veterinarians of British Columbia

Health Canada — Pathogen Safety Data Sheets

Office of the Provincial Health Officer

US Centers for Disease Control and Prevention — Zoonotic diseases

For more information

For more information on preventing workplace exposures to infectious diseases, contact WorkSafeBC or the BC Centre for Disease Control.

WorkSafeBC Prevention Information Line

Phone: 604.276.3100 (Lower Mainland)

Toll-free: 1.888.621.7233 (1.888.621.SAFE) (Canada)

worksafebc.com/contact-us

BC Centre for Disease Control

Phone: 604.660.0584

bccdc.ca

