PEIDC | Prince Edward Island Dental College

College of Dental Hygienists
PRINCE EDWARD ISLAND

STANDARD OF PRACTICE

Infection Prevention and Control
IPAC

This document serves as the Standard of Practice for infection prevention and control. Because failure to comply with this standard may constitute professional misconduct, all dental healthcare providers must be thoroughly familiar with its contents.

Each dental or dental hygiene practice must designate an Infection Prevention and Control (IPAC) Officer who is responsible for implementing the standard and ensuring that all dental healthcare providers within the practice receive the necessary training.

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ACRONYMS

BI	Biological Indicator
CDC	Centers for Disease Control and Prevention
CI	Chemical Indicator
CSA	Canadian Standards Association
DHCP	Dental Health Care Provider
DUWL	Dental Unit Waterline
GHS	Globally Harmonized System
HBV	Hepatitis B Virus
HCV	Hepatitis C Virus
HIV	Human Immunodeficiency Virus
HLD	High-Level Disinfection
HVE	High-Volume Evacuator
ILD	Intermediate-Level Disinfection
IPAC	Infection Prevention and Control
IPC	Infection Prevention and Control
LLD	Low-Level Disinfection
MRSA	Methicillin-Resistant Staphylococcus Aureus
NBCDH	New Brunswick College of Dental Hygienists
NBDS	New Brunswick Dental Society
OHS	Occupational Health and Safety
PCD	Process Challenge Device
PEP	Post-Exposure Prophylaxis
PPE	Personal Protective Equipment
SDS	Safety Data Sheet
TB	Tuberculosis
VRE	Vancomycin-Resistant Enterococci
WHMIS	Workplace Hazardous Materials Information System
WHO	World Health Organization

Introduction

Infection prevention and control is an important part of safe patient care. Concerns about the possible spread of blood-borne diseases, and the impact of emerging, highly contagious respiratory and other illnesses, require practitioners to establish, evaluate, continually update and monitor their infection prevention and control strategies and protocols.
This standard reflects current knowledge of the transmission of infection, and how to prevent and control it.

Important

This document is based on the following assumptions:

- The terms **"dental health care provider" (DHCP)** and **"staff"** are used interchangeably. "Staff" includes all individuals involved in activities within or associated with dental offices, such as dentists, dental hygienists, dental assistants, anesthetists, and other support personnel.
- The term **"dental office"** refers to any facility where oral health care is provided. This includes traditional dental practices, dental hygiene practices, mobile dental or dental hygiene services, community and school-based dental clinics, residential care centers, and other institutional settings.
- DHCPs are trained to take precautions to protect patients and staff. In addition to general training, all DHCPs must receive **office-specific infection prevention and control training** during orientation and whenever new tasks, procedures, or equipment are introduced. **Annual in-office training and protocol reviews** are recommended for all staff.
- A designated **IPAC Officer** must be appointed to manage the dental office's infection prevention and control program and ensure it remains current. While all DHCPs share responsibility for infection prevention and control, **implementation and oversight** rest with the practice owner and the responsible dentist or dental hygienist.

Purpose of the Document

This document is **not** a step-by-step manual for implementing specific infection control procedures, nor does it endorse particular products or manufacturers. Instead, its purpose is to provide all DHCPs with a solid understanding of **infection prevention and control principles and standards**, enabling the safe and effective implementation of necessary measures. Standards of practice that **must** be met are clearly indicated using "must" statements rather than "should" statements.

The guidance in this document consolidates recommendations from government and other agencies, regulatory bodies, and professional associations. Wherever possible, these

recommendations are supported by data from well-designed scientific studies. However, some infection prevention and control practices cannot be rigorously studied for ethical or logistical reasons. In such cases, recommendations are based on strong theoretical rationale, suggestive evidence, or the opinions of respected authorities. Additionally, certain recommendations derive from provincial and federal regulations.

Accordingly, this document outlines the **minimum requirements** that DHCPs must follow to ensure the safety of patients and staff while maintaining compliance with accepted standards of practice.

Professional and Regulatory

This document is the standard of practice in relation to infection control and prevention. Since contravention of this standard may be considered professional misconduct, dental healthcare providers must be familiar with this document. Steps must be taken by every dental/hygiene practice to identify an infection prevention and control officer that will be responsible for the implementation of the standard and the training deemed necessary to every dental healthcare provider associated with the practice.

Practice owners by naming an IPAC officer, have an obligation to maintain the standards of practice of the profession and, accordingly, must ensure that recommended infection prevention and control procedures are carried out in their offices.
DHCPs have an obligation to maintain the standards of practice of the profession and must maintain current knowledge of infection prevention and control procedures and apply and maintain them appropriately and consistently.
To conclude, it is the practice owner's responsibility to ensure that staff are adequately trained in infection prevention and control procedures, and that the necessary supplies and equipment are available, fully operational, up-to-date and routinely monitored for efficacy.
In addition to professional obligations, practice owners also have an ethical duty to maintain a safe and healthy office environment for both patients and staff, and to adhere to all rules and regulations related to the operation of a dental practice, including workplace health and safety, and environmental protection.

Transmission of Microorganisms

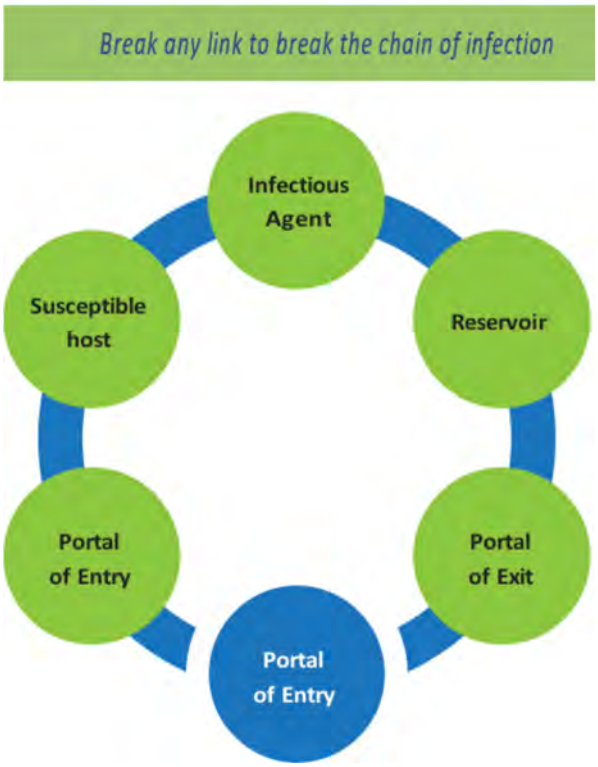
For an infection to occur, three elements must be present:

1. **A microorganism**
2. **A susceptible host**
3. **A means of transmission**

Understanding the **modes of transmission** is essential for designing and implementing effective infection prevention and control strategies. Both dental patients and DHCPs can be exposed to pathogenic microorganisms, including:

- **Viruses**: e.g., HBV, HCV, HIV, human herpes viruses, human papillomavirus
- **Bacteria**: e.g., *Mycobacterium tuberculosis*, staphylococci, streptococci
- **Other microbes** that colonize or infect the oral cavity and respiratory tract

Effective infection control relies on identifying how microorganisms move between hosts and interrupting these pathways.



Modes of Transmission in the Dental Office

In the dental office, microorganisms can be transmitted through several main pathways:

- **Direct transmission** – Direct physical contact with blood, oral fluids, or other potentially infectious materials.
- **Indirect transmission** – Contact with an intermediate contaminated object, such as dental instruments, equipment, or environmental surfaces.
- **Droplet transmission** – Contact of oral, nasal, or conjunctival mucosa with droplets, spatter, or spray containing microorganisms from an infected person, generated by coughing, sneezing, or talking.
- **Aerosol transmission** – Particles of respirable size (<10 µm) generated by humans or environmental sources that can remain airborne for extended periods. In dentistry, aerosols are commonly produced using handpieces, ultrasonic scalers, and air/water syringes.

While the risk of infection from dental procedures is extremely low**, i**t remains an important patient safety consideration. By understanding how diseases are transmitted and applying effective infection prevention and control (IPAC) principles, DHCPs can develop strategies to interrupt the transmission of microorganisms between patients, among staff, and via dental instruments, handpieces, devices, and equipment.

Principles of Infection Prevention and Control (IPAC)

Key IPAC principles include:

- **Patient assessment** – Identifying potential infection risks before care.
- **Following Routine Practices** – Consistently applying standard precautions for all patients.
- **Barrier techniques** – Using personal protective equipment (PPE) and other barriers to protect both patients and DHCPs.
- **Cleaning, disinfection, sterilization, and storage of instruments** – Ensuring all dental instruments are properly processed and safely stored.
- **Environmental cleaning** – Maintaining a clean and hygienic clinical environment.
- **Care of the overall office setting** – Managing the office layout, air quality, and surfaces to reduce infection risks.
- **Safe handling and disposal of waste** – Properly managing sharps, biohazardous materials, and other waste to prevent exposure.

Key Principle

DHCPs must maintain up-to-date knowledge of best practices in infection prevention and control and consistently apply these practices to ensure the safety and protection of both patients and staff.

IPAC Program Overview

An effective infection prevention and control (IPAC) program should focus on strategies that reduce the risk of transmission. These strategies include:

a) **Policy and guideline implementation** – Identifying, communicating, and putting into practice standards and guidelines through clear office policies and procedures.

b) **Occupational health and safety** – Establishing effective programs for all DHCPs, including written workplace procedures and guidance on immunization.

c) **Education** – Providing ongoing training for DHCPs, as well as educating patients and their families about their roles in infection prevention with the help of the IPAC officer.

d) **Program review and evaluation** – Continuously reviewing policies and procedures and evaluating the effectiveness of the IPAC program.

Part A: Patient Safety

1. Screening of Patients

Occasionally, patients who are unwell may present at the dental office. Their condition could be related to a dental issue, such as an oral infection or postoperative complication, or a non-dental illness, such as a severe respiratory infection (e.g., influenza) or a common cold.
To protect other patients and DHCPs from the spread of microorganisms:

- **Reschedule ill patients when possible.** If a patient's condition is urgent, every effort should be made to **minimize contact with others**, such as seating them in a secluded operatory immediately. This reduces the risk of direct or droplet transmission.
- **Screen in advance.** When confirming appointments, staff should ask patients about symptoms such as fever or cough. If a patient is symptomatic, the appointment should be rescheduled whenever feasible.

By implementing these measures, the dental office helps ensure the safety of all patients and staff while maintaining continuity of care for urgent dental needs.

2. Routine Practices

Health Canada uses the term **"Routine Practices"** to describe the basic standards of infection prevention and control required for safe patient care. In the United States, the Centers for Disease Control and Prevention (CDC) uses the similar term **"Standard Precautions."**
Routine Practices combine the key principles of:

- **Universal Precautions** – designed to reduce the risk of transmitting blood-borne pathogens
- **Body Substance Precautions** – designed to reduce the risk of transmitting pathogens from moist body substances

These practices are based on the understanding that **all patients are potentially infectious**, even if asymptomatic. The same safe standards should be applied consistently when contacting **blood, body fluids and secretions (e.g., saliva), mucous membranes, and non-intact skin**. Instruments that come into direct contact with these fluids and tissues are also considered **potentially contaminated**. Adherence to Routine Practices protects both DHCPs and patients.

The **four core principles** of Routine Practices are:

a. **Risk assessment** :
evaluating the potential for exposure and applying appropriate precautions

b. **Hand hygiene** :
performing hand cleaning before and after patient contact and after contact with potentially infectious materials

c. **Use of personal protective equipment (PPE)** :
employing gloves, masks, eyewear, gowns, and other barriers as needed

d. **Safe handling and disposal of sharps and contaminated waste** :
minimizing risk of injury and cross-contamination

a. Risk Assessment

The first step in the effective use of Routine Practices is to perform a risk assessment.
This **must** be done before each interaction with the patient to determine the interventions that are required to prevent the transmission of infection.
The risk of transmission of microorganisms will vary, depending on the type of dental procedure to be performed and the likelihood of exposure to blood, body fluids and secretions, mucous membranes and non-intact skin. Additional factors to consider include:

- the health status of the patient;
- the characteristics of the patient, such as level of cooperativeness.
- the physical environment and resources available;
- the immune status of the DHCP.

Procedures involving exposure to blood, body fluids and secretions, mucous membranes and non-intact skin require the use of appropriate personal protective equipment. On the other hand, procedures involving no anticipated exposure may require fewer precautions.

IMPORTANT
Perform a risk assessment before each interaction with the patient to determine the interventions that are required to prevent the transmission of infection.

b. Hand Hygiene

Hand hygiene is the **single most important measure** for preventing the transmission of microorganisms. The term **"hand hygiene"** has replaced "hand washing" and includes:

- Washing hands with **plain or antimicrobial soap and running water**, and
- Using a **70–90% alcohol-based hand rub**.

Both methods are effective, except when hands are visibly soiled (including with glove powder) or contaminated with body fluids, in which case **soap and water must be used**.

IMPORTANT
The use of gloves does not replace the need for proper hand hygiene. Hands must be cleaned before putting on gloves and after removing them to ensure effective infection prevention.

1. Hand hygiene must be performed:

- After personal body functions (e.g., blowing nose, using the washroom)
- When entering the clinic (for both patients and staff)
- Before and after direct contact with individual patients

- Before putting on and after removing gloves
- After contact with environmental surfaces, instruments, or other equipment in the dental operatory
- After contact with dental laboratory materials or equipment
- Before and after eating or drinking

Important Considerations

- **Beyond the hands: Contamination can involve areas beyond the hands, such as forearms. Use professional judgment to assess the extent of contamination and ensure all affected areas are appropriately decontaminated. If hands or other skin surfaces are contaminated with body fluids, wash with soap and water to remove organic matter.**
- **Soap and lotion:**
  - **Use liquid soap in disposable pump dispensers; bar soap must not be used.**
  - **Hand lotion to prevent dry or cracked skin should also be in disposable pump dispensers. Petroleum-based lotions should be avoided, as they can compromise glove integrity.**
  - **To prevent contamination, do not "top-up" or refill dispensers; empty dispensers must be discarded.**
- **Alcohol-based hand rubs:**
  - **Evidence shows that alcohol-based hand rubs are equally effective as washing with soap and water, except when hands are visibly soiled or contaminated with body fluids.**
  - **Alcohol-based hand rubs are generally less irritating to skin than soap and water. Choose a product containing emollients for skin protection.**
- **Contamination risks: Scientific literature has documented that disposable soap dispensers can become contaminated with gram-negative bacteria, highlighting the importance of proper dispensing and hygiene practices.**

By following these guidelines, DHCPs can maintain effective hand hygiene while protecting both themselves and patients from microbial transmission.

2. How Must Hand Hygiene Be Done?

i. Using Soap and Water for Routine Care

- Wet hands with **warm (not hot) water**.
- Apply an **adequate amount of soap** to create a lather.
- Rub hands **vigorously for at least 20 seconds**, covering all surfaces of the hands and fingers. Pay particular attention to **fingertips, between fingers, backs of hands, and base of thumbs**, as these areas are often missed.
- Rinse thoroughly under running water.

- Dry hands completely with a **disposable paper towel**, then use the towel to **turn off taps** and discard it in a bin.

IMPORTANT

- ***Over-the-counter soaps are not recommended; select products designed for healthcare settings.***
- ***Remove hand jewelry and avoid artificial nails, as jewelry can interfere with proper hand hygiene, make glove donning difficult, and increase the risk of glove tears. Artificial nails have been associated with hospital outbreaks of fungal and bacterial infections.***

ii. *Using Antimicrobial Soap and Water for Surgical Procedures*

(See Part E, Section 10 for details)

- Remove **all hand and wrist jewelry**.
- Clean **under nails**; a disposable manicure stick may be used. **Nailbrushes are not recommended**, as they can become contaminated and damage surrounding skin. Nails should be **short enough** to allow thorough cleaning and avoid glove tears.
- Wash **hands and forearms to the elbows** thoroughly for the time recommended by the manufacturer (usually 2–5 minutes).
- Rinse thoroughly and **dry hands completely** before donning **sterile gloves**.

iii. Using Alcohol-Based Hand Rub for Routine Care

- Apply the product to **one palm** and rub both hands together, covering **all surfaces of hands and fingers**.
- Rub for **at least the minimum time indicated by the manufacturer** until hands are dry.

iv. Using Alcohol-Based Surgical Hand Rub for Surgical Procedures

- Remove **all hand and wrist jewelry**.
- Ensure the alcohol-based hand rub is **approved for surgical hand disinfection**.
- Apply to **dry hands only**, following the manufacturer's instructions.
- Allow hands to **dry completely** before donning sterile gloves.

3. Hand Hygiene Facilities and Requirements

- Hand hygiene stations should be located **as close as possible to all operatories** and preferably **in clear sight of patients**. If not visible, patients must be informed that hand hygiene is being performed.
- **Soap dispensers** must be available at every sink.
- **Alcohol-based hand rub dispensers** should be strategically placed for easy access.
- **Disposable towels** must be readily available.
- **Taps** should be turned off using a disposable towel to avoid recontamination. Consider **hands-free faucets** when renovating.
- **Hand wash sinks** should not be used for any other purpose.

c. Personal Protective Equipment for Patients

i. General Considerations

While PPE is primarily worn by DHCPs to protect themselves from exposure to potentially infectious materials, it also plays a critical role in protecting patients. PPE helps prevent DHCPs from becoming vectors and transmitting microorganisms between patients.
Additional protective barriers and techniques must therefore be used to shield patients from potential contamination during dental procedures.

ii. Protective Eyewear

Dental procedures involving handpieces, ultrasonic scalers, and air/water syringes generate visible droplets of water, saliva, blood, microorganisms, and debris. These droplets travel short distances, settle quickly, and contaminate nearby surfaces—including the operatory, equipment, the DHCP, and the patient.
To protect the patient:

- **Protective eyewear must be provided and worn for the entire appointment.**
- Eyewear must be **cleaned and disinfected** after each use and whenever visibly soiled.

iii. Protective Draping

Patients must be shielded with **single-use bibs or drapes** to protect their clothing and reduce exposure to spatter and debris during procedures.

- **Single-use bib clips or strips** are recommended in place of reusable daisy chains to reduce contamination risk.

iv. Use of Rubber Dam and High-Volume Suction

To minimize droplets, spatter, and spray:

- A **rubber dam must be used whenever feasible**.
- **High-volume suction (HVE)** must be used whenever aerosol-generating procedures are performed.
    - The evacuation device must have an opening of **at least 8 mm**.
    - It must be capable of removing **up to 100 cubic feet of air per minute** to be considered true HVE.

These measures significantly reduce airborne contamination and help prevent patient exposure through ingestion or inhalation of debris.

v. Latex Sensitivity and Allergy – Additional Requirements

When assessing patients for latex sensitivity, it is essential to determine whether a **true latex allergy** has been formally diagnosed. Additional screening questions should explore risk factors commonly associated with latex allergies, including:

- A history of other allergies (e.g., **avocado, kiwi, hazelnut, banana**) due to known cross-reactivity.

- Early or repeated latex exposure during medical treatment (e.g., **spina bifida, urogenital anomalies**).

Patients with a confirmed latex allergy must be treated in an environment where exposure to latex proteins—whether through direct contact or airborne particles—is kept **as low as reasonably achievable**.

Before treating a latex-sensitive patient:

- **Hand hygiene must be performed with soap and water**, not alcohol-based hand rubs, as these products are ineffective at removing latex particles.
- All **latex-containing materials or devices must be removed**, covered, or fully isolated from the operatory.

IMPORTANT
Always check product labels for latex content. Many dental supplies and devices are available in latex-free alternatives.

d. Safe Handling and Disposal of Sharps

Sharp instruments present a significant risk of injury and potential exposure to blood-borne pathogens. DHCPs must take **extreme care** at all times to protect patients and themselves from sharps-related injuries.

Sharps must be:

- **Kept out of reach of patients** at all times.
- **Disposed of immediately** after use and at the end of each procedure—never left on trays or counters.
- Placed directly into a **clearly labeled, puncture-resistant sharps container**.
- Discarded in a container that is **located immediately adjacent to the point of use** to eliminate the need to transport used sharps.

Further guidance on safe sharps handling is provided under **Exposure Prevention** (see p. 21).

3. Additional Precautions

Routine Practices provide the foundation for safe care, but **may be insufficient** for patients who are infected or colonized with microorganisms that pose heightened transmission risks. **Additional Precautions** are implemented *in addition to* Routine Practices to interrupt the spread of such pathogens.
These measures may include:

- **Physical separation** of infected or colonized patients from others
- **Enhanced use of protective barriers** such as gowns, gloves, and masks
- **Environmental controls** to reduce the risk of droplet or contact transmission

In hospitals and other institutional settings, Additional Precautions are often guided by local infection prevention and control committees. These settings may experience higher risk of transmission of microorganisms such as **MRSA, VRE**, or respiratory viruses (e.g., influenza).

In the **ambulatory dental setting**, Additional Precautions are primarily required for patients known or suspected to have infections spread by **large respiratory droplets** (e.g., respiratory viruses, rubella, mumps, *Bordetella pertussis*).

For these patients, the following steps must be taken upon arrival:

- Offer a **mask** and ensure **hand hygiene** is performed
- Maintain a **two-metre separation** from others in the reception or waiting area
- **Promptly escort** the patient to a **secluded operatory** to limit exposure

These measures significantly reduce the likelihood of droplet transmission within the dental office.

KEY PRINCIPLE:
DHCPs must ensure that recommended infection prevention and control procedures, including Routine Practices, are consistently applied across all aspects of dental care.

4. Human Rights and Confidentiality

The Prince Edward Island Human Rights Act guarantees all individuals **equal rights and freedom from discrimination** based on race, colour, religion, national or ethnic origin, ancestry, place of origin, age, physical or mental disability, marital status, sexual orientation, sex, social condition, political belief, or activity.

DHCPs **must not discriminate against patients**. This includes avoiding **extraordinary or unnecessary infection control measures** that are not applied to all patients. Routine Practices may be modified based on the risks associated with specific dental procedures, but such modifications **must be applied consistently to all patients undergoing the same procedures**.

Patient records contain **confidential information** and must not be released without the consent of the patient or their authorized representative, except as required or permitted by law. Key practices to protect confidentiality include:

- **Secure storage** of patient records in locked cabinets; never leave records unattended or in public areas.
- **Sensitive medical information** should not be recorded in the front of the chart. Medical alerts should be coded so that **only staff recognize their significance**, with the full details documented within the chart.
- For **computerized records**, ensure:
    - Login and password protection

- Screen savers or privacy filters to prevent unauthorized viewing by patients or visitors

It is the responsibility of the **practice owner** to ensure that all staff are **trained and aware** of policies to protect patient confidentiality.

More information can be found on the PEIDC website Recordkeeping guidelines

Part B: Dental Health Care Providers' Responsibilities and Safety

1. Education and Training

DHCPs are more likely to comply with infection prevention and control (IPAC) protocols when they **understand the rationale** behind them. To ensure safe practice:

- All DHCPs must receive **office-specific IPAC training** as part of their orientation.
- Training must be provided whenever **new tasks, procedures, or equipment** are introduced.
- Training should be **supplemented and reviewed regularly**, including:
  - Staff meetings
  - Continuing education courses
  - Self-learning programs

Key Principles

- **Every facility must appoint an IPAC Officer responsible for ensuring that education and training are provided.**
- **All DHCPs must receive training that includes:**
  - **Exposure risks relevant to their occupational tasks**
  - **Infection prevention and control strategies specific to those tasks**
  - **Management of work-related illness or injury**
- **It is also recommended that this document, along with key reference materials identified within it, be incorporated into an in-office infection prevention and control manual for ongoing reference.**

2. Immunization

Immunizations are a critical component of infection prevention and control, as they:

- Reduce the number of DHCPs susceptible to infectious diseases
- Minimize the risk of disease transmission to staff and patients

All DHCPs should ensure they are adequately immunized against the following diseases:

- Hepatitis B (HBV)
- Influenza
- Measles
- Diphtheria
- Mumps

- Pertussis
- Rubella
- Tetanus
- Varicella
- Polio

DHCPs must be aware of their **personal immunization status** and ensure it is **up to date**. Consultation with a family physician is recommended regarding:

- Routine immunizations
- Baseline and **annual tuberculosis (TB) testing**
- Guidance from the **Canadian Immunization Guide** for adult healthcare providers

i. Hepatitis B (HBV) Vaccination

- HBV is the most important **vaccine-preventable infection** for healthcare workers due to:
    - The prevalence of virus carriers among patients
    - Frequency of exposure to blood and body fluids
    - The high infectivity of HBV

ii. Recommendations for DHCPs:

- **All DHCPs exposed to blood, body fluids, or sharps** should be vaccinated against HBV
- **Serologic testing for anti-HBs** should be conducted 1–2 months after completing the 3-dose series to confirm antibody response
- **Non-responders** should complete a second vaccination series and undergo retesting
- DHCPs who fail to respond after the second series should be tested for **HBsAg**

iii. Guidance for HBsAg-positive DHCPs or non-responders:

- Non-responders who are **HBsAg-negative** should receive counseling on **precautions** to prevent HBV infection and on the use of **immunoglobulin prophylaxis** following exposure to HBsAg-positive blood
- **HBsAg-positive DHCPs** must consult their regulatory body regarding **work restrictions, medical evaluation, and measures to prevent transmission**
- DHCPs performing **exposure-prone procedures** must be assessed on a **case-by-case basis** regarding potential work restrictions

KEY PRINCIPLE

DHCPs who perform exposure-prone procedures have an ethical obligation to know their serologic status. If infected, DHCPs must seek guidance from their regulatory body regarding the risk of transmitting infection to patients.

3. Illness and Work Restrictions

Dental Healthcare Personnel (DHCPs) may be concerned about the risk of contracting illnesses in the dental setting. Such risks can be significantly reduced by consistently applying the principles outlined throughout this Standard, including:

- **Ensuring adequate and appropriate immunization for all DHCPs;**
- **Triaging patients and rescheduling those who are ill;**
- **Adhering to Routine Practices**, including strict **hand hygiene before and after every patient contact**.

As emphasized earlier, **hand hygiene remains the single most important measure** for preventing the transmission of microorganisms, thereby protecting both DHCPs and patients. For detailed procedures, please refer to **Part A: Patient Safety**.

i. Special Situations Requiring Additional Attention

Some circumstances may increase risk to DHCPs or patients and may require specific precautions:

- **Dermatitis:**
  Compromised skin—such as chapped hands or eczema—reduces the integrity of the protective barrier and increases the risk of acquiring or transmitting infection. Proper skin care is essential. Any areas of dermatitis must be **fully covered with bandages**, and **gloves must be worn**.
- **Immunocompromised staff:**
  DHCPs with compromised immune systems have a higher risk of infection and may also shed viruses (e.g., influenza) for prolonged periods. When possible, **job duties and exposure risks should be reviewed** and adjusted accordingly.

ii. Respiratory, Gastrointestinal, and Other Acute Illnesses

- DHCPs with **upper respiratory tract infections** (e.g., common cold) must prevent transmission to patients and colleagues. This includes practicing **respiratory etiquette**—coughing or sneezing into the elbow or a tissue, discarding tissues immediately—and maintaining **meticulous hand hygiene**.
- DHCPs with **severe respiratory illness with fever** (e.g., influenza), **acute viral gastroenteritis** (vomiting and/or diarrhea), or **acute conjunctivitis** must **remain at home until symptoms have fully resolved**.

iii. Oral or Nasal Herpes Simplex (Cold Sores)

DHCPs with active oral or nasal herpes simplex lesions must avoid touching the affected area and perform rigorous hand hygiene. Wearing a **mask at all times in dental operatories and the sterilization centre** may help discourage inadvertent contact with the lesions and further reduce transmission risk.

4. Exposure Prevention

The primary method for preventing the transmission of **blood-borne pathogens** (e.g., HBV, HCV, HIV) to DHCPs is to **avoid occupational exposures** to blood, saliva, and other bodily fluids. In the dental office, exposure may occur via:

- **Percutaneous injuries** (e.g., needle-sticks or cuts with sharp objects)
- **Contact with mucous membranes** (eyes, nose, mouth)
- **Contact with non-intact skin** (e.g., abrasions, chapped areas, dermatitis)

Most exposures are **preventable by adhering to Routine Practices**, including the consistent use of **personal protective equipment (PPE)** and safe work habits.

i. Use of PPE and Skin Protection

- PPE (gloves, protective eyewear, masks, closed-toe shoes, and protective clothing) must be **worn consistently** during patient care, and during handling or cleaning of instruments and equipment.
- **Non-intact skin** is a breach in the body's protective barrier:
    - Cover cuts, abrasions, or dermatitis with a **waterproof bandage or protective dressing** (e.g., Opsite, Tegaderm)
    - Dressings must be **changed as needed**
    - Large cuts may require **medical assessment and work duty re-evaluation**

ii. Preventing Percutaneous Injuries

Percutaneous injuries present the **highest risk** of transmission of blood-borne pathogens. Best practices include:

- Use **extreme caution when passing sharps** during four-handed dentistry; consider a **"safe zone"** rather than hand-to-hand transfer
- Keep needles **capped prior to use**
- **Do not bend, recap, or manipulate needles using both hands**
- After use, **recap needles immediately** using:
    - A **one-handed scoop technique**
    - A **commercial recapping device**
- During suturing, retract tissues using **instruments** (e.g., retractor, dental mirror), not fingers
- **Remove burs from handpieces** immediately after the procedure
- Identify and remove all **sharps from trays** before processing instruments
- Collect used sharps in a **clearly labeled, puncture-resistant container** located at the point of use
- When manually cleaning contaminated instruments, use **heavy-duty utility gloves, appropriate clothing, and long-handled brushes**

IMPORTANT

***When a syringe and needle are used multiple times on the same patient, safe recapping of the needle is preferred to* prevent needlestick injuries**.

5. Personal Protective Equipment (PPE) for DHCPs

i. General Considerations

Personal protective equipment (PPE) is designed to **shield DHCPs' exposed tissues** from potentially infectious materials. PPE protects:

- **Hands and arms** from splashing or spatter of blood, saliva, or other body fluids
- **Conjunctival mucosa of the eyes**
- **Respiratory mucosa** of the nose and mouth

Primary barriers include **gloves, protective eyewear, masks, and protective clothing**. Protective clothing **must not be worn outside the office**. Single-use items such as gloves and masks **must be discarded immediately after use**.

IMPORTANT

Gloves and masks must be task- and patient-specific and discarded immediately after use.

ii. Gloves

Gloves protect DHCPs' hands from contamination. Since gloves are **not completely leak-proof and may tear**, they **do not replace hand hygiene**. Hand hygiene must always be performed **before donning and after removing gloves**.

Guidelines for gloves in dental practice:

- Gloves must be worn when contact with **mucous membranes, non-intact skin, or body fluids** is anticipated
- **One pair of gloves per patient**; do not reuse between patients
- Gloves must be donned **immediately before the indicated activity** and removed **immediately afterward**
- Gloves **must not be worn outside the required area**
- Gloves **must not be washed and reused**
- **Double-gloving** may be considered for procedures involving multiple sharps or longer appointments; use professional judgment when assessing risk, as evidence for routine double-gloving is limited

iii. Protective Eyewear

- Protect **conjunctival mucosa** from spatter and debris using **eyewear with side shields** or **face shields**
- Clean and **disinfect eyewear between patients** or whenever visibly contaminated

- **Eye-washing stations** must be available for DHCPs and patients in case of exposure to bodily fluids or dental chemicals

iv. Masks

- Masks must cover the **nose and mouth** to protect respiratory mucosa from potentially contaminated droplets
- Masks **lose efficiency when moist**; they must be **changed between patients** or sooner if soiled
- **Face shields are not a substitute** for masks
- Masks **must not be worn around the neck**, as contamination risk increases
- **Specialized masks (e.g., N95)** must be used when indicated by regulatory authorities or Public Health guidance

v. Protective Clothing

- Short-sleeved scrubs are preferred when forearm skin is intact, with washing of forearms after exposure to spatter
- Long-sleeved garments (gowns, lab coats) are **patient-specific** and must be removed before seeing the next patient
- If forearm skin is non-intact, long-sleeved garments are recommended
- Practice owners must implement policies ensuring **protective clothing is not worn outside the office** and establish procedures for **cleaning protective garments**
- New offices are encouraged to have **on-site laundry facilities**

vi. Latex Sensitivity and Allergies

Latex is common in gloves and dental products (rubber dams, prophylaxis cups, orthodontic elastics, medication vials). Skin irritation may **mimic true latex allergy**, but most reactions are **irritant contact dermatitis**, not allergic reactions.

Types of reactions:

- **Irritant contact dermatitis:** managed by changing soaps, towels, gloves, proper hand hygiene, and lotions
- **Delayed hypersensitivity (allergic contact dermatitis):** refer to a medical dermatologist; use **washed, powderless low-protein latex gloves** or non-latex alternatives
- **Immediate allergic reactions:** require **emergency care** and subsequent medical referral; **avoid all latex products**

Additional recommendations:

- **Powder-free gloves** are preferred to reduce lifetime exposure risk for DHCPs and patients
- **Surgical gloves** are recommended for intense dental surgery.

6. Minimizing Droplet Spatter

Dental procedures inherently generate **droplets, spatter, and spray** contaminated with blood, saliva, other body fluids, and debris. To minimize exposure:

- Use a **rubber dam** whenever feasible
- Employ **high-volume suction** whenever droplets, spatter, or spray are likely to be produced.
- These measures **reduce the risk of contamination** of both DHCPs and patients.

7. Exposure Management

Blood-borne pathogens, such as **HBV, HCV, and HIV**, can be transmitted through occupational exposures to blood, saliva, or other body fluids. **Prompt and organized management of significant exposures** is critical.

IMPORTANT
All dental practices must have an exposure management protocol in place.
It should be reviewed annually to ensure that all DHCPs are familiar with it.

i. Significant Exposures

Significant exposures include:

- **Percutaneous injuries** with contaminated needles, burs, or other sharp instruments (highest risk)
- **Splashes of blood, saliva, or other body fluids** onto non-intact skin or mucous membranes (eyes, nose, mouth)

ii. Immediate First-Aid Measures

- **Percutaneous injuries:** Allow the wound to bleed briefly, then **wash gently with soap and water** and bandage if necessary
- **Eyes, nose, or mouth exposures: Flush with copious amounts of water**
- **Non-intact skin exposures: Wash thoroughly with soap and water**

All occupational injuries **must be reported** to the practice owner or responsible dentist.

iii. Assessment of Source Patient

- The practice owner must **assess the source patient's status and risk** for blood-borne illnesses by reviewing medical history and asking additional questions if necessary.
- If **HBV, HCV, or HIV status is unknown or high-risk**, reasonable efforts must be made to **obtain informed consent** for testing:
  - Referral to the **patient's family physician** or **emergency department** may be required.
  - If the patient refuses testing, the exposure is **considered from an unknown source.**

iv. Management of Exposed DHCP

- Immediately refer the injured DHCP to their **family physician, infectious disease specialist, or hospital emergency department** for:

- Counseling
- Baseline blood tests
- Post-exposure prophylaxis if indicated

- **Post-exposure prophylaxis** should be initiated as soon as possible (e.g., antiretroviral drugs within hours for high-risk HIV exposure)

v. Documentation Requirements

All significant exposures must be **thoroughly documented**, including:

- Name of the exposed DHCP and vaccination status
- Date and time of exposure
- Nature of exposure: procedure, extent, and immediate actions taken
- Source patient information: known or suspected blood-borne pathogen status
- Follow-up counseling and post-exposure management

*See **Part I: Exposure Management and Prophylaxis** for detailed guidance*

8. Occupational Health and Safety Requirements and WHMIS

Under PEI's Occupational Health & Safety Act, employers have a **general duty to establish written procedures** for the health and safety of employees. These procedures may include, but are not limited to:

- Safe work practices and working conditions
- Proper hygiene practices and the use of hygiene facilities
- Infection control measures

Employees are required to comply with the legislation and **use or wear any equipment, protective devices, or clothing** required by the employer.

i. Workplace Hazardous Materials Information System (WHMIS)

WHMIS is a **national standard** that addresses hazardous materials in the workplace. Dental offices using materials classified as controlled products under federal legislation are required to:

- Provide **labels for all controlled products** that do not already have them
- Ensure **Material Safety Data Sheets (MSDS)** are available for all products
- Educate and train staff about **hazardous materials** in the workplace

ii. Best Practices for Dental Offices:

- Practice owners must be familiar with WHMIS legislation and review it with staff **annually**

- A **safety data sheet binder** must be available in the clinic, containing sheets for all products used, including dental materials, disinfectants, and cleaning products

9. Prohibition of Eating and Drinking in Non-Designated Areas

- Eating and drinking must be **restricted to designated areas** (e.g., lunch room, staff lounge) or **outside the dental office**
- **Eating and drinking are prohibited** in:
    - Operatories
    - Instrument processing areas
    - In-office dental laboratories

This policy **prevents contamination** and ensures a **safe and hygienic environment** for both patients and staff.

Part C: Cleaning, Disinfection, and Sterilization of Patient Care Items

1. General Considerations

The goals of safe processing of reusable patient care items, including **dental instruments, handpieces, devices, and equipment**, are to:

- **Prevent transmission of microorganisms** to DHCPs and patients
- **Minimize damage** to patient care items from foreign material or improper handling
- Ensure **safe handling of chemical disinfectants**

i. Key Points:

- **Contaminated instruments** must always be handled carefully to prevent percutaneous injuries.
- All instruments must be **cleaned, rinsed, dried, and inspected** prior to disinfection or sterilization.
- **Manufacturers' instructions** must be followed, as Health Canada requires that reusable devices include guidance on cleaning, disinfection, and sterilization.
- After cleaning, instruments must be **rinsed with water** to remove detergent residue and **visually inspected** to ensure all debris is removed.

ii. Instrument Classification

Patient care items are categorized based on **risk of infection**:

- **Critical items:** Enter sterile tissue or the vascular system
- **Semi-critical items:** Contact mucous membranes or non-intact skin
- **Non-critical items:** Contact intact skin only

Professional Judgment

Semi-critical instruments or devices exposed to blood must be treated as critical. DHCPs must use professional judgment to ensure all instruments, devices, and surfaces meet the required standards.

iii. Sharpening of Instruments

Sharpening contaminated instruments carries a **risk of disease transmission** through accidental exposures.

- **Sterilized instruments** requiring sharpening should be sharpened at the **point of care** using a **sterilizable sharpening stone or card**.
- If a **non-sterilizable sharpening stone or card** is used:
  - Instruments must be **sterile prior to sharpening.**
  - Instruments must be **reprocessed and sterilized after sharpening.**
  - Stones or cards must be **cleaned after use** and **stored according to manufacturer's instructions.**

iv. Receiving New Instruments

- **Pre-sterilized products:** If a manufacturer guarantees the sterility of an instrument, it **does not need to be sterilized** prior to initial use.
- **Non-sterile critical and semi-critical items:** Must be **inspected and processed** according to the manufacturer's instructions before use.
- **Clean products ready for use:** Items indicated by the manufacturer as ready for use **may be used directly from the new package** without additional sterilization.

v. Sterilization Area

The sterilization or **medical device reprocessing area** must include:

- The **sterilizer** and related supplies.
- Adequate **space for loading, unloading, and cooling.**
- **Biological indicators and incubators** for spore testing.
- **Enclosed storage** for sterile and single-use disposable items.

Methods of sterilization:

- **Steam under pressure (autoclave):** Most common, reliable, and economical for heat-tolerant instruments.
- **Other methods:** Dry heat or unsaturated chemical vapor.

All sterilization must use **Health Canada-registered medical sterilization equipment**, following:

- Manufacturer-recommended **sterilization times, temperatures, and operating parameters.**
- Instructions for **containers, wraps, and chemical/biological indicators.**

vi. Air Quality in Reprocessing Areas

- The **Occupational Health and Safety Regulation (91-191)** sets **Threshold Limit Values (TLVs)** for chemical agents (e.g., glutaraldehyde).
- A TLV is the **maximum airborne concentration** of a chemical agent to which a worker may be exposed at any time.
- If **engineering controls are not available**, air sampling must ensure that TLVs are not exceeded.
- Offices must ensure **proper air exchange and ventilation**, in accordance with **CSA standards** and **manufacturer recommendations** for products.

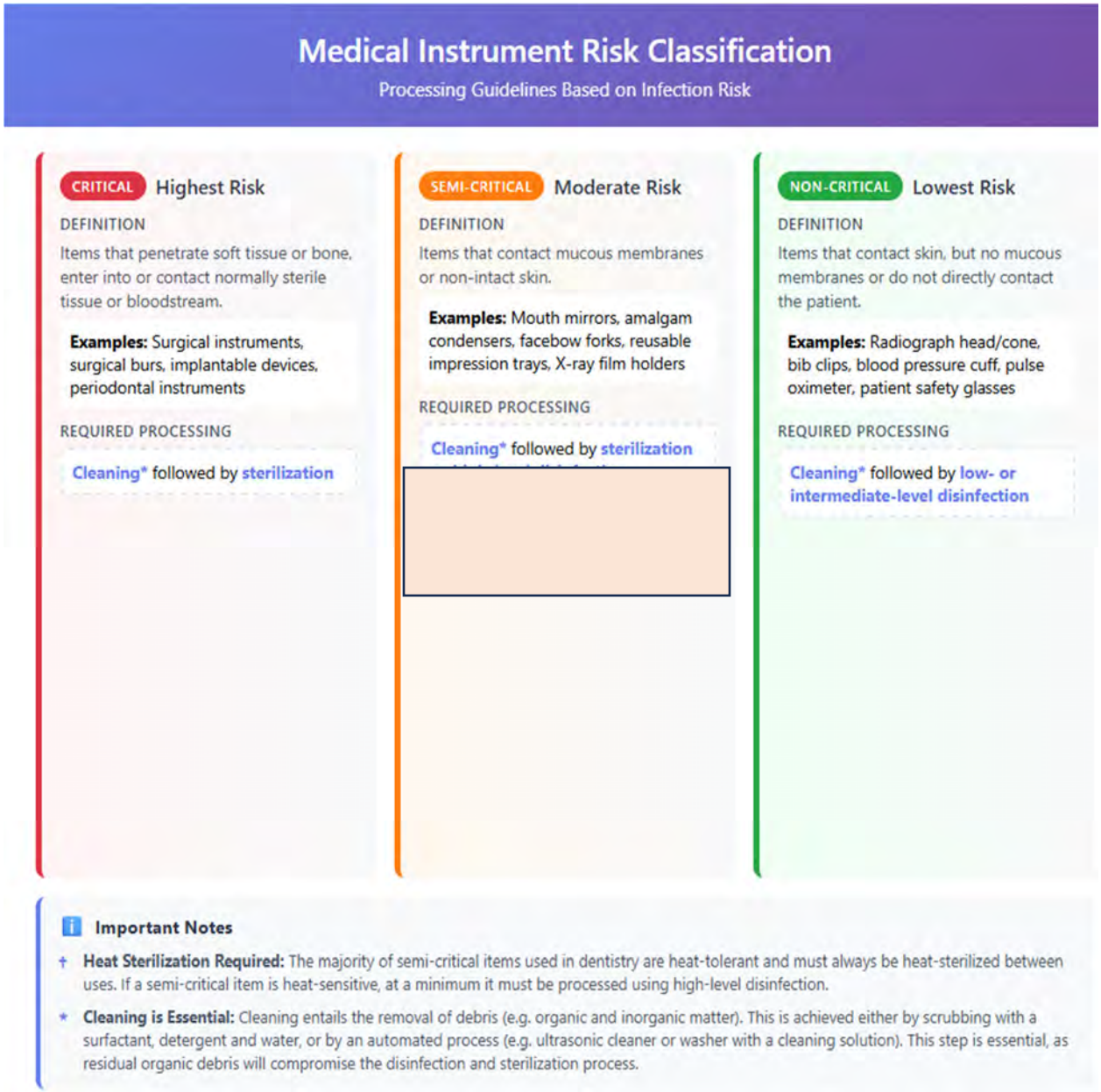
2. Processing of Critical and Semi-Critical Items

Instrument sterilization is a **complex process** that requires specialized equipment, adequate space, trained staff, and **regular monitoring** to ensure quality and patient safety. Correct sorting, cleaning, drying, packaging, sterilizer loading, and sterilization methods must be followed. **Specialized instruments** (e.g., channeled or bored instruments) must always be processed according to the **manufacturer's instructions**.

All instruments must be processed in a **centralized area** of the dental office, designed to maintain quality control and ensure safety. The instrument processing area must have **clear separation of clean and dirty zones**, with distinct sections for:

- **Receiving, cleaning, and decontamination**
- **Preparation and packaging**
- **Sterilization**
- **Drying/cooling**
- **Storage**

Care must be taken to **avoid cross-contamination** when using sterilizer equipment (e.g., controls, buttons, cassette handles, and exterior surfaces).



MANAGING CONTAMINATION Patient Care Items (Modified Spaulding Classification)

Category	Description	Examples	Management
CRITICAL ITEMS	Penetrates soft tissue or bone	Air/water syringe tips Anesthetic syringes Endodontic instruments,including files (hand and rotary) and reamers Gauze for surgery Dental implant instruments Metal matrix bands prior to use Mouth mirrors(when used during a procedure where tissue is cut or manipulated) Orthodontic bands prior to use Periodontal instruments including ultrasonic tips Restorative / operative instruments Rotary burs and diamonds Dental dam clamps Scalers Stainless steel crowns prior to use Surgical instruments Surgical suction tips	Items that are not single-use disposable **must** be sterilized and stored wrapped until point of care. Single-use disposable items **must** not be reprocessed. Follow manufacturer's instructions regarding sterilization prior to use.
SEMI- CRITICAL ITEMS	Touches intact mucous membrane or non-intact skin	Articulating ribbon holder Handpieces Crown removing instruments Dental dam frame and forceps Impression trays Lab burs Nasal hoods Orthodontic pliers Facebow Laboratory knives and spatulas	Items that are not single-use disposable **must** be sterilized and stored wrapped until point of care. Single-use disposable items **must** not be reprocessed. Follow manufacturer's instructions regarding sterilization prior to use.
NON- CRITICAL ITEMS	Contacts intact skin only	Blood pressure cuffs Curing Lights Lead aprons Intra-oral camera and radiograph sensors Dental dam punch Laboratory specific instruments	Items must be cleaned with an intermediate-level disinfectant. Some items may be protected with a barrier. Barriers must be changed after each patient

A. Dirty Area

1. Receiving, Cleaning, and Decontamination

- Contaminated instruments should be placed in a **cassette or puncture-resistant container** at the point of use and transported to the processing area. Instruments must be **covered when exiting the operatories**.
- Reusable instruments must be **received, sorted, cleaned, and rinsed** in one section of the processing area.
- **Automated cleaning equipment** improves productivity, cleaning effectiveness, and reduces worker exposure to blood and body fluids. Manufacturer instructions must be strictly followed.
- **Gross debris** must be removed before placing instruments in an **ultrasonic cleaner**. Ultrasonic cleaning solutions must be **changed daily** or sooner if visibly soiled.
- **Automated washers** generally do not require pre-soaking or scrubbing of most instruments.
- If immediate cleaning is not possible, instruments must be placed in a **puncture-resistant holding container** with detergent or enzymatic cleaner to prevent drying of organic material.

IMPORTANT

Do not use liquid chemical sterilant or high-level disinfectants (e.g., glutaraldehyde, ortho-phthalaldehyde) as holding solutions due to their fixative properties and toxicity.

Precautions for Handling Sharp Instruments:

- Wear **puncture-resistant, heavy-duty utility gloves** when handling or manually cleaning contaminated instruments.
- Do **not** reach blindly into trays or containers with sharp instruments. Use **strainer-type baskets** and **forceps** to remove items.
- Wear **mask, protective eyewear or face shield, and gown** to prevent splashes.

B. Clean Area

1. Preparation and Packaging

- Cleaned instruments must be **inspected, dried, assembled into sets or trays, and packaged** for sterilization.
- Critical and semi-critical instruments must be processed to **maintain sterility during storage**.
- Suitable packaging materials include:
    - Wrapped perforated instrument cassettes
    - Peel pouches of plastic or paper

    - Woven or nonwoven sterilization wraps
- Packaging must be **compatible with the sterilization method** being used.
- **Hinged instruments** must be processed **open and unlocked**.

3. Storage of Sterile Instruments

- **Enclosed storage:** Sterile and single-use disposable items must be stored in **closed or covered cabinets**. They must **never** be stored under sinks or in areas where they may become wet or contaminated.
- **Storage practices:** Sterilized instruments may be managed using either **date-related** or **event-related** methods:
    - **Date-related:** Packages are dated at the time of sterilization to assist with recall if sterilization tests later indicate concerns. This approach often uses **"first in, first out"** to rotate stock.
    - **Event-related:** Recognizes that properly packaged instruments remain sterile indefinitely **unless an event compromises the package**, such as wetness, tears, or other damage.
- **Package inspection:** Before use, all packages must be **inspected** to ensure barrier integrity and dryness. Compromised packages must be **reprocessed, cleaned, and sterilized again**.

IMPORTANT
Critical instruments must be processed and stored in a way that maintains sterility, ensuring that packaging remains intact until point of use.

4. Sterilization of Unpackaged Instruments (Flash Sterilization)

Flash sterilization is intended for **urgent or unplanned instrument use** and must follow strict conditions:

- Instruments must be **thoroughly cleaned and dried** prior to the unpackaged cycle.
- **Mechanical parameters** of the sterilizer must be verified, and an **internal chemical indicator** used for each cycle.
- Care must be taken to **avoid thermal injury** to staff or patients.
- Instruments must be **transported aseptically** to the point of use to maintain sterility.

Important restrictions:

- **Flash sterilization must not be used for implantable devices or routinely in the office.**
- **Critical instruments sterilized unpackaged must be used immediately; they cannot be stored.**
- **Semi-critical instruments sterilized unpackaged must be used immediately or within a short time; storage is unacceptable due to contamination risk.**
- **Instruments used in implant procedures must be quarantined until biological monitoring results are known. Flash sterilization is inadequate for these instruments.**
- **Bead sterilizers cannot ensure sterility and are prohibited in dental clinics by PEIDC**

KEY PRINCIPLE
Maintain sufficient inventories of critical instruments to avoid the need for flash sterilization, and always prioritize patient safety over convenience.

5. Processing of Heat-Sensitive Items

Most semi-critical dental items are **heat-tolerant** or **disposable**, but if a **heat-sensitive semi-critical item** must be used, it requires **high-level disinfection** after thorough cleaning.

High-level disinfection can be achieved using immersion in approved liquid chemical germicides, such as:

- 2% glutaraldehyde
- 7% accelerated hydrogen peroxide
- 6% hydrogen peroxide
- 0.2% peracetic acid
- 0.55% ortho-phthalaldehyde

Key safety and procedural considerations:

- **Toxicity:** Liquid chemical germicides are highly toxic. Handle them with care, following all manufacturer instructions.
- **Verification:** Biological indicators **cannot verify effectiveness**, so strict adherence to dilution, immersion time, temperature, and solution replacement is essential.
- **Staff protection:** Use closed containers to limit vapour exposure, ensure adequate ventilation, and wear **chemical-resistant gloves, aprons, goggles, and face shields**.
- **Rinsing and drying:** After immersion, instruments must be **thoroughly rinsed with sterile water** to remove toxic residues and dried with clean towels.
- **Proper use:** Germicides must **only be used as intended** by the manufacturer—not for surface disinfection or instrument-holding solutions.
- **Potency testing: Liquid germicide test strips** must be used to confirm that the minimum effective concentration is maintained for proper disinfection.

IMPORTANT
Careful monitoring and strict adherence to instructions are essential to ensure both patient safety and staff protection when using chemical disinfection methods.

Process	Result	Examples for Dentistry	Specific Indications	Comments
Sterilization	Kills all forms of pathogenic microorganisms, including bacteria, fungi, viruses and spores	Steam Dry Heat	Critical and semi-critical	Steam sterilization is the preferred method. The sterilization process **must** be audited and monitored with mechanical, chemical and biological indicators.
High-level disinfection (HLD) All disinfectants **must** have a Drug Identification Number (DIN) from Health Canada	Kills vegetative bacteria, mycobacteria, fungi, enveloped and non-enveloped viruses, but not necessarily bacterial spores	2% glutaraldehyde 7% accelerated hydrogen peroxide, 6% hydrogen peroxide 0.2% peracetic acid 0.55% ortho-pthalaldehyde	Heat-sensitive, semi-critical items	**Not for use on environmental surfaces.** Follow manufacturer's instructions regarding dilution, instrument preparation, immersion time, temperature and changing of solutions. Glutaraldehyde is non-corrosive to metals and compatible with most materials. Extremely irritating to skin and mucous membranes. Use in well- ventilated areas. Hydrogen peroxide is active in presence of organic matter, but is corrosive to aluminum, brass, copper, and zinc.

Process	Result	Examples for Dentistry	Specific Indications	Comments
INTERMEDIATE LEVEL DISINFECTION	Destroys all vegetative bacteria, mycobacteria, most viruses and most fungi, but not bacterial spores	**Chlorine-based products** *Sodium hypochlorite diluted in-office, chlorine dioxide, commercial preparations with surfactants*	Surfaces	Low cost, fast acting, readily available Corrosive to metals and may destroy fabrics Inactivated if surface not well cleaned before use Irritating to exposed skin and mucous membranes Chlorine dioxide is poor cleaner
		Halogens *(sodium bromide & chlorine)*	Hard Surfaces Only	Unstable when diluted, **must** be prepared
		Hydrogen peroxide, 0.5% accelerated	Environmental surfaces only	Fast acting Simple to mix Minimal storage space required Nonirritating Odourless
		Iodophors *(iodine combined with surfactant)*	Environmental surfaces only	Effective for bioburden removal Stable and effective Slow fungicidal activity
		Quaternary ammonium compounds with alcohols *("dual" or "synergized")*	Environmental surfaces only Environmental surfaces only	An oxidizing agent which will accelerate rusting of metal instruments Relatively expensive
		Phenolics *("complex "or "synthetic" containing multiple phenolic agents)*		Stains fabrics and synthetic materials Corrosive to exposed skin and mucous membranes Unstable when diluted and must be prepared daily Generally non-irritating Non-corrosive Older generation had narrow spectrum Inactivated by anionic detergents and organic matter Can damage some materials Rapid evaporation Residual biocidal action Available with detergents May be absorbed through skin or by latex Degrades plastics with prolonged contact Leaves a film on disinfected surfaces or etches glass surfaces

Process	Result	Examples for Dentistry	Specific Indications	Comments
Low-level disinfection (LLD) All disinfectants (except household bleach) **must** have a Drug Identification Number (DIN) from Health Canada	Kills most vegetative bacteria, as well as some fungi and enveloped viruses. **Cannot** be relied on to kill mycobacteria, including Mycobacterium tuberculosis or bacterial spores	Chlorine-based products (e.g. diluted sodium hypochlorite or household bleach – 1:50 or 1000 PPM)	Non-critical items and environmental surfaces	Follow the manufacturer's instructions regarding concentration and contact time. Diluted household bleach is inexpensive and readily available but **must** be prepared daily. Items and surfaces **must** be cleaned first, as chlorine-based products are inactivated by organic material. Corrosive to metals and may destroy fabrics.
		0.5% accelerated hydrogen peroxide, 3% hydrogen peroxide 60 to 95% alcohols		Hydrogen peroxide is active in the presence of organic matter, but is corrosive to aluminum, brass, copper and zinc. Alcohol is fast-acting but is flammable and evaporate quickly. Items and surfaces **must** be cleaned first, as alcohol is inactivated by organic material. May harden plastic and rubber.
		Some iodophors, phenolics and quaternary ammonium compounds		Quaternary ammonium compounds are used for disinfecting non-critical equipment and environmental surfaces, but not instruments. They require careful dilution, as they may support microbial growth.
Cleaning	Physical removal of soil, dust and foreign material.	Soap and water, detergents and enzymatic cleaners 0.5% accelerated hydrogen peroxide Quaternary ammonium compounds	All reusable items	Follow manufacturer's instructions regarding concentration and contact time.

6. Processing of Non-Critical Items

Non-critical items pose the **lowest risk of infection transmission**, as they either:

- Have **no contact with patients**, or
- Contact **only intact skin**, which is an effective barrier to microorganisms.

i. Processing requirements:

- **After use:** Non-critical items must be cleaned.
- **If contaminated:** They must be **cleaned and then disinfected** using an appropriate **low-level disinfectant**, such as:
    - Chlorine-based products
    - 0.5% accelerated hydrogen peroxide
    - 3% hydrogen peroxide
    - 60–95% alcohols
    - Iodophors
    - Phenolics
    - Quaternary ammonium compounds

ii. Additional considerations:

- Some non-critical items may be **difficult to disinfect** or could be **damaged by cleaning**.
- In such cases, it is **preferable to use disposable or single-use barriers** to protect these surfaces.

7. Equipment Usage and Preventive Maintenance

- **Tabletop sterilizers and other dental equipment** are subject to frequent use and natural wear.
- **Preventive maintenance** must be performed according to the **manufacturer's recommendations**, including:
    - Regular inspection of gaskets, seals, and other critical components
    - Following any recommended service schedules to ensure equipment reliability and safety

8. Monitoring of Sterilization in the Dental Office

i. Mechanical Indicators

- Mechanical indicators are the **gauges or displays** on a sterilizer that show **cycle time, temperature, and pressure**.
- Some tabletop sterilizers have **recording devices** that print these parameters; this is the **preferred option**. All new sterilizers should include this feature.
- Mechanical indicators **must be checked and recorded for each load**, if possible.

ii. **Chemical Indicators** A monitoring device that is designed to respond with a chemical or physical change to one or more of the sterilization process parameters. CIs do not verify sterility, but they do assist in the detection of potential sterilization failures, which could result from incorrect packaging, incorrect loading of the sterilizer or equipment malfunction. There are several classes of CIs:

- **Class 1 Process indicator:** An external indicator that is used to demonstrate that an item has been exposed to a sterilization process, and to distinguish between processed and non-processed items. Class 1 CIs are usually applied to or visible on the outside of packages (e.g. sterilization tape or packaging printed with colour changing ink). Class 1 CIs are directly exposed to the sterilization environment, so they usually fail only when there is a gross malfunction of the sterilizer. Example: **Heat-sensitive tape** on the outside of a package changes colour when a specific temperature is reached.
- **Class 2 Specialty indicator:** An indicator that is designed for use in specific test procedures in special sterilizers (e.g. dynamic air-removal sterilizers). Examples of Class 2 CIs include Bowie Dick and Dart products, which are used for steam sterilizers and Type B sterilizers.
- **Class 3 Single-parameter indicator:** An internal indicator that responds to only one critical parameter of the sterilization process, usually time or temperature. It is important to note that the sterilization process has more than one critical parameter, and all of them must be reached for sterilization to occur. This type is usually not used in dentistry.
- **Class 4 multi-parameter indicator:** An internal indicator that responds to two or more critical parameters of the sterilization process. This Class 4 is already present in a commercial pouch or bag, if not one class 4 or a class 5 must be added.
- **Class 5 Integrating indicator:** An internal indicator that responds to all critical parameters of the sterilization process, heat, time and pressure. Class 5 CIs are correlated to the performance of biological indicators (BIs). These are used for every cycle of sterilization inside a bagged PCD.

IMPORTANT NOTES

- **Mechanical and chemical indicators do not guarantee sterilization; they only verify that conditions for sterilization were met.**
- **They provide early warnings of problems.**
- **If indicators show inadequate processing, none of the instruments in that load should be used until they are properly reprocessed.**

Follow-Up Actions for Chemical Indicator Failures

- **Single Package Failure (Class 1 or Class 4 Indicator)**
  a) Remove the affected package from clinical use.
  b) Reprocess the contents according to established procedures.
  c) Verify the integrity of the package and review the chemical indicator result.
  d) Document the incident and corrective actions taken.
- **Multiple Package Failures (Class 1 or Class 4 Indicators)**
  a) Quarantine all affected packages.
  b) Investigate the cause of the failure.
  c) Repackage and reprocess all affected instruments.
  d) Document the incident, findings, and corrective actions.
- **Class 5 Integrating Indicator Failure (Entire Load)**
  a) Quarantine the entire load.
  b) Review and verify all mechanical monitoring records and chemical indicator results.
  c) Review biological indicator (BI) results, if a BI was used for the load.
  d) Investigate the cause of the failure.
  e) Repackage and reprocess all instruments in the load.

Repeat Cycle

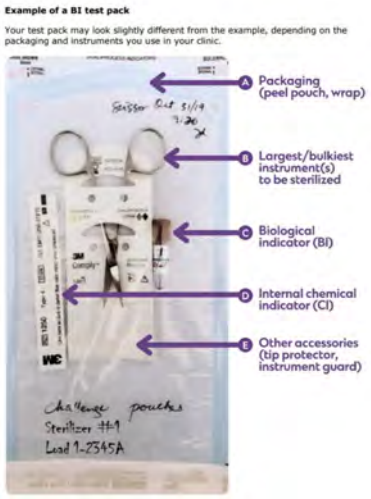
- If the Class 5 indicator passes on the repeat cycle, document the incident and return the sterilizer to service.
- If the Class 5 indicator fails again, the sterilizer shall be removed from service until:
  a) The sterilizer has been inspected and repaired as necessary;
  b) The sterilizer has been successfully requalified;
  c) Three (3) consecutive biological indicator (BI) tests in empty-chamber cycles produce negative results; and
  d) A satisfactory Bowie-Dick test has been obtained when required for a Type B steam sterilizer.
  e) The sterilizer may be returned to service only after all requalification requirements have been successfully completed and documented.

iii. Process Challenge Device (PCD)

- A PCD simulates the **most difficult instrument/item** routinely sterilized, testing the sterilizer's performance.
- PCDs may be **commercially purchased for multiple use** or **fabricated for single use**.

- Example of a PCD device
  - Commercial

  - Home made for single use.



iv. Special Considerations for Negative Pressure (Type B) Sterilizers

- A **daily Bowie-Dick test** (chemical indicator type 2) must be performed in an **empty sterilizer chamber** first thing in the morning.

KEY POINTS

- **Hollow instruments (e.g., handpieces) are harder to sterilize than solid instruments (e.g., mirrors) because trapped air can prevent sterilizing agents from reaching all surfaces.**
- **Packaging creates additional barriers, so both internal and external chemical indicators must be used to ensure penetration.**
- **A Class V chemical indicator inside a Process Challenge Device (PCD) must be included in each sterilization cycle, with results recorded.**

Follow-Up Actions for Bowie-Dick Test Failure

- If a Bowie-Dick test fails, the test must be repeated immediately.
- If the repeat Bowie-Dick test passes, the sterilizer may be returned to service and the incident must be documented.
- If the repeat Bowie-Dick test fails again, the sterilizer must be removed from service and inspected, serviced, and repaired as necessary.
- Following servicing or repair, the sterilizer may be returned to service only after:
    a) Successfully passing a Bowie-Dick test; and
    b) Achieving three (3) consecutive negative Biological Indicator (BI) test results in empty-chamber cycles.
    c) All test results, corrective actions, servicing activities, and requalification records must be documented and retained according to established policies and procedures.

v. Biological Indicators (BIs / Spore Tests)

Purpose:

Biological indicators are the **most reliable method** to monitor sterilization because they directly test the **ability of the sterilization process to kill the most resistant microorganisms**.
The spores used are **more resistant and present in higher numbers** than typical microbes on patient care items.
An inactivated BI confirms that **all other potential pathogens in the load have also been killed**.

Frequency & Procedure:

Daily use is required for every sterilizer in the clinic.
The test must be performed during the **most challenging cycle** and **inside a Process Challenge Device (PCD)**.
The PCD must contain:

- The **biological indicator (BI)**
- A **Class V chemical indicator**

Testing Options:

In-office systems provided by dental suppliers may be used for routine BI testing.
An **independent laboratory test** must be conducted **monthly** to confirm accuracy and effectiveness of in-office testing.

Special Considerations:

- **Loads containing instruments used for dental implants must be monitored with a BI.**
- **These items should be quarantined until test results are known.**
- **Follow the manufacturer's instructions for proper placement of the BI within the sterilizer.**

Action in Case of Positive BI / Failed Spore Test: same procedure as a Class 5 fail

a. **Immediate response:**
   - Remove the sterilizer from service.
   - Review all mechanical and chemical indicator records since the last negative BI.
   - Check sterilization procedures for operator error.

b. **Common causes of BI failure:**
   - Overloading the sterilizer
   - Inadequate package separation
   - Using incorrect or excessive packaging materials

c. **Repeat testing:**
   - Correct any procedural issues and repeat the BI test using the same cycle.
   - Keep the sterilizer out of service until results are known.

Follow-Up Actions for Biological Indicator (BI) Failures

If the repeat Biological Indicator (BI) test is negative and all mechanical and chemical monitoring results are acceptable, the sterilizer may be returned to service.

If the repeat BI test is positive despite confirmation that the sterilization cycle was operated according to manufacturer instructions and all monitoring procedures were correctly performed, the sterilizer shall remain out of service until:

a) The sterilizer has been inspected and repaired as necessary;
b) The sterilizer successfully passes a requalification process consisting of three (3) consecutive empty-chamber sterilization cycles, each with a negative Biological Indicator result; and
c) Documentation of corrective actions and testing results has been completed and retained.

In addition, all instruments and devices processed in suspect loads since the last documented negative BI test shall be considered non-sterile, recalled where possible, and reprocessed before use on patients.

9. Traceability of Instruments

- **Purpose:**
  Traceability ensures that all instruments are properly sterilized, tracked, and safe for use, preventing cross-contamination and improving patient safety. It also allows rapid identification and resolution of issues in case of sterilization failures or patient complaints.
- **Key Reasons for Traceability:**
  a. Confirms that all instruments used are sterile and safe for patients.
  b. Provides documentation to address sterilization failures or patient complaints.
  c. Supports efficient management and verification of instruments through automated or manual systems.

- **Load Documentation:**
  Every sterilizer load must be documented using a **load or cycle log**, including:
  a. Date
  b. Sterilizer number or identification
  c. Load number
  d. Initials of the person loading and unloading
  e. Results of Class V chemical indicators (internal and external) and the daily BI test
  f. Description of any problem and corrective action taken

- **Instrument Package Identification:**
  Each package must be coded to correspond with its load (e.g., date, load or cycle#, and sterilizer identification)

- Offices must have a protocol for **recall and traceability**, including:
  - Labelling or written codes
  - Load logs
  - Method for transferring load information to patient charts (manual or electronic)

IMPORTANT

Daily sterilizer operation must be reviewed and recorded. Records should indicate either:

- **"Operating as required"**
- **Or note malfunctions and follow-up actions.**
- **Recommended retention: 3 years**

10. Monitoring of Ultrasonic Instrument Cleaners

- **Purpose:**
  Regular testing of ultrasonic cleaners ensures that instruments are properly cleaned before sterilization, preventing residual debris and reducing infection risk.

i. Foil Test Procedure:

1. Fill the ultrasonic cleaner tank with water and add the recommended cleaning solution.
2. Cut a piece of aluminum foil to fit the tank.
3. Suspend the foil in the tank, ensuring it does **not** touch the bottom or sides.
4. Turn on the ultrasonic cleaner and run for about **1 minute**.
5. Remove the foil and inspect:
    - Small holes and a crinkled appearance indicate proper cavitation and effective cleaning.

ii. Additional Monitoring Tips:

- Perform the foil test periodically to ensure consistent cleaner performance.
- Observe the water surface for ripples or sonic waves when the cleaner is operating.
- Automatic washers should also have a **regular wash test** to verify functionality.

Part D: Environmental Infection Control and Waste Management

1. General Considerations

Key Idea:

Even though many environmental surfaces in a dental office don't directly touch patients, they can still serve as reservoirs for harmful microorganisms. Contamination occurs mostly via hands or contact with contaminated instruments.

Important Points:

1. **Environmental Surfaces:**
    - These surfaces don't contact the patient directly.
    - Examples: light handles, drawer knobs, countertops.
    - **Risk:** Microorganisms on these surfaces can spread to instruments, other surfaces, DHCPs' hands, or patients' eyes, nose, or mouth.
2. **Transmission Pathways:**
    - **Direct:** Touching a contaminated surface.
    - **Indirect:** Contaminated instruments or objects touching another surface or person.
3. **Prevention Measures:**
    - **Hand Hygiene:** Frequent and proper hand washing or sanitizing.
    - **Personal Protective Equipment (PPE):** Gloves, masks, eye protection, gowns.
    - **Barriers or Cleaning/Disinfection:**
        - Use disposable barriers on surfaces that are difficult to disinfect.
        - Clean and disinfect surfaces between patients.
4. **Special Consideration – Patient Charts:**
    - Paper charts are frequently handled and moved around.
    - They are difficult to disinfect effectively.
    - Staff must handle them carefully to prevent cross-contamination.
5. **Surface Categories:**
    - **Clinical Contact Surfaces:** Surfaces that are directly or frequently touched during patient care.
    - **Housekeeping Surfaces:** General surfaces not involved in patient care (e.g., floors, sinks).

2. Clinical Contact Surfaces

Definition:

Clinical contact surfaces are surfaces frequently touched during patient care. They are at higher risk for contamination from:

- Direct spray or spatter during procedures
- Contact with gloved hands or contaminated instruments

Examples of Clinical Contact Surfaces:

- Chair controls and switches
- Drawer and faucet handles
- Light handles and switches
- Countertops
- Radiography equipment
- Pens
- Chairside computers, keyboards, monitors
- Telephones and doorknobs
- Reusable containers of dental materials
- Safety glasses (staff and patient)
- Bib clips

Cleaning and Disinfection Requirements:

- Must be cleaned and disinfected:
    - **At the beginning of the day**
    - **Between patients**
    - **At the end of the day**
- Use an **appropriate low-level disinfectant**.
- Keep treatment areas **organized** and free of unnecessary items to facilitate cleaning.
- Staff should **wear gloves** and take precautions to prevent exposure to infectious agents and hazardous chemicals.

Barrier Use as an Alternative:

- Barriers can **protect surfaces and equipment** that are difficult to clean due to shape, material, or surface.
- **Effective barrier materials:**
    - Clear plastic wrap
    - Plastic tubing, bags, sheets
    - Plastic-backed paper
    - Overgloves
    - Other moisture-proof materials

Barrier Handling:

- Discard contaminated barriers using gloves:
    - **Between patients**
    - **When visibly soiled or damaged**
- After barrier removal:
    - Examine underlying surfaces for contamination
    - Clean and disinfect any contaminated surfaces
    - Place clean barriers for the next patient

3. Housekeeping Surfaces

Definition:
Housekeeping surfaces are surfaces that **do not come into direct contact with patients** and generally have a **limited risk of disease transmission**.

Examples: Floors Walls

Cleaning & Disinfection Guidelines:

1. **Routine Cleaning:**
    - Periodic cleaning with **diluted detergents** is usually sufficient.
    - Floors must be cleaned regularly, and **spills cleaned promptly**.
2. **Contamination with Blood or Bodily Fluids:**
    - Clean the surface first, then **disinfect** using a **low-level disinfectant**, such as:
        - Household bleach diluted 1:50
        - Accelerated hydrogen peroxide
    - **Wear gloves** and take proper precautions.
3. **Cleaning Tools & Solutions:**
    - Mop heads and other cleaning tools must be **rinsed and allowed to dry** after use.
    - Make **fresh cleaning solutions daily**; discard leftovers and let containers dry to prevent microorganism growth.

> **IMPORTANT**
> **Carpeting and cloth furnishings** are **difficult to clean and cannot be reliably disinfected**.
> **Do not use** them in patient treatment areas or where instruments are prepared.

4. Management of Waste

Waste in dental offices is divided into **two main categories**:

1. **Biomedical Waste (Hazardous)**
2. **General Office Waste**

Proper handling is required under **Prince Edward Island Environmental Protection Act** and **WHMIS** to prevent infections and protect the environment.

i. Biomedical Waste

Definition:
Biomedical waste is **hazardous** and **must not be disposed of with regular garbage**. It requires special handling and disposal via approved carriers.

Storage & Handling Requirements:

- Store in **colour-coded containers** marked with the **biohazard symbol**.
- Release only to **approved biomedical waste carriers**.

Types of Biomedical Waste:

a. Anatomical Waste (Human Tissue)

- Generated mainly by oral surgeons and periodontists.
- **Storage:**
  - Red liner bag labeled with biohazard symbol
  - Refrigerated storage area ≤4°C
  - Stand-alone, locked, separate from other supplies
  - Marked "Biomedical Waste Storage Area"
- **Disposal:** Only via approved biomedical waste carrier

NOTE
Extracted teeth are not classified as biomedical waste
(see "Handling of Extracted Teeth").

b. Non-Anatomical Waste (Sharps & Blood-Soaked Materials)

- **Sharps:** Needles, syringes, scalpel blades, clinical glass.
- **Storage:** Collected in **yellow, puncture-resistant, leak-proof containers** labeled with biohazard symbol.
- Disposal: Disposed only via approved biomedical waste carrier.

- **Blood-Soaked Materials:** Materials releasing **liquid/semi-liquid blood when compressed.**
- **Storage**: Collected in **yellow liner bag** labeled with biohazard symbol.
  If stored >4 days: store like anatomical waste in refrigerated storage.
- **Disposal:** Disposed only via approved biomedical waste carrier

NOTE
Items like gauze, cotton rolls, gloves that do not release liquid blood
are considered general office waste.

ii. General Office Waste

Definition:

General office waste is **not more infective than household waste** and does not require special disposal beyond careful containment.

Recommendations:

- **Use waterproof garbage containers with tight-fitting lids (foot pedal preferred).**
- **Line containers with plastic bags (double bag only if necessary).**
- **Do not overfill containers.**
- **Avoid placing sharp, hard, or heavy objects that could puncture bags.**
- **Special Environmental Waste:**
    - **Waste containing mercury, silver, lead, or chemicals is subject to provincial/municipal regulations.**
    - **Contact PEI Environmental Protection Act and Local Government for proper disposal.**

iii. Handling of Extracted Teeth

- **Without Amalgam:** Dispose as **general office waste.**
- **With Amalgam:** Treat as **mercury-containing waste** and dispose according to regulations.
- **For Laboratory Use or Education:**
    a. Clean and **surface disinfect** with low-level disinfectant.
    b. For pre-clinical training:
        Remove visible blood/debris.
        Keep **hydrated in a closed container** during transport.

Part E: Equipment and Area-Specific Practice

1. Dental Unit Waterlines

Definition:

Dental unit waterlines (DUWLs) are **narrow-bore plastic tubes** that supply water to:

- Handpieces
- Ultrasonic instruments
- Air/water syringes

Key Points:

- DUWLs can develop **biofilm** containing waterborne microorganisms (bacteria, fungi, protozoa).
- These microorganisms are generally **not oral bacteria** and pose **limited risk to healthy patients**.
- **High-risk patients** include:
    - Immunocompromised individuals (HIV, oncology, organ transplant)
    - Patients with cystic fibrosis, chronic bronchitis, bronchiectasis

Goal:
Reduce microbial counts in waterlines to levels comparable with potable water standards through regular maintenance and monitoring.

(a) Offices Using Communal Water Supplies

Maintenance Steps:

1. **Do not use waterline heaters** (heat encourages microbial growth)
2. **Daily purge at start of workday:**
    - Flush waterlines for 2–3 minutes
    - Remove handpieces, air/water syringe tips, and ultrasonic tips before flushing
3. **After patient care:**
    - Run handpieces with water coolant for 20–30 seconds to purge air and water
    - Remove handpiece; attach a sterilized handpiece for next patient

Special Note for Surgical Sites:

- Use **sterile water or sterile saline** for:
    - Open surgical sites
    - Bone-cutting procedures
- Deliver via sterilized or **single-use devices** (bulb syringes or disposable products)
- General DUWL water cannot be assumed sterile

(b) Offices Using Closed or Other Water Delivery Systems

- **Follow manufacturer's instructions** for daily and weekly maintenance.
- Closed systems reduce contamination risk but still require regular flushing and monitoring.

(c) Loss of Potable Water / Boiling Water Advisories

Situations:

- Water-main breaks
- Water treatment failures
- Natural disasters (floods, hurricanes, earthquakes)

Precautions During Advisory:

- Do **not use public tap water** in dental units or for patient rinsing
- Use **alternative water sources** via closed delivery systems
- **Postpone treatment** if necessary
- Use **bottled or distilled water** for rinsing

After Advisory is Cancelled:

- Flush all incoming public water lines for 1–5 minutes
- Disinfect dental unit waterlines according to manufacturer instructions
- Follow any additional **public health recommendations**

2. Dental Handpieces and Other Intra-oral Devices

Definition:

Dental devices that contact **mucous membranes** and are attached to the dental unit air or waterlines include:

- High- and low-speed handpieces
- Prophylaxis angles
- Ultrasonic and sonic instruments
- Air abrasion devices
- Air/water syringe tips

Key Risks

- **Backflow contamination:** Oral fluids can retract into the internal compartments of these devices.
- **Cross-contamination:** Fluids inside the device can be expelled into the next patient's mouth.

Flushing Requirements

- After each patient:
    - Activate the device to **discharge air and water for 20–30 seconds**.
    - This ensures any patient material in the turbine or waterlines is flushed out.

Sterilization & Cleaning

- **Sterilize all handpieces and intraoral devices** that are attached to air or waterlines after **each patient use**.
- Strictly follow the **manufacturer's instructions** for:
    - Cleaning
    - Lubricating
    - Sterilizing

Permanently Attached Components

- Examples:
    - Electric handpiece motors
    - Handles for ultrasonic devices
    - Attachments for saliva ejectors, high-volume suction, air/water syringes
- Protocol for Permanently Attached Components:
    - Cover with **barriers** that are **changed after each patient**
    - If contaminated or suspected to be contaminated:
        - **Clean and disinfect** with low-level disinfectant **OR**
        - Replace barriers before the next patient.

3. Saliva Ejectors

Risks:

- Backflow can occur if a patient closes their lips around the tip, creating a partial vacuum.
- Microorganisms from suction lines may enter the patient's mouth → potential cross-contamination.

Prevention & Maintenance:

- Do **not allow patients to close their mouths over the tip**.
- Use **specialty saliva ejectors** designed to prevent negative pressure formation.
- **Between patients:** Purge suction lines with water or appropriate cleaning solution.
- **Weekly:** Flush suction lines with enzymatic or appropriate cleaning solution.
- Inspect and clean **suction traps** routinely.

4. Single-Use (Disposable) Devices

Definition: Designed for **one patient only**; cannot be reliably cleaned or sterilized.

Examples:

- Syringe needles
- Prophylaxis cups and brushes
- Certain orthodontic brackets
- Single-use prophylaxis angles, high-volume suction tips, air/water syringe tips

Protocol:

- **Dispose properly** after single use.
- **Respect expiration dates**.

- Not heat-tolerant → cannot be reprocessed.

5. Dental Radiographic Equipment

Cross-Contamination Risks:

- Blood or saliva on:
  - Film packets
  - Film-holders and positioning devices
  - Tube heads and control panels
  - Lead aprons

Protocols:

a. During Radiographs:

- Wear **gloves** when handling film packets.
- Sterilize intraoral accessories (film-holders, positioning devices) between patients.
- Avoid touching lead apron with contaminated gloves → use **over gloves** or **de-glove and perform hand hygiene**.

b. Equipment Protection:

- Use **surface barriers** on radiography equipment; change **after each patient**.
- If no barriers: **clean and disinfect** surfaces after each patient.

c. Film Handling:

- Dry film packet with disposable gauze or paper towel to remove blood/saliva.
- Place in container (e.g., disposable cup) for transport to developer.
- Options for reducing contamination:
  - Disinfect film packet before opening
  - Open contaminated film with gloves → drop onto clean surface, discard empty packet
  - Use a **barrier pouch** for transport → carefully remove film from pouch

d. Developing Equipment:

- Avoid contamination
- Use protective barriers or **clean & disinfect surfaces** that become contaminated with low-level disinfectant.

6. Digital Radiography Sensors and Intraoral Cameras

Risk:

- Contact with mucous membranes → potential cross-contamination

Protocols:

- **Clean and disinfect** between patients according to **manufacturer's instructions** (including phosphor plates).
- **Barrier use** is recommended to reduce gross contamination.
- After barrier removal, **inspect underlying surfaces**; clean and disinfect if contaminated.

Key Point:
Always follow the manufacturer's instructions for disinfection, sterilization, and barrier use.

7. Lasers and Electrosurgery Equipment

Risk:

- Thermal tissue destruction produces **smoke plume** containing:
  - Particles, gases, tissue debris
  - Viable microorganisms
  - Viruses and offensive odors

Precautions:

- **Routine Practices:** appropriate masks and face shields
- **Suction systems:** central room units with in-line filters
- **Mechanical smoke exhaust:** high-efficiency filters to remove laser plume particles

8. Dental Laboratory Asepsis

Risk:

- Prostheses, appliances, and fabrication items (impressions, occlusion rims, bite registrations) are **potential sources of cross-contamination**.

Protocols:

a. Communication:

- Coordinate between dental office and commercial lab to:
  - Ensure proper cleaning/disinfection
  - Avoid damage to materials from overexposure
  - Avoid unnecessary duplication of disinfection

b. Handling Items:

- **Clean and disinfect immediately** after removal from patient's mouth, **before organic debris dries.**
- Follow **manufacturer's instructions** for material stability
- **Transport wet impressions/appliances** in an **impervious bag**

c. Heat-Tolerant Semi-Critical Items:

- Examples: impression trays, facebow forks
- Must be **sterilized after each patient**

d. Non-Patient Contact but Frequently Contaminated Items:

- Examples: articulators, case pans
- **Clean and disinfect** per manufacturer instructions

e. Dental Laboratory Tools:

- Examples: burs, polishing points, rag wheels, knives, dental lathes
- Must be **sterilized, cleaned, disinfected, or discarded** after use

f. Finished Prostheses and Appliances:

- Must be **free of contamination** when delivered to the patient.
- Clean with **low-level disinfectant** by either the lab or dental office.

9. Handling of Biopsy Specimens

Risk:

- Biopsy specimens may carry infectious agents; contamination of the container or handlers is possible.

Protocols:

- Place specimen in a **sturdy, leak-proof container** with a **secure lid**.
- **Label clearly** with the universal biohazard symbol.
- Avoid contaminating the **outside of the container** during collection.
- If the **outside is contaminated or suspected**:
    - **Clean and disinfect**, or
    - Place in an **impervious bag** before transport

10. General and Surgical Aseptic Technique

Key Concepts:

- The mouth is a **clean-contaminated environment**; patient's own oral flora is a main source of infection.
- **Aseptic technique:** Practices to prevent microbial contamination of instruments, environment, and patient.
- **Surgical aseptic technique:** Practices to maximize sterility of objects, operative site, and surrounding area during surgery.

Aseptic Practices for Minor Procedures

- Perform **hand hygiene** before procedure
- Sterile instruments placed at a **clean chairside area**
- Avoid placing unsterile items near sterile instruments
- Chairside areas separated into **clean/sterile vs. contaminated** zones
- Once the procedure begins, instruments become contaminated by patient flora → aim to **avoid additional contamination** from environment

Aseptic Practices for Major Procedures / Surgery

- Prepare patient
- Perform **hand hygiene**
- Wear **sterile gloves**
- Maintain **sterile field**: all instruments, materials, and supplies must remain sterile or have sterile coverings

Basic Steps to Reduce Environmental Contamination

1. **Prepare and organize** all required equipment before starting
2. Store **sterile instruments** in enclosed cabinets; keep wrapped until use
3. **Separate areas** and equipment into **clean vs. contaminated**, **sterile vs. unsterile**
4. Use **protective covers and barriers** as per office procedures
5. If additional items are needed:
    - Retrieve using **transfer forceps**, or
    - Ensure hands are **clean before touching items**
6. **Put on gloves** immediately before initiating procedure
7. If gloves are torn or perforated:
    - Remove gloves
    - Perform **hand hygiene**
    - Re-glove

Team Responsibility:

- Maintaining aseptic technique is **a cooperative duty** of the entire dental team.
- All members must develop a **professional conscience** for infection prevention and supervision.

IMPORTANT

If an item is needed during a procedure but not on the tray, it must only be retrieved using transfer forceps or after ensuring the DHCP's hands are clean, and transfer forceps must always be readily available.

Part F: Additional Considerations for Alternative Practice Settings

Settings where dental or dental hygiene services are provided outside a conventional operatory, such as:

- Group homes
- Long-term care / residential care facilities
- Rehabilitation facilities
- Private residences
- Community centres
- Educational facilities
- Hospitals
- Mobile dental/dental hygiene clinics

Key Points

- **Equipment and patient-care resources may be limited.**
- **DHCPs must ensure infection control protocols are followed and patient safety is maintained.**
- **Responsibility: Check with the alternative practice setting for sterilization policies before starting care.**

1. Disposal of Biomedical Waste

- Biomedical waste = hazardous; must **not** be disposed of with regular garbage.
- Requirements:
    - Store in **colour-coded containers** with **biohazard symbol**
    - Release only to **approved biomedical waste carriers**
    - Refer to Part D, "Management of Waste" for disposal of anatomical and non-anatomical waste.

2. Disposal of Environmentally Hazardous Waste

- Includes items containing **mercury, silver, lead, or other chemicals**
- Mercury-containing items:
    - Must be treated as **hazardous materials**
    - Never poured down drains or disposed in regular garbage

3. Disposal of Sharps

- Examples: needles, syringes, scalpel blades, clinical glass
- Must be collected in **puncture-resistant, leakproof containers** labeled with the **biohazard symbol**
- Release only to **approved biomedical waste carriers** once full

4. Transportation of Contaminated and Sterile Equipment

- Contaminated instruments: **packaged in sealed, sturdy, leakproof containers** to prevent cross-contamination
- Sterile instruments: **maintain sterility** in sealed packages until use
- Disposable sharps: removed and disposed of **at point of use**
- Soiled instruments: handled to **reduce exposure, injury, or contamination**
- Reprocessed vs. non-reprocessed instruments: **clearly differentiated** (e.g., color-coding).

Part G: Glossary of Infection Prevention and Control Terms

Additional precautions: A term used to describe infection prevention and control interventions that are taken in addition to Routine Practices for certain pathogens or clinical presentations, based on the method of transmission (e.g. contact, droplet, airborne).

Aerosol: Particles of respirable size (<10 µm) generated by both humans and environmental sources that can remain viable and airborne for extended periods, commonly generated in dentistry during use of handpieces, ultrasonic scalers, and air/water syringes.

Asepsis: The absence of pathogenic (i.e. disease-producing) microorganisms.

Aseptic technique: A term used to describe practices that prevent microbial contamination.

Biological indicator (BI): A device that is used to monitor the sterilization process, which consists of a standardized population of bacterial spores known to be resistant to the mode of sterilization being monitored. BIs indicate that all the parameters necessary for sterilization were present.

Chemical indicator (CI): A monitoring device that is designed to respond with a chemical or physical change to one or more of the sterilization process parameters. CIs do not verify sterility, but they do assist in the detection of potential sterilization failures, which could result from incorrect packaging, incorrect loading of the sterilizer or equipment malfunction. There are several classes of CIs:

- **Class 1 Process indicator:** An external indicator that is used to demonstrate that an item has been exposed to a sterilization process, and to distinguish between processed and non-processed items. Class 1 CIs are usually applied to or visible on the outside of packages (e.g. sterilization tape or packaging printed with colour changing ink). Class 1 CIs are directly exposed to the sterilization environment, so they usually fail only when there is a gross malfunction of the sterilizer.
- **Class 2 Specialty indicator:** An indicator that is designed for use in specific test procedures in special sterilizers (e.g. dynamic air-removal sterilizers). Examples of Class 2 CIs include Bowie Dick and Dart products, which are used for steam sterilizers and Type B sterilizers.
- **Class 3 Single-parameter indicator:** An internal indicator that responds to only one critical parameter of the sterilization process, usually time or temperature. It is important to note that the sterilization process has more than one critical parameter, and all of them must be reached for sterilization to occur.
- **Class 4 Multi-parameter indicator:** An internal indicator that responds to two or more critical parameters of the sterilization process.
- **Class 5 Integrating indicator:** An internal indicator that responds to all critical parameters of the sterilization process, heat, time and pressure. Class 5 CIs are correlated to the performance of biological indicators (BIs).

Cleaning: The physical removal of foreign material (i.e. organic and inorganic matter) from an object or item using water and mechanical action, with or without detergents. Cleaning removes rather than kills microorganisms. Cleaning and then rinsing is performed before further processing.

Decontamination: A process of cleaning, followed by inactivation of pathogenic microorganisms from objects to render them safe to handle.

DHCP: Dental health care provider.

Disinfection: A process that kills most pathogenic microorganisms but rarely kills all bacterial spores. Disinfection is achieved through pasteurization or the use of some chemical agents (i.e. disinfectants). The term falls between physical cleaning and sterilization. There are various levels of disinfection:

- **High-Level Disinfection (HLD):** A process capable of killing vegetative bacteria, mycobacteria (including Mycobacterium tuberculosis), fungi, and enveloped and non-enveloped viruses, as well as some, but not necessarily all, bacterial spores. HLD is considered to be the minimum level of decontamination required for semi-critical patient care items. HLD is performed after items are thoroughly cleaned and rinsed. HLDs include 2% glutaraldehyde, 7% accelerated hydrogen peroxide, 6% hydrogen peroxide, 0.2% peracetic acid and 0.55% ortho-phthalaldehyde.
- **Intermediate Level Disinfection (ILD):** A process that kills all microbial pathogens, except bacterial endo-spores, when used according to labelling. ILDs include ethylalcohol or isopropyl alcohol, hypochlorites, iodine and iodophors.
- **Low-Level Disinfection (LLD):** A process capable of killing most vegetative bacteria, as well as some fungi and enveloped viruses. LLD is the minimum level of decontamination required for non-critical patient care items and some environmental surfaces. LLD is performed after items are thoroughly cleaned and rinsed. LLDs include chlorine-based products (e.g. diluted household bleach), 0.5% accelerated hydrogen peroxide, 3% hydrogen peroxide, 60 to 95% alcohol, iodophors, phenolics or quaternary ammonium compounds.

Droplets: Small particles of moisture (e.g. spatter) generated when a person coughs or sneezes, or when water is converted to a fine mist by an aerator or shower head. Intermediate in size between drops and droplet nuclei, these particles, although they may still contain infectious microorganisms, tend to quickly settle out from the air so that any risk of disease transmission is generally limited to persons and surfaces near the droplet source.

Exposure-prone procedures (EPPs): A term used for the purpose of managing the risk of transmitting blood-borne pathogens. These are procedures during which transmission of HBV, HCV or HIV from a health care worker to patients is most likely to occur. Exposure-prone procedures (EPPs) are invasive procedures where there is a risk that injury to the dental health care provider may result in the exposure of the patient's open tissues to the blood of the dental

health care provider. Any dental health care provider with HBV, HCV or HIV is restricted from performing EPPs in the high-risk exposure procedure until their condition is managed as per the NBDS policies on infectious diseases. There would be no restrictions on performing procedures in the moderate or low risk categories.

- **High risk exposure-prone procedures:**
    - All surgical procedures (hard and soft tissue including suturing)
    - Periodontal scaling and root planing
- **Moderate risk exposure-prone procedures:**
    - Locally anaesthetized operative, prosthetic and endodontic procedures
    - IV insertion
    - IM injections
- **Low risk exposure-prone procedures:**
    - Gloved oral examinations
    - Routine preventive procedures
    - Pit & fissure sealants
    - Topical fluoride
    - Prophylaxis
    - Diagnostic procedures
    - Orthodontic procedures
    - Prosthetic procedures (e.g. dentures)
    - Cosmetic procedures (e.g. bleaching) not requiring local anesthesia

Implantable devices: A dental implantable device refers to a medical device that is surgically placed into the jawbone to support dental prosthetics like crowns, bridges, or dentures. These devices are typically made of biocompatible materials such as titanium, which allows them to integrate with the bone through a process called osseointegration.

- Implantable devices that have been prepared and packaged by the manufacturer and are received pre-sterilized do not require re-sterilization.
- Implantable devices are not intended for reuse. If an implantable device has been used in a patient's mouth it must not be reused.

Infection and Prevention Control Officer (IPAC Officer): This person is responsible for the education and the training of the IPAC standard. This person is named by the responsible dentist or the owner of the dental/dental hygiene clinic.

Process Challenge Device (PCD): A process challenge device is a key element in the quality assurance testing of dental office sterilizers. It is used to monitor the performance of the sterilization process. The process challenge device simulates an equal or greater challenge than the most difficult instrument/item routinely processed in a sterilization cycle. A PCD is a device that can be bought for multiple usage or one that can be fabricated for a single use.

Personal protective equipment (PPE): Specialized clothing or equipment worn by staff and patients for protection against hazards.

Reusable device: A device that has been designed by the manufacturer, through the selection of materials and/or components, to be reused.

Risk class: The class assigned to patient care items based on the potential risk for infection associated with their intended use. The risk class determines the processing requirements of an item. The risk classes are as follows:

- **Critical items:** Items that penetrate soft tissue or bone, enter into or contact normally sterile tissue or the bloodstream. Critical items present a high risk of infection if the item is contaminated with any type of microorganism, including bacterial spores. Processing of critical items involves meticulous cleaning followed by sterilization.

  Examples include:

  - Air/water syringe tips
  - Anesthetic syringes
  - Endodontic instruments, including files, reamers, broaches
  - Handpieces
  - Metal matrix bands
  - Periodontal instruments including ultrasonic tips
  - Polishing cups, points and mandrels
  - Restorative and operative instruments
  - Rotary burs and diamonds
  - Rubber dam clamps
  - Stainless steel crowns
  - Surgical suction tips
- **Semi-critical items:** Items that contact mucous membranes or non-intact skin, but ordinarily do not penetrate them. Processing semi-critical items involves meticulous cleaning followed by sterilization (preferred) or high-level disinfection (minimum). Semi-critical instruments or devices that have been exposed to blood or have the potential to be exposed to blood must be treated as critical. DHCPs must use their professional judgment for every instrument, device and surface for their specific practices to ensure that these Guidelines are being met.

  Examples include:

  - Articulating paper holders
  - Crown removing instruments
  - Impression trays
  - Lab burs
  - Mixing spatulas

    - Nasal hoods (e.g. for use with nitrous oxide)
    - Orthodontic pliers
    - Rubber dam frame and clamp forceps
    - Suction tips other than for surgery (does not include single-use saliva ejectors)
- **Non-critical items:** Items that contact intact skin, but not mucous membranes, or do not directly contact the patient. Processing of non-critical items involves cleaning followed by low-level disinfection.

  Examples include:

    - Curing lights
    - Bib clips
    - Light handle covers
    - Laboratory knives and spatulas
    - Rubber dam punch
    - Shade guides

Routine practices: A term used to describe basic standards of infection prevention and control that are required for safe patient care. Routine Practices are based on the concept that all patients are potentially infective, even when asymptomatic, and that the same safe standards of practice should routinely apply to contact with blood, body fluids and secretions (e.g. saliva), mucous membranes and non-intact skin.

Single-use/disposable device: A device that has been designed by the manufacturer for single-use only.

Spatter: Visible drops of liquid or body fluid that are expelled forcibly into the air and settle out quickly, as distinguished from particles of an aerosol, which remain airborne indefinitely.

Sterilization: A validated process that kills all pathogenic microorganisms, including bacteria, fungi, viruses and spores.

Ultrasonic cleaner: A machine that cleans patient care items by the cavitations produced by ultrasound waves.

Part H: Additional Resources

Best Management Practices for Hazardous Dental Waste Disposal
Nova Scotia Dental Association
OHS-20181204-NSDA-HazardousWasteDocuments.pdf

Guidelines for the Management of Biomedical Waste in Canada
Guidelines for the Management of Biomedical Waste in Canada

Public Health Agency of Canada
Canadian Immunization Guide - Canada.ca

Decontamination and Reprocessing of Medical Devices for Health-Care Facilities
Aide-Memoire
WHO-UHL-IHS-IPC-2022.4-eng.pdf
WHO 1-118 BenedettaFinal5

New National Standard of Canada CAN/CSA-Z314-18
Canadian medical device reprocessing
Slide 1

Infection Control in Dental Settings
Centers for Disease Control and Prevention
Summary of Infection Prevention Practices in Dental Settings: Basic Expectations for Safe Care

Manufacturers Information for Reprocessing Reusable Devices
Guidance Document: Information to Be Provided by Manufacturers for the Reprocessing and Sterilization of Reusable Medical Devices - Canada.ca

Workplace Hazardous Materials Information System Regulation
Occupational Health and Safety Act (New Brunswick Regulation 88-221)
88-221 - Workplace Hazardous Materials Information System

WHMIS/SIMDUT Training
WHMIS (GHS) Online Training | Danatec.com
WHMIS Certificate - Workplace Hazardous Materials Safety Training
WHMIS Online Certification | 1 Hour | Recognized Across Canada
WHMIS Online Training Course and Certification

Part I: Exposure Management and Prophylaxis

Percutaneous Injury

Exposure to blood or saliva by percutaneous injury is the greatest risk for acquiring a blood-borne pathogen in the dental health-care setting. Every effort should be made by all DHCP to avoid percutaneous injury.

Significant exposures must be dealt with immediately. A significant exposure occurs whenever any of the following events takes place:

- Percutaneous injury, where the skin of the DHCP is punctured (i.e., blood is drawn).
- Blood, saliva, or other body fluid is splashed onto non-intact skin (e.g., dermatitis, cuts, or abrasions).
- Blood, saliva, or other body fluid is splashed onto mucosa of the eyes, mouth, or nose.

Steps in Managing Significant Exposure

1. Remove gloves or immediate clothing, if necessary, to assess the extent of the injury.
2. Administer first aid for percutaneous exposures, if needed.
3. Immediately wash the affected area, including the puncture or wound, with antimicrobial soap and water. Exposed eye, mouth, or nose mucosa must be flushed with copious amounts of water. **Do not** apply caustic agents (e.g., bleach) or inject antiseptic agents into the wound.
4. Report the injury to the Infection Control Officer (IPAC Officer), often the practice owner. The IPAC Officer will contact the appropriate health-care professional for advice, possible referral, and begin necessary documentation while ensuring strict confidentiality of health and personal data.

Documentation must include (see template, *Exposure Documentation*):

- Name of the exposed DHCP and details of their vaccination status.
- Date and time of the exposure.
- Nature of the exposure, including the dental procedure being performed, the extent of exposure, and immediate action taken.
- Name and health status of the source person, including details regarding any known or suspected infectious diseases.
- Referral for follow-up counseling and post-exposure management, as necessary.

Post-Exposure Prophylaxis (PEP)

Every significant exposure must be evaluated by a qualified health-care professional for the potential to transmit a blood-borne pathogen. The risk assessment considers:

- Type and amount of body fluid or tissue involved.
- Nature of the exposure (e.g., percutaneous injury, mucous membrane, or non-intact skin exposure).
- Known or unknown infection status of the source.
- Susceptibility of the exposed person.

Based on these factors, follow-up care may include **Post-Exposure Prophylaxis (PEP)**.

- If PEP is necessary, it must be administered as soon as possible after the exposure. For example, anti-retroviral drugs for HIV exposure should be given within **1–2 hours** after exposure.
- The PEP regimen is determined by the health-care professional contacted by the IPAC Officer and must be consistent with current infection prevention and control guidelines recommended by the **Public Health Agency of Canada**.

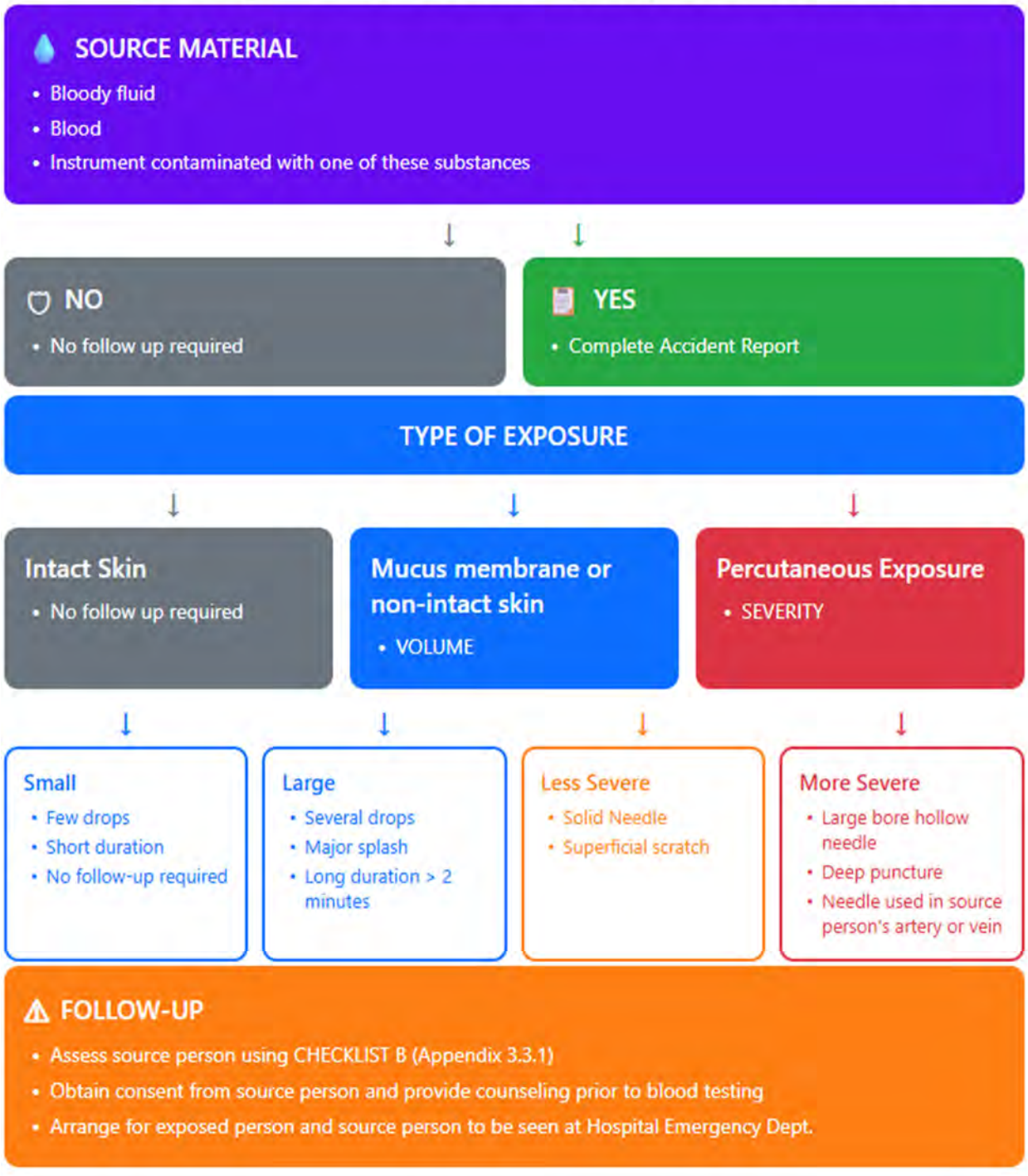
Preparedness

- Offices must have a written Infection Prevention and Control Program and an identified **Infection Control Officer (IPAC Officer)**.
- Appropriate arrangements and contacts with health-care personnel must be determined **before** any significant exposure occurs.

Management of Needlestick and Mucous Membranes Exposition

CHECKLIST A

To Assess Exposure to the Risk of Infection (completed by the Infection Control Officer)



CHECKLIST B

Assessment of the source person after exposure (to be completed by the infection control officer)

Inform the source person of the reason for this request for information and give them time to read the information about an accidental injury with a needle or sharp instrument.

Assess the risk that the source person has a blood-borne infection by examining their medical history for clinical symptoms and asking other questions.

Do you know if you are seropositive for Hepatitis B, Hepatitis C or HIV or if you have risk factors for exposure to these viruses?

Hepatitis B	☐ Yes ☐ No	Diagnosis date
Hepatitis C	☐ Yes ☐ No	Diagnosis date
HIV	☐ Yes ☐ No	Diagnosis date
Risk factors	☐ Yes ☐ No	

Risk factors may include the following:

a) Taking intravenous drugs or sharing needles.
b) Receiving blood products.
c) Having multiple sexual partners or sexual partners who have one or more of the listed risk factors.
d) Having unprotected or risky sexual relations.

☐ Request consent from the source person for blood tests to determine if they are seropositive for Hepatitis B, Hepatitis C and HIV.

Source person's family physician

Dr. Tel.

Address

Test results will be sent to the treating physician who provides care to the staff.

Exposure Documentation

Name of Exposed Person:

Hepatitis B vaccination completed: Date:

Post-vaccination titre:

mIU/mL

Exposure Details

Date and Time of Exposure:

Procedure being performed:

Where and how exposure occurred:

Did exposure involve a sharp device:

☐ No ☐ Yes

Type and brand of device:

How and when during handling exposure occurred:

Extent of the exposure (describe):

Type of Fluid/Material

☐ Blood ☐ Saliva ☐ Other body fluid

Describe:

Percutaneous Injury

- Depth of wound:
- Gauge of needle:
- Was fluid injected: ☐ No ☐ Yes

Skin or Mucous Membrane Exposure

- Estimated volume of fluid:
- Duration of contact:
- Condition of skin: ☐ Intact ☐ Chapped ☐ Abraded

Source Person Information

- Known infectious disease(s): HIV ☐ No ☐ Yes ☐ Possible
- Anti-retroviral therapy: ☐ No ☐ Yes
- Viral Load:

Needlestick Exposure Information and Consent

An accidental needle stick injury has occurred to our staff. Sometimes this injury may expose them to a source person's blood. This may lead to an infection. To reduce the risk of infection after injury it is important to know if the source person is infected with certain organisms. These include Hepatitis B, Hepatitis C and Human Immunodeficiency Virus (the virus thought to cause AIDS).

Given any positive risk factors, we ask you to go to the hospital to allow an immediate blood test to be taken so that we can determine if there is a risk of passing on an infection from you to our employee.

Our office has policies and procedures in place to reduce injuries to employees. However, when accidents occur, we want to ensure that our employees receive proper care. We appreciate your cooperation in helping us to achieve this.

Consent to contact family physician for infectious disease blood test results

The above information has been reviewed and explained to me, and I consent to have my blood test at the hospital and the results be communicated to the medical personnel treating the affected staff.

Source person's name

.....

Signature

.....

Date

.....

Infection Control Officer

Signature

.....

Witness Name

.....

Witness Signature

.....

Medical Follow-Up to Needlestick and Mucous Membrane Exposures

The Following Procedures will be directed by the IPAC Officer:

1. Medical management of the injury.

2. Referral of the source person to the family physician or emergency physician for testing for Hepatitis B surface antigen, Hepatitis C surface antigen, and HIV antibodies. HIV testing will be done with appropriate pre- and post-counseling and informed consent.

3. Referral of the exposed person to the family physician or emergency physician for testing for Hepatitis B surface antibodies (if vaccinated) or Hepatitis B surface antigen (if not vaccinated), Hepatitis C antibodies, and HIV antibodies and to determine the need for Post-Exposure Prophylaxis.

4. Documentation of the following information (see template Exposure documentation) in the employees' confidential medical file:
   - date and time of exposure
   - details of the procedure being performed by the employee at the time of exposure
   - details of exposure including amount of fluid or material, type of fluid or material, and severity of exposure
   - details of exposure source
   - details of counseling, post-exposure management and follow-up

5. Follow-up care of the employee (see template Exposure and follow up care document) including counseling, medical evaluation and blood tests at 6 weeks, 3 months, and 6 months.

Exposure and Follow up Documentation care

*(**NOTE:** Confidentiality of this form **MUST** be ensured, i.e. only those people who need to see this form may do so)*

Follow-up care (describe in detail):

Date Y/m/d	Caregiver	Action Taken