



# Infection Control

*for Regulated Professionals*



College of Dietitians of Ontario

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## Acknowledgements

*Infection Control for Regulated Professionals* was originally developed in 2005 as a resource and educational tool for regulated health professionals whose scopes of practice do not generally involve high risk contact with clients or patients, but who need to be informed about routine practices and additional precautions that prevent the transmission of infectious diseases. As knowledge of evidence-based infection control broadens, practice must evolve as well.

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Use or modification of *Infection Control for Regulated Professionals* is at the discretion of each participating College.

This resource is intended to be viewed online. Every effort has been taken to ensure that all links to reference materials are current to the date of publication; however, health care resources change very quickly. In the event of broken links please contact [Barbara Cadotte](mailto:bcadotte@ocpinfo.com) (bcadotte@ocpinfo.com).

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## Glossary

**Additional Precautions:** Additional Precautions (i.e., Contact Precautions, Droplet Precautions, Airborne Precautions) are required when Routine Practices are not sufficient to interrupt the transmission of certain organisms, and are based on the actual mode of transmission of the organism (e.g., contact, droplet, airborne).<sup>1</sup>

**Biomedical Waste:** Contaminated, infectious waste from a health care setting that requires treatment prior to disposal in landfill sites or sanitary sewer systems. Biomedical waste includes human anatomical waste; human and animal specimens (excluding urine and faeces); human liquid blood and blood products; items contaminated with blood or blood products that would release liquid or semi-liquid blood if compressed; body fluids visibly contaminated with blood; sharps; and broken glass which has come into contact with blood or body fluid.<sup>2</sup>

**Chain of Transmission:** A model used to understand the infection process.<sup>3</sup>

**Cleaning:** The physical removal of foreign material (e.g., dust, soil, and organic materials such as blood, secretions/excretions and microorganisms). Cleaning physically removes rather than kills microorganisms and is accomplished with water, detergents, and mechanical action.<sup>3</sup>

**Critical Medical Equipment/Devices:** Medical equipment/devices that enter sterile tissues, including the vascular system (e.g., biopsy forceps, foot care equipment, dental hand-pieces, etc.). Critical medical equipment/devices present a high risk of infection if the equipment/device is contaminated with any microorganisms, including bacterial spores. Reprocessing critical equipment/devices involves meticulous cleaning followed by sterilization.<sup>4</sup>

**Decontamination:** The process of cleaning, followed by the inactivation of microorganisms, in order to render an object safe for handling.<sup>4</sup>

**Disinfectant:** A product that is used on surfaces or medical equipment/devices which results in disinfection of the equipment/devices. Disinfectants are applied only to inanimate objects. Some products combine a cleaner with a disinfectant.<sup>4</sup>

**Disinfection:** The inactivation of disease-producing microorganisms. Disinfection does not destroy bacterial spores. Medical equipment/devices must be cleaned thoroughly before effective disinfection can take place.<sup>4</sup>

**Hand Hygiene:** A general term referring to any action of hand cleaning. Hand hygiene relates to the removal of visible soil and removal or killing of transient microorganisms from the hands. Hand hygiene may be accomplished using an alcohol-based hand rub or soap and running water.<sup>5</sup>

**High-Level Disinfection (HLD):** The level of disinfection required when processing semi-critical medical equipment/devices. HLD processes destroy vegetative bacteria, mycobacteria, fungi and enveloped (lipid) and non-enveloped (non-lipid) viruses, but not necessarily for bacterial spores. Medical equipment/devices must be thoroughly cleaned prior to high-level disinfection.<sup>4</sup>

**Infection Prevention and Control (IPAC):** Evidence-based practices and procedures that, when applied consistently in health care settings, can prevent or reduce the risk of transmission of microorganisms to health care providers, other residents and visitors.<sup>4</sup>

**Intermediate-Level Disinfection:** Level of disinfection required for some semi-critical items. Intermediate level disinfectants kill vegetative bacteria, most viruses and most fungi, but not resistant bacterial spores.<sup>6</sup>

**Low-Level Disinfection (LLD):** Level of disinfection required when processing noncritical medical equipment/devices or some environmental surfaces. Low-level disinfectants kill most vegetative bacteria and some fungi as well as enveloped (lipid) viruses. Low-level disinfectants do not kill mycobacteria or bacterial spores. Medical equipment/devices must be thoroughly cleaned prior to low-level disinfection.<sup>6</sup>

**Means of Transmission:** Microorganisms can be transmitted from their reservoir or source to a susceptible host by several routes:

- Direct Person to Person Contact - This is the most common mode of transmission and can occur from skin to skin contact, especially from one's hands following sneezing or coughing.
- Indirect Contact - Hands pick up organisms from contaminated surfaces or equipment and transmit the organisms to others.
- Droplet Contact - This involves exposure of the mucus membranes of the conjunctiva, nose, and mouth as a result of sneezing or coughing by an infected person. These droplets are heavy and usually travel no more than approximately two meters (six feet) before falling to the ground.
- Airborne Transmission – This occurs by dissemination of an infectious agent either by droplet nuclei or tiny particles in the air. The agent can be widely dispersed by air currents and remain suspended in the air for extended periods of time (hours), enabling it to be inhaled.<sup>1</sup>

**Noncritical Medical Equipment/Device:** Equipment/device that either touches only intact skin (but not mucous membranes) or does not directly touch the resident. Reprocessing of noncritical equipment/devices involves cleaning and may also require low-level disinfection (e.g., blood pressure cuffs, stethoscopes).<sup>4</sup>

**Personal Protective Equipment (PPE):** Clothing or equipment worn by staff for protection against hazards.<sup>4</sup>

**Plain Soap:** Detergents that do not contain antimicrobial agents or that contain very low concentrations of antimicrobial agents that are present only as preservative.<sup>5</sup>

**Point-of-Care:** The place where three elements occur together: the resident, the health care provider and care or treatment involving resident contact.<sup>3</sup>

**Reprocessing:** The steps performed to prepare contaminated medical equipment/devices for reuse (e.g., cleaning, disinfection, sterilization).<sup>4</sup>

**Routine Practices (RP):** The system of infection prevention and control practices recommended by the Public Health Agency of Canada to be used with all clients/patients/residents during all care to prevent and control transmission of microorganisms in all health care settings.<sup>3</sup>

**Semi-critical Medical Equipment/Device:** Medical equipment/device that comes in contact with non-intact skin or mucous membranes but ordinarily does not penetrate them (e.g., respiratory therapy equipment, trans-rectal probes, specula etc.). Reprocessing semi-critical equipment/devices involves meticulous cleaning followed by, at a minimum, high-level disinfection.<sup>4</sup>

**Sharps:** Objects capable of causing punctures or cuts (e.g., needles, syringes, blades, glass).<sup>4</sup>

**Sterilization:** The level of reprocessing required when processing critical medical equipment/devices. Sterilization results in the destruction of all forms of microbial life including bacteria, viruses, spores, and fungi. Equipment/devices must be cleaned thoroughly before effective sterilization can take place.<sup>4</sup>

## Terminology

The Ontario Agency for Health Protection and Promotion (Public Health Ontario) through the Provincial Infectious Diseases Advisory Committee (PIDAC-IPC) has updated its best practices for infection prevention and control to assist health care providers: [\*Routine Practices and Additional Precautions in All Health Care Settings\*](#).<sup>3</sup>

Routine Practices and Additional Precautions are to be practiced in all settings with all clients/patients during all care to prevent and control transmission of microorganisms in all health care settings. Routine Practices are based on the assumption that all clients/patients are potentially infectious. Additional Precautions are those that are necessary in addition to Routine Practices to address a specific mode of transmission (e.g., contact, droplet, airborne).<sup>3</sup>

## Introduction

A regulated health professional is accountable for providing safe and ethical care to the public in accordance with the standards of his or her profession. This document has been developed as a reference tool to guide infection control practices. In most cases, it provides a summary and overview of important issues and links to appropriate clinical guidelines and resources that permit the reader to pick and choose the level of information that is most appropriate to his or her practice.

The health professional is accountable to the public, his or her Health Regulatory College, and his or her employer, if any. Infection control is both a public health and an occupational health and safety issue. As an employee, or employer, the health professional is obligated to adhere to, or develop, infection control practices that are current and which meet professional requirements. Infection control practices include the application of evidence-based measures and the use of professional judgement.

Although each Health Regulatory College sets its own standards and guidelines for member conduct and practice, the guiding principles of routine infection control are common to all health care professionals and across most practice settings. *Infection Control for Regulated Professionals* is intended to assist the health professional in applying best practices in infection control and prevention. The routine practices and additional precautions described here may be adapted to practice wherever it is provided. As more health care is being provided in the community, including private homes, schools, pharmacies, public health clinics and senior's residences, mobile health professionals need to be vigilant in protecting against the spread of infection.

Over the last several years, many resources related to infection prevention and control have been developed and improved. Links to specified references are provided throughout the document and a list of additional resources is included at the end. This guideline focuses primarily on resources provided by the Ontario Ministry of Health and Long-Term Care (MOHLTC), as well as other Ontario and Canadian-specific resources wherever possible.

## Infection Control Practices and the Client/Patient

In implementing infection prevention and control practices, the health professional must always ensure that the client/patient is not made uncomfortable by the steps that are being taken to deliver care safely. Good communication and a routine approach to practice will help the client/patient feel at ease and mitigate any misunderstandings.

When a regular part of providing care takes place in a shared working environment, or in a client's/patient's home, it is important to take steps to reduce the risks of transmission before entering and after exiting the environment. Always consider what equipment or supplies are necessary beforehand, and ensure that equipment, bags or carrying cases are made of materials that are easily cleaned or washable. When documenting care, it may be more appropriate to complete record-keeping after the visit.

Helpful advice for health providers who enter client's/patient's homes on a regular basis can be found by reviewing the information in the MOHLTC's [\*Infection Prevention and Control Best Practices for Personal Services Settings\*](#).

## Guiding Principles

*A health professional should....*

- Know what infection control guidelines are in place in a practice setting;
- Assess the risks and know how to utilize the infection control guidelines;
- Adhere to the “current” infection control programs;
- Educate and model infection control practices for others;
- Be aware of what infection control resources are available and where to locate additional resources as needed;
- Advocate for best practices in infection control and continuous quality improvement in infection control practices; and
- Monitor changes to infection control practices (e.g., provincial and municipal health alerts) and update practice accordingly.

## Where Do I Start?

Picture yourself in your practice setting and working with your clients/patients and peers. Consider infection control in terms of:

### 1. Your Personal Safety:

- Protecting yourself, including immunization; and
- Preventing the spread of disease through the use of Routine Practices.

### 2. Preventing the spread of infection directly or indirectly between people. Ask yourself:

- Who are the people I come into contact with? Where do I see clients/patients?
- Are there particular clients/patients for whom I may need to take special precautions?
- What kind of contact do I have with my clients/patients?
- What are the jobs I do that may involve increased risk of exposure to infection: handling money; preparing food; or, direct client/patient contact?

### 3. Preventing the spread of infection by the tools or equipment you use. Ask yourself:

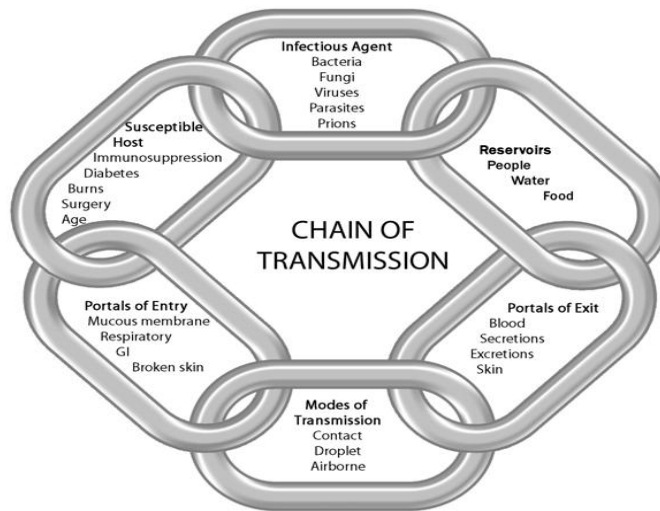
- What are the tools or equipment used in my practice? (Don't forget to consider items such as shared equipment like telephones and computers.)
- Are these tools a potential source of spreading infection? Do I use a shared workstation?
- How should these tools or equipment be cleaned, disinfected, sterilized, stored, handled, disposed of, reprocessed?

### 4. Preventing the spread of infection by sources in your environment. Ask yourself:

- What are the potential sources for spread of infection in my environment, including for example: furniture, examination tables, door knobs, telephones, toys and other waiting room materials, washrooms, sinks, countertops, and/or cash registers?
- How should I clean, disinfect, or sterilize the environment?
- What types of waste are generated and how should this waste be handled and disposed of?
- How are sharps and needles handled and disposed of?

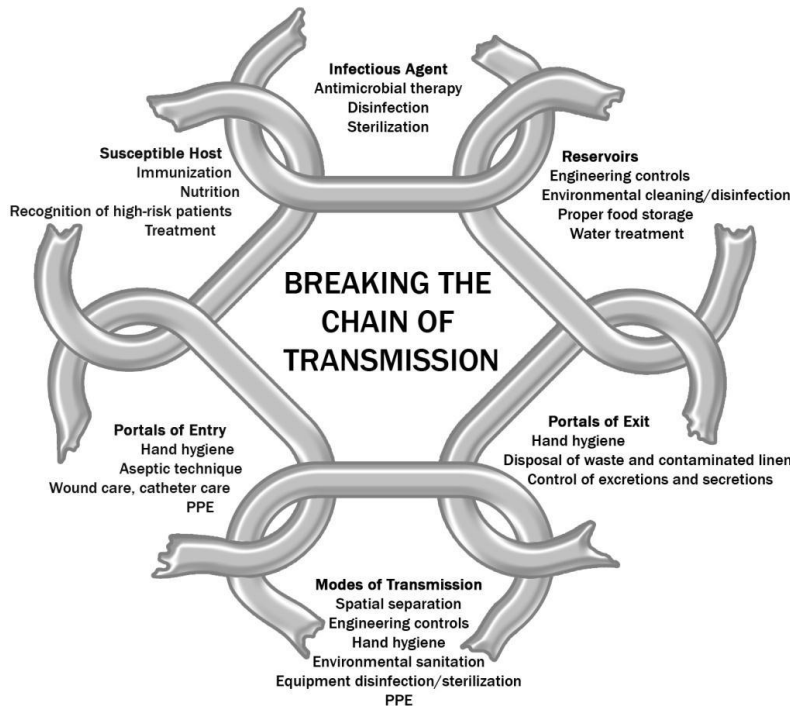


Take a moment to review how infection spreads: [3](#)



### Transmission may be interrupted when:

- The agent is eliminated or inactivated and cannot exit the reservoir
- Portals of exit are contained through safe practices
- Transmission between objects or people does not occur due to barriers and/or safe practices
- Portals of entry are protected
- Hosts are not susceptible



## Infection Control and Your Environment

Hand hygiene is the single most important procedure for preventing the transmission of any kind of infection in any setting (refer to the handwashing section for more detailed information). In addition, consistent, regular cleaning of surfaces and equipment assists in reducing the potential for environmental transmission of microorganisms.

- It is likely that your practice setting will require some type of general housekeeping. Some of the surfaces in your environment may include examination tables, counter tops, sinks, bathrooms, scales, floors, table tops, door knobs, desk tops, waiting room chairs, toys, etc. Environmental surfaces require cleaning and a low level of disinfection. A rule of thumb is the more it is touched (used) the more it needs to be cleaned. If providing care in a client's/patient's home, encourage him or her and his or her care givers to regularly clean frequently touched surfaces.

### When?

- In health care settings most environmental surfaces and items should be cleaned daily and when visibly soiled
- Items that come in contact with clients/patients, such as examining tables, blood pressure cuffs, stethoscopes, and skin probes should be cleaned routinely and between patients
- Paper liners, linens, patient gowns etc. should also be disposed of or laundered between patients
- If possible, choose to avoid the use of carpets, draperies and stuffed toys in offices and clinics. These are hard to clean and disinfect
- Clean-up of body fluid spills or other hazardous materials requires immediate attention and special considerations (see below)

### How?

- General housekeeping cleaning involves the use of low-level detergent disinfectants. These agents typically clean and disinfect at the same time and can be used on most objects and surfaces. Some examples are:
  - Quaternary ammonium compounds
  - 3% hydrogen peroxide-based products
  - Phenolic products (be careful, these leave a film and may be toxic to children)
  - Household bleach (1:1000 diluted and prepared weekly). Bleach does not really “clean” like a detergent but is a low level disinfectant. A bleach solution can be used to wipe down toys for example. Let the toys air dry afterwards. Disinfect infant and toddler toys more often as they tend to put the toys in their mouths

In Ontario, chemical disinfectants used in health care settings are regulated by Health Canada. To review the policy and guidance regarding the regulation of disinfectant products pursuant to the *Food and Drugs Act*, please refer to Health Canada: [Guidance Document: Disinfectant Drugs](#). Be sure to follow manufacturer's instructions in order to ensure safe and efficient disinfecting procedures.

Some disinfectants may be hazardous. The Workplace Hazardous Materials Information System (WHMIS) is a Canada-wide system designed to give employers and workers information about hazardous materials used in the workplace. Health Canada provides resources related to WHMIS, including a [Reference](#)

**Manual.** The key elements of WHMIS are cautionary labelling of containers of hazardous materials, the provision of material safety data sheets and worker education programs.

Waste must be disposed of safely and properly; non-biomedical waste, such as general office waste, used gloves or non-sharp medical equipment requires no special handling other than containment during disposal and removal. Needles and sharps, if used, must be safely disposed of in an appropriate container.<sup>1</sup>

### **Routine Practices**

Routine Practices should be used with all clients/patients at all times, regardless of diagnosis or perceived infectious status, because they are based on the premise that all clients/patients are potentially infectious. Routine Practices must be incorporated into the culture of each health care setting and into the daily practice of each health care provider in order to protect both the client/patient and health care provider.<sup>3</sup>

The most frequent route of transmission is through direct and indirect contact transmission. Successful Routine Practices are grounded in hand hygiene, risk assessment, risk reduction and education strategies that include health care providers, clients/patients and where appropriate, family members/caregivers.

Routine Practices include:

1. Hand Hygiene – hand washing and use of alcohol-based hand rub before and after each client/patient contact and before performing invasive procedures;
2. Risk Assessment – screening and assessing clients/patients to identify any communicable disease risks with client contacts;
3. Risk Reduction Strategies – reducing exposure in the presence of communicable diseases, including:
  - a. Segregating clients/patients;
  - b. Using personal protective equipment, including proper use and removal;
  - c. Safe handling of sharps;
  - d. Proper cleaning of equipment, the environment and laundry;
  - e. Proper handling of waste; and
  - f. Healthy workplace practices including immunization and education on when to stay home from work, plus clear protocols for exposure to blood and body fluids;
4. Health care provider and client education on infection prevention and control strategies as required.<sup>7</sup>

A comprehensive overview of Routine Practices is provided starting on page 22 of [\*Routine Practices and Additional Precautions in All Health Care Settings\*](#).<sup>3</sup> All health professionals should consider reviewing this section, highlights of which have been presented in the following sections within this resource.

### Assessing the Need for Personal Protective Equipment or Additional (Transmission-Based) Precautions

The key to implementing *Routine Practices and Additional Precautions in All Health Care Settings* is to assess the risk of the transmission of microorganisms before any interactions with clients or patients, including assessing yourself.<sup>3</sup>

#### ➤ Survey:

- Ensure infection control guidelines are in place and accessible
- Use your professional knowledge, skill and judgement to assess the potential routes of transmission in your practice (contact, droplet and airborne)
- Assess the risks involved in what you are doing. Consider the procedures you perform, the tools you use and your environment
- Assess the client/patient and others around you for potential transmission of disease
- Don't forget to consider your own health. Are you at risk of spreading infection to others?
- Follow government (e.g., Ministry of Health and Long-Term Care and Health Canada) recommendations on health alerts, surveillance, screening and reporting of suspected Febrile Respiratory Illness (FRI) and Influenza-Like Illness (ILI):
  - The Ministry of Health and Long-Term Care (MOHLTC) maintains a website on [Emergency Planning and Preparedness](#) tailored specifically for Health Care Professionals. Here you can access provincial infection control guidelines and check out current health alerts. MOHLTC guidelines for infection control and surveillance can be accessed in the following resource: [Preventing Respiratory Illnesses In Community Settings](#).  
The Ontario Health Pandemic Influenza Plan is available at this [link](#).

#### ➤ Control:

- Based on your surveillance and assessment, determine whether you need to practice additional infection control precautions
- Determine what type of personal protective equipment or precautions you will need to achieve adequate infection control

#### ➤ Prevent:

- #1 - Wash your hands frequently
- Be prepared, have updated infection control programs in place that suit your needs and your clients/patients
- Have a plan. Be prepared to manage clients/patients with suspected Febrile Respiratory Illness (FRI) or Influenza-Like Illness (ILI)
- Have the appropriate personal protective equipment available
- Know when, and how, to use personal protective equipment correctly
- Educate others about good infection control practices
- Have an annual influenza immunization
- Keep up to date with your other immunizations
- Stay home when you are sick

- If you must work when you are ill, cover your mouth when coughing or sneezing, consider wearing a surgical mask, and wash your hands frequently

### Hand Washing

Hand washing is the simplest and most cost-effective way of preventing the transmission of infection and thus reducing the incidence of health-care associated infections.

#### When should you wash?

- When hands are visibly soiled
- Before you have contact with a client/patient
- After contact with any blood, body fluids, secretions, or excretions
- Between contact with different clients/patients
- Between “clean” and “dirty” procedures on the same client/patient
- Before performing any invasive procedures
- Immediately after removing gloves
- Before preparing, handling, eating, or serving food and medications
- Before feeding or administering medications to a client/patient
- After handling money or other items that may be contaminated
- Immediately if your skin is contaminated or an injury occurs
- After personal body functions, such as using the toilet or blowing one’s nose

#### What should you use to wash?

- Plain soap products (bar or liquid) are recommended for routine hand washing especially when your hands are visibly soiled
- Antimicrobial or biocidal agents are the active ingredient in antibacterial products that kill bacteria, viruses and moulds.<sup>8</sup> The regular use of antimicrobials is controversial given the concern that bacteria will develop resistance pathways that reduce the efficacy of such products. Most health care professionals have adopted the use of antibacterial soaps specially made for health care providers, due to the nature of their close contact with clients/patients. Antibacterial soaps may not always be available for your use, for example, if you are caring for a client/patient in their home. Adhering to proper hand washing techniques is most important
- Antimicrobial agents (alcohol gels, rinses, rubs) containing at least 60% alcohol may be used as an alternative to soap and water
- You may need to wash your hands with antiseptic agents if:
  - You will be performing sterile or invasive procedures;
  - You have had contact with blood, body fluids, secretions, or excretions;
  - You have had contact with contaminated items; and/or
  - You will have contact with an immunocompromised client/patient.
- Some examples of antiseptic hand washing agents are Alcohol 70-90%, Chlorhexidine 2% or 4% aqueous solutions, and Iodine Compounds



## How to Wash Your Hands

- No matter what agent you use, the essential components of a proper hand washing technique are to wet hands first, apply cleaner, and vigorously clean (rub) all aspects of your hands including the palms and backs of your hands, thumbs, fingers, nails and wrists for at least 15 seconds, rinse and then dry your hands properly. Try to turn off the tap with a paper towel after you dry.
- You may have even heard of washing for the amount of time it takes to sing *Happy Birthday*. The most important point is to be thorough using the proper technique.
- Soaps, antimicrobial agents and extra hand washing can be hard on your hands. Skin integrity is a very important aspect of infection control. Take care of you hands by drying your hands well and using lotions to keep your skin healthy.
- The following poster and tutorial are included as visual aids for you to consider:



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Health Canada provides a resource on hand washing which can be accessed through linking on [The Benefits of Hand Washing](#).

YouTube also contains many videos that illustrate the benefits and correct method of hand washing including the video titled [Hand Washing with Soap and Water](#) by the University of California, San Francisco.

### Personal Protective Equipment (PPE)

Health care professionals should assess whether they are at risk of exposure to non-intact skin, blood, body fluids, excretions or secretions, and choose their items of personal protective equipment according to this risk. Here are some recommendations regarding the use of PPE:

- PPE used in the community will most likely include gloves, masks and eye protection
- Other PPE may include gowns, head covers, and shoe coverings or *sterile* gloves, gowns, etc. For the purposes of these guidelines only gloves and masks will be discussed in detail
- The use of PPE does not replace the need for proper hand washing
- PPE is used at all times where contact with blood and body fluids of clients/patients may occur
- The use of PPE is intended to reduce the transmission of microorganisms to and from health care professionals
- PPE equipment reduces but does not completely eliminate the risk of acquiring an infection
- PPE is only effective in infection control and prevention when applied, used, removed and disposed of properly. Follow the manufacturer's directions. If you don't know how to use PPE correctly, find out how. Protect yourself and others
- Avoid any contact between contaminated (used) PPE equipment and surfaces, clothing or people outside the patient care area
- Discard the used PPE in appropriate disposal bags, and dispose of waste appropriately
- Do not share PPE
- Change PPE completely and thoroughly, wash hands each time you leave a client/patient to attend to another client/patient, or another duty

The recommended steps for putting on and removing PPE are illustrated on pages 70 and 71 of [\*Routine Practices and Additional Precautions in All Health Care Settings\*](#). These pages have been reproduced here as *Appendix 1*.

The following table has been included as an aid to help assess the risk of infection, the level or type of infection control required, and the selection of appropriate PPE. Keep in mind the need to protect yourself, your client/patient, and the people around you.

**Table 1: Assessing the risk.**

Situation	Infection Control Strategy (escalating)
Routine patient care No physical contact Communication with patient >1 metre away	<i>Routine Practices</i> <ul style="list-style-type: none"> <li>• Hand washing</li> <li>• Respiratory etiquette (cover mouth and nose when coughing or sneezing, followed by proper hand washing)</li> </ul>
Physical contact with patient intact skin	<i>Contact Precautions</i> <ul style="list-style-type: none"> <li>• Hand washing</li> </ul>
Physical contact with patient, <u>you or patient</u> has infected or open wound, non intact skin, no respiratory concerns	<i>Contact Precautions</i> <ul style="list-style-type: none"> <li>• Hand washing</li> <li>• Gloves</li> <li>• Proper removal and disposal of gloves followed by hand washing</li> </ul>
Contact with patient, procedure may involve body fluids, splashing (droplets)	<i>Droplet Precautions</i> <ul style="list-style-type: none"> <li>• Hand washing</li> <li>• Use professional judgement:                             <ul style="list-style-type: none"> <li>▪ Gloves</li> <li>▪ Surgical Mask</li> <li>▪ Eye protectors</li> <li>▪ Gowns</li> </ul> </li> <li>• Proper removal and disposal of PPE followed by hand washing</li> </ul>
Close contact with patient, respiratory symptoms	<i>Droplet Precautions</i> <ul style="list-style-type: none"> <li>• Hand washing</li> <li>• Respiratory etiquette (cover mouth and nose when coughing or sneezing, followed by proper hand washing)</li> <li>• Use professional judgement:                             <ul style="list-style-type: none"> <li>▪ Gloves</li> <li>▪ Surgical mask for you and/or your patient</li> <li>▪ Eye protectors</li> </ul> </li> </ul>
Close contact with patient, fever and respiratory symptoms	<i>Droplet Precautions</i> <ul style="list-style-type: none"> <li>• Hand washing</li> <li>• Respiratory etiquette (cover mouth and nose when coughing or sneezing, followed by proper hand washing)</li> <li>• Use professional judgement:                             <ul style="list-style-type: none"> <li>▪ Gloves</li> <li>▪ Surgical mask for you and/or your patient</li> <li>▪ Eye protectors</li> </ul> </li> <li>• Follow health alerts if applicable</li> </ul>
Contact with patient with known airborne infection e.g. active TB	<i>Airborne Precautions</i> <ul style="list-style-type: none"> <li>• Droplet Precautions with N95 mask</li> <li>• Proper Ventilation</li> </ul>
Health Alert in effect	Follow MOHLTC guidelines



### Additional Precautions - Gloves



Gloves are considered to be an Additional Precaution that must be worn when it is anticipated that hands will be in contact with mucous membranes, non-intact skin, tissue, blood, body fluids, secretions, excretions, or equipment and contaminated surfaces. Gloves are not required for routine health care activities in which contact is limited to intact skin.<sup>3</sup> When used properly, gloves can reduce the spread of infection by health care providers.

#### When?

- Gloves must be worn during any procedures and patient care activities if you or your client/patient have infected or open wounds, or non intact skin
- Gloves must be worn during any procedures and patient-care activities that are likely to generate splashes or sprays of blood, body fluids, secretions, and excretions
- Gloves should be worn when you are cleaning contaminated items, linen or handling waste that may generate splashes or sprays of blood body fluids, secretions and excretions
- Gloves must be worn when you are performing invasive procedures, to protect yourself and the patient
- Gloves must be worn to protect immunocompromised clients/patients
- Gloves must be worn if there is a health alert in effect that requires you to glove (e.g., a client/patient with MRSA or C-difficile)

#### How?

- Change your gloves between clean and dirty procedures - even on the same client/patient
- Change gloves after contact with contaminated items, waste, linens, etc.
- Single-use disposable gloves should not be reused or washed
- Remove your gloves carefully to prevent contaminating yourself as you are doing so
- Always wash your hands after removing your gloves

Gloves are not required for routine care activities in which contact is limited to intact skin. The use of gloves does not replace hand washing.

Purchase gloves that have the Canadian General Standards Board certification mark which ensures that national standards are met during manufacturing. There are many types of gloves available, for example, latex-free products. For more information refer to Health Canada's page on [Medical Devices](#).

## Droplet Precautions



*Surgical Mask*



*Eye Protectors*



*Face Shields*

Masks (in addition to eye protection) are worn to protect the mucous membranes of the nose and mouth from likely splashes or sprays of body fluids. Splashes and sprays can be generated by coughing or sneezing or during procedures, including cleaning equipment using a spray hose. Surgical masks with ear loops are the easiest to put on and remove and should be applied before performing a procedure. Eye protection, if used, should protect the eye from all directions.

Droplets/aerosols can carry microbes. Droplet transmission occurs when respiratory droplets generated via coughing, sneezing, or talking contact susceptible mucosal surfaces, such as the eyes, nose or mouth. Transmission may also occur indirectly via contact with contaminated objects with hands and then mucosal surfaces. Respiratory droplets are large and are not able to remain suspended in the air thus they are usually dispersed over short distances.

- A surgical mask helps protect you from inhaling respiratory pathogens transmitted by the droplet route
- Surgical masks provide a barrier that protects the mucous membranes of the mouth and nose which are portals for infection
- Eye protectors prevent droplets from contacting the conjunctiva of the eyes which are a portal for infection
- Droplets are classified as particles larger than 5µm in size
- These droplets do not stay suspended in the air for long periods of time but fall to the surfaces of the environment

### **When?**

During routine procedures, wear a surgical mask and eye protection or face shield:

- During procedures and patient-care activities that are likely to generate splashes or sprays of blood, body fluids, secretions, and excretions
- When you are cleaning contaminated items including linen, or handling waste that may generate splashes or sprays of blood body fluids, secretions and excretions
- When you are in close contact (<1 metre) with a person who is suspected of having a communicable disease that is droplet spread, for example, a client/patient who is febrile (temperature >38°C) and who is coughing or sneezing, or if you suspect you may be ill as such
- When you are performing invasive procedures, to protect yourself and the patient
- To protect immunocompromised clients/patients
- When there is a health alert in effect that requires you to wear surgical mask, (e.g., Chicken-Pox or Meningococcal Meningitis)

### **How do I remove my dirty mask properly?**

Remove your mask and eye protectors carefully to prevent contaminating yourself as you are doing so

- Remove soiled gloves, wash your hands prior to removing the mask
- Hold your mask with your hand (remember, now your hand and the outside of the mask are dirty)
- Undo the ties and then pull the mask directly away from your face

- Do not drag the mask up or down over your face
- Discard your mask and gloves
- Always wash your hands after you have removed your PPE
- Similarly, remove eye protectors by pulling them away from your face and discard or clean; wash your hands after removing the eye protectors

The recommended steps for putting on and removing PPE are illustrated on pages 70 and 71 of [Routine Practices and Additional Precautions in All Health Care Settings](#). These pages have been reproduced here as *Appendix 1*.

### A Little About Airborne Precautions and N95 Respirators



#### Airborne Precautions

Airborne Precautions are used in addition to Routine Precautions when an individual is known or suspected of having an illness transmitted by the airborne route (i.e., particles that remain suspended in the air and may be inhaled by others). Controls for preventing the transmission of airborne infections include:

- Immunity (immunizations, natural immunity);
- Early identification of potential cases;
- Prompt isolation of the affected individual;
- Appropriate treatment of the individual, where application;
- The use of a fit-tested, seal-checked N95 respirator when indicated; and
- Identification and follow-up of exposed individuals and staff.

#### The N95 Respirator<sup>10</sup>

The N95 respirator is used to prevent inhalation of small particles that may contain infectious agents transmitted via an airborne route. A fit-tested N95 respirator is meant to seal tightly to the face in order to filter airborne organisms. It is recommended to wear a fit tested N95 respirator if:

- A client has a known or suspected airborne infection (e.g., Tuberculosis, Chicken-Pox, Measles, Disseminated Zoster or /Hantavirus);
- Performing aerosolizing procedures with a client with droplet infection (e.g., nebulized medications, BIPAP); or
- As directed by public health officials.

## Fit-Testing: The Process<sup>9</sup>

- Fit-testing is a complex operation to select the correct size and type of respirator for an individual and to ensure he or she knows how to use it correctly
- During the process, a subject tries various mask designs while a bitter-tasting, non-toxic gas circulates underneath a clear plastic hood
- On average, fit-tests take approximately 20 minutes and should be conducted by trained staff

## Cleaning/Decontaminating Tools and Equipment

Deciding how to decontaminate inanimate objects depends on the type of item involved and how it relates to the procedures to be performed. The Spaulding Classification, a classification scheme developed by Dr. Earle H. Spaulding in 1968, assigns the object used to a category and defines the level of decontamination required.

**Table 2: Spaulding's Classification of Medical Equipment (modified)<sup>11</sup>**

Instrument	Level of Disinfection
Critical instruments or devices: any instrument that enters tissue (e.g., needles)	Sterilize
Semi-critical instruments or devices: contact mucous membranes but do not enter tissue (e.g., laryngoscopes or specula)	Sterilize or high-level disinfection
Non-critical instruments or devices: instruments that touch only intact skin (e.g., stethoscopes or blood pressure cuffs)	Detergent and water cleaning, or low-level disinfection
Environmental surfaces: (e.g., knobs, handles, carts, or table tops)	Soap and water or low-level disinfection

Some basic principles to remember about cleaning, disinfecting and sterilizing are:

- Some products work better on certain items, choose the disinfectant accordingly
- Disinfectants and sterilization do not necessarily remove debris. Surface cleaning may be required before sterilization, use a detergent or an enzymatic cleaner
- Protect yourself when processing equipment, use Routine Practices
- Be safe, know about the products you are using refer to manufacturers instructions, labels and WHMIS materials data management sheets

It is up to you to classify the tools and equipment you use in your practice and to determine what level of disinfection is necessary. If you need further resources, refer to the Ontario Regional Infection Control Networks' [Environmental Cleaning Toolkit](#) which links to multiple presentations and additional material.

The College of Physicians and Surgeons of Ontario has provided guidelines for [Infection Control in the Physician's Office](#) which dissects how infection is transmitted, provides advice on immunization practices for health care workers and provides an overview of appropriate waste disposal, sterilization and disinfection, general housekeeping considerations.

**Table 3: Selecting Disinfectant Methods**

Level of Disinfection	Method
<b>Sterilization</b>	<ul style="list-style-type: none"> <li>• Sterilization is accomplished by autoclave, e.g. steam at high temperature; dry heat; or gas sterilization using 100% ethylene oxide. Items must be mechanically cleaned with soap and water to remove organic debris before autoclaving.</li> <li>• Chemical sterilization can be accomplished, for example, with the use of 0.2% Peracetic acid (12 minutes at 50 - 56°C) or 6 - 25% Hydrogen peroxide liquid (6 hours).</li> <li>• The sterilization of equipment should be monitored using mechanical, chemical or biological indicators to ensure that the process has been effective.</li> <li>• Follow procedures recommended by the manufacturer for product concentration and contact time and to document sterility.</li> </ul>
<b>High-Level Disinfectants</b>	<ul style="list-style-type: none"> <li>• High-level disinfection is accomplished by pasteurization for 30 minutes at 71°C. or through chemical disinfection using, for example, 6 % Hydrogen peroxide (30 minutes) or 0.2% Peracetic acid 30 – 40 minutes).</li> <li>• After disinfection, instruments are rinsed with sterile water, air dried, and stored aseptically to avoid recontamination.</li> </ul>
<b>Intermediate-Level Disinfectants</b>	<ul style="list-style-type: none"> <li>• Intermediate-level disinfection is accomplished with ethanol and isopropanol, iodine and iodophors, phenols and phenolics, and 1:64 dilutions of sodium hypochlorite.</li> <li>• Manufacturer’s recommended contact times must be followed to achieve disinfection.</li> </ul>
<b>Low-Level Disinfectants</b>	<ul style="list-style-type: none"> <li>• Low-level disinfection is accomplished with disinfectants including phenols and phenolics, quaternary ammonium compounds, 1:500 dilutions of sodium hypochlorite, iodine and iodophors and 0.5% accelerated hydrogen peroxide.</li> <li>• Manufacturer’s recommended contact times must be followed to achieve disinfection.</li> </ul>

A more detailed list of chemicals and recommended concentrations for each level of disinfection can be viewed on pages 72 – 74 of: [\*Best Practices for Cleaning, Disinfection and Sterilization of Medical Equipment/Devices in All Health Care Settings.\*](#)

## Spills

Spills of blood and body substances require special consideration.

Follow these steps:

- Protect yourself, use Additional Precautions - gloves, masks and eye protectors may be necessary
- Clean the area of obvious organic material use disposable towels to clean area, dispose of in a plastic lined container
- Apply a low-level detergent/disinfectant
- Rinse and dry the area using disposable towels
- Dispose of your personal protective equipment and wash your hands immediately
- Dispose of waste in a plastic lined container

## Biomedical Waste Management

The disposal of biomedical waste is regulated by the Ministry of the Environment. Biomedical waste must be transported and disposed of properly. Refer to: [Guideline C-4: The Management of Biomedical Waste in Ontario](#) which outlines the management of biomedical waste in Ontario including treatment, transportation and final disposal.



- This is the universal biohazard symbol
- “Domestic waste” is exempt from the definition of biomedical waste. **Domestic waste** may include waste that is human body waste, toilet or other bathroom waste, waste from other showers or tubs, liquid or water borne culinary or sink waste or laundry waste
- Medical wastes that are generated by individuals such as diabetics, at their home, are not considered to be pathological/biomedical wastes, thus resulting in the domestic wastes not being regulated by the Ministry of the Environment
- The Ministry does endorse the proper disposal of sharps and supports initiatives aimed towards diverting these wastes from disposal into landfill. The Ministry encourages residents to make use of the “Ontario Sharps Return Programs” that have been established in various retail pharmacies across Ontario for the disposal of sharps and pharmaceutical waste
- If your practice generates large quantities of biomedical wastes, you may have to partner with a medical waste management company in order to dispose of the waste safely
- Biomedical waste includes both anatomical and non-anatomical waste:<sup>2</sup>
  - Examples of anatomical waste include tissues, blood, body fluids but exclude teeth, hair, nails, urine and feces (you may throw out a diaper)
  - Examples of non-anatomical waste include sharps waste

## Management of Sharps

The Ministry of Environment has defined ‘sharps waste’ as “blades, needles, syringes, including safety engineered needles, laboratory glass, or other materials capable of causing punctures or cuts and which have come into contact with human blood waste, animal blood waste or other animal or human bodily fluids.”<sup>2</sup>

- Collect and store used sharps in sharps containers. Sharps containers should be made of plastic or metal and have a lid that can be closed. The sharps container must be marked with the universal biohazard symbol displayed above and labelled "Biomedical Waste/Déchets Biomédicaux"
- If patients are returning sharps to you to be disposed of, do not handle them, have the patient put the sharps into the container themselves
- If you have a sharps biomedical waste management system in place in your practice, a good idea may be to encourage a container exchange program where the patient can return a full sharps container for an empty one

- If you do not have a sharps biomedical waste management system in place, you may advise the patient to start an individual collection system whereby the householder collects their own domestic wastes and transports such wastes to a waste disposal site or “Ontario Sharps Return Program.”



### Pharmaceuticals / Sharps Disposal

On October 1, 2012 the pharmaceuticals/sharps disposal program (the Orange Drop Program) transitioned from Stewardship Ontario to the producers of sharps and medications and their new program administrator, the [Health Products Stewardship Association](#). The program covers the return and disposal of all prescription drugs, over-the-counter medications, and natural health products in oral dosage form.

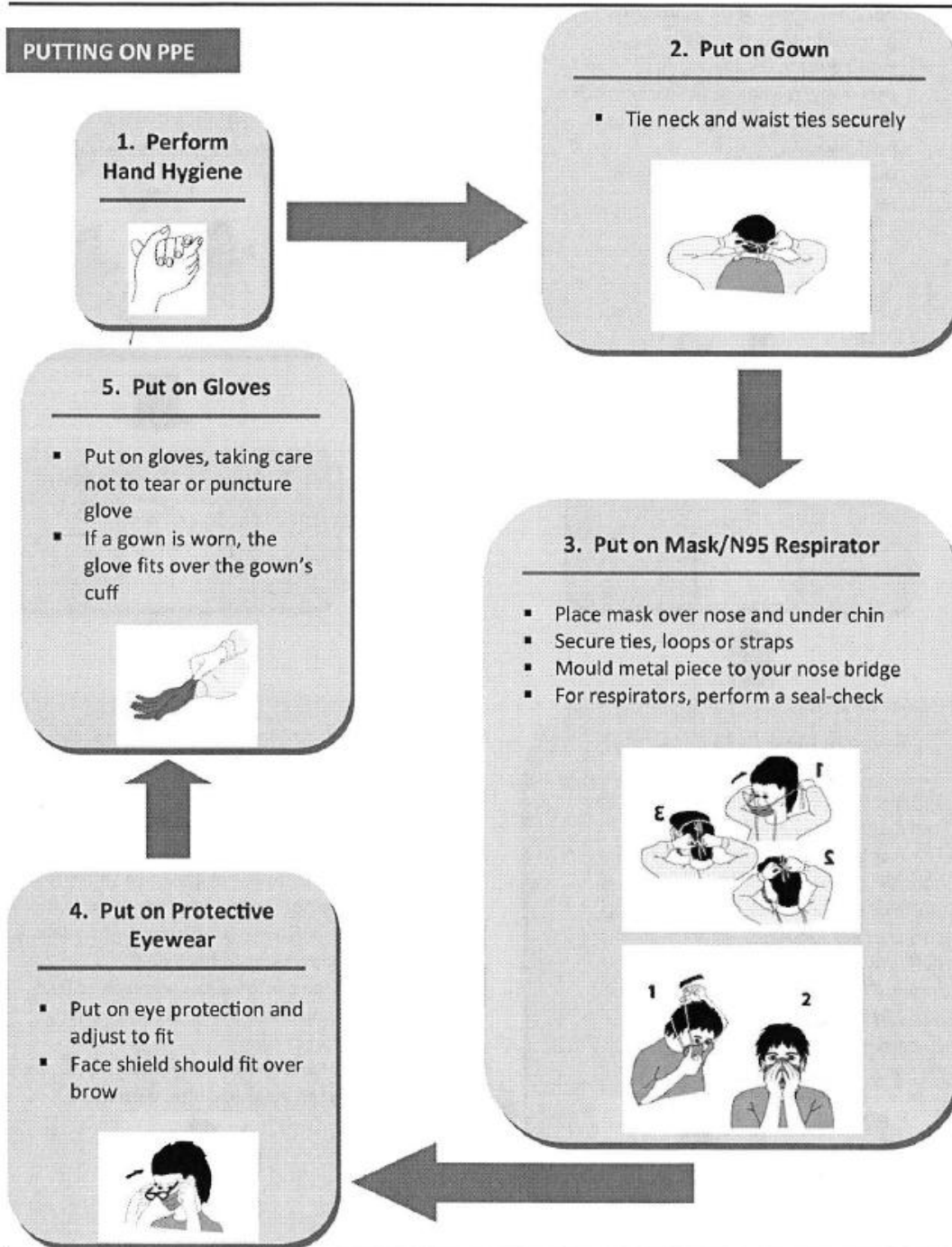
All existing waste management requirements that are currently in place under the [Environmental Protection Act](#) (1990) continue to apply, with the exception in the new regulation for collection locations. Under the regulation, as was the case in the previous program, collection locations are exempt from approvals and hazardous waste requirements that would apply at the site, as long as there is an agreement in place with an approved waste management service provider and there is a licensed pharmacist or pharmacy technician on site.



## Appendix 1

### APPENDIX L: RECOMMENDED STEPS FOR PUTTING ON AND TAKING OFF PERSONAL PROTECTIVE EQUIPMENT (PPE)

[Images developed by Kevin Rostant. Some images adapted from Northwestern Ontario Infection Control Network – NWOICN]

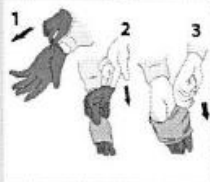




## TAKING OFF PPE

### 1. Remove Gloves

- Remove gloves using a glove-to-glove/skin-to-skin technique
- Grasp outside edge near the wrist and peel away, rolling the glove inside-out
- Reach under the second glove and peel away
- Discard immediately into waste receptacle



### 2. Remove Gown

- Remove gown in a manner that prevents contamination of clothing or skin
- Starting at the neck ties, the outer, 'contaminated', side of the gown is pulled forward and turned inward, rolled off the arms into a bundle, then discarded immediately in a manner that minimizes air disturbance



### 6. Perform Hand Hygiene



### 3. Perform Hand Hygiene



### 5. Remove Mask/N95 Respirator

- Ties/ear loops/straps are considered 'clean' and may be touched with hands
- The front of the mask/respirator is considered to be contaminated
- Untie bottom tie then top tie, or grasp straps or ear loops
- Pull forward off the head, bending forward to allow mask/respirator to fall away from the face
- Discard immediately into waste receptacle



### 4. Remove Eye Protection

- Arms of goggles and headband of face shields are considered to be 'clean' and may be touched with the hands
- The front of goggles/face shield is considered to be contaminated
- Remove eye protection by handling ear loops, sides or back only
- Discard into waste receptacle or into appropriate container to be sent for reprocessing
- Personally-owned eyewear may be cleaned by the individual after each use



## Additional Resources

### Ontario

- College of Physicians and Surgeons of Ontario. *Infection Control in the Physician's Office*, 2004. Available at: [http://www.cpso.on.ca/uploadedFiles/policies/guidelines/office/Infection\\_Controlv2.pdf](http://www.cpso.on.ca/uploadedFiles/policies/guidelines/office/Infection_Controlv2.pdf)[http://www.cpso.on.ca/uploadedFiles/policies/guidelines/office/Infection\\_Controlv2.pdf](http://www.cpso.on.ca/uploadedFiles/policies/guidelines/office/Infection_Controlv2.pdf)
- College of Nurses of Ontario. *Infection Prevention and Control*. Available at: <http://www.cno.org/learn-about-standards-guidelines/educational-tools/learning-modules/infection-prevention-and-control/><http://www.cno.org/learn-about-standards-guidelines/educational-tools/learning-modules/infection-prevention-and-control/>
- Ministry of Health and Long-Term Care. *News for Health Care Professionals*. Available at: <http://www.health.gov.on.ca/en/pro/>
- Ministry of Health and Long-Term Care. *Preventing Respiratory Illnesses in Community Settings: Guidelines for Infection Control and Surveillance for Febrile Respiratory Illness (FRI) in Community Settings in Non-Outbreak Conditions*. March 2004. Available at: [http://www.health.gov.on.ca/fr/public/programs/emu/sars/reports/report\\_taskforce\\_community\\_031104.pdf](http://www.health.gov.on.ca/fr/public/programs/emu/sars/reports/report_taskforce_community_031104.pdf)
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- Toronto Public Health Department. *Breaking the Chain: Infection Control Manual. Infection prevention and control for homeless and housing service providers*. March 2006. Available at: <http://www.toronto.ca/health/cdc/pdf/infectioncontrolmanual.pdf>

### Canada

- Community and Hospital Infection Control Association (CHICA). *Knowledge Resources*. Available at: <http://www.chica.org/index.php>
- Public Health Agency of Canada. Available at: <http://www.phac-aspc.gc.ca/index-eng.php>

### United States

- Association for Professionals in Infection Control and Epidemiology (APIC). Available at: <http://www.phac-aspc.gc.ca/index-eng.php>
- U.S. Department of Health and Human Services Centers for Disease Control and Prevention (CDC). *Health Care Associated Infections: Guidelines and Recommendations*. Available at: [http://www.cdc.gov/HAI/prevent/prevent\\_pubs.html](http://www.cdc.gov/HAI/prevent/prevent_pubs.html)

### United Kingdom

- Infection Prevention Society. <http://www.ips.uk.net/>
- National Institute for Health and Clinical Excellence (NICE). *Infection Control, Prevention of Healthcare-Associated Infection in Primary and Community Care*. June 2003. Available at: <http://www.nice.org.uk/guidance/CG2>

### Other

- World Health Organization. *Clean Care is Safer Care*, Webinars 2012. Available at: <http://www.who.int/gpsc/5may/news/webinars/en/index.html>

## References

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- <sup>5</sup> Ontario Agency for Health Protection and Promotion (Public Health Ontario), Provincial Infectious Diseases Advisory Committee. *Best Practices for Hand Hygiene in All Health Care Settings, December 2010*. Retrieved at: <http://www.publichealthontario.ca/en/eRepository/2010-12%20BP%20Hand%20Hygiene.pdf>
- <sup>6</sup> Ontario Agency for Health Protection and Promotion. *Infection Prevention and Control Resource Manual for Residential Hospice Settings, 2010*. Retrieved at: [http://www.ccac-ont.ca/Upload/ww/General/ICCP-HPC/RICNHospiceManual\\_Nov18.pdf](http://www.ccac-ont.ca/Upload/ww/General/ICCP-HPC/RICNHospiceManual_Nov18.pdf)
- <sup>7</sup> Canadian Committee on Antibiotic Resistance: *Infection Prevention and Control Best Practices for Long-Term Care, Home and Community Care Including Health Care Offices and Ambulatory Clinics*. Retrieved at: <http://www.phac-aspc.gc.ca/amr-ram/ipcbp-pepci/>
- <sup>8</sup> Canadian Medical Association. *Public Health Issue Briefing: Antimicrobial/Antibacterial Products*. Retrieved at: [http://www.cma.ca/multimedia/CMA/Content/Images/Inside\\_cma/Office\\_Public\\_Health/HealthPromotion/Antimicrobial-IssueBriefing\\_en.pdf](http://www.cma.ca/multimedia/CMA/Content/Images/Inside_cma/Office_Public_Health/HealthPromotion/Antimicrobial-IssueBriefing_en.pdf)
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