ADVICE TO THE PROFESSION:
INFECTION PREVENTION AND CONTROL

Advice to the Profession companion documents are intended to provide physicians with additional information and general advice in order to support their understanding and implementation of the expectations set out in policies. They may also identify some additional best practices regarding specific practice issues.

Why is it important that physicians comply with infection prevention and control (IPAC) best practices?

IPAC is an important element of care in any health care setting. Providers of care in a clinical office setting have a responsibility to have systems in place that protect the health and safety of others. Preventing transmission of microorganisms to patients is a patient safety issue and preventing transmission to staff is an occupational health and safety issue. Failure to ensure that appropriate IPAC practices are in place can have serious consequences for both patients and staff.

It is important that physicians recognize that IPAC best practices can change or evolve over time as new information emerges, and that they will need to ensure their knowledge of best practices remains up to date.

What are some elements of infection prevention and control that need to be a focus in a clinical office setting?

Clinical office settings need to, at least annually, conduct an organizational risk assessment to identify risk factors for transmission of infections and develop an action plan to mitigate these risks. Control measures such as engineering controls (e.g., point-of-care alcohol-based hand rub and sharps containers) and administrative controls (e.g., policies, immunization and education) are key elements to focus on, in addition to the provision of personal protective equipment. It will be important to update the organizational risk assessment when there are new or emerging infectious threats.

The following practices have been identified as high risk when done insufficiently:

- Routine Practices and Additional Precautions
- Reprocessing of reusable equipment
- Medication safety and administration
- Environmental Cleaning
- Staff Education.

More information on how to effectively address these areas of risk is set out below.

What are Routine Practices and Additional Precautions?

"Routine Practices" are IPAC practices that need to be used with all patients during all care in all health care settings to prevent and control the transmission of microorganisms. It is essential that Routine Practices are incorporated into the culture of each health care setting and into the daily practice of each health care provider to protect both the patient and the health care provider.

Performing a risk assessment is the first step in Routine Practices. A point-of-care risk assessment includes assessing the exposure risk specific to the care being provided and duration of the activity. Risk assessments need to be completed by the health care provider before each patient interaction or task to determine whether there is a risk of being exposed to an infection, and to select and use appropriate personal protective equipment. Please refer to Public Health Ontario's (PHO's) *Risk Algorithm to Guide Personal Protective Equipment Use* for more information.

"Additional Precautions" refer to IPAC interventions (e.g., personal protective equipment, additional cleaning measures) used in addition to Routine Practices to protect staff and patients and interrupt transmission of infectious agents that are suspected or identified. Screening of patients can help identify those with suspected or confirmed infectious illnesses.

The Provincial Infectious Diseases Advisory Committee (PIDAC) sets out the basic principles of and best practices for Routine Practices and Additional Precautions in their document *Routine Practices and Additional Precautions In All Health Care Settings.* It is important that physicians familiarize themselves with this document and apply these practices to their own work.

Appendix E: PIDAC's Routine Practices Fact Sheet for All Health Care Settings is a useful resource that summarizes Routine Practices for all physicians.

How can hand hygiene be performed according to best practices?

Hand hygiene is an important Routine Practice. To assist in undertaking appropriate hand hygiene, physicians can refer to PIDAC's *Best Practices for Hand Hygiene in All Health Care Settings*.

Appropriate hand hygiene practices include the following:

- hand hygiene is undertaken based on the Four Moments for Hand Hygiene:
    1. BEFORE initial patient/patient environment contact
    2. BEFORE aseptic procedure
    3. AFTER body fluid exposure risk
    4. AFTER patient/patient environment contact.
- alcohol-based hand rub (70 to 90%) or liquid soap and water, if hands are visibly soiled, is available and accessible at point-of-care.

- impediments to effective hand hygiene are avoided (e.g., artificial nails, nail enhancements, and hand or arm jewelry).
- alcohol-based hand rub and liquid soap containers are labelled and not refilled or topped up.
- regular moisturizing with hand lotion is undertaken to maintain intact skin to help protect against the acquisition or transmission of microorganisms.

Wearing gloves is not a substitute for hand hygiene. Hand hygiene needs to be performed before putting on, and immediately after taking off gloves. Gloves need to be changed between each patient and discarded immediately after use.

How can I reprocess and sterilize medical instruments and equipment according to IPAC best practices?

PIDAC's *Infection Prevention and Control for Clinical Office Practice* has a number of requirements for reprocessing. These include:

- The manufacturer's instructions for use for all medical equipment/devices are available and accessible to staff, and the office has the resources to carry out the recommended cleaning, disinfection or sterilization for reusable medical equipment (e.g., blood pressure cuffs, instruments);
- Reusable medical equipment is cleanable and able to be disinfected or sterilized as appropriate for the equipment.
- Medical equipment and devices are in good working order and receive documented preventive maintenance as required.
- Any product used in patient care is capable of being cleaned, disinfected and/or sterilized according to the most current standards and guidelines from the Canadian Standards Association (CSA), the Public Health Agency of Canada (PHAC)/Health Canada as well as Ontario's best practices.
- Equipment used to clean, disinfect or sterilize meets Health Canada/PHAC and the CSA standards, and provincial best practices.
- Designated staff are assigned to equipment reprocessing and are trained for the volume and complexity of the equipment being reprocessed.
- There is a process to deal with staff exposures that may occur during reprocessing (e.g., chemical exposures, sharps exposures).

Reprocessing may not be cost-effective or timely for small offices. It may be preferable for single-use disposable equipment to be used in such settings, depending on the volume, complexity and frequency of equipment use. Another option may be to partner with a local hospital for reprocessing of instruments and equipment, where possible.

For additional information and guidance on reprocessing, physicians can access PHO's *IPAC Checklist for Clinical Office Practice: Reprocessing of Medical Equipment/Devices*.

What level of reprocessing is needed for medical devices and equipment?

PIDAC recommends using Spaulding's classification of medical equipment and the required level of processing, set out below.

Class	Use	Minimum Level of Reprocessing	Examples
Critical	Enters sterile body site, including the vascular system	Cleaning followed by sterilization	• Surgical instruments • Biopsy instruments • Foot care/podiatry equipment
Semicritical	Comes in contact with nonintact skin or mucous membranes but does not penetrate them	Cleaning followed by high-level disinfection Sterilization is preferred	• Vaginal specula • Endoscopes • Anaesthesia equipment • Tonometer
Noncritical	Touches only intact skin and not mucous membranes, or does not directly touch the patient	Cleaning followed by low-level disinfection (in some cases, cleaning alone is acceptable)	• ECG machines • Oximeters • Stethoscopes

What disinfection and sterilization method do I need to use for the medical devices and equipment in my practice?

The reprocessing method and products required for medical equipment/devices will depend on the intended use of the equipment/device and the potential risk of infection. The level of reprocessing required for medical equipment/devices is determined by Spaulding's criteria (above) including whether the equipment/device is noncritical, semicritical or critical.

Noncritical Equipment:

Noncritical equipment that does not touch mucous membranes and only touches intact skin (e.g., stethoscopes, blood pressure cuffs, baby scales) requires cleaning and low-level disinfection between each patient. For more information on low-level disinfection and low-level disinfectants, see the question "***How can I effectively clean and disinfect surfaces in my office?"*** later in this *Advice*.

Semicritical and Critical Equipment:

PIDAC advises that the preferred method for decontamination of heat-resistant equipment or devices is steam sterilization. Pre-vacuum table-top sterilizers are recommended for clinic and clinical office settings.

The following are unacceptable methods of disinfection/sterilization:

- use of dishwasher (regardless of whether it has a sanitizing cycle)
- boiling
- ultraviolet irradiation
- glass bead sterilizers
- chemiclave sterilizers
- microwave ovens.

For semicritical items that cannot tolerate sterilization, cleaning followed by high-level disinfection may be used. High level disinfection kills all micro-organisms (bacteria, fungi, and viruses) but does not eliminate bacterial spores.

High-level disinfectants include:

- 2 per cent glutaraldehyde
- 6 per cent hydrogen peroxide
- 0.2 per cent peracetic acid
- 7 per cent hydrogen peroxide enhanced action formulation
- 0.55 per cent ortho-phthalaldehyde.

PIDAC makes several recommendations for high-level disinfection of medical equipment/devices, including:

- Using high-level disinfectants according to manufacturer's recommendations.
- Using high-level disinfectants that are approved by Health Canada and listed on the Medical Devices Active License Listing (chlorine bleach may not be listed but can be used for high-level disinfection).
- Using chemical test strips to determine whether an effective concentration of active ingredients is present.
- Completing and retaining a permanent record of processing.
- Refraining from topping up prepared solutions with fresh solution.
- Where manual disinfection is performed, covering the container used for disinfection during use.
- Rinsing instruments thoroughly following chemical disinfection, according to the chemical manufacturer's instructions; the quality of the rinse water (i.e., sterile, filtered or tap water) will depend on the intended use of the device.

What are the key steps to reprocessing reusable medical equipment/devices?

Please refer to PHO's *Reprocessing Steps* document for the key components to be included during each stage of reprocessing in order to achieve effective cleaning, disinfection or sterilization of medical equipment/devices.

For additional information on reprocessing refer to PIDAC's *Infection Prevention and Control for Clinical Office Practice*.

What are the key practices that promote safe medication administration?

Appendix H: Checklist for Safe Medication Practices in PIDAC's *Infection Prevention and Control for Clinical Office Practice* sets out important practices to ensure that medication is being safely stored, handled, and used in the office setting.

Some key practices outlined in the checklist include:

- Having a dedicated medication/vaccine refrigerator, that food/specimens are not stored in.
- Keeping the refrigerator temperature between $+2^0$C and $+8^0$C for stored vaccines.
- Checking and recording temperatures of refrigerators and freezers used to store medications/vaccines twice daily and ensuring there is an alarm on the refrigerator to warn when the temperature falls outside the recommended range.
- Not reusing single dose vials, and not combining or pooling any leftover contents.
- Ensuring all needles and syringes are single patient use only.
- Avoiding using multidose vials wherever possible. When the use of multidose vials cannot be avoided, the following is followed each time these vials are used:
    - Each vial is used for a single patient whenever possible, is marked with the patient's name and date of entry and discarded at the appropriate time.
    - Open multidose vials are discarded according to the manufacturer's instructions or within 28 days, whichever is shorter[1].
    - Medications are only stored in areas where access is secured and that are not accessible to non-authorized persons.
    - A needle is not left in a vial to be attached to a new syringe.
    - A vial is discarded immediately when sterility is questioned or compromised.

How can I maintain a clean and safe health care environment and follow environmental cleaning and disinfection best practices?

Maintaining a clean and safe health care environment is an essential component of IPAC and is integral to the safety of patients and staff. Environmental cleaning and disinfection needs to be performed on a routine and consistent basis to provide for a safe and sanitary environment. It is important that responsibility for cleaning is clearly defined and understood.

[1] There may be some limited exceptions to this, where the manufacturers instructions allow for vials to be used for longer than 28 days. Manufacturers instructions may be followed in such cases.

PHO has a number of environmental cleaning resources available to assist physicians in implementing best practices in environmental cleaning.

How can I effectively clean and disinfect surfaces in my office?

Surfaces need to be cleaned of visible soil before being disinfected, to ensure the disinfectant is effective.

Products are available that perform cleaning and disinfection in one step, and it is recommended these are chosen where possible. Only cleaning and disinfecting products approved for healthcare settings are appropriate for use.

Physicians need to read and refer to the manufacturer's instructions, the product's Safety Data Sheet and your organizational policies for how to safely use disinfectants. If using more than one product, make sure they are safe to use together (e.g., it is dangerous to mix a quaternary ammonium product and bleach).

Do not use spray or trigger bottles for cleaning products or disinfectants as their use can contribute to respiratory irritation.

For a list of hospital-grade low-level disinfectants and their advantages/disadvantages, refer to PIDAC's *Best Practices for Environmental Cleaning for Prevention and Control of Infections in All Health Care Settings* - Appendix 1.

What staff education is needed to promote knowledge of IPAC best practices?

It is important that regular education (including orientation and continuing education) and support is provided to staff.

PHO advises that effective education programs emphasize:

- the risks associated with infectious diseases
- the importance of recommended immunizations
- hand hygiene
- principles and components of Routine Practices and Additional Precautions
- point-of-care risk assessment and the appropriate selection and use of personal protective equipment
- reprocessing of reusable medical equipment and appropriate training to ensure this is undertaken effectively
- cleaning and/or disinfection of surfaces or items.

Please refer to PHO's *Recommendations for Education, Training and Certification for Reprocessing in Clinical Office Settings* for more information.

Where can I find more information about IPAC best practices?

PHO has a number of resources to support physicians in complying with IPAC best practices. Please see the PHO website for more information and additional resources.

PHO also has a number of online learning modules available to help expand knowledge of IPAC best practices. These include online learning modules targeted at both clinical and non-clinical staff. More information on these modules can be found on their website.

Finally, PHO has a number of self-audit tools and checklists that can support quality assurance processes, including:

- IPAC Checklist for Clinical Office Practice - Core Elements
- IPAC Checklist for Clinical Office Practice - Reprocessing
- IPAC Checklist for Clinical Office Practice - Endoscopy
- Implementing Personal Protective Equipment Audits in Health Care Settings
- Monthly Inspection Checklist for Clinical Office Safety