



The Patient Safety
Education Program™
CANADA

Module 12b: Interventional Care:
Infection Control

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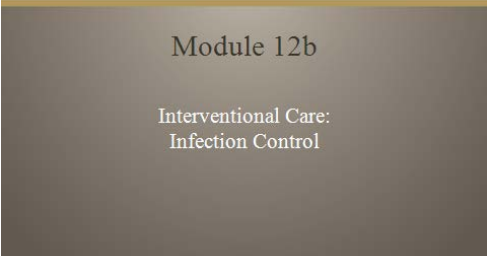
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[Revised 2017]

PSEP – Canada Objectives	Related CPSI Safety Competencies
<p>The knowledge elements include an understanding of:</p> <ul style="list-style-type: none"> • Appreciate the extent of the problem • Identify the main causes and types of infections <p>The performance elements include engaging in exercises to:</p> <ul style="list-style-type: none"> • Minimize the spread of infection • Encourage others to participate in infection prevention and control 	<p>Domain: Communicate effectively for patient care</p> <p><i>3. Health care professionals who use effective written communications for patient safety:</i></p> <ol style="list-style-type: none"> 3.1. Provide appropriately detailed and clear written or electronic entries to the patient health record 3.2. Provide sufficient documentation to facilitate team members’ comprehension of the patient’s history, physical findings, diagnosis and rationale for the diagnosis, treatment and care plan at any time 3.3. Provide patient care orders and prescriptions using safe practices to avoid misinterpretation 3.4. Write patient care orders and prescriptions to convey the appropriate degree of urgency 3.5. Use appropriate, safe written communication approaches in consultation requests and responses, investigative, operative and other reports, and other correspondence 3.6. Identify and promote well-designed patient education material 3.7. Recognize the safety implications of using abbreviations 3.8. Document the rationale for significant deviations from established processes or guidelines

Abstract

Slide 1



This module focuses on infection prevention and control in healthcare settings. Healthcare associated infections (HAI), also known as nosocomial infections, are a major cause of death and disability worldwide. In Canada alone, over 220,000 patients per year acquire one or more healthcare associated infections during a hospital stay with 8,000 – 12,000 dying as a result. This alarming rate has led to increased attention by clinicians, managers, institutions, health regions and governments to preventing infections. Calls for safer infection prevention and control (IPAC) practices and increased attention to the risks of transmission have been made, something that is more an issue of compliance with best practices rather than safer IPAC practices not being known.

In 2009, Accreditation Canada introduced a standard framework to plan, implement and evaluate an effective infection prevention and control program and the various practices and components that must be taken into account, in an effort to add influence to this critical safety issue. This, in addition to other guidelines and campaigns, such as those put forth by IPAC-Canada and the Public Health Agency of Canada (PHAC), among others, help to show healthcare workers how they can individually and collectively work to minimize the acquisition and repercussions of healthcare associated infection.

Keywords

Infection prevention and control, hand hygiene, transmission, cross infection, health acquired infections, drug resistant, AROs (Antibiotic-resistant organisms), Multi Drug Resistant Organisms (MDRO), Methicillin-resistant Staphylococcus aureus (MRSA) infection, healthcare associated infections, poor infection prevention and control, urinary tract infections, catheter associated urinary tract infections, surgical site infections, blood stream infections, ventilator associated pneumonia, good hospital hygiene, pathogens, decontamination, antimicrobial hand washing agents, blood borne virus infections

Teaching methods

Small group, case-based discussions, role play

Objectives

Slide 2

Knowledge requirements

- Appreciate the extent of the problem
- Identify the main causes and types of infections

Slide 3

Performance requirements

- Minimize the spread of infection
- Encourage others to participate in infection prevention and control

The objective of this module is to define and state the devastating effects of inadequate infection prevention and control measures and identify different ways to minimize pathogen transmission.

Knowledge elements

The knowledge elements include an understanding of:

- appreciate the extent of the problem, and
- identify the main causes and types of infections.

Performance elements

The performance elements include engaging in exercises to:

- minimize the spread of infection, and
- encourage others to participate in infection prevention and control.

Clinical case on trigger tape

Slide 4

Trigger tape



A junior resident reminds a senior clinician that sterile gloves are needed for a lumbar puncture procedure. The senior clinician is in a hurry and is obviously annoyed, but consents due to the persistence of the junior doctor.

Introduction

Slide 5

Introduction

- Canadian Patient Safety Institute
- World Health Organization
guidelines on hand hygiene in health care
- Centers for Disease Control and Prevention
management of multidrug-resistant organisms in
health care settings 2006

Infections have been a worrying factor associated with healthcare for centuries. But the link between hand washing and the spread of disease has only been established in the last 200 years. Until relatively recently, infection was considered an inevitable outcome that could be managed with the use of antibiotics. This heavy reliance on antibiotic use, has rendered more than 70% of hospital acquired bacterial infections to be resistant to at least one of the drugs most commonly used to treat them. Infected patients with drug-resistant organisms are more likely to have longer hospital stays and require treatment with second- or third-choice drugs that may be less effective, more toxic, and/or more expensive. Improving infection prevention and control practice is currently a high priority with a number of national and international organizations focusing on improvement through the implementation of endorsed guidelines aimed at reducing death from transmission of hospital-acquired infections. These organizations and campaigns include:

- Health Canada;
- Provincial Infectious Diseases Advisory Committee;
- Just Clean Your Hands;
- Canadian Patient Safety Institute ([CPSI](#));
- Accreditation Canada;
- Infection Prevention and Control Canada ([IPAC Canada](#));
- World Health Organization (WHO); and
- Institute for Healthcare Improvement (IHI).

Safer Healthcare Now!

Slide 6

Safer Healthcare Now!

□ Established in Canada in 2005 as a Canadian response to the U.S.'s "5 Million Lives Campaign"
 □ 5 key interventions
 CLABSI – Central Line-Associated Bloodstream Infection;
 IPAC – Infection Prevention and Control;
 Sepsis – Recognizing and treating severe sepsis;
 SSI – Surgical Site Infection; and
 VAP – Ventilator Associated Pneumonia

Safer Healthcare Now! was established in Canada in 2005 as a Canadian response to the United States' "5 Million Lives" campaign. Since this time the *Safer Healthcare Now!* campaign has been preventing patient safety incidents through the use of *Safer Healthcare Now!* interventions - a series of customizable, reliable, tested, and practical tools for improving quality and patient safety.

5 key interventions related to infection prevention and control have been developed:

1. CLABSI – Central Line-Associated Bloodstream Infection;
2. IPAC – Infection Prevention and Control;
3. Sepsis - Recognizing and treating severe sepsis;
4. SSI – Surgical Site Infection; and
5. VAP – Ventilator Associated Pneumonia.

Extent of the problem

Slide 7

Multi Drug Resistant Organisms (MDROs)

- MDROs are microorganisms, predominantly bacteria, that are resistant to two or more classes of antimicrobial agents.
 - highly resistant to antimicrobial agents
 - limited options for treatment

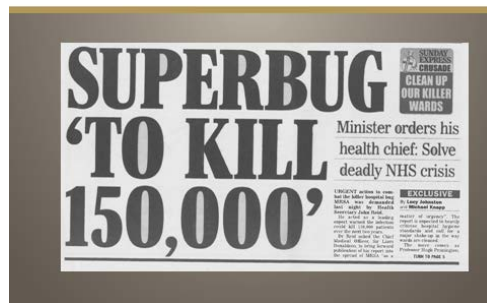
Multi Drug Resistant Organisms (MDROs) are organisms resistant to 2 or more classes of antibiotics to which they are normally sensitive to. Examples of MDRO include Methicillin resistant staphylococcus aureus (MRSA), Vancomycin resistant enterococcus (VRE) and Pseudomonas aeruginosa resistant to multiple antibiotics.

MDROs are mainly found in acute care settings, but all settings where healthcare is delivered are at risk of infection through the transmission of antimicrobial-resistant organisms. Patients vary in their response to exposure to the MDRO, as do the institutions in relation to their attention to the problem. Close attention to their environment is required by healthcare workers in applying prevention methods designed to control the spread of pathogens.

Successful prevention and control of MDROs cannot rest with the individual healthcare worker even though they bear some responsibility. Administrative and scientific leadership is necessary with a commitment to the financial and human resources required for maintaining an effective prevention and control program.

Slide 8

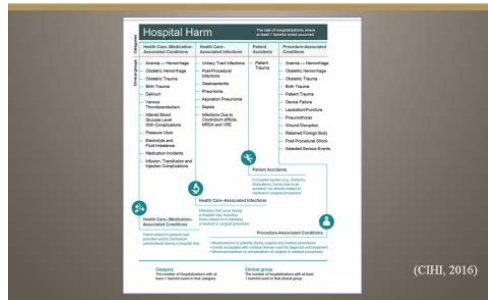
MSRA in the UK



Methicillin resistant *Staphylococcus aureus* (MRSA) has been associated with high fatalities in patients. MRSA was first isolated in the US in 1998. In 2007, MRSA rates were at 8.62 per 1,000 patients according to The Canadian Nosocomial Infection

Surveillance Program (CNISP) system. Today it is just one of a number of antibiotic-resistant organisms found in hospital settings.

Slide 9 **Healthcare associated infection (HAI)**



Healthcare-associated infections are a common complication for patients in hospitals although infections are a problem in primary and community settings as well. In 2016 the CPSI and the Canadian Institute for Health Information (CIHI) released a Hospital Harm Indicator report which showed that 37% of preventable harm incidents measured in a hospital setting were attributable to infections.

Poor infection prevention and control not only means increased costs per patient but patient suffering and deaths. Hospitals once considered infections an inevitable problem associated with an older and sicker population, however this is no longer a viable position given the extent of the infected population and the costs associated with it.

Main causes of infections

Slide 10 **Main causes of HAI's**

- Bacteria, fungi or viruses enter the body via:
 - person-person via hands of health care providers
 - personal equipment (e.g., stethoscopes, cell phones)
 - multi use equipment (glucometers)
 - medical equipment inappropriately reprocessed
 - environmental contamination
 - airborne transmission

Patients vulnerable to colonization and infection include those with severe disease, recent surgery or implanted medical devices such as urinary catheters or endotracheal tubes. Epidemiological evidence suggests that antibiotic-resistant organisms are carried from person-to-person by the hands of healthcare professionals as well as from personal and multiuse equipment (stethoscopes, cell phones, glucometers).

Main types of infections

Slide 11

Types of infections

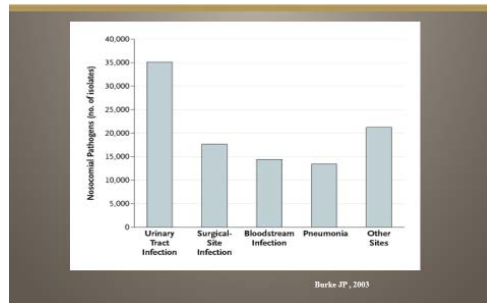
4 types of infections account for >80% of all HAI infections namely:

- urinary tract infections (catheter related)
- surgical-site infection
- blood stream infection (use of intravascular device)
- pneumonia (ventilator associated)

Burke J Infection control a problem for patient safety
New Eng Journal of Medicine, 2003

Slide 12

Types of infections



The problem of hospital-acquired infections has been a long standing one but the risks of infection are increasing. Four types of infections account for more than 80% of all nosocomial infections:

1. urinary tract infections usually associated with catheters (most frequent, accounting for about 35% hospital-acquired infections);
2. surgical site infections (second in frequency; about 20%);
3. blood stream infections associated with the use of an intravascular device (about 15%); and
4. pneumonia associated with ventilators (about 15%).

(Burke JP, 2003)

Infections rates in the first two categories are falling with better surveillance and decreased time spent in the hospital. Nearly a quarter of all infected patients are in an Intensive Care Unit (ICU) with more than 70% of the patients having microorganisms that are resistant to one or more antibiotics.

Minimize the spread of infections

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Preventing HAIs

- Hospital environmental hygiene
- Hand hygiene
- Use of personal protective equipment
- Safe use and disposal of sharps
- Reprocessing
- Screening for communicable diseases
- Immunization

Many systematic reviews and expert committees have studied various ways to minimize the opportunities for contamination and reduce infections in patients. Various areas have been identified that with appropriate attention and introduction of best practices can reduce the number of patients exposed to infection. (Mehta Y, et al, 2014)

Optimal hygiene practices in healthcare settings

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Hospital hygiene

- Visibly clean hospital environment
- Increased levels of cleaning during outbreaks
- Use of hypochlorite and detergent should be considered in outbreaks

Clean hospitals

Studies show that when staff do not use the right cleaning methods the chances of MRSA contamination of personal equipment increases. Cleanliness is everybody's business.

Applying good hospital hygiene is an important first step in preventing the transmission of HAIs. A wide range of activities have been identified for maintaining a clean hospital including: cleaning, decontamination, laundry and housekeeping, safe collection and disposal of clinical waste, kitchen and food hygiene.

We now know that microorganisms are transmitted via direct contact with contaminated equipment, or indirectly by hand-to-hand contact. MRSA and other pathogens have been recovered from door handles, computer keyboards, sinks, soap dispensers and dusty places. While there is no conclusive evidence that the environment is responsible for the

contamination of patients, the fact that the pathogens are found in the environment means that individuals can have the pathogens on their hands and thus the potential for transmission to patients.

While there is debate about the relationship between environmental pathogens and transmission to patients there is agreement about the following:

- hospital environments should be clean of dust and soilage as per organizational policies on how, where, and when to clean and double-clean;
- increased levels of cleaning should be considered in outbreaks of infection where environmental contamination may be contributing to the spread and include the use of appropriate cleaning agent with kill-time for the outbreak specific organism should be considered; and
- the use of hypochlorite and detergent should be considered in outbreaks of infection where the pathogen concerned survives in the environment.

Clean equipment

A number of studies have confirmed pathogens have been located on a range of non-invasive equipment (stethoscopes, lifting machines, ultrasound probes). Studies have started to show evidence of a direct link between the presence of the pathogen on the equipment and the infection in patients. Equipment, similar to hands, can act as a vehicle by which the microorganisms can transmit to patients, leading to an infection.

All equipment should be appropriately decontaminated with detergent and water after use. There are many guidelines available to identify steps in cleaning for a wide variety of equipment.

Hand hygiene

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Everybody's business!

- Individual responsibility for maintaining a safe environment
- Clarity about specific responsibilities
 - cleaning equipment
 - cleaning clinical areas
- Continuing education and reminders about cleanliness and safety

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Hand hygiene

- ❑ Need for decontamination
- ❑ How to clean hands
- ❑ Rationale for choice of clean hand practice
- ❑ Technique for hand hygiene
- ❑ Protecting hands from decontaminates
- ❑ Promoting adherence to hand hygiene guidelines

The need for hand hygiene

Transmission of infection is a frequent event in hospitals and occurs when microorganisms pass from one human being to another via hands or after contact with environmental sources such as contaminated equipment, sinks or counters. Literature reviews indicate that hand-mediated cross-transmission is a significant contributing factor in patient infections originating in hospitals.

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Organism transference

- ❑ 80% of hospital staff who have dressed wounds infected with MRSA carried that organism on their hands for up to 3 hours afterward
- ❑ 60% of hospital staff who have made contact with a patient with C. difficile infection (even when the patient wasn't touched) carried the pathogen on their hands for up to ½ hour afterward

(Mirka M., 2009)

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The case for hand hygiene

- ❑ One of the most effective measures to reduce the occurrence of HAI
- ❑ 20 seconds to properly wash hands using soap and water
- ❑ to properly clean hands with alcohol-based hand-rub – wait until dry

(<http://www.cdc.gov/features/handwashing/>)

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Hand hygiene in healthcare

- Health care providers move from patient to patient and room to room while providing care and working in the patient care environment
- This movement while carrying out tasks and procedures provides many opportunities for the transmission of organisms on hands

Patients can suffer from life threatening illnesses or death. Evidence indicates that contaminated hands are responsible for most of the cross transmission of microorganisms to patients. Good hand hygiene saves lives and reduces the strain on our healthcare system. (Roth, 2006) The implementation of evidenced based guidelines for decontaminating hands has been shown to significantly reduce cross infection and cross transmission in healthcare settings. If all healthcare workers took steps to reduce the amount of potential pathogens on their hands and did this at the right times, then logically a reduction in patient mortality and morbidity would follow.

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Hand hygiene compliance

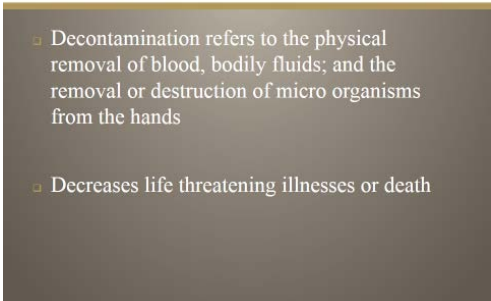
- Most health care providers believe they are already practicing good hand hygiene.
- The power to make a difference is in your hands.

To help healthcare workers and patients decide when they need to pay particular attention to the cleanliness of their hands, four key moments need to be considered:

- before initial patient/patient environment contact;
- before aseptic procedure;
- after body fluid exposure risk; and
- after patient/patient environment contact.

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Hand hygiene



Decontamination refers to the physical removal of blood, bodily fluids; and the removal or destruction of micro organisms from the hands

Decreases life threatening illnesses or death

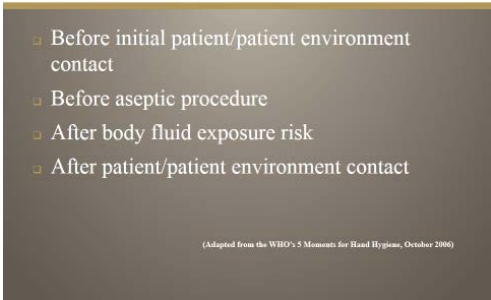
Everyone involved with patients should habitually decontaminate their hands before and after each contact or episode of patient care and following removal of gloves to minimize cross contamination of the environment. Factors to consider include:

- The level of contact with the patient or objects;
- The extent of the contamination that may occur with the contact;
- The activities being performed; and
- The susceptibility of the patient.

How to clean hands

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Four times to clean



- Before initial patient/patient environment contact
- Before aseptic procedure
- After body fluid exposure risk
- After patient/patient environment contact

(Adapted from the WHO's 5 Moments for Hand Hygiene, October 2006)

Studies comparing alcohol-based preparations and antiseptic hand washing agents favor alcohol-based hand rubs and gels in clinical practice. Which method is chosen will depend on the circumstances of the patient and the episode of care being performed. Other considerations include the resources available and what is practical under the particular circumstances.

In most social situations washing hands with alcohol-based rubs will be sufficient to remove transient microorganisms and substantially reduce resident microorganisms. But it is important to remember that alcohol-based rubs are not effective for some microorganisms such as *C. difficile*, for the removal of dirt and organic material or in some outbreak situations.

The first consideration in which method to use for hand decontamination is whether transient or resident hand flora is to be removed. Some antiseptic agents can leave a residual effect on the skin which can be useful in situations where prolonged reduction in microbial flora on the skin is required, such as in surgery. Guidelines have been developed to assist healthcare workers in assessing the situation and deciding on the appropriate method for decontamination.

Generally the following rules apply in hand decontamination:

- hands that are visibly soiled or potentially contaminated with dirt or organic material (even after the removal of gloves) must be washed with liquid soap and water;
- hands should be decontaminated between caring for different patients or between different care activities for the same patient (alcohol-based rubs are preferable unless hands are visibly soiled), and in cases of outbreak, local infection prevention and control guidelines may recommend other agents; and
- hands should be washed with soap and water after several applications of alcohol-based hand rub.

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Point of care

- The place where three elements align:
 - the patient
 - the healthcare worker
 - the care of the patient involving any contact with the patient or the patient's zone
- An alcohol based hand rub dispenser should be as close as possible to the point of care

Technique

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How to hand rub

Slide 25

How to hand wash



Experts recommend that all healthcare workers remove wrist and hand jewellery before commencing a shift. This cuts down on the number of microorganisms that attach to the hands since it is difficult to clean such items and they remain a possible vehicle for transmission.

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Technique ...

- ❑ Gloves do not replace the practice of optimal hand hygiene
- ❑ Avoid hand washing immediately before or after using an alcohol-based hand rub
- ❑ Avoid hot water
- ❑ Let hands dry completely before donning gloves

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... Technique

- ❑ Use hand lotions and creams
- ❑ Allergies or adverse reactions – use alternative products
- ❑ No artificial fingernails or extenders
- ❑ Keep natural nails short (0.5 cm)
- ❑ Remove jewellery

We know that approximately 40% of Canadian healthcare workers do not perform hand hygiene according to recommended guidelines. (Gautham S, 2004) Time is usually a factor with busy people taking shortcuts in hand hygiene however this can be disastrous for a vulnerable patient. There are three basic steps in good hand washing. They are: preparation--using the right agent--washing and rinsing and drying. The techniques mentioned previously come from *Safer Healthcare Now!*'s Stop! Clean Your Hands initiative.

Self care of the skin

Skin damage is usually caused by the detergent base of the cleaning product being used or poor hand washing technique. Frequent use of hand hygiene agents has also been shown to cause damage to skin and alter normal hand flora. This factor has been identified as the reason why some healthcare workers do not comply with hand hygiene guidelines. Recommendations for skin care include the use of hand lotions and moisturizers to help maintain skin integrity.

Promoting the use of hand hygiene

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It is important to have in place guidelines that work and which healthcare professionals will use.

What works and what does not:

- single interventions;
- reminders;
- easy access to alcohol-based;
- use of motivational strategies with feedback;
- providing patients with information and actively engaging them in hand hygiene improvement programs; and
- national blended e-learning programs on preventing HAIs.

The best way to improve hand hygiene is to use a multi modal approach. This includes the following:

- applying human factors to the placement of all hand hygiene products in all healthcare settings;
- easily available alcohol-based hands rub in all healthcare settings;
- auditing of hand hygiene practices and resources at regular intervals;
- the provision of feedback to all staff about the audit findings; and
- regular education and training in risk assessment, effective hand hygiene and glove use.

The use of personal protective equipment

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Protective equipment

- Assess the risks of exposure to bodily fluids
- Everyone should be educated and trained in the use of protective equipment
- Supplies of gowns, gloves and face protection must be easily available/accessible

Personal protective equipment (PPE) is an integral part of routine practices. PPE includes the use of gowns, gloves, aprons, eye protection and face protection.

The individual healthcare worker needs to assess the type of protective equipment necessary for each procedure. This should be based on assessment of the risk to the patient or to the care giver, as well as the risk of contamination of the healthcare environment including practitioner’s clothing and skin by patient’s blood, bodily fluids, secretions or excretions.

Gloves

Gloves are now an everyday part of clinical practice. There are two main indicators for wearing gloves in the clinical setting:

1. to protect the hands from contamination with organic matter and microorganisms, and
2. to reduce the risk of transmitting microorganisms to both patients and staff.

Gloves are made for single use and must be discarded after each episode of care activity.

Gloves are not free from defects and sometimes leak. Although standards exist for the quality of medical gloves, studies show that even when gloves are worn there is the possibility of contamination. The use of gloves as a barrier method cannot be relied upon to remove all the risks associated with contaminated hands and therefore hand hygiene on removal of gloves is important. The following principles apply:

- gloves must be worn for all invasive procedures, contact with sterile sites, contact with non-intact skin or mucous membranes, all activities assessed as having a risk of exposure to blood, bodily fluids, secretions and excretions, and handling sharps or contaminated instruments;
- gloves should be worn only once and should be put on immediately before the care activity, removed immediately afterwards and changed between patients and episodes of care; and

- gloves must be disposed of and hands must be decontaminated by performing hand hygiene.

Aprons (gowns) and face protection (i.e. masks)

A few studies show high levels of Vancomycin-Resistant Enterococci (VRE) contamination of gowns, gloves and stethoscopes immediately after contact with infected patients. Therefore, provincial, national and international guidelines recommend that protective clothing be worn by all healthcare workers who have close contact with the patient and the patient’s equipment, environment or materials.

Guidelines suggest that healthcare professionals:

- wear a gown when there is a risk that clothing may become contaminated;
- remove gown after each episode of care or procedure, disposable gowns are to be discarded and non-disposable gowns are to be laundered between each use; and
- wear full-body, fluid-repellant gowns when there is a risk of extensive splashing of blood, bodily fluids, secretions or excretions with the exception of perspiration.

Face masks and eye protection should be worn when there is a risk of blood, bodily fluids, secretions and excretions splashing into the face and eyes. Eye protection and face protection go together in most instances. Respirators are to be worn when caring for patients with respiratory infections transmitted by airborne particles, such as pulmonary tuberculosis and chicken pox.

The safe use of disposals and sharps

Slide 30

Safe sharp practices

- Handling kept to a minimum
- Do not recap!
- Safety needles should be used
- Discard at point of care into sharps container
- Do not overload the container

Needle stick injuries remain a significant problem for healthcare workers and sit alongside other injuries such as falls and handling and exposure to hazardous substances. Although infections by blood-borne viruses are largely preventable many healthcare professionals are still infected each year. The average risk of transmission of blood borne viruses following a single percutaneous exposure from an infected person (without appropriate post exposure prophylaxis) is estimated to be:

- hepatitis B virus - 33.3% (1 in 3);
- hepatitis C virus - 1.8-1.9% (1 in 50); and
- human immunodeficiency virus (HIV) - 0.3% (1 in 300).

Everyone has a responsibility to avoid needle stick injuries and to dispose of needles safely. Some examples of safety precautions include:

- handling should be kept to a minimum and passed from hand to hand;
- needles should not be recapped, bent or broken after use;
- safety needles should be used;
- users must discard needles into a sharps container at the point of use;
- when a bin is full it should not be overloaded;
- all sharps bins should be positioned out of reach of children and at a height that permits safe disposal by members of the team; and
- everyone should be educated about the safe use and disposal of sharps.

Summary

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Summary

- Know and understand how to apply hand hygiene practices and guidelines
- Ensure adequate supplies are available and consider human factors
- Educate provide opportunities for patients and families to participate
- Audit hand hygiene practices
- Peer to peer support

Infections have been a worrying factor associated with healthcare for centuries. Until recently infection was considered inevitable and managed by antibiotics and infection prevention and control nurses. However, antibiotics are no longer effective for a growing number of patients. Although there is much to be learned about infection prevention, there are some concrete steps, as outlined in this module, which can significantly reduce rates of infection and therefore illness.

Potential pitfalls

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Potential pitfalls

- Implementing a guideline without sufficient preparation
- Failing to involve the team in selecting the protocol and implementation process
- Failing to have a process to measure the results
- Failing to have a plan for managing violations and non-compliance that applies to everyone equally

1. Implementing a best practice or guideline without sufficient preparation
2. Failing to involve the team in selecting the protocol and implementation process
3. Failing to have a process to measure the results
4. Failing to have a plan for managing violations and non-compliance that applies to everyone equally

Pearls

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Pearls ...

- Understand and be able to tell others about the evidence underpinning infections in your area of work.
- Know the Four Moments for Hand Hygiene
- Know and understand how to use PPEs (personal protective equipment)



















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... Pearls

- Engage patients and families in hand hygiene / infection control practices
- Peer to peer support, mentorship, and accountability is essential to success
- Know the guidelines available for infection control in your area
- Measure and share successes when efforts result in reduction of infections

1. Understand and be able to tell others about the evidence underpinning infections in your area of work.
2. Know the Four Moments for Hand Hygiene
3. Know and understand how to use PPEs
4. Engage patients and families in hand hygiene / infection control practices in your area
5. Peer to peer support, mentorship, and accountability is essential to success
6. Know the guidelines available for infection control in your area
7. Measure and share successes when efforts result in reduction of infections

Toolkits & outcome measures

- **Surgical Site Infection (SSI):** *Safer Healthcare Now!* (2014). Getting Started Kit: Prevent Surgical Site Infections How-to Guide. [http://www.patientsafetyinstitute.ca/en/Topic/Pages/Surgical-Site-Infection-\(SSI\).aspx?k=Surgical%20Site%20Infection%20\(SSI\)](http://www.patientsafetyinstitute.ca/en/Topic/Pages/Surgical-Site-Infection-(SSI).aspx?k=Surgical%20Site%20Infection%20(SSI))  
- **Hospital Harm Improvement Resources:** Canadian Patient Safety Institute. (2016). <http://www.patientsafetyinstitute.ca/en/toolsResources/Hospital-Harm-Measure/Improvement-Resources/Pages/default.aspx>  
- **Ventilator-Associated Pneumonia (VAP):** *Safer Healthcare Now!* (2012). Getting Started Kit: Prevention of Ventilator-Associated Pneumonia in Adults and Children How-to Guide. <http://www.saferhealthcarenow.ca/EN/Interventions/VAP/Pages/default.aspx>  
- **Central Line-Associated Infection (CLI):** *Safer Healthcare Now!* (2012). Getting Started Kit: Prevent Central Line Infections Central Line Associated - Blood Stream Infections (CLA-BSI) How-to Guide. <http://www.saferhealthcarenow.ca/en/interventions/cli/pages/default.aspx>  
- **Just Clean Your Hands:** Public Health Ontario. The *Just Clean Your Hands* program was created to help hospitals and individuals overcome the barriers to proper hand hygiene and improve compliance with hand hygiene best practices. http://www.publichealthontario.ca/en/BrowseByTopic/InfectiousDiseases/JustCleanYourHands/Pages/Just-Clean-Your-Hands.aspx?_ga=1.132095247.1670601067.1444482507  
- **Infection Control Guidelines:** Public Health Agency of Canada <http://www.phac-aspc.gc.ca/id-mi/index-eng.php>  
- **Standards for Infection Prevention and Control (IPAC):** Accreditation Canada. (2016) <https://accreditation.ca/infection-prevention-and-control>  
- **Hand Hygiene Human Factors Toolkit:** Canadian Patient Safety Institute, in conjunction with 3M and the University Health Network. <http://www.patientsafetyinstitute.ca/en/toolsResources/pages/human-factors-toolkit.aspx>  
- **New Approach To Controlling Superbugs (NACS):** *Safer Healthcare Now!* (2010). Getting Started Kit: A New Approach To Controlling Superbugs, How-to Guide. <http://www.patientsafetyinstitute.ca/en/toolsResources/Documents/Interventions/Infection%20Prevention%20and%20Control/NACS%20Getting%20Started%20Kit.pdf#search=New%20Approach%20To%20Controlling%20Superbugs%20%28NACS%29>  

- **WHO Guidelines on hand hygiene in health care (Advanced Draft): A Summary:** World Health Organization (WHO), (October 2005). http://www.who.int/patientsafety/events/05/HH_en.pdf
- **WHO Global guidelines on the prevention of surgical site infection.** World Health Organization (WHO), (November 2016). <http://apps.who.int/iris/bitstream/10665/250680/1/9789241549882-eng.pdf?ua=1>
- **How-to Guide: Improving Hand Hygiene:** Institute for Healthcare Improvement in collaboration with the Centers for Disease Control and Prevention (CDC), the Association for Professionals in Infection control and Epidemiology (APIC), and the Society of Healthcare Epidemiology of America (SHEA), (2006) <http://www.ihi.org/resources/Pages/Tools/HowtoGuideImprovingHandHygiene.aspx>
- **Healthcare-associated infections: prevention and control in primary and community care:** National Institute for Health and Care Excellence (NICE) UK, (2012) <https://www.nice.org.uk/guidance/cg139>
- **Guidelines for Preventing Healthcare-Associated Pneumonia:** Tablan O, Anderson L, Besser R, Bridges C, Hajjeh R. Recommendations of CDC and the Healthcare Infection control Practices Advisory Committee. Morbidity and Mortality Weekly Report [Serial online]. March 26, 2004; 53(RR05):1-36. <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5303a1.htm>
- **Standard Physician Post-Operative Order Sets for Orthopedic Surgery:** Charleston Area Medical Center Charleston, West Virginia, USA (2004) <http://www.ihi.org/resources/Pages/Tools/StandardPhysicianPostOperativeOrderSetsforOrthopedicSurgery.aspx>
- **Surgical site infections Improvement:** Institute for Healthcare Improvement, 5 Million Lives Campaign <http://www.ihi.org/sites/search/pages/results.aspx?k=%u2022%09Surgical+site+infections+Improvement>


Resources

- Accreditation Canada. Required Organizational Practices, Infection Control (2016). <https://accreditation.ca/sites/default/files/rop-handbook-2017.pdf>
- Canadian Center for Occupational Health and Safety. Hand washing Resources. <http://www.ccohs.ca/pandemic/subject/handwashing.html>
- Information About Hand Hygiene. <http://ipac-canada.org/hand-hygiene.php>
- Health Canada. It's Your Health; The Benefits of Hand Washing (April 2010). <http://www.hc-sc.gc.ca/hl-vs/iyh-vsv/diseases-maladies/hands-mains-eng.php>
- National Collaborating Center for Infectious Diseases. Hand Hygiene News and Resources <http://nccid.ca/?s=Hand+Hygiene+>

- Public Health Agency of Canada. Hand Hygiene Resources. http://search-recherche.gc.ca/rGs/s_r?st=s&num=10&s5bm3ts21rch=x&st1rt=0&langs=eng&cdn=phac&q=hand+hygiene&Search=Search
- Public Health Agency of Canada. The Canadian Nosocomial Infection Surveillance Program (CNISP): <http://www.phac-aspc.gc.ca/nois-sinp/survprog-eng.php>
- *Safer Healthcare Now!* <http://www.saferhealthcarenow.ca/EN/Pages/default.aspx>

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Principal message

The single most important message your audience should come away with is how to identify the main causes and types of infection. They should also understand that *infection transmission* can be minimized when healthcare providers apply *infection control procedures* and are mindful of the different ways that transmission occurs.

Module overview

This module focuses on the problem of infection control in healthcare settings. The problems caused by healthcare associated infections are a major cause of death and disability worldwide. Each year in Canada more than 220,000 patients acquire one or more healthcare associated infections with more than 8,000 dying as a direct result each year. This alarming rate has led to increased attention by clinicians, managers, institutions and governments to preventing infection. Calls for safer infection control practices and increased attention to the risks of transmission have been made. Guidelines have been developed that show healthcare workers how they as individuals and members of teams can minimize the risks of cross infection.

Preparing for a presentation

1. Assess the needs of your audience

Choose from the material provided in the syllabus according to the needs of your expected participants. It is better for participants to come away with a few new pieces of information, well learned, than to come away with a deluge of information from which they can remember little or nothing. This module can easily be segmented for shorter or focused teaching and learning.

2. Presentation timing

Allow sufficient time to collect participants' demographic data and complete the pre-test.

The suggested timing for each part of this module is:

Introduction	2-3 minutes
Trigger tape & discussion	5-7 minutes
Presentation	30 minutes
Debrief about teaching methods	5 minutes
Summary	2-3 minutes
<u>Evaluation</u>	<u>5 minutes</u>
Total	49-53 minutes

3. Number of slides: 34

4. Preparing your presentation

The text in the syllabus is not designed to be used as a prepared speech. Instead, the text provides material you may want to use. The slides have been designed to trigger your presentation. Although the slides closely follow the text of the syllabus, they do not contain all of the content. Their use presumes that you have mastered the content.

You may want to make notes on the slide summary pages to help you prepare your talk in more detail and provide you with notes to follow during your presentation.

Remember that you can adjust the slides to suit your presentation content, your style, and to make it feel fully familiar and your own.

Practice your presentation using the slides you have chosen, and practice speaking to yourself in the kind of language you expect to use, until it is smooth and interesting and takes the right amount of time. The most accomplished presenters and teachers still practice prior to a presentation; don't miss this step.

5. Preparing a handout for participants

The syllabus text and slides in the **Participant's Handbook** were designed to be reproduced and provided to participants as a handout. Take the portion you need; they can be used in their entirety, module by module, or for just one specific topic. Please include the following in each set of handouts:

- **PSEP – Canada Front Cover Page;**
- **PSEP – Canada Acknowledgment Pages** (to acknowledge the source of the material);
- Syllabus and slides for **your topic**; and
- Appendix material as relevant.

6. Equipment needs

- USB memory stick with the PowerPoint slides stored on it
- Projector screen
- Computer (laptop or desktop) connected to the Projector

Test your equipment beforehand to ensure that it works.

Have a back-up plan so that if there is any equipment failure you can move without panic to your back-up plan. For instance, have in mind that:

- It is always a good idea to have a backup USB memory stick loaded with the PowerPoint slides just in case one ‘corrupts’ or goes missing. Carry the second USB memory stick in a different place so that if the ‘bag’ with the first stick is lost, the second stick is still with you, and
- If the slides cannot be shown, refer to the hand out slides.

Making the presentation

1. Introduce yourself

If you have not already done so, introduce yourself. Include your name, title, and the organization(s) you work for. Briefly describe your professional experience related to the information you will be presenting.

2. Introduce the topic

Show the title slide for the module. To establish the context for the session, make a few broad statements about the importance of topic as a patient safety matter. Tell participants the format and time you will take to present the session. Identify the teaching styles that you intend to use.

3. Review the session objectives

Show the slide with the session objectives listed. Read each objective and indicate those that you are planning to emphasize.

4. Show the trigger tape

After reviewing the objectives for the session, show the trigger tape. It has been designed to engage the audience and provide an appropriate clinical context for the session. It was not designed to demonstrate an ideal interaction, but to “trigger” discussion.

Trigger tape content

In this module’s trigger tape, a junior resident reminds a senior clinician that sterile gloves are needed for a lumbar puncture procedure. The senior clinician is in a hurry and is obviously annoyed, but consents due to the persistence of the junior physician.

Keep in mind that the facilitator may choose to use any other trigger tapes for this module, for instance if an audience has seen the trigger tape already or if a trigger tape from another source is easier for the audience to identify with.

A teachable moment: discussion after the trigger tape

After the trigger tape, ask the participants for their comments about the issues and the interaction they have just seen. To affirm what they contribute, consider recording the important points on a flipchart or overhead projector.

If the discussion is slow to start, you may want to ask more direct questions, like:

- Has your workplace ever had concerns about infection transmission?
- How does your institution let staff know about the problems caused by poor infection control?
- Does your institution keep information about the rates of infection? If so, what do they do with it?

Use the discussion to set the stage for the material to follow. Do not let the discussion focus on a critique of the technical quality of the video or how “real” the players seemed. If the participants do not like something that was said or done in the video, acknowledge that there is always room for improvement and ask them how they would do it themselves.

Setting limits to discussion time

It is usually best to limit discussion of the video to no more than five minutes, then move on to the presentation. To help move on if the discussion is very engaged, try saying something like:

- Let’s hear two last points before we move on, and
- Now that you have raised many of the tough questions, let’s see how many practical answers we can find.

For the more advanced facilitator who is very confident of both the patient safety material and his or her pedagogic skills, it is possible to use the trigger tape as a form of case-based teaching and to facilitate the discussion to draw out the teaching points of the module. The hazard of this approach is that the discussion will not yield the desired teaching points. Feel free to return to the slides if this happens. If this approach is used, it is essential to write up the points on a flip chart as they arise, to fill in any gaps and to summarize at the end. Again, use this method with caution and only if you are really ready.

5. Present the material

Recommended style: Interactive lecture

An interactive lecture will permit you to engage your audience, yet cover your chosen material within the time. You can use as your interactive components the trigger tape stimulated discussion and an interactive exercise. To foster discussion, ask participants for examples from their institutions or experiences. Ideally, the examples could be linked to one of the major teaching points.

Ask the participants what their major concerns are regarding infection control and to give you a case from their institution or experience. Once you find a case that resonates with the group, you may choose a focus. Have a backup case from your own experience in case you there are reasons to not go into the ones from the audience. Choose the focus so that you can deliver specific content you have prepared.

Interactive exercise

Use one of the *Safer Healthcare Now!* Getting Started Kits (Please note that this is only a suggested toolkit, you may use any toolkit from the list provided at the end of the module.) Ask your participants to work in small groups and discuss how these tools could be used in their institution to ensure successful procedures and to track compliance and patient outcomes.

When the groups have completed the task, invite them to comment on:

- what they liked and disliked about the tool;
- what information can be inferred from their data and how they would allocate resources based on the data; and
- how they would implement this tool within their institution and how it could be improved.

Alternative style: case-based teaching in small groups

Use the trigger tape to include some case-based teaching. To help participants feel involved and invested, you may invite them to give you a case from their institution or experience. However, it is usually best to return to the trigger tape to draw out analytic points for teaching since the case is known to you and you do not need to ‘think on your feet’ too much.

Summarize the steps for infection control either by using slides that can stay on the screen or by listing them on a flipchart. Then, introduce the case based discussion exercise so that everyone knows the focus of the discussion.

Ask participants to divide into small groups of five to six. Continue the interaction for about ten minutes. Then, stop and ask each participant to comment to his or her partners about one another’s handling of the interaction (total of five minutes). The following questions may help to guide the feedback:

- What did it feel like to have the discussion?
- Did the case resonate with the participants?
- What points should be emphasized during the discussion?

After the small group discussion (total 15 minutes), lead the larger group in a discussion of their experiences. Use the flipchart to capture the important discussion points. Use the discussion to interweave the key take-home points from the syllabus.

6. Key take-home points

1. Healthcare associated infections (HAI) are a major problem in healthcare.
2. There is plenty of evidence that identifies the causes of infections.
3. Knowing and applying the appropriate guidelines for infection control in your area can minimize the risk of transmission.
4. Institutions need to keep accurate data about infections and publicize successes when efforts reduce infections.

7. Summarize the discussion

Briefly, review each part of the presentation. Recap two or three of the most important points that were discussed.

8. Debrief about the teaching method

Tell the group that it is time to consider the teaching method used, how it worked and what its limitations were. Ask them what other methods might work, and what methods would work best *for the topic* in their home institutions. Ask them to consider what method would work best *for themselves as facilitators* and for their *target audience*.

9. Evaluation

Ask the participants to complete the evaluation form for the session.