

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 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) Universal Precautions, and
- (ii) Risk Assessment.

(i) Universal Precautions

These are a set of risk reduction measures for healthcare workers to use whenever they encounter blood or other **identified** body fluids. ~~It is recommended that universal~~ **Universal precautions must** be applied to all procedures because of the possibility of encountering **body** fluids.

The concept of universal precautions *also* relates to the proper handling of sharps and the use of barriers 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 barrier protections. Maximum barriers used for this protective 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.

It is recommended, therefore, that practitioners **Practitioners** must evaluate the task and type of exposure expected for each treatment situation prior to choosing the appropriate personal barrier 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 barriers 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.

Obviously, as **As** practice circumstances become more adverse, the need for personal protective barriers 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. **Basically, this 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 barriers for personal protection (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~~ **of all** Patients

A thorough medical history and clinical examination should be taken at the initial patient appointment and updated at all recall visits. This is done for the purpose of identifying information that may be used for early diagnosis and treatment. Screening may also 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 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 ~~immunization to this disease~~, *immunizations* thereby protecting not only themselves, but their patients as well.

Hand-washing

Hands should be thoroughly washed using ~~an antimicrobial~~ a soap solution *and an appropriate hand-washing technique. An alcohol based hand rub (greater than 60% 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, *and between dirty and clean.*

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 Protection Barriers

surgery, ~~and a hair cover.~~

Protective barriers are used to isolate the provider from contact with blood and other body fluids. These barriers include 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 universal precautions/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 in the presence of body fluid, and/or while performing invasive procedures/surgery.</p> <p>Gloves do not replace hand-washing.</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 eye shields or prescription eyeglasses 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 Attire	<p>Clean, washable clothing should be worn for all routine procedures.</p> <p>The member/assistant shall wear a sterile surgical gown and a hair cover while performing essous</p>

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** – a process by which all microorganisms, including bacteria, viruses, spores and fungi are killed. All instruments *including drill burrs or bits* shall be ~~sterilized before use on a patient~~ *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. The College strongly recommends that the method of sterilization for instruments be by autoclave (steam under pressure).~~ *A new sterile blade must be used for each patient.* Blades must not be re-used. ~~unless physically scrubbed of all organic material and sterilized.~~ 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.* ~~and if~~ *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 ~~and surgical supplies~~ shall be double wrapped *or transferred directly from a steam sterilizer* for nail and 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.

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 ~~may~~ **should** be used as an additional step in the cleaning process. ~~The use of utility gloves during cleaning is highly desirable~~ **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.

~~Routine monitoring~~ **Monitoring** of sterilizers with biological indicators ~~is recommended~~ **shall be performed weekly** to ensure that the appropriate level of microbial kill is being accomplished. ~~This type of monitoring should be done at least weekly.~~ **Daily autoclave indicators shall be used (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.**

Record keeping of autoclave cycles (daily chemical indicator strips) and weekly biological indicator outcomes shall be maintained. The results must be accessible on site for a minimum of one year and kept on file for five years.

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.

****NEW**

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 osseous surgery.

The member/assistant shall wear sterile gloves and a 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 shall be disinfected using a disinfectant/detergent and utility gloves daily.

All treatment rooms/areas shall be cleaned on a routine basis. The floor shall 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 ~~never involve two hands because of the potential to minimize the risk of for~~ 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. new

Proper Disposal of Contaminated Wastes

All wastes should 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. 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 protective barriers 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 Procedures – the cutting, drilling and filing of nails; the reduction of corns and **callouses. 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 – a process by which all microorganisms, including bacteria, viruses, spores and fungi, are killed. Steam under pressure is always the most ideal sterilization method.

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

Towels – disposable or reuseable.

Universal Precautions (UP) – UP 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 protective barriers and workplace practices to reduce the risk of exposure. UP do not apply to faeces, nasal secretions, sputum, sweat, tears, urine, saliva and vomitus, unless there is visible blood in them.

ACKNOWLEDGEMENTS

The College of Chiropractors of Ontario thanks the Royal College of Dental Surgeons of Ontario for the permission to reprint portions of their Guidelines: Respecting Infection Control In the Dental Office. We also wish to acknowledge the resource Infection Control in the Physician's Office, 2004 provided by the College of Physicians and Surgeons of Ontario. We truly appreciate the willingness of other Colleges to share their work with us.