

# Infection Prevention and Control for Health Care Offices/Clinics





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## Preface

The need for strict infection prevention and control measures in health care has probably never been more apparent to the general public and to the health care community at large than it is now. Our recent experience with GI illness outbreaks, H1N1 Pandemic influenza as well as events related to inadequate sterilization and disinfection of medical equipment, have underscored the notion that every person is vulnerable if proper safeguards are not in place to prevent the transmission and acquisition of infection.

The face of infection control is rapidly changing with new infections being described, more outpatient procedures being performed, new products and medical equipment being manufactured, and new standards, directives and guidelines being developed by provincial, national and international organizations.

This guideline was developed for health care providers working in the clinic or office settings to provide information for the delivery of safe care and protection of the public by minimizing the risk of infection transmission. Included in the document are algorithms to simplify comprehension and implementation of the guidelines and other visuals that can be posted in the office as required. The goal of the document is to educate the health care community on current infection prevention and control practices necessary for an office/clinic practice.

## Acknowledgements

This document was created based on the College of Physicians and Surgeons of Ontario document "Infection Control in the Physician's Office" 2004, with their permission.



## Executive Summary

The Department of Health and Wellness on PEI is pleased to issue a guideline for health care offices/clinics to aid in the protection of patients, staff and the public in the changing world of infection prevention and control.

For the most part, these are educational guidelines for health care providers. Some components have been derived from legislation and regulations, and will state in explicit terms what healthcare providers should or should not do. However, many parts of the guidelines are best practices, designed to raise awareness about day-to-day risks of transmission in a health care provider's office/clinic, and to offer suggestions and tools to minimize such risks. Professional judgment and the realities of health care practices in PEI will always inform how each best-practice recommendation is used by individual health care providers. In the event that PEI experiences a serious infectious disease outbreak, these best practices may be superseded by directives from the Chief Public Health Office. The risks of such a situation will hopefully be mitigated by careful consideration of these guidelines by all health care providers and their teams in community health practices.

### **The guidelines consist of three sections:**

- **Patient Care** – including infection transmission, Routine Practices and Addition Precautions
- **Health Care Providers** – including recommended immunization practices for health care providers and transmission risk due to personnel health.
- **The Environment** – including waste disposal, sterilization and disinfection, general housekeeping, and office design considerations.

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## Introduction

An infection prevention and control program in a health care office/clinic is an important safety measure. It is incumbent on a health care provider to protect individuals within his or her office/clinic. This responsibility is not restricted to patients, but rather, includes office staff and other visitors as well. Both from a structural and functional point of view there are ample opportunities for infection to be transmitted in an office/clinic setting. By definition, sick people are seeking medical help and the waiting room of an office/clinic practice may be a concentrated environment of communicable diseases. Infection is not only spread person-to-person, but can also be spread indirectly through inanimate objects known as fomites. As such, protective mechanisms must be in place, not only in direct patient management but in handling of the office environment as well.

The patient-health care provider visit is a continuum that begins the moment an appointment is booked until the moment the appointment ends and the patient leaves the office/clinic and involves many potential human and environmental encounters. Each encounter could be an opportunity for infection transmission or prevention. Our job is to minimize the risk of acquiring an infection in the health care provider's office/clinic. There are many considerations, but application and adherence to standard rules when creating and maintaining your office/clinic will maximize success.

We have divided this document into three major sections consisting of issues that relate primarily to the care of patients, health care providers, and the environment. We have also included a glossary and resources section.

Features unique to your individual practice must guide infection control considerations.

In Appendix 1, we have included a checklist of supplies that should be considered in your office/clinic set up. Please remember that this guideline is but one resource for you and there are many others available.

And finally, practice good hand hygiene. Vaccinations should be up-to-date for staff in the office and encouragement should be given to patients to be immunized as well. Stay at home if sick. If this is not feasible, use judgment and the best information available to prevent patients from becoming infected.

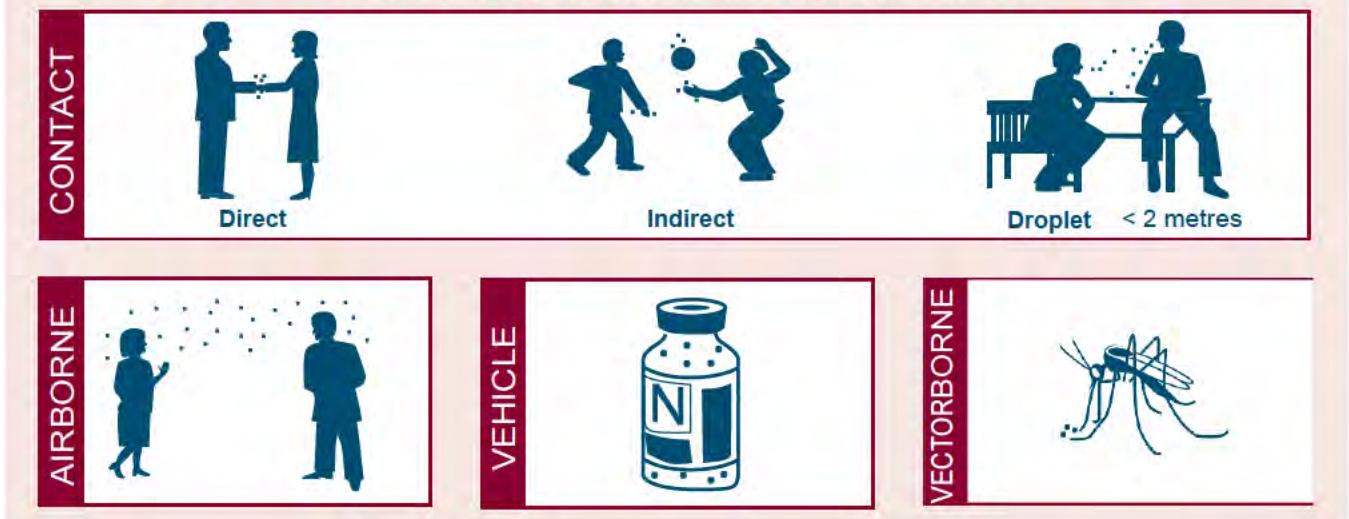
**Examples of fomites:  
magazines, toys,  
waiting room surfaces.**



## Transmission of Organisms

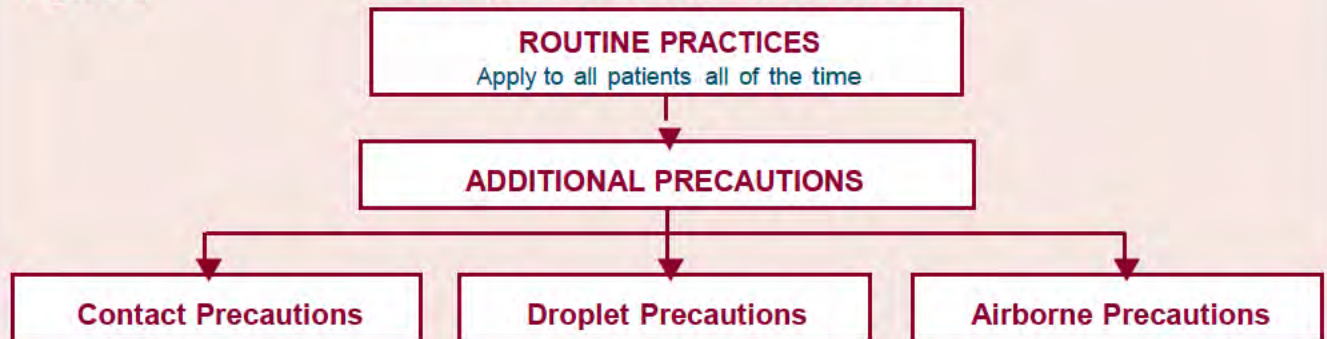
Understanding the mode of transmission of infection is necessary for practicing and designing infection prevention and control strategies. Four main routes spread organisms: **contact (direct, indirect or droplet)**; **airborne**; **vehicle**; and **vectorborne transmission**. Although vector-related spread is not likely to be of relevance in an office/clinic setting, the other mechanisms are all potentially important modes of transmission in a health care office/clinic.

Figure 1: HOW MICROORGANISMS ARE ACQUIRED



With an understanding of the modes of transmission of microorganisms, you can understand why adherence to safe standards of practice will limit the spread of microorganisms. “**Routine practices**” is the term used to describe those standards you should use in the care of all patients all of the time. “**Additional precautions**” are **added** to routine practices to provide protection for infections not covered by routine practices. This chart provides a framework for understanding these principles, and further details follow.

Figure 2: THE TWO-TIERED ISOLATION SYSTEM



## Routine Practices

The term “routine practices” is the Health Canada term used to describe basic standards of infection control required to care for all patients.

The term “standard precautions,” is the term used by the Centers for Disease Control in the US.

These terms synthesize the major principles of “universal precautions” (designed to reduce the risk of transmitting blood borne pathogens) and those of “body substance precautions” (designed to reduce the risk of transmitting pathogens from moist body substances).

“Additional precautions” are designed to be practiced in conjunction with routine practices when patients are suspected or confirmed of being infected with transmissible or epidemiologically significant organisms (refer to section on transmission-based precautions).

**Hand hygiene is the single most important measure for preventing the transmission of microorganisms.**

“Routine practices” refers to the standards of practice that should be followed for the care of ALL patients at ALL times. They are based on the premise that all patients are potentially infectious, even when asymptomatic, and that the same safe standards of practice should be taken routinely when handling blood, body fluids, secretions and excretions, mucous membranes, non-intact skin, and undiagnosed rashes of all patients.

Adherence to routine practices protects not only the health care worker but also other patients who may subsequently be in contact with that health care worker.

There are five principles that are inherent in routine practices:

- Hand hygiene
- Point of Care Risk Assessment (PCRA)
- Personal protective equipment (PPE)
- Safe handling and disposal of sharps
- Environmental cleaning (see section 3)

### *i) Hand Hygiene*

The term “hand hygiene” has replaced hand washing and includes the use of plain or antimicrobial soap with running water, as well as the use of an alcohol-based hand sanitizer.

#### **When should you wash and with what type of product?**

##### **Wash with plain or antimicrobial soap and water:**

- When hands are visibly soiled or contaminated with body fluids.
- When caring for a patient with diarrhea, including suspected or confirmed *Clostridium difficile* infection (refer to sidebar on page 5).

##### **Wash with plain or antimicrobial soap and water or a waterless/alcohol-based product when performing routine care and non-invasive procedures:**

- Following personal hygiene (e.g., use of toilet, blowing nose);
- Before eating, drinking or serving food;
- Before and after direct contact with individual patients;
- Before preparing or handling sterile products or medications;
- Between “clean” and “dirty” procedures on the same patient;
- After removing gloves;
- After contact with the environment or equipment in the treatment room;
- After contact with laboratory specimens.

Self-contained disposable liquid soap containers with pumps should be used wherever possible to minimize contamination. If soap containers are reusable, never refill by “topping up”. Instead, wash, rinse, dry the soap container thoroughly, and then refill. The use of bar soap is discouraged because organisms can grow on the soap and in the pooled water that collects under the soap.

Hand lotion to prevent dry or cracked skin should be available for health care providers. Disposable pump-type containers are recommended. Lotions should not be petroleum based, because they could affect glove integrity. The best times to apply hand lotion are after you’ve washed your hands and before you are taking a break..

**Table 1** outlines the minimum hand hygiene requirements for various clinical activities.

Table 1. HAND HYGIENE	
INDICATIONS FOR HAND HYGIENE	MINIMUM REQUIREMENT
Routine Care	Plain soap and water or alcohol-based hand sanitizer
Care of Patients with Diarrhea	Plain soap and water
Surgical Procedure	Antimicrobial* soap and water or alcohol-based hand sanitizer (see instructions on page 6)
*Antimicrobial soaps contain one of the following antiseptic agents: chlorhexidine gluconate, iodophors, triclosan, ethanol or isopropyl alcohol 60-90%.	

**Soap and water must be used if hands are visibly soiled or contaminated with body fluids or spores (*Clostridium difficile*) as alcohol-based hand sanitizers are not effective. The primary action of soap and water is through the mechanical removal and rinsing of organisms.**

**Soaps containing emollients are available and help prevent drying and cracking of the skin.**

**There is sufficient evidence that alcohol-based hand sanitizers are at least as good as and possibly superior to soap and water except in cases where hands are visibly soiled or contaminated with body fluids or spores.**

## How should hand hygiene be done?

### When Using Soap and Water

#### For routine care:

- Wet hands.
- Apply adequate amount of soap to achieve lather.
- Rub vigorously for 10-15 seconds, covering all surfaces of hands and fingers including under nails (see diagram below).
- Rinse well with running water.
- Dry thoroughly with a disposable paper towel. Turn off the taps with the towel and discard in a bin.
- Avoid the use of prosthetic nails and jewelry.

#### For surgical office procedures:

- Remove all jewelry.
- Wash hands, and up to a minimum of two inches above wrists thoroughly for **two minutes**.
- Clean under nails. A disposable manicure stick can be used; nailbrushes are NOT recommended as they can become contaminated and damage the skin around the nails.
- Nails should be short enough to allow thorough cleaning underneath and not cause glove tears.
- Rinse off soap and dry hands well.

### When Using an Alcohol-Based Hand Sanitizer

#### For routine care:

Apply the product to the palm of one hand and rub hands together, covering all surfaces of hands and fingers (see diagram below), until hands are dry.

#### For surgical office procedures:

Remove jewelry, and follow hand hygiene protocol outlined above for routine care when using soap and water. Apply alcohol-based hand sanitizer and rub for a minimum of 30 seconds or according to manufacturer's instructions.

### Recommended Technique for All Hand Hygiene Agents

1. Palm to palm



2. Palm over dorsum



3. Palm to palm, fingers interlaced



4. Back of fingers to opposing palms



5. Rotate thumbs in palm



6. Rotate fingers in palm





## General Principles

### Hand Hygiene Facilities - Sinks or Alcohol-Based Hand Sanitizer Dispensers

- Ideally, locate as close as possible to the examining/procedure room and specimen collection area. (Note: soap dispensers should be placed at every sink).
- Turn taps off with the aid of a paper towel to avoid recontamination of hands. If renovating, consider hands-free faucets (electric eye, or foot operated).
- A hand wash sink is not to be used for any other purpose. Do not clean equipment or discard waste in a hand wash sink. Maintain separate facilities for equipment cleaning and specimen disposal, and examination rooms.

### Antiseptic Agents: Beyond Hand Hygiene

An “antiseptic” is an antimicrobial substance that can be used on human skin or tissue. Antiseptics in the context of hand hygiene agents were discussed previously. Antiseptics are also used to prepare the patient’s skin before invasive procedures (skin prep).

The following antiseptics are available as skin preps:

- Isopropyl alcohol (70%)
- Chlorhexidine gluconate (4%, 2% detergent base, 0.5% tincture)
- Iodine/iodophor (10%, 7.5%, 2%, 0.5%)

#### References:

1. Guideline for Hand Hygiene in Health-Care Settings, Recommendations of the Healthcare Infection Control Practices Advisory Committee and the HICPAC/SHEA/APIC/IDSA Hand Hygiene Task Force. Centers for Disease Control and Prevention, 2002.
2. Infection Control Guidelines – Hand Washing, Cleaning, Disinfection and Sterilization in Health Care. Health Canada Steering Committee on Infection Control Guidelines. Available on-line at: <http://www.phac-aspc.gc.ca/publicat/ccdr-rmtc/98pdf/cdr24s8e.pdf>.
3. Routine Practices and Additional Precautions for Preventing the Transmission of Infection in Health Care. Sept 2010 Draft Final Version. PHAC Nosocomial and Occupational Infections Section.

### *ii) Point of Care Risk Assessment*

A point of care risk assessment (PCRA) should be done before each patient interaction to determine the appropriate Routine Practices required for safe patient care.

#### Application of PCRA

When performing a PCRA, each health care provider may consider asking questions to determine the risk of exposure and potential for transmission of microorganisms during patient interactions.

Examples of such questions are:

- What contact is the health care provider going to have with the patient?
- What tasks or procedures is the health care provider going to perform? Is there a risk of splashes/sprays?
- If the patient has diarrhea, is he/she continent? If incontinent, can stool be contained in an adult incontinence product?
- Is the patient able and willing to perform hand hygiene and respiratory etiquette?

PCRA is not a new concept, but one that is already performed regularly by health care providers many times a day for their safety and the safety of patients and others in the healthcare environment. For example, when a health care provider assesses a patient and situation to determine the possibility of blood or body fluid exposure or chooses appropriate PPE to care for a patient with an infectious disease, these actions are both activities of a PCRA.

Individual components of Routine Practices are determined by a risk assessment which includes an assessment of the task/care to be performed, the patient's clinical presentation, physical state of the environment and the healthcare setting.

### ***iii) Personal Protective Equipment***

**Remember to ask whether your patient is allergic to latex. If you or your patient has a latex allergy, latex-free gloves must be used.**

**Use of low protein, powder-free, non-sterile latex gloves will prevent sensitization of health care providers to latex.**

**Gloves protect the patient AND the health care provider.**

**Gloves do not replace hand hygiene.**

**For a list of basic office supplies for infection prevention and control, please see Appendix 1.**

Personal protective equipment (PPE) is worn to protect the health care provider and to prevent the health care provider from becoming a vector. For routine practices, PPE are selected based on the anticipated exposure that was determined through your PCRA. PPE should not be reused between patients.

#### **Gloves**

Gloves are not necessary for routine activities when contact is limited to intact skin. Gloves should be worn for any contact with patients or contaminated articles when direct exposure to blood, body fluids, mucous membranes, non-intact skin, or undiagnosed rashes is anticipated.

Non-sterile examination gloves (latex, vinyl or nitrile) in all appropriate sizes should be readily available for routine use in patient care areas and utility rooms. Vinyl gloves may be less durable than the others. Gloves that are better fitting are recommended for use in procedures that require tactile sensation. Sterile procedure gloves should be used for invasive procedures.

Allergic reactions have been reported with the use of latex gloves, and consideration must be given to this when purchasing gloves. Powdered gloves lead to an increased risk of latex allergy.

Gloves must be used only once and be discarded into the regular garbage after each patient and/or procedure (refer to Waste Disposal section). Hands should be sanitized with soap and water or with an alcohol-based hand sanitizer after glove removal.

#### **Gowns**

Additional protective wear such as gowns or plastic aprons are necessary when secretions, excretions, blood, or body fluids are likely to soil the clothing of the worker.

## Masks and Eye Protection

As part of routine practices, masks and eye protection are worn to protect the health care provider from splashes of blood and other body fluids to the mucous membranes of the face. Masks and eye protection also form the basis of protection for diseases spread by the droplet route, e.g., influenza (see Additional Precautions on page 13).

### a) Masks

Not all masks are the same and therefore they are not necessarily inter-changeable. **Surgical masks** should be more widely used in an office/clinic environment. They cover the user's nose and mouth and provide a physical barrier to fluids and particulate matter. Surgical masks are used to protect either the patient or the health care provider from droplets or splashes. They do not, however, guarantee protection against airborne infectious agents.

When worn while performing an invasive procedure, surgical masks minimize the risk of contaminating the site with droplet-borne organisms from the health care worker's nostrils. Similarly, they protect the health care worker from patient infections spread by large droplets.

**N95 or equivalent respirators** do the following:

- Filter particles one micron in size or smaller;
- Have a 95% filter efficiency;
- Provide a tight facial seal (less than a 10% leak).

Because facial structures differ, individual health care providers must be fit tested to ensure they wear an N95 respirator that provides them with the proper seal between the respirator's sealing surface and their face. Respirators are not usually required in a general health care practice.

### b) Eye-protection

Eye protection can be in the form of safety glasses, goggles, splash guards or facial shields. Eyeglasses do not provide appropriate protection.

**Surgical masks with an attached visor with ear loops for ease of use, are available on the market.**

**In the health care setting, blood borne infections are usually transmitted by sharps injuries. Most injuries happen after use, before or during disposal.**

**Be familiar with regulations on waste management.**

## ***iv) Handling and Disposal of Sharps***

The following practices will minimize the risk of sharps injuries:

- Do not recap needles. Safety needles and syringes are available on the market that eliminates the need to recap.
- Discard sharps at point of use in a designated sharps container.
- Pass needles in a manner to avoid injuries.
- Each person using a sharp must dispose of it him/herself.

### **Sharps Containers**

A dedicated, puncture-resistant, tamper-resistant, leak-proof container, which is impenetrable by sharps, under normal circumstances, should be available. It should have a carrying handle plus a tight-fitting lid, bear a clearly identifiable biological hazard label and be designed so that used sharps can be dropped in with one hand. It should be easily accessible in every “point of use” area (e.g., individual examining room) and mounted above the reach of children. It should not be filled with disinfectant, or filled to the top with sharps. When it is filled to three-quarter capacity, the lid should be closed securely, and the container promptly removed and replaced. Used sharps are considered biomedical waste. Refer to the section on Waste Disposal, for appropriate disposal of sharps containers.

## ***v) Patient Appointments: Booking, Reception and Screening***

Up until now we've discussed the basic infection prevention and control measures you should strive for as a baseline for every patient attending your office/clinic. You must, however, be additionally prepared for patients who will arrive with a communicable disease.

Assessing every patient for the possibility of infection is desirable, but not always practical. The interactions with patients from the first phone call to the time of the appointment can be used to collect information. Simple screening information can be collected on the phone: symptoms, signs (cough, fever, diarrhea, rash) and significant exposures, e.g., travel, or exposure to a patient with chickenpox or a significant respiratory illness. Since the SARS outbreak, there has been heightened awareness of febrile respiratory infections and screening for these is particularly relevant. However, it is still important to screen for any communicable disease, keeping in mind your patient population (e.g., in a pediatric practice, screen for chickenpox). Refer to Appendix 2 for screening tools.

Share the responsibility for infection control with your patients and consider the following:

1. Screen patients by phone when they call to book an appointment by asking appropriate questions regarding their symptoms and history of the illness. Some symptoms to ask about would be
  - Fever and a cough or worsening shortness of breath
  - Diarrhea
  - A new rash
  - Exposure to someone with chickenpox, shingles or measles in the past three weeks
2. Post a sign at the entrance requesting that patients presenting with symptoms of infection identify themselves to the receptionist.
3. Make every effort to minimize contact in the waiting room with potentially infectious patients by directing these patients into an examination room as soon as possible.
4. Try to arrange the waiting room to provide a separation of one to two metres between patients who are symptomatic with respiratory or gastrointestinal symptoms when they cannot be immediately moved to an examination room.
5. A respiratory etiquette program is recommended, which includes:
  - Signage (available in Appendix 5)
  - Providing surgical face masks as close to the entry of the office as possible, with instructions on proper use and disposal;
  - Providing tissues and waste containers;
  - Providing instructions to cover the nose and mouth when coughing or sneezing; and
  - Providing readily accessible alcohol-based hand sanitizers.

If a patient is identified who may be symptomatic with specific communicable diseases, you should initiate additional precautions. Patients presenting with a febrile respiratory illness and a travel history to areas with current human or avian infection, with an emerging respiratory pathogen, require particular vigilance, as they may be the sentinel cases for an unusual respiratory illness (e.g., avian influenza). An algorithm for these patients is presented in Appendix 2.

**It is recommended that an alcohol-based hand sanitizer be widely available in areas of the office/clinic such as:**

- **Outside the front door, or at the entry vestibule**
- **On the receptionist's desk**
- **In the waiting room in strategically located places with easy access for patients and out of reach of children**
- **Outside each exam room, or**
- **Within each patient exam room.**

*Many infections for which Additional Precautions are indicated are reportable under the PEI Public Health Act. These infections must be reported to the Chief Public Health Office (see the Public Health section in Appendix 4) to enable appropriate investigation and case finding.*

*Similarly, if you suspect an outbreak of a communicable disease in the community by seeing a cluster of patients with a given infection or symptom complex, report this to the Chief Public Health Office. Front line health care providers are key to timely and effective public health measures.*

*For airborne precautions the health care worker must wear an N95 or equivalent respirator and the patient a surgical mask and be separated from other patients.*

*Patients with infections often require laboratory testing. Special arrangement will be necessary for a patient on airborne precautions and the lab must be notified prior to the patient arrival.*

*No special or different room cleaning is needed after examining a patient under airborne precautions. The medical equipment used should be reprocessed according to your office protocol.*

## Additional Precautions

Additional precautions enhance your routine practices for certain pathogens or clinical presentations. These precautions are based on the mode of transmission and should be used (in addition to routine practices) for patients with infections transmitted by the airborne or large droplet routes.

As well, they may be indicated for patients with certain highly transmissible or epidemiologically important organisms transmitted by direct or indirect contact. There are three categories of additional precautions: **airborne, droplet and contact.**

### *i) Airborne Transmission Precautions*

In diseases transmitted by the airborne route, the infectious organism enters the body through small droplets (less than five microns in diameter) or droplet nuclei inspired into the respiratory tract. Many outbreaks have occurred where people have had no closer contact than sharing the same room air for short periods of time. For this reason, consider making special arrangements for patients with suspected or confirmed respiratory tuberculosis, chickenpox (active or in the incubation period), and measles. Minimum standards of care for seeing patients with airborne infections are as follows:

1. Make every effort to see these patients at the end of the day, if clinical status allows.
2. Quickly triage the patient out of the common waiting areas; move the patient to an examining room. If possible, such patients should enter and exit through a separate entrance and go directly in and out of the examination room.
3. Provide a surgical face mask for these patients to wear at all times while in all areas of the office. For practices with a large paediatric component, masks for children are available.
4. Keep the door to the treatment/exam room closed, and try to ensure that visitors and health care providers do not enter the room unless they are immune to the disease (where immunity is an issue). Open a window in the room, if this is possible.
5. Post a sign on the closed door to notify staff (see Appendix 3 for sample signs).
6. The **health care worker entering the patient's room must wear an N95 or equivalent respirator** for care of patients with infectious TB. They need not wear an N95 or equivalent respirator if they are documented/known to be immune to a suspected airborne infection (e.g., chickenpox, measles).
7. If possible, allow for sufficient time for the air to exchange in the room and be free of droplet nuclei before using the room for another patient with TB or for a non-immune patient (measles, chickenpox). The time required may be minimized if the patient has worn a surgical mask consistently.

8. If you routinely follow patients with infectious TB, consider buying a stand-alone device that provides high efficiency particulate filtration to the air and avoids recirculating potentially infectious air if vented outside.
9. Routine tuberculin skin testing of the office/clinic staff should be part of your office management if you routinely follow patients with infectious TB. Varicella vaccination should be offered to non-immune staff (refer to Health Care Providers section).
10. If there has been an unprotected exposure to tuberculosis or measles in your office, call the Chief Public Health Office.

## ***ii) Droplet Transmission Precautions***

Droplet transmission refers to large droplets (greater than five microns in diameter) generated from the respiratory tract that are inoculated or directly deposited onto the mucous membranes of the eyes, nose or mouth of the new host. These droplets can be propelled a short distance (two metres) through the air during coughing or sneezing or during procedures that could generate aerosolization of respiratory secretions.

Consider the following:

1. See these patients at the end of the day, if clinical status allows.
2. Keep masks, eye protection and a hand hygiene agent on hand for the receptionist to use as soon as they encounter a patient where this is required.
3. Provide a surgical mask for these patients to wear at all times while in all areas of the office.
4. Quickly triage the patient out of the common waiting areas; move the patient to an examining room. Try to separate your patients by one to two metres when they cannot be placed into an examination room.
5. Encourage respiratory etiquette (see sidebar).
6. Post a sign at the entrance of the room to notify staff.
7. Wear a surgical mask and eye protection when in direct contact with the patient. If soiling of the hands and clothing is likely, wear gloves and a gown.
8. At the end of the office visit, wipe all horizontal surfaces in the examining room that have been in contact with the patient, as well as equipment used to examine the patient (blood pressure cuff, stethoscope, etc.) with a detergent solution (refer to Low-Level Disinfection section).
9. Add contact precautions when caring for children with respiratory infection, as contamination of the environment is more likely.

**Air exchange calculations are based on room size and size/motor of the exhaust fan (ventilation system, HVAC).**

**(refer to reference #5 at the end of this section).**

**Some respiratory viruses can remain viable in droplets that settle on objects in the immediate environment of the patient. Viruses such as respiratory syncytial virus (RSV), influenza, and parainfluenza survive long enough on surfaces to be picked up on the hands of other patients or personnel. For this reason, consider limiting these patients' stay in the waiting room.**

**Components of a respiratory etiquette program:**

1. **Post signs in appropriate languages at all entrances.**
2. **Provide readily accessible waterless hand hygiene products.**
3. **Separate patients with respiratory illness from other patients.**
4. **Protect personnel from contact by installing a Plexiglas barrier.**
5. **Place a box of surgical masks as close to entry as possible.**
6. **Provide masks to all patients with new onset respiratory symptoms.**
7. **Provide tissues to patients who cannot wear a mask.**
8. **Provide container for disposal of mask or tissue.**

### ***iii) Contact Transmission Precautions***

**Contact precautions should be followed for antibiotic-resistant organisms such as MRSA and VRE.**

**It is recommended that the charts of patients with antibiotic-resistant organisms be tagged to facilitate recognition on subsequent visits.**

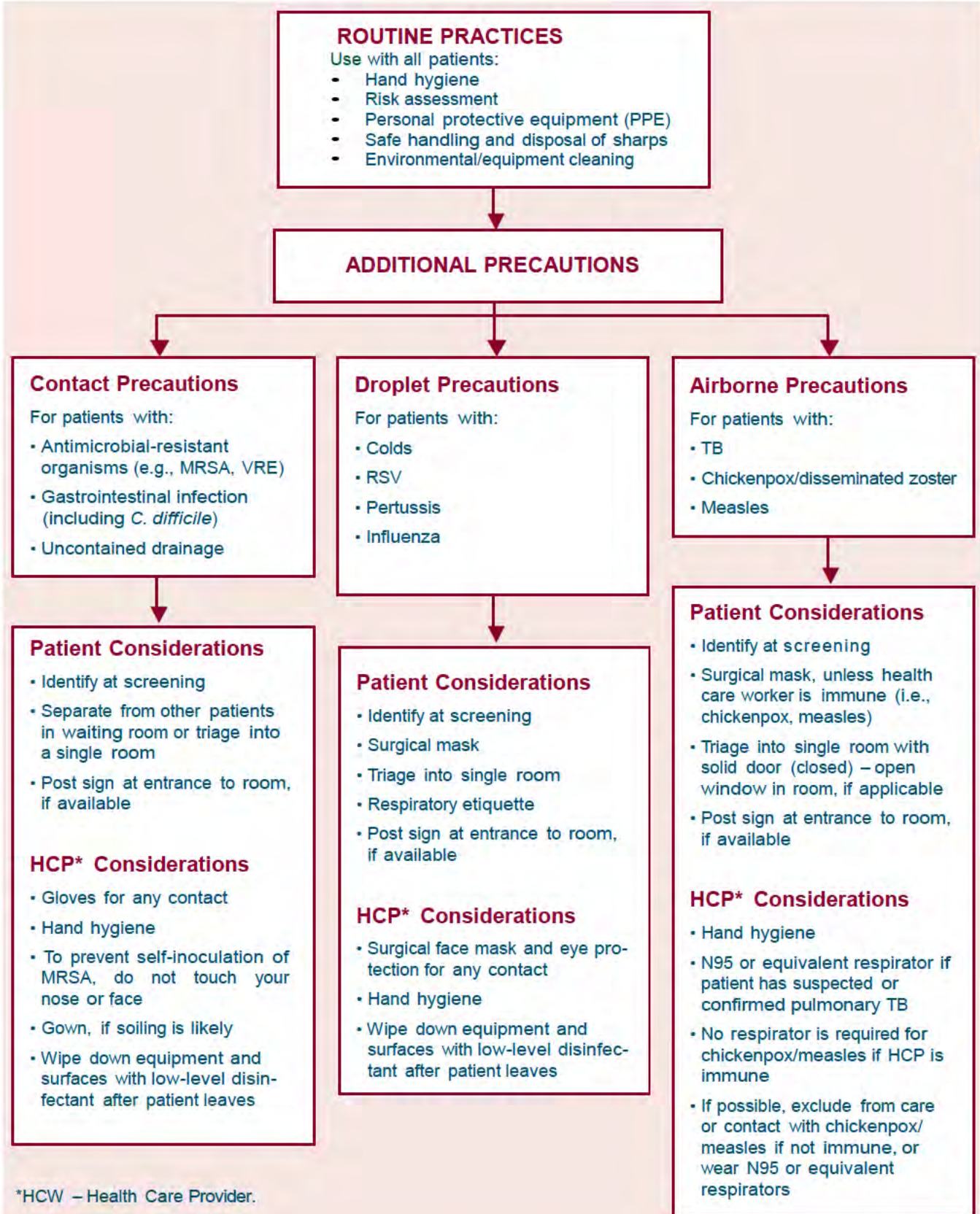
Contact transmission includes direct and indirect contact. Direct contact occurs when there is direct physical contact between the source and the susceptible host, or direct person-to-person contact. Indirect contact spread happens when a host comes into contact with a contaminated intermediate object. Examples of patients requiring contact precautions are those with gastroenteritis or antibiotic-resistant organisms such as MRSA or VRE.

Consider the following:

1. See these patients at the end of the day, if clinical status allows.
2. Quickly triage the patient out of common waiting areas; move this patient to an examining room. Assure that the patient is separated from other patients when they cannot be triaged into an examination room.
3. Post a sign at the entrance of the room to notify staff (examples in appendix 3).
4. Wear gloves for any patient contact and for contact with items touched by the patient. Wear a gown if soiling of clothing is likely.
5. At the end of the office visit, wipe all horizontal surfaces in the examining room that have been in contact with the patient, as well as equipment used to examine the patient (blood pressure cuff, stethoscope, etc.) with a detergent solution (refer to Low-Level Disinfection section).

Colonization and infection with strains of bacteria that are resistant to a multitude of commonly used antibiotics are causing problems for all health care facilities, including both acute and long-term care facilities. The highest risk for acquisition of an antibiotic-resistant organism such as methicillin-resistant *Staphylococcus aureus* (MRSA) or vancomycin-resistant enterococcus (VRE) is having been hospitalized in either an acute care or long-term care facility. These patients may require follow-up or routine care in a physician's office. It is therefore important to recognize that these organisms can be transmitted and that precautions are required to minimize their spread.





When a specimen is sent for culture from a health care office/clinic, follow up must be done from the office/clinic for any patients who are positive for an antibiotic resistant organism. It is important that education is provided from the office/clinic to the patient. Education should include that the next time the patient accesses the health care system their chart will be flagged and precautions will be applied as per protocol for that practice setting.

More information on MRSA including fact sheets is available at <http://www.gov.pe.ca/health> in the Chief Public Health Office section under health professional resources.

## Methicillin-resistant *Staphylococcus aureus* (MRSA)

*S. aureus* is a gram positive bacterium and is a common cause of serious bacterial infections. *S. aureus* is spread by contact usually from the hands of health care providers.

*S. aureus* is part of the normal flora of human beings, colonizing the nose and skin of 10-40% of the population. MRSA are resistant to all penicillins and cephalosporins. MRSA, in general, remains susceptible to a few antibiotics (e.g., vancomycin, linezolid) although this may already be changing.

## Vancomycin-resistant *Enterococcus* (VRE)

Enterococci constitute part of the normal flora of the human intestine. The major concerns with VRE are the limited number of therapeutic options, and the potential for the resistance gene to spread to other organisms.

VRE are spread by contact, usually from the hands of health care providers, but they are also very likely to be spread by contaminated patient care equipment or environmental surfaces.

## Other Antibiotic Resistant Organisms (AROs)

In PEI as well as other parts of Canada, we are now seeing other antibiotic resistant organisms emerge. Carbapenem-Resistant *Enterobacteriaceae* (CRE), Extended Spectrum Beta-Lactamases (ESBLs), and Multidrug Resistant Gram Negative Bacteria (MDR-GNB) are organisms we are monitoring, especially in Acute Care settings where contact precautions are being implemented. In the outpatient office/clinic setting careful attention to hand hygiene and Routine Practices are sufficient to prevent transmission of these organisms.

## *iv) Prevention of the Development of Antibiotic- Resistant Organisms*

Although routine practices and contact precautions are important strategies in preventing the spread of antibiotic-resistant organisms, judicious antibiotic use is a critical measure to prevent their development. All antibiotic management should be evidence-based and antibiotic stewardship is key to preventing further resistance.

### References:

1. Guideline for Hand Hygiene in Health-Care Settings, Recommendations of the Healthcare Infection Control Practices Advisory Committee and the HICPAC/SHEA/APIC/IDSA Hand Hygiene Task Force. Centers for Disease Control and Prevention, 2002.
2. Infection Control Guidelines – Hand Washing, Cleaning, Disinfection and Sterilization in Health Care. Health Canada Steering Committee on Infection Control Guidelines. Available on-line at: <http://www.phac-aspc.gc.ca/publicat/ccdr-rmtc/98pdf/cdr24s8e.pdf>.
3. Routine Practices and Additional Precautions for Preventing the Transmission of Infection in Health Care. Health Canada, Volume 25S4, July 1999.
4. Canadian Tuberculosis Standard PHAC 2007 Available on-line at: <http://www.phac-aspc.gc.ca/tbpc-latb/pubs/tbstand07-eng.php>

5. Frequently Asked Questions, including air exchange information, available on-line at the Francis J. Curry National Tuberculosis Center website:  
[http://www.nationaltbcenter.edu/resources/tb\\_control\\_faq.cfm](http://www.nationaltbcenter.edu/resources/tb_control_faq.cfm)
6. Guidance: Infection Prevention and Control Measures for Healthcare Workers in All Healthcare Settings - Carbapenem-resistant Gram-negative Bacilli, PHAC , 2010



## HEALTH CARE PROVIDERS

## Section 2

### OCCUPATIONAL HEALTH CONSIDERATIONS

Implement reasonable measures to minimize the risk of the health care providers in the clinic/office from acquiring or spreading infection.

### Immunization of Personnel

Health care office/clinic workers will be exposed to communicable diseases, and should be immune to vaccine preventable illness.

In the best interests of the patients and health care providers, all staff should be strongly encouraged to know their immunization status and have their immunizations up-to-date. Schedules and indications for vaccines available for health care office/clinic workers are as follows:

**POLIOMYELITIS:** All health care office/clinic workers in close contact with individuals who may be excreting wild or vaccine strains of poliovirus should have completed a primary course of immunization against poliovirus. If a primary course has not been completed, the series should be completed with IPV (inactivated polio vaccine) regardless of the time interval since the last inoculation. One dose is required in adulthood.

**MEASLES:** Vaccination against measles (rubeola) is recommended for all adults born after 1970 who do not have a documented record of measles immunization or who are known to be seronegative. 2 doses are required (see MMR as noted below).

**RUBELLA:** Female office/clinic workers of child-bearing age should be immune to rubella. Those without documented immunity should be vaccinated with MMR (measles, mumps, rubella) vaccine unless there are contraindications. 2 Doses of MMR are required

Females should avoid pregnancy for one month after vaccination. Vaccination should also be offered to susceptible individuals of either sex, who may, through close contact, expose pregnant women to rubella.

**INFLUENZA:** All health care providers are strongly encouraged to be vaccinated **annually** against influenza.

**HEPATITIS B (HBV):** Immunization against HBV is recommended for all health care providers who may be exposed to blood, blood products, or sharps injuries. Post-immunization testing for anti-HBs one to six months after the last dose, is indicated for all health care providers. This will establish antibody response to determine the need for reimmunization should sufficient immunity not have developed after the first course. Procedures for health care providers who have sustained a percutaneous or mucous membrane exposure to blood are outlined in the provincial guidelines "Guidelines for the Management of Percutaneous or Sexual Exposure to Bloodborne Pathogens" in appendix 6 and also at [www.gov.pe.ca/health](http://www.gov.pe.ca/health) in the Chief Public Health office section under health professional resources.

**TETANUS AND DIPHTHERIA TOXOIDS:** This vaccine should be given once every ten years to all adults who have received a basic immunization series unless a significant exposure necessitates earlier administration.

**PERTUSSIS VACCINE:** Adults who have not previously received a dose of the new acellular pertussis vaccine should use the combined diphtheria- tetanus- acellular pertussis (dTap) vaccine for their next booster shot. Currently, only one dose of this combined booster is recommended in adulthood.

**VARICELLA VACCINE:** Varicella vaccine (two doses given at least 28 days apart) is recommended for susceptible health care providers unless the individual is immunocompromised or pregnant. A non-injection site rash can develop in approximately 5% of patients post- injection. In such cases, if the rash cannot be covered, the health care worker should not work with high risk (e.g., immunocompromised) patients, or alter- natively, should not work until the rash has crusted or healed.

## **Tuberculin Skin Test (TST)**

A TST using the two-step skin test is recommended at the beginning of employment for all persons who work in the medical office, if there is no documentation of a previous negative test within the past 12 months. Persons who are known tuberculin positive, or who test positive with the two-step method should have medical follow-up to rule out active disease. Further skin tests in these individuals are of no benefit. Routine follow-up skin testing for health care providers with negative or insignificant TST is indicated in the health care setting under the following circumstances:

- a) Exposure to known case of infectious tuberculosis;
- b) As supportive evidence if there are clinical symptoms suggesting active tuberculosis

## Personnel Health

### The Health Care Providers Acquiring Disease

Those working in an office/clinic setting are usually concerned about contracting illnesses from patients. You should be able to minimize such occurrences by practicing the principles discussed in this guideline, including:

1. Triaging your patients appropriately.
2. Practicing routine practices, including hand hygiene, before and after each patient contact.
3. Using additional precautions, where indicated.
4. Washing and/or disinfecting your office space and medical equipment appropriately (refer to the General Housekeeping of the Office section).
5. Discarding sharps promptly at point of use, and not recapping needles.
6. Ensuring adequate and appropriate immunization of all employees. Unique situations that might warrant particular attention by a health care provider include:

#### A. Dermatitis

The protective skin barrier is broken in people with chapped hands or eczema, and puts one at increased risk of acquiring and transmitting infection through this exposed area. Practice good skin care and cover any dermatitis with occlusive bandages. Wear gloves if you anticipate exposure to blood or other body fluids.

#### B. Immunocompromised Staff

Recognize that immunocompromised staff members are at increased risk of acquiring, or may have more severe consequences from acquiring infection from patients. Immunocompromised staff may also be at risk of shedding viruses (e.g., influenza) for prolonged periods. Assess whether immunocompromised staff in the office/clinic are at higher risk, and where feasible, tailor job description and exposures accordingly.

## The Infected Health Care Provider

It is beyond the scope of this guideline to review all infectious diseases, but a brief comment on the common ones will capture general principles. As a first statement, if you are sick, use your best judgment about working. If you have a fever that is usually a good indication you should be at home. If this is not feasible, use the best information available to prevent patients from becoming infected. Scrupulous hand hygiene is essential to prevent transmission of infection.

- a) **The Common Cold:** Rhinoviruses are contagious through both droplets and contaminated hands, e.g., after blowing your nose or sneezing. Practice hand hygiene after any contact with nasal secretions. Avoid seeing immunocompromised patients during this time. If you must work, wear a surgical mask and wash hands frequently
- b) **Influenza:** Influenza is also spread through droplets and contaminated hands. Fever and systemic symptoms (headache, malaise, myalgia) favor a diagnosis of influenza over the common cold. If you have influenza or an influenza-like illness, refrain from working until well. If you must work, wear a surgical mask, wash hands frequently, and take particular care with high risk patients (e.g., immunocompromised, chronic cardiac or pulmonary disease). Annual vaccination is the best form of prevention.
- c) **Herpes Simplex Virus Infections:**
  - i) **The cold sore:** Fresh lesions contain numerous infectious particles of Herpes simplex virus. If possible, keep the lesion covered during patient visits, especially when seeing immunocompromised patients. Avoid touching the face and wash hands frequently.
  - ii) **Herpetic whitlow (herpetic finger infection):** Herpetic whitlow may present as single or multiple vesicular skin lesions, or as a swollen discolored area resembling a paronychia. It should not be incised. All persons with herpetic whitlow **MUST** be excluded from direct patient contact until the lesion is resolved, as gloves will not provide adequate protection for the patient.
  - iii) **Shingles:** A susceptible patient exposed to a health care worker with shingles may get chickenpox. Dermatomal zoster is much less infectious than chickenpox and the risk of transmission is minimized if the lesions are covered. Health care providers may work, in most cases, if the lesions can be covered and good hand washing technique is used. Health care providers with shingles must not work with high risk patients (e.g., newborns, immunocompromised patients) until lesions are crusted.
- d) **Enteric infection:** Health care providers with vomiting and diarrhea should stay home because of the contagion of these illnesses. Viruses can be shed in stool even when symptoms are resolved. It is prudent for health care providers to stay off work for 48 hours after resolution of symptoms of gastroenteritis



e) **Tuberculosis:** Health care providers with pulmonary or laryngeal tuberculosis should be excluded from work until symptoms are improved on compliant therapy and three consecutive sputum specimens collected on different days have smears negative for acid-fast bacilli. If infection is smear negative, two weeks of compliant therapy with clinical improvement should be adequate. The Chief Public Health Office will routinely assess any patient with TB for infectiousness, and let them know if it is safe to return to work. If you are uncertain about when it is safe for a staff member to return to work, consult the Chief Public Health Office. Health care providers with extrapulmonary and extralaryngeal tuberculosis do not usually require work restrictions.

**References:**

1. Canadian Immunization Guide, Health Canada, Seventh Edition, 2007
2. Tuberculosis Standards, 6th Edition, Canadian Lung Association/Canadian Thoracic Society and Health Canada, 2006.

## Protocol Following Significant Exposure to Blood

Blood borne infections of concern include hepatitis B (HBV), hepatitis C (HCV), and human immunodeficiency virus (HIV). Hopefully, all health care providers will have been vaccinated for HBV and will be considered immune. However, a prompt and organized approach is still required when staff members are accidentally exposed to blood or body fluids through percutaneous (needle stick) or mucous membrane (splash) accidents. In particular, a decision will have to be made about the need to initiate post-exposure prophylaxis for HIV. Please consult “Guidelines for the Management of Percutaneous or Sexual Exposure to Bloodborne Pathogens” in Appendix 6 or at [www.gov.pe.ca/health](http://www.gov.pe.ca/health) in the Chief Public Health office section under health professional resources.

## Section 3 THE ENVIRONMENT

### General Housekeeping of the Office

Surfaces in the office/clinic such as in public areas, exam tables, counter tops, floors and toilets need to be cleaned immediately when they are visibly soiled.

Detergent disinfectants clean and disinfect.

Phenols leave films and can depigment the skin. Do not use them on surfaces that will be in contact with infants as the phenolic can be absorbed and have neurological side effects. Many commercially available products, which can be purchased in a grocery store, might have phenol as the active ingredient. Check all labels when selecting products.

**Note about bleach:** Sodium hypochlorite solutions should be prepared daily and stored at room temperature in an opaque container to ensure the concentration is maintained. Bleach solutions are inactivated by the presence of organic matter and are **not** cleaning agents, so they should only be used after the item has been cleaned with a detergent.

Medical offices should be cleaned at the end of every day, unless a situation arises such as a visibly soiled surface that warrants immediate attention. General housekeeping routines involve cleaning and disinfecting surfaces, toys and objects with a low-level disinfectant. Cleaning of body fluid spills requires special consideration. Try to keep the examining rooms in the office/clinic as minimally cluttered as possible. This will facilitate cleaning.

#### i) Materials and Practices

The following disinfectants are suggested for use in the daily cleaning and disinfection of all surfaces in the office:

- quaternary ammonium compounds
- sodium hypochlorite (household bleach) (1:100 dilution prepared daily)
- hydrogen peroxide-based product
- phenolic

All are detergent disinfectants except for bleach (see sidebar). These products come as a liquid, although some are available as disinfectant-impregnated wipes. Always have either a bottle of appropriately diluted disinfectant or disinfectant wipes available.

#### Can the detergent disinfectant be used on everything?

Yes, it can be used on:

- baby scales
- table tops
- floors
- sinks
- toilets

**Examination tables:** Uncovered examination tables should be cleaned between patients. Table covers, linen, paper, plastic, etc., should be changed between patients. If there is a body fluid spill, clean and disinfect the table after removing the cover, (see Spot Cleaning of Body Fluid Spills) otherwise clean the table daily.

**Toys:** Frequently touched toys should be disinfected daily with a freshly prepared 1:100 bleach solution or appropriately diluted hydrogen peroxide solution. Let them air dry. Phenolics should not be used. If the toys are visibly soiled, wash them first with soap and water, and then disinfect. Do not have cloth or plush toys as they cannot be cleaned or disinfected properly.

**Computers:** If computers are in exam rooms, it is strongly recommended that you cover the keyboard with a cover to facilitate cleaning. The keyboard and mouse should be included in the routine cleaning protocol.

**Magazines/Books:** Throw out regularly

## ii) Spot Cleaning of Body Fluid Spills

1. Wear gloves while cleaning.
2. Wipe up as much of the visible material as possible with disposable toweling and discard in a lined, covered garbage container. For disposal of this garbage, refer to Waste Disposal section (page 27).
3. Clean the spill area with the prepared detergent disinfectant. Rinse and dry with a disposable towel.

Carpets are not recommended for high traffic areas. If spills occur on carpets, remember that bleach may damage the carpet and so another agent should be used. In certain cases, cleaning carpets may not be sufficient, and replacement and disposal of carpeting may be required.

Sharps, including broken glassware, should be picked up with a dustpan and scraper. Discard in a safe manner to avoid injuries (see Waste Disposal section). Wash dustpan and scraper, if soiled.

## iii) Equipment and Material Maintenance Practices

### A. Medication/Vaccination Refrigerator

In order to ensure that the vaccines given to patients are fully effective, health care providers are expected to do the following:

- Be aware of the recommendations for storage and handling issued by the medication/vaccine's manufacturer.
- Keep vaccines refrigerated within the temperature range recommended by the vaccine's manufacturer. (usually 2-8 degrees C)
- Store vaccines on the middle shelf of the refrigerator. Never store vaccines on the door shelves.
- Never leave vaccines out of the refrigerator, except when preparing the syringe.
- Never prepare vaccine doses in advance of seeing the patient by pre- filling syringes or leaving syringes ready on the counter.
- Check vaccine expiry dates regularly and only order a one to three month supply of vaccine. Always check expiry date before use.
- Return expired vaccines to the vaccine-ordering source or to your local pharmacy for disposal.
- Discard outdated medications per Provincial Waste Watch regulations or at your local pharmacy. Designate an annual time to review medications in the refrigerator.

**Be Prepared! Keep ice packs in the freezer and cooler bags on hand to transport or store medications in the event of a power failure or fridge malfunction.**

**Vaccines should be stored in fridge with separate freezer and refrigerator compartments.**

**DO NOT USE BAR FRIDGES**

**Vaccine fridges should be separate from fridges where food is kept.**

- Call the Chief Public Health Office or the vaccine's manufacturer for advice if there is reason to suspect that the vaccine may be spoiled.
- All refrigerators used to store vaccines should be equipped with a maximum-minimum thermometer to ensure that the vaccines have not been exposed to a temperature that is outside the allowable range.
- Temperatures should be recorded at least daily.
- To avoid malfunction, defrost refrigerator as often as necessary when there is any ice buildup. Vaccines should be maintained in a working refrigerator and the temperature monitored during defrosting.
- Disinfectant used for environmental cleaning can be used to clean the refrigerator.

## B. Multidose Vials

- See the product leaflet for recommended duration of use after entry of multidose vial (e.g., PPD 1 month, some influenza vaccines 10 days).
- Mark the product with the date it was first used to facilitate discarding at the appropriate time.
- Use strict aseptic technique when administering parenteral medications/vaccines. Limit access to select trained individuals, if possible.
- Refrigerate medications only if directed by manufacturer.
- Discard medication vials if contamination is suspected.

**Never re-enter a vial with a used needle or syringe.**

## C. Sterile Irrigation Solutions

- Discard open bottles at the end of each day.
- Use small bottles, if possible, and store according to manufacturer's recommendations.

## D. Ophthalmology Ointments and Drugs

- Check expiration date of medications before each use.
- Discard multi-use eye drops and ointments when manufacturer's expiration date is reached.
- Replace tops of ointments and drops immediately after use.
- Discard ophthalmic medications immediately if there is any possibility that they have been contaminated.

**The tip of the ophthalmic tube/dispenser should not touch the patients' conjunctiva or come into contact with tears. If this happens, consider the item to be contaminated and discard.**

### References:

1. Vaccine Storage and Handling Guidelines, MOHLTC, 2007, Available at: <http://www.phac-aspc.gc.ca/publicat/2007/nvshqpl-ldemv/index-eng.php>
2. Vaccine Storage, College of Physicians and Surgeons of Ontario, 2004. Available on-line at [www.cpso.on.ca](http://www.cpso.on.ca).

## Waste Disposal

Waste from any health care facility is divided into two categories: biomedical and general. Regulations state that biomedical waste be handled and disposed of in a manner that avoids transmission of potential infections. It is necessary to understand the differences between these types of waste so that clinics and private offices can separate the waste, and make arrangements for appropriate disposal of biomedical waste.

### Biomedical Waste

A Permit for the disposal of sharps and biomedical waste is required in PEI and information can be obtained by calling the Department of Environment, Labor and Justice at (902)368-5000.

Biomedical Waste consists of;

*Anatomical waste* consisting of tissues, organs and body parts, not including teeth, hair and nails, and;

*Non-anatomical waste* consisting of:

- i) Human liquid blood or semi-liquid blood and blood products; items contaminated with blood that would release liquid or semi-liquid blood, if compressed; any body fluids contaminated with blood, and body fluids excluding urine and feces removed in the course of surgery or treatment;
- ii) Sharps including needles, needles attached to syringes, and blades;  
or
- iii) Broken glass or other materials capable of causing punctures or cuts which have come into contact with human blood or body fluids.

Store waste safely until transported to the appropriate facility.

**Soiled diapers or perineal pads can be discarded as 'general waste'.**

### General Waste

General office waste includes all other garbage that does not fit into the above-cited category, and requires no special disposal methods other than careful containment of waste during disposal and removal.

### General Recommendations for All Types of Waste

- Ensure all garbage containers are waterproof and have tight-fitting lids, preferably operated by a foot pedal. Open wastebaskets might be dangerous if children are around them.
- Use plastic bags to line the garbage containers. The use of double bagging is not necessary unless the integrity of the bag is jeopardized or the outside is visibly soiled.
- Do not overfill garbage containers.
- Do not place sharp, hard or heavy objects into plastic bags that could cause bags to burst.

# Medical Instruments

## General Principles

Medical instruments are important tools of the profession. All equipment should be in good working order with preventative maintenance as required. Whether a product is reusable or designated as single-use has important infection control implications. Reusable items must be cleaned and disinfected or sterilized after use, according to manufacturer's instructions.

## Single-Use Medical Devices

Many items used in the health care industry are designated by the manufacturer to be single-use only, e.g., syringes, plastic vaginal specula, mouthpieces for pulmonary function testing. Items labeled "for single-use only" should not be reused.

## Cleaning, Disinfection and Sterilization of Medical Instruments

Medical instruments must be cleaned, and then either disinfected or sterilized after each use. The cleaning step is actually the most important, as residual organic debris will compromise the disinfection and sterilization process. In addition to generic guidelines for reprocessed medical equipment, the manufacturer's guidelines for specific instruments should also be consulted and followed.

A classification system was developed to categorize medical instruments according to whether they contact sterile tissue, mucous membranes or intact skin. They are classified into one of three categories according to Spaulding: "critical", "semi-critical" or "non-critical". This classification determines their reprocessing requirements.

### SPAULDING'S CLASSIFICATION OF MEDICAL INSTRUMENTS (modified)

CLASS	USE	REPROCESSING (minimum requirement)
Critical	Enters sterile body site or vascular system.	Cleaning followed by sterilization.
Semi-Critical	Comes in contact with intact mucous membranes or non-intact skin.	Cleaning followed by high-level disinfection.*
Non-Critical	Comes in contact with intact skin.	Cleaning followed by low or intermediate-level disinfection.

\*For some semi-critical instruments (e.g., thermometers, ear syringe nozzle), intermediate-level disinfection can be used.

## i) Cleaning of Instruments

- Staff must be protected when performing these activities. Personal protective equipment such as face protection, gloves and gowns are recommended.
- Instruments should be cleaned as soon as possible after use so that organic material will not dry. Organic material must be removed before disinfection or sterilization procedures are initiated as it interferes with these processes.
- Placing the instrument in a pre-soak of water or a solution of instrument detergent/enzymatic will help prevent drying of secretions and help facilitate the cleaning process.
- Instruments should be cleaned with an instrument detergent/enzymatic diluted in water according to the manufacturer's directions or alternatively, by ultrasonic machines also using instrument detergents.
- Careful attention must be paid to delicate or lumened instruments. Appropriate cleaning tools must be employed and care used to clean every surface. The cleaning tools must also be appropriately cleaned and disinfected.
- If possible, one designated staff person should be assigned the responsibility for cleaning and disinfection of equipment. Appropriate education or continuing education is strongly recommended for this person with regard to all equipment and when new equipment is purchased.
- The manufacturer's instructions should be followed and documented for each instrument reprocessed. This will provide references for orientation and training of staff, ensure consistency in reprocessing, and can be used to develop quality improvement activities. Written procedures should be kept near the reprocessing area. Procedures should be reviewed and revised regularly (see sample template format for procedure in Appendices 7 and 8).

**Thorough cleaning of instruments to mechanically remove all organic material is of the utmost importance prior to either sterilization or disinfection. Organic matter, if present, will inactivate or interfere with the sterilization or disinfection process.**

**Do not use hand soap to clean instruments as emollients in soap could remain on the surface of the instrument and interfere with the disinfection or sterilization process.**

**Instruments that are considered to be critical items require sterilization.**

## ii) Sterilization and Disinfection: General

Factors which interfere with sterilization and disinfection include:

- organic material, such as mucous, blood, pus, feces, saliva, etc.;
- nature of the microbial contamination and the number of organisms present;
- incorrect dilution (improper mixing) of the disinfectant;
- inadequate exposure (contact) time between instruments and sterilant/disinfectant;
- dilution of the sterilant/disinfectant, e.g., addition of wet instruments;
- loss of strength due to expired date;
- inadequate penetration of the sterilant/disinfectant into the instrument, e.g., channeled scopes;
- incorrect pH or temperature of the disinfectant;
- water hardness;
- incompatible detergents;
- presence of materials such as rubber and plastic.

## iii) Sterilization

Sterilization completely kills all forms of microbial life including the most resistant forms, e.g., bacterial spores.

### 1. Steam Sterilization

Steam sterilization is the most practical and economical method for sterilizing medical instruments. Small tabletop steam sterilizers that are carefully maintained can be used for many years and are highly recommended for clinic and office settings.

### GUIDELINES FOR STERILIZATION WITH STEAM AUTOCLAVES

Unwrapped instruments Non-porous, no lumen	3 minutes exposure	132-135°C
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Small wrapped packs	30 minutes	121-132°C
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Small autoclaves, similar in size to microwave ovens, are ideal for office use. Distilled water is recommended as the water source to prevent scale deposits on the instruments. It should be noted that microwave ovens are NOT appropriate for sterilization.

Unwrapped instruments should be used immediately so as not to contaminate the item; otherwise instruments should be wrapped (see Packaging on page 34).



The table below outlines suggested decontamination procedures for selected office instruments. The availability and utilization of institutional central sterilization departments by some physicians may influence the choice of reprocessing for some critical and semi-critical items. **Remember all items must be cleaned prior to disinfection or sterilization.**

**Table 2 - Suggested decontamination procedures for selected office instruments**

Instrument or item	Category	Requirements	Suggested Procedures
Acupuncture needle	C	ST	Sterilize or disposables preferred.
Alligator forceps	SC	HLD	High-level disinfectant or sterilize.*
Anal/nasal speculum	SC	HLD	High-level disinfectant or sterilize.*
Baby scales and/or work surfaces	NC	ILD/LLD	Wipe down with a low-level disinfectant (not phenolic when children exposed).
Biopsy forceps/pinches	C	ST	Sterilize or disposables preferred.
Blood pressure cuff, reflex hammers	NC	ILD/LLD	Wipe down with a low-level disinfectant (not phenolic when children exposed).
Colposcopy equipment	C	ST	Sterilize.
Cryosurgery tips	SC	HLD	Immerse the tip according to manufacturer's instructions.
Ear cleaning equipment, ear cures, otoscope tips	SC	HLD/ILD	Sterilize or boil 20 minutes or immerse in household bleach 1:100 (if plastic), or alcohol (70-90% ethyl) for 20 minutes. Clean the otoscope handle regularly. Disposable tips preferred.
Electrocautery tip for use on skin needle electrode (for electrodesiccation)	C	ST	Sterilize.
Endocervical curvettes	C	ST	Sterilize.
Fish hook cutters	C	ST	Sterilize.
Flexible fiberoptic endoscopes** (i.e., gastrointestinal, bronchoscopic, nasal)	SC	HLD	Clean all surfaces and channels carefully and immerse in HLD as recommended by manufacturer. Rinse well with water (preferably sterile), then 70% alcohol and hang to dry.
Flexible fiberoptic endoscope accessories (i.e., brushes, biopsy forceps)	C	ST	Sterilize.
Foot care instruments	C	ST	Sterilize.
Glucometers	NC	LLD	Establish routine cleaning procedure, and follow manufacturer's instructions for safe use.
Kimura spatula	C	ST	Sterilize or disposable spatula preferred.

Continued...

\*For semi-critical items, high-level disinfection is the minimum standard for reprocessing. If sterilization is more accessible, it is preferred.

\*\*Flexible fiberoptic endoscopes are particularly difficult to reprocess, given their lumens and delicate connections. Written policies for cleaning and disinfection should be available, and dedicated staff trained for these tasks. Refer to published guidelines for further information.

**LEGEND:**

**C=Critical**

**SC=Semi-Critical**

**NC=Non-Critical**

**ST=Sterilization**

**LLD=Low-Level Disinfection**

**ILD=Intermediate-Level Disinfection**

**HLD=High-Level Disinfection**

**Table 2 continued - Suggested decontamination procedures  
for selected office instruments**

<b>Instrument or item</b>	<b>Category</b>	<b>Requirements</b>	<b>Suggested Procedures</b>
Laryngoscope blades	SC	HLD	Also assure laryngoscope handle is thoroughly washed after each use.
Laryngeal mirror	SC	HLD	Sterilize or high-level disinfectant.*
Neurologic test pin	C	ST	Sterilize or disposables preferred.
Peak Flow Meters	SC	HLD	Use disposable mouthpiece and disposable filters. Clean whole instrument in hot water and mild detergent/disinfectant, immerse in 1:50 dilution household bleach for 20 minutes. Rinse in tap water.
Pessary and diaphragm fitting ring	C	ST	Sterilize.
Respiratory therapy equipment (mouthpieces, nasal prongs, etc.)	SC	HLD	Disposables preferred.
Rigid metal sigmoidoscope, proctoscope, nasal endoscope, laryngoscope and laryngoscope blades	SC	HLD	Clean all surfaces and channels carefully, and sterilize or high-level disinfectant.
Scalpels	C	ST	Disposables preferred.
Stethoscope, bandage scissors	NC	ILD/LLD	Wipe with alcohol frequently (stethoscope: diaphragm and bell), ideally after each use.
Stitch cutter	C	ST	Sterilize or disposables preferred.
Surgical instruments	C	ST	Sterilize.
Suture removal equipment	C	ST	Sterilize or disposables preferred.
Tonometer, contact lenses	SC	HLD	Immerse in 1:50 dilution household bleach (1,000 ppm free chlorine) or 3% hydrogen peroxide for 10 minutes. Rinse in water and dry well.
Thermometer (glass)	SC	ILD	Immerse in 70-90% ethyl alcohol for 20 minutes or disposables, sheaths, or electronic thermometers preferred.
Ultrasound probes (skin contact)	NC	LLD	After each use, wipe gel off and clean thoroughly with LLD.
Ultrasound probes (mucous membrane contact, vaginal probes)	SC	HLD	After each use, wipe with detergent disinfectant, and then high-level disinfectant. Always use a probe cover.
Vaginal speculum (metal)	SC	HLD	High-level disinfectant or sterilize.* Disposable specula available.
Vaginal tenaculum	C	ST	Sterilize.

\*For semi-critical items, high-level disinfection is the minimum standard for reprocessing. If sterilization is more accessible, it is preferred.

**LEGEND:**

**C=Critical**

**SC=Semi-Critical**

**NC=Non-Critical**

**ST=Sterilization**

**LLD=Low-Level Disinfection**

**ILD=Intermediate-Level Disinfection**

**HLD=High-Level Disinfection**

## 2. Dry Heat Sterilization (hot air ovens)

Dry heat should be used only for the materials that cannot be sterilized by steam. The principle advantage of dry heat sterilization is its penetrating power. The disadvantages are that heating is slow, and long exposure times and high temperatures are required, which could damage materials.

Time-temperature relationships for sterilization with hot air are:

170°C (340°F).....60 minutes

160°C (320°F).....120 minutes

150°C (300°F).....150 minutes

140°C (285°F).....180 minutes

**These temperatures relate to the time of exposure after the attainment of the specific temperature. The time does not include the heating lag.**

### Monitoring the Sterilization Process

It is imperative that the sterilization process be monitored to ensure the integrity of the process.

**Manual indicators** on the machines, such as time, temperature and pressure gauges, must be monitored and recorded.

- Temperatures must reach a specific level and be maintained for specific periods to kill microorganisms. The greater the temperature, the less time required.
- Pressure is necessary to create the steam. Manufacturers set the pressure gauge.
- Steam must be saturated for effective sterilization. For tabletop autoclaves, water must be manually added.

**Chemical indicators**, such as tape that changes colour, are useful for distinguishing between processed and unprocessed items. Chemical indicators do not, however, imply that sterilization has taken place. Tapes are usually placed on wrapped products.

**Biological indicators (BI)** must be used regularly (see sidebar) to ensure that sterilization has occurred. All biological indicators must be used according to the manufacturer's instructions and records should be kept of these results. If biological testing indicates that sterilization has not been achieved, sterility of the instruments cannot be assured. It is very important that a process be in place in the event of a failure. If this occurs it is important to have a record describing the cause of the failure, corrective action and any recall of items.

#### What to do if the failure is a positive BI:

- Repeat the test. If practical, do not release any items that were processed since the last negative test. If this repeat test is negative, and there is not an indication of a system malfunction – continue as normal.
- If the repeat BI is positive again, review all items that were processed since the last negative test. Review the process to ensure this is not a false positive.

**A logbook should be kept for each load.**

**How often should you use biological indicators? Although some guidelines say a minimum of weekly, the Canadian Standards Association (CSA) recommends daily biological indicator (BI) testing. The frequency of use of the sterilizer might be considered when deciding the frequency of testing.**

**Check with your sterilizer manufacturer to determine which biological indicator is appropriate for the specific sterilizer.**

Complete a report that includes time, date, load description, results of mechanical and chemical monitoring, contact the manufacturer, and after repair and maintenance, rechallenge the autoclave with the BI. Resterilize the recalled items once the results of the BI are negative.

- Have a procedure for patient notification if instrument(s) were used on patient(s).
- Have a back up procedure to ensure your equipment will be sterilized as required, e.g., set of disposable devices, arrangement with a colleague to use their autoclave.

#### References:

1. Effective Sterilization in Health Care Facilities by the Steam Process, Z314.3-01. CSA International.
2. Handbook on Infection Control in Office-Based Health Care and Allied Services, April 2004, CSA PLUS 1112, Canadian Standards Association. Available on-line at: <http://www.cssinfo.com/info/csa.html>.

### Preventative Maintenance

Regular preventative maintenance and cleaning is required to assure the effectiveness of the machine. Records should be kept of any preventative maintenance and repairs performed. Use the instruction manual or contact the manufacturer. Assure distilled water is filled to the correct level and drained according to manufacturer's recommendations. Check the gasket for defects and deterioration. Assure proper placement of packs, and do not overload the chamber.

### Packaging and Storage of Instruments

There are many types of packaging materials available, each with advantages and disadvantages. The following criteria must be kept in mind.

The packaging material:

- must allow the sterilant to enter the pack;
- must maintain the sterility of the contents and be impervious to the environment; and
- should minimize the contamination risk when the package is opened.

The most useful wrapping materials in the physician's office are plastic/peel pouches. They are easy to use, often with features such as self-sealing closures and chemical indicator strips, and come in a variety of sizes that can accept single or small groups of instruments. Be sure to mark the date the product was sterilized on the product wrapping.

### Storing Instruments after Sterilization

It is critical that steam-sterilized packs be subject to a drying cycle prior to handling for storage. Wrapped packs should be carefully stored in clean, dry, dust-free areas (closed shelves), not at floor level, and should be away from debris, drains, moisture and vermin to prevent contamination and maintain sterility until the time of use. All stored equipment and instruments should be left undisturbed as much as possible since handling may draw contaminants in through a bellows effect.

**Do not soak any sterile instruments in solutions before use. Keep all devices in sterile packs until use.**

**Inventory control and rotation should be used to avoid long storage.**

Check the following to determine if the integrity of the package has been compromised:

- Is the seal still intact?
- Is the package free from tears, dust, soil and dampness?
- Have the chemical indicators on the pack changed to the appropriate colour?

### Shelf Life of Sterile Items

For items reprocessed in the office, if the integrity of the package has been maintained, the item remains sterile. A plastic dust jacket may greatly extend the shelf life of the package and should be used on muslin or crepe wrapped packs. If a sterile tray/package has been purchased and has an expiry date/label, follow manufacturer's guidelines and discard when outdated.

#### References:

1. Handbook on Infection Control in Office-Based Health Care and Allied Services, April 2004, CSA PLUS 1112, Canadian Standards Association. Available on-line at: <http://www.cssinfo.com/info/csa.html>.
2. Freidman C, Peterson K. Infection Control in Ambulatory Care, 2004, An Official APIC publication.
3. Effective Sterilization in Health Care Facilities by the Steam Process, Z314.3-01. CSA International.

**Time does not contaminate - events do.**

## iv) Disinfection

Disinfection is a relative term. Disinfection is a process that kills or destroys nearly all disease-producing microorganisms. Disinfectants are used on inanimate objects. There are three levels of disinfection depending on the resistance of the organism to inactivation.

The following list ranks the spectrum of microbial life in terms of resistance to destruction by heat or chemicals:

### Microbes in Order of Increasing Resistance to Destruction

**Bacterial spores** (e.g., *Clostridium difficile*, *Bacillus anthracis*)



**Mycobacteria** (e.g., TB)



**Non-lipid or small viruses** (e.g., polio virus, coxsackie)



**Fungi** (e.g., candida, aspergillus)



**Lipid or medium sized virus** (e.g., herpes, HIV, Hepatitis B/C)



**Vegetative bacteria** (e.g., *staphylococcus*, *pseudomonas*)

Note: Prions, the cause of Creutzfeldt-Jakob disease (CJD) and variant CJD, are more resistant to sterilization than spores.

# Disinfection Procedures

Instruments that are considered semi-critical items must be subjected to high-level disinfection at a minimum.

Thorough cleaning of instruments to mechanically remove all organic material is of the utmost importance prior to either sterilization or disinfection. Organic matter will inactivate or interfere with the sterilization or disinfection process, if present.

Disinfectants used should have a DIN number, and/or be hospital grade.

Material Safety Data Sheets (MSDS) should be available to staff in the office/clinic for any chemicals used in the office, such as cleaning products.

Running medical equipment through a dishwasher cycle can sometimes be used for the cleaning stage of reprocessing. It cannot be used for devices with lumens. Disinfection or sterilization must follow.

## 1. High-Level Disinfection (HLD)

Sterilization is always the preferred mode of reprocessing semi-critical medical equipment. However, for items that cannot tolerate sterilization, high-level disinfection should be used.

Instruments that contact mucous membranes are considered to be semi-critical items and must be high-level disinfected, as a minimum requirement. High-level disinfection kills vegetative bacteria, fungi, lipid and non-lipid viruses, and mycobacteria.

a) **Boiling:** Boiling offers a cheap and readily accessible form of high-level disinfection. It can be accomplished by using a “hot water disinfectant” which lowers a trivet of instruments into boiling water. Plain tap water can be used; if scale develops, a descaling agent can be added. It is essential that the contact time be at least 20 minutes after boiling has started.

Important points include:

- change water at least daily;
- keep water level full during the day;
- ensure all parts of the instruments are in contact with boiling water (i.e., open scissors, forceps);
- wash and dry the boiling vessel at the end of each day.

b) **Chemicals:** High-level disinfection with chemicals has been referred to as “cold sterilization”.

Some high-level disinfectants are also labeled as “sterilants”. Sterilization with these compounds requires many hours of contact. Use only according to manufacturer’s recommendations.

## 2. Intermediate-Level Disinfection

Intermediate-level disinfectants do not kill large numbers of bacterial spores in six to 12 hours, but can kill all other organisms in the preceding list. Small, non-lipid viruses (e.g., enteroviruses) may be resistant.

## 3. Low-Level Disinfection

Equipment that does not touch mucous membranes and only touches intact skin, e.g., stethoscopes, blood pressure cuffs, and baby scales require cleaning with low-level disinfectants. Such chemicals cannot be relied upon to destroy bacterial spores and tubercle bacilli, and often fail to kill many fungi and viruses. Germicidal activity is variable, depending on the concentration of the active ingredient.

### References:

1. Rutala, WA. APIC Guideline for Selection and Use of Disinfectants. AmJ Infect Control, 1996; 24: 313-342.
2. Freidman, C, Petersen, K. Infection Control in Ambulatory Care, An Official APIC Publication, Jones and Bartlett Publishers, Sudbury, Mass., 2004.
3. Ontario Hospital Association, Reused Single-Use Medical Devices Ad-Hoc Working Group Report, January 12, 2004.

**Table 3 - High-Level Disinfectants (HLD)**

Chemical	Action	Application	Exposure Time	Comments
Glutaraldehyde	Sterilant HLD	Semi-critical devices	>20 minutes for HLD >10 hours for sterilization (or according to manufacturer's recommendations)	<ul style="list-style-type: none"> <li>• <b>Toxic.</b> Rinse well.</li> <li>• Shelf life limited.</li> <li>• <b>Requires well-ventilated room</b> and <b>safe work practices.</b> Health care providers may be exposed to elevated vapour if equipment is processed in rooms with inadequate ventilation, when spills occur, or when there is an open immersion bath. The ceiling exposure value (CEV) is the maximum airborne concentration of a biological or chemical agent to which a worker is exposed at any time. The current occupational exposure limit that the ACGIH has set for glutaraldehyde is a ceiling exposure value of 0.05 ppm.</li> <li>• The recommended in-use concentration of each preparation should be maintained for the product to maintain its effectiveness, therefore monitoring the concentration of glutaraldehyde is required. Follow manufacturers' recommendations.</li> </ul>
Ortho-phthalaldehyde 0.55%	HLD	Semi-critical devices	12 minutes	<ul style="list-style-type: none"> <li>• Shelf life limited.</li> <li>• Less occupational risks.</li> <li>• Rinse well.</li> </ul>
Sodium hypochlorite 1,000 parts per million (ppm) (1:50 dilution of household bleach)	HLD	Limited application on semi-critical devices	>20 minutes	<ul style="list-style-type: none"> <li>• Corrosive to metals.</li> <li>• Rinse well.</li> <li>• Does not clean.</li> <li>• Prepare daily.</li> </ul>
Boiling	HLD	Semi-critical items that can be subjected to moisture and heat	>20 minutes	<ul style="list-style-type: none"> <li>• Change water daily.</li> <li>• Clean vessel daily.</li> <li>• Keep water level full.</li> </ul>

**Table 4 - Intermediate/Low-Level Disinfectants (I/LLD)**

Chemical	Action	Application	Exposure Time	Comments
Sodium hypochlorite, 500 ppm (1:100 dilution of household bleach)	I/LLD	Environmental surfaces	10 minutes	<ul style="list-style-type: none"> <li>• Clean surface first, then disinfect.</li> <li>• Prepare daily</li> </ul>
Alcohol, iso-propyl 60-90%	ILD	Environmental surfaces	Allow to dry	<ul style="list-style-type: none"> <li>• Clean surface first, then disinfect.</li> </ul>

**Table 5 - Low-Level Disinfectants (LLD)**

Chemical	Action	Application	Exposure Time	Comments
<ul style="list-style-type: none"> <li>• Quaternary ammonium compounds</li> <li>• Accelerated hydrogen peroxide products</li> <li>• Sodium hypochlorite (1:100 dilution of household bleach)</li> <li>• Phenolics</li> </ul>	LLD	Daily cleaning and disinfection of all surfaces in the office		<ul style="list-style-type: none"> <li>• Sodium hydrochlorite is a disinfectant agent and has no cleaning properties.</li> <li>• Phenols may leave a film; may depigment skin; do not use on items that will be used with infants.</li> </ul>

## Office Design/Renovations

Before you lease or renovate, or even when designing the internal set up of the office, review the questions below to identify your needs.

Does the office/clinic:

- serve a high risk population?
- need clean or soiled storage rooms?
- store sterile supplies near, under or on surfaces that can get wet easily?
- need more closed cupboards to store medical equipment?
- have the reprocessing/sterilization room as a separate room clearly designed to separate the dirty side from the clean side, with enough counter space?
- have sufficient freestanding hand hygiene facilities available (sinks and/or waterless product dispensers)? Are they in each examination room, washroom, laboratory area, medication preparation area, and soiled and clean utility room?
- have hand hygiene facilities conveniently located near the entrance to the room?
- have a waiting room big enough so that potentially infectious patients can be segregated?
- have an environment and furniture that is easy to clean?
- have a garbage bin near the door?



## Conclusion

These guidelines have been developed to educate the health care community on current infection control practices necessary for an office/clinic practice. Some components are derived from legislation and regulations, and explicitly state what is expected of health care providers. Other sections of the guidelines outline best practices developed to raise awareness and minimize the risk of transmission. Professional judgment and the realities of health care practices in PEI will always inform how each best-practice recommendation is used by each health care provider.

In the event that PEI experiences a serious infectious disease outbreak, these best practices may be superseded by directives from the Chief Public Health Officer. The risks of such a situation will hopefully be mitigated by careful consideration of these guidelines by all Health Care Providers and their teams in community health practices.

The following Appendices provide additional information on such topics as basic office supplies for infection, prevention and control; examples of signage; and sample templates for sterilization and disinfection. A glossary of terms and useful resources also follow.



# APPENDICES

## **Appendix 1: Basic Office Supplies for Infection, Prevention and Control**

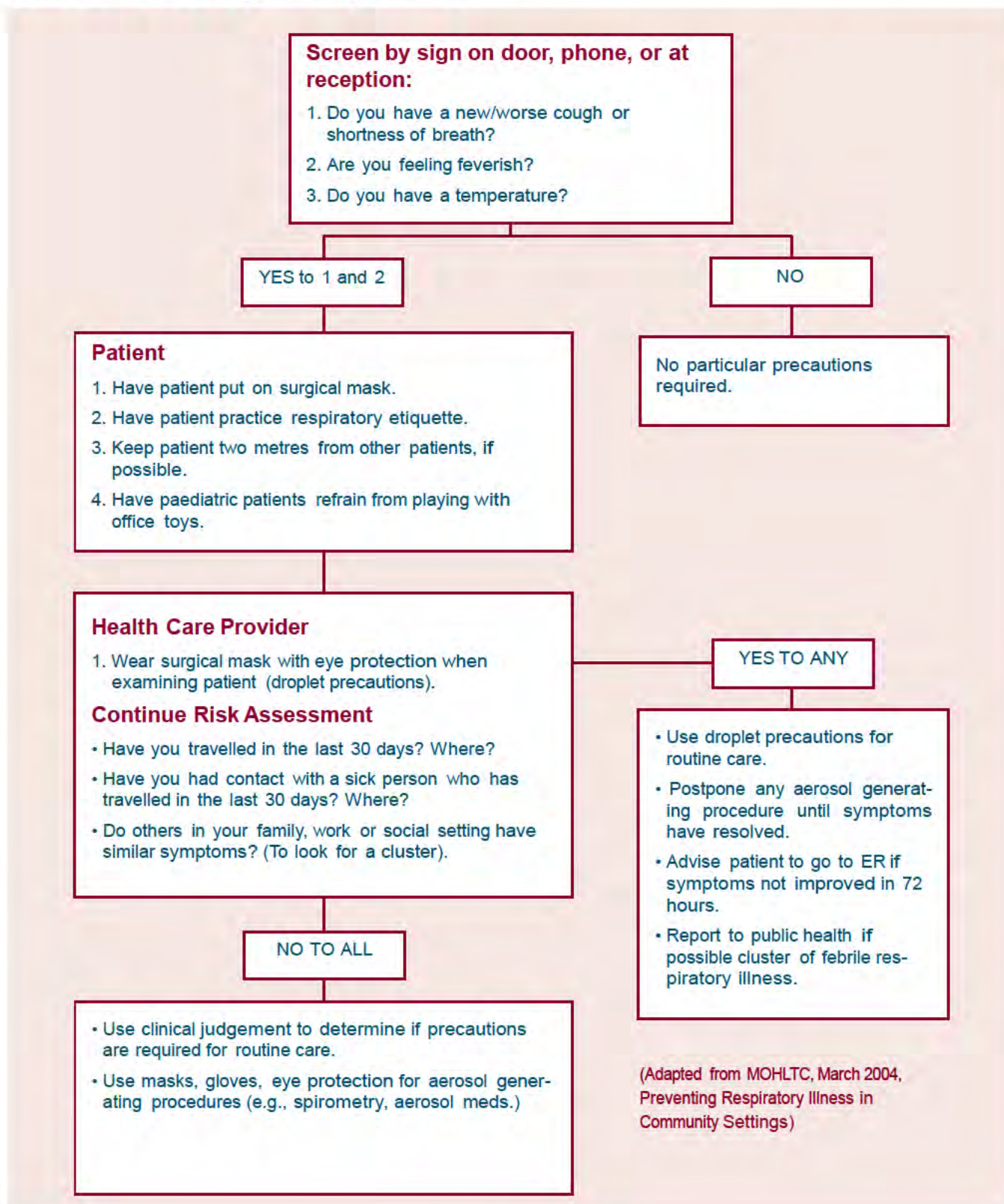
The following should be available in all offices:

- Hand hygiene agents.
- Personal protective equipment (PPE), including:
  - gloves;
  - surgical masks;
  - gowns;
  - eye protection (i.e., goggles or face shield - eye glasses do not provide adequate protection);
  - disposable cardiopulmonary resuscitation devices or pocket masks.
- Antiseptics, cleaning agents, and disinfectants properly labeled.
- Material safety data sheets (MSDS) book.
- Policy and procedure book(s).

The nature of your practice will determine the quantity of supplies you should have in stock. For example, a family physician will require more PPE than a psychiatrist.

Other pieces of equipment will depend on your practice. If you do minor procedures such as biopsies, you will need to have a sterilizer, as well as chemical and biological indicators for monitoring.

## Appendix 2: Algorithm for Detection and Management of Patients with Febrile Respiratory Illness



## Appendix 3: Examples of Signage

**STOP** **Contact Precautions**



Wear gown when entering room




Wear gloves when entering room




Wash hands before entering and leaving room

*Wipe medical equipment after use*


**STOP** **Droplet Precautions**



Wear surgical face mask when entering room



Wash hands before entering and after exiting patient room



Wear eye protection when entering room

*Wipe medical equipment after use*

**STOP** **Airborne Precautions**



Wear N95 or equivalent respirator when entering room



Keep door closed!



Wash hands before entering and leaving room

## Appendix 4: Public Health

Health care providers contribute in numerous ways to the effective implementation of a sound public health program. An important function is to fulfill a role in community surveillance by recognizing and reporting to the Chief Public Health Office those patients with communicable diseases seen in your practice. Every health care provider may only see one patient with a particular illness, but through the public health lens, an outbreak might be recognized. The communicable diseases which must be reported by physicians and other health care providers are listed below, however the provincial lab plays an important role in surveillance and reports all lab confirmed notifiable diseases to the Chief Public Health Office.

### Reportable Diseases:

The following are notifiable diseases or conditions, the occurrence of which, in humans, must be reported to the Chief Public Health Officer or their delegate (Section 23 of the *Public Health Act* R.S.P.E.I 1988, Cap. P-30).

- a) Any occurrence of the following disease must be reported:
  - i.) Creutzfeldt-Jakob disease (CJD) and variant Creutzfeldt-Jakob disease (vCJD),
  - ii.) Enteritis including
    - A. Amoebic
    - B. Campylobacter
    - C. Cholera
    - C1. Clostridium Difficile
    - D. Cryptosporidia
    - E. Giardiasis
    - F. Salmonellosis
    - G. Shigellosis
    - H. Verotoxic E. Coli
    - I. Yersinia and
    - J. Enteritis resulting for any other communicable cause
  - iii.) Food Poisoning, including
    - A. Botulism and
    - B. Staphylococcal
  - iv.) Hepatitis A, B and C
  - v.) Human T-cell Lymphotropic Virus (HTLV 1)
  - vi.) Invasive Pneumococcal disease
  - vii.) Meningitis and Encephalitis
    - A. Bacterial or
    - B. Viral
  - viii.) Pertussis
  - ix.) Neoplasm, malignant or benign
  - x.) Other Diseases including
 

A. Acquired Immunodeficiency Syndrome	K. Leprosy	X. Toxic Shock Syndrome
B. Anthrax	L. Listeriosis	Y. Toxoplasmosis
C. Brucellosis	M. Lyme Disease	Z. Trichinosis
D. Chicken Pox	N. Malaria	AA. Tularemia
E. Diphtheria	O. Mumps	BB. Typhoid and Paratyphoid
F. Group A Streptococcus, Invasive	P. Norovirus	CC. West Nile Virus
G. Haemophilus Influenzae B and non-B Infections (Invasive)	Q. Plague	DD. Yellow Fever
H. Histoplasmosis	R. Poliomyelitis	
I. Human Immunodeficiency Virus (HIV) antibodies	S. Psittacosis	
J. Legionellosis	T. Q Fever	
	U. Reye's Syndrome	
	V. Rabies	
	W. Tetanus	

- xi.) Congenital Rubella Syndrome
- xii.) Rubella
- xiii.) Rubeola
- xiv.) Severe Acute Respiratory Syndrome (\*SARS)
- xv.) Sexually Transmitted diseases including
  - A. Chlamydia (genital or neonatal)
  - B. Genital Warts
  - C. Gonorrhoea
  - D. Herpes (genital or neonatal)
  - E. Lymphogranuloma Venereum (LGV)
  - F. Syphilis
- xvi.) Smallpox
- xvii.) Tuberculosis
- xviii.) Novel organisms

b) Occurrence of any of the following must be reported if the disease appears epidemic or the case shows unusual features; the report shall include an estimate of the incidence as number of cases or percentage of affected population, and description of any unusual features:

- i.) Influenza  
Streptococcal infections
- ii.) Nuisance diseases  
Impetigo  
Ringworm  
Pediculosis  
Scabies

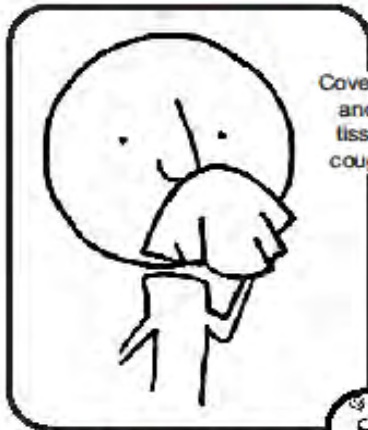
c) The Isolation of the following: (the provincial lab reports these to the CPHO)

- i.) A strain of Staphylococcus aureus resistant to methicillin
- ii.) A strain of enterococci resistant to vancomycin or
- iii.) A strain of Streptococcus pneumoniae resistant to penicillin isolated from a normally sterile site.



Stop the spread of germs that make you and others sick!

# Cover your Cough



Cover your mouth and nose with a tissue when you cough or sneeze or cough or sneeze into your upper sleeve, not your hands.



You may be asked to put on a surgical mask to protect others.

Put your used tissue in the waste basket.



## Clean your Hands

after coughing or sneezing.



Wash hands with soap and warm water for 20 seconds or



clean with alcohol-based hand cleaner.



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Illinois  
Public Health  
Division



## **Appendix 6**

### **PEI Department of Health and Wellness**

#### **Guidelines for the Management of a Percutaneous or Sexual Exposure to Bloodborne Pathogens**

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**GUIDELINES FOR THE MANAGEMENT OF A  
PERCUTANEOUS OR SEXUAL EXPOSURE TO  
BLOODBORNE PATHOGENS**

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**DEPARTMENT OF HEALTH AND WELLNESS  
PRINCE EDWARD ISLAND**

**Revised February 2012**

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## **INTRODUCTION**

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These guidelines are designed for health care facilities, public health agencies, laboratories, and emergency response organizations involved in assessing and/or treating persons exposed to potential infections of hepatitis C virus (HCV), hepatitis B virus (HBV), or Human Immunodeficiency Virus (HIV).

### **Definitions**

**Immune to HBV-** a person who has had a test showing immunity to HBV at any time in the past.

**Susceptible to HBV-** a person whose anti-HBs test shows that they are not immune to HBV.

**Unknown HBV status-** no record exists of the person being immune to HBV.

### **Immunization**

It is to be emphasized that hepatitis B vaccine is recommended in the Department of Health and Wellness policy *Immunization and TB Testing* for persons at increased risk of occupational exposure to blood or body fluids for which there is an increases risk of occupational transmission of HBV. Health Care Workers (HCW) or students in training should complete a series of hepatitis B vaccine before there is a potential for exposure to HBV in the workplace.

### **SUMMARY**

**STEP 1 - EMERGENCY MANAGEMENT of a Possible Exposure to HBV, HCV or HIV:** Make sure emergency first aid is carried out as required.

**STEP 2 - EVALUATION of the Significance of Exposure:** Determine if the exposure warrants testing of the exposed and/or source person.

**STEP 3 - TESTING the Exposed and Source Persons:** Assess the exposed and source persons for recommended testing.

**STEP 4- TREATMENT After Significant Exposure:** Determine if post exposure preventative treatment is necessary/recommended.

### **IMPORTANT- PLEASE NOTE**

CHEMOPROPHYLAXIS for exposure to HIV should be started as soon as possible, ideally within 1-2 hours of exposure, or up to 72 hours after exposure.

HEPATITIS B IMMUNE GLOBULIN (HBIG) should be given to the exposed person preferably within 48 hours of exposure if the exposed person is known to be non-immune. However it may be deferred for up to 72 hours if the exposed person can be tested for Hepatitis B immunity and results reported within 72 hours OR the source person is being tested for Hepatitis B surface antigen and results are expected.

HEPATITIS B VACCINE should be administered to the exposed person after the HBIG is given, preferably within 72 hours. However, it can be delayed up to 7 days or more if the Hepatitis B surface antibody (immunity level) result on the exposed person is expected.

For SEXUAL EXPOSURE (eg. Assault) see page 9.

## **STEPS IN THE MANAGEMENT OF A POSSIBLE EXPOSURE TO HBV, HCV, OR HIV**

### **STEP 1**

#### **Emergency Management Following a Possible Exposure to HBV, HCV, HIV**

**Post-exposure** immediate first aid recommendations include: i) removing contaminated clothing; ii) washing the injured area well allowing any cut area to bleed freely; and iii) applying an antiseptic.

If the eyes, nose, or mouth are involved, it is advised that the involved area be washed well with large amounts of water.

A health care worker should report any injury to their supervisor for documentation of the incident and assessment of its significance.

### **STEP 2**

#### **Evaluation of the Significance of Exposure**

Evaluation requires the assessment of both:

- 1) the type of exposure and
- 2) the type of body fluid(s)/tissues from the source.

#### **1) SIGNIFICANT TYPES OF EXPOSURE INCLUDE:**

- Exposure of tissue under the skin (e.g., percutaneous, open body cavity or a bite breaking the skin) of the exposed person.
- Exposure of non-intact skin (e.g., cut, chapped or abraded skin).
- Exposure of a mucous membrane (e.g., exposure to the eyes, nose or mouth).
- Transmission of HIV by bites has been reported rarely but might theoretically occur. Saliva that is contaminated with infected blood poses a substantial exposure risk. Saliva that is not contaminated with blood contains HIV in much lower titres and constitutes a negligible risk.
- Percutaneous injuries from needles discarded in public settings such as parks, buses or buildings have never been documented as being responsible for HIV transmission. However, these incidents always are of concern because the needles involved can be discarded by intravenous drug (IVD) users. These injuries typically involve small bore needles that contain limited amounts of blood and the viability of the virus is short-lived.
- Sexual exposures involving receptive anal intercourse. Insertive anal intercourse, penile - vaginal exposures and oral sex represent less risk.
- Needle sharing among IV Drug and steroid users is significant

**Notes:**

Exposures of blood or body fluids on **intact** skin should generally **not** be regarded as a significant exposure to HBV, HCV or HIV. Exceptions to this which **are** an increased risk include those involving a high titre of HIV in the blood or body fluid, prolonged contact, an extensive area of skin is involved or an area in which skin integrity is visibly compromised.

Postexposure prophylaxis is indicated only for infrequent exposures and NOT for those engaging in frequent recurrent exposures that would require repeated or near-continuous courses of anti-HIV medications (i.e. those engaging in frequent unprotected sexual activity or injection-drug use).

2) **SIGNIFICANT BODY FLUIDS OR TISSUES FROM THE SOURCE**

**INCLUDE:**

- **Blood, serum, plasma** or any biologic fluid **visibly** contaminated with **blood**
- Organs for donation from a donor infected with HBV, HCV or HIV
- Pleural/amniotic/pericardial/synovial or cerebrospinal fluids containing HBV or HIV
- Uterine/vaginal fluids containing HBV or HIV (unlikely for HCV to be infective)
- Semen containing HBV or HIV (unlikely to be a source of either virus in occupational settings or HCV in any setting)
- Saliva containing HBV (not known to be a source of HCV or HIV)
- Laboratory specimens containing any of the blood and/or body fluids of tissues as above.

**Notes:**

Feces, nasal secretions, sputum, sweat, tears, urine, and vomitus are **not** implicated in the transmission of HBV, HCV or HIV **unless visibly** contaminated with blood.

The risk of transmission of HBV, HCV or HIV from **screened** donated blood and manufactured blood products prepared for transfusion is **minimal**.

If **both** the type of exposure and source material are significant, continue to STEP 3.

### STEP 3

#### Testing of Source and Exposed Persons after a Significant Exposure

If it has been determined that a significant exposure has occurred, it is advisable to determine if the person who is the source is infected with HBV, HCV or HIV. Every effort should be made to obtain informed consent from the source person. Pre- and post-test counselling must be available to anyone who is tested for HBV, HCV or HIV.

The course of action will depend upon whether the **Source Person** is:

- 1) **identifiable** (see below)
- 2) **positive for HBV, HCV or HIV, or refuses testing or is not identifiable** (see page 5)
- 3) **identifiable and is negative for HBV, HCV or HIV** (see page 6) .

Each of these situations is described below.

#### 1) THE SOURCE PERSON IS IDENTIFIABLE:

<b>VIRUS</b>	<b>RECOMMENDED ACTION</b>
<b>HBV</b>	If the exposed person is known to have been tested at any time in the past and found to be immune to HBV, the source person does not need to be tested.  If the exposed person is known to be susceptible to HBV (or status is unknown), test the source for Hepatitis B surface Antigen (HBsAg) <u>and</u> test the exposed person for HBV immunity.
<b>HCV</b>	Test both the source person and exposed person for HCV (Anti-HCV).
<b>HIV</b>	Test both the source person and exposed person for HIV antibodies.



2) **THE SOURCE PERSON IS POSITIVE FOR HBV, HCV OR HIV OR REFUSES TESTING OR IS NOT IDENTIFIABLE:**

VIRUS	RECOMMENDED ACTION
HBV	<p>The exposed person does not need to be tested for immunity to HBV if the exposed person has had a blood test done which showed immunity to HBV <b>at <u>any time</u></b> in the past.</p> <p>If the exposed person’s HBV status is <b>unknown</b> at the time of the injury <u>and</u> has not had a test indicating immunity to HBV at any time in the past, test the exposed person for HBsAg and anti-HBs.</p> <p>If the exposed person is known to be <b>non-immune</b> to HBV, test the exposed person for HBsAg now and at 3 and 6 months. If the source is positive for HBsAg, provide Hepatitis B Immune Globulin (HBIG) and Hepatitis B Vaccine to the exposed person (<b>See Step 4, page 7</b>).</p> <p>If the source cannot be tested, an assessment of the risk of the source having HBV is necessary and treatment recommended depending upon the risk (<b>See Step 4, page 7</b>).</p>
HCV	<p>Test the exposed person for HCV (Anti-HCV) by EIA at the time of injury; retest for anti-HCV at three and six months post-exposure (if the tests are negative but there are symptoms of HCV infection at any time, do an alanine transaminase (ALT) on the exposed person).</p>
HIV	<p>If the source person is known to be HIV positive and on anti-HIV medication, it is recommended that specialists be consulted (preferably in the clinic where the medication was prescribed). The exposed person may require anti-HIV medication based upon the sensitivity of the virus from the source person.</p> <p>If the source cannot be tested, offer prophylaxis based upon a decision made after discussion with the exposed person regarding the risk of the significance of the exposure. Factors considered in assessing risk are: prevalence of HIV in the area, circumstances of the incident (i.e. correctional facility, etc.), and whether the source person is known to have risk factors for HIV within the past six months (i.e. high-risk sexual behaviour such as men having sex with men, sexual partner of an intravenous drug user, multiple sexual partners; <u>or</u> has had an STD; <u>or</u> is a sexual or blood contact of a known case of HIV infection; <u>or</u> is an intravenous drug user; <u>or</u> has had a tattoo/body piercing procedure done).</p> <p>Test the exposed person for HIV at the time of injury and if negative, retest at six weeks, three months and six months (seroconversion is very rare after six months post-exposure).</p>

**3) THE SOURCE PERSON IS IDENTIFIABLE AND IS NEGATIVE:**

Usually no further action is necessary (for either the source or exposed person) if the source person is negative, **unless particular risk factors are present which increase the chances of infection.**

<b>VIRUS</b>	<b>RECOMMENDED ACTION</b>
<b>HBV</b>	Do not test the exposed person unless the source person is high risk of being in the window period in which case treatment needs to be considered ( <b>See Step 4, page 7</b> ) and the exposed person tested at the time of exposure and at 3 and 6 months after exposure.
<b>HCV</b>	If the source person is an injection drug user or at increased risk of HCV (may be in the window period), test the exposed person for HCV (anti-HCV) at the time of injury, and at 3 and 6 months.
<b>HIV</b>	If the source is at increased risk of HIV infection, consider that the source may be in the window period for infection, in which case the need for prophylaxis needs to be discussed with the exposed person while considering the risk of infection. It is recommended that the exposed person be tested for HIV at the time of exposure, and at then 6 weeks, 3 and 6 months post exposure.

**STEP 4**

**Treatment**

Treatment of the **exposed person** will need to be considered after the following has occurred:

- 1) significant exposure to HBV and HCV (see below)
- 2) significant exposure to HIV (see page 8)
- 3) sexual exposure (see page 9)

**1) TREATMENT AFTER SIGNIFICANT EXPOSURE TO HBV AND HCV:**

<b>SOURCE INFECTED OR HIGH RISK FOR:</b>	<b>RECOMMENDED ACTION</b>
<b>HBV</b>	<p>If exposed person is <b>immune</b> to HBV, take no further action.</p> <p>If the exposed person is tested and is <b>non-immune</b> to HBV, or immune status is not known and cannot be tested and have results back within 48-72 hours,</p> <ul style="list-style-type: none"><li>• Take blood for HBsAg, anti-HBs, HIV antibody and HCV antibody before giving HBIg.</li><li>• Give Hepatitis B Immune Globulin (*HBIg) preferably within 48 of exposure. However, it may be deferred for up to 72 hours if the exposed person can be tested for Hepatitis B immunity and results reported within 72 hours OR the source person is being tested for Hepatitis B surface antigen and results are expected. Efficacy decreases with time and is of unknown benefit if the start date is more than 7 days after exposure.</li><li>• Administer Hep B vaccine after HBIg is given, preferably within 48 hours. However, it can be delayed up to 7 days or more if the Hepatitis B titre result for surface antibody (immunity level) is expected. If further doses of Hep B vaccine are needed, refer to Chief Public Health Office. If the dose was a booster, no further doses are needed at this time and advise the exposed person to have a titre done by their physician in 4-6 weeks.</li></ul>
<b>HCV</b>	There is no effective chemoprophylaxis or immunoglobulin available.

**Note: Donating Blood after Receiving HBIg and Hepatitis B Vaccine**

After receiving HBIg, blood should not be donated until the recipient tests negative for HBsAg six months after the exposure. In situations where Hepatitis B vaccine is being given to an individual for routine immunization (not for a possible exposure to HBV), blood should not be donated for 48 hours after receiving the vaccine.

2) **TREATMENT AFTER SIGNIFICANT EXPOSURE TO HIV:**

Exposure	Source Material	Antiviral Treatment
<p><b>PERCUTANEOUS</b></p> <p>or</p> <p><b>MUCOUS MEMBRANE</b></p> <p>or</p> <p><b>SKIN</b></p>	<p>Blood or body fluid containing <b>visible</b> blood in cerebrospinal/ synovial/ pleural/peritoneal/ pericardiac/amniotic fluids or in semen, vaginal fluid or tissue:</p> <p>i) Highest Risk involves an incident in which the source is known to be:</p> <ul style="list-style-type: none"> <li>• HIV positive</li> <li>• Incarcerated</li> <li>• An intravenous drug user</li> <li>• Engaging in high risk sexual activity (see page 9)</li> <li>• From a foreign country known to have a high rate of AIDS/HIV</li> <li>• Source unknown.</li> </ul>	<p>Kaletra + Truvada</p>
	<p>ii) If the source material is highest risk and the <b>exposed person is pregnant</b></p>	<p>Kaletra + Combivir</p>
	<p>iii) Lowest Risk when the source is known <b>not</b> to be in the high risk group noted above.</p>	<p>Truvada</p>
	<p>iv) If the source material is lowest risk and the <b>exposed person is pregnant</b></p>	<p>Combivir</p>
	<p>v) Other body fluids with no <b>visible</b> blood</p>	<p>No treatment</p>

Refer to **Appendix 1 pages 12-13** for details on the above medications, common precautions and side effects.

**NOTES:**

A) When the source cannot be tested or is negative for HIV, but may be in the window period, OR if the significance of the exposure cannot be adequately assessed, the risk of infection should be explained to the exposed person and prophylaxis offered.

The exposed person should be informed of the risk of infection versus the risk of adverse effects from the medication.

- B) Chemoprophylaxis should be started as soon as possible, ideally within 1-2 hours of exposure, and no later than 72 hours after exposure.
- C) HIV antibody testing is recommended for all occupational exposures at baseline, and 6 weeks, 12 weeks and 6 months postexposure.
- D) The following baseline and 12-13 day blood work is required for those on medications:
  - 1) Complete blood work (CBC)
  - 2) BUN/Creatinine
  - 3) Liver enzymes (ALT + AST)

If 12-13 day blood tests are normal, the course of treatment should be extended so that a total of 28 days of treatment is taken.

### 3) POST EXPOSURE PROPHYLAXIS AFTER SEXUAL EXPOSURE:

Sexual exposures involving receptive anal intercourse is considered a high risk exposure. Insertive anal intercourse, penile - vaginal exposures and oral sex represent less risk.

Postexposure prophylaxis is not recommended if initiated 72 hours after exposure to HIV.

Partners who routinely use a condom (when one partner is known to be HIV positive) and experience breakage of a condom should be offered anti-HIV medication. When a condom breaks, an evaluation of the sensitivity of the HIV to antiviral medication of a known positive partner already on anti-HIV therapy is necessary.

Because most of these situations are high risk, the recommended anti-HIV medication is **Truvada** and **Kaletra** or if the exposed person is pregnant **Combivir** and **Kaletra**. Starter packs for these medications are kept in the Prince County Hospital and Queen Elizabeth Hospital Emergency Rooms (see page 10).

HBIg can be administered as in Step 4 page 6, but the interval within which it can be administered is up to 14 days after the last sexual contact with the source.

Hep B vaccine can be administered as in Step 4 page 7.

## **AVAILABILITY AND COVERAGE OF ANTIVIRAL MEDICATION**

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### **Starter Packs**

The “starter packs” contain a 4-day supply of medications and are available in the Queen Elizabeth and Prince County Hospitals for Emergency Room use. These packs are supplied by the pharmacies of these two hospitals and the cost is covered by the hospital.

### **Prescriptions for Course of Treatment**

#### **1) Workplace Incidents**

Those who are employees with insurance coverage are to take their prescription to a retail pharmacy. If the patient has drug insurance, all or part of the cost may be covered.

Those employees who have an accepted Workers Compensation claim for this specific work related injury will be covered for medications as appropriate. Entitlement to prescription drug coverage is dependant on whether the prescribed drug is related to the diagnosed work related injury or illness. If the Workers Compensation Board has not yet accepted the claim, the worker can pay for the drug directly and submit the original receipt to the Workers Compensation Board for consideration of payment, once the claim is accepted.

#### **2) Community Incidents**

Those patients who do not have coverage through their work may have private drug coverage. If the incident occurred in the community and the patient has no coverage, the incident is to be reported to the Office of the Chief Public Health Officer. Upon approval, a letter will be sent to the Provincial Pharmacy approving the provision of the antiviral medication free of charge upon receipt of a prescription in the Provincial Pharmacy. The medication may be picked up at the Provincial Pharmacy in Charlottetown.

### **NOTE:**

Only the community incidents need to be reported to the Office of the Chief Public Health Officer. However, when the source is known to be positive for HIV or HCV, a call to the Office of the Chief Public Health Officer would be appreciated. Call 368-4996 and ask for the CD Nurse.

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**The Chief Public Health Office gratefully acknowledges the many people who contributed to the original preparation of this document and to this revision. This revision was prepared with recommendations from Dr. Gordon Dow, Infectious Disease Specialist, Moncton, New Brunswick and on review of guidelines from the Division of Infectious Diseases, Nova Scotia.**

## APPENDIX 1A

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### ANTIVIRAL MEDICATIONS RECOMMENDED AFTER A SIGNIFICANT OCCUPATIONAL OR COMMUNITY EXPOSURE TO HIV (as discussed on page 8)

Chemoprophylaxis should be started as soon as possible, ideally within 1-2 hours of exposure, and no later than 72 hours after exposure. The following medications are presently recommended for prevention of HIV:

1) High Risk Exposure

a) **TRUVADA** (EMTRICITABINE 200 mg + TENOFOVIR 300 mg)  
Dose: ONE (1) TABLET P.O. DAILY FOR 28 DAYS

**And**

b) **KALETRA** (LOPINAVIR 200 mg + RITONAVIR 50 mg)  
Dose: TWO (2) TABLETS P.O. B.I.D. FOR 28 DAYS

2) High Risk Exposure and the **Source Person is Pregnant:**

a) **COMBIVIR** (ZIDOVUDINE 300 mg + 150 mg LAMIVUDINE)  
Dose: ONE (1) TABLET P.O. TWICE A DAY FOR 28 DAYS

**And**

b) **KALETRA** (LOPINAVIR 200 mg + RITONAVIR 50 mg)  
Dose: TWO (2) TABLETS P.O. B.I.D. FOR 28 DAYS

3) Low Risk Exposure

**TRUVADA** (EMTRICITABINE 200 mg + TENOFOVIR 300 mg)  
Dose: ONE (1) TABLET P.O. DAILY FOR 28 DAYS

4) Low Risk Exposure and the **Exposed Person is Pregnant**

**COMBIVIR** (ZIDOVUDINE 300 mg + 150 mg LAMIVUDINE)  
Dose: ONE (1) TABLET P.O. TWICE A DAY FOR 28 DAYS

**Note:** See page 13 for precautions and common side effects for these medications.



## APPENDIX 1B

### Precautions and Common Side Effects of Antiviral Medications

Drug	Precautions	Common Side Effects	Side Effects Requiring Immediate Attention	Side Effects to be Assessed at Next Doctor Visit
COMBIVIR	<p>An allergic reaction can occur when starting on any new medication.</p> <p>The patient should be seen immediately by a physician if any of the following symptoms are noted:</p> <ol style="list-style-type: none"> <li>1) sudden wheezing and chest pain or a tight feeling in the chest</li> <li>2) swelling of the eyelids, face and/or lips</li> <li>3) skin rash or hives anywhere on the body</li> </ol>		<ol style="list-style-type: none"> <li>1) Fever, chills or sore throat</li> <li>2) Pale skin or muscle weakness</li> <li>3) Abdominal discomfort, loss of appetite and a general feeling of discomfort</li> </ol>	<ol style="list-style-type: none"> <li>1) Headache</li> <li>2) Muscle soreness or nausea</li> <li>3) Unusual tiredness</li> <li>4) Trouble sleeping</li> <li>5) Diarrhea</li> </ol>
TRUVADA	<p>Allergic reactions as above for COMBIVIR</p>	<ol style="list-style-type: none"> <li>1) Nausea, vomiting and/or diarrhea</li> <li>2) Headache</li> <li>3) Flatulence</li> <li>4) Rash</li> </ol>	<p>Renal toxicity due to Truvada is rare but can be serious. The patient should have a normal creatinine before starting the medication and have the creatinine checked after 12 - 13 days on the medication.</p>	
KALETRA	<p>Allergic reactions as above for COMBIVIR</p> <p>Advise women on Kaletra to use protection for pregnancy while on medication and for 2 weeks after as Kaletra can reduce the effectiveness of Ovral <sup>TM</sup> but not Levonorgestrel <sup>TM</sup></p>	<ol style="list-style-type: none"> <li>1) Diarrhea. If diarrhea occurs, the patient should take the over-the-counter medication Immodium.</li> <li>2) Numbness or tingling in the inside of the mouth</li> <li>3) Stomach upset. If the stomach is upset, the patient may take the medication with food.</li> </ol>	<p>See "Precautions"</p> <p>Pancreatitis (rare)</p> <p>Hepatitis (rare) - usually when liver disease already present</p>	

## APPENDIX 2

### RECOMMENDED ACTION FOLLOWING PERCUTANEOUS (“NEEDLE STICK”) OR MUCOSAL EXPOSURE TO HEPATITIS B VIRUS

#### Course of Action Following Percutaneous (“NEEDLE STICK”) or Mucosal Exposure to Hepatitis B Virus

Exposed Person		Source*		
Vaccination Status	Anti-HBs Level	HBsAg Positive	Unknown Status	
			High Risk	Low Risk
Vaccinated	≥ 10 IU/L documented at any time.	no action necessary	no action necessary	no action necessary
	known non-responder (anti-HBs Ag level < 10 IU/L after vaccination)	HBIg <sup>†,‡</sup>	HBIg <sup>†,‡</sup>	no action necessary <sup>‡</sup>
	level unknown and unable to be determined within 48 hours	HBIg <sup>†</sup> + single booster	single booster ± HBIg <sup>†</sup>	no action necessary
Unvaccinated	≥ 10 IU/L	no action necessary	no action necessary	no action necessary
	level unknown at 48 hours or < 10 IU/L	HBIg <sup>†</sup> + full vaccine course	full vaccine course ± HBIg <sup>†</sup>	full vaccine course

\* If source is known to be HBsAg negative, no action is required unless exposed person requires initiation of vaccination series.

† Hepatitis B immune globulin 0.06 mL/kg preferably given within 48 hours of exposure. Efficacy decreases with time and is unknown after 7 days.

‡ If exposed person has received only three vaccine doses, an additional three-dose series may be administered.

Source: Canadian Immunization Guide, Seventh Edition, 2006

## Appendix 7: Sample Template

### Procedure for Sterilization

Name of instrument: \_\_\_\_\_

Performed by:  medical assistant       nurse       other

Personal protective equipment needed:       gloves       gowns  
 face shield       mask/goggles

Disassembly instructions, if applicable (document here):

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#### Procedure

After each use:

1. Immediately immerse instrument into water or soapy water to avoid drying of secretions or body fluids.
2. Clean with enzymatic detergent. Special equipment/procedures needed:
  - i) brushes
  - ii) cleaning cloths
  - iii) ultrasonic cleaner
3. Rinse with tap water.
4. Dry with lint free cloth.
5. Wrap. Indicate type of wrap (e.g., peel pouch, surgical wrap).
6. If not part of the wrap, include internal and external chemical indicators.
7. Label with date of sterilization and load number if more than one sterilizer load is run per day.
8. Place in steam sterilizer.
9. Remove when cycle is finished and packs are completely dry.
10. Storage location, to prevent contamination: \_\_\_\_\_.

Date issued: \_\_\_\_\_

Date reviewed: \_\_\_\_\_

Date revised: \_\_\_\_\_

## Appendix 8: Sample Template

### Procedure for Disinfection

Name of instrument: \_\_\_\_\_

Performed by:      medical assistant            nurse            other

Personal protective equipment needed:      gloves            gowns  
    face shield        mask/goggles

Disassembly instructions, if applicable: (document here)

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Disinfectant used: \_\_\_\_\_

#### Procedure

After each use:

1. Immediately immerse instrument into water or soapy water to avoid drying of secretions or body fluid.
2. Clean with enzymatic detergent. Special equipment/procedures needed:
  - i) brushes
  - ii) cleaning cloths
  - iii) ultrasonic cleaner
3. Rinse with tap water.
4. Drip dry (to avoid diluting the disinfectant chemical).
5. Completely immerse in high-level disinfectant.
6. Soak for \_\_\_\_\_minutes at room temperature (according to manufacturer's guidelines).
7. Rinse with running tap water, or use a clean basin (not the same basin as used for the initial rinsing), filled with fresh water.
8. Dry.
9. Storage location, to prevent contamination: \_\_\_\_\_.

Date issued: \_\_\_\_\_

Date reviewed: \_\_\_\_\_

Date revised: \_\_\_\_\_

## Glossary

**Additional precautions:** Those precautions that must be added to routine practices for managing patients with specific infections. Includes airborne, droplet and contact precautions (see page 17).

**Aerosolization:** The process of creating very small droplets of moisture (droplet nuclei) that may carry microorganisms. The aerosolized droplets can be light enough to remain suspended in the air for short periods of time and facilitate inhalation of the microorganisms.

**Airborne transmission:** Occurs by dissemination of either airborne droplet nuclei or evaporated droplets (sub micron particles) containing microorganisms that remain suspended in the air for long periods of time. These microorganisms can be widely dispersed by air currents and may be inhaled by persons even when standing a distance away from the source patient.

**Alcohol-based hand sanitizer:** An alcohol (60-90% isopropyl or ethanol) containing preparation for waterless application to reduce microorganisms on the hands. Can replace soap and water as long as hands are not physically soiled, or the organism in question is not *C.difficile* or Noro virus. In these cases soap and water must be used.

**Antimicrobial soap:** Soap containing an antiseptic agent (e.g., triclosan, chlorhexidine).

**Antiseptic:** A chemical that either inhibits the growth of microorganisms or destroys them; this term refers to agents used on living tissue. Manufacturers develop antiseptics and disinfectants for specific uses; therefore, it is not advisable to use antiseptics on inanimate objects or, conversely, to use disinfectants on living tissue.

**Cleaning:** The removal of all visible dust, soil, and other foreign material, usually done using water with soaps, detergents or enzymatic products along with physical action, such as brushing. Meticulous cleaning must precede disinfection or sterilization of medical instruments.

**Decontamination:** The process of removing disease-producing microorganisms and rendering an object safe for handling.

**Disinfection:** A process that kills or destroys nearly all disease-producing microorganisms. Disinfectants are used on inanimate objects. There are three levels of disinfection, defined by the hardiness of microorganisms that are to be killed or inactivated:

- High-level disinfection kills vegetative bacteria, tubercle bacillus, fungi, lipid, and non-lipid viruses, but not necessarily high numbers of bacterial spores.
- Intermediate-level disinfection kills vegetative bacteria, most fungi, tubercle bacilli, and most viruses; it does not kill resistant bacterial spores.
- Low-level disinfection kills most vegetative bacteria, some fungi, and some viruses, but cannot be relied on to kill mycobacteria or bacterial spores.

**Exposure-prone procedures:**

1. Digital palpation of a needle tip in a body cavity (a hollow space within the body or one of its organs) or the simultaneous presence of the health

care worker's fingers and a needle or other sharp instrument or object in a blind or highly confined anatomic site, e.g., during major abdominal, cardiothoracic, vaginal and/or orthopaedic operations;

2. Repair of major traumatic injuries; or
3. Manipulation, cutting or removal of any oral or perioral tissue, including tooth structures, during which blood from a health care worker has the potential to expose the patient's open tissue to a blood borne pathogen.

**Instrument detergent:** Enzymatic detergents are formulated to remove organic matter but do not contain disinfectant properties.

**Material Safety Data Sheets (MSDS):** Material Safety Data Sheets are produced by the manufacturer with details of the substance, including first aid measures if there is exposure. Employers must have MSDS from the manufacturer of "controlled products" used in the office.

**N95 or equivalent respirators:** These are protective devices that filter particles one micron in size or smaller, have a 95% filter efficiency and provide a tight facial seal (less than a 10% leak).

**Plain soap/emollient soap:** Soap with no antiseptic agent.

**Respiratory etiquette:** New paradigm coined during the SARS outbreak to describe "good health manners" to be used to minimize transmission of respiratory infections (see sidebar on page 13).

**Routine practices:** The Health Canada term used to describe the system of infection prevention recommended to prevent transmission of infections in health care settings. These practices describe prevention strategies to be used with all patients during all patient care (see page 4).

**Sterilization:** A process by which all forms of microbial life, including bacteria, viruses, spores, and fungi are destroyed or eliminated, most commonly accomplished in the ambulatory health care setting by steam under pressure.

**Surgical mask:** Covers the user's nose and mouth and provides a physical barrier to fluids and particulate matter. Because the seal is not tight, there can be edge leakage of between 5-40% of exhaled air. As the mask becomes wet from exhalation, the resistance to airflow can increase resulting in more edge leakage.

**Two-Step Tuberculin Skin Test:** The two-step tuberculin skin test is used to differentiate patients with waned immunity to TB or prior Bacillus Calmette- Guerin (BCG) from those who have recently converted (see page 20).

## Resources

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14. Reuse of Single-Use Devices, U.S. Food and Drug Administration. Available on-line at: <http://www.fda.gov/cdrh/reuse/index.html>.
15. Respiratory Protection e-Tool, U.S. Occupational Safety & Health Administration. Available on-line at: <http://www.osha-slc.gov/SLTC/etools/respiratory/index.html>.

For access to the original document please visit:  
<http://cpso.on.ca/policies/guidelines/default.aspx?id=1766>



**Health and Wellness**

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**April 2012**