Infection Prevention and Control Policy & Procedures For Registered Dental Hygienists Practicing in a Clinical Setting

NEWFOUNDLAND & LABRADOR
COLLEGE OF
DENTAL HYGIENISTS INC.

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This document was put together with information from Infection Prevention and Control Guidelines of other Canadian provincial dental hygiene colleges.

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Introduction

Background

The major goal of an infection prevention and control program (IPC) is to prevent the transfer of pathogens between contaminated items and individuals. Registered Dental Hygienists have a professional duty to cause no harm to their clients, and to provide a safe working environment for all Registered Dental Hygienists and other personnel working in or visiting the clinic. Due to the biologic nature of the oral cavity, as well as the nature of dental and oral health care, transmission of infectious diseases before, during or after dental and oral health care is possible.

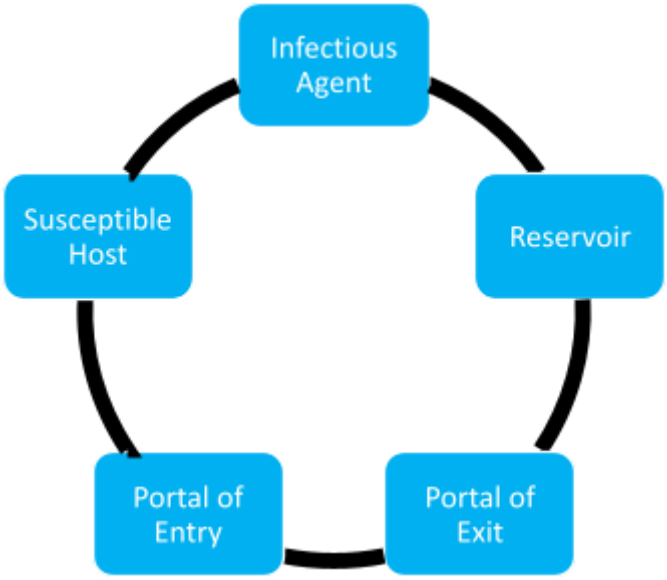
All Registered Dental Hygienists have an obligation to ensure that infection prevention and control procedures by the NLCDH are adhered to. All dental hygienists must maintain current knowledge of infection prevention and to apply them.

Transmission of Microorganisms

In order to transmit an organism or infection, three elements must be present:

1. A microorganism
2. A susceptible host
3. A way for the microorganism to be transmitted

Understanding the modes of transmission of infection is necessary for designing and implementing effective infection prevention and control strategies. Dental clients and Registered Dental Hygienists can be exposed to pathogenic microorganisms, including viruses (e.g., HBV, HCV, HIV, human herpes viruses, human papillomavirus), bacteria (e.g., Mycobacterium tuberculosis, staphylococci, streptococci) and other microbes that colonize or infect the oral cavity and respiratory tract.



In the dental clinic, the main modes of transmission of microorganisms are:

- direct transmission – direct physical contact with blood, oral fluids, or other materials
- indirect transmission – contact with an intermediate contaminated object, such as a dental instrument, equipment, or an environmental surface
- droplet – contact of oral, nasal, or conjunctival mucosa with droplets, spatter or spray containing microorganisms generated from an infected person, such as by coughing, sneezing or talking

- aerosol – particles of respirable size (<10um) generated by both humans and environmental sources that can remain viable and airborne for extended periods in the indoor environment. In dentistry, aerosols are commonly generated by the use of handpieces, ultrasonic scalers and air/water syringes.

The risk of infection as a result of a dental procedure is extremely low, but it represents an important client safety consideration. By understanding how diseases are transmitted, and applying infection prevention and control principles, Registered Dental Hygienists can develop strategies to interrupt the transmission of microorganisms among clients and Registered Dental Hygienists, and from dental instruments, handpieces, devices, and equipment.

Facility Manual Requirements

Oral health care settings should have a written infection prevention and control manual specific to the requirements of the facility. **A Registered Dental Hygienist must be aware of the requirements outlined in the facility manual document and adhere to and understand how it differs from the requirements set by the NLCDH. This Facility Manual may be developed using the current IPC Standards as a reference. If it is not, it is the Registered Dental Hygienist's responsibility to understand where they must exceed the Facility Manual to meet the policies of their profession.**

It is recommended that Facility Manuals be reviewed, dated, and signed annually by all employees of the facility.

The Facility Manual should include the following elements:

- Policies that describe routine practices for all oral health care procedures within the facility.
- Identification of an IPC Officer (any oral health care professional) assigned to create, maintain, coordinate, and evaluate the infection prevention and control policies. The Officer's duties include the education of oral health care professionals and other personnel regarding the principles of infection prevention and control, identifying work-related infection risks, instituting preventive measures, and ensuring prompt exposure management and medical follow-up.
- IPC standards in the Facility Manual describe the policies used during the pre-treatment, treatment and post-treatment periods of client care respectively. Daily, weekly, and monthly routines should be outlined as well.
- Policies should include, but are not limited to, a record of immunization of staff, all local and provincial guidelines, as well as a record of all exposures to infectious agents, and the actions taken in accordance with Health Information Protection Act (HIPA) Regulations.
- Guidelines for education and training (documented in employee file).
- Exposure prevention and post-exposure management.
- Location of first aid kit and eye wash station.
- Facility protocol regarding medical conditions, work-related illness, and associated work restrictions.

- Facility protocol regarding contact dermatitis and latex hypersensitivity.
- Documentation of sterilizer monitoring (dated and signed by sterilization monitor) and protocol in place for sterilizer malfunction.
- A record of infection prevention and control equipment maintenance. (ultrasonic instrument cleaners and heat sterilizers).
- The location of the Exposure Document

Oral Health Care Facilities must be aware of the Government of Newfoundland and Labrador Public Health guidelines and emergency protocols for infectious diseases.
https://www.gov.nl.ca/hcs/publichealth/

Key Principles

The following principles serve as a foundation for the Registered Dental Hygienist as they provide competent and safe care and services for their clients. These guidelines represent best practice with recognition that Registered Dental Hygienists may employ critical thinking in slowing or stopping the transmission of pathogens.

1. Registered Dental Hygienists have the obligation to their clients to establish and maintain practice environments that have IPC policies and procedures in place that are consistent with legal, ethical, and professional responsibilities that promote safety and respect.
2. Registered Dental Hygienists implement IPC measures to prevent the transmission of infectious agents between themselves, clients, and their environments.
3. Registered Dental Hygienists work collaboratively to create a culture of safety through the practice of specific policies and procedures that need to be implemented, monitored, and evaluated regularly to be effective.
4. Registered Dental Hygienists participate in a safe practice environment by following workplace policies and protocols to protect clients, themselves, and colleagues from illness and injury.
5. Registered Dental Hygienists protect clients by using appropriate methods to prevent transmission of infectious agents.
6. Registered Dental Hygienists apply appropriate techniques to break the chain of infection during clinical care.
7. Registered Dental Hygienists apply laboratory asepsis to prevent cross contamination when creating, transporting, and handling laboratory materials.
8. Registered Dental Hygienists implement the chain of instrument reprocessing using effective reprocessing techniques to provide clean, sterilized instruments for use in client care.
9. Registered Dental Hygienists are prepared to adapt their practice to address unforeseen events by following IPC principles and regulatory guidance.

1. Registered Dental Hygienist Responsibilities and Safety

Policy 1.1. Education & Training

IPC practices are improved when Registered Dental Hygienists and other personnel understand the reasons why the policies exist.

Registered Dental Hygienists and other personnel should receive IPC training as part of their practice orientation and whenever new tasks or procedures are introduced. Education and training should be appropriate to the assigned duties of specific personnel.

For Registered Dental Hygienists and other personnel who perform tasks or procedures likely to result in occupational exposure to infectious agents, their training should include:

- A description of each individual's exposure risks,
- A review of prevention strategies and infection-control policies and procedures,
- A discussion regarding how to manage work-related illness and injuries, including Post Exposure Prophylaxis, and
- A review of work restrictions for the exposure or infection as per facility manual.

Educational materials should be appropriate in content and vocabulary for each person's educational level, literacy, and language, as well as consistent with existing federal, provincial, and municipal regulations. All education and training courses must be documented for the Registered Dental Hygienists' records.

Policy 1.2. Evaluation

Program evaluation is an essential organizational practice. Evaluation offers an opportunity to improve the effectiveness of both the infection prevention and control programs and dental practice protocols. Such program evaluation should be practiced consistently across program areas and should be well integrated into the day-to-day management of the infection prevention and control program.

Policy 1.3. Immunizations

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

It is recommended that all Registered Dental Hygienists be adequately immunized against common diseases, such as:

- hepatitis B
- measles
- influenza (annual)
- diphtheria

- mumps
- rubella
- varicella
- pertussis
- tetanus (every 10 years)

Related Documents:

See the related procedures and forms in *Appendix A: Immunization*

- *Procedure 1.3.1. Hepatitis B Immunization*

Policy 1.4. Exposure Prevention

Exposure to blood through percutaneous injury, 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 contact with blood, any other body tissues or fluids should be of paramount importance in any infection prevention and control program.

Antimicrobial mouth rinses (chlorhexidine gluconate, essential oils, or povidone-iodine) may be used by a client prior to all non-surgical dental procedures. Such rinses are carried out to reduce the number of microorganisms that might be released from the client's mouth in the form of aerosols or spatter, and which can subsequently contaminate Registered Dental Hygienist and equipment operatory environmental surfaces.

Pre-procedural mouth rinses should be used for all surgical procedures to decrease the number of microorganisms introduced in the client's bloodstream during invasive dental procedures.

This procedure may not be practical for those clients 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 health care treatment.

Note: Ensure that non-alcohol containing products are used if alcohol is contra-indicated for that client.

Related Documents:

See the related procedures and forms in *Appendix B: Exposure Prevention Procedure*

- *Procedure 1.4.1. Exposure Prevention Measures*
- *Procedure 1.4.2. Sharps*

Policy 1.5. Exposure Management

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

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

- Percutaneous injury, where the skin of a Registered Dental Hygienist 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).
- Blood, saliva, or other body fluid is splashed onto mucosa of the eyes, the mouth or the nose.

Exposure to a client's blood or saliva on intact skin is not considered significant.

Provincial and municipal regulations must be followed when storing, transporting, and shipping a biopsy specimen.

Related Documents:

See the related procedures and forms in *Appendix C: Exposure Management Procedures and Forms*

- *Procedure 1.5.1. Exposure Management Protocol*
- *Procedure 1.5.2. Post Exposure Protocol*
- *Form 1.5. Exposure Document*

Policy 1.6. Hand Hygiene

Hand hygiene is the most important measure for preventing the transmission of pathogens and is often the weak link in an effective infection prevention and control 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.

Hand washing 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[1]. Hand hygiene using an alcohol hand-rub is an alternative option.

Note:

- Antimicrobial soaps are no longer recommended for routine hand hygiene.[2, 3]

[1] NL Resource: https://www.gov.nl.ca/hcs/publichealth/cdc/hygiene/
[2] https://www.cdc.gov/handwashing/faqs.html
[3] https://www.fda.gov/consumers/consumer-updates/antibacterial-soap-you-can-skip-it-use-plain-soap-and-water

- Alcohol-based hand rub (ABHR) is the preferred method to routinely decontaminate hands in clinical situations when hands are not visibly soiled
- Antimicrobial soaps are recommended for surgical procedures.

Related Documents:

See the related procedures and forms in *Appendix D: Hand Hygiene Procedures*

- *Procedure 1.6.1. Hand Washing*
- *Procedure 1.6.2. Hand Washing Using Alcohol-Based Hand Rubs*
- *Procedure 1.6.3. Hand Hygiene*
- *Procedure 1.6.4. Hand Hygiene Product Storage and Dispensing*

Policy 1.7. Personal Protective Equipment

Personal Protective Equipment (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. Wearing gloves, masks, protective eyewear, and protective clothing will reduce the risk of exposure to potentially infectious material.

- **Gloves**: Gloves are worn to protect the skin of the Registered Dental Hygienist's hands from contamination. Gloves do not replace the need for proper hand hygiene. The use of latex gloves is not recommended. Gloves are designed as single-use disposable items. Hands should not remain gloved for longer than 90 minutes
- **Masks**: The respiratory mucosa of all Registered Dental Hygienists 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 spatter of blood, saliva, or other body fluids. Mask selection must be applicable to the aerosol environment of the procedure being performed.
- **Protective Eyewear**: The conjunctival mucosa of a Registered Dental Hygienist should be protected from contact with potentially contaminated material by wearing protective eyewear during all dental procedures. All Registered Dental Hygienists should wear protective eyewear with solid side shields or a face shield during dental procedures that have the possibility of producing tooth or dental debris, aerosols, splashes, sprays or spatter of blood, saliva, or other body fluids. Prescription eyeglasses are not acceptable by themselves and should only be worn underneath face shields or other types of eye protection. Protective eyewear for clients should also be used to protect their eyes from spatter or debris created during dental procedures. Protective eyewear for the Registered Dental Hygienist and client should be washed, rinsed, and dried between clients according to manufacturer's recommendations. If the eyewear becomes visibly contaminated it should be cleaned and disinfected with an intermediate-level disinfectant. A fixed or portable eye-wash station should be available in the oral health care

facility, to aid in managing any chemical or body fluid splashes, sprays, or spills into the eyes of a Registered Dental Hygienist or client. Registered Dental Hygienists should be orientated as to the location, function, and indications for use of the eye-wash station. The eyewash station should be cleaned and checked regularly according to manufacturer's instructions to ensure proper water flow. Portable eye-wash devices must be checked for an expiry date on the solution.

- **Protective clothing**: The skin on the arms and chest of a Registered Dental Hygienist should be protected from contact with potentially contaminated material by wearing protective clothing during any dental procedure where splash or spray is anticipated.

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.

Appropriate work-practice controls will minimize the spread of droplets and aerosols. This includes, but not limited to the use of dental dams whenever possible and high-volume suction.

During a pandemic, a Registered Dental Hygienist must comply with respiratory requirements as outlined by current public health recommendations.

Related Documents

See *Appendix E: Personal Protective Equipment Procedures*

- *Procedure 1.7.1. Glove Usage*
- *Procedure 1.7.2. Mask Usage*
- *Procedure 1.7.3. Protective Clothing Requirements*

2. Environmental Infection Prevention and Control

Pathogens can be transferred to instruments, hands, nose, mouth, or eyes of Registered Dental Hygienists or clients.

Proper hand hygiene and the wearing of PPE is an essential part in minimizing such potential transferal. 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 Registered Dental Hygienist's hands, client-care items, or with a client, and have a minimal, but potential risk of infectious disease transmission. Examples would include operative surfaces, light handles, dental radiography equipment, drawer handles, and doorknobs.
- **Housekeeping Surfaces**: These surfaces have limited risk of disease transmission, unless they inadvertently come in direct contact with a Registered Dental Hygienist's hands, client-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.

Policy 2.1. Cleaning

Environmental surfaces should be cleaned with low level disinfectant between clients and Registered Dental Hygienists should use appropriate personal protective equipment when cleaning client areas.

If any waste is considered biomedical and hazardous, then the materials need to be disposed of following appropriate regulations outlined by the Workplace Hazardous Materials Information System (WHMIS).

Related Documents

See *Appendix F: Environmental Management*

- *Procedure 2.1.1. Housekeeping Surface Protocol*
- *Procedure 2.1.2. Clinical Contact Surface Protocol*
- *Procedure 2.1.3. Waste*
- *Procedure 2.1.4. Dental Waterlines*

3. Sterilization and Disinfection of client Care Items

Policy 3.1. Client Care Item Sterilization

Client care items must be sterilized to prevent cross-contamination and spread of infection in the dental setting.

Related Documents

See *Appendix G: Sterilization Procedures, Protocols, and Guidelines*

- *Procedure 3.1.1. Critical Item Processing*
- *Procedure 3.1.2. Semi-Critical Item Processing*
- *Procedure 3.1.3. Non-Critical Item Processing*
- *Procedure 3.1.4. Sterilization Monitoring*

- *Guideline 3.1.a. Intraoral Devices*
- *Guideline 3.1.b. Saliva Ejectors and Suction Lines*
- *Guideline 3.1.c. Dental Radiography Equipment*
- *Guideline 3.1.d. Digital Radiography Sensors and Intraoral Cameras*
- *Guideline 3.1.e. Lasers and Electro Surgery Equipment*
- *Guideline 3.1.f. Dental Laboratory Asepsis*
- *Guideline 3.1.g. Handling Biopsy Specimens*
- *Guideline 3.1.h. Single-Use or Disposable Devices*
- *Guideline 3.1.i. Safe Handling of Injectables*

4. Special Circumstances

Policy 4.1. Boil Water Advisory

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 client through the dental unit, ultrasonic scaler or other devices or equipment.
- Alternative water sources that are delivered through closed delivery systems can be used. Use water from an alternative approved source.
- If necessary, treatment delivery should be postponed.
- clients must not rinse their mouths with tap water; bottled or distilled water should 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 health care facility. If no guidance is provided, flush all waterlines for 1-5 minutes prior to using for client care. The dental unit waterlines in all dental units and equipment must be disinfected (shock system) according to the manufacturer’s instructions prior to use.

Policy 4.2. Pandemic Management

Pandemic, in medical terms, is a term used to describe a widespread epidemic of a disease that affects a large population (e.g., municipal, national, global). A pandemic is an international health concern and as such, international organizations and federal, provincial, and local governmental agencies will work together to provide maximum possible response to the posed threat.

Regulated health professionals, including Registered Dental Hygienists, provide services to a wide range of age groups, in private clinics, laboratories, medical facilities, nursing homes, assisted living accommodations, and individual homes. During a pandemic, Registered Dental Hygienists will possibly be at increased risk of exposure to the pathogen and subsequent infection. Further, these Registered Dental Hygienists will have the potential to exacerbate the pandemic through community transmission.

In the event of a pandemic, the NLCDH will work closely with applicable authorities to ensure that all people in Newfoundland and Labrador receive safe, effective, and ethical healthcare. In this, the NLCDH will develop and disseminate guidance documents specific to the area of practice and the pathogen eliciting the pandemic.

In order that appropriate authorities may contain the spread as much as possible, all community members have a role to play. As a regulated healthcare professional, the Registered Dental Hygienist has a greater responsibility by virtue of the nature of the work and the increased risk inherent within it. To be cautious, yet responsible for positive outcomes, the Registered Dental Hygienist considers the following factors.

Education

- All dental hygienists are required to be aware of any Chief Medical Officer of Health (CMOH) Orders which may influence who may work and when, depending on the nature of the pandemic and individual circumstances.
- All oral healthcare settings are expected to develop and implement policies and procedures specific to the setting's pandemic plan.
- For clarity on the information provided in this document, regulated members are encouraged to contact the NLCDH for accurate and current information

Occupational Health and Safety

The information contained in this document is not intended to exempt employers from existing occupational health and safety (OHS) requirements. Direct OHS questions related to the applicable legislation to the OHS Contact Centre online or by phone.[4]

Physical Environment

- Maintain adequate supply hand hygiene, cleaning products, and other supplies.
- Follow the manufacturer's instructions for use on difficult-to-clean items or consult with the IPC.
- Observe ministerial and public health orders and instructions given to manage the transmission within the work environment.

[4] https://www.gov.nl.ca/dgsnl/department/branches/divisions/ohs/

Appendices

Appendix A: Immunizations

Procedure 1.3.1. Hepatitis B Immunization

Registered Dental Hygienists are at increased risk of acquiring Hepatitis B because of their occupational setting. Therefore, all Registered Dental Hygienists should have been immunized against Hepatitis B. Most oral health care educational institutions have made Hepatitis B immunization mandatory.

Registered Dental Hygienists must be tested for the presence of adequate amounts of Hepatitis B surface antibody approximately 1-2 months following completion of the 3-dose vaccination series. Serologic testing should produce antibody levels of anti-HBs ≥10 mIU/mL.

Registered Dental Hygienists who do not develop an adequate antibody response (anti-HBs <10 mIU/mL) to the primary vaccine series must complete a second 3-dose vaccine series or be evaluated to determine if they are HBsAg-positive. Re-vaccinated persons must be re-tested for anti-HBs at the completion of the second vaccine series.

If an inadequate antibody response occurs following the second series of immunizations, testing for HBsAg should be performed. Persons who prove to be HBsAg-positive or HBeAg-positive should report to public health, consider counselling regarding HBV transmission and the need for medical evaluation.

Non-responders to vaccination who are HBsAg-negative should be considered susceptible to HBV infection and should be counselled regarding precautions to prevent HBV infection and the need to obtain Hepatitis B immunoglobulin (HBIg) prophylaxis for any known or probable parenteral exposure to HBsAg-positive blood.

Appendix B: Exposure Prevention Procedures

Procedure 1.4.1. Prevention Measures

The majority of exposures in an oral health-care facility may be preventable by using:

- **Routine Practices**, including hand hygiene, the use of PPE, including but not limited to the use of gloves, masks, protective eyewear or face shields, and protective clothing.
- **Engineering Controls**, which are technology-based designs for equipment, and devices intended to reduce percutaneous exposures. Examples include automated instrument washers and dental units designed to shield burs on handpieces.
- **Work-Practice Controls**, which are those facility practices established to reduce aerosols, handling, using, assembling, or cleaning contaminated sharp instruments, equipment or appliances, and to ensure the proper use of sharps containers. Sharps include, but are not limited to needles, scalers, laboratory knives, burs, explorers, endodontic files, and reamers. Work-practice controls may include, but are not limited to:
    - High volume evacuation must be used in a heavy aerosol environment for example with ultrasonic use and highspeed handpieces.
    - Avoiding or using extreme caution when passing sharps during four-handed dentistry.
    - Not passing needles between the Registered Dental Hygienist and other personnel during four handed dentistry.
    - Removing burs before removing the handpiece from the dental unit.
    - 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.
    - 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 changing the carpule and discarding.
    - Not manipulating or bending needles by hand or handling them so that they are not pointed towards any part of a Registered Dental Hygienist or other personnel's body.
    - 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.
    - When using one needle for multiple injections on the same client, the needle must be recapped between each use.

- Considering the use of one needle per injection to minimize risk of infection from needle stick.
- Using extreme caution when contaminated sharp instruments are passed between Registered Dental Hygienist or other personnel during four-handed dentistry.
- Keeping instruments organized on the work surface to reduce the risk of sharps injury.
- Using extreme caution whenever contaminated sharp instruments are processed for sterilization. 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.

Procedure 1.4.2. Sharps

Sharps refer to needles, syringes, lancets, auto injectors, infusion sets, connection needles/sets, scalpels, knives, scissors, razors blades, metal wire and glass. Essentially, any object that is able to cut or puncture the skin can be considered a “sharp”.

In addition to cuts and punctures, sharps injuries can introduce infectious diseases and chemicals (such as medications) into the body where they may have serious health effects.

WorkplaceNL provides guidance on how to safely work with sharps, including:

- Use protected needle devices or needle free systems, where practical
- Needles should never be reused. Used needles should be placed immediately into a sharps container easily accessible at the point-of-care
- Used sharps should never be thrown loosely into the trash
- Place used sharps in a container made specifically to hold used sharps, or a strong, plastic container—like an empty laundry detergent bottle – as long as it is properly labelled
- Replace sharps containers when they are ¾ full to avoid injuries resulting from overfilling
- Never recycle used sharps containers
- When using sharps protect yourself by covering damaged skin and protecting your eyes, nose and mouth from splash hazards

In the event of a sharps injury, seek first aid and report to your employer as soon as possible

Appendix C: Exposure Management Procedures and Forms

Procedure 1.5.1. Exposure Management Protocol

In the case of an exposure, all Registered Dental Hygienists must use the following exposure management protocol:

- Remove gloves or immediate clothing, if necessary, to assess the extent of the injury.
- Immediately allow the wound to bleed freely but do not squeeze it. Then wash the area, including the puncture or wound using soap and water. Exposed eye, mouth, or nose mucosa should be flushed with copious amounts of sterile water.
- Do not apply caustic agents such as bleach or inject antiseptic agents into the wound.
- Report the injury to the facility Infection Prevention and Control Officer. The officer should complete the Exposure Document (Form 1.5.) which the Registered Dental Hygienist takes to the appropriate emergency department of the designated health care facility. The Facility Manual should identify the location for the designated emergency department.
- The Registered Dental Hygienist must go immediately to the emergency department of the designated health care facility for treatment. If required, anti-retroviral drugs to treat an HIV exposure should be given within one to two hours after the exposure.
- Post Exposure Prophylaxis (PEP) kits are available throughout Newfoundland at emergency department locations.
- If possible, source client's serology test (HBsAg, HCVAb & HIV Ab) should be conducted with client's consent.

Related Documents:

- *Form 1.5. Exposure Document*

Procedure 1.5.1. Post Exposure Protocol

After an exposure incident, a Registered Dental Hygienist must follow this post-exposure protocol.

Post Exposure Prophylaxis (PEP) regimens will be determined by a qualified health care professional. Every significant exposure must be immediately evaluated to assess the potential to transmit an infectious disease. If the need to administer PEP is determined, it should be done within one to two hours after 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) in regard to the injury must be documented.
- Copies of all documentation must be retained in the employee's personnel file
- The employer must be advised of the incident and that exposure management protocols were followed.
- The oral health care facility must report the injury to Newfoundland & Labrador Workers Compensation Board within 5 days.

Further Consideration:

- An incident report will be completed within the provincial health authority.
- Follow-up counseling and post-exposure management may be required.

Form 1.5. Exposure Document

A Registered Dental Hygienist SHOULD HAVE A COPY OF THIS FORM IN THEIR RECORDS
A COPY OF THIS FORM SHOULD BE TAKEN TO THE HOSPITAL
A COPY SHOULD BE RETAINED IN THE EMPLOYEE'S PERSONNEL FILE

(NOTE: Confidentiality of this form MUST be ensured)

Name of Exposed Person: _____

Hepatitis B vaccination completed (mm/dd/yyyy): Post-vaccination titre: _____ mIU/mL

Date and time of Exposure: _____

Procedure being performed: _____

Where and how exposure occurred: _____

Did exposure involve a sharp device: ☐ Yes ☐ No

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: ☐ Yes ☐ No

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: ☐ Yes ☐ No ☐ Possible

Anti-retroviral therapy: ☐Yes ☐ No Viral load:

A Registered Dental Hygienist SHOULD HAVE A COPY OF THIS FORM IN THEIR RECORDS
(Follow Up Care Form should be printed on the backside of the Exposure Document)
A COPY OF THIS FORM SHOULD BE TAKEN TO THE HOSPITAL
A COPY SHOULD BE RETAINED IN THE EMPLOYEE'S PERSONNEL FILE

(NOTE: Confidentiality of this form MUST be ensured)

Follow-up care (describe in detail):

Date (mm/dd/yyyy)	Caregiver	Action Taken

Appendix D: Hand Hygiene Procedures

Procedure 1.6.1. Hand Washing

The hands of a Registered Dental Hygienist that come in direct contact with clients must be washed:

- At the beginning of the workday with two consecutive 20-second hand washes.
- Whenever hands are visibly soiled.
- Between clients, or when gloves are changed during an appointment.
- Before and after eating.
- After contact with environmental surfaces, instruments, or other equipment in the dental operatory.
- After contact with dental materials or equipment.
- 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.

Procedure 1.6.2. Hand Washing Using Alcohol-Based Hand Rub

Providing the hands are not visibly soiled, hand hygiene should be achieved using an alcohol hand-rub by dispensing two full pumps to one palm and rub together with the other. Sufficient product is required to remain in contact with the hands for a minimum of 20 seconds.,

Only medical grade (minimum 70% alcohol) commercial products specifically designed as an alcohol hand-rub should be used for hand hygiene. These products must have a Drug Identification number (DIN) or Natural Product Number (NPN) from Health Canada. Hands should be rubbed until dry as the alcohol can cause glove material degradation resulting in loss of glove integrity.

Procedure 1.6.3. Hand Hygiene

Hand care regimen: 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 alcohol-based hand rubs. 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 in order to thoroughly clean underneath 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 that are not removed by hand washing

Jewellery, including rings, arm bands, wrist bands, bracelets and watches should be avoided. They compromise hand hygiene, make donning gloves difficult, and can increase the chance of tearing gloves. As well, jewellery cannot be adequately decontaminated.

Procedure 1.6.4. Hand Hygiene Product Storage and Dispensing

Hand hygiene products must be used, stored, and dispensed according to the manufacturer's instructions. Liquid products should 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 should not be added to a partially empty dispenser or "topped up", due to the risk of bacterial contamination.

Appendix E: Personal Protective Equipment Procedures

Procedure 1.7.1. Glove Usage

Gloves should be stored in a cool dry location and never exposed to a heat source.

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

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

- **Client 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 client 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, Industrial or General 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 client care and should be puncture and chemical resistant. Utility gloves should be cleaned after each use. If utility gloves are shared, client examining gloves must be worn underneath. The integrity of gloves should 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, and changed after hand hygiene has been performed. Refer to manufacturer's instructions regarding possible sterilization.

Procedure 1.7.2. Mask Usage

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 should be followed.

- The Registered Dental Hygienist must ensure their mask is moulded over their nose, mouth and chin at all times, so that the Registered Dental Hygienist is breathing though the mask, and air is not bypassing around it. The mask should be either on or off; it should 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 Registered Dental Hygienist should avoid touching the mask itself.

- To prevent inhalation of small particles that may contain airborne infectious agents such as Mycobacterium tuberculosis, a particulate-filter respirator (N95, N99 or N100) should be worn. These respirators will filter 1-µm particles in the unloaded state with a filter efficiency of greater than 95% (filter leakage <5%), given flow rates of <50 L/min, which is an approximate maximum

airflow rate during breathing. Only respirators specifically designed for this purpose should be used. When respiratory infection precautions are necessary, these respirators should be used in the context of a complete respiratory protection program. Such a program should include training and fit testing of the respirator to ensure an adequate seal between the edges of the respirator and the Registered Dental Hygienist's face. Expiry dates for respirators must be observed.

- The mask should be changed between clients or more often if it becomes contaminated or wet during the procedure or from the Registered Dental Hygienist's 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.
- In a non-aerosol/cohort environment, masks may be worn for multiple clients as long as the masks are not touched by contaminated gloves, (or other source of contamination).

Procedure 1.7.3. Protective Clothing Requirements

- Long-sleeve protective clothing, extending to the wrists, is ideal.
- Short-sleeve protective clothing is acceptable, as long as there are no breaks in the skin integrity on the arms of the Registered Dental Hygienist.
- If the arms are not protected, hand hygiene protocols should extend up the arms, past the wrists towards the elbows.
- Gowns and lab-coats worn over normal protective clothing become protective clothing and must be treated as such.
- The protective clothing must be changed daily or changed as soon as possible if it becomes visibly soiled.
- Protective clothing should be donned before entering the work area and removed before leaving the work area.
- Protective clothing must not be worn outside the clinic.
- Protective clothing should be washed daily in a normal wash cycle, or professionally cleaned. Household bleach is an acceptable form of disinfection for laundering protective clothing.
- Clinic shoes should be closed toe and should not be worn outside the clinic.
- Registered Dental Hygienists must confine hair. Long hair must be tied back so it does not fall to the front of the shoulders. Head wear must be treated as clinical attire.

Appendix F: Environmental Management

Procedure 2.1.1. Housekeeping Surface Protocol

Although housekeeping surfaces, such as floors, walls, and sinks, have a limited risk of disease transmission in dental health care settings, frequent cleaning with diluted detergents or household low-level disinfectants is required. The use of a bleach diluted 1:50 or use of an accelerated hydrogen peroxide solution is recommended.

If the surface becomes contaminated with blood, saliva or other bodily fluids, the surface must be cleaned and then disinfected with an intermediate-level disinfectant. Blood spills or splashes, saliva or other bodily fluids must be contained and managed as quickly as possible to reduce the risk of contact by clients and the Registered Dental Hygienist. The Registered Dental Hygienist and other personnel should wear appropriate PPE. Visible organic material should be removed with absorbent material (disposable paper towels discarded in a leak-proof container). Non-porous surfaces should be cleaned and then disinfected with an intermediate-level disinfectant. 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.

Floors should be clean, and spills must be quickly cleaned up. 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.

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 are available and should be used to avoid spreading contamination.

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

Carpeting and cloth furnishings are difficult to clean and cannot be reliably disinfected. Carpeting and cloth furnishings must not be used in client care areas.

Mechanical rooms should also be kept extremely clean and outside air supply systems should be considered.

Best practice for housekeeping surface cleaning is outlined in the below table.

Area	Timing
Floors	Cleaned daily or more frequently if visibly soiled Immediately if there is a spill
Walls, blinds, and window coverings in client-care areas	When visibly dusty or soiled Regularly scheduled cleaning
Public areas	Daily or more frequently if visibly soiled

Procedure 2.1.2. Clinical Contact Surface Protocol

Clinical contact surfaces should be protected to avoid cross-contamination. Surface protection is accomplished by either:

- Cleaning and disinfecting with an intermediate-level disinfectant, or
- Using surface barriers

Surface cleaning and disinfection

All clinical contact surfaces that have been contaminated or may have been contaminated must be cleaned and disinfected between clients and at the end of the workday using an intermediate-level disinfectant. Registered Dental Hygienists must wear appropriate PPE while cleaning and disinfecting clinical contact surfaces.

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.

Applications of cleaning chemicals by aerosol or trigger spray bottles may cause eye injuries or induce or compound respiratory problems or illness. In accordance with best practices, apply cleaning chemicals to a wipe before using.

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, the Registered Dental Hygienist should ensure that they are 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 client care. While gloved, surface barriers should be carefully removed and discarded between clients. Following removal of the surface barrier, the clinical contact surface should be examined to ensure it did not become inadvertently contaminated. If contaminated, the surface should be cleaned and disinfected with an intermediate-level disinfectant.

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

Best practice for clinical contact surfaces cleaning is outlined in the below table.

Area	Timing
client treatment area	Beginning of day After each client End of day
Laboratory space	Beginning of day After each client's appliance / case End of day
Shipping / receiving, cleaning and decontamination area for incoming/outgoing cases	Immediately after decontamination of each case If visibly soiled
Sterilization area	Beginning of day If visibly soiled End of day

Procedure 2.1.3. Waste

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

BIomedical 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 (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)
- Contaminated sharp items (needles, scalpel blades, burs, wires)

Any item 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 infectious. However in Newfoundland and Labrador:

- Blood-soaked materials must be separated and collected in a sealed yellow hazard bag marked biomedical waste.
- Gloves, gauze, etc. that come in contact with blood can go in office waste. Blood soaked gauze that releases blood when compressed must go to biomedical waste.

Non-sharp medical waste should be placed in a sturdy, leak-resistant bag. Local regulations may require that this bag is labelled as "bio-hazardous" 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 should be securely closed for transportation and disposal.

Sharp medical waste must be placed in biohazard puncture resistant containers, located at the point of use or located as close as feasible to where the items were used.

Oral health care facilities should dispose of general and medical waste daily to avoid accumulation. Every oral health care facility should have a plan for management of medical waste that complies with local provincial and municipal regulations to ensure health and environmental safety.

All containers with blood or saliva (suctioned fluids) may be safely poured into a utility sink, drain or toilet, which drains into a sanitary sewer system or septic tank. A Registered Dental Hygienist should wear appropriate PPE during this task.

Procedure 2.1.4. Dental Waterlines

Dental unit waterlines (DUW) (narrow-bore plastic tubing that carries water to handpieces, air/water syringe and ultrasonic scaler) can become heavily colonized with waterborne microorganisms, including bacteria, fungi, and protozoa; which form a biofilm on the interior surface of the waterline. However, DUW are not a supportive environment for bacteria commonly found in the oral cavity.

High numbers of these opportunistic microorganisms are not necessarily dangerous to the general population, unless the Registered Dental Hygienist or client is a susceptible host. Susceptible hosts would include Registered Dental Hygienists or clients that are immunocompromised, or have cystic fibrosis, chronic bronchitis or bronchiectasis.

Sterile water or sterile saline must be used when irrigating open vascular sites and whenever bone is cut during invasive surgical procedures. 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. 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.

The Registered Dental Hygienist should be aware of which staff member has been delegated the duty of monitoring the waterlines. Water can be tested in a clinic or sent to a lab. It is advisable to check with the manufacturer on which product is the best cleaning agent for the dental system.

The following protocol is recommended to lower chances of contamination in the waterline system:

- use of anti-retraction valves in low/high volume suctions
- purging air/water (a/w) syringe and the ultrasonic for at least 20-30 seconds between client's treatment
- purging water (without tips attached) in the beginning of day ~2-5 minutes
- regular monitoring of water quality

- Suctioning water through the suction line for 20 seconds between clients with water or antimicrobial solution

These procedures are as follows:

All Water Systems

- Waterline heaters must not be used in a dental unit or in dental equipment, as these heaters encourage waterline microorganism growth.
- 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. Refer to manufacturer's instructions relative to your specific system.
- After treatment, handpieces and air/water syringes must be run for 20 seconds in order to flush all potentially contaminated air and water.

Municipal Water System

- Must be flushed at the beginning of each workday by running the lines for 2 minutes using bottled or distilled water. This flushing should be done with handpieces, air/water syringe tips and ultrasonic tips not attached to the waterlines.

Closed Water System

- Must have clean hands/gloves when changing the water bottle ensuring to not touch the tubing, as contaminated hands/gloves can easily contaminate the entire system.
- A variety of products are available that effectively maintain clean dental unit waterlines in closed water systems. Manufacturer's instructions must be followed.

Appendix G: Sterilization Procedures, Protocols, and Guidelines

Procedure 3.1.1. Critical Item Processing

Reusable client-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.

Critical client care items include instruments that penetrate soft tissue, contact bone, enter into or contact the bloodstream or other sterile or non-sterile body tissue. Examples of critical items include surgical instruments, periodontal scalers, dental burs, dental dam clamps, endodontic files, and dental implant drills.

Registered Dental Hygienists 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. Work-practice controls must be used when processing critical items. Registered Dental Hygienists and other personnel should wear masks, glasses and utility gloves as aerosols may be released when hand scrubbing. PPE should be worn during instrument decontamination to avoid exposure from splashing.

Critical items must be sterilized by heat to prevent cross-contamination and the spread of infection in the dental setting.

Sterilization is a complex process requiring specialized equipment, adequate space, 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:

1. disassembly and sorting,
2. cleaning,
3. rinsing,
4. drying,
5. inspection,
6. corrosion reduction,
7. packaging,
8. sterilization,
9. cooling,
10. drying,
11. storage and
12. delivery

These steps must be followed to ensure that all instruments are adequately processed and safe for reuse on clients.

The goal of sterilization is to break the chain of infection and eliminate the potential for client to client transmission.

Operatory Clean-up: Contaminated instruments must be handled carefully to prevent exposure to sharp instruments that can cause a percutaneous injury. 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 client should be handled with puncture-resistant utility gloves during operatory clean-up.

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.

Instrument Processing Area: A designated instrument processing area or a separate room must be constructed in the oral health care facility. This central processing area should be one directional and have clear sections for:

- Receiving, cleaning, and decontamination
- Preparation and packaging
- Sterilization
- 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, provided the Registered Dental Hygienist or other personnel processing the instruments are trained in work practices to prevent contamination of clean areas. Space should be adequate for the volume of work anticipated and the items to be stored.

Cleaning: Instruments must be cleaned immediately after use. If cleaning is not possible then the use of an enzymatic product is recommended. 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 hand 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 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 and removal forceps is an alternative. Instruments are post-rinsed to remove chemical residue, taking care to minimize splashing. Solutions must be changed daily or sooner if there is visible bioburden. Foil test monthly, or sooner if instruments do not appear clean.
- Hand scrubbing: When hand scrubbing instruments, utility gloves should be used along with running water to help contain aerosols. 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. The Registered Dental Hygienist should make every effort to rinse away or remove biological debris, disinfecting solutions, chloride solutions and highly alkaline detergents before heat-processing instruments. These substances can cause pitting or staining of metal surfaces. Manufacturer's instructions should be consulted to correctly process possible non-compatible metals. (For example: 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 processing. Cleaned instruments should be inspected and placed into cassettes, wrapped, or packaged for sterilization. Packaging and wrapping materials designed for sterilization must be used according to manufacturer's instructions. An external and separate internal chemical indicator must be used with every instrument package. The Registered Dental Hygienist and other personnel should refer to the manufacturer's instructions regarding use and correct placement of chemical indicators.

Loading the Sterilizer Chamber:

Each sterilizer load must include a Class 5 Chemical Integrating Indicator.

- Items must be placed in the sterilizer according to the manufacturer's instructions.
- The chamber should not be overloaded; adequate space must be allowed between items.
- Bagged items should be placed on trays with the paper side facing up.
- The trays should not be overloaded; items should be spread in a single layer.
- Hinged instruments should be sterilized in the open and unlocked position (eg. forceps)
- Packages and cassettes must be fully dried prior to placement in the sterilizer.
- The sterilization of sharpening stones/cards must follow the manufacturer's instructions.

Sterilization: Heat-tolerant dental instruments are sterilized in an oral health care facility using:

- Steam under pressure (autoclaving)
- Dry heat

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

The use of chemical vapour IS NOT an acceptable method of sterilization.

All sterilization must be performed using medical sterilization equipment specifically designed for the sterilization of instruments. Sterilization times, temperatures and other operating parameters must be used as recommended by the specific manufacturer of the equipment used. Instructions regarding the correct use of containers, wraps, placement and type of chemical or biological indicators must be followed as recommended by the specific manufacturer of the equipment used.

Items must be arranged in the sterilizer in such a way as to permit free circulation of the sterilizing agent (steam, dry heat). The manufacturer's instructions for loading the sterilizer regarding capacity and arrangements of the instruments or packs within the sterilizer chamber must be followed**.** 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 on the product wrapping upon removal from the sterilizer.

The sterilizer manufacturer should be consulted regarding selection and use of chemical and biological indicators.

“Liquid chemical disinfectants” must not be used to sterilize critical instruments in dentistry, because their effectiveness cannot be verified with biological monitors.

Instrument cassettes or trays containing sterilized instruments must remain in sterilization packaging to maintain sterility during storage. Packaging materials must be specifically designed for the type of sterilization process utilized by the facility.

Flash Sterilization: Is a process in which items are sterilized unwrapped in porous trays. The time to sterilize ranges from 3-10 minutes according to the manufacturer’s recommendations. This process presents a compromise due to the fact that the sterility of the unwrapped instruments is defeated upon removal from the sterilizer. Instruments processed by flash sterilization must be used immediately upon removal from the sterilizer. This process must be limited to emergency sterilization only.

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. If they are not used immediately, they must be reprocessed in the automated washer, sterilized and stored for future use.

Storage: 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 client.

Procedure 3.1.2. Semi-Critical Item Processing

Reusable client-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.

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 client care items in dentistry are heat-tolerant; all heat-tolerant semi-critical items must be sterilized (see Procedure 3.1.1.).

“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.

Single-use items are those which cannot reliably be cleaned, disinfected, or sterilized. These items are stored in an enclosed space, such as closed or covered cabinets (but not under sinks). They may also be labelled:

- disposable
- consumable
- not for re-use or do not reuse
- discard after a single use
- do not use twice

Procedure 3.1.3. Non-Critical Item Processing

Reusable client-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.

Non-critical client-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 client care items should be cleaned, or, if contaminated, cleaned and then disinfected with an intermediate-level disinfectant (e.g., chlorine based products, 0.5% accelerated hydrogen peroxide, 3% hydrogen peroxide, 60-95% alcohols, iodophors, phenolics, and quaternary ammonium compounds). 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.

Procedure 3.1.4. Sterilization Monitoring

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

Quality assurance for reusable instruments: All sterilized packages, cassettes and instruments should be inspected prior to client use. Inspect for:

- package integrity (no rips, tears, or holes)
- packaging must be dry

- external process indicator has changed colour
- internal process indicator has changed colour
- instruments are free of debris

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

The daily operation of every sterilizer must be reviewed and documented. These records will show any malfunctions and follow up work. A record of this must be kept for 3 years to show sterilization is occurring every time.

Protocol 3.1.4.1. Mechanical Monitoring 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.

Protocol 3.1.4.2. Chemical Monitoring Indicators

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.

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.

Protocol 3.1.4.3. 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 client-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 a Registered Dental Hygienist. A control biological indicator must be run each day 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 the practice owner.

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

Monitoring Processes: Each day oral health care 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.

- Each sterilization cycle must contain one class 5 chemical integrating indicator which has been inserted in a sterilization package.

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 instruments, bone grafting or ridge preservation instruments including instruments 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 health care facility must be able to identify all sterilization packages since the last confirmed negative test and then reprocess all of these 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. All records of chemical and mechanical monitoring since the last negative biological indicator test must be reviewed.

The stamping of sterilization packages with the date, time and sterilizer used will allow this identification process to be more efficient.

The sterilizer operating procedures must be IMMEDIATELY reviewed, including packaging, loading and spore testing, with all Registered Dental Hygienists 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 in regard to the item

The sterilizer must be IMMEDIATELY removed from service. A second monitored sterilizer in the oral health care 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 should be recalled, re-wrapped, and re-sterilized.

Guideline 3.1.a. Intraoral Devices

Some devices or equipment will touch mucous membranes such as ultrasonic instruments, prophy angles, and air/water syringes. These devices can become contaminated by retracting oral fluid into their internal compartments. Therefore, these devices should be activated to discharge air and water for 30 seconds after client use. Any device attached to air or waterline must be sterilized after use. Some instrument components are permanently attached to dental units and should have a barrier placed over it and changed with each client. These include over buttons on air/water (a/w) syringe, lever on suctions, and the prophy handpiece. Since barriers are hard to remove without contaminating the attachment, it should be disinfected with low level disinfectant and recovered.

Guideline 3.1.b. Saliva Ejectors and Suction Lines

Backflow in low-volume suction lines can occur when a seal around the saliva ejector is created (by the client closing their lips around the tip of the ejector, creating a partial vacuum). Such backflow can result in microorganisms from the suction lines to be retracted from or into the client's mouth and a potential source of cross-contamination.

Registered Dental Hygienists should not allow clients to close lips around saliva ejector as it makes a partial vacuum and can cause backflow.

Suction lines must be purged with water or an appropriate cleaning solution between clients 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 and accomplish the required 20 second flush of the a/w syringe

Once a week, all suction lines must be flushed out with an enzymatic cleaner or solution

Guideline 3.1.c. Dental Radiography Equipment

Gloves and other PPE must be worn when taking radiographs and handling contaminated PSP (phosphor storage plates) or sensors/film packets. Heat-tolerant versions of intraoral radiograph accessories are available and these semi-critical items (film-holding and positioning devices) must be heat sterilized between client use.

Radiography equipment (radiograph tube head and control panel) that have come into contact with Registered Dental Hygienist’s gloved hands or contaminated PSP or sensors/film packets should be cleaned and disinfected after each client use or should be protected with surface barriers that are changed after each client use.

After exposure of the radiograph and before glove removal, the film packet must be disinfected using an intermediate-level disinfectant. Alternatively, the contaminated film packets may be opened using gloved hands, the film dropped onto a clean surface without touching and the empty packets disposed of in an area where cross-contamination is not possible. The gloves should then be removed, and the film processed.

Film barrier pouches may alternately be used. The film packets should 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 a clean surface. The gloves should then be removed, and the PSP scanned according to manufacturers' instructions.

Care must be taken to avoid contamination of the developing equipment. Surface barriers could be used. Any surfaces that become contaminated should be cleaned and disinfected using an intermediate-level disinfectant.

Guideline 3.1.d. Digital Radiography Sensors and Intraoral Cameras

Phosphor storage plates (PSP), sensors and other associated instruments (intraoral camera, electronic periodontal probe, occlusal analyzers and lasers) must be covered with a surface barrier prior to client use. The device should be carefully inspected following removal of the surface barrier, and if contaminated, must be cleaned and disinfected prior to next client use. Manufacturer instructions regarding disinfection should be carefully followed.

Guideline 3.1.e. Lasers and Electro Surgery Equipment

The thermal destruction of tissue, during procedures that use a laser or electrosurgical unit, create a smoke by-product, which may contain viable microorganisms.

The electromagnetic energy transferred into the tissues, may release a heated plume that includes particles, gases (hydrogen cyanide, benzene, and formaldehyde), tissue debris, viruses, and offensive odours.

Registered Dental Hygienists should use work practice and engineering controls to avoid inhaling or otherwise coming in contact with laser and electrosurgical plumes and surgical smoke (check manufacturer's recommendations). These practices may include using:

- Routine Practices (high-filtration surgical masks and possibly face shields)
- 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

High volume evacuation systems should be used to improve the quality of the operating field.

Guideline 3.1.f. Dental Laboratory Asepsis

Dental prosthesis, appliances or impressions brought into the laboratory may be contaminated with microorganisms. All impressions, occlusal rims, prosthesis, face bow forks, or bite registrations should be thoroughly cleaned and rinsed of all debris before being handled in the on-site laboratory or sent to an off-site laboratory. “Wet” impressions or appliances should be placed in an impervious bag prior to transportation to an off-site laboratory.

Clinical materials and devices that are transported from an oral health care facility to an off-site laboratory must follow provincial and municipal regulations.

Manufacturers’ instructions should be consulted regarding the stability of specific materials during disinfection.

A separate receiving and disinfecting area should be established in the laboratory to reduce contamination. The 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 should be repeated.

Dental laboratory staff should wear appropriate PPE (mask, gloves, and protective eyewear) until cleaning and disinfection is completed.

If laboratory items (burs, polishing points, finishing wheels, pumice, or laboratory knives) are used on contaminated or potentially contaminated appliances, prosthesis, or other material, they should be heat sterilized, disinfected between clients, or discarded.

Heat-tolerant items used in the mouth (metal impression trays or face bow forks) must be cleaned and heat sterilized before being used on another client. Items that do not normally contact the client, prosthetic device, or appliance, but frequently become contaminated and cannot withstand heat sterilization (articulators, case pans or lathes) should be cleaned and disinfected between clients, according to the manufacturer's instructions. Pressure pots and water baths should be cleaned and disinfected between clients. Environmental surfaces should be barrier-protected or cleaned and disinfected in the same manner as in the dental treatment area.

Waste generated in the dental laboratory (disposable trays or impression materials) may be discarded with general waste unless municipal bylaws indicate otherwise. Dental laboratory staff should dispose of sharp items (burs, disposable blades, and orthodontic wires) in puncture-resistant containers.

Appliances and prosthesis delivered to the client should be free of contamination. If the dental laboratory staff provides the disinfection, an intermediate-level disinfectant should be used and the item placed in a tamper-evident container before returning the item to the oral health care facility. If such documentation is not provided, the oral health care facility should provide final disinfection procedures.

Denture Polishing Area: A separate polishing area must be established for new dentures (never been inserted into the oral cavity) and existing dentures (has been previously inserted into the oral cavity). If a two-sided polishing lathe is used for this procedure, a suction or closed vacuum must be used to consider the two sides separate. If no suction or vacuum exists, a separate polishing area with a different

lathe is required. The use of eye protection, masks and gowns is advised when polishing as the aerosols produced can be harmful and/or contain pathogens.

- New Denture: a denture that has not yet been inserted into the oral cavity. All polishing cones, buffs and wheels should be sterilized weekly. The pumice pan should be emptied, washed, and disinfected weekly as well. The pumice should be wet with a low-level disinfectant solution that has an efficacy duration matching or exceeding the period between changing of the pumice.
- Existing Denture: a denture that has been inserted in the mouth including post insertion adjustments on new dentures and post processing polishing or relined dentures must be disinfected prior to being brought into the polishing area. Polishing cones, buffs and wheels must be sterilized after each client use. They must remain dry and bagged until the point of next use. The pumice should be wet with a low-level disinfectant and it should be discarded after each client use. The pumice pan should be washed and disinfected as well.

Guideline 3.1.g. Handling Biopsy Specimens

Biopsy specimens must be placed in a sturdy, leak-proof container with a secure lid for transportation. The Registered Dental Hygienist should take care when collecting the specimen to avoid contaminating the outside of the container. If the outside of the container becomes or is suspected to be contaminated, it should be cleaned and disinfected and placed in an impervious bag prior to transportation.

Provincial and municipal regulations must be followed when storing, transporting, and shipping a biopsy specimen.

Guideline 3.1.h. Single Use or Disposable Devices

A single-use (disposable) device is designed to be used on one client and then discarded, not re-processed for use on another client. Examples of single-use or disposable devices include syringe needles, single-use burs, single-use endo files, prophylaxis cups and brushes and orthodontic brackets.

Implantable devices must be considered single use and not reused in other clients.

Single-use devices in dentistry are usually not heat-tolerant and cannot be sterilized. Certain items (prophylaxis angles, saliva ejector tips, high-volume evacuator tips, and air/water syringe tips) are commonly available in a disposable form and must be disposed of appropriately after use.

Guideline 3.1.i. Safe Handling of Injectables

The transmission of blood-borne viruses and other microbial pathogens to clients 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 clean surface.
- Use aseptic technique in all aspects of parenteral drug administration, drug vial use, and injections. Limit access to select trained individuals, if possible.
- Never administer a drug from the same syringe to more than one client, even if the needle is changed between clients.
- 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 to prevent contamination. Once set up, an administration set should be covered.
- Do not use IV solution bags as a common source of supply for multiple clients.

Single Dose Vials

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

- Do not reuse single dose vials. Enter the vial once and immediately discard after use.
- Always use a sterile syringe and needle/cannula when entering a vial. Never enter a vial with a syringe or needle/cannula that has been used on a client.
- Never combine or pool the leftover contents of single dose vials.
- A syringe for the administration of a local anesthetic must only be prepared at the time of use.

Multidose Vials

Any error in following protocols for the correct use of multidose 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 multidose vials.

The use of multidose vials for injectable drugs increases the risk of transmission of blood-borne pathogens and bacterial contamination of the vial and should be avoided. Client safety should be prioritized over cost when choosing between multidose and single dose vials.

If multidose vials are used, the following practices must be followed each time the multidose vial is used:

- 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 multidose vial for a single client whenever possible and mark the vial with the client's name.
- Mark the multidose vial with the date it was first used and ensure that it is discarded at the appropriate time.
- Adhere to aseptic technique when accessing multidose vials. Multidose vials should be accessed on a surface that is clean and where no dirty, used or potentially contaminated equipment is

placed or stored. Scrub the access diaphragm of vials using friction and 70% alcohol. Allow to dry before inserting a new needle and new syringe into the vial.

- Discard the multidose vial immediately if sterility is questioned or compromised or if the vial is not marked with the client's name and original entry date.
- Review the product leaflet for recommended duration of use after entry of the multidose vial. Discard opened multidose vials according to the manufacturer's instructions or within 28 days, whichever is shorter.