Provincial Dental Board
of Nova Scotia

# STANDARD OF PRACTICE

**Infection Prevention and Control**
**December 1, 2022**

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*This 2022 PDBNS Infection Prevention and Control (IPAC) Standard of Practice is concurrent and in accord with Standards of the other three Nova Scotia Oral Health Regulators: the College of Dental Hygienists of Nova Scotia (CDHNS), the Denturist Licensing Board of Nova Scotia (DLBNS), and the Nova Scotia Dental Technicians Association (NSDTA).*

*The development of this document was initiated by the Nova Scotia Dental Association's Clinical Affairs Committee as a replacement for the 2013 NSDA document Infection Prevention and Control Guidelines. The Nova Scotia Oral Health Regulators owe a debt of gratitude to this NSDA Committee for the tremendous groundwork laid before transferring responsibility to the Oral Health Regulators. Particular appreciation goes to Dr. Kyla Romard for her dedication to this project.*

*Thanks go to the College of Dental Surgeons of Saskatchewan and the Royal College of Dental Surgeons of Ontario, for providing the building blocks of this document. Thanks as well to the Alberta regulatory bodies for dental assistants, denturists, dental technologists, and dental hygienists for granting permission to use and adapt the diagrams in their joint document Infection Prevention and Control Guidelines 2022.*

*Appreciation is also extended to Dalhousie University Faculty of Dentistry, the Cape Breton Business College Dental Assisting Program, and the Nova Scotia Community College Dental Assisting Program who provided valuable feedback and insight as partners in the delivery of safe oral healthcare to Nova Scotians.*

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# Introduction

This document contains practice parameters and standards which **must** be followed by all Nova Scotia ***Oral Health Care Providers*** (OHCPs) in the care of their patients. These standards will be used by the Provincial Dental Board of Nova Scotia (PDBNS), the College of Dental Hygienists of Nova Scotia (CDHNS), the Denturist Licensing Board of Nova Scotia (DLBNS), and the Nova Scotia Dental Technicians Association (NSDTA) in determining whether appropriate standards of practice and professional responsibilities have been maintained. Compliance with infection prevention and control (IPAC) standards is the responsibility of all OHCPs, not just the employer, contracting dentist, practice owner or corporate management team.

The major goal of an infection control program is to prevent the transfer of pathogens between contaminated items and individuals. Dentists, denturists, dental hygienists, dental assistants, and dental technicians have dealt with the concepts and principles of infection control and infection prevention since early in the histories of these professions. All OHCPs **must** be responsible for infection prevention and control in oral health facilities in Nova Scotia. Because of the realities of the oral environment, creating a medical-grade surgical operating room is not necessary or possible; however, OHCPs **must** strive to efficiently create an environment which is as pathogen free as possible.

Establishing scientific validity for every recommendation provided in this document is not always possible. Wherever possible, these requirements are based on data from peer reviewed sources (see Reference List).

In the absence of peer reviewed evidence, many of these standards are based on strong theoretical rationale, suggestive evidence, or opinions of respected authorities based on clinical experience, descriptive studies or committee reports. This document consolidates published recommendations from government and other agencies, regulatory bodies and professional associations. The standards will be updated as new evidence emerges.

The standards in this document are intended to protect all oral healthcare personnel and their patients from infectious disease transmission. OHCPs **must** apply this information as their standard of practice in a diligent, conscientious manner.

**In the event of a public health emergency (e.g., pandemic), OHCPs must abide by the most current recommendations set forth by their regulatory body and the Chief Medical Officer of Health.**

## Commonly Used Terms in This Document

- ***Oral Health Care Providers*** (OHCPs) refers to dentists, denturists, dental hygienists, dental assistants, and dental technicians who are regulated and licensed to provide oral/dental care in the best interest of the public.
- ***Other personnel*** refers to the variety of paid and unpaid personnel in the oral healthcare setting (e.g., administrative, maintenance, and students) who might be exposed to infectious agents.
- ***Oral Healthcare Setting*** refers to all practice environments where oral healthcare is provided (e.g., dental clinic, denturist clinic, dental hygiene clinic, and dental lab).
- **Must** and **should** statements: "**Must**" statements are standards of practice that **must** be met. "**Should**" statements should be implemented but are not required.

## Purpose of the Document

This document is not a step-by-step manual in how to implement specific infection control practices or procedures, nor does it endorse the use of specific infection control products. Rather, it lays out the IPAC principles and standards that OHCPs are expected to implement. These standards **must** be used to develop written facility-specific IPAC manuals.

# Professional, Regulatory and Ethical Considerations

OHCPs have a professional duty to cause no harm to their patients, and to provide a safe working environment for all OHCPs and other personnel in their practice. Transmission of infectious diseases is possible before, during or after oral healthcare.

The oral health professions in Nova Scotia have a long tradition of providing appropriate and compassionate care to all segments of the public:

- OHCPs are morally and ethically required to provide necessary oral health care for all members of the public without discrimination. Accordingly, all OHCPs **must** not refuse to treat a patient on the grounds of the patient's infectious state.
- People living with infectious diseases may, however, be severely or profoundly medically compromised as a result of those infectious diseases. Planned oral healthcare may require modifications, in light of these conditions, to ensure the safe, appropriate delivery of oral healthcare.
    - ► OHCPs **must** be aware of oral and systemic effects of the disease or medications, potential interactions with other medications, as well as any necessary treatment modifications.
    - ► When a patient with an infectious disease is medically compromised, a multidisciplinary hospital setting may be a safer location for treating the patient.
    - ► OHCPs must triage and manage the care, as necessary, e.g., delaying treatment until the disease is controlled or not in an infectious state if the care is not an emergency, or urgent. As appropriate, OHCPs can provide care using virtual care (also called teledentistry), in accordance with any relevant profession-specific standards or guidelines.
- OHCPs with an infectious disease do not normally pose a significant risk of infecting patients, other OHCPs or the public, provided they are complying with current recommended IPAC procedures. OHCPs with an infectious disease have the duty to report to their regulatory authority (PDBNS, DLBNS, NSDTA or CDHNS) when a serious injury, dependency, infection, or any other condition has either immediately affected or may affect over time, their ability to practice safely and competently. Appropriate measures, including possible review by an expert panel, will then be taken to ensure the protection of the public and other personnel.
- OHCPs **must** maintain the standards of practice of the profession and, accordingly, **must** ensure that IPAC procedures are followed.
- OHCPs **must** only use products specifically designed for infection prevention and control in medical or oral healthcare settings.
- OHCPs **must** remain current in IPAC principles and procedures.

# Principles of Infection Prevention and Control in the Oral Healthcare Setting

## Modes of Transmission

Understanding modes of transmission helps OHCPs protect patients, other staff members, and themselves. Below is a list that identifies five common modes of pathogen transmission.

- Airborne transmission: Inhalation of aerosols or microorganisms that can remain suspended in the air. Aerosol generating procedures (AGPs) are those which can generate aerosols that consist of small droplet nuclei in high concentration and present a risk for airborne transmission of pathogens that would not otherwise be spread by the airborne route (e.g., COVID-19, influenza). Examples of AGPs in dentistry includes the use of:
  - ► Three-way air-water syringes
  - ► Ultrasonic and sonic devices
  - ► High-speed handpieces
  - ► Slow-speed handpieces in the presence of water/saliva
  - ► Lasers and electrosurgery units
  - ► Micro-abrasion devices
  - ► Air polishers
  - ► Pumice/polishing dental appliances in the presence of water
- Direct transmission: Direct physical contact with blood, oral fluids, or other substances from infected patients
- Indirect transmission: Contact with an intermediate contaminated object (instruments, computer/electronic equipment, or environmental surfaces)
- Droplet transmission: Contact of conjunctival, nasal, or oral mucosa with droplets (splatter) containing microorganisms generated from an infected person and propelled a short distance (by coughing, sneezing, or talking)
- Other transmission: Contact with a vehicle, such as food or water, causing the transfer of the pathogen.

## Criteria for infection

Infection transmission through any of these routes requires that **all** the following conditions are met:

- An **infectious agent (pathogen)** of sufficient **virulence** and in adequate **numbers** to cause disease
- A **reservoir or source** that allows the pathogen to survive and multiply (e.g., blood)
- A **portal of exit** that allows the pathogen to leave the source
- A **mode of transmission** from the source to the host
- A **portal of entry** through which the pathogen can enter the host (e.g., needle-stick injury)
- A **susceptible host** (someone who is not immune)

The simultaneous occurrence of these criteria for infection transmission is referred to as the **chain of infection**. Effective IPAC procedures **must** interrupt one or more links in this chain.

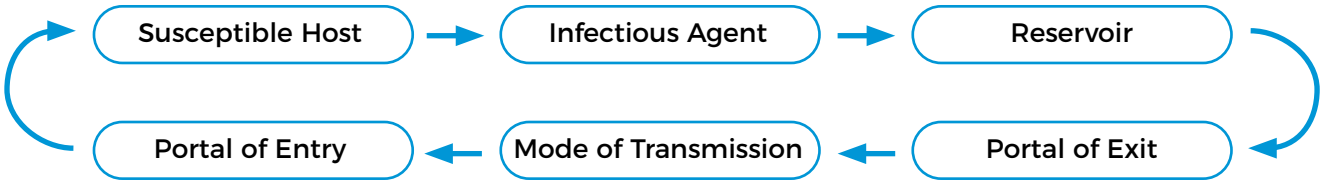



**Figure 1: Chain of Infection** – used with permission

If all IPAC processes are followed correctly, the risk of infection as a result of dental procedures is extremely low.

IPAC principles include:

- Following Routine Practices
- Assessing patients
- Using barrier techniques to protect both patients and OHCPs
- Applying the principles of cleaning, disinfecting, sterilizing, and storing dental instruments
- Environmental cleaning
- Care of the overall office setting
- Safe handling and disposal of wastes

An overall IPAC program should focus on strategies to reduce the risk of transmission.

These strategies include:

- Identifying, communicating and implementing standards and guidelines by setting specific policies and procedures
- Establishing and implementing effective occupational health and safety programs for all OHCPs, such as written procedures for the workplace (e.g., implementing the hierarchy of controls) and guidance on immunization
- Educating OHCPs, as well as patients and their families, about everyone's role in infection prevention
- Ongoing review of policies and procedures, and evaluation of the IPAC program

# Routine Practices

Health Canada uses the term "Routine Practices" to describe basic standards of IPAC that are required for safe patient care. A similar term, "Standard Precautions," is used by the Centers of Disease Control and Prevention in the United States. Routine Practices synthesize the major principles in "universal precautions," which are designed to reduce the risk of transmitting pathogens that are blood-borne, and those of "body substance precautions," which are designed to reduce the risk of transmitting pathogens from moist body substances.

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. In addition, instruments in direct contact with these fluids and tissues are potentially contaminated with infectious agents.

Adherence to Routine Practices protects OHCPs and patients.

There are four principles that are inherent in Routine Practices:

1. Risk Assessment
2. Hand Hygiene
3. Use of Personal Protective Equipment (PPE)
4. Safe Handling and Disposal of Sharps

## 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 in order 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 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 OHCP

Based on these factors, OHCPs **must** implement the appropriate strategies. For example, select appropriate PPE for procedures involving exposure to blood, body fluids and secretions, mucous membranes and non-intact skin.

### SCREENING OF PATIENTS

It is possible that patients who are unwell may attend an oral healthcare appointment. Their health condition may relate to a dental problem (e.g., odontogenic or post-operative infection) or a non-dental problem (e.g., respiratory illness).

When confirming appointments, patients should be screened for illness (e.g., fever or cough). If a patient indicates symptoms that are not related to the dental problem, the appointment should be rescheduled.

Patients who present and appear to be ill should be rescheduled if possible. If their dental condition is of an emergency or urgent nature and appointment cannot be rescheduled, additional precautions **must** be implemented, as appropriate, based on patient assessment.

## Hand Hygiene

Hand hygiene is the most important measure for preventing the transmission of pathogens and is often the weak link in an effective IPAC program. The purpose of hand hygiene is to reduce the quantity and diversity of the transient pathogens found on the surface of the hands, and not intended to remove the resident microorganisms found in the deep skin layers. The spread of these transient pathogens, through non-compliance with hand hygiene protocols, is connected with healthcare associated infections and the spread of multi-resistant organisms.

There are two acceptable methods of hand hygiene — hand washing and using alcohol-based hand rub (ABHR).

### HANDWASHING

Handwashing should be done using plain liquid soap, cool or warm (not hot) water for at least 20 seconds, and single-use towels. Hands should be thoroughly dried after washing, as bacteria can quickly multiply.

Antimicrobial soaps are no longer recommended for routine hand hygiene but are recommended for surgical procedures.

The hands of OHCP that come in direct contact with patients **must** be washed:

- At the beginning of the workday.
- Whenever hands are visibly soiled.
- Before and after eating.
- After contact with contaminated environmental surfaces, instruments or other equipment in the dental operatory.
- After contact with dental materials that are contaminated or may be toxic.
- After using the washroom or blowing one's nose.
- Whenever the hands have become contaminated with blood, saliva or other body fluid, or whenever the hands have come in contact with some instrument, agent or surface that may have been contaminated with blood, saliva or some other body fluid.
- Prior to contact with patients who are latex sensitive. ABHRs are not sufficient for removing latex particles.

Between patients, or when gloves are changed during an appointment hand hygiene **must** be performed using one of the two hand hygiene methods.

### ALCOHOL-BASED HAND RUB (ABHR)

Using ABHR is the preferred method to routinely decontaminate hands in clinical situations when hands are not visibly soiled.

Sufficient product is required to remain in contact with the hands for a minimum of 15 seconds. Often this is achieved by dispensing two full pumps. Hands should be rubbed until dry as the alcohol can cause glove material degradation resulting in loss of glove integrity.

OHCPs **must** use medical grade (minimum 70% alcohol) commercial products approved by Health Canada for ABHR use. These products **must** have a Drug Identification number (DIN) or Natural Product Number (NPN) from Health Canada.

## Storage

Hand hygiene products **must** be used, stored, and dispensed according to the manufacturer's instructions. Liquid products **must** be stored in closed containers and dispensed from either disposable containers or from containers/pumps that have been washed, disinfected, and thoroughly dried between refilling. Liquid products **must** not be added to a partially empty dispenser or "topped up", due to the risk of bacterial contamination.

## Hand Care

Emollient hand lotions should be considered for routine use to prevent hand irritation and dermatitis that comes from frequent hand hygiene and glove use. Manufacturers of hand hygiene products should be consulted regarding any possible interaction with hand lotions, soaps, and ABHR. If using latex gloves, petroleum-based lotions should be avoided during the workday, as these may weaken the glove material, resulting in increased glove permeability.

**Fingernails** are a common area of bacterial contamination. Fingernails should be kept short and trimmed to allow thorough cleaning under nails and prevent glove tears. During the initial hand wash, sterile nail brushes or disposable orangewood sticks may be used to clean cuticles and under fingernails.

Long natural or artificial nails **must** be avoided. Freshly applied nail polish on natural nails is acceptable, provided fingernails are kept short. Chipped nail polish **must** be avoided because as it can harbour microorganisms.

**Jewellery**, including rings, arm bands, wrist bands, bracelets and watches **must** not be worn. (Smooth metal ring bands are acceptable.) They compromise hand hygiene, make donning gloves difficult, and can increase the chance of tearing gloves. As well, jewellery cannot be adequately decontaminated.

## Use of Personal Protective Equipment

### GENERAL CONSIDERATIONS

OHCPs wear personal protective equipment (PPE) to shield themselves from exposure to potentially infectious material. This also protects the patients by preventing the OHCPs from becoming a vector for the transmission of microorganisms from patient to patient.

Additional protective barriers and techniques should be employed to shield patients from potentially infectious materials.

Refer to Personal Protective Equipment for specifics.

## Safe Handling and Disposal of Sharps

Extreme care **must** be taken at all times to ensure patients are protected from injuries involving sharp objects. Sharps should be:

- Kept out of the reach of patients
- Collected in a clearly labeled puncture-resistant container located directly adjacent to the point of use
- Placed into the sharps container immediately following use or at the end of the procedure

See Exposure Prevention for more about sharps handling.

# Additional Precautions

Routine Practices may not be sufficient for patients who are infected or colonized with certain microorganisms that pose special challenges in blocking their transmission (e.g., *M. tuberculosis*). The term "Additional Precautions" is used to describe measures that are taken in addition to Routine Practices to interrupt the transmission of such microorganisms. They include the physical separation of infected or colonized patients from other individuals and the use of protective barriers (e.g., gowns, gloves, masks) to prevent or limit the transmission of the infectious agent.

These Additional Precautions are of relevance in healthcare institutions where staff and patients may be at increased risk of disease transmission. In these settings, regional, local, or institutional authorities may implement additional protocols to limit this risk. For example, in an institutional setting, patients may be at increased risk of becoming infected or colonized with methicillin-resistant Staphylococcus aureus (MRSA), vancomycin-resistant enterococcus (VRE) or respiratory tract viruses (e.g., influenza).

In ambulatory settings, such as dental offices, Additional Precautions are required for patients who are known, or suspected, to have an infection that can be transmitted by large respiratory droplets. Examples of microorganisms that can be transmitted in this way include respiratory tract viruses, rubella, mumps, and *B. pertussis*.

To minimize the spread of microorganisms by droplet transmission in these cases, patients:

- **must** be offered a mask upon entry
- should perform hand hygiene
- should maintain a two-metre separation from other persons
- should be removed from the reception/waiting area and seated in a secluded operatory as soon as possible

# Human Rights and Confidentiality

The Nova Scotia *Human Rights Act* protects against the violations of certain rights in Nova Scotia, specifically: age, race, colour, religion, creed, gender, pregnancy, sexual orientation, gender identity, gender expression, physical disability, mental disability, ethnic, national or aboriginal origin, family status, marital status, source of income, irrational fear of contracting an illness or disease, political beliefs, affiliation or activity and an individual's association with any individual or class of individual in the aforementioned list.

OHCPs are prohibited from discriminating against patients. This includes using extraordinary and unnecessary infection control or other measures on some patients that are not used for other patients. OHCPs may require modifications to Routine Practices based on the risks associated with certain dental procedures and in consideration of a patient's health history (e.g., *M. tuberculosis,* respiratory tract viruses).

## Patient Records

The information contained in patient records is confidential and **must not** be released to anyone without the consent of the patient, or his/her authorized representative, or as required or allowed by law. Therefore, it is important to remember that patient records **must** be stored securely and in accordance with the Personal Health information Act of Nova Scotia (PHIA) and any additional guidelines established by the OHCP's regulatory body. (For example, the *PDBNS Recordkeeping Guidelines* can be found at: http://pdbns.ca/licensees/policies-and-guidelines/recordkeeping-guidelines.)

Sensitive medical information should not be recorded in the front of the patient's chart, where it could easily be seen by others.

A medical alert should be coded in such a way that only staff recognizes the significance of the information, while the exact nature of the condition should be documented within the patient's chart.

If patient records are computerized, login and password protection should be used to prevent unauthorized access. In addition, screen savers and other measures should be employed to ensure information on computer screens is not visible to other patients in the office.

Under PHIA, it is the responsibility of the "custodian" (e.g., dentist) to ensure that all staff is knowledgeable about and take appropriate steps to protect patient confidentiality including the development and implementation of appropriate patient confidentiality and record keeping policies. "Agents" of the custodian (e.g., employees) **must** collect, use, and disclose and dispose of personal health information as set out by legislation.

# Personnel Health and Safety

## General Considerations

Oral health care settings **must** have a written site-specific IPAC manual. This manual **must** be consistent with the current IPAC Standards for Nova Scotia's Oral Health Professions.

The site-specific manual **must** be reviewed, signed, and dated annually by all employees of the facility.

The site-specific manual **must** include the following elements:

- Policies that describe routine practices for all oral health care procedures within the facility
- Identification of an IPAC Officer (any OHCP) assigned to create, maintain, coordinate and evaluate the IPAC policies. The officer's duties include the education of OHCPs and other personnel regarding the IPAC principles, identifying work-related infection risks, instituting preventive measures, and ensuring prompt exposure management and medical follow-up.
- Contact information for local healthcare personnel trained in exposure management
- Policies and procedures for pre-treatment, treatment, and post-treatment periods of patient care
- Daily, weekly, and monthly routines, including documentation of all processes e.g., equipment maintenance (ultrasonic instrument cleaners and heat sterilizers)
- Protocols for sterilizer monitoring and sterilizer malfunction management, including documentation
- Policies on recording of staff immunizations (see **immunizations** )
- Policies regarding exposures to infections agents including prevention, management, and documentation. These policies **must** be consistent with local and provincial guidelines, including the Nova Scotia Personal Health Information Act. Visit the following for more information on exposures to infectious agents:
  - ► **https://www.cdha.nshealth.ca/employee-health/blood-bodily-fluid-exposures**
  - ► **https://www.cdha.nshealth.ca/employee-health/blood-bodily-fluid-exposures/after-accidental-exposure**
- Guidelines for education and training (documented in employee file)
- Location of first aid kit and eye wash station
- Protocols regarding staff medical conditions, work-related illness, and associated work restrictions
- Protocols regarding contact dermatitis and latex hypersensitivity
- Nova Scotia Health Authority emergency protocols for infectious diseases

## Education and Training

IPAC practices are improved when OHCPs and other personnel understand the reasons why the policies exist.

OHCPs and other personnel **must** receive IPAC training as part of their practice orientation and whenever new tasks or procedures are introduced. Additionally, OHCPs and other personnel **must** receive an annual IPAC Guidelines review. Education and training should be appropriate to the assigned duties of specific personnel. The site-specific policies and protocols **must** be reviewed with all staff annually.

For OHCPs and other personnel, their training **must** include:

- A description of each individual's exposure risks
- A review of prevention strategies and infection-control policies and procedures
- The management of work-related illness and injuries, including post-exposure prophylaxis
- A review of work restrictions for the exposure or infection

All education and training courses **must** be documented.

For more information, please see the NSDA's documents entitled "The Occupational Health and Safety Act: Dental Office Interpretation" as well as the "Best Practices Checklist." These documents can be found using the following link: https://nsdental.org/resources/for-office-managers/office-management-documents/?category=ohs

## Immunizations

Immunizations for vaccine-preventable diseases substantially reduce both the number of OHCP susceptible to infectious diseases and the potential for disease transmission to others.

It is important that all OHCPs know their personal immunization status and ensure that it is up to date. In this regard, OHCPs should consult with their family physician about the need for immunizations, as well as baseline and annual tuberculosis skin testing.

For records requests visit: http://www.nshealth.ca/service-details/Immunization%20Records%20Request

Employers need to be aware of immunization recommendation for healthcare workers (HCW) as noted in the Canadian Immunization Guide. All OHCPs should be adequately immunized against the following diseases:

- COVID-19
- Diphtheria
- Hepatitis B
- Influenza (annual)
- Measles
- Mumps
- Pertussis
- Rubella
- Varicella
- Tetanus (every 10 years)

This is not an exhaustive list and it may change over time based on changes in recommendations/requirements from provincial and/or federal authorities.

Employers may develop and enact policies around recommended and/or mandatory vaccinations in line with current directives from the Nova Scotia Department of Health and the Chief Medical Officer of Health. The mandating of vaccinations, as well as the maintaining records of employee vaccination status, **must** be done respecting current labour laws.

Employers **must** inform workers about recommended immunizations and allow for workers to receive these immunizations during normal working hours.

## Illness and Work Restrictions

OHCPs may be concerned about contracting illnesses in oral healthcare settings. Such occurrences can be minimized by practising the principles outlined in this document, including:

- Ensuring adequate and appropriate immunization of all OHCPs
- Triaging patients and rescheduling those who are ill
- Adhering to Routine Practices

Unique situations that might warrant particular attention by an OHCP include:

- Dermatitis – When the protective skin barrier is broken, as occurs with chapped hands or eczema, the OHCP is at increased risk of acquiring and transmitting infection through the exposed area. Good skin care should always be practised. Any areas or dermatitis should be covered with bandages, in addition to wearing gloves.
- Immunocompromised staff – These OHCPs are at an increased risk of becoming infected and may suffer more severe consequences. They might also be at risk of shedding viruses (e.g., influenza) for prolonged periods. Where feasible, job functions and associated exposure risks should be considered.

OHCPs who have upper respiratory illness (e.g., the common cold) should take the necessary precautions to prevent the transmission of microorganisms to patients and other staff. This includes practising respiratory etiquette by covering their coughs and sneezes with their elbows or a tissue, rather than with their hands, and discarding used tissues immediately. Additionally, diligent hand hygiene is especially important. OHCPs who have severe respiratory illness with fever (e.g., influenza), acute viral gastroenteritis with vomiting and/or diarrhea, or acute conjunctivitis **must** stay at home until their symptoms have subsided.

OHCPs who have oral and/or nasal herpes simplex infections should pay particular attention to hand hygiene and not touch the affected area. In this situation, the use of a mask might help to remind the worker not to touch the lesions. Those with herpes simplex infections (herpetic whitlow) or other infectious conditions or issues on their hands that may prevent them from wearing appropriate PPE (e.g., gloves), **must** remove themselves from providing patient care and from performing reprocessing until the condition heals appropriately.

## Exposure Prevention

Exposure to blood through percutaneous injury or contact with mucous membranes of the eye, nose or mouth, and non-intact skin are the primary modes of transmission of exposure to blood-borne pathogens. Percutaneous exposures involve the greatest risk for transmission and include needle-sticks or cuts with contaminated sharp objects. Non-intact skin includes all exposed skin that is chapped, abraded, or has dermatitis.

Avoiding direct contact with blood or any other body tissues/fluids should be of paramount importance in any IPAC program.

The majority of exposures in an oral healthcare facility may be preventable by using:

- Routine Practices: OHCPs **must** abide by Routine Practices such as hand hygiene and the use of PPE.
- Engineering Controls: Examples include technology-based designs for equipment and devices intended to reduce percutaneous exposures (e.g., automated instrument washers and dental units designed to shield burs on handpieces). Engineering controls should be used whenever possible.
- Administrative Controls (or Work Practice Controls): Examples will include policies developed to reduce aerosols and avoid percutaneous injuries.
- Administrative controls **must** include the following:
  - ► Using high-volume evacuation (HVE) in a heavy aerosol environment, for example with ultrasonic use and highspeed handpieces
  - ► Using a dental dam whenever feasible during operative procedures

- Using HVE and dental dam also minimize the ingestion or inhalation of contaminated or hazardous material and debris.

- Avoiding or using extreme caution when passing sharps during four-handed dentistry
  - Sharps include, but are not limited to, needles, scalers, laboratory knives, burs, explorers, and endodontic files and reamers.
- Not passing needles between OHCP during four-handed dentistry
- Removing burs before removing the handpiece from the dental unit
- Placing all syringes and needles, scalpel blades, and other sharp items in approved puncture-resistant sharps containers located at point of care or as close as feasible to where the items were used
- Using puncture-resistant containers labelled "Biohazard" and disposing according to municipal regulations
- Capping all needles prior to and immediately after use, including when changing the carpule and discarding
- Recapping needles using a needle guard, a one-handed scoop technique, or an engineered sharps injury protection device (needles with re-sheathing mechanisms)
- Capping needles before removing the needles from the syringe for disposal
- Recapping needles between each use when using one needle for multiple injections on the same patient
- Using extreme caution when contaminated sharp instruments are passed between OHCP or other personnel during four-handed dentistry
- Using extreme caution whenever contaminated sharp instruments are processed for sterilization

Other administrative controls may include, but are not limited to:

- Not using fingers in tissue retraction or palpation during suturing and administration of anesthesia
- Identifying and removing all sharps from an instrument tray prior to instrument cleaning
- Avoiding the manipulation or bending of needles by hand
- Ensuring that needles are not pointed towards an OHCP or other personnel
- Using one needle per injection to minimize risk of infection from needle stick
- Keeping instruments organized on the work surface to reduce the risk of sharps injury
- Wearing sturdy puncture resistant utility gloves for instrument processing and keeping in mind that no glove is foolproof and avoid handling these instruments by the handful

## Exposure Management

Exposure to blood or saliva by **percutaneous injury** is the greatest risk for acquiring a bloodborne pathogen in oral healthcare settings. Every effort should be made by all OHCPs to avoid percutaneous injury.

**Significant Exposures must** be dealt with immediately, and exist when any of the following events occurs:

- The skin of an OHCP is punctured by a contaminated needle or sharp instrument (blood is released).
- Blood, saliva, or other body fluid is splashed onto non-intact skin (dermatitis, cuts, or abrasions).
  - Exposure to a patient's blood or saliva on intact skin is not considered significant.
- Blood, saliva, or other body fluid is splashed onto mucosa of the eyes, mouth, or nose.

### EXPOSURE MANAGEMENT CHECKLIST

- √ Remove gloves, and clothing adjacent to the injury if applicable, to assess the extent of the injury.
- √ Immediately allow wound to bleed freely but do not squeeze it. Then wash the area, including the puncture or wound, using soap and water. Flush exposed eye, mouth, or nose mucosa with copious amounts of water.
- √ Do not apply caustic agents such as bleach or inject antiseptic agents into the wound.
- √ Report the injury to the facility's IPAC Officer as well as the dentist/employer/practice owner. The IPAC Officer **must** complete the Exposure Document Form which the OHCP takes to the emergency department of the healthcare facility identified in the site-specific IPAC manual.
- √ The designated emergency department should be notified ahead so they are best able to deliver the appropriate care on arrival.
- √ The OHCP **must** go immediately to the emergency department.
- √ If possible, the source patient should undergo serology testing (HBsAg, HCVAb, and HIVAb) with their consent.

## Protocol Following Exposure

**Post Exposure Prophylaxis** (PEP) regimens will be determined by a qualified healthcare professional. Every significant exposure **must** be **immediately** evaluated to assess the potential to transmit an infectious disease. Timeliness is extremely important. For example, if the need to administer PEP is determined (e.g., retroviral drugs in the case of a suspected HIV exposure), it should be done **within one to two hours** after the exposure. The PEP regimens considered will be determined by the healthcare professional contacted by the IPAC Officer following the exposure.

The assessment of risk to transmit an infectious disease will be based on the following:

- The type and amount of body fluid or tissue involved.
- The nature of the exposure (percutaneous injury, mucous membrane, or non-intact skin exposure).
- The known or unknown infection status of the source.
- The susceptibility of the exposed person.

Documentation should include:

- The name of the exposed person, and details regarding the exposed person's vaccination status.
- The date and time of the exposure.
- The nature of the exposure, including the dental procedure being performed, the extent of the exposure, and the immediate action taken.
- The name and health status of the source person, including details regarding any infectious diseases known or suspected.
- All communication (oral or written) regarding the injury.

Copies of all documentation **must** be retained in the employee's personnel file.

The dentist/employer/practice owner **must** be advised of the incident and that Exposure Management and Protocol were followed.

Under Nova Scotia's Occupational Health and Safety Act (which applies to oral healthcare facilities) there is a mandatory requirement to report serious workplace injuries to the Health and Safety Division of the Nova Scotia Department of Labour and Advanced Education.

Initial reporting can occur by telephone or in writing and **must** occur within the following deadlines:

**Fatalities—report immediately**

**Serious injury—report as soon as possible, within 24 hours**

- Unconsciousness
- Fracture of the skull, spine, pelvis, arm, leg, ankle, wrist or a major part of the hand or foot
- Loss or amputation of a leg, arm, hand, foot, finger, or toe
- Third-degree burn
- Loss of sight in one or both eyes
- Asphyxiation or poisoning
- Any injury that requires admission to hospital
- Any injury that endangers life

**Serious incident—report as soon as possible, within 24 hours**

- An accidental explosion
- A major structural failure or collapse of a building or other structure
- A major release of a hazardous substance
- A fall from a work area where fall protection is required by the regulations

The provincial health authority will also complete an incident report.

■ **See Appendix for management of exposures including procedure protocols, consent forms, checklists, and other pertinent documentation.**

## Occupational Health and Safety Requirements and Workplace Hazardous Materials Information System (WHMIS)

Under Nova Scotia's Occupational Health and Safety Act, there is a general duty for employers to establish written procedures for the health and safety of employees. These procedures may include, but are not limited to, the following:

- Safe work practices and working conditions
- Proper hygiene practices and the use of hygiene facilities
- Control of infections

Employees **must** work in compliance with legislation and use or wear any equipment, protective devices or clothing required by the employer. Employees also have responsibilities laid out in the legislation that they **must** fulfill, outlined in section 1.7 of the *OH & S Act*. This includes cooperating with the employer and fellow employees as well as taking every reasonable precaution to protect their own health and safety and that of others at, or near, the workplace. Employees **mus**t also immediately report conditions, devices, materials, or any aspect of the workplace that is, or may be, dangerous to someone's health and safety in the workplace.

WHMIS is a national communication standard that deals with hazardous materials in the workplace. All workplaces that use materials classified as controlled products under federal legislation, including oral healthcare facilities, are required to:

- Supply labels for all controlled products that do not have them
- Ensure safety data sheets (SDS) are available for these products
- Educate and train workers about hazardous materials in the workplace

Employers are obligated to uphold WHMIS standards in their workplace. Accordingly, every employer **must** be familiar with the legislation.

The frequency of WHMIS retraining is not specified in the regulations. This regulation is written to be performance-based so employers have some flexibility in determining how to achieve compliance.

For example, employers can determine if retraining is required by testing employees on their knowledge. This knowledge retention test can be conducted on a fixed or random basis as determined by the employer, but the questions should vary over time.

## Prohibition of Eating and Drinking in Non-designated Areas

The consumption of all foods and beverages **must** be restricted to designated areas (e.g., lunch area, staff lounge) or outside the dental office. Eating and drinking in operatories, instrument processing areas, and in-office dental laboratories **must** be prohibited.

# Personal Protective Equipment

## General Considerations

PPE is worn as part of Routine Practices to protect the skin of the hands, arms, and face from exposure to splashing or spraying of blood, saliva, or other body fluids, and from introducing the surface flora into deeper tissues by traumatic or environmental injury. PPE protects the conjunctival mucosa of the eyes, as well as the lining mucosa of the respiratory tract.

Primary PPE includes gloves, masks, protective eyewear, and protective clothing, the wearing of which will reduce the risk of exposure to potentially infectious material.

Large particle droplets of water, saliva, blood, and other debris are created when using rotary dental handpieces, ultrasonic and sonic scalers, endodontic equipment, and air-water syringes. This visible spray typically travels only a short distance (approximately 60 cm/ 2 feet or less from the patient's mouth) and settles out quickly. The droplets land on nearby surfaces, including operatory countertops, chairs, equipment, OHCPs and patients. Small particle droplets, called aerosols, can be inhaled by OHCPs or patients.

Appropriate work-practice controls will minimize the spread of droplets and aerosols. This includes, but is not limited to, the use of dental dam whenever possible and high-volume suction during procedures in which aerosolization will occur.

PPE should be removed prior to leaving the patient-care area. PPE designed to be re-used (protective eyewear and clothing) **must** be cleaned and disinfected according to manufacturer's instructions.

### LATEX SENSITIVITY AND ALLERGIES

Patients with true latex allergy may react to common dental products, such as gloves, dental dams, prophylaxis cups, orthodontic elastics, and some medication vials. During the health history review, patients should be asked questions relating to possible latex allergy. This includes asking whether true latex allergy has been diagnosed. Additional questions should probe for a history of common predisposing conditions for latex allergy, such as other allergies (e.g., avocados, kiwis, hazelnuts, bananas) or early latex exposure related to medical treatment (e.g., spina bifida, urogenital anomalies).

Patients with a true latex allergy **must** be treated in an environment where contact with latex proteins, either directly or airborne, is kept as low as reasonably achievable. When performing hand hygiene, alcohol-based sanitizers are not sufficient for removing latex particles; therefore, hands **must** be thoroughly washed with soap and water prior to contact with latex-sensitive patients.

All latex-containing materials or devices should be removed from the operatory or adequately covered and isolated.

## Gloves

Gloves are worn to protect the skin of OHCPs' hands from contamination. Gloves do not replace the need for proper hand hygiene. Gloves may contain small, unapparent holes, can be torn during patient treatment, or hands may become contaminated during glove removal. Furthermore, resident organisms on the hands can multiply rapidly in the warm, moist gloved environment and could be passed to the next patient.

Appropriate hand hygiene **must** be performed immediately before donning gloves, and immediately after removing gloves. Hands should be allowed to dry completely before putting on new gloves.

- Due to the prevalence of latex allergies and sensitivities, the use of non-latex gloves is recommended.
- Gloves **must** be worn when contact with mucous membranes, non-intact skin, or body fluid is anticipated.
- Gloves are designed as single-use disposable items.
- Gloves should be put on immediately before the activity for which they are indicated.
- Gloves **must** be removed, hand hygiene performed, and new gloves applied between patients and whenever the gloves are torn or punctured.

- Gloves **must not** be worn outside operatories or reprocessing areas, unless required for personal protection (e.g., transport of contaminated instruments).
- During longer procedures, gloves **must** be changed periodically (after no longer than 90 minutes) to minimize the risk of undetected micro-perforations which occur over time.
- Single-use disposable gloves **must not** be washed and reused.
- Gloves should be stored in a cool dry location and never exposed to a heat source.

The type of gloves selected for use depends on the procedure being performed. Types of gloves include:

**Patient Examining Gloves** – are used for examinations, procedures involving contact with mucous membranes and skin, as well as laboratory duties and for some minor to moderate surgical procedures. These are latex, nitrile or nitrile blends, polyurethane, or styrene-based copolymers. If latex gloves are selected powder-free gloves are recommended as the exposure to latex proteins and the chemicals used in the manufacture of all gloves is reduced. Plastic (polyvinyl chloride) or vinyl gloves may also be used, however, these materials tend to tear more easily. New patient gloves may be used for operatory cleanup, according to disinfectant product manufacturers' instructions.

**Sterile Surgical Gloves** – are used for surgical procedures when an open surgical wound is anticipated and/or bone is exposed. These are sterile, hand size specific, and made of latex, nitrile or nitrile blends, polyurethane, or styrene-based copolymers.

**Utility or Industrial Gloves** – are used for cleaning and disinfection procedures, such as instrument processing and operatory cleanup for greater operator protection. These are nitrile or latex-nitrile blends, chloroprene / neoprene blends, butyl rubber, fluoro-elastomer, polyethylene, or other vinyl copolymer. These gloves are not for patient care and **must** be puncture and chemical resistant.

If utility gloves are reusable, they **must** be cleaned and disinfected (or sterilized) after each use and **must** be dried and stored appropriately in a designated area. If utility gloves are shared, clean patient examining gloves **must** be worn underneath. Best practice is that the utility gloves are not shared between OHCPs.

The integrity of gloves **must** be monitored after donning and during use, particularly when manipulating metal instruments. If the glove is compromised (manufacturing defect, punctured or torn during use), the glove **must** be removed immediately, hand hygiene performed, and new gloves donned. Refer to manufacturer's instructions regarding possible sterilization.

Refer to Appendix 3 re: proper donning and doffing of all PPE.

## Masks

The respiratory mucosa of all OHCPs **must** be protected by wearing a mask that covers the nose, mouth and chin during all dental procedures that have the possibility of producing aerosols, splashes, sprays or splatter of blood, saliva or other body fluids.

Mask selection **must** be applicable to the aerosol environment of the procedure being performed. American Society for Testing of Materials (ASTM International) provides standards for various levels of face masks. Level 1 to level 3 are available; manufacturer's instructions **must** be followed. Other masks may be used as appropriate, e.g., fit-tested N-95.

The mask **must** be changed between patients, or more often if it becomes contaminated or wet during the procedure, including when the OHCP exhaled moist air during a longer procedure. The efficiency of filtration is reduced significantly whenever the outer surface of the mask becomes contaminated with droplets of spray, or by touching the mask with contaminated gloves or hands.

When working in a normal aerosol environment, masks should be changed at least every hour. When working in a heavy aerosol environment, masks should be changed every 20 minutes.

The mask **must** be moulded over the nose, mouth, and chin at all times, so that the OHCP is breathing though the mask, and air

is not bypassing the mask. The mask **must** be either on or off; it **must** never be worn around the neck or with the nose exposed. Single-use disposable masks **must** be removed by the ear-loop or string tie and properly disposed of after use. The OHCP should avoid touching the mask itself.

## Protective Eyewear

The conjunctival mucosa of an OHCP **must** be protected from contact with potentially contaminated material by wearing protective eyewear during all dental procedures. OHCPs **must** wear protective eyewear with solid side shields or a face shield during dental procedures that have the possibility of producing debris, aerosols, sprays or splatter.

Prescription eyeglasses are not acceptable by themselves and should only be worn underneath face shields or other types of eye protection.

Protective eyewear **must** be used to protect patients' eyes from splatter, debris, or injury during dental procedures.

Protective eyewear for the OHCP and patient **must** be cleaned, disinfected, and dried between patients, or more frequently if visibly soiled, according to manufacturer's instructions.

A fixed or portable eye-wash station **must** be available in the oral healthcare facility, to aid in managing any chemical or body fluid splashes, sprays, or spills into the eyes of a OHCP or patient. Staff should be oriented as to the location, function, and indications for use of the eyewash station. The eyewash station **must** be cleaned and checked regularly according to manufacturer's instructions to ensure proper water flow. Portable eyewash devices **must** be checked for an expiry date on the solution.

## Protective Clothing

The skin on the arms and chest of an OHCP should be protected from contact with potentially contaminated material by wearing protective clothing during any dental procedure where splash or spray is anticipated. Long-sleeve protective clothing, extending to the wrists, is ideal for this purpose. Short-sleeve protective clothing is acceptable, as long as there are no breaks in the skin integrity on the arms of the OHCP. If the arms are not protected, hand hygiene protocols **must** extend up the arms, past the wrists towards the elbows.

There are two types of protective clothing for OHCPs — clinic attire (such as uniforms/scrubs) and gowns/lab coats.

### CLINIC ATTIRE

This protective clothing **must** be changed daily or changed as soon as possible if it becomes visibly soiled.

Clinic attire **must** be donned upon entering the clinic prior to patient care and removed before leaving the work area. It **must not** be worn outside the clinic.

### GOWNS/LAB-COATS

Gowns/lab coats are long-sleeved garments that are intended to be **patient-specific** items of protective clothing. Gowns/lab coats **must** be worn over regular clinic attire when performing AGPs or during procedures likely to generate splatter or droplets of blood, body fluids, secretions, or excretions. They **must** be removed prior to seeing the subsequent patient.

Gowns can be disposable or washable. Washable cloth gowns/lab coats are also referred to as "reusable linens". Reusable linens **must** be laundered properly after each use or sent to an appropriate external laundering facility.

### OTHER CONSIDERATIONS

Clinic shoes **must** be closed toe and **must not** be worn outside the clinic.

OHCPs **must** confine hair. Long hair **must** be tied back so it does not fall to the front of the shoulders. Headwear and hair coverings **must** be treated as clinical attire.

### PROTECTIVE DRAPING FOR PATIENTS

Bibs or drapes should be used to protect the patients' clothing and reduce exposure to splatter and debris created during dental procedures. If used, they **must** be single-use or sterilizable. Single-use strips may be used to secure bibs and drapes in place of reusable bib clips. If reusable bib clips are used, they **must** be cleaned and disinfected (or sterilized) between each patient.

### SAFE MANAGEMENT OF REUSABLE LINENS (LAUNDRY)

All reusable linens used in the direct care of patients **must** be managed as 'infectious' linen. They **must** be handled, transported, and processed in a manner that prevents exposure to the skin and mucous membranes of staff and contamination of their clothing and the environment. Disposable gloves **must** be worn and a gown or apron should be worn when handling infectious linen.

Single bags of sufficient tensile strength are adequate for containing laundry, but leak-resistant containment is needed if the laundry is wet and capable of soaking through a cloth bag. Bags containing contaminated laundry **must** be clearly identified with labels, color-coding, or other methods so that staff responsible for laundry can handle these items safely. Dispose the used bags into the normal waste stream.

Laundry services for healthcare facilities are provided either on or off-premises using the following protocol:

- Separate from other linens
- Launder in a load not more than half the machine capacity
- Launder at the maximum temperature the fabric can tolerate, then iron or tumble-dry.

## Respiratory Hygiene/Cough Etiquette

OHCPs **must** be educated/trained on the importance of infection prevention measures to contain respiratory secretions and to prevent the spread of respiratory pathogens when examining and caring for patients with signs and symptoms of a respiratory infection. OHCPs **must** also screen themselves to ensure they are well enough to provide care.

Whenever possible, patients with signs or symptoms of respiratory infection **must** have their treatment rescheduled. Patients should be screened at the time of booking or confirmation.

The following measures will minimize the transmission of respiratory illnesses:

- Instructions for performing hand hygiene should be posted beside hand hygiene stations.
- Hand hygiene stations should be available upon entry to clinic.
- Signs should be posted at entrances with instructions to patients with symptoms of respiratory infection.
  Instruct patients to:
  - ► Cover their mouths/noses when coughing or sneezing.
  - ► Turn their head away from others when coughing or sneezing.
  - ► Use and dispose of tissues.
  - ► Perform hand hygiene after hands have been in contact with respiratory secretions.
- Tissues and no-touch receptacles for disposal of tissues should be provided.
- Masks **must** be offered to symptomatic patients upon entry if their treatment cannot be deferred.
- Persons with symptoms of respiratory infections **must** be seated at least two meters away from other patients. If possible, they should be seated in a separate area while waiting for care.

# Sterilization and Disinfection of Patient Care Items (Reprocessing)

## General Considerations

Reusable patient-care items, such as dental instruments, handpieces, devices, and equipment, can be categorized as critical, semi-critical, or non-critical, depending on the potential risk for infection associated with their intended use. This categorization is based on a modified Spaulding classification. (See Appendix 1).

**Critical Items** are used to penetrate soft tissue or bone. Critical patient care items have the greatest risk of transmitting infection and **must** be sterilized by heat. Examples of these items include surgical instruments, periodontal scalers, reusable burs, endodontic files, dental dam clamps, and dental implant drills.

**Semi-Critical Items** are those items that only touch mucous membranes or non-intact skin and have a lower risk of transmission (e.g., mouth mirrors, reusable impression trays). Semi-critical patient care items **must** be sterilized or considered as single-use items. The use of high-level disinfectants **is not** an appropriate sterilization method.

- All newly purchased critical and semi-critical instruments/items that are received non-sterile must be inspected and sterilized prior to first use, in accordance with the manufacturer's instructions (e.g., burs, scalers, matrix bands, stainless steel crowns).

**Non-Critical Items** (e.g., bib clips, radiograph cones and blood pressure cuffs) contact only intact skin, which serves as an effective barrier to microorganisms. Non-critical patient-care items pose the least risk of transmission of infection. Cleaning followed by disinfection with an intermediate-level disinfectant (ILD), is sufficient.

Cleaning or disinfection of some non-critical items may be difficult or may damage the surfaces (e.g., keyboard, mouse, intraoral camera). In those instances, the use of disposable barriers to protect these surfaces may be a preferred alternative. If contaminated following removal of the barrier, the item **must** be cleaned and disinfected.

## Reprocessing Critical Items

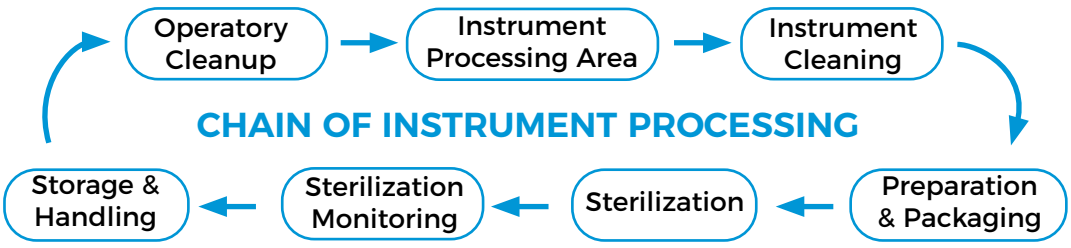
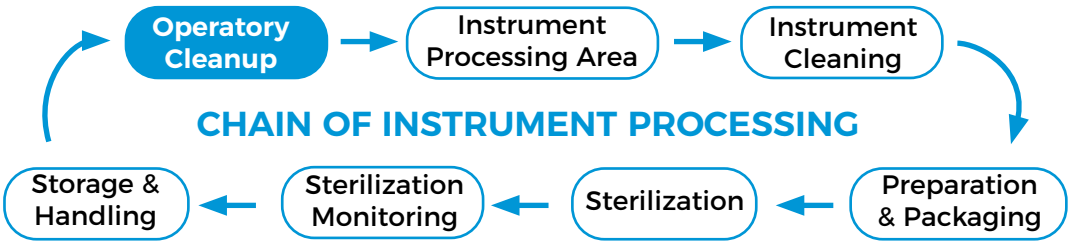



**Figure 2: Chain of Instrument Reprocessing** – Adapted with permission

Critical items **must** be sterilized by heat to prevent cross-contamination and the spread of infection in the oral healthcare setting. OHCPs and other personnel can be exposed to pathogens on contaminated critical instruments and devices through percutaneous injury, contact with non-intact skin on the hands or other body parts, or contact with mucous membranes of the eyes, nose, or mouth.

Sterilization is a complex process requiring specialized equipment, adequate space, and qualified personnel who are provided with ongoing training and regular monitoring for quality assurance. Instrument Processing requires multiple steps to achieve sterilization. These steps include disassembly and sorting, cleaning, rinsing, drying, inspection, corrosion reduction, packaging, sterilization, cooling, drying, storage and delivery. These steps **must** be followed to ensure that all instruments are adequately processed and safe for re-use on patients. The goal of sterilization is to break the chain of infection and eliminate the potential for patient-to-patient transmission.

Policies and procedures **must** be in place for processing critical items including the mandatory wearing of gloves, masks, and protective eyewear.

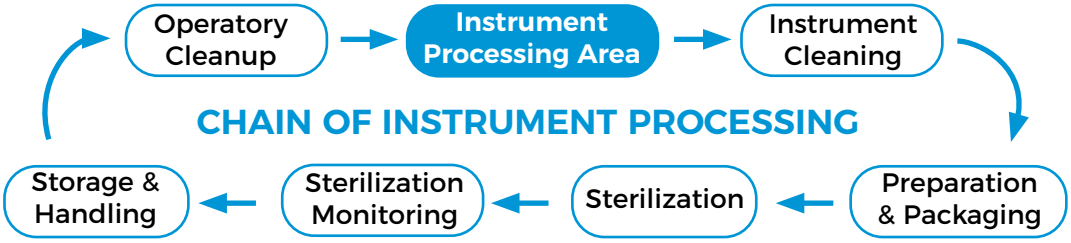



**Operatory Clean-up:**

Visible debris **must** be removed from contaminated instruments at point of use (e.g., impression material, calculus/plaque on scalers). Contaminated instruments **must** be handled carefully to prevent percutaneous injuries. Disposable sharps such as needles and blades **must** be discarded in an appropriate container at the point of use or located as close as feasible to where the items were used. Instruments that have been used on a patient should be handled with puncture-resistant utility gloves during operatory clean-up. At a minimum, procedural gloves **must** be worn to clean the operatory.

**Transportation:**

Instruments should be placed in a cassette or puncture-resistant container at the point of use to prevent percutaneous injuries during transport to the instrument processing area. This is particularly important when instruments are transported through a common/public area (e.g., hallway).

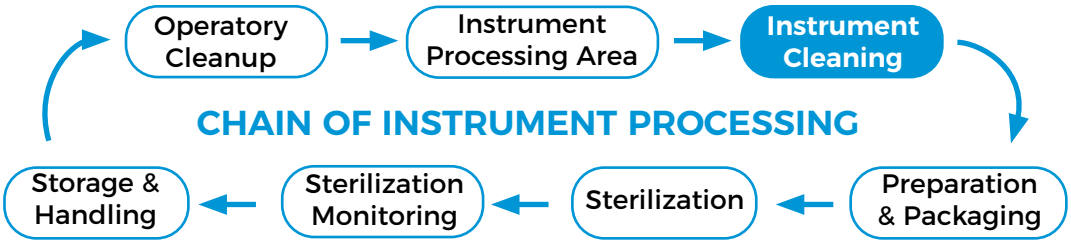



**Instrument Processing Area:**

A designated instrument processing area or a separate room **must** be constructed in the oral healthcare facility. This central processing area **must** be unidirectional and have clear sections for:

- Receiving, cleaning, and decontamination
- Sterilization
- Preparation and packaging
- Storage of sterilized instruments

Walls or partitions should separate the sections to control traffic flow and contain contaminants generated during processing. If physical separation of these sections is not possible, adequate spatial separation is necessary. OHCPs or other personnel processing the instruments **must** be trained in work practices to prevent contamination of clean areas. Space **must** be adequate for the volume of work anticipated and the items to be stored.




**Instrument Cleaning**:

Instruments should be cleaned immediately after use. If immediate cleaning is not possible, an enzymatic product **must** be used to prevent contaminants from drying on the instruments. All instruments **must** be cleaned within 24 hours of usage.

The surface of an instrument cannot be sterilized if there is blood, saliva and other debris adhering to the surface. Cleaning involves using a cleaning agent with water to remove debris, organic and inorganic contamination by an automated process or manual scrubbing. The method of cleaning will depend on the debris/materials present on the instrument so the processes may overlap.

Methods include:

- An automated washer: The use of an automated instrument washer (e.g., HYDRIM®) is recommended as the best option for cleaning instruments. All washers **must** be specifically designed for washing medical instruments.

- Ultrasonic cleaner: The use of an ultrasonic cleaner (with strainer-type baskets) is an alternative.
  - ► Following removal from the ultrasonic, instruments **must** be rinsed to remove chemical residue, taking care to minimize splashing.
  - ► Solutions **must** be changed daily or sooner if there is visible bioburden.
  - ► Use a monthly foil test or daily ultrasonic monitoring strips to monitor performance. If monthly foil tests are used, test sooner if instruments do not appear clean.
  - ► For further details see CDA Essentials: http://www.cda-adc.ca/en/services/essentials/2020/issue1/38/

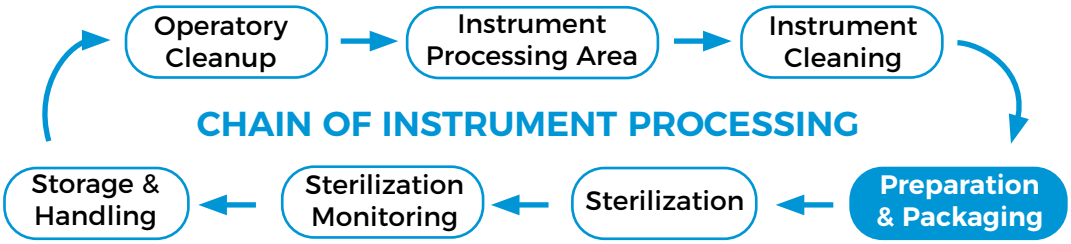
- Hand scrubbing: When manual scrubbing, puncture-resistant utility gloves **must** be used. When personnel are using a long-handled brush, instruments should be held in a downward direction and brushed away from the user. A handful of instruments **must** not be cleaned at one time.

**Use of Rust Inhibitors:**

If rust inhibitors are applied to items, follow the manufacturer's instruction.

**Holding Solution:**

Instruments are placed in a puncture-resistant container and immersed in a holding solution containing detergent or sprayed with an enzymatic cleaner to prevent drying of debris.



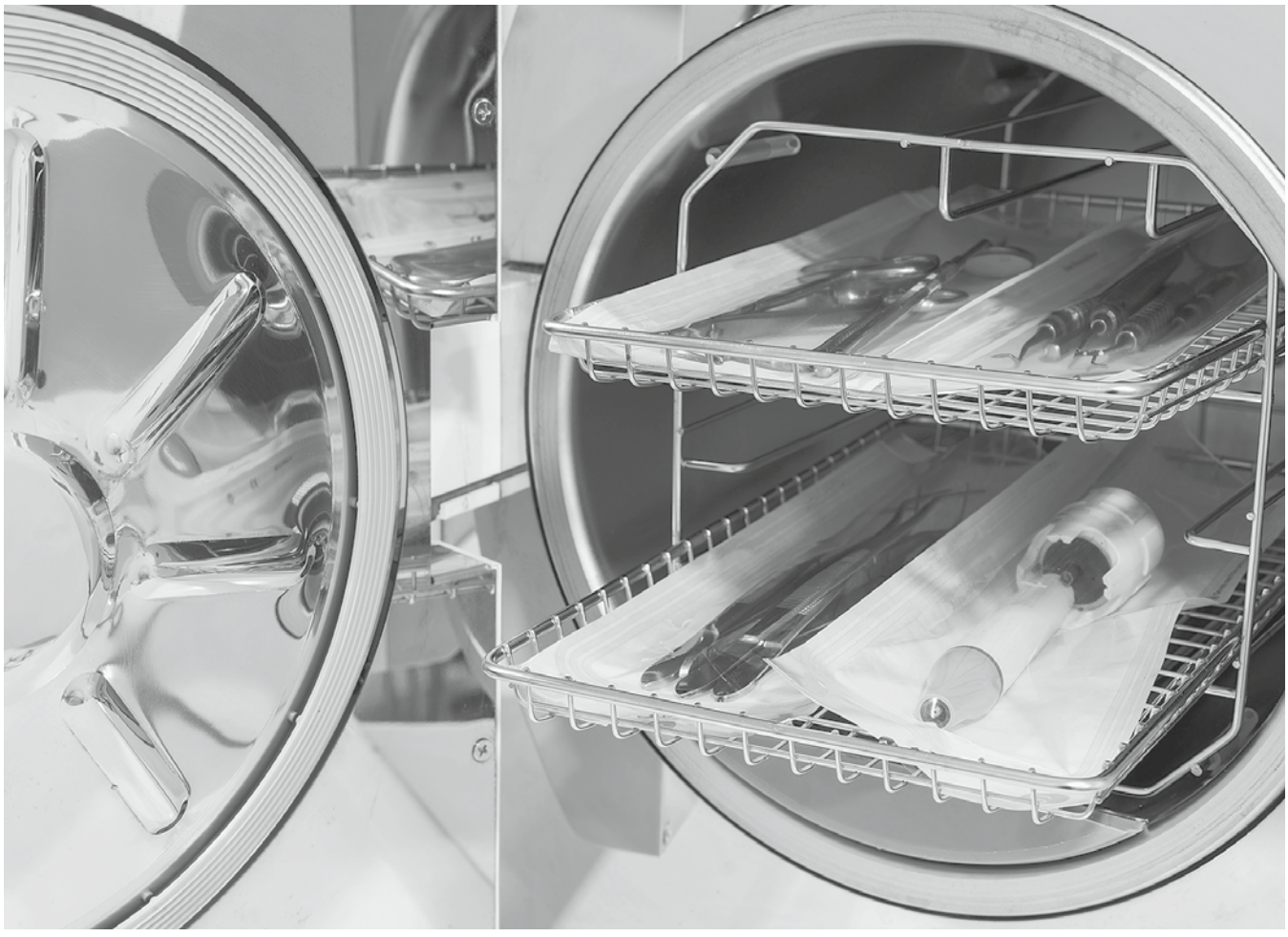

**Instrument Preparation and Packaging for Sterilization:**

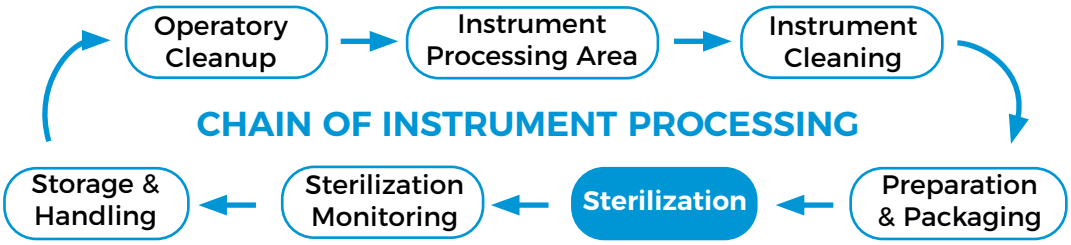
At this point, these instruments are still contaminated. OHCPs should make every effort to rinse away or remove biological debris, disinfecting solutions, chloride solutions and highly alkaline detergents before sterilizing instruments. These substances can cause pitting or staining of metal surfaces. Manufacturer's instructions **must** be consulted to correctly process possible non-compatible metals (e.g., titanium and carbon steel scalers). Packaging together items of widely dissimilar metals should be avoided because of the potential for electrolytic damage to instrument surfaces.

**All instruments must be dry prior to packaging**.

Cleaned instruments **must** be inspected and placed into cassettes, wrapped, or packaged for sterilization. Packaging and wrapping materials **must** be specifically designed for the type of sterilization process used by the facility and **must** be used according to manufacturer's instructions.

An external (Class 1) and separate internal (Class 4 or 5) chemical indicator **must** be used with every instrument package. Refer to the manufacturer's instructions regarding use and correct placement of chemical indicators.






**Sterilization:**

Heat-tolerant dental instruments are sterilized in an oral healthcare facility using:

- Steam under pressure (autoclaving)
- Dry heat

For steam sterilization, both pre-vacuum (Class B) and pulsed-pressure sterilizers are acceptable; however, pre-vacuum steam sterilizers are preferred for sterilizing dental instruments.

The use of *chemical vapour* **is not** an acceptable method of sterilization under any circumstance.

"Liquid chemical disinfectants" (e.g., cold sterilization) **must** not be used to sterilize critical instruments in dentistry, because their effectiveness cannot be verified with biological monitors.

All sterilization **must** be performed using medical sterilization equipment specifically designed for the sterilization of instruments. Manufacturer's instructions **must** be followed for:

- sterilization times
- temperature
- other operating parameters
- correct use of containers and wraps
- placement and type of chemical or biological indicators
- capacity and arrangement of instruments or packages

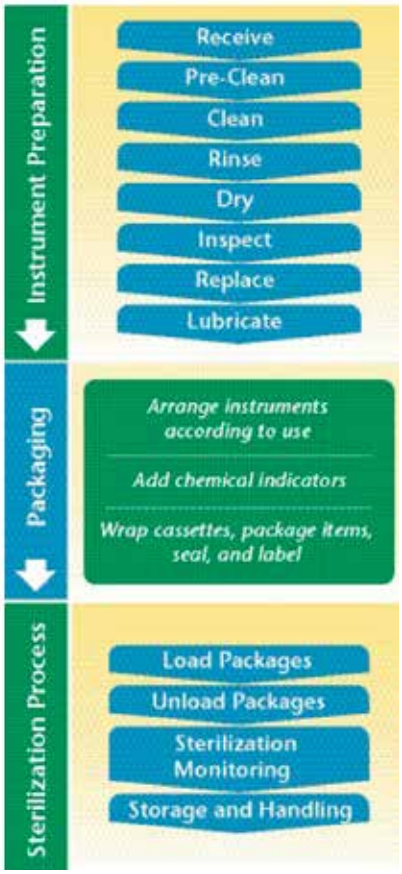
**Loading the Sterilizer Chamber:**

- Items **must** be placed in the sterilizer according to manufacturer's instructions.
- The chamber **must not** be overloaded; adequate space **must** be allowed between items.
- Bagged items should be placed on trays with the paper side facing up or down as per sterilizer/manufacturers requirements.
- The trays **must not** be overloaded; items **must** be spread in a single layer.
- Hinged instruments **must** be sterilized in the open and unlocked position (e.g., forceps)
- Packages and cassettes **must** be dry prior to placement in the sterilizer.
- ***Note:*** If all packages contain a Class 5 chemical indicator (CI), they may be released prior to obtaining the biological indicator (BI) results. If not, packages **must** be quarantined until the results of the daily BI are known. (Sterilization Monitoring for details on CIs and BIs.)

***Instrument packs must be allowed to dry inside the sterilization chamber before opening, removing and handling, to avoid wicking of moisture and, potentially, microorganisms from hands or gloves.*** It is recommended that the date, time, and sterilizer used be stamped or written on the product wrapping upon removal from the sterilizer.

Instrument cassettes or trays containing sterilized instruments **must** remain in sterilization packaging to maintain sterility during storage.

The workflow pattern is linear and flows only one way between areas.




***Immediate Use ("Flash") Sterilization: This process involves sterilizing unwrapped instruments and must be limited to emergency situations. Operative scheduling and lack of instruments do not qualify as "emergencies".*** The disadvantage is that unwrapped instruments are no longer sterile once removed from the sterilizer. As such, instruments processed in this manner **must** be used immediately upon removal from the sterilizer.

A log **must** be maintained of instruments sterilized in this method and include:

- date and time of cycle
- patient name
- rationale for use
- confirmation that all parameters were met (e.g., cycle time and temperature)

**Sharpening of Instruments:**

Sharpening of contaminated instruments presents a risk for disease transmission through accidental exposures. Sterilized instruments that require sharpening must be sharpened at point of care to maintain sterility using a sterilizable sharpening stone or card.

If using a non-sterilizable sharpening stone or card, instruments **must** be sterile prior to sharpening and reprocessed and sterilized after sharpening. These stones or cards **must** be cleaned after use and appropriately stored according to manufacturer's instructions

**Figure 3: Instrument Reprocessing workflow pattern** – Adapted with permission

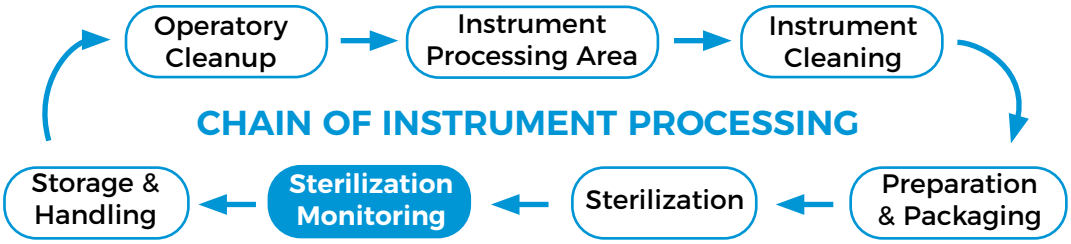
## Reprocessing Semi-critical Items

Semi-critical items are items that touch mucous membranes or non-intact skin and have a lower risk of transmission.

As the majority of semi-critical patient care items in dentistry are heat-tolerant; all heat-tolerant semi-critical items **must** be sterilized.

"Liquid chemical disinfectants" **must** not be used to sterilize semi-critical instruments in dentistry. Their effectiveness cannot be verified with biological monitors.

If a semi-critical item is heat-sensitive, single-use items **must** be used. (See Appendix 1: Managing Contamination)




**Sterilization Monitoring:**

The condition of sterility is ensured by thorough monitoring of sterilization procedures and equipment, utilizing mechanical, chemical and biological monitors.

**Quality assurance for reusable instruments:**

All sterilized packages, cassettes, and instruments **must** be inspected prior to patient use.

Ensure that:

- Package integrity is intact (no rips, tears, or holes)
- Packaging is dry (e.g., drying cycle **must** be completed before removing)
- External process indicator (Class 1) has changed colour
- Internal process indicator (Class 4 or 5) has changed colour
- Instruments are free of debris

If instrument, package, or cassette fails inspection, do not use for patient care. The contents **must** be cleaned and sterilized again.

**Mechanical techniques:**

Monitoring sterilization includes assessing cycle time, temperature, and pressure by observing the gauges or displays on the sterilizer and noting these parameters for each load. Correct readings do not ensure sterilization; however, incorrect readings may be an early indication of a problem with the sterilization cycle. New sterilizers have printouts or USB data devices for documentation recording.

**Chemical indicators:**

(TABLE 1) Chemical indicators (classes 1 to 4) assess one or more of the physical variables of time, temperature and pressure during the sterilization process. Internal and external chemical indicators (chemical indicator tape or special markings) change colour rapidly when a specific variable is reached. This verifies that the package has been exposed to the sterilization process but does not ensure sterilization.

Chemical indicators **must** be used inside and outside of each package (indicators are incorporated in sterilization pouches) to signify that the package has undergone the sterilization cycle. If either an internal or external chemical indicator indicates inadequate processing, items in the load **must** not be used until they have been reprocessed.

**Chemical Integrating Indicators:**

Class 5 indicators are known as chemical integrating indicators and are designed to react to all critical variables. Class 5 chemical integrating indicators are for use with each sterilization cycle, because they are considered to be the most accurate chemical indicator; however, they do not ensure sterilization.

If a Class 5 indicator is used in a package, you do not need to quarantine your packages until the daily BI results have been confirmed. **It is strongly recommended that each package contains a Class 5 CI.**

Class 6 indicators may be used. Carefully read information in the table below to determine if this would be appropriate in your setting.

The following table shows the six types of steam chemical indicators and their specific uses.

**Table 1:** International Classes of Steam Chemical Indicators

| Type | | Description | Action Required |
|---|---|---|---|
| **1** | **Process Indicator** | Used to differentiate processed from non-processed items<br>Examples: Peel back pouches usually have a chemical indicator manufactured on the paper side of the package, chemical indicator tape | • Responds to one or more critical process variables<br>• Provides instant results and visual evidence that the packages were exposed to a sterilant<br>• Placed on or is integral to the outside of every package that is sterilized |
| **2** | **Specific Test Indicator** | Used in specific tests or procedures to evaluate sterilizer performance<br>Its purpose is to evaluate proper air removal from the sterilizer<br>Example: Bowie-Dick test | • To be used with dynamic air removal (pre-vacuum) sterilizer<br>• Performed each day the sterilizer is used |
| **3** | **Single-variable Indicator** | Reacts to a single critical process variable (e.g., temperature or time)<br>Examples: Type 1 peel pouch, temperature tubes | • Exposure control monitoring in a specific location (e.g., temperature in a specific location in the chamber.<br>• Rarely used in oral healthcare settings |
| **4** | **Multi-variable Indicator** | Indicator that reacts to two or more critical variables in the sterilization cycle under the conditions specified by the manufacturer<br>Examples: Class 4 indicator stripes on the inside of the peel back pouches | May be used for process control |
| **5** | **Integrating Indicator** | Responds to all critical variables in the sterilization process (e.g., time, temperature, presence of steam)<br>Example: external indicator strips | • Used as an internal CI process control<br>• Responds to all critical variables in the same way that a BI responds<br>• Used as an additional monitoring tool to release sterilizer loads that do not contain implants |
| **6** | **Emulating Indicator** | Reacts to all critical variables (time, temperature, and presence of steam) for a specified sterilization cycle (e.g., 10 min, 18 min, 40 min)<br>***Note:*** Consider using a Class 5 CI rather than a Class 6 if you intend to use this tool to release sterilizer loads. The results of a Type 5 integrator are closely correlated (matched) to the results of a BI. This means that both the CI and the BI will show similar pass or fail results. A Type 6 does not, since it uses only one specific end point and a death curve slope can't be taken from one point. | • Used as an internal CI process control<br>• A different Class 6 emulating indicator is required for each sterilization cycle time and temperature used<br>• May be used as an additional monitoring tool to release sterilizer loads that do not contain implants; however, the Class 5 CIs would be the preferred choice for the reasons stated in the 'Description'. |

Adapted from Public Health Ontario (2013). *Best Practices for Cleaning, Disinfection and Sterilization of Medical Equipment/Devices, 3rd Ed*

**Biological Monitoring:**

Spore tests verify the sterilization process directly by assessing the killing of known highly resistant microorganisms. The spores used in biological indicators (BI) are the most resistant and present in greater numbers than the common microbial contaminants found on patient-care instruments. A negative spore test signifies that other potential pathogens in the load have been killed, thus confirming sterilization. The date, sterilizer and cycle number **must** be documented and then signed by an OHCP. A control biological indicator **must** be run each day the sterilizer is used and for each type of cycle that is used (to confirm that the incubator is functioning correctly).

The control biological indicator should yield positive results for bacterial growth. The date and time for the control biological indicator **must** also be recorded and then signed by an OHCP.

Manufacturer's directions determine the placement and location of the biological indicator in the sterilizer.

**Monitoring Processes:**

Each day oral healthcare facilities **must** document and retain records from in-house biological monitoring. These records **must** indicate the sterilizer, date, time, and signature of staff member completing the process. A record **must** be kept for this purpose for a recommended 3 years indicating "operating as required" or noting any malfunctions and follow-up action needed.

- An in-office biological indicator test **must** be completed daily for each sterilizer using a process challenge device (PCD or test pack). In addition to this, one control biological indicator **must** be incubated daily to confirm that the incubator is functioning.
- A periodic biological indicator test, provided by a mail-in system available through Dalhousie Dentistry, or other external testing service, may be completed for each sterilizer.

**Process Challenge Devices (PCDs or test packs):**

A process challenge device (PCD), also known as a biological test pack, is used as a key component in sterility quality assurance since it monitors the performance of the sterilization process each day.

To test the sterilizer's performance, a PCD simulates an equal or greater challenge than the most difficult instrument/device set routinely processed for that sterilizer and/or cycle. PCDs can be created in-office using a grouping of dental instruments that are no longer used, or with a commercially validated PCD. Place the PCD into the sterilizer according to manufacturer's instructions, and in the area of the chamber that creates the highest likelihood of sterilization failure.

There are three commonly used types of PCDs:

1. Air removal/Bowie-Dick PCD test pack
2. Biological indicator PCD test pack*
3. Chemical indicator PCD test pack*

*You can combine a BI and CI tests into one test pack.

Air removal/Bowie-Dick testing evaluates the performance of pre-vacuum sterilizers (also called dynamic air removal sterilizers) by confirming adequate air removal from the sterilizer's chamber. Air left in a sterilizing chamber can act like a shield between the steam and the item being reprocessed, which potentially prevents proper sterilization.

PCDs can be commercially manufactured or prepared in-house. A PCD presents a challenge to the process that is equal to or greater than the challenge posed by the most difficult item that is routinely sterilized. A biological test pack is an example of a PCD.

**Biological monitoring must also be completed**:

- When introducing a new sterilizer
- Following sterilizer repairs
- When introducing new packaging material
- Every load containing implantable devices and/or the instruments used to place implantable devices (including but not limited to dental implant instrument, bone grafting or ridge preservation instrument including instrument used to place pins, screws and plates) **must** be biologically monitored with a spore-test. These items **must** be quarantined until the test results are known.

***In the event of a positive in-house or external service spore test***, the oral healthcare facility **must** be able to identify all sterilization packages since the last confirmed negative test and then reprocess all packages prior to use. A biological indicator test **must** be repeated immediately after correctly loading the sterilizer and using the same cycle that produced the failure. If the repeat spore test is negative, and the mechanical and chemical indicators demonstrate adequate processing, then the sterilizer may be put back into service. All records of chemical and mechanical monitoring since the last negative biological indicator test **must** be reviewed.

The sterilizer operating procedures **must** be **IMMEDIATELY** reviewed, including packaging, loading, and spore testing, with all OHCP or other personnel who work with the sterilizer to determine whether operator error could be responsible.

Common reasons for a positive spore test in the absence of mechanical failure of the sterilizer include:

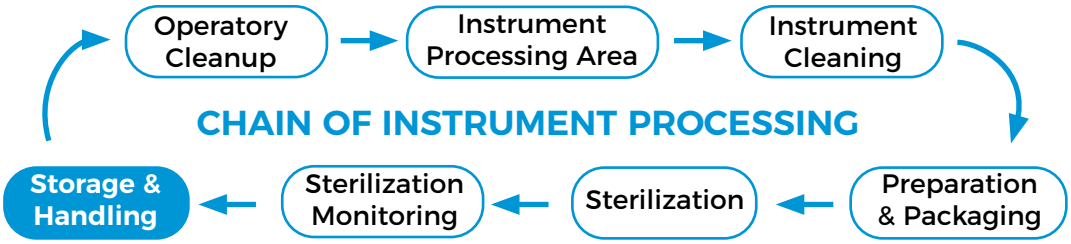
- **Improper** *packaging*
- **Improper** *loading*
- **Improper** *timing*
- **Improper** *temperature*
- **Improper** *method of sterilization*

***The sterilizer must be IMMEDIATELY removed from service.*** A second monitored sterilizer in the oral healthcare facility **must** be used. A pre-tested sterilizer from a sales or repair company may be obtained to minimize facility disruption while waiting for the repeat biological indicator results on the sterilizer with the positive spore test. All sterilized packages from that sterilizer **must** be reprocessed as a precaution. If the repeat biological indicator is negative and chemical and mechanical monitoring indicates adequate processing, the sterilizer may be put back into service.

If the repeat biological indicator is positive, and packaging, loading, and operating procedures have been confirmed as being performed correctly, the sterilizer **must** remain out of service until it has been inspected, repaired, and re-challenged with a biological indicator in three consecutive empty chamber sterilization cycles. Whenever possible, items from suspect loads dating back to the last negative biological indicator **must** be recalled, re-wrapped, and re-sterilized. To facilitate package tracing, each package should be labelled. Examples of labels can include sterilizer identification number and/or date, time, and load number.

If instruments were used on patients subsequent to the last negative test, public health **must** be contacted for direction with respect to contacting patients and any other follow-up required.

All other packages which were run through the sterilizer during this time period **must** be recalled, reprocessed (including repackaging), and sterilized.




**Storage and Handling:**

All critical instruments (including cutting burs) **must** be stored in a sterile state in closed storage until the point of use. The use of a bur block for the storage of cutting burs is no longer acceptable unless the bur block is cleaned, packaged and sterilized after each patient. Packages should be used on a rotating basis (e.g., oldest dated packages are to be used first).

Packages **must** be stored to ensure package integrity is maintained e.g., store packages in single layers, or on their side.

Packages **must** be monitored to ensure integrity is maintained. If a package is compromised (e.g., torn or punctured) it **must** be removed, repackaged, and sterilized. Expiry dates of your specific packaging materials **must** be monitored. Any packages that have expired, **must** be removed, repackaged, and sterilized.

## Reprocessing Non-critical Items

Non-critical patient-care items pose the least risk of transmission of infection because they contact only intact skin, which serves as an effective barrier to microorganisms. Examples of non-critical items include radiograph heads/cones, blood pressure cuffs, dental dam punch, and pulse oximeters.

Non-critical patient care items **must** be cleaned, or, if contaminated, cleaned and then disinfected with an intermediate-level disinfectant. Cleaning and disinfection of some non- critical items may be difficult or may damage the surfaces. In those instances, the use of disposable surface barriers may be a preferred alternative to help reduce risk of contamination. (See Surface Barrier)

# Environmental Infection Prevention and Control

## General Considerations

Environmental surfaces in the dental operatory that do not contact the patient directly are not a direct risk to patient safety. These surfaces can become contaminated during patient care, and then act as a reservoir for microbial contamination. Transmission of this type occurs primarily through OHCP or other personnel hand contact, or by touching the environmental surface with a contaminated instrument. Pathogens can be transferred to instruments, hands, nose, mouth, or eyes of OHCP or patients.

Proper hand hygiene and the wearing of PPE is an essential part in minimizing such potential transmission. Surface protection using either surface barriers or cleaning and disinfection, also protects against microbial transfer from environmental surfaces.

Environmental surfaces can be divided into:

- **Clinical Contact Surfaces:** These surfaces may come in direct contact with a OHCP hands, patient-care items, or with a patient, and have a minimal, but potential risk of infectious disease transmission. Examples would include operative surfaces, light handles, dental radiograph equipment, drawer handles and doorknobs.
- **Housekeeping Surfaces:** These surfaces have limited risk of disease transmission, unless they inadvertently come in direct contact with an OHCP's hands, patient-care items, or dental appliances. Examples would include floors, walls, and sinks.

An important first step in disinfecting any surface is cleaning. Cleaning removes debris such as organic matter that interferes with the microbial inactivation by a disinfectant. When using disinfectants, manufacturer's directions **must** be precisely followed. Strict attention **must** be given to proper use of the product-specific instructions. Disinfection does not occur if the surface does not stay wet for the prescribed length of time.

## Clinical Contact Surfaces

Clinical contact surfaces can be directly contaminated with blood, saliva, bodily fluids, or water containing bodily fluids by direct spray, splatter, contact with contaminated instruments, or a OHCP gloved hands. These surfaces can contaminate other instruments, devices, hands, or gloves. Surfaces can be contaminated by aerosols. (See Environmental Surfaces.)

### SURFACE CLEANING AND DISINFECTION

All clinical contact surfaces that may have been contaminated **must** be cleaned and disinfected at the beginning of the day, between patients, and at the end of the workday using an intermediate-level disinfectant (ILD). OHCPs or other personnel **must** wear appropriate PPE (i.e., gloves, mask, and protective eyewear) while cleaning and disinfecting clinical contact surfaces.

The same type of ILD **must** be used for all areas of the practice e.g., do not use an accelerated hydrogen peroxide product in one area and an ILD with the active ingredient of isopropyl alcohol in another. These are not compatible and may counteract their effectiveness.

Disinfection may be accomplished by the **wipe-discard-wipe** or **spray-wipe-spray** method. The disinfecting step **must** keep the surface wet for the prescribed length of time according to the manufacturers' instructions.

Using aerosol or trigger spray bottles may cause eye injuries or induce/exacerbate respiratory problems. To minimize this risk, implement these best practices:

- Apply cleaning chemicals to a wipe before using
- Keep the spray bottle as close to the wipe as possible

To make daily cleaning easier treatment areas **must** be kept clear of unnecessary equipment and supplies. Manufacturers' instructions should be consulted regarding compatibility of devices and equipment with liquid chemical disinfectants.

### SURFACE BARRIER PROTECTION

Clinical contact surfaces and equipment can be protected from contamination using surface barrier protection, particularly if they are difficult to pre-clean prior to disinfection. If surface barriers are used, they **must** be appropriately secured. Surface barrier protection is particularly effective for those clinical contact surfaces that are difficult to clean and disinfect due to surface topography or material chemical incompatibilities.

Surface barrier protection materials include:

- Clear plastic wrap
- Plastic bags
- Plastic sheets
- Plastic tubing
- Plastic-backed paper
- Plastic computer keyboard covers
- Other materials, such as 'self adhesive barriers' that are impervious to moisture

Surface barriers become contaminated during patient care. While gloved, surface barriers **must** be carefully removed and discarded between patients. Following removal of the surface barrier, the clinical contact surface **must** be examined to ensure it did not become inadvertently contaminated. If contaminated, the surface **must** be cleaned and disinfected with an ILD.

Following removal of the surface barrier, gloves **must** be removed, hand hygiene **must** be performed, and clean surface barriers **must** be placed prior to the next patient treatment.

## Housekeeping Surfaces

Although housekeeping surfaces, such as floors, walls, sinks, and reception area surfaces have a limited risk of disease transmission in oral healthcare settings, regular cleaning with diluted detergents or household low-level disinfectants is required. Routine disinfection of floors, windows, walls, drapes, window blinds and other vertical surfaces is not necessary unless the surfaces are known or are suspected to be contaminated. Carpeting and cloth furnishings are difficult to clean and cannot be reliably disinfected. Carpeting and cloth furnishings **must not** be used in patient care areas.

If a surface becomes contaminated with blood, saliva, or other bodily fluids, follow these protocols as quickly as possible:

- OHCP and other personnel **must** wear appropriate PPE.
- Remove visible organic material with absorbent material (e.g., disposable paper towels discarded in a leak-proof container).
- Clean and disinfect non-porous surfaces with an ILD.
  - ► If such products are unavailable, a 1:10 dilution of sodium hypochlorite (1 part 5.25% household chlorine bleach to 9 parts water) is an inexpensive and effective disinfecting agent.

Reusable cleaning tools, such as mop heads or cleaning cloths, should be cleaned after use, and allowed to dry before reuse. Single-use, disposable mop heads and cloths may be preferable to minimize cross-contamination risk.

Manufacturers' instructions for preparation and use **must** be followed. Fresh cleaning solution should be made each day, discarding any remaining solution, and allowing the container to dry between uses. Diluted solutions of detergents or disinfectants, if prepared in dirty containers, stored forlong periods of time, or prepared incorrectly, may become reservoirs for microorganisms.

Mechanical rooms **must** also be kept clean.

## Waste Management

General waste from oral healthcare settings is no more infective than residential waste. The oral healthcare facility is responsible for the waste until it is safely removed from the premises.

Generally, items that may have come in contact with blood, saliva, other bodily fluids or water or other liquid that contains bodily fluids is not likely to be infective and treating all such waste as infective is neither practical nor necessary.

Medical waste of concern requires special storage, handling, neutralization, and disposal, according to provincial and municipal regulations. Such waste includes:

- Solid waste soaked or saturated with blood or saliva (e.g., gauze so saturated with blood following surgery that it is freely dripping blood or could easily release liquid blood if compressed)
- Surgically removed hard or soft tissue (not including extracted teeth; see below)
- Contaminated sharp items (needles, scalpel blades, burs, wires)

Non-sharp medical waste **must** be placed in a sturdy, leak-resistant bag. Local regulations may require that this bag is labelled as "biohazardous" waste. The exterior of the bag should not be contaminated prior to disposal. If the exterior of the bag is contaminated or punctured, the bag should be placed in a second sturdy bag, similarly labeled. All bags **must** be securely closed for transportation and disposal.

Sharp medical waste **must** be placed in biohazard puncture resistant containers at point of use.

General and medical waste should be disposed of daily to avoid accumulation. Oral healthcare facilities **must** have a plan for management of medical waste that complies with local provincial and municipal regulations.

All containers with blood or saliva (suctioned fluids) may be poured into a utility sink, drain or toilet, which drains into a sanitary sewer system or septic tank. OHCPs **must** wear appropriate PPE during this task.

## Handling of Extracted Teeth

Extracted teeth may be returned to the patient following cleaning of visible blood and debris. If being discarded, extracted teeth without amalgam fillings may be disposed as general office waste. Extracted teeth containing dental amalgam **must** be placed in an amalgam waste container, as they cannot be incinerated with general or biomedical waste.

Extracted teeth to be used for educational purposes **must** be cleaned of visible blood and debris and immersed in a 10% formalin solution for at least 2 weeks. Provincial and municipal regulations for shipping biohazard materials **must** be followed.

If extracted teeth are being sent to Dalhousie University, they **must** be stored in diluted sodium hypochlorite (1:10) in a container with a lid, place in a sealed plastic bag, and delivered/sent to:

Dalhousie Dentistry Oral Surgery Department
5981 University Avenue
PO Box 15000
Halifax, NS, B3H 4R2

For more information on Dalhousie's protocol, please visit:
https://cdn.dal.ca/content/dam/dalhousie/pdf/dentistry/NewsEvents/2015ExtractedTeeth.pdf

If being sent to a dental laboratory for shade or size comparisons, extracted teeth **must** be cleaned, disinfected with an appropriate ILD, and transported in a sealed container.

# Facility, Equipment, and Specific Area Applications

## Air Quality

Offices **must** ensure that air exchange and ventilation meet Occupational Health and Safety Regulations, CSA standards, and manufacturer's recommendations for products, including chemical agents.

## Dental Unit Waterlines

Dental unit waterlines (DUW) can become heavily colonized with waterborne microorganisms, which form a biofilm on the interior surface of the waterline.

High numbers of these opportunistic microorganisms are not necessarily dangerous to the general population, unless the OHCP or patient is a susceptible host. Susceptible hosts include individuals that are immunocompromised (e.g., organ transplant, cystic fibrosis, chronic bronchitis).

Conventional dental units do not reliably deliver sterile solutions, even when equipped with independent water reservoirs, due to the formation of biofilm along the water pathway. Therefore, sterile water or sterile saline **must** be used when irrigating open vascular sites and whenever bone is cut during invasive surgical procedures. Delivery systems, such as bulb syringe or sterile, single-use disposable products can be used to deliver sterile irrigation solutions.

The potential risk of infection from DUW microorganisms can be effectively reduced to counts of potable water standards (less than 500 cfu/ml) by following regular waterline maintenance procedures. These procedures are as follows:

### ALL WATER SYSTEMS

- Waterlines **must** be purged by flushing them thoroughly with water for at least 2 minutes at the beginning of each day and for 30 seconds following each patient.
  ► Before purging is carried out, handpieces and air/water syringe tips **must** be removed from the waterlines.
- Waterline heaters **must** not be used in a dental unit or in dental equipment, as these heaters encourage waterline microorganism growth.
- Refer to manufacturer's instructions relative to your specific system.
- Purge all water lines dry when the units will not be used over an extended period of time to prevent biofilms forming in stagnant water.
- When waterline units are shut down for an extended period of time (i.e., 2 or more weeks) waterline testing should be performed.

### CLOSED WATER SYSTEMS (PREFERRABLE TO OPEN WATER SYSTEMS, WHEN POSSIBLE)

- Clean hands/gloves **must** be used when changing the water bottle.
- Waterlines **must** be maintained.
  ► A variety of products are available. Manufacturer's instructions **must** be followed.

## Boil Water Advisories

Boil water advisories occur whenever public health officials determine that municipally delivered tap water is unsafe to drink. Circumstances that compromise the safety of the municipal water system include compromises in the distribution system (water-main breaks), water treatment system failures, and natural disasters (floods, hurricanes, or earthquakes).

During a boil water advisory, the following precautions **must** be taken:

- Public water **must** not be delivered to the patient through the dental unit, ultrasonic scaler, or other devices or equipment.
- For closed delivery systems, water from an alternative approved source may be used.
- If necessary, treatment should be postponed.
- Patients **must** not rinse their mouths with tap water; bottled or distilled water **must** be used instead.
- Tap water **must** not be used for hand hygiene. Antimicrobial products that do not require water, such as alcohol-based hand rubs, should be used for hand hygiene. If the hands have been known or suspected to be contaminated, hands should be washed using bottled or distilled water and an antimicrobial soap.
- When the boil water advisory is cancelled, follow guidance provided by the local water utility regarding adequate flushing of all incoming public water system lines, including any taps or other waterlines in the oral healthcare facility. If no guidance is provided, flush all waterlines for 2-5 minutes prior to using for patient care. All DUWs **must** be disinfected (shock system) according to the manufacturer's instructions prior to use. (See Glossary for shock system definition.)

## Dental Handpieces and Other Devices

Several dental devices contact mucous membranes and expel air and water into the patient's mouth and potentially into open wounds. These devices are attached to the air or waterlines of the dental unit, and include, but not limited to:

- High and low-speed handpieces
- Surgical handpieces and motors
- Prophylaxis angles and nose cones
- Ultrasonic inserts and sonic scaling tips and handpieces
- Ultrasonic and sonic endodontic handpieces
- Air abrasion devices
- Air/water syringe tips

These devices have the potential of retracting oral fluids into internal compartments of the device. This retained patient material can then subsequently be expelled in the oral cavity of a patient during later use. Restricted physical access often limits the cleaning of these internal compartments, and compromises decontamination.

**Any dental device connected to the dental air/water system that enters the patient's mouth must be run to discharge water and air for a minimum of 20 seconds after each patient use. This procedure is intended to physically flush out any patient material that might have entered the turbine and air and waterlines.**

All dental handpieces and other intraoral devices that can be removed from the air and water lines of dental units are considered semi-critical devices and **must** be cleaned and sterilized between patients. Manufacturers' instructions for cleaning, lubrication, and sterilization **must** be followed.

Components of dental devices and equipment that are *permanently attached* to DUWs should be treated as clinical contact surfaces. Such components (electric handpiece motors, handles for ultrasonic devices or dental unit attachments for saliva ejectors, high-volume evacuators, and air/water syringes) **must** be cleaned and disinfected with an ILD prior to use on the next patient or covered with surface barriers that are changed after each use.

## Suction Lines

Backflow can occur when previously suctioned fluids present in suction tubing flow back into the patient's mouth. Backflow in low-volume suction lines can occur when a seal around the saliva ejector is created (by patient closing their lips around the tip of the ejector, creating a partial vacuum).

OHCPs should discourage patients from forming a seal over the saliva ejector tip. Alternatively, OHCPs may use specifically designed saliva ejector tips that do not allow a negative pressure to form around the tip of the saliva ejector or use anti-backflow devices.

At a minimum, water **must** be run through suction lines between patients to remove loosely adherent debris and microorganisms and to reduce the likelihood of infectious material backflow. The air/water syringe may be used for this purpose to produce turbulent flow in the line, which will also accomplish the required 20 second flush of the air/water syringe. High-volume and low-volume suction lines **must** be cleaned daily with an enzymatic cleaner, and following all surgical procedures. It is strongly recommended that enzymatic cleaner/disinfectant is used to flush the suction lines between patients.

Dental unit suction traps **must** be inspected weekly or more frequently, as dictated by usage. They are to be cleaned or replaced as necessary. Amalgam waste **must** be deposited in amalgam waste recycling. Dental suction units should use disposable traps when available. For disposable traps with dental amalgam, place the used trap into a properly labelled container with a mercury vapour suppressant (e.g., Merconvap).

## Single-Use or Disposable Devices

A single-use (disposable) device is designed to be used on one patient and then discarded, not reprocessed for use on another patient. Examples of single-use or disposable devices include syringe needles, single-use burs, single-use endo files, high-volume evacuator tips, prophylaxis cups and brushes, and orthodontic brackets. Single-use disposable items **must** be disposed of appropriately after use.

Implantable devices **must** be considered single-use and **must** not be reused in other patients.

## Safe Handling of Injectables

The transmission of blood-borne viruses and other microbial pathogens to patients may occur due to unsafe and improper handling of injectables (e.g., local anesthetics, drugs, and solutions for sedation).

The following practices **must** be adhered to when preparing and administering injectables.

### ASEPTIC TECHNIQUE:

- Perform hand hygiene prior to accessing supplies, handling vials and IV solutions, and preparing or administering drugs.
- Prepare drugs and supplies in a clean area on a cleaned and disinfected surface using an ILD (as per clinical contact surfaces section).
- Use aseptic technique in all aspects of parenteral drug administration, drug vial use and injections. This includes using a sterile syringe and needle for each patient. Rubber septum/diaphragm **must** be disinfected with a 70% alcohol wipe.
- Limit access to trained individuals.
- Never administer a drug from the same syringe to more than one patient, even if the needle is changed between patients.
- Both the needles and syringes **must** be in sealed packages. Never store needles and syringes unwrapped, as sterility cannot be assured.
- If an administration set is prepared ahead of time, all drugs should be drawn up as close to use as possible and covered.
- Do not use IV solution bags as a common source of supply for multiple patients.

## SINGLE-DOSE VIALS

Single-dose vials, intended for single patient use, typically lack preservatives. The use of these vials for multiple patients carries substantial risk for bacterial contamination and infection.

- Do not reuse single-dose vials.
- Enter the vial once and immediately discard after use.
- Disinfect the rubber septum/diaphragm with a 70% alcohol solution.
- Always use a sterile syringe and needle/cannula when entering a vial.
- Never combine or pool the leftover contents of single-dose vials.

"*Syringes and needles are sterile, single-use items and, after entry into a patient's vascular system or attachment to infusions, a syringe and needle should be considered contaminated and used only for that patient. A syringe* ***must*** *not be used for multiple patients even if the needle is changed. Before use, prepared syringes and needles should be stored in a clean container and syringes capped to avoid contamination. After use or at the end of the anaesthetic, all used syringes with needles should be discarded into an approved sharps container.*"

Reference: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2773534/

## MULTI-DOSE VIALS

Any error in following protocols for the correct use of multi-dose vials can result in the transmission of both bacterial and blood-borne viral pathogens. Transmission of HBV, HCV and HIV have been associated with the use of multi-dose vials.

The use of multi-dose vials for injectable drugs increases the risk of transmission of blood- borne pathogens and bacterial contamination of the vial. Prioritize patient safety over cost when choosing between multi-dose and single-dose vials.

If multi-dose vials are used, the following practices **must** be followed:

- Never re-enter a vial with a used needle or used syringe.
- Once medication is drawn up, the needle should be immediately withdrawn from the vial. A needle should never be left in a vial to be attached to a new syringe.
- Use a multi-dose vial for a single patient whenever possible and mark the vial with the patient's name.
- Mark the multi-dose vial with the date it was first used and ensure that it is discarded at the appropriate time.
  - ► Discard opened multi-dose vials according to the manufacturer's instructions or within 28 days, **whichever is shorter.**
- Adhere to aseptic technique when accessing multi-dose vials.
  - ► Multi-dose vials **must** be accessed on a clean surface and where no dirty, used, or potentially contaminated equipment is placed or stored.
  - ► Disinfect the access diaphragm of vials using 70% alcohol.
  - ► Allow to dry before inserting a new needle and new syringe into the vial.
- Discard the multi-dose vial immediately if sterility is questioned or compromised, or if the vial is not marked with the patient's name and original entry date.

## Dental Radiology

Cross-contamination of radiographic equipment and environmental surfaces with blood or saliva is possible. Each oral health-care facility **must** develop its own protocol, based on their specific equipment.

Below are practices that **must** be integrated into each facility-specific protocol:

- Gloves, masks, and protective eyewear **must** be worn when taking radiographs and handling contaminated PSP (phosphor storage plates) or sensors/film packets.
- Film-holding and positioning devices (e.g., Rinn kits) are semi-critical items and **must** be sterilized between patient uses.
- Contaminated radiography equipment (radiograph tube head and control panel, PSP or sensors/film packets) **must** be cleaned and disinfected after each patient use.
- Surface barriers, if used, **must** be changed after each patient. Once removed, the device **must** be carefully inspected, and if contaminated, the device **must** be cleaned and disinfected prior to next patient use.
- After exposure of the radiograph and before glove removal, the film packet **must** be disinfected using an ILD.
  - ► Alternately, the contaminated film packets may be opened using gloved hands, the film dropped onto a clean surface without touching and the empty packets disposed in an area where cross-contamination is not possible. The gloves **must** then be removed, hand hygiene performed, and the film processed.
  - ► Film barrier pouches may alternately be used. The film packets **must** be carefully removed from the pouch to avoid contamination of the inner film packet.
- After exposure of the PSP and before glove removal, open PSP barrier carefully to avoid contamination and drop PSP onto clean surface. The gloves **must** then be removed, and the PSP scanned according to manufacturers' instructions.
- Any surfaces that become contaminated **must** be cleaned and disinfected using an ILD.

## Pre-Procedural Mouth Rinses

Antimicrobial mouth rinses such as chlorhexidine gluconate (15ml), povidone-iodine (0.2%, 0.4% or 0.5%, 9ml), hydrogen peroxide (1.5% or 3%, 15ml), or cetylpyridinium chloride (0.05%, 15ml) may be used prior to all dental procedures. Have the patient rinse for the recommended amount of time. Using mouth rinses reduces the number of microorganisms released from the patient's mouth during treatment.

- Pre-procedural mouth rinses should be used for all surgical procedures to decrease the number of microorganisms introduced in the patient's bloodstream during invasive dental procedures.
- This procedure may not be practical for those patients that cannot rinse or spit, and considerations may be given where the antimicrobial solution is brushed or swabbed in the mouth prior to beginning oral healthcare treatment.
- Use non-alcohol containing products if alcohol is contraindicated for that patient.

## Handling of Biopsy Specimens

Biopsy specimens **must** be placed in a sturdy, leak-proof container with a secure lid for transportation. If the outside of the container becomes, or is suspected to be contaminated, it **must** be cleaned and disinfected and placed in an impervious bag prior to transportation. This container **must** be clearly labelled with the patient's name, any other necessary information, and a universal biohazardous symbol. When storing prior to transport, it **must** be stored in a designated storage area separate from clean supplies.

Provincial and municipal regulations **must** be followed when storing, transporting, and shipping biopsy specimens.

## Laser/Electrosurgery Plumes and Surgical Smoke

Lasers, electrocautery devices, and similar equipment are used for surgery, ablation (removal of tissues), or cauterization to vaporize, coagulate, and cut tissue. The by-products of these procedures include vapours, smoke, and particulate debris, which are collectively called plume.

Plumes may contain bioaerosols, viruses, blood fragments, cellular debris, and bacteria depending on the type of the procedure.

They also contain carbon monoxide, polyaromatic hydrocarbons, and various toxic gases and vapours. Plume may also contain chemicals that form from gases, dyes, and coolants. Plumes may contain chemicals such as formaldehyde, hydrogen cyanide, acrolein, phenol, butane, and benzene.

Plume may also contain blood (plasma and blood cells or pieces of cells), and related blood-borne pathogens including viruses such as HPV and HIV, or bacteria such as Bacillus subtilis, Escherichia coli, and Staphylococcus aureus.

OHCPs **must** use work practice and engineering controls to avoid inhaling or otherwise coming in contact with laser and electrosurgical plumes and surgical smoke, in accordance with manufacturer's recommendations). General room ventilation (dilution ventilation) is not sufficient to remove air contaminants.

Work practices **must** include:

- Routine Practices (high-filtration surgical masks and possibly face shields)
- Use of HVE systems
- Education/training on proper procedures for the safe use of equipment

These practices may include using:

- Central room suction units with in-line filters to collect particulate matter from minimal plumes
- Dedicated mechanical smoke exhaust systems with a high-efficiency filter to remove substantial amounts of laser plume particles, e.g., plume scavenging system (PSS).

For more details on how to control laser-plumes in healthcare, go to the Canadian Centre for Occupational Health and Safety website.

## Cleaning of Removable Prothesis

Any prosthesis or dental appliance coming from the oral cavity is a potential source of infection. When cleaning, follow these protocols:

- Masks, gloves, and eye protection **must** be worn.
- When a prosthesis or dental appliance is soiled with debris, it **must** be sprayed first with an appropriate disinfectant using the manufacturer's instructions and then removed of debris.
- A dedicated ultrasonic cleaner **must** be used to clean these items.
- The item should be placed in a sealable bag, containing an appropriate cleaning agent, according to manufacturer's instructions.
- The bag should be placed into the ultrasonic cleaner.
- Once removed from the ultrasonic cleaner, the prostheses should be thoroughly rinsed, according to manufacturer's instructions.
- Return the prosthesis to the patient in a clean sealable bag containing a mouth rinse.
- If a second impermeable container (e.g., beaker) is not used, the dedicated ultrasonic cleaner **must** be cleaned and disinfected between uses.
- As an alternative to the use of an ultrasonic cleaner, the prostheses may be soaked in a non-permeable bag or single-use container and then thoroughly rinsed according to manufacturer's instructions.

## Dental Laboratory Asepsis

Good communication is required to confirm that appropriate cleaning and disinfection occurs in the oral healthcare facility and at the dental laboratory. This section outlines the responsibilities of community oral healthcare facility that sends items *to* a commercial laboratory, as well as the responsibilities of the commercial dental laboratories (on-site or off-site). It is best practice to have a written protocol agreement between a community oral health practice and the lab(s) where the items are sent, so that it is clear how the items are received (e.g., impressions are cleaned and disinfected prior to shipping).

**A commercial laboratory is subject to all areas of this document, as they apply to the practice setting e.g., environmental infection prevention and control and Reprocessing.**

See Environmental Infection Prevention and Control and Sterilization and Disinfection of Patient Care Items (Reprocessing).

A commercial dental laboratory has dedicated and distinct spaces for:

- laboratory practice
- patient care
- shipping/receiving
- reprocessing

### IN-OFFICE PREPARATION PRIOR TO 'SHIPPING ITEMS' TO AN ON-SITE OR OFF-SITE LABORATORY

- Impressions, occlusal rims, prosthesis, face bow forks, or bite registrations **must** be thoroughly cleaned, disinfected, and rinsed of all debris before being removed from the operatory and transported to an on-site or off-site laboratory.
- Manufacturers' instructions **must** be consulted regarding the stability of specific materials during disinfection.
- "Wet" impressions or appliances **must** be placed in an impervious bag prior to transportation to an off-site laboratory.
- Clinical materials and devices that are transported from an oral healthcare facility to an off- site laboratory **must** follow provincial and municipal regulations.

### COMMERCIAL LABORATORY RECEIVING INCOMING ITEMS

A separate receiving and disinfecting area is established in the laboratory to reduce contamination and the risk of transmission. Unless there is a different written policy in place with a specific practice, the OHCP treats all incoming items as contaminated and performs cleaning and disinfection procedures before performing any clinical activity. This includes:

- Wearing appropriate PPE (mask, gloves, and protective eyewear), dental laboratory staff **must** perform disinfection procedures before handling the material or device. If during manipulation of a material or appliance, a previously undetected area of blood or other organic debris becomes apparent, cleaning and disinfection procedures **must** be repeated.
- Rinsing items thoroughly to remove all residual traces of disinfectant
- Disposing of single-use shipping materials (e.g., plastic bags)
- Disinfecting/sterilizing reusable shipping materials (e.g., reusable plastic containers), according to manufacturer's instruction
- Labelling items, as required, to prevent loss.

### SHIPPING ITEMS FROM A COMMERCIAL LABORATORY

- Appliances and prosthesis delivered to the patient should be free of contamination.
- If the dental laboratory staff performs the disinfection, a compatible ILD **must** be used and the item placed in a tamper-evident container before returning the item to the oral healthcare facility.
- If such documentation is not provided regarding disinfection procedures, the oral healthcare facility **must** provide final disinfection procedures.

**Table 2:** Instrument Reprocessing for Laboratory Items

| Instrument or Instrument Type | Action Required |
|---|---|
| Laboratory items (e.g., polishing points, rag wheels, laboratory knives) that are used on contaminated or potentially contaminated appliances, protheses, or other material | Heat-sterilize, or purchase single-use disposable items, or reprocess according to manufacturer's instructions after each case. For items such as rag wheels that do not come with instructions, and therefore cannot be reprocessed, treat as single use or disinfect case prior to and after exposure to rag wheel. |
| Heat-tolerant items used in the mouth (e.g., metal impression trays, face bows) | Clean and sterilize after each use. |
| Heat-sensitive lab items exposed to patient materials | After each case, reprocess according to manufacturer's instructions. If no manufacturer's instructions are provided, treat item as single-use. |
| Pressure pots and water baths that have had prior patient contact | Clean and disinfect after each case. |
| Pressure pots and water baths used on new appliances only | Clean and disinfect daily, or more frequently, if visibly soiled. |
| Any equipment used for direct patient care, or on an appliance that has had prior direct patient contact | Clean and disinfect between patients *or* protect with a surface barrier that is changed, and the surface disinfected, between patients. |
| Work pans | Clean and disinfect after each case. |
| Articulators | Clean and disinfect after each case. |
| Ultrasonic cleaning solution | Change daily, according to manufacturer's instructions, or more frequently if it becomes visibly soiled. Disinfect ultrasonic chamber prior to refilling. |
| Pumice used on appliances that have had prior patient contact | Change after each case. |
| Pumice used on new appliances | Change daily. |

## DENTURE POLISHING AREA

Dentures, whether new or existing, **must** be disinfected prior to being brought into the designated polishing area of the oral healthcare facility. Masks, gloves, eye/face protection, and gowns should be used when polishing, as the aerosols produced can be harmful and/or contain pathogens. It is also recommended that a suction or closed vacuum system should be used to reduce exposure to aerosol/airborne particles generated by polishing. **Follow the protocols outlined in Table 2, for any items that you use during these procedures.**

## Patients Infected with M. tuberculosis (TB)

*M. tuberculosis* is a bacterium carried in airborne infective droplet nuclei that can be generated when persons with pulmonary or laryngeal TB sneeze, cough, speak or sing. These small particles (1-5 µm) can stay suspended in the air for several hours.

Infection occurs when some susceptible person inhales droplet nuclei containing *M. tuberculosis*, which then travel to the alveoli of the lungs. Typically, within 2-12 weeks after initial infection with *M. tuberculosis*, immune response prevents further spread of the TB bacteria, although the bacteria can remain viable in the lungs for years, a condition termed "latent TB infection". People with latent TB infection usually exhibit a reactive tuberculin skin test (TST) [formerly Mantoux], have no symptoms of active disease and are not infectious. However, people with latent TB infection can develop active disease later in life if they do not receive treatment for their latent infection.

Approximately 5% of persons who have been recently infected and not adequately treated for latent TB infection will progress from infection to active disease during the first 1-2 years after infection; another 5% will develop active disease later in life. Although both latent TB infection and active TB disease are described as TB, only the person with active disease is contagious and presents a risk of transmission. Symptoms of active TB disease include a productive cough, night sweats, fatigue, malaise, fever, unexplained weight loss and occasionally oral ulceration(s). Certain immunocompromising medical conditions (HIV disease) increase the risk that TB infection will progress to active disease at a faster rate.

When taking a patient's initial medical history and at periodic updates, OHCPs should routinely ask all patients whether they have a history of TB or symptoms indicative of TB. Patients with a medical history or symptoms indicative of undiagnosed active TB **must** be referred promptly for medical evaluation to determine possible infectious risk. These patients **must** not remain in the oral healthcare facility any longer than required to evaluate their dental condition and arrange for a medical referral. While in the oral healthcare facility, the patient **must** be isolated from other patients and OHCPs. The suspected TB patient **must** be instructed to wear a surgical mask when not being evaluated and **must** be instructed to cover their mouth and nose when coughing or sneezing. Elective oral treatment **must** be deferred until a physician confirms that a patient does not have infectious TB, or if the patient is diagnosed with active TB disease, until confirmed the patient is no longer infectious; typically, 48 hours following institution of anti-tuberculous therapy.

Surgical masks typically used in oral healthcare settings do not prevent inhalation of *M. tuberculosis* droplet nuclei due to their small diameter, and therefore, Routine Practices are not sufficient to prevent transmission of this organism so additional precautions (airborne) may be necessary.

TB transmission is controlled through a hierarchy of measures, including:

- **Administrative controls:** Because potential for transmission of M. tuberculosis exists in outpatient settings, oral healthcare facilities should develop a TB control program appropriate for their level of risk. Administrative goals of a TB infection-control program include detection of a person with active TB disease and prompt isolation from susceptible persons to reduce the risk of transmission. Although OHCPs and other personnel are not responsible for diagnosis and treatment of TB, they **must** be trained to recognize signs and symptoms to help with prompt detection.
  - ▸ OHCPs who have contact with patients should have a baseline TST, preferably by using a two-step test at the beginning of employment. The facility's level of contact with patients at risk of TB will determine the need for routine follow-up TST.
- **Environmental controls:** If urgent oral care is provided for a patient who has, or is suspected of having active TB disease, the care **must** be provided in a facility (e.g., hospital) that provides airborne infection isolation (using such engineering controls as TB isolation rooms, negatively pressured relative to the corridors, with air either exhausted to the outside or HEPA-filtered if recirculation is necessary).
- **Personal respiratory protection:** OHCPs treating patients with active TB **must** use respiratory protection (e.g., fit-tested, disposable N-95 respirators).

## Patients Infected with Other Communicable Respiratory Diseases (e.g., COVID-19, influenza)

For patients who have active communicable respiratory infections, all oral healthcare procedures, except emergency care, should be deferred until the patient is deemed no longer contagious. If treatment cannot be deferred, patients are to be treated using airborne precautions.

# Ongoing Infection Prevention and Control Evaluation

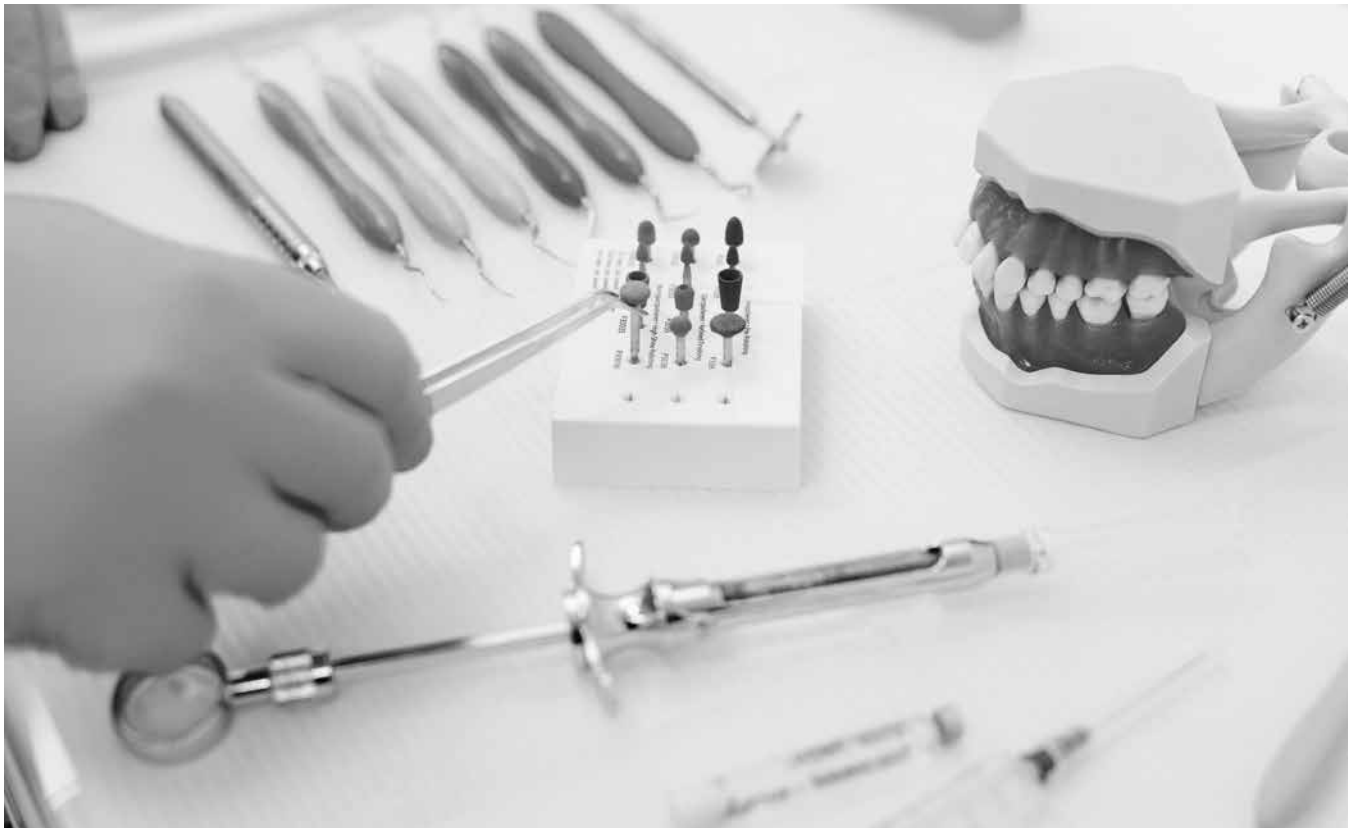
The goal of an IPAC program is to provide a safe treatment environment for the patient and a safe working environment for the OHCP and other personnel. This goal is accomplished by reducing the risk of healthcare associated (nosocomial) infections in patients and occupational exposures in OHCPs and other personnel. Breaches in IPAC practices are caused by the failure to follow protocols.

Effective program evaluation is a systematic way to ensure procedures are useful, feasible, ethical, and accurate. Program evaluation is an essential organizational practice. Evaluation offers an opportunity to improve the effectiveness of both the IPAC program and dental practice protocols. Such program evaluation **must** be practised consistently across program areas and be well integrated into the day-to-day management of the IPAC program.

A successful IPAC program depends on developing standard operating procedures, evaluating practices, routinely documenting adverse outcomes (such as occupational exposures to blood) and work-related illnesses in OHCPs and monitoring healthcare-associated infections in patients. Strategies and tools to evaluate the infection control program can include:

- Periodic in-office observational assessments by the facility IPAC officer
- Checklists to document procedures
- Annual review of occupational exposures to blood-borne pathogens
- Facility audit by the regulators appropriate to each licencing body.

Effective implementation of IPAC programs is an ongoing process, requiring OHCPs to monitor the scientific literature and to stay abreast of new knowledge of emerging infectious diseases.



# Additional Considerations for Alternative Practice Settings

Alternative practice settings include any setting where OHCPs may provide services that are not confined to a conventional clinical operatory. These settings may include, but are not limited to the following:

- Group home
- Long term care facilities
- Rehabilitation facilities
- Private home
- Community center
- Educational facilities
- Hospitals

OHCPs **must** take appropriate measures to ensure that IPAC protocols are followed and patient safety is maintained.

The following topics **must** be carefully considered when providing oral healthcare in alternative practice settings:

## Disposal of Biomedical Waste

Biomedical waste is classified as hazardous waste and **must** not be disposed with regular garbage. It **must** be handled safely to protect human health and the environment. In general, all biomedical waste **must** be:

- Stored in color-coded containers that are marked with the universal biohazard symbol
- Released to an approved biomedical waste carrier for disposal

## Disposal of Environmentally Hazardous Waste

Certain types of waste generated in dental offices can be detrimental to the environment if not properly handled, and their disposal is subject to federal and provincial regulations and municipal bylaws. In addition to biomedical waste, this includes waste that contains mercury, silver, lead, and other chemicals. Mercury-containing items **must** be treated as hazardous materials and should not be thrown in the garbage and liquid mercury **must** never be poured down the drain. Contact a certified hazardous waster carrier for recycling and disposal of all amalgam waste.

For more information, please see the NSDA's document entitled "Hazardous Waste Documents – Best Management Practices for Hazardous Dental Waste Disposal". This document can be found using the following link:
https://nsdental.org/resources/for-office-managers/office-management-documents/?category=ohs

## Disposal of Sharps

Sharps (e.g., needles, syringes with needles, scalpel blades, clinical glass) **must** be separate and collected in an approved puncture resistant, leakproof sharps container. Once the container has reached the designated capacity; it **must** only be released to an approved biomedical waste carrier for disposal.

## Transportation of Contaminated and Sterile Equipment

When transporting instruments between practice settings, sterile instruments **must** be transported in sealed packages to maintain sterility until opened for use on site. Similarly, contaminated instruments **must** be packaged in sealed, sturdy, leakproof containers to prevent cross-contamination. A process should be in place to ensure that instruments that have been reprocessed (sterilized) can be differentiated from those that have not been reprocessed (e.g., color coding).

Disposable sharps such as needles and blades must be removed and disposed of in an approved puncture-resistant sharps container at point of use, prior to transportation. Soiled instruments must be handled in a manner that reduces the risk of exposure and/or injury to personnel and patients, or contamination of environmental surfaces.

# Glossary

**Additional precautions:** A term used to describe IPAC 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 (<10um) generated by both humans and environmental sources that can remain viable and airborne for extended periods; commonly generated in dentistry during use of hand pieces, ultrasonic scalers, and air/water syringes.

**Aerosol Generating Procedures (AGPs):** Procedures which can generate aerosols that consist of small droplet nuclei in high concentration and present a risk for airborne transmission of pathogens that would not otherwise be spread by the airborne route (e.g., COVID-19, influenza).

**Airborne precautions:** Providing oral health care services in operatories with floor to ceiling walls and doors, appropriate negative pressure ventilation, and appropriate PPE.

**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:

*Process indicator (Class 1):* 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 inks). Class 1 CIs are directly exposed to the sterilization environment, so they usually fail only when there is a gross malfunction of the sterilizer.

*Specialty indicator (Class 2):* 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.

*Single-parameter indicator (Class 3):* 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.

*Multi-parameter indicator (Class 4):* An internal indicator that responds to two or more critical parameters of the sterilization process.

*Integrating indicator (Class 5):* An internal indicator that responds to all critical parameters of the sterilization process. Class 5 CIs are correlated to the performance of biological indicators (BIs).

*Emulating Indicator (Class 6*): An internal indicator that reacts to all critical variables (time, temperature, and presence of steam) for a specified sterilization cycle (e.g., 10 min, 18 min, 40 min). This may be used as an additional monitoring tool to release sterilizer loads that do not contain implants; however, the Class 5 CIs would be the preferred choice for the reasons stated in Table 1 in the main part of this document.

**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.

**Cohort Environment**: An open concept office with no physical barriers separating dental chairs.

**Custodian**: One responsible for the collection, use, disclosure, retention, and destruction of personal health information.

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

**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, and 6% hydrogen peroxide.

*Intermediate Level Disinfection (ILD):*
A process that kills all microbial pathogens, except bacterial endospores, when used according to labelling. ILDs include ethyl alcohol 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% alcohols, iodophors, phenolics and quaternary ammonium compounds.

**Droplets:** Small particles of moisture (e.g., splatter) 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 in close proximity to the droplet source.

**Exposure-prone procedures:** A term used for the purpose of managing the risk of transmitting blood- borne pathogens. They are procedures during which transmission of HBV, HCV or HIV from a healthcare worker to patients is most likely to occur. Exposure- prone procedures include:

- Digital palpation of a needle tip in a body cavity, or the simultaneous presence of the healthcare worker's fingers and a needle or other sharp object in a blind or highly confined anatomic site;
- Repair of major traumatic injuries;
- Major cutting or removal of any oral or perioral tissue, including tooth structures.

**Implantable devices:** 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.

**Nosocomial infections**: Also referred to as healthcare-associated infections (HAI), are infection(s) acquired during the process of receiving health care that was not present during the time of admission. (Sikora, Zahra, 2022)

**OHCP:** Oral healthcare provider.

**Percutaneous:** According to the Merriam Webster medical dictionary, it is 'through the skin'.

**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.

*Semi-critical items:*
Items that contact mucous membranes or non-intact skin, but ordinarily do not penetrate them. Processing of 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. OHCPs **must** use their professional judgment for every instrument, device and surface for their specific practices to ensure that these Guidelines are being met.

*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.

**Routine practices:** A term used to describe basic IPAC standards 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-intactskin.

**Sharps:** Items including, but not limited to, needles, scalers, laboratory knives, burs, explorers, and endodontic files and reamers.

**Shock System:** "Shocking is the process of treating dental unit waterlines with strong chemicals that detach biofilm from the internal surfaces of the waterline" (Dewhirst and Molinari, May 2018). Shock systems or treatments contain high-level disinfecting agents meant to "shock" the system and eradicate all biofilm in the water. *Continuous water treatment products* like tablets and drops effectively maintain already clean dental waterlines. Always check manufacturer's instructions. Different manufacturers recommend different shock protocols and different treatment products.

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

**Splatter:** 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 cavitation's produced by ultrasound waves

# Appendix 1

## MANAGING CONTAMINATION

Patient Care Items (Modified Spaulding Classification)

| Category | Description | Examples | Management |
|---|---|---|---|
| **CRITICAL ITEMS** | Penetrates soft tissue or bone | • Air/water syringe tips<br>• Anesthetic syringes<br>• Endodontic instruments, including files (hand and rotary) and reamers<br>• Gauze for surgery<br>• Dental implant instruments<br>• Metal matrix bands prior to use<br>• Mouth mirrors (when used during a procedure where tissue is cut or manipulated)<br>• Orthodontic bands prior to use<br>• Periodontal instrumentsincluding ultrasonic tips<br>• Restorative / operativeinstruments<br>• Rotary burs anddiamonds<br>• Dental dam clamps<br>• Scalers<br>• Stainless steel crowns priorto use<br>• Surgical instruments<br>• Surgical suction tips | Items that are not single-use disposable **must** be sterilized and stored wrapped until pointof care.<br>Single-use disposable items **must** not be re- processed.<br>Follow manufacturer's instructions regarding sterilization prior to use. |
| **SEMI-CRITICAL ITEMS** | Touches intact mucous membrane or non-intact skin | • Articulating ribbonholder<br>• Handpieces<br>• Crown removinginstruments<br>• Dental dam frame and forceps<br>• Impression trays<br>• Lab burs<br>• Nasal hoods<br>• Orthodontic pliers<br>• Facebow<br>• Laboratory knives andspatulas | Items that are not single-use disposable **must** be sterilized and stored wrapped until point of care.<br>Single-use disposable items **must** not be re- processed.<br>Follow manufacturer's instructions regarding sterilization prior to use. |
| **NON-CRITICAL ITEMS** | Contacts intact skin only | • Blood pressure cuffs<br>• Curing Lights<br>• Lead aprons<br>• Intra-oral camera and radiograph sensors<br>• Dental dam punch<br>• Laboratory specific instruments | Items **must** be protected with barriers and/or cleaned and disinfected between use when contaminated. |

## ENVIRONMENTAL SURFACES

| Category | Description | Examples | Management |
|---|---|---|---|
| **CLINICAL CONTACT SURFACES** | Direct contact with OHCP or other personnel's hands, patient-care items or patient skin | • Dental chairs<br>• Keyboard and mouse<br>• Dental units and countertops<br>• Doorknobs<br>• Drawer and cupboard handles<br>• Light handles<br>• Radiograph equipment | Protect with surface barrier or disinfect with intermediate- level disinfectant. |
| **HOUSEKEEPING SURFACES** | Inadvertent contact with OHCP or other personnel's hands, patient-care items or dental appliances | • Floors<br>• Sinks<br>• Walls | Frequent cleaning based on use. If contaminated by blood or saliva use intermediate-level disinfection. |

■ The examples given are for illustration only and these lists are not to be considered exhaustive.

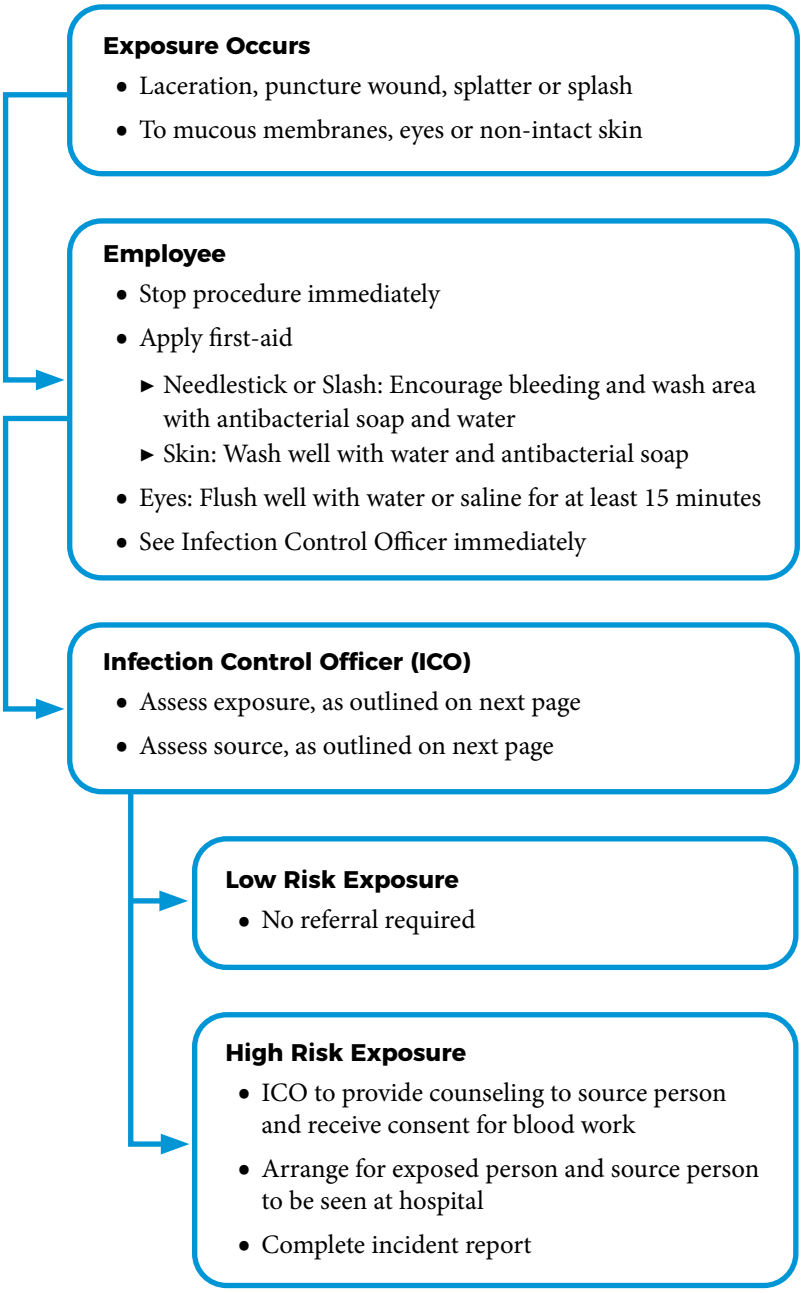
Semi-critical instruments or devices that have been exposed to blood or have the potential to be exposed to blood **must** be treated as critical. OHCP **must** use professional judgment for every instrument, device and surface for their specific practices to ensure that the standards are being met.

## DISINFECTANTS

| Category | Examples | Advantages | Disadvantages |
|---|---|---|---|
| **INTERMEDIATE LEVEL DISINFECTANT**<br><br>(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)* | • Low cost<br>• Fast acting<br>• Readily available | • Corrosive to metals<br>• May destroy fabrics<br>• Inactivated if not well cleaned<br>• Irritating to exposed skin and mucous membranes<br>• Chlorine dioxide is poor cleaner<br>• Unstable when diluted<br>- **must** be prepared daily |
| | • Halogens *(sodium bromide & chlorine)* | • Fast acting<br>• Simple to mix<br>• Minimal storage space required | • Used on hard surfaces only<br>• Strong chlorine odour |
| | • Hydrogen peroxide, 0.5% accelerated | • Fast acting<br>• Non-irritating<br>• Odourless<br>• Effective for bioburden removal<br>• Stable and effective<br>• on environmental surfaces | • Slow fungicidal activity<br>• An oxidizing agent which will accelerate rusting of metal instruments<br>• Relatively expensive |
| | • Iodophors *(iodine combined with surfactant)* | • Rapid action<br>• Relatively less toxic and less irritating<br>• Residual action<br>• Effective cleaner and disinfectant | • Stains fabrics and synthetic materials<br>• Corrosive to exposed skin and mucous membranes<br>• Inactivated by hard water<br>• Unstable when diluted – **must** be prepared daily unless manufacturer's instructions state otherwise |
| | • Quaternary ammonium compounds with alcohols *("dual" or "synergized")* | • Generally non- irritating<br>• Non-corrosive | • Older generation had narrow spectrum<br>• Inactivated by anionic detergents and organic matter<br>• Can damage some<br>• materials<br>• Rapid evaporation |
| | • Phenolics *("complex" or "synthetic" containing multiple phenolic agents)* | • Residual biocidal, action<br>• Available with detergents | • May be absorbed through skin or by latex<br>• Degrade plastics with prolonged contact, leave a film on disinfected surfaces or etch glass surfaces |

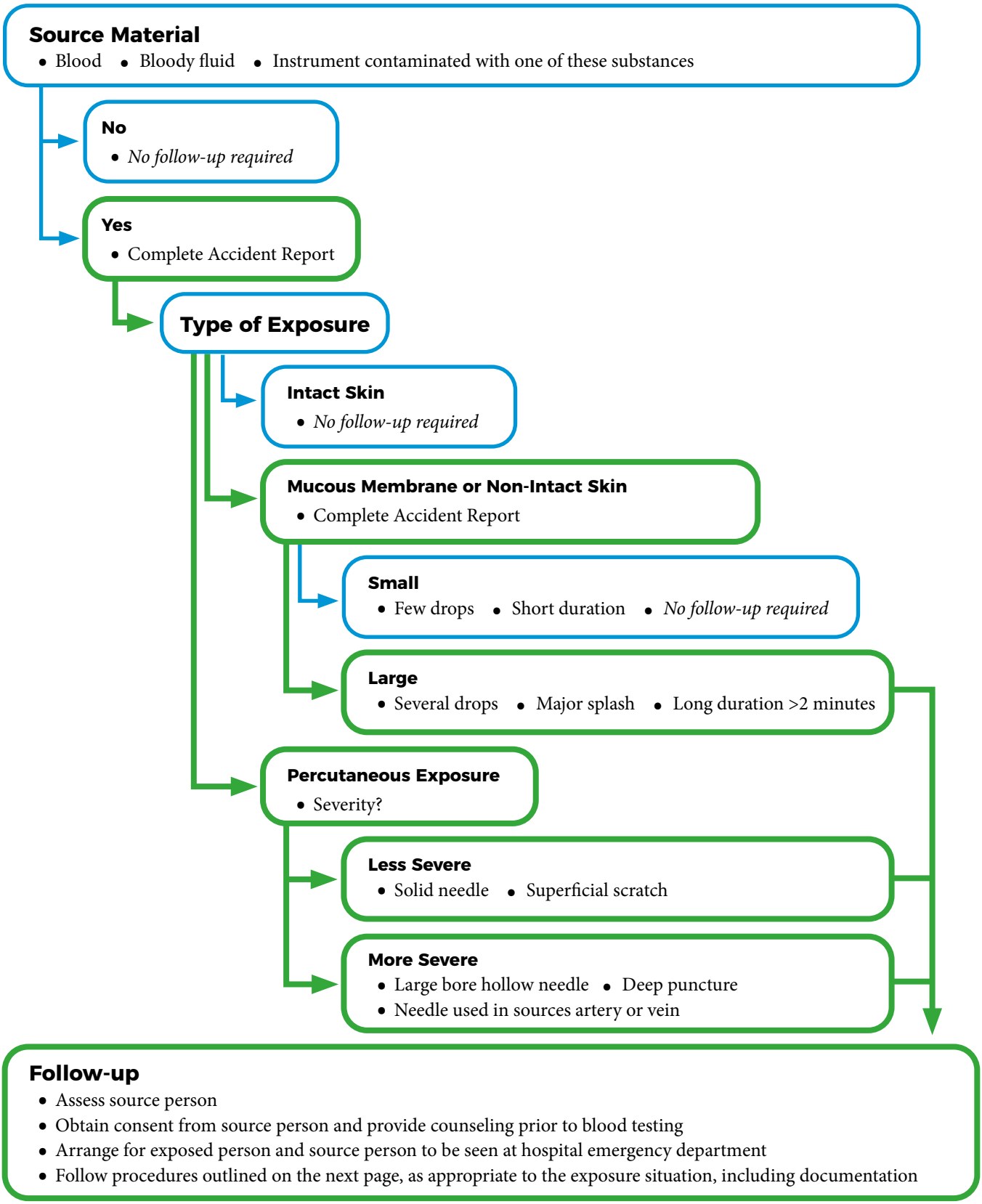
# Appendix 2

## MANAGEMENT OF NEEDLESTICK AND MUCOUS MEMBRANE EXPOSURE TO BLOOD/BODY FLUIDS



## CRITERIA TO ASSESS EXPOSURE FOR RISK OF INFECTION

**To be evaluated by the Infection Control Officer** = *Follow-up/Action Required*



## MEDICAL FOLLOW-UP TO NEEDLESTICK AND MUCOUS MEMBRANE EXPOSURES

The following procedures will be directed by the Infection Control Officer:

1. **Medical management** of the injury

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

4. **Documentation** of the following information in the employee's confidential medical file:
   a. Date and time of exposure
   b. Details of the procedure being performed by the employee at the time of exposure
   c. Details of the exposure including amount of fluid or material, type of fluid or material, severity of exposure and exposure site description (e.g., needlestick, size of needle, size of wound)
   d. Details of exposure source
   e. Details of counseling, post-exposure management and follow-up

5. **Follow-up care** of the employee including counseling, medical evaluation and blood tests
   a. For Injuries requiring Post-Exposure Prophylaxis re: HIV: follow up blood tests are at 2 weeks, 4 weeks, and 12 months.
   b. For Injuries requiring Post-Exposure Prophylaxis re: Hep C: follow up blood tests are at 0, 3 and 6 months.
   c. For Injuries requiring Post-Exposure Prophylaxis re: Hep B: Vaccinate, if not previously vaccinated; for vaccinated individuals, check Hep B antibody levels.

## NEEDLESTICK EXPOSURE INFORMATION

An accidental needlestick injury has occurred to a member of our staff. Sometimes this injury may expose the staff member to blood from a "source person" (e.g., a patient) which may lead to an infection. In order to reduce the risk of infection following this type of injury, it is important to learn more about the source person's health and well-being, including whether they are infected with certain organisms. These include Hepatitis B, Hepatitis C and Human Immunodeficiency Virus (HIV).

We have developed the following consent and risk assessment for to learn more about a source person's health in the event of an accidental needlestick exposure. Given the risk involved, we ask you provide the Infection Control Officer with answers to the questions listed below and then go to the hospital for an immediate blood test so we can determine if there is a chance that our staff member could become infected. We require your consent to obtain a copy of any positive results so the exposed staff member can receive the any necessary treatment.

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 goal.

## NEEDLESTICK EXPOSURE CONSENT

Consent to contact family physician for infection disease blood test results.

***The above information about needlestick exposure has been reviewed and explained to me, and I consent to the Infection Control Officer contacting my family physician or emergency physician to obtain relevant blood test results.***

### *Source Person*

Print Name:

_____

Signature:

_____

Date: yyyy/mm/dd

_____

### *Infection Control Officer*

Print Name:

_____

Signature:

_____

Date: yyyy/mm/dd

_____

### *Witness*

Print Name:

_____

Signature:

_____

Date: yyyy/mm/dd _____

## CHECKLIST: POST-EXPOSURE ASSESSMENT OF SOURCE PERSON

**The following is to be completed by the Infection Control Officer following an accidental needlestick exposure**:

❒ Inform the source person of the reason for the enquiry and allow them time to read the "Needlestick Exposure Information and Consent"

❒ Evaluate the source person's risk of blood-borne infection by reviewing their medical history for clinical symptoms and asking them the following additional information:

■ Are you Hepatitis B, C, and/or HIV positive or have any risk factors for exposure to these viruses?

- Hepatitis B ❒ No ❒ Yes & Date Diagnosed: yyyy/mm/dd _____
- Hepatitis C ❒ No ❒ Yes & Date Diagnosed: yyyy/mm/dd _____
- HIV ❒ No ❒ Yes & Date Diagnosed: yyyy/mm/dd _____

■ Risk Factors ❒ No ❒ Yes

***Risk factors may include:***

► *IV drug use and/or shared needles*
► *Receiving blood products*
► *Multiple sex partners and/or sex partners who have one or more of the listed risk factors*
► *Unprotected/unsafe sex*

❒ Request source person's consent to go for blood testing for their Hepatitis B/C and/or HIV status

**Source person's family physician:**

**Dr.** _____ **Phone Number:** _____

**Address:** _____

## EXPOSURE DOCUMENT

- **Infection Control Officer must have copies of this form on file.**
- **A copy of this form must be taken to the hospital.**
- **A copy must be retained in the employee's personnel file.**
- **Confidentiality of this form must be ensured.**

**Name** of Exposed Person:

| **Hepatitis B vaccination** completed: | **Date**: | **Post-vaccination titre**: mIU/mL |
|---|---|---|

**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): _____

_____

❒ 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: _____

**FOLLOW-UP CARE (DESCRIBE IN DETAIL):**

| Date: | Caregiver: | Action Taken: |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

# Appendix 3

**DONNING (PUTTING ON) PPE**

## GUIDE TO PUTTING ON PERSONAL PROTECTIVE EQUIPMENT

### Droplet & Contact Precautions (Universal Masking)

**1 Procedure/surgical mask**

**Process will depend on what face/eye protection is available**

**Scenario 1**: If goggles or full-face shield is available, leave mask on and proceed to Step 2.

**Scenario 2**: If mask needs to be replaced with a mask with visor or N95, perform hand hygiene, remove original mask, and store as per guidance. Proceed to Step 2.

**2 Hand Hygiene**

**Perform hand hygiene.**

Alcohol-based hand rub is preferred. Use soap and water if hand are visibly soiled.

**3 Long-sleeved gown**

- Select level of gown based on fluid exposure risk.
- Make sure the gown covers from neck to knees to wrist.
- Tie at back of neck and waist.

**4 N95 Respirator (if applicable)**

- Required for AGMPs for patients with unknown, novel or emerging pathogens.
- Refer to manufacturer for specific donning instructions.
- Perform a 'seal check' with each use.
- N95 respirators must be 'fit tested' prior to use.

**5 Face/Eye Protection**

- Put on mask with visor or goggles or full shield as available.
- Place over the eyes or face.
- Adjust to fit
- **NOTE**: Eyeglasses are not considered protective eyewear.

**6 Gloves**

- Put on gloves.
- Pull the cuffs of gloves over the cuffs of the gown.

FOR NOVEL AND EMERGING PATHOGENS: Initiate Contact & Droplet Precautions and wear gloves, gowns, procedure/surgical mask and face/eye protection when within 2 metres of patient.

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**DOFFING (TAKING OFF) PPE**

# GUIDE TO REMOVING PERSONAL PROTECTIVE EQUIPMENT

## Droplet & Contact Precautions (Universal Masking)

### 1 Gloves

- Outside of glove is contaminated.
- Use glove to glove, skin-to-skin technique.
- Discard in garbage

### 2 Hand Hygiene

**Perform hand hygiene.**

Alcohol-based hand rub is preferred. Use soap and water if hand are visibly soiled.

### 3 Long-sleeved gown

- Carefully unfasten ties. DO NOT rip off.
- Grasp the outside of the gown at the back by the shoulders and pull down over the arms.
- Turn the gown inside out during removal.
- Carefully fold into bundle.
- Place disposable gown in garbage or place non-disposable gown in laundry hamper.

### 4 Hand Hygiene

**Perform hand hygiene.**

Alcohol-based hand rub is preferred. Use soap and water if hands are visibly soiled.

### 5 Face/Eye Protection

- Handle only by headband or earpieces.
- Carefully pull away from the face.
- Place non-disposable face/eye protection in designated area for disinfection & disposable items in garbage.

### 6 Mask OR N95 Respirator

**Scenario 1- LEAVE MASK ON** if wearing full face shield and mask is not visibly soiled or mask integrity is affected by moisture/ humidity. Proceed to Step 7.

**Scenario 2:** If you wore goggles or wearing mask with visor, mask must be removed. Do not touch front of mask, allow to fall away from face & discard.

**N95 must be removed outside of room.**

### 7 Perform Hand Hygiene

### 8 Exit Patient Room. Remove N95 (if applicable). Perform Hand Hygiene

### 9 If Applicable, Obtain New Mask or Apply Stored Mask

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# Reference List


Alberta Dental Association and College (2010). *Infection Prevention and Control Standards and Risk Management for Dentistry*: Edmonton, AB.

American Dental Association. (2016). *Effective Infection Control*. American Dental Association., Chicago, IL

Association of Anaesthetists of Great Britain and Ireland. Infection control in anaesthesia. *Anaesthesia*. 2008;63(9):1027-1036

Canadian Centre for Occupational Health and Safety. Laser Plumes-Health Care. Available at: https://www.ccohs.ca/oshanswers/phys_agents/laser_plume.html

Canadian Immunization Guide: Part 3 – Vaccination of Specific Populations, Government of Canada https://www.canada.ca/en/public-health/services/publications/healthy-living/canadian-immunization-guide-part-3-vaccination-specific-populations/page-11- immunization-workers.html

Centre for Communicable Disease and Infection Control. Public Health Agency of Canada. (2012) *Hand Hygiene Practices in Healthcare Settings.* Ottawa, ON K1A 0K9.

Centre for Communicable Diseases and Infection Control, Public Health Agency of Canada. (2013) *Routine Practices and Additional Precautions for Preventing The Transmission Of Infection In Healthcare Settings.* Ottawa, ON K1A 0K9

Center for Disease Control and Prevention. (2008). *CDC Guidelines for Disinfection and Sterilization in Healthcare Facilities*, Atlanta, GA https://www.cdc.gov/infectioncontrol/pdf/guidelines/disinfection-guidelines.pdf., Accessed March 17, 2016

Center for Disease Control and Prevention. (2003*). Guidelines for Infection Control in Dental Health-Care Settings – 2003.* City, Atlanta, GA

Center for Disease Control and Prevention (2003). *Guidelines for Infection Control in Dental Health-Care Settings - 2003.* MMWR 2003;52(No. RR-17):1-66. https://www.cdc.gov/mmwr/PDF/rr/rr5217.pdf.

Center for Disease Control and Prevention. (2016*). Summary of Infection Prevention Practices in Dental Settings: Basic Expectations for Safe Care.* Atlanta, GA

Center for Disease Control and Prevention. *Personal Protective Equipment*. Available at: https://www.cdc.gov/oralhealth/infectioncontrol/faqs/personal-protective-equipment.html

Center for Disease Control and Prevention, National Center for Emerging and Zoonotic Infectious Dieases (NCEZID), Division of Healthcare Quality Promotion (DHQP). Disinfection and Sterilization. Available at: https://www.cdc.gov/infectioncontrol/guidelines/disinfection/

Center for Disease Control and Prevention, Division of Oral Health, National Center for Chronic Disease Prevention and Health Promotion. Monitoring. Available at: http://file.lacounty.gov/SDSInter/dhs/1029035_16Monitoring.pdf

Center for Disease Control and Prevention. (Sept. 13, 2021) Strategies for Optimizing the Supply of Eye Protection. Available at: https://www.cdc.gov/coronavirus/2019-ncov/hcp/ppe-strategy/eye-protection.html

Center for Disease Control and Prevention. (Jan 21, 2021) Strategies for Optimizing the Supply of Isolation Gowns. Available at: https://www.cdc.gov/coronavirus/2019-ncov/hcp/ppe-strategy/isolation-gowns.html

Chemical Indicators 101: Applications for use, http://www.infectioncontroltoday.com/articles/204/11/chemical-indicators-101.aspx

College of Registered Dental Hygienists of Alberta, College of Alberta Dental Assistants, College of Alberta Denturists, College of Dental Technologists of Alberta. (2022). *Infection Prevention and Control Guidelines.* Edmonton, AB.

CSA Group, National Standards for Canada. (2018). *Canadian Medical Device Reprocessing*, Toronto, Ontario, M9W 1R3

CSA Group, National Standards for Canada (Feb 2018.) *CSA-Z314-18. Canadian Medical Device Reprocessing*, Toronto, Ontario, M9W 1R3.

Dentistry iQ. (2005). *Proper use and selection of masks*. DentistryIQ. Available at: http://www.dentistryiq.com/articles/dem/print/volume-10/issues-2/focus/proper-use-and-selection-of-masks.html

Dewhirst, N, Molinari, JA. (May 2018). Treating and Monitoring Dental Water. In: C*urrent Topics in Infection Control*. Compendium, eBook Series. Retrieved at: https://www.aegisdentalnetwork.com/cced

Harte JA, Molinari JA. Personal Protective Equipment. In: Molinari JA, Harte JA, eds. *Cottone's Practical Infection Control in Dentistry*, 3rd ed. Baltimore: Lippincott Williams & Wilkins, 2010;101–119.

Lai MY, Cheng PK, Lim WW. Survival of severe acute respiratory syndrome coronavirus. *Clinical Infectious Diseases*, 2005, 41(7):67–71.

Mazurat, Nita, Dong, Cecilia. Sterilization has Expanded to Medical Device Reprocessing. CDAessentials magazine, Issue 1, 2020.

Miller, Chris H. (2018). *Infection Control and Management of Hazardous Materials for the Dental Team;* Mosby: St. Louis. Il

Miller CH, Palenik CJ. Protective Barriers. In: Miller CH, Palenik DJ, eds. I*nfection Control and Management of Hazardous Materials for the Dental Team,* 4th ed St. Louis: Mosby, 2010:115–134.

Molinari, John A.; Nelson, Perri. (2016). Face Mask Performance: Are You Protected? Oral Health Group. https://www.oralhealthgroup.com/features/face-mask-performance-protected/

Nova Scotia Dental Association (NSDA) (2018). *Best Management Practices for Hazardous Dental Waste Disposal.* NSDA, Nova Scotia.

Nova Scotia Dental Association (NSDA) (2015). *Best Practices Checklist*. NSDA, Nova Scotia.

Nova Scotia Dental Association (NSDA) (2015). *Occupational Health and Safety Act: Dental Office Interpretation.* NSDA, Nova Scotia.

Nova Scotia Health Authority. After Accidental Exposure. Available at: https://www.cdha.nshealth.ca/employee-health/blood-bodily-fluid-exposures/after-accidental-exposure

Nova Scotia Health Authority. Blood and Bodily Fluid Exposures. Available at: https://www.cdha.nshealth.ca/employee-health/blood-bodily-fluid-exposures

Padhye MN, Girotra C, Khosla AR, Gupta KV. Efficacy of double gloving technique in major and minor oral surgical procedures: A prospective study. Ann Maxillofac Surg. 2011 Jul;1(2):112-9. DOIi: 10.4103/2231-0746.92771. PMID: 23483758; PMCID: PMC3591024.

Partecke, Lars & Goerdt, Anna-Maria & Langner, Inga & Jaeger, Bernd & Assadian, Ojan & Heidecke, Claus-Dieter & Kramer, Axel & Huebner, Nils-Olaf. (2009). Incidence of Micro perforation for Surgical Gloves Depends on Duration of Wear. *Infection control and hospital epidemiology: the official journal of the Society of Hospital Epidemiologists of America*. 30(5). 409-14. 10.1086/597062.

Petty, T. L. (2006). *Infection Prevention and Control in the Dental Office.* Canadian Dental Association. Ottawa, Canada

Public Health Ontario. (May 2013). Best Practices for Cleaning, Disinfection and Sterilization of Medical Equipment/Devices in All Health Care Settings, 3rd edition. Retrieved from: https://www.publichealthontario.ca/-/media/Documents/B/2013/bp-cleaning-disinfection-sterilization-hcs.pdf?sc_lang=en

Royal College of Dental Surgeons of Ontario. (2018). *Standards of Practice Infection Prevention and Control in the Dental Office.* Toronto, ON

Rutala WA, Weber DJ, and the Healthcare Infection Control Practices Advisory Committee. Guidelines for the disinfection and sterilization in healthcare facilities, 2008:1-158

Saskatchewan Oral Health Professions. (2019). *Infection Prevention and Control Standards in the Oral Health Care Facility*. Available at: https://sdha.ca/wp-content/uploads/2020/09/SOHP-IPCSOHF-6-1-2019-1.pdf

Schneider, P. M., Reich, R. R., Kirckof, S. S., & Foltz, W. G. (2005). Performance of various steam sterilization indicators. *American Journal of Infection Control, 33(*5), Sup. 2, pp. S55-S67

Sikora A, Zahra F. *Nosocomial Infections*. [Updated 2022 Jul 4]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2022 Jan-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK559312/

The College of Dental Surgeons of Saskatchewan. (2019). Infection Prevention and Control Standards in the Oral Health Care Facility.

The Organization for Safety, Asepsis and Prevention (OSAP), Instrument Processing — Frequently Asked Questions. Available at: https://www.osap.org/instrument-processing

U.S. Food and Drug Administration. Dental Unit Waterlines. Available at: https://www.fda.gov/medical-devices/dental-devices/dental-unit-waterlines

World Health Organization. (April 7, 2014) Infection prevention and control of epidemic-and pandemic prone acute respiratory infections in health care. Available at: https://www.who.int/publications/i/item/infection-prevention-and-control-of-epidemic-and-pandemic-prone-acute-respiratory-infections-in-health-care