



Infection Control

for Regulated Professionals

Pharmacists' Edition

ONTARIO COLLEGE  OF PHARMACISTS
2005

Acknowledgements

Infection Control for Regulated Professionals was prepared as a resource and educational tool by regulated practitioners for practitioners. This booklet was developed by an interdisciplinary, ad-hoc Infection Control Committee. Special thanks to the following participants and Health Regulatory Colleges involved in this project.

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A special acknowledgement to Jennifer Harrison RRT/RRCPP, Policy Analyst at the Ontario College of Pharmacists for researching and preparing this document and the Ontario College of Pharmacists for supporting this project on behalf of this working group.

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

Introduction

As a regulated health professional you are accountable to providing safe and ethical care to the public in accordance with the standards of your profession. This document has been developed in order to assist you in learning how to achieve quality infection control practices.

Although each Health Regulatory College sets its own standards and guidelines for its members' conduct and practice, the guiding principles of infection control are common to most health care professionals and across most practice settings. *Infection Control for Regulated Professionals* is evidence based and is intended to assist you in achieving best practices in infection control and prevention. The purpose of this document is to describe Routine and Additional Precautions for community settings so that you may apply these principles to your particular practice.

In addition to the public and your College, you are accountable to your employer. As such, you should abide by the specific infection control programs at your place of employment. You may in fact be the employer and have to consider infection control programs for yourself or your employees. Having said this, it is your responsibility to ensure that your infection control practices are current and meet your professional requirements which include the application of evidence based measures and the use of professional judgement.

There is a vast amount of up to date information available on infection control, you may find the accompanying reference list useful in your own research. This guideline, however, focuses on Health Canada recommendations as recognized by the Ontario Ministry of Health and Long Term Care. Where conflicting information exists, this guideline incorporates Health Canada recommendations.

This document is set up for ease of use on-line, you will find documents and references linked to the internet. Just click on [underlined](#) words and phrases to get to the document you would like to research in more detail. **Green** words are defined in the Glossary.

Guiding Principles

You are accountable for....

- Knowing what the current infection control guidelines are for your practice setting
- Assessing risks and knowing how to use/apply the infection control guidelines in your practice
- Adhering to the “current” infection control programs
- Educating and modeling infection control practices for others
- Being aware of what your infection control resources are and where to find out more
- Advocating for best practices in infection control
- Ensuring ongoing quality of infection control practices
- Monitoring changes to infection control practices (health alerts) and updating your practice accordingly

Where do I start?

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

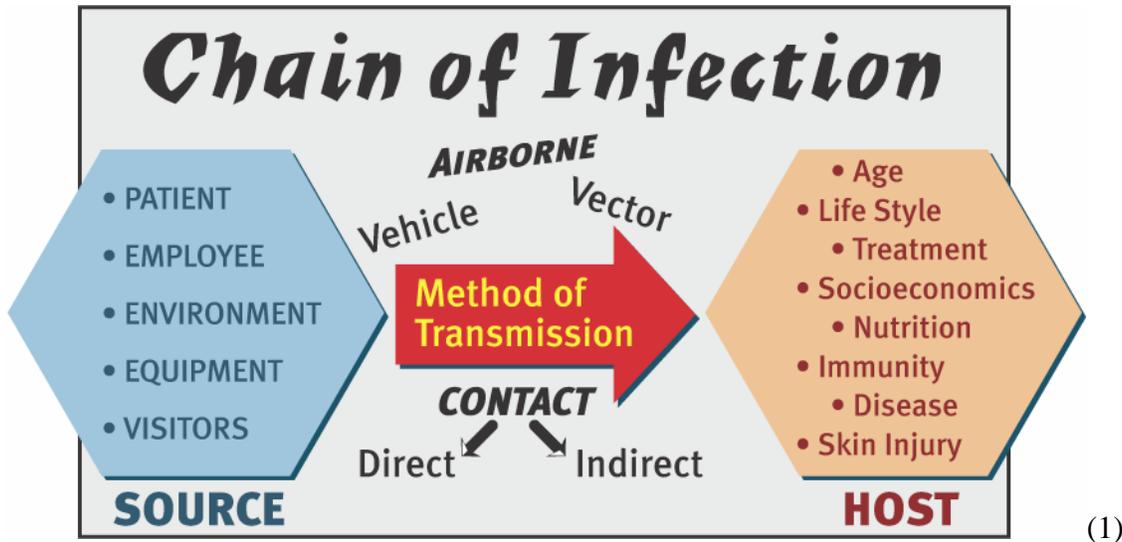
- Your Personal Safety and
 - Protecting yourself , including immunization
 - Preventing yourself from spreading disease

- Prevention of spread of infection directly or indirectly between people. Ask yourself:
 - Who are the people I deal with?
 - Are there particular patients/clients for whom I may need to take special precautions?
 - What kind of contact do I have with my patients/clients?
 - What are the jobs I do, that may involve increased risk of exposure to infection from handling money or preparing food to direct patient contact?

- Prevention of 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 telephones and computers?
 - Are these tools a potential source of spreading infection?
 - How should these tools be cleaned, disinfected, **sterilized**, stored, handled, disposed of, **reprocessed**?

- Prevention of spread of infection by sources in your environment. Ask yourself:
 - What are the potential sources for spread of infection in my environment for example furniture, examination tables, door knobs, telephones, toys and other waiting room materials, washrooms, sinks, countertops, cash registers?
 - How should I clean, disinfect, or sterilize the environment?

Take a moment to review how infection spreads:



Terminology

[Health Canada](#) uses the term Routine Precautions to describe the system of infection prevention recommended in Canada to prevent transmission of infections in health care settings. These practices describe prevention strategies to be used at all times, with all patients, and include both:

- **Hand washing** or cleansing with an alcohol-based sanitizer before and after any direct contact with a patient and
- The use of additional barrier precautions (**Personal Protective Equipment -PPE**) to prevent **health care worker** contact with a patient's blood and body fluids, non intact skin or mucous membranes

[The World Health Organization \(WHO\)](#) uses the terms Standard Precautions and Additional (transmission based) Precautions to describe infection control practices. These terms are also currently acceptable and replace the terms Universal Precautions or Body Substance Precautions.

Routine Precautions

Routine Precautions must be applied to all patients at all times, regardless of diagnosis or infectious status. The basics of Routine Precautions are:

- hand washing (hand hygiene)
- the use of PPE (e.g. gloves) when handling blood, body substances, excretions and secretions
- appropriate handling of patient care equipment and soiled linen
- the prevention of needle stick/**sharp** injuries
- environmental cleaning
- appropriate handling of **waste** and
- taking care of yourself (e.g. immunization) (2)

Assessing the need for Personal Protective Equipment or Additional (transmission based) Precautions

- **Survey:**
 - 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 patient and people 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 (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 \(MOHLTC\)](http://www.health.gov.on.ca/english/providers/program/emu/emu_mn.html) has a Website tailored specifically for Health Care Professionals. Here you can access provincial infection control guidelines and check out current health alerts. http://www.health.gov.on.ca/english/providers/program/emu/emu_mn.html
 - MOHLTC has [published Guidelines for Infection Control and Surveillance for Febrile Respiratory Illness \(FRI\) in Community Settings in Non-Outbreak Conditions](http://www.health.gov.on.ca/english/providers/program/infectious/syndromes/standards/guide_fri_co_mm_031104.pdf)". These guidelines can be found at: http://www.health.gov.on.ca/english/providers/program/infectious/syndromes/standards/guide_fri_co_mm_031104.pdf
 - MOHLTC has also developed Ontario Health Pandemic Influenza Plan which can be found at: http://www.health.gov.on.ca/english/providers/program/emu/pan_flu/pan_flu_plan.html
- **Control:**
 - Based on your surveillance and assessment determine if you need to practice additional infection control precautions
 - Determine what type of personal protective equipment or precautions will you 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 patients
- Have a plan. Be prepared to manage patients with suspected FRI or 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. (1)

When should you wash?

- When hands are visibly soiled
- Before you have contact with a patient
- After contact with any blood, body fluids, secretions, or excretions
- Between contact with different patients
- Between “clean” and “dirty” procedures on the same 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 patient
- After handling money or other items that may be contaminated
- Immediately if your skin is contaminated or and 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
- The regular use of antimicrobial soap is controversial, however most health care professionals have adapted the use of antibacterial soaps specially made for health care providers, due to the nature of their close contact with patients. Antibacterial soaps may not always be available for your use, for example if you are caring for a patient/client 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 alternate 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
- You will have contact with an immunocompromized 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 minimum **10 seconds**, **rinse** and then **dry** your hands properly. Try to turn off the tap with a paper towel after you dry
- There is conflicting evidence regarding how long to wash your hands. Health Canada suggests 10 seconds, WHO, 15 seconds and the Centre for Disease Control, 20 seconds. 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 agent 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



(2)

Visit [Clean Hands, Good Health](http://www.ahsc.health.nb.ca/cleanhandsahsc/cleanhandsworlingahsc.html) for a video tutorial on hand washing at:
<http://www.ahsc.health.nb.ca/cleanhandsahsc/cleanhandsworlingahsc.html>

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 use at all times where contact with blood and body fluids of patients may occur. This includes performing patient procedures and clean up procedures
- The use of PPE is intended to reduce the transmission of microorganisms to and from health care professionals
- Personal protective 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) personal protective equipment and surfaces, clothing or people outside the patient care Area
- Discard the used personal protective equipment in appropriate disposal bags, and dispose waste appropriately
- Do not share personal protective equipment
- Change personal protective equipment completely and thoroughly wash hands each time you leave a patient to attend to another patient or another duty

The following table has been included as an aid to help you assess the risk of infection, the level or type of infection control required and the selection of appropriate PPE. Keep in mind protection of yourself, your 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 Precautions</i> Handwashing Respiratory etiquette (cover mouth nose when coughing or sneezing, followed by proper handwashing)
Physical Contact with patient intact skin	<i>Contact Precautions</i> Handwashing
Physical contact with patient, <u>you or patient</u> has infected or open wound, non intact skin, no respiratory concerns	<i>Contact Precautions</i> Handwashing Gloves Proper removal and disposal of gloves followed by handwashing
Contact with patient, procedure may involve body fluids, splashing (droplets)	<i>Droplet Precautions</i> Handwashing Use professional judgement: Gloves Surgical Mask Eye protectors gowns Proper removal and disposal of PPE followed by handwashing
Close contact with patient, respiratory symptoms	<i>Droplet Precautions</i> Handwashing Respiratory etiquette (cover mouth nose when coughing or sneezing, followed by proper handwashing) Use professional judgement: gloves surgical mask for you and/or your patient eye protectors
Close contact with patient, fever and respiratory symptoms	<i>Droplet Precautions</i> Handwashing Respiratory etiquette (cover mouth nose when coughing or sneezing, followed by proper handwashing) Use professional judgement: gloves surgical mask for you and/ or your patient eye protectors Follow health alerts if applicable
Contact with patient with known airborne infection e.g. active TB	<i>Airborne Precautions</i> Droplet Precautions with N95 mask Proper Ventilation
Health Alert in effect	Follow MOHLTC guidelines

Contact Precautions - Gloves



Gloves are part of routine precautions and should be worn by health care professionals as a precaution against exposure to blood, body fluids, secretions, excretions and mucous membranes. When used properly, gloves can reduce the spread of infection by health care providers. (3)

When?

- The use of gloves do not replace hand washing
- Gloves are not required for routine care activities in which contact is limited to intact skin
- Wear gloves during any 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, linen or handling waste that may generate splashes or sprays of blood body fluids, secretions and excretions
- When you are performing invasive procedures, to protect yourself and the patient
- To protect immunocompromized patients
- If there is a health alert in effect that requires you to gloves. e.g. a patient with MRSA or C-difficile

How?

- Remove your gloves carefully to prevent contaminating yourself as you are doing so
- Always wash your hands after removing your gloves
- Change your gloves between clean and dirty procedures - even on the same patient
- Change gloves after contact with contaminated items, waste, linens etc.
- Single-use disposable gloves should not be reused or washed
- 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 on medical devices check out Health Canada *Medical Devices Bureau* at: <http://www.hc-sc.gc.ca/english/protection/devices.htm>

Droplet Precautions



Surgical Masks ,



Eye Protectors and



Face Shields

- Droplets/ aerosols can carry microbes
- 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, linen or handling waste that may generate splashes or sprays of blood body fluids, secretions and excretions
- When you are in close contact (<1 meter) with a person who is suspected of having a communicable disease that is droplet spread for example, a patient who is febrile (temperature >38C) 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 immunocompromized 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 you 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

A little about N95 Masks and Airborne Precautions



Airborne Precautions

- Airborne particles (pathogens) are smaller than $5\mu\text{m}$ in size
- An N95 mask helps protect you from inhaling respiratory pathogens that are transmitted via the airborne route
- The "N" means "Not resistant to oil". The "95" refers to 95% filter efficiency against particulate aerosols free of oil when tested against a $0.3\ \mu\text{m}$ particle
- Health Care professional who may need to use N95 masks in their practice must be "fit tested" in order to ensure adequate protection from transmission of airborne pathogens. For more information on N95 masks and fit testing visit Health Canada, [Infection Control Guidance for Respirators \(Masks\) worn by Health Care Workers - Frequently Asked Questions](http://www.phac-aspc.gc.ca/sars-sras/ic-ci/sars-respmasks_e.html) at: http://www.phac-aspc.gc.ca/sars-sras/ic-ci/sars-respmasks_e.html
- Airborne pathogens stay suspended in the air for long periods of time and therefore special ventilation of the environment may be required

When do I need to wear an N95?

- When there is a **health alert** or screening process in effect that requires you to wear an N95 mask
- When you are working with a patient with a known airborne disease e.g. Tuberculosis

Infection Control and Your Environment

Infection control is all about awareness. Take a moment to consider your practice setting or environment:

- What are the types of settings you work in for example a Pharmacy, Clinic, Office, or a patient/client's home?
- What are the furnishings, items, tools or equipment used in your practice? Aside from patient care items also consider food and medications, handling of money, telephones and computers that you use. Are these a potential source of spreading infection?
- What levels of cleaning and disinfecting are required?
- What types of waste are generated and how should this waste be handled?
- How do I handle disposal of sharps and needles?

Environmental Surfaces

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.

When?

- In health care settings most environmental surfaces and items should be cleaned daily and when visibly soiled
- Items that come in contact with 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 [the Health Canada-Public Health Agency](#). Be sure to follow manufacturer's instructions in order to ensure safe and efficient disinfecting procedures.

Some disinfectant may be hazardous. [WHMIS](#) (Workplace Hazardous Materials Information System) is a Canada-wide system designed to give employers and workers information about hazardous materials used in the workplace. Under WHMIS, there are three ways in which information on hazardous materials is to be provided:

1. labels on the containers of hazardous materials
2. material safety data sheets to supplement the label with detailed hazard and precautionary information
3. Worker education programs [\(4\)](#)

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 one of three categories and defines levels of **decontamination** required. [\(5\)](#).



Table 2. The Spaulding Classification

Category	Level of Disinfection	Examples
Critical ➤ Items that come in contact with the blood stream or sterile body tissues	➤ Sterilization	<ul style="list-style-type: none"> • Surgical instruments • Acupuncture needles • Foot care instruments
	➤ High Level Disinfection when sterilization is not possible	<ul style="list-style-type: none"> • Internal scopes
Semi Critical ➤ Items that come in contact with mucous membranes or non-intact skin	➤ High Level Disinfection (HLD)	<ul style="list-style-type: none"> • Contact lenses • Reusable Peek Flow meters • Mouthpieces
	➤ Intermediate Level Disinfection (ILD)	<ul style="list-style-type: none"> • Thermometers • Ear syringe nozzles
Non-critical ➤ items that come in contact with intact skin	➤ Intermediate Level Disinfection (ILD)	<ul style="list-style-type: none"> • Examination tables • Stethoscope • Blood pressure cuff • Skin probes
➤ items that do not come in contact with the patient's skin	➤ Low Level Disinfection (LLD)	<ul style="list-style-type: none"> • Furnishings • Dishes • Scales

Levels of Disinfection- How To

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 precautions
- 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 help visit [*Health Canada's Infection Control Guideline: Hand Washing, Cleaning, disinfection and Sterilization in Health Care*](#) at:

<http://www.hc-sc.gc.ca/main/lcdc/web/publicat/ccdr/98pdf/cdr24s8e.pdf>

The BC Centre for Disease Control also has a very practical summary [*entitled Selection and Use of Disinfectants*](#) which may help you choose the best disinfectant for your practice. This guide is available at http://www.bccdc.org/downloads/pdf/epid/reports/CDManual_DisinfectntSelectnGuidelines_sep2003_nov05-03.pdf

Table 3. Selecting Disinfectants

Low level Disinfectants	Intermediate Level Disinfectants	High Level Disinfectants	Sterilization
Phenolics *careful, can be toxic to infants	Alcohols 60-90%	Boiling for more than 20 minutes	Exposure to steam at high temperature (autoclave)
Quaternary Ammonium Compounds	Hypochlorites household bleach 1:100 dilution	Ortho-phthalaldehyde	Glutaraldehyde 10 hours
3% Hydrogen peroxide	Iodines and Iodophors	Glutaraldehyde for 20 minutes	Gas sterilization (ethylene oxide)
Hypochlorites household bleach (1:1000 diluted solution)		Hypochlorites household bleach 1:50 dilution	Hydrogen peroxide, high concentration for 30 minutes
		Hydrogen peroxide 6% for 5 minutes	Dry Heat sterilization the lower the temperature the longer the time, high temperatures for shorter times

An example of a **Cleaning and Disinfection Checklist** has been provided for you to organize your profession specific information. Appendix 1

Spills

Spills of blood and body substances require special consideration. Here are the steps:

- Protect yourself, use routine 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

Waste Management



- This is the symbol for bio-hazardous waste
- “Domestic waste is exempt from the definition of hazardous 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”(6)
- 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 “Public Waste” Depot Programs that have been established in various retail pharmacies across Ontario for the disposal of sharps and pharmaceutical waste (7)
- If your practice generates large quantities of Bio-hazardous wastes, you may have to partner with a Medical waste management company in order to dispose of the waste safely
- Bio- hazardous waste includes both anatomical and non anatomical waste
- Examples of hazardous anatomical waste include human tissues, blood, body fluids but exclude teeth, hair, nails, urine and feces. You may throw out a diaper for example
- Examples of hazardous non-anatomical waste include needles, blades and sharps that have come into contact with blood or body fluids
- The disposal of bio-hazardous waste is regulated by the Ministry of the Environment. This means that bio-hazardous waste must be transported and disposed of properly. Refer to: [GUIDELINE C-4 The Management of Biomedical Waste in Ontario](#)
<http://www.ene.gov.on.ca/envision/gp/425e.htm>
- You can also contact the [Ministry of the Environment](#) at:
<http://www.ene.gov.on.ca/feedback/#general> for more information

Management of Needles and Sharps

- Used needles and sharps are classified as non-anatomical bio-hazardous waste. The management of these are regulated in Ontario by the Ministry of the Environment and [GUIDELINE C-4](#) as above
- Collect and store used needles and sharps in sharps containers. Sharps containers should be made of plastic or metal and have a lid that can be closed. [\(3\)](#) The sharps container must be marked with the universal biohazard symbol displayed in Section 8 and labelled "Biomedical Waste/Déchets Biomédicaux"[\(8\)](#)
- If patients are returning sharps to you to be disposed (e.g. Some patients return sharps to the Pharmacy) do not handle them, have the patient put the sharps into the container themselves
- If you have a bio-hazardous 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 bio-hazardous waste management system in place, you may the patient start an "**individual collection system**" which means the collection of a householder's own domestic wastes by the householder and the transportation of such wastes to a waste disposal site by the householder"[\(6\)](#)



Appendix 1

Cleaning and Disinfection Check List - *Infection Control for Pharmacists*

Most of the routine procedures performed by Pharmacists are clean procedures, as opposed to sterile procedures. As such, most infection control processes involve **cleaning, sanitization and low level disinfection**.

Pharmacy Considerations	What to use.	Recommendations
<p>Environmental Surfaces/General Housekeeping</p> <ul style="list-style-type: none"> ➤ Floors ➤ Sinks (in the pharmacy and other) ➤ Counter Tops ➤ Storage Shelves and Bins ➤ Cash Registers, telephones, computers ➤ Washrooms (public and staff) ➤ Private Counselling Rooms ➤ Blood Pressure monitoring machines ➤ Water filtration systems (for distilled water) ➤ Refrigerator (Pharmaceuticals only) 	<ul style="list-style-type: none"> ➤ Cleaning usually involves soap and water, detergents or enzymatic agents to physically remove soil, dust or foreign material. ➤ Low level Disinfection <ul style="list-style-type: none"> Quarternary Ammonium Compounds Iodophores 3% Hydrogen Peroxide Diluted Bleach 	<ul style="list-style-type: none"> ➤ Daily and when visibly soiled ➤ Clean high traffic areas more frequently i.e. where patients drop off and pick up prescriptions and near the cash register ➤ Keep shelves and bins tidy and clean, dust free
<p>Equipment/Tools</p> <ul style="list-style-type: none"> ➤ Surfaces where drugs are prepared ➤ A set of metric weights ➤ Calibration weight ➤ Distilled water ➤ Graduate cylinders ➤ Mortars & pestles ➤ Stainless steel spatula ➤ Non-metal spatula ➤ Funnels ➤ Stirring rods ➤ Filter papers ➤ Ointment pad ➤ Ointment slab ➤ Vials ➤ Bottles ➤ Ointment pots ➤ Automated pill counters ➤ Multidose vials ➤ Multidose ingredients (used for compounding) 	<ul style="list-style-type: none"> ➤ Sanitation: a process that reduces microorganisms on an inanimate object to a safe level (e.g., dishes and eating utensils are sanitized)⁽⁹⁾ ➤ Cleaning usually involves soap and water, detergents or enzymatic agents to physically remove soil, dust or foreign material 	<ul style="list-style-type: none"> ➤ Following use or ➤ Prior to use if suspected contamination ➤ Pharmacists who decide to use a wall ADM (automated dispensing machine) must provide the same degree of attention as they would filling the cells as they would filling a vial manually (counting) or using a counter top ADM. Regular cleaning of the cells is also required, as it is for all pharmacy equipment ➤ Care must be taken to ensure residues from the cleaning process itself (e.g., detergents, solvents, etc.) are also removed from equipment

continued

Infection Control for Pharmacists - References from the Ontario College of Pharmacists

Reference	Particulars
<p>DPR O. Reg. 179/99.</p> <p>Sections 72-73</p>	<p>72. Every pharmacy shall be so constructed that,</p> <ul style="list-style-type: none"> (d) floors and floor coverings may be readily cleaned in rooms where, <ul style="list-style-type: none"> (i) drugs are prepared, compounded, dispensed or stored, (ii) equipment is washed, or (iii) washing fixtures and toilet fixtures are located; (e) the walls and ceilings of rooms and passageways may be readily cleaned and the painting or decorating maintained in good condition; (f) all rooms and passageways are well lighted and ventilated; and <p>73. (1) Every pharmacy shall be provided with,</p> <ul style="list-style-type: none"> (a) a supply of hot and cold water adequate for the efficient operation of the pharmacy; (b) facilities for washing utensils used in the preparation, service or storage of drugs; (c) separate hand-washing facilities available for employees and located in a convenient location in the pharmacy; (g) a refrigerator for the exclusive storage of drugs requiring refrigeration; (h) sufficient containers for storing refuse in a sanitary manner; and <p>(2) Only a potable water supply shall be used in any room where drugs are prepared, compounded, dispensed or stored. R.R.O. 1990, Reg. 551, s. 73 (2).</p> <p>(3) All drugs stored in a pharmacy shall be stored on or in shelves, drawers or fixtures provided for that purpose. R.R.O. 1990, Reg. 551, s. 73 (3).</p> <p>(4) Every pharmacy shall maintain,</p> <ul style="list-style-type: none"> (a) furniture, equipment and appliances used in the interior of the pharmacy so that thorough cleaning of all areas is possible; (b) in a clean and sanitary condition, <ul style="list-style-type: none"> (i) all furniture, equipment and appliances, and (ii) all rooms in the pharmacy, whether used for the storage, compounding or dispensing of drugs or not; and (c) the painting and decorating of the interior and exterior of the pharmacy in good condition. R.R.O. 1990, Reg. 551, s. 73 (4). <p>(5) Every room where drugs are prepared, compounded, dispensed or stored in a pharmacy shall be kept free from materials and equipment not regularly used in the room. R.R.O. 1990, Reg. 551, s. 73 (5).</p> <p>(6) Refrigerators for the storage of drugs in a pharmacy shall,</p> <ul style="list-style-type: none"> (a) be maintained at a temperature between 1.3° Celsius and 10° Celsius; (b) be kept clean and in a sanitary condition; and (c) be located in an area not accessible to the public. R.R.O. 1990, Reg. 551, s. 73 (6). <p>(7) All refuse and waste materials in a pharmacy,</p> <ul style="list-style-type: none"> (a) shall be removed from the premises at least twice weekly and more often if necessary to maintain a sanitary condition; and (b) contained in filled containers shall be removed from any room in which drugs are prepared, compounded, dispensed or stored. R.R.O. 1990, Reg. 551, s. 73 (7).

<p>Standards Standards of Practice 2003 <i>for Community and Hospital Pharmacists</i></p>	<p>“The pharmacist, in collaboration with the designated manager or hospital pharmacy manager, manages drug distribution by performing, supervising, or reviewing the functions of selection, preparation, distribution, storage and disposal of drugs to ensure safety, accuracy and quality of supplied products. Refer: Operational Components 5.1 - 5.4”</p>
<p>Policies from Handbook Addressing Infection Control</p>	<p>Pharmacy Design</p> <p>Standards for Hospital Pharmacists:</p> <ul style="list-style-type: none"> A) Standards for Pharmacist Supervising Hospital Pharmacies B) Standards for Pharmacists Dispensing and Compounding in the Hospital Setting <p>Sterile Compounding: A guide for Community Pharmacists</p>
<p>Standards of Practice for the Designated Manager <i>July 1, 2005</i></p>	<p>Standard 2 Facilities, Equipment, Supplies, and Drug Information</p>
<p>Pharmacy Technician Skill Set</p>	<p>“He/she will gain skills in aseptic technique and infection control.”</p>
<p>Competency Profile for Pharmacy Technicians</p>	<p>“Ensuring a clean and accessible work area following infection control procedures, exercising caution related to workplace hazards, and making certain that high-risk activities are performed safely is a competency of all pharmacists and pharmacy technicians.”</p>
<p>Other Considerations</p>	<ul style="list-style-type: none"> ➤ Pharmacists must adhere to Occupational Health and Safety Act with regards to infection control standards and the safety of their employees. Visit http://www.e-laws.gov.on.ca/DBLaws/Statutes/English/90o01_e.htm ➤ Designated Managers-consider protection of your employees/staff who are in close contact with patients or customers for example Cosmeticians. ➤ Designated Managers -consider infection control with regards to other legislation affecting the environment for examples <ul style="list-style-type: none"> ○ disposal of bio-hazardous waste (sharps) Environmental Protection Act at http://www.e-laws.gov.on.ca/DBLaws/Regs/English/900347_e.htm ○ infection control standard in the grocery and retail areas

Helpful Infection Control Definitions

Airborne infection: The infection usually occurs by the respiratory route, with the agent present in aerosols (infectious particles < 5mm in diameter) ⁽³⁾

Airborne precautions: These are additional to standard precautions and are designed to reduce the transmission of diseases spread by the airborne route. ⁽³⁾

Antimicrobial agent: a product that kills or suppresses the growth of microorganisms. ⁽⁹⁾

Antiseptics: chemicals that kill microorganisms on living skin or mucous membranes. Antiseptics should not be used in housekeeping. ⁽⁹⁾

Biomedical waste: defined by the CSA (210) as waste that is generated by human or animal health care facilities, medical or veterinary settings, health care teaching establishments, laboratories, and facilities involved in the production of vaccines. ⁽⁹⁾

Cleaning: the physical removal of foreign material, e.g., dust, soil, organic material such as blood, secretions, excretions and microorganisms. Cleaning physically removes rather than kills microorganisms. It is accomplished with water, detergents and mechanical action. The terms “decontamination” and “sanitation” may be used for this process in certain settings, e.g., central service or dietetics. Cleaning reduces or eliminates the reservoirs of potential pathogenic organisms. Cleaning agents are the most common chemicals used in housekeeping activity. ⁽⁹⁾

Contact transmission: Micro-organisms that are transmitted by direct contact with hands/ equipment or indirect contact between and infected or colonized patient and a susceptible patient. ⁽³⁾

Contact precautions: These are additional to standard precautions and are designed to reduce the risk of transmission of micro-organisms by direct or indirect contact. ⁽³⁾

Clinical Waste: Also known as “infectious waste” includes waste directly associated with blood, body fluids secretions and excretions, and sharps. Infectious waste is suspected to contain pathogens (bacteria, viruses, parasites, or fungi) in sufficient concentration or quantity to cause disease in susceptible hosts. It also includes laboratory waste that is directly associated with specimen processing, human tissues, including instruments, material or solutions containing free-flowing blood, and animal tissue or carcasses used for research. Sharps are items that could cause cuts or puncture wounds, including needles, hypodermic needles, scalpel and other blades, knives, infusion sets, saws, broken glass, and nails. Whether or not they are infected, such items are usually considered as highly hazardous health-care waste. ⁽³⁾

Critical items: instruments and devices that enter sterile tissues, including the vascular system. Critical items present a high risk of infection if the item is contaminated with any microorganisms, including bacterial spores. Reprocessing critical items involves meticulous cleaning followed by sterilization. ⁽⁹⁾

Decontamination: the removal of disease-producing microorganisms to leave an item safe for further handling. ⁽⁹⁾

Disinfection: the inactivation of disease-producing microorganisms. Disinfection does not destroy bacterial spores. Disinfectants are used on inanimate objects; antiseptics are used on living tissue. Disinfection usually involves chemicals, heat or ultraviolet light. Levels of chemical disinfection vary with the type of product used. ⁽⁹⁾

Droplet infections: Large droplets carry the infectious agent (>5mm in diameter). ⁽³⁾

Droplet precautions: These are additional to standard precautions and are designed to reduce the transmission of infectious spread by the droplet route. ⁽³⁾

Fomites: those objects in the inanimate environment that may become contaminated with microorganisms and serve as a vehicle of transmission. ⁽⁹⁾

Germicide: an agent that destroys microorganisms, especially pathogenic organisms. ⁽⁹⁾

Hand wash(ing): a process for the removal of soil and transient microorganisms from the hands. ⁽⁹⁾

Hand antisepsis: a process for the removal or destruction of resident and transient microorganisms on hands. ⁽⁹⁾

Health care worker: Any person working in a health care facility, for example, medical officer, nurse, physiotherapist, cleaner, psychologist. ⁽³⁾

Health care facility: Organization that employs health care workers and cares for patients/clients. ⁽³⁾

Heavy microbial soiling: the presence of infection or high levels of contamination with organic material, e.g., infected wounds, feces. ⁽⁹⁾

High level disinfection: level of disinfection required when processing semicritical items. High level disinfection processes destroy vegetative bacteria, mycobacteria, fungi and enveloped (lipid) and non enveloped (non lipid) viruses, but not necessarily bacterial spores. High level disinfectant chemicals (also called chemosterilants) must be capable of sterilization when contact time is extended. Items must be thoroughly cleaned prior to high level disinfection. ⁽⁹⁾

Infection control programme: Incorporates all aspects of Infection control, e.g. education, surveillance, environmental management, waste management, outbreak investigation, standard and additional precautions, cleaning, disinfection and sterilisation, employee health, quality management in Infection Control. ⁽³⁾

Intermediate level disinfection: level of disinfection required for some semicritical items. Intermediate level disinfectants kill vegetative bacteria, most viruses and most fungi but not resistant bacterial spores. ⁽⁹⁾

Low level disinfection: level of disinfection required when processing noncritical items or some environmental surfaces. Low level disinfectants kill most vegetative bacteria and some fungi as well as enveloped (lipid) viruses (e.g., hepatitis B, C, Hantavirus, and HIV). Low level disinfectants do not kill mycobacteria or bacterial spores. Low level disinfectants-detergents are used to clean environmental surfaces. ⁽⁹⁾

Noncritical items: those that either touch only intact skin but not mucous membranes or do not directly touch the patient. Reprocessing of noncritical items involves cleaning and/or low level disinfection. ⁽⁹⁾

Personal protective equipment: Includes gloves, gowns, caps, masks – (surgical and N95), and overshoes. These items are used to protect the health care worker from splashes of blood, body fluids, excretions and excretions or from droplets or aerosolization of organisms from the respiratory tract. It is the responsibility of the health care worker to put on the appropriate personal protective equipment in any situation that is likely to lead to exposure of blood, body fluids, excretions and secretions. ⁽³⁾

Plain or nonantimicrobial soap: detergent-based cleansers in any form (bar, liquid, leaflet, or powder) used for the primary purpose of physical removal of soil and contaminating microorganisms. Such soaps work principally by mechanical action and have weak or no bactericidal activity. Although some soaps contain low concentrations of antimicrobial ingredients, these are used as preservatives and have minimal effect on colonizing flora. ⁽⁹⁾

Reprocessing: The steps that are taken to make an instrument or equipment that has been used (contaminated) ready for reuse again. ⁽³⁾

Sanitation: a process that reduces microorganisms on an inanimate object to a safe level (e.g., dishes and eating utensils are sanitized). ⁽⁹⁾

Semicritical items: devices that come in contact with nonintact skin or mucous membranes but ordinarily do not penetrate them. Reprocessing semicritical items involves meticulous cleaning followed preferably by high-level disinfection (level of disinfection required is dependent on the item, see Table 5). Depending on the type of item and its intended use, intermediate level disinfection may be acceptable. ⁽⁹⁾

Sharps: needles, syringes, blades, laboratory glass or other objects capable of causing punctures or cuts. ⁽⁹⁾

Sterilization: the destruction of all forms of microbial life including bacteria, viruses, spores and fungi. Items must be cleaned thoroughly before effective sterilization can take place. ⁽⁹⁾

Waste management system: All the activities, administrative and operational, involved in the production, handling, treatment, conditioning, storage, transportation and disposal of waste generated by health-care establishments. ⁽³⁾

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