
PRECAUTIONS TO REDUCE THE RISK OF TRANSMISSION

A. Introduction

Adherence to recommended infection prevention and control practices decreases transmission of microorganisms in health care settings. Despite this, there are numerous studies on the behaviour of health care providers that show poor compliance with hand hygiene and the use of protective barrier equipment, placing both staff and clients/patients/residents at risk. ¹

Preventing transmission of microorganisms to other clients/patients/residents is a patient safety issue, and preventing transmission to staff is an occupational health and safety issue. Health care providers are accountable to practice safely in a manner that protects clients/patients/residents and themselves by following established organizational infection prevention and control policies and procedures.

The consistent and appropriate use of routine practices by all workers will lessen microbial transmission.

In this section you will find information on the following topics:

- Immunization
- Hand hygiene
- Routine practices and personal protective equipment
- Cleaning, disinfecting and sterilizing

¹ Provincial Infectious Diseases Advisory Committee (PIDAC). Routine Practices and Additional Precautions (Draft #9.12), January 2009, page 20

B. Recommended Adult Immunizations¹

The following table lists vaccines for adults, and describes for whom and under what circumstances they should be given.

Table 2: Recommended Adult Immunizations

Vaccine	Recommended Recipient
Tetanus, Diphtheria, Pertussis (Td, dTap)	Td vaccine is recommended for adults every ten years. It is also recommended that adults receive one dose of pertussis-containing vaccine by replacing one dose of Td with dTap (Adacel®).
Pneumococcal	One dose is recommended for everyone over 65 years of age, and anyone over 2 years of age who has a chronic health condition such as heart disease, diabetes, alcoholism, drug use, and lung disease. One revaccination may be required after 5 years for people with certain chronic health conditions.
Influenza	Recommended every fall for people 6 months of age and over, and particularly for emergency service workers.
Hepatitis B	Recommended for everyone, especially those meeting specific high-risk criteria (e.g., essential or emergency service workers). The vaccine is given as a 3-dose series over a 6-month period.
Hepatitis A	Recommended for people meeting specific high-risk criteria and travellers. The vaccine is given as a 2-dose series. It is not routinely recommended for emergency service workers.
Measles, Mumps, Rubella	Two doses are recommended for adults born after 1970.
Varicella and Meningococcal	Consult your healthcare professional to determine your level of risk for infection and your need for these vaccines.

¹ Health Canada. Canadian Immunization Guide, Seventh Edition. Canadian Medical Association, 2006. Available online at www.phac-aspc.gc.ca/publicat/cig-gci/

C. Hand Hygiene

Hand hygiene is the single most important means of preventing the spread of infection. It decreases the number of disease causing organisms on the surface of your hands, and can be achieved by handwashing or by rubbing a hand sanitizer product on your hands.

Handwashing

Hands should be washed:

- Before and after client contact
- Between different procedures on same client (work from clean to dirty)
- Before and after removing gloves
- After personal functions (using the toilet, blowing your nose, covering a cough)
- Before preparing, handling, serving or eating food
- When hands are visibly soiled

Correct Handwashing Procedure

1 *Wet Hands*
Mouiller les mains



2 *Soap*
Prendre du savon



3 *Lather* (minimum 15 seconds)
Faire mousser
(minimum de 15 secondes)



4 *Rinse*
Rincer



5 *Towel dry*
Sécher les mains avec une serviette



6 *Turn taps off with towel*
Fermer le robinet avec la serviette



Hand Sanitizers

- Works best on clean, dry skin (water and organic materials on hands decrease effectiveness of alcohol)
- Choose alcohol-based sanitizers (70 to 90 per cent)
- Use when handwashing facilities are not available
- Use when hands are not visibly soiled
- Check expiry date
- Apply enough (thumb-size amount) and rub until hands are completely dry - about 15 seconds

Other Key Points about Hand Hygiene:

- Don't forget to clean wrist areas, the backs of hands and under fingernails
- Be aware that crevices in jewellery and artificial nails harbor micro-organisms
- Keep hands healthy – apply moisturizer as needed to prevent cracking, chapped, or dry skin

Please review the [Best Practice Manual: Hand Hygiene \(Public Health Ontario\)](#)

D. Routine Practices and Personal Protective Equipment

Knowledge of routine practices and additional precautions gives the worker the information and skills to assess personal risk in emergency situations and to take precautions to protect themselves.

Routine practices protect individuals from exposure to **unknown** pathogens transmitted through blood or body fluids. Routine practices should be used anytime an exposure to blood or body fluids is anticipated. **All individuals should be considered infectious.**

Additional precautions protect individuals from **known** or suspected disease-specific causing pathogens. Specific procedures and personal protective equipment (PPE) will be necessary.

Employers of emergency response workers are responsible for making appropriate personal protective equipment (PPE) available to reduce their risk of exposure. Gloves, gowns, masks and goggles should be standard components of emergency response equipment.

Risk Assessment for Routine Precautions

In many situations, the chance that an emergency service worker will be exposed to blood and other body fluids (e.g., vomit, feces, and respiratory secretions) can be determined in advance.

Therefore, the worker should put on protective attire before beginning client care. Masks, goggles and gowns should be used in accordance with the level of exposure anticipated. An extra change of work clothing should be available at all times.

1. Gloves (disposable)

- Protect hands
- Should be donned by all personnel prior to initiating any emergency client care tasks involving exposure to blood or other body fluids, mucus membranes or if the worker has non-intact skin (cover cuts and other open abrasions on your skin)

Note: Extra pairs of gloves should always be available. When choosing gloves consider dexterity, durability and fit for the task being performed. In situations where large amounts of blood are likely to be encountered, it is important that gloves fit tightly at the wrist to prevent blood contamination of hands around the cuff. For multiple trauma victims, gloves must be changed for each client. Gloves should be removed immediately after completion of care; at point-of-use before touching clean environmental surfaces.

2. Gowns/aprons

- Protects skin and/or clothing
- Should be worn when contact of clothing or exposed skin with body fluids is anticipated

Note: The type of gown selected is based on three criteria: the nature of the interaction anticipated, the degree of contact with infectious material, and the potential for blood and body fluid penetration. Use water-resistant gowns if soaking is anticipated. Gowns should be cuffed and long-sleeved, and offer full coverage of the body front, from neck to mid-thigh or below.

3. Masks

- Protect the mucous membranes of the nose and mouth (e.g., surgical/procedural mask with ear loops or ties)

4. Respirators

- Protect respiratory tract from airborne infectious pathogens (e.g., N95 mask)

Note: Masks and respirators should securely cover the nose and mouth. Change the mask/respirator if it becomes wet, and do not touch it while wearing it.

5. Goggles/Face Shields

- protect eyes

- prescription eye glasses and/or sunglasses are not acceptable as eye protection
- should be worn together with a mask when anticipating splashes or sprays of body fluids to the facial area

Proper Procedures for Putting on and Taking off Personal Protective Equipment

1. Donning (Putting On) Personal Protective Equipment

Before contact with client, always perform hand hygiene and put on PPE as follows:

1. Gown
2. Mask
3. Goggles
4. Gloves

2. Doffing (Taking Off) Personal Protective Equipment

Be careful when removing and discarding PPE to reduce the chance of contaminating yourself. Perform hand hygiene anytime you suspect your hands have become contaminated during PPE removal. PPE should be removed as follows:

1. Gloves (outside of glove is dirty)
 - Use the glove-to-glove/skin-to-skin technique and discard
2. Gown (gown front and sleeves are dirty)
 - Peel off away from body and turn inside out, roll into ball and discard
3. Perform hand hygiene
4. Goggles
 - Grasp earpieces and pull away from face, put in appropriate receptacle
5. Mask
 - Handle by ear-loops, remove from face in a downward direction and discard

6. Perform hand hygiene

Precautions to Break the Chain of Transmission

The following table summarizes the appropriate precautions to take to break the chain of transmission at the transmission link.

Table 3: Precautions to Break the Chain of Transmission

Route of Transmission	Explanation	Examples of Microorganisms/Diseases	Precautions to be Taken
Direct Contact	Transmission occurs when microorganisms are transferred by direct physical contact between an infected or colonized individual to a susceptible host	<ul style="list-style-type: none"> antibiotic resistant organisms (AROs) <i>E. coli</i> hepatitis B 	<ul style="list-style-type: none"> hand hygiene gloves gown
Indirect Contact	Transmission occurs when there is a passive transfer of germs to a susceptible host via an intermediate object such as contaminated objects, equipment or the environment	<p>Note: Most microorganisms have to enter the mouth, nose, eyes or break in the skin to cause an infection</p>	
Droplet	Microorganisms are spread by relatively large respiratory droplets that people sneeze, cough, or sputter. The droplets travel short distances (approx. 2 metres) through the air and are deposited on the nasal or oral mucosa of the new host . Droplets can also settle on objects in the immediate environment, where they may remain infectious for hours and be spread by indirect contact as well.	<ul style="list-style-type: none"> common cold virus influenza pertussis (whooping cough) meningitis strep throat 	<ul style="list-style-type: none"> hand hygiene mask (surgical) goggles
Airborne	These microorganisms are aerosolized when people sneeze, cough, laugh, or exhale. They travel on dust particles or other debris that can remain suspended in the air for long periods of time, and are widely dispersed by air currents. The microorganisms are inhaled by the susceptible host who can be some distance away from the host.	<ul style="list-style-type: none"> tuberculosis 	<ul style="list-style-type: none"> hand hygiene respirator (N95) negative pressure room room/door closed

E. Cleaning, Disinfecting and Sterilizing

Removing Infectious Material from a Surface

Follow these procedures after an accidental splash, spray, spill, or other release of blood or body fluids to contain, clean, and decontaminate the surface

1. Identify what protective equipment should be worn and know the location of the equipment and supplies required.
 - Wear gloves during the cleaning and decontaminating process
 - If the possibility of splashing exists, wear a face shield and gown
 - For large blood spills, wear overalls, gowns or aprons, as boots or protective shoe covers
 - Change PPE if torn or soiled
 - Always remove PPE prior to leaving the location of the spill
 - Perform hand hygiene as the final step
2. Determine what cleaners and disinfectants will be used.
3. Inspect the area around the spill for splatters or splashes.
4. Confine and contain the spill and clean the area of organic matter (e.g., blood, vomit). This must be done first for disinfection of the area to be effective. The surface must be cleaned of obvious organic material before applying a disinfectant because hypochlorites and other germicides are substantially inactivated by blood and other organic materials.
 - Allow aerosols to settle
 - Wearing protective clothing, gently cover spill with absorbent paper towel
 - Remove excess blood and body fluids with disposable towels
 - Discard the towels into a plastic-lined regular waste receptacle unless the soiled materials are so wet that blood can be squeezed out of them, in which case they must be placed in biomedical waste (i.e., yellow bag)
5. After the area has been cleaned, disinfect the entire spill area with a “hospital-grade” disinfectant (see **Disinfectants** section) and allow it to stand for the amount of time recommended by the manufacturer – this is called “contact time”.

6. After the appropriate contact time has lapsed, wipe the area again using disposable towels and discard into regular waste. Care must be taken to avoid splashing or generating aerosols during the clean-up.

7. Remove PPE and perform hand hygiene.

*Note: If the spill is on carpet/fabric, follow the above steps then arrange for the carpet/fabric to be cleaned with an industrial cleaner as soon as possible.

8. Replace loose or cracked work surfaces as appropriate.

Disinfectants

- Disinfectants should have a Drug Identification Number (DIN) on the label
- The most commonly used disinfectants are dilutions of hypochlorite (household bleach), hydrogen peroxide, iodophors, phenols, and quaternary ammonium compounds
- It is important, prior to use, to ensure the chosen disinfectant is compatible with the surface to be disinfected to avoid corrosion, surface breakdown, etc.
- The appropriate contact time depends on the type and concentration of disinfectant – always follow the manufacturer’s recommendations
- Use a low-level or “hospital-grade” disinfectant on environmental surfaces, equipment/devices that touch intact skin only (but not mucous membranes) or does not directly touch the client/patient/resident
- Examples of low-level or “hospital-grade” disinfectants are: hypochlorite/household bleach 5.25% (1:50 solution or 1000 ppm) with a 10 minute contact time), Quaternary ammonium compounds (“QUATs”), 0.5% Accelerated hydrogen peroxide
- Use a high-level disinfectant/hypochlorite (5.25%) solution for blood spills: 1:10 solution or 5000 ppm with a 10 minute contact time

Removing Infectious Material from Clothing/Fabric

Wash clothes/fabric separately if they are heavily soiled with blood/body fluids.

1. Place and transport clothing/fabric that has been contaminated with blood or body fluids capable of transmitting pathogens in clearly marked containers that prevent leakage.

2. Rinse off blood or body fluids prior to washing. Wear protective equipment if splashing is anticipated.

Note of caution: Power rinsing (e.g., spray hose) is not recommended because it can cause aerosols that could be inhaled.

3. Wash in a hot water cycle with detergent and bleach (250 ml of bleach for a large load).
4. Dry items in the dryer on high heat, if possible.
5. Dry clean where appropriate.

Removing Infectious Material from Medical Equipment

The following procedures should be followed to clean, disinfect, sterilize, or dispose of contaminated equipment and reusable supplies.

1. Place and transport items contaminated with blood or body fluids that are capable of transmitting bloodborne pathogens in clearly marked containers that prevent leakage.
2. Identify what cleaners and disinfectants are effective against the infectious material of concern and what articles and surfaces require cleaning and disinfecting.
3. Wear protective equipment. For example, general purpose, neoprene, rubber, or butyl gloves are suitable in most cases for surface cleaning.
4. Use the disinfection and sterilization procedures that are the currently recommended standards: [Best Practice Manual: Cleaning, Disinfection and Sterilization of medical equipment/devices](#)
5. Closely follow the manufacturer's specifications for compatibility of the medical device with chemical germicides.

6. Thoroughly clean medical devices of all organic debris before reuse or exposure to disinfection or sterilization processes. Follow the manufacturer's instructions for the use of germicides.

7. Follow the recommended standards for sterilization methods, sterilization process monitoring, and reprocessing items in all health care and personal care settings.

Note: Instruments or devices that enter sterile tissue or the vascular system should be single-use or sterilized before re-use. Devices or items that contact intact mucous membranes should be sterile or receive high-level disinfection.