

Infection Control



Standards of Practice for Chiropodists and Podiatrists

I. INTRODUCTION

Infection control is considered an integral part of patient care. Concerns regarding the possible spread of blood-borne diseases have prompted practitioners to reassess and update their infection control measures.

The College of Chiropodists of Ontario has revised its infection control standards to meet the needs of the profession and to provide the public of Ontario with safe foot care.

II. BACKGROUND TO INFECTION CONTROL

The infectious disease process involves three essential components: (1) a susceptible host, (2) a causative agent, and (3) a portal of entry. By eliminating any one of these components, an infection cannot occur. This principle forms the foundation of an acceptable infection control strategy.

The member and staff shall endeavour to prevent the transmission of microorganisms from patient to patient, patient to member, and member to patient.

Inherent in any infection control strategy are two significant concepts:

- (i) Routine Practices, and
- (ii) Risk Assessment.

(i) Routine Practices

These are a set of risk reduction measures for healthcare workers to use whenever they encounter blood or other body fluids. Routine practices must be applied to all procedures because of the possibility of encountering body fluids.

The concept of routine practices also relates to the proper handling of sharps and the use of equipment as personal protection. It is based on the principle that medical histories and physical examinations cannot reliably identify all carriers of blood-borne diseases. Therefore, foot care providers must treat all patients as infective and apply appropriate infection control measures universally to all patients.

(ii) Risk Assessment

Important to the development of any infection control plan is the understanding that not all procedures carry the same risk of disease transmission, and hence, may not require the same degree of personal protective equipment. Personal protective equipment used for this purpose are gloves, masks, protective eyewear, and clinical attire.

Blood is the most important transmitter of disease. Therefore, procedures involving blood, bloody body fluids, and non-intact tissues require maximum protection. On the other hand, procedures involving no anticipated exposure may not need these stringent barrier precautions.

Practitioners must evaluate the task and type of exposure expected for each treatment situation prior to choosing the appropriate personal protective equipment precautions to implement.

For the purpose of risk assessment, tasks may be categorized as follows:

Task Level	Exposure Type	Personal Barrier Precautions
1 Surgical	Involves the exposure to blood, blood-contaminated fluid or non-intact tissue.	Maximum necessary
2 Routine	May involve the exposure to blood, blood-contaminated fluid or non-intact tissue.	Moderate
3 Other (e.g. consultations)	Involves no exposure to blood, body fluids or tissue	None required

Additional factors to consider when making decisions about which personal protective equipment to implement include:

- Immunization and the health status of the provider
- Hazards inherent in the procedure itself
- State of the practitioner's skin¹
- Skill of the operator
- Level of cooperativeness of the patient
- Type of practice situation
- Physical setting (e.g. crowded room)

¹ Intact skin of the hands is an important barrier against the invasion of microorganisms. It is imperative that providers examine their hands routinely for the presence of lesions or breaks in the skin. If either of these conditions exists, gloves must be worn when providing any service regardless of the risks associated with the task. This protects both the practitioner and the patient from cross infection.

As practice circumstances become more adverse, the need for personal protective equipment becomes greater.

III. COMPONENTS OF AN INFECTION CONTROL STRATEGY

A well-designed infection control strategy will protect both patients and office personnel from cross infection. This will be accomplished by designing a strategy that includes the following important elements:

- Screening of all patients
- Patient preparation
- Immunization of all staff involved in foot care
- Hand washing
- Use of appropriate personal protective equipment (e.g. gloves, masks, eye protection, clinical attire)
- Elimination of infectious agents from instruments, and surfaces
- Use of sterile technique in preparing for surgery
- Proper handling of sharps
- Proper disposal of contaminated wastes.

Screening of all Patients

A thorough medical history and clinical examination should be taken at the initial patient appointment and updated at all recall visits. Screening may be used for modifying the infection control protocol, if necessary, when a patient is medically compromised. It is not used to discriminate against an infected individual by denying treatment or applying special and unnecessary infection control precautions.

Patient Preparation

All patients shall have their feet cleaned/ swabbed with an antiseptic before and after all routine procedures and before all surgical procedures.

Immunization

All staff involved with foot care should be adequately immunized against hepatitis B. Immunization reduces the risk of providers becoming infected and possibly transmitting their infections to patients.

As the spread of hepatitis B in the healthcare setting is of serious concern, the value of immunization to this disease cannot be overstated. Immune providers are not vectors in the transmission of hepatitis B.

Consequently, it is highly recommended that all foot care providers receive appropriate immunizations thereby protecting not only themselves, but their patients as well.

Hand-washing

Hands should be thoroughly washed using a soap solution and an appropriate hand-washing technique. An alcohol based hand rub (greater than 70% alcohol) can also be used.

This reduces the resident and transient microorganisms, which are capable of transmitting disease.

Hand-washing should occur before and after every patient contact before invasive procedures and after contact with body fluids (the four moments for hand hygiene).

The member shall scrub using a brush or sponge with an antimicrobial soap before commencing a surgery.

The skin of the hands is also an important barrier for the provider as it protects against the invasion of microorganisms. Therefore, care should be taken to prevent damage to the skin by using appropriate hand-washing

techniques, by using moisturizing lotion and by washing the hands before and after donning protective gloves.

Use of Personal Protective Equipment

Personal protective equipment is used to isolate the provider from contact with blood and other body fluids. The equipment includes gloves, masks, protective eyewear, and clinical attire. Just as gloves are essential when contact with blood and body fluids is anticipated, masks, protective eyewear, and clinical attire provide maximum protection during treatments when secretions, blood, or body fluids are likely to soil skin, eyes, mouth or clothing.

The member shall be aware of protocols for the prevention of the transmission of blood-borne pathogens and for practising routine practices/body substance precautions.

Gloves	<p>Non-sterile examination gloves shall be worn for all treatments. A new pair of gloves must be worn for each patient.</p> <p>Sterile procedure gloves shall be worn while performing invasive procedures/surgery.</p> <p>Hands must be washed before donning gloves and after glove removal.</p>
Masks	<p>A disposable facemask should be worn to reduce the possibility of inhaling organisms that may be aerosolized during filing of nails. The member/assistant shall wear a facemask while performing surgery. Masks should fit snugly and be worn for one patient only, as they lose their effectiveness when wet.</p>
Eye Protection	<p>Impact resistant safety glasses, goggles, splash guards, or facial shields should be worn to protect the eyes from nail clippings or debris, and while performing surgery to protect the mucous membranes of the eyes from splatter contaminated with blood or other body fluids.</p>
Clinical	<p>Appropriate, clean, washable</p>

Attire	<p>clothing/scrubs should be worn for all routine and non-invasive procedures.</p> <p>The member/assistant shall wear a sterile surgical gown and a hair cover while performing invasive surgery (below the dermis).</p> <p>Gowns used as personal protective equipment should be cuffed and long sleeved, and offer full coverage of the body front, from neck to mid-thigh or below.</p>
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Elimination of Infectious Agents from Instruments and Surfaces

The elimination of infectious agents from instruments and equipment is of paramount importance in preventing the transmission of infection. The reduction in the number of pathogenic microorganisms to their lowest possible level is the foundation of an infection control strategy.

The elimination of infectious agents from instruments involves:

- (i) Sterilization/ Reprocessing** – a process by which all microorganisms, including bacteria, viruses, spores and fungi are killed. All instruments including drill burrs or bits shall be steam or gas sterilized in instrument wraps, cases, or disposable instrument pouches using an autoclave before use on a patient. Regular autoclave maintenance is recommended. A new disposable sterile blade must be used for each patient. Disposable blades must not be re-used. All instruments shall be sterile before commencing any routine treatment or surgery and the sterile packs or cases shall be opened in the presence of each patient. If there is contamination through a break in sterile technique, the instrument shall be removed from the operative site and a sterile substitute shall be used. All instrument packs shall be double wrapped or transferred directly from a steam sterilizer for surgical procedures.

The elimination of infectious agents from surfaces involves:

- (ii) Disinfection** – a process that kills most disease-producing microorganisms but rarely kills all spores. Disinfectants are used on inanimate objects such as equipment. An intermediate level of disinfection shall be used which kills the organism *Mycobacterium tuberculosis* (tuberculocidal). All treatment apparatus shall be cleaned daily. If the footrest is contaminated with a body fluid, it shall be cleaned after the treatment. The patient chair and operatory shall be cleaned with an intermediate level disinfectant / detergent before the patient enters the room for a surgical procedure.

All staff involved in the reprocessing of medical equipment /devices should be trained.

Pre-cleaning of instruments is a crucial infection control step designed for the removal of the bulk of the microbiological burden. Without effective pre-cleaning, the microbiological burden that remains on instruments and equipment after a procedure contains proteins that can actually protect microbes from inactivation during sterilization procedures. Instruments should be cleaned as soon as possible after use, so that organic material will not dry. Instruments should be cleaned manually with plain soap and water, or alternatively with an enzymatic detergent preparation. Files and hinged instruments should be cleaned with a small brush. An ultrasonic cleaning device should be used as an additional step in the cleaning process. Gloves should be used during cleaning to reduce the risk of sharps injury.

Single-use items/disposable items such as sterile blades, emery boards, orange sticks and rotary tool disks shall be discarded after each patient's treatment.

Monitoring of sterilizers with biological indicators/process challenging devices shall be performed weekly to ensure that the appropriate level of microbial kill is being accomplished. Biological indicators must be placed in the same type of wrapping or pouch that is being used for the instruments for that particular cycle.

Daily autoclave indicators shall be used for each cycle (chemical strips to be placed at the bottom shelf of the load) as well as chemical indicators (i.e. autoclave tape, pouch indicators) for each set of instruments.

The daily operation of every sterilizer must be reviewed and documented. A logbook should be kept for this purpose. Any malfunction must be noted and appropriate action taken. Chemical indicators do not ensure that sterilization has been achieved. They merely offer verification that the necessary conditions have been met. However, they can also provide an early warning of a problem. If either chemical indicators demonstrate inadequate processing, then none of the items in the load should be used until they are reprocessed.

It is **NOT** necessary to physically `keep` the actual Chemical Integrator Strips or Biological Indicators (BI). However it **IS** necessary to maintain the log of the **RESULTS** of the Chemical Integrator tests and Weekly Biological Indicator tests. Log records must be kept accessible on site for 1 year and on file 5 years.

If an off-site third party monitoring agency is used for biological testing the record of their report should also be kept on file the same period of time.

If a failed chemical or biological indicator is found, the contents of the autoclave batch shall be reprocessed before use and autoclave inspection and servicing shall be required.

Use of Sterile Technique in Preparing for Surgery

The member shall scrub with an antimicrobial soap using a brush or sponge before commencing the surgery.

The member/assistant shall wear a sterile surgical gown and hair cover while performing invasive surgery (below the dermis).

The member/assistant shall wear sterile gloves, eye protection/facial shield and a

disposable facemask while performing invasive surgery.

The patient shall have the operative site prepped with an antimicrobial surgical scrub solution before commencing the surgery with a sterile prep pack in appropriate aseptic technique.

A sterile surgical field shall be maintained around the operative site.

Sterile drapes shall be used around the operative site.

Sterile technique shall be observed at all times during the surgery. Breaks in sterile technique shall be noted on the operative record.

Environmental Clean-up

An addition to disinfection of environmental surfaces is to cover those surfaces likely to be contaminated. The towel on the footrest shall be changed after each patient. If the foot of the patient is positioned on the lap of the member, a disposable gown, apron, towel or a clean towel should protect the clothing.

Surface contamination is further reduced by removing unnecessary items from the countertops, by using over-gloves or transfer forceps to remove additional instruments from a drawer, and by maintaining clinical notes and x-ray viewers away from the treatment centre.

Work-surfaces associated with patient treatment should be cleaned and then disinfected using a disinfectant/detergent and utility gloves daily.

All treatment rooms/areas including the floors and the walls should be cleaned on a routine basis and when visibly soiled. The floor should be swept after each patient.

Proper Handling of Sharps

Contaminated sharp items, such as needles, scalpel blades and other

instruments must be considered potentially infective and hence, handled with extreme care. Special precautions should be taken when passing instruments and removing blades from scalpel handles to avoid accidental injuries.

Needle recapping should be avoided. If necessary, use a one-handed method of recapping to minimize the risk of injury. Single use, self-recapping needles are strongly recommended.

Sharps shall be disposed of in a dedicated, puncture-resistant, leak proof container with a tight-fitting lid, bearing a clearly identifiable biological hazard label. Used sharps are considered biomedical waste.

It is recommended that each office be equipped with a magnet for retrieval of broken or dropped needles/ sharps.

Proper Disposal of Contaminated Waste

All waste shall be disposed of according to applicable municipal, provincial or federal regulations

All waste shall be contained in a plastic bag of sufficient thickness to prevent puncturing, and securely closed. Dispose of waste according to facility regulations, and municipal regulations, consistent with biomedical waste. Sharps require special consideration because of their potential for disease transmission.

IV. CONCLUSIONS

The College of Chiropractors of Ontario has broadened its Infection Control Standards of Practice to reflect current knowledge of infection transmission and disease. Within the context of a constantly evolving information base, practitioners are encouraged to continually evaluate their infection control strategies and procedures. In this way, the profession can ensure that a safe environment will exist for all.

V. REFERENCES

For additional information, please refer to the list of references and links below:

- 1) Ministry of Health and Long Term Care. *Best Practices for Hand Hygiene in All Health Care Settings*. Revised December 2010. Available at: <http://www.oahpp.ca/resources/documents/pid/ac/2010-12%20BP%20Hand%20Hygiene.pdf>
- 2) Ministry of Health and Long Term Care. *Best Practices for Cleaning, Disinfection and Sterilizing of Medical Equipment/Devices in All Health Care Settings*. Revised February 2010. Available at: <http://www.oahpp.ca/resources/documents/pid/ac/2010-02%20BP%20Cleaning%20Disinfection%20Sterilization.pdf>
- 3) Ministry of Health and Long Term Care. *Best Practices for Infection Prevention and Control Programs in All Health Care Settings*. Revised January 2011. Available at: <http://www.oahpp.ca/resources/documents/pid/ac/2011-01%20BP%20Infection%20Prevention%20Control.pdf>

GLOSSARY

Antiseptic – a chemical agent used on skin or living tissue to inhibit the growth of microorganisms or kill such microorganisms.

Body Fluid Contaminating Procedures – any procedure with open lesions; any post-surgical treatments.

Body Substance Precautions (BSP) – BSP is a system of practice that requires all health care workers to consider all body substances (blood, body fluids, secretions, excretions, drainage) from all patients as potentially infectious. It is a practice designed to prevent transmission of blood-borne and nonblood-borne (e.g., faecal pathogens) infectious agents alike. BSP requires that health care workers assess the degree of exposure they anticipate to body substances, mucous membranes or non-intact skin and use personal protective equipment and workplace practices to reduce the risk of exposure.

Contaminated – soiled with disease-producing microorganisms.

Detergent – a synthetic cleansing agent resembling soap with the ability to emulsify oil and hold dirt and containing surfactants which do not precipitate in hard water. May also contain protease enzymes and whitening agents.

Disinfection – a process that kills most disease-producing microorganisms but rarely kills all spores. Disinfectants are used on inanimate objects.

Germicide – a chemical agent that kills microorganisms. Common usage involves the application of chemical agents to kill disease-producing microorganisms but not necessarily resistant bacterial spores. Germicides are used on living tissue (antiseptics) as well as inanimate objects (disinfectants).

Gloves, Non-Sterile Examination – non-sterile gloves with limited sizing and sold in bulk packages to be used for routine procedures.

Gloves, Sterile Procedure – sterile gloves that are sized, packaged and sold in pairs to be used for all types of procedures except surgery. These gloves are just as safe as surgeon's gloves and less expensive.

Gloves, Sterile Surgeon's – sterile gloves that are sized, packaged and sold in pairs to be used for surgery.

Must - indicates what is generally accepted in the profession as obliged to do.

Routine Practices - is a system of practice that requires health care workers to consider blood and other certain body fluids of all patients to be infectious for blood-borne pathogens, and to use personal protective equipment and workplace practices to reduce the risk of exposure. Routine practices do not apply to faeces, nasal secretions, sputum, sweat, tears, urine, saliva and vomitus, unless there is visible blood in them.

Routine Procedures – the cutting, drilling and filing of nails; the reduction of corns and calluses

Shall – indicates what is generally accepted in the profession as a mandatory requirement.

Should – indicates a recommendation which is advised but not mandatory

Sterilization/ Reprocessing – a process by which all microorganisms, including bacteria, viruses, spores and fungi, are killed. Steam under pressure is always the most ideal sterilization/reprocessing method.

Surgical Procedures – any procedure that is performed below the dermis (nail, bone and soft tissue).

Towels – disposable or reuseable.