Position Statement
Infection Prevention + Control

Introduction
Appropriate infection prevention + control (IPC) is an essential element of clinical practice management based on its importance to the health and safety of patients, practitioners and the broader community.

Knowledge of (IPC) measures is continually growing, and specific clinical advice continues to evolve. As a self-regulated professional, physiotherapists must be knowledgeable about the principles underlying infection control, and implement appropriate infection control procedures that will vary depending upon the specific practice environment.

In addition to Physiotherapy Alberta's practice standards that promote patient safety, this position statement describes expectations of members related to the incorporation of appropriate infection control measures.

Our position
When providing professional services, physiotherapists will ensure that they incorporate current, appropriate and generally accepted infection control measures consistent with written infection control guidelines, policies and procedures.

Performance expectations
Physiotherapists should:

1. Maintain current knowledge of evidence-based IPC protocols and programs relevant to their professional practice.

2. Ensure practice environment/facility is equipped, operated and maintained to meet IPC guidelines and report identified deficiencies to parties responsible for management of practice environment/facility.

IPC measures in a physiotherapy practice should include, as a minimum, requirements for:

- Hand hygiene that includes use of alcohol-based cleaner before and after patient contact; or hand washing when hands are visibly soiled.
- Use of protective barriers as standard practice whenever contact with blood/body fluids is likely to occur during patient contact. Barriers should also be used when the patient’s environment or patient care equipment is likely to have been contaminated with potentially infected fluids.
- Cleaning, disinfecting or sterilizing equipment and facilities; managing wastes, including sharps and materials contaminated by blood/body fluids.

3. Adopt appropriate IPC measures including contact management protocols and monitor their use and effectiveness to identify problems, outcomes and trends.

4. Be aware of, or if not otherwise available develop, incorporate and keep current IPC polices to promote use of IPC measures in their professional practice.

5. Apply knowledge, skills and judgment to conduct ongoing assessments regarding degree of current risks of infection and transmission

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1. Alberta Health and Wellness Standards (2008), Health Canada Infection Control Guidelines (1998) and Canadian Standards Association are considered minimal standards, although some chemical disinfectants listed by Health Canada are no longer used.

2. Refer to Appendices for information on Cleaning, Disinfecting and Sterilizing equipment and Monitoring of the Sterilization Process.
to patients, staff, colleagues, and other health professionals based on consideration of the following:

- assessment/treatment interventions planned or conducted;
- health condition of patients being assessed/treated;
- degree of infection risk present in internal practice environment;
- degree of infection risk present in the external practice environment;
- current best practice in IPC protocols relevant to their professional practice; and,
- health and immunization status of people in practice environment including physiotherapist, colleagues and patients.

6. Ensure self-immunization for common and/or preventable illness as appropriate.

Common definitions

- **Infection prevention + control** - Measures practiced by health personnel intended to prevent spread, transmission and acquisition of agents or pathogens between patients, from healthcare workers to patients and from patients to healthcare workers in a healthcare setting. These measures are determined after an assessment of the facility and patient population. IPC measures instituted are based on how an infectious agent is transmitted and include standard, contact, droplet, and airborne precautions.

- **Cleaning** - Involves the physical removal of foreign material such as dust, soil and organic material including blood, secretions, excretions, and microorganisms. Cleaning physically removes rather than kills microorganisms. Removal of material is necessary to permit the effective disinfection or sterilization of equipment. It is accomplished with water, detergents and mechanical, scrubbing action. The terms ‘decontamination’ and ‘sanitation’ may be used for this process in certain settings (e.g., central service, dietetics). Cleaning reduces or eliminates reservoirs of potential pathogenic organisms. Cleaning agents are the most common chemicals used in housekeeping activities.

- **Disinfection** - The inactivation of disease-producing microorganisms. Disinfection does not destroy bacterial spores. Disinfection usually involves chemicals, heat or ultraviolet light. Varying levels of disinfection have been recommended based upon the nature of the procedure, infection risk and type of equipment. Disinfectants are used on inanimate objects while antiseptics are used on living tissue.

- **External practice environment** - Any locale beyond internal practice environment, and may extend to municipal, provincial, national, or international borders depending on the nature of the infection risk being considered.

- **Internal practice environment** - The physical location(s) where physiotherapy services are provided (e.g., hospitals, private practice premises, long-term care facilities and patients’ homes).

- **Sterilization** - A multistep process resulting in the destruction of all forms of microbial life including bacteria, viruses, spores, and fungi. Items must be cleaned thoroughly before effective sterilization can occur. The decision to sterilize equipment is based upon the procedure, risk of infection and type of equipment. Various methods of sterilization exist, the most common include steam and heat (autoclave), dry heat (dry heat sterilizer) or chemicals. Monitoring the effectiveness of sterilization procedures is essential. Monitoring can be achieved through the use of biologic, chemical and mechanical methods.

Acknowledgements

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Approved by Council
Revised March 2008
Date for review
March 2012
Appendix A
Cleaning, Disinfecting + Sterilizing equipment

This appendix supplements Physiotherapy Alberta's IPC position statement and broadly outlines parameters around equipment cleaning, disinfection and sterilization. For further infection control information, physiotherapists are advised to refer to information published by Alberta Health and Wellness\(^5\), Health Canada\(^15\) or other resources as referenced. \(^5\), \(^16\)

Most cleaners, disinfectants and sterilants used in health care are regulated and should have a drug identification number (DIN). An exception is the domestic product hypochlorites (i.e., household bleach). Follow the manufacturer's instructions and/or guidelines when cleaning, disinfecting and sterilizing equipment and instruments. The classification system (Table 1) for cleaning, disinfecting or sterilizing equipment, used in health care, is based on the use of the item and potential risk of infection.

Table 1 - Cleaning, disinfecting and sterilizing classification guidelines
Adapted from Cleaning, Disinfecting and Sterilizing Office Instruments\(^13\) and Health Canada Infection Control Guidelines \(^13\), \(^75\)

<table>
<thead>
<tr>
<th>Object Classification</th>
<th>Item use</th>
<th>Decontamination after cleaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-critical</td>
<td>• No contact with skin/patient (e.g., weigh scales, furnishings)</td>
<td>Low levels of disinfection</td>
</tr>
<tr>
<td></td>
<td>• Contact with intact skin (e.g., cups, beds, blood pressure cuff)</td>
<td>Intermediate level of disinfection</td>
</tr>
<tr>
<td>Semi-critical</td>
<td>• Contact with mucous membranes or non-intact skin but ordinarily does not penetrate tissues (e.g., intermediate level - thermometers, high level - vaginal probes, reusable peak flow meters)</td>
<td>Intermediate or high level disinfection</td>
</tr>
<tr>
<td>Critical</td>
<td>• Enters vascular system or body tissue or houses an instrument that will be entering the blood stream/body tissue (e.g., IMS plungers)</td>
<td>Sterilization</td>
</tr>
<tr>
<td></td>
<td>• Presents high risk of infection if item is contaminated with microorganisms</td>
<td></td>
</tr>
</tbody>
</table>

Cleaning

All instruments undergoing disinfection or sterilization must first be thoroughly cleaned to remove organic material and/or foreign debris. Failure to adequately clean items may interfere with the disinfection and sterilization process.

When cleaning instruments:

- Use stainless steel utility sink dedicated to cleaning and handling dirty instruments.
- Ensure process is carried out using appropriate apparel - gloves, masks and gowns.
- Wash articles in warm, sudsy detergent water using friction (rubbing/scrubbing) to clean surfaces, cracks and crevices.
- Rinse thoroughly in clean warm water.
- Air dry or dry with lint free towel.

**Disinfection**

The disinfection process eliminates many disease producing pathogens or microorganisms from inanimate objects with the exception of bacterial spores. Disinfection levels are based on the healthcare instrument’s use and the risk of infection. Submersion time varies and should be checked against the manufacturer’s guidelines.

Technology related to chemical disinfectants continually evolves. Physiotherapists must keep current on the variables that change most frequently including submission times and hazards related to the chemical compound. Many products for disinfection are available and Table 2 includes the names of a few products as examples.

**Table 2 - Disinfection Guidelines**

Adapted from: Health Canada Infection Control Guidelines, Infection Control for Regulated Health Professionals

<table>
<thead>
<tr>
<th>Disinfection level</th>
<th>Disinfection class</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low level</td>
<td>Detergent-disinfection combination:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Quaternary ammonium compounds ‘quats’</td>
<td>Good for non-critical items (e.g., smooth</td>
</tr>
<tr>
<td></td>
<td>(e.g., 1492, Dimension III)</td>
<td>surfaces, cups, patient beds)</td>
</tr>
<tr>
<td></td>
<td>- 3% hydrogen peroxide ( e.g., Perdiem,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hydrox)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Hypochlorites (e.g., 5.25 % household</td>
<td></td>
</tr>
<tr>
<td></td>
<td>bleach 1:500 dilution-1¼ ml per 4 litres</td>
<td></td>
</tr>
<tr>
<td>Intermediate level</td>
<td>- Accelerated hydrogen peroxide 0.5%</td>
<td>Semi-critical items</td>
</tr>
<tr>
<td></td>
<td>(e.g., Percept, Virox 5)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Alcohols 60-90% (e.g., 70% isopropyl</td>
<td></td>
</tr>
<tr>
<td></td>
<td>alcohol, Rubbing Alcohol)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Hypochlorites (e.g., 5.25 % household</td>
<td></td>
</tr>
<tr>
<td></td>
<td>bleach solution 1:10 prepared daily 100</td>
<td></td>
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<tr>
<td></td>
<td>ml per litre)</td>
<td></td>
</tr>
<tr>
<td>High level</td>
<td>- Glutaraldehyde 2%</td>
<td>Semi-critical and critical items</td>
</tr>
<tr>
<td></td>
<td>- Accelerated hydrogen peroxide 7%</td>
<td>(e.g., vaginal probes) that cannot be subject to</td>
</tr>
<tr>
<td></td>
<td>(e.g., Chemo 20)</td>
<td>sterilization processes (i.e., cold sterilization)</td>
</tr>
</tbody>
</table>

**Sterilization**

Sterilization destroys all microbial life. When performing sterilization, ensure compatibility between the instruments and sterilization equipment used. Ensure the sterilization equipment has been validated for the medical device being sterilized. Then, follow the manufacturer’s instructions for cleaning, disinfecting and sterilizing the device. The following are common methods for achieving sterilization.
**Steam and pressure**

Autoclaves use steam under pressure to kill microorganisms. The common steam temperature is 121° C (250° F). Monitoring methods should be used to ensure critical parameters have been reached. Packaged items require the following settings:

- 133 °C (271°F); 15 minutes
- 121° C (250°F); 30 minutes

**Dry heat**

Dry Heat Sterilizer uses heat alone to kill micro-organisms. Only equipment approved by the Canadian Standards Association for dry heat sterilization should be used. This method takes much longer than autoclave to produce sterility. Monitoring methods should be used to ensure critical parameters have been reached.

**Chemical**

Chemicals used for high level disinfection can also be used to achieve sterilization if the instruments are exposed for a longer time period. There are risks to those working with chemical sterilants and therefore dry heat or steam and pressure are the recommended methods.

**Storage**

Sterilized instruments should be handled and stored in a manner that promotes the integrity of the sterile state.
Sterilization of health care equipment is a multi-step process which results in the destruction of all forms of microbial life including bacteria, viruses, spores and fungi. Routine monitoring of the effectiveness of the sterilization process is paramount to ensuring that the sterilization of equipment has been effective.

Methods for monitoring sterilization cycles are evolving with new products and technologies being introduced into sterilization practices on a routine basis. Monitoring methods can be divided into the following categories:

- **Mechanical** - time and temperature graphs, charts or printouts.
- **Chemical** - time/temperature and/or humidity sensitive tape, strips or pellets.
- **Biologic** - spore-laden strips or vials.

Generally, mechanical and chemical monitors provide a visible indicator that the critical parameters required for sterilization, such as time, temperature and/or pressure, have been met. Presently, biologic indicators are the only available method to monitor the actual effectiveness of the sterilization process.

**Biological monitors:**

- **Biological indicator** - Are to be used each day the sterilizer is used and considered a reliable monitoring method because they confirm sterility has been achieved.

  The biological indicator (vial or strip containing bacterial spores) is exposed to the sterilization cycle and then incubated in conditions that would allow any surviving microorganism to grow. If the indicator shows ‘no growth’ at the end of the incubation period, the condition for appropriate sterilization was achieved. However, a limitation of the biological indicator spore test is that the test must be sent to a lab for incubation and results may not be available for up to seven days depending on the indicator used. Spore test kits are available from the Provincial Laboratory of Public Health and private sector laboratories.

**Chemical monitors:**

- **Chemical integrator/indicator (autoclave-chemi-clave)** - Recommended to be used with every cycle. The chemical integrator is a monitoring method that approximates the response of the biological indicator methods. Chemical indicators monitor all critical parameters of the sterilization process (i.e., time, temperature, vapour exposure - steam or chemical). Results are available immediately following the sterilization cycle. However, the chemical integrator does not detect and confirm the killing of microbial spore and therefore is supplemental to the biological spore test.

- **Chemical indicator (dry heat sterilizer)** - Used with every cycle, temperature specific chemical indicators are used to monitor dry heat sterilizers. They assure that the desired temperature in the dry heat sterilizer has been achieved.

- **Chemical color indicators (for all sterilizers)** - Used with each instrument package, chemical color indicators, such as heat sensitive tape, change color when exposed to a parameter of the sterilization process. Although indicators react to temperature, they react at levels not sufficient for achieving
sterility. Thus they are not reliable indicators that the adequate parameters to ensure sterilization have been achieved. The utility of this monitoring method is that it acts as an early warning signal. Failure to achieve a color change in the indicator means that a critical parameter of the sterilization process has not been met.

**Physical monitors:**

Physical monitoring involves checking gauges for readouts of the time, temperature and pressure during the sterilization cycle. Currently there is not a convenient method to monitor all critical parameters of sterilization for the entire sterilization cycle. Routine calibration of gauges is essential to ensure the gauge readouts are a valid reflection of the critical parameters.¹

**Recording of monitoring procedures:**

Logs are used to track the sterilization process and should contain the date, temperature, time, pressure, pack number and results of the monitoring tests.¹
References


4. Association for Professionals in Infection Control and Epidemiology (APIC). www.apic.org


