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Ten Things You Need to Know About Infection Prevention and Control for Clinical Office Practice

CPSO Education Day – April 7, 2014

Presented by Infection Prevention and Control (IPAC) Physicians:

Dr. Maureen Cividino, MD, FCFP, CCBOM

Dr. Kevin Katz, MD, MSc, FRCPC

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Agency for Health Protection and Promotion
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FACULTY/PRESENTER DISCLOSURE

- **Faculty**: Dr. Maureen Cividino and Dr. Kevin Katz
- **Relationships with commercial interests**: None
- **Disclosure of commercial support**: None
- **Conflict or Potential Conflict of Interest**: None

Background

- Structure and function in out-of-hospital health care settings provide ample opportunities for transmission of infection:
  - Direct spread person-to-person, indirect spread through inanimate objects (fomites);
  - Inadequate sterilization and disinfection of medical equipment
  - The waiting room of a clinical office may be a source for many communicable diseases
- It is incumbent on physicians to protect patients, clinical office staff and visitors

Background (cont'd)

- Intended to assist physicians with their clinical office-based practice
  - Some components derived from legislation and regulations, and will state what physicians must do.
  - Other sections are evidence-based best practices, intended to increase awareness about the day-today risks of infection transmission and to equip physicians with practical guidance and tools to minimize risks.

Process

- Working group included 3 physicians with office based practice
  - Dermatologist (Toronto)
  - 2 Family Physicians (London, Grey Bruce)
- Representation from CPSO
- Reviewed by PIDAC-IPC
  - Experts in infectious diseases, medical microbiology, epidemiology, IPAC
- Stakeholder comment solicited and reviewed; appropriate comments incorporated

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Best Practices outline:

- Principles of IPAC in a clinical office setting
- Legislation relating to clinical office practice; duties of physicians as employers and supervisors
- Considerations when setting up a new clinical office
- Rationale and tools for screening and risk assessment for infection
- Recommendations for providing a clean clinical office environment
- Guidance for reprocessing of reusable medical equipment
- Protection and safety issues related to staff

Routine Practices

- All patients are *potentially* infectious, even when asymptomatic; the same standard of practice should be used routinely with all patients to prevent exposure to blood, body fluids, secretions, excretions, mucous membranes, non-intact skin or soiled items, to prevent the spread of microorganisms.
- Adherence to Routine Practices protects the health care provider, other staff and patients.

  All health care providers should follow Routine Practices for all patients during all care in all clinical office settings

Elements of Routine Practices include:

- **Hand Hygiene**
- **Risk Assessment** Does the patient have a communicable disease ? What will my interaction be? What steps are needed to reduce risk?)
- **Personal Protective Equipment** (PPE) to protect staff.
- **Control of the Environment**, including appropriate patient placement, equipment reprocessing, environmental cleaning, safe handling of sharps
- **Administrative Controls** (i.e., management of staff health and practices), including encouraging staff immunization, respiratory etiquette and audits of practice

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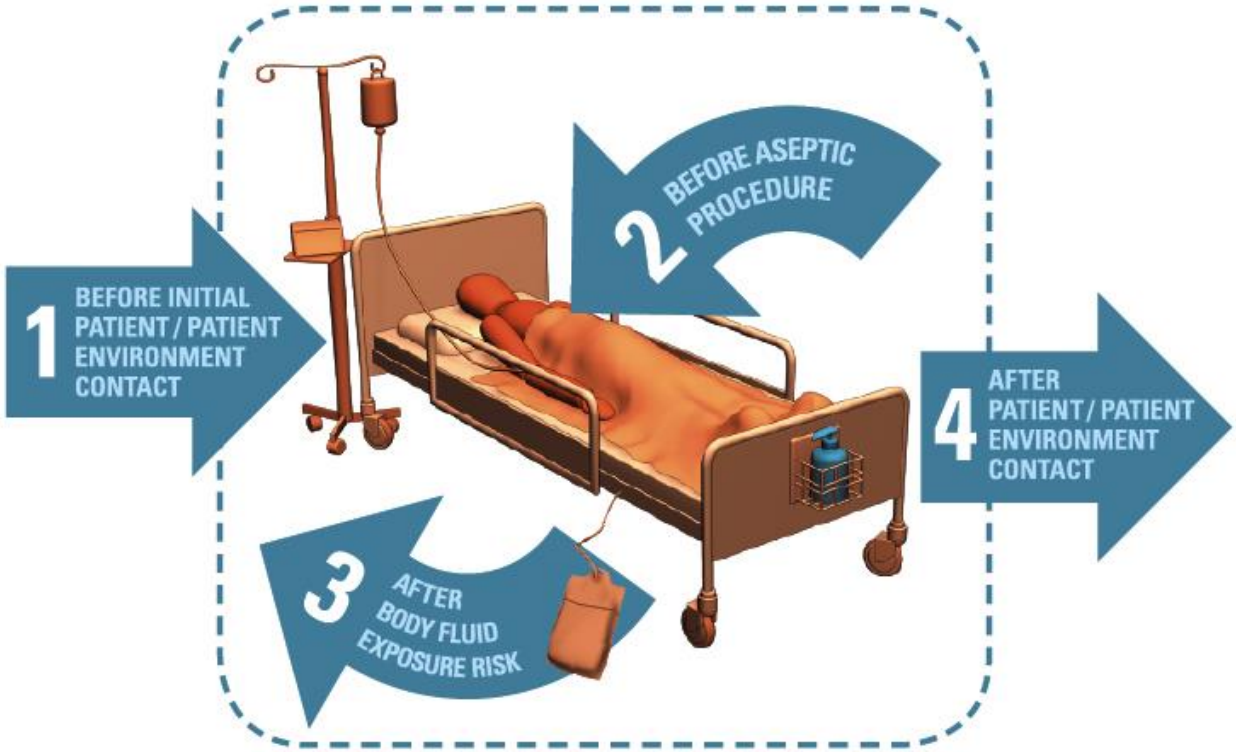
1. Did you clean your hands?

Hand Hygiene

A hand hygiene program incorporates the following elements:

- Education on when and how to clean hands.
- Moisturizers to help maintain skin integrity.
- Patient hand hygiene is available.
- Point-of-care access to HH.

Your 4 Moments for Hand Hygiene



Source: PIDAC'S *Your 4 moments Poster*, available at:
http://www.publichealthontario.ca/en/eRepository/4-moments-for-hand-hygiene-poster.pdf

Hand Hygiene Products

- **Alcohol-based hand rub (ABHR) is the preferred method to routinely decontaminate hands when hands are not visibly soiled**.
- ABHR and liquid soap must be dispensed in disposable containers and must not be 'topped up'.
- Plain liquid soap in disposable pump bottles is sufficient for general clinical office settings.
- Bar soaps must not be used.
- There is no evidence for efficacy of waterless antiseptic hand hygiene agents that do not contain 70 - 90% alcohol; their use is not recommended. They are also more irritating to hands.

2. Do you want to put on a pair of gloves?

Personal Protective Equipment (PPE)

- PPE is worn as part of Routine Practices to prevent transmission of microorganisms from patient-to-staff and from staff-to-patient.
- Selection of PPE is based on the risk assessment:
  - type of patient/provider interaction, and/or
  - the likely mode(s) of transmission of infectious agents.
- PPE includes gloves, gown and facial protection (mask and eye protection)
- The sequence for removal of PPE is very important to prevent contamination of one's self during removal
- Diagrams provided – Appendix D

Use of PPE for Routine Practices

- Gloves: worn if hands may contact blood, body fluids, secretions or excretions.
  - Wearing gloves is not a substitute for hand hygiene.
- Gown: worn if arms and/or clothing may contact blood, body fluids, secretions or excretions.
- Facial protection: worn if mucous membranes of the eyes, nose and/or mouth may be in contact with blood, body fluids, secretions, excretions
  - Prescription eye glasses are not acceptable as eye protection.
- Assess the demographics of your practice to determine the need for N95 respirators. If patients with pulmonary TB will be seen or diagnostic tests for pulmonary TB will be done (e.g., bronchoscopy), there must be a respiratory protection program in place.

Additional Precautions

- IPAC interventions (e.g., PPE, patient placement, additional environmental controls) to be used in addition to Routine Practices to protect staff and patients from transmission of infectious agents that are suspected or identified in a patient.
- Additional Precautions are based on the mode of transmission:
  - Contact Precautions (e.g. AROs): gloves +/- gown
  - Droplet Precautions (e.g. pertussis): mask and eye protection
  - Droplet + Contact Precautions (influenza): mask, eye protection, gloves +/- gown
  - Airborne Precautions (TB, measles): N95 respirator
- Elements of each type of precautions and examples of common infections provided

Assessment for Additional Precautions

- Collect simple triaging information at the time of booking, if appropriate (e.g., same day or next day booking) and at reception.
- Information collected should include symptoms of acute respiratory infection (ARI) or GI infection
  - cough, fever, vomiting, diarrhea
- Additional screening, in keeping with the patient population, (e.g., chickenpox in paediatric office, conjunctivitis in ophthalmology office)

3. That person next to me in the waiting room is coughing!

Respiratory Etiquette

Personal practices to prevent spread of respiratory infections by minimizing contact with droplets from coughing or sneezing:

- turning head away from others
- maintaining 2-metre separation from others
- covering nose and mouth with tissue
- immediate disposal of tissues into waste after use
- immediate hand hygiene after disposal of tissues
- consider providing a Plexiglas barrier at reception to protect staff

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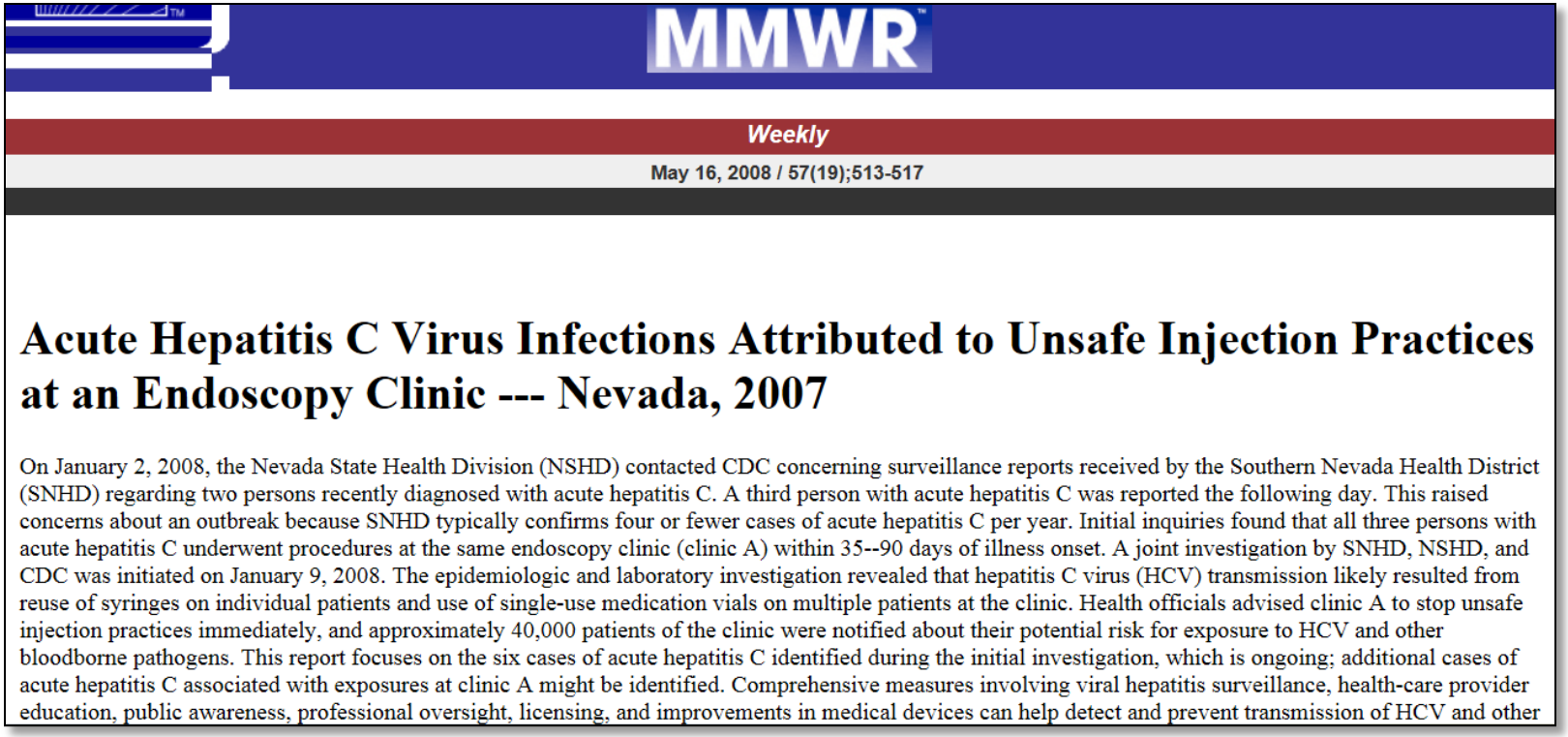
4. How did you draw up that medication?

Reuse of syringes on individual patients and use of single-use medication vial on multiple patients; 40,000 notified; 6 confirmed cases



MMWR

Weekly

May 16, 2008 / 57(19);513-517

Acute Hepatitis C Virus Infections Attributed to Unsafe Injection Practices at an Endoscopy Clinic --- Nevada, 2007

On January 2, 2008, the Nevada State Health Division (NSHD) contacted CDC concerning surveillance reports received by the Southern Nevada Health District (SNHD) regarding two persons recently diagnosed with acute hepatitis C. A third person with acute hepatitis C was reported the following day. This raised concerns about an outbreak because SNHD typically confirms four or fewer cases of acute hepatitis C per year. Initial inquiries found that all three persons with acute hepatitis C underwent procedures at the same endoscopy clinic (clinic A) within 35--90 days of illness onset. A joint investigation by SNHD, NSHD, and CDC was initiated on January 9, 2008. The epidemiologic and laboratory investigation revealed that hepatitis C virus (HCV) transmission likely resulted from reuse of syringes on individual patients and use of single-use medication vials on multiple patients at the clinic. Health officials advised clinic A to stop unsafe injection practices immediately, and approximately 40,000 patients of the clinic were notified about their potential risk for exposure to HCV and other bloodborne pathogens. This report focuses on the six cases of acute hepatitis C identified during the initial investigation, which is ongoing; additional cases of acute hepatitis C associated with exposures at clinic A might be identified. Comprehensive measures involving viral hepatitis surveillance, health-care provider education, public awareness, professional oversight, licensing, and improvements in medical devices can help detect and prevent transmission of HCV and other

Alberta 2008: 2700 patients followed up

Contaminated in Canada: Syringes Re-used for Nearly Two Decades

October 28, 2008, 06:00:00PM. By ***Gordon Gibb***

High Prairie, AB: It's happened again. Reminiscent of the **syringe scare** at the Endoscopy Center of Southern Nevada, a Canadian hospital has been put on alert after reused syringes were found to have been used on a host of patients across nearly two decades. As the American parallel has shown, the multiple use of a syringe needle can promote the spread of infection.

Following the revelation, it was confirmed that up to 2,700 patients who underwent procedures at the High Prairie Health Complex in northern Alberta would need to be tested.

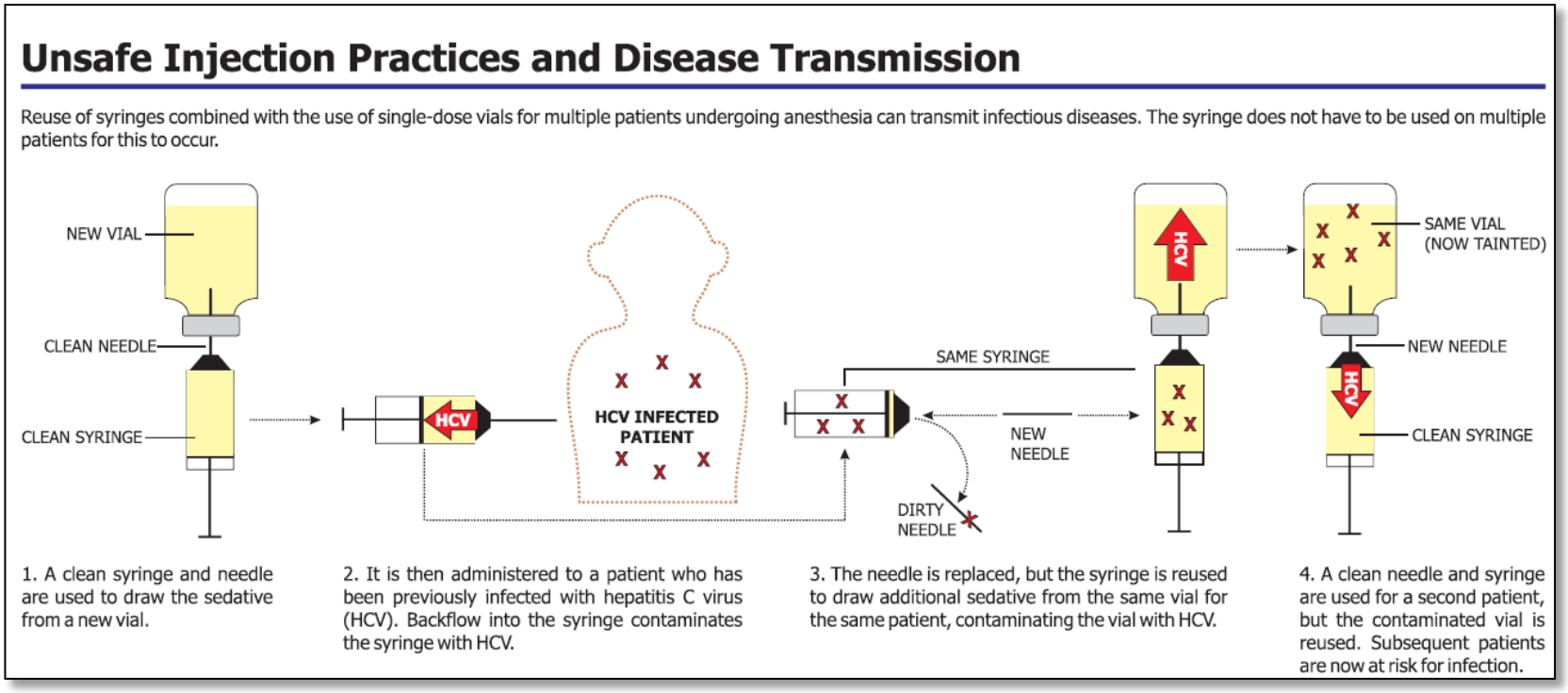
This isn't the first time that the issue has clouded Canada's health care system. Early last year the 25-bed St. Joseph's Hospital in Vegreville, a community east of Edmonton, was closed for several weeks after poor sterilization techniques le to the outbreak of a superbug. Up to 3000 patients had to be tested after it wa determined that surgical instruments contained flecks of blood and dead tissue were recirculated.

Part of the tragedy of this most recent concern is that many of the patients wh will undergo testing, will be children. While blood tests are currently being arranged for some 1300 patients who underwent endoscopy procedures at the High Prairie facility over a 4-year period dating back to March of 2004, an additional 1400 patients who had dental surgeries at the same hospital will require testing. Those surgeries date back almost two decades to 1990. "We are assuming at this point that a large numbe of them will be children," said Dr. Albert de Villiers, the Medical Health Officer for the region, in statements made at a news conference Monday, "because it's more children that get dental surgery."

Self Administration of Injectables

- Transmission of blood borne viruses and other microbial pathogens to patients during routine health care procedures continues to occur due to unsafe and improper injection, infusion and medication vial practices being used by health care professionals within various clinical office settings.
- Checklist for safe medication practice provided (Appendix H)

What is the reuse of syringes and multidose vials?



Source: Image used with permission from the Southern Nevada Health District

Self Administration of Injectables: General principles

- Store medications in secure area.
- Provide hand hygiene facilities in the medication prep area.
- Store and prepare medications and supplies in a clean area on a clean surface.
- Date opened containers of sterile solutions and discard every 24 hours and/or according to manufacturer's instructions.
- Discard outdated medications.
- Provide puncture-resistant sharps container at point-of-use.

Self Administration of Injectables: Aseptic Technique

- Perform hand hygiene prior to accessing supplies, handling vials and IV solutions, and preparing or administering medications.
- Use aseptic technique in all aspects of parenteral medication administration, medication vial use, injections and glucose monitoring procedures.
- Never administer medication from the same syringe to more than one patient, even if the needle is changed between patients.
- Never store needles and syringes unwrapped as sterility cannot be assured.
- Do not set up administration sets ahead of time. Once set up, an administration set should be covered.
- Do not use intravenous solution bags as a common source of supply for multiple patients.

Self Administration of Injectables: Single Dose Vials

Single dose vials are preferred over multidose vials, however:

- Do not reuse single dose vials. They should be entered once and then immediately discarded.
- Cleanse the access diaphragm of vials using friction and 70% alcohol. Allow to dry before inserting a needle into the vial.
- Always use a new sterile syringe and needle when entering a vial
- The leftover contents of single dose vials should never be combined or pooled.

Self Administration of Injectables: Multidose Vials

Outbreaks associated with multidose vials in outpatient settings are frequent and recurring. Multidose vials should be avoided when possible. When multidose vials are used:

- Never re-enter a vial with a used needle/syringe.
- Access all vials using a new sterile syringe, needle/cannula for each access and adhere to aseptic technique.
- See the product leaflet for recommended duration of use after entry of multidose vial.
- Mark vial with the date it was first used, to facilitate discarding at the appropriate time.
- Discard opened multidose medication vials according to the manufacturer's instructions or 28 days after opening, whichever is shorter.
- Use multidose medication vials for a single patient whenever possible.
- Never leave a needle in a multidose vial.
- Discard medication vials if sterility is questioned or compromised.

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5. Is that lancet hub new?

Glucose Point-of-Care Testing

- Outbreaks have been described relating to the reuse of fingerstick (lancing) devices (e.g., glucometers) between patients.
- Fingerstick devices should **never** be shared, including the lancet, lancet hubs and the pen-like device that houses the lancet.
- Whenever possible, blood monitoring devices such as glucose meters should **not** be shared.
  - If they must be shared, the device should be cleaned and disinfected after every use, according to the manufacturer's instructions.
  - If the manufacturer does not specify how the device should be cleaned and disinfected between patients, or if the device is labelled for single patient use, it must not be shared

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6. Is that examination table clean?

Cleaning the Environment

Clinical office settings have 3 components for cleaning purposes:

- Public component: public areas of the clinical office that are not involved in patient care, e.g., waiting rooms, offices, corridors. Public areas are cleaned with a detergent.
- Clinical component: area involved in patient care, including examination rooms, procedure rooms, bathrooms and diagnostic and treatment areas. Clinical areas are cleaned with a detergent and hospital-grade disinfected.
- Surgical component: area involved in surgery and invasive procedures. Surgical areas are cleaned and disinfected according to Operating Room Nurses Association of Canada (ORNAC) standards.

Cleaning the Environment in the PIDAC/CPSO document

- General Principles of Environmental Cleaning
- Choosing Surfaces and Finishes
- Principles of Cleaning and Disinfection
- Choosing and Using Cleaning and Disinfecting Products
- Cleaning Between Patients
- End of Day Cleaning
- Scheduled Cleaning
- Cleaning up Body Fluid Spills
- Cleaning Electronic Equipment
- Magazines/ Books/ Toys
- Waste disposal: biomedical vs general
- Sharps and Sharps Containers

Clinical Office Design/Renovations

- When renovating or moving to new clinical offices, there shall be compliance with current local municipal regulations for premises as well as standards from the Canadian Standards Association (CSA).
- IPAC recommendations when leasing or renovating clinical office space are provided in the CPSO/PIDAC document

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7. Did you clean your stethoscope?

Reprocessing Medical Equipment

- Patient expectations of safety are the same, regardless of where the procedure is performed (i.e., clinical office or hospital).
- The reprocessing method, level and products required for medical equipment/devices shall reflect the intended use of the equipment/device and the potential risk of infection involved in the use of the equipment/device.
- The level of reprocessing for medical equipment/devices is determined by Spaulding's criteria:
  - Critical: enters sterile body space/tissue – sterility required
  - Semicritical: contacts mucous membrane or non-intact skin – minimum high level disinfection required; sterility preferred
  - Non-critical: contacts intact skin only – low level disinfection

Spaulding is the name of a tennis ball… what does that have to do with anything?

Table 1: Spaulding's Classification of Medical Equipment/Devices and Required Level of Processing/Reprocessing

Classification	Definition	Level of Processing/Reprocessing	Examples
Critical Equipment/ Device	Equipment/device that enters sterile tissues, including the vascular system	Cleaning followed by Sterilization	• Surgical instruments • Implants • Biopsy instruments • Foot care equipment • Eye and dental equipment
Semicritical Equipment/ Device	Equipment/device that comes in contact with non-intact skin or mucous membranes but does not penetrate them	Cleaning followed by High-Level Disinfection (as a minimum) Sterilization is preferred	• Respiratory therapy equipment • Anaesthesia equipment • Tonometer
Noncritical Equipment/ Device	Equipment/device that touches only intact skin and not mucous membranes, or does not directly touch the client/patient/resident	Cleaning followed by Low- Level Disinfection (in some cases, cleaning alone is acceptable)	• ECG machines • Oximeters • Bedpans, urinals, commodes

Source: PIDAC'S *Infection Prevention and Control for Clinical Office Practice*, available at: http://www.publichealthontario.ca/en/eRepository/IPAC_Clinical_Office_Practice_2013.pdf

Reprocessing Medical Equipment

- There must be a clearly designated and trained individual who is responsible for reprocessing.
- Cleaning is essential prior to disinfection or sterilization; an item that has not been cleaned cannot be disinfected or sterilized.

Requirements for Reprocessing Space

At a minimum:

- There must be a designated, segregated area for reprocessing medical equipment/devices.
- The reprocessing work area shall be physically separated from clean areas by cleanable walls or partitions.
- Surfaces in the reprocessing area must be easily cleaned and disinfected.
- Wherever chemical disinfection/sterilization is performed, air quality must be monitored when using products that produce toxic vapours and mists.
- An eyewash station must be located in the reprocessing area.
- A dedicated hand washing sink must be located in the reprocessing area.
- There shall be appropriate PPE for staff involved in reprocessing.

Single-Use Medical Devices

- Critical and semi-critical medical equipment/devices labelled as single-use must not be reprocessed and re-used unless the reprocessing is done by a licensed reprocessor
- Single-use medical equipment/devices are usually labelled by the manufacturer with this symbol: 

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8. Does your sterilizer work?

Sterilization

- Sterilization is the elimination of all disease-producing microorganisms, including spores.
- Sterilization is used on critical medical equipment/devices and, whenever possible, semicritical medical equipment/devices.
- The preferred method for decontamination of heat-resistant equipment/devices is steam sterilization.
- **Unacceptable** methods of disinfection/sterilization include:
  - dishwasher (including those with sanitizing cycles)
  - boiling
  - ultraviolet irradiation
  - glass bead sterilizers
  - chemiclave sterilizers
  - microwave ovens

Sterilization

- The sterilization process shall be monitored to ensure the integrity of the process.
  - A logbook should be kept for each sterilizer load.
  - Performance monitoring includes physical, biological and chemical indicators; all three indicators must be used.
- A procedure shall be established for the recall of improperly reprocessed medical equipment/devices.
- Upon opening the sterile equipment/device, check that the integrity of the packaging has not been compromised:
  - Visually inspect for discolouration, dampness, dust, soil, tears; if present, send for reprocessing.
  - Validate results of chemical tape and internal monitors, if present; if no change in colour, send for reprocessing.

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9. Did you disinfect that tonometer?

High-Level Disinfection (HLD)

- Semi-critical items that cannot tolerate sterilization, should receive High Level Disinfection; HLD does not destroy bacterial spores or prions.
- Use high-level disinfectants according to manufacturer's recommendations.
- Use chemical test strips to determine whether an effective concentration of active ingredients is present.
- Complete and retain a permanent record of processing.
- Do not top up prepared solutions with fresh solution
- The clinical office setting shall have ventilation systems appropriate to the process/product being used, to protect staff from toxic vapours
  - Many chemical disinfectants have occupational exposure limits that are regulated under the Occupational Health and Safety Act

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10. Have you had your flu shot?

Healthy Workplace Policies

- Establish a clear expectation that staff do not come to work when acutely ill with signs and symptoms likely due to a transmissible infection
  - Fever, cough, influenza-like symptoms, runny nose, sore throat, vomiting, diarrhea, rash or conjunctivitis.
- Health care providers who are ill must use their best judgement about working, weighing the risks and benefits of working against not providing patient care.
- A decision process for the need to initiate post-exposure prophylaxisis for blood-borne pathogens is required when staff are accidentally exposed to blood or body fluids (e.g. needle stick or splash)

Staff Immunization and Tuberculin Skin Testing

- Immunizations appropriate for health care providers include:
  - annual influenza vaccine
  - measles, mumps, rubella (MMR) vaccine (two doses) or serologic documentation of immunity
  - varicella vaccine (two doses) or serologic documentation of immunity
  - hepatitis B vaccine (complete series) and serologic confirmation of immunity for staff who may be exposed to blood, body fluids or contaminated sharps in their work
  - acellular pertussis vaccine (one dose Tdap)
  - tetanus vaccine (every 10 years)
- A TST is recommended at the beginning of employment for all persons who work in the clinical office; use two-step TST if indicated.

Legislation Relating to Clinical IPAC Practices

Preventing transmission of microorganisms to patients is a patient safety issue; preventing transmission to staff is an occupational health and safety issue.

The Occupational Health and Safety Act (OHSA)

- *A physician is an employer* if he/she employs one or more workers or contracts for the services of one or more workers.
- *A physician is a supervisor* if he/she has charge of a workplace or authority over any worker.
- *A physician is a worker* if he/she performs work or supply services for monetary compensation.
- The employer, supervisor and worker each have duties under the *Occupational Health and Safety Act*.
- No matter how small the workplace, it must be inspected at least once a month (checklist provided).
- Employers shall uphold Workplace Hazardous Materials Information System (WHMIS) standards in their workplace. Every physician should familiarize him/herself with the legislation.

Summaries/Appendices/Tools

- Summary of Mandatory Practices and Best Practice Recommendations
  - Intended to assist with self-assessment internal to the clinical office setting for quality improvement purposes
  - Separated into regulated requirements vs best practices
- Appendices
  - Tools/figures and algorithms for staff education and posting
  - Checklists for practice assessment
- References

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Questions/ Comments

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