island health

Reference Guide

INFECTION PREVENTION AND CONTROL

Best Practice

You can BROWSE by the following:

This reference guide has been prepared to assist the healthcare worker by providing a succinct and current guide to infection prevention and control strategies in various healthcare settings.

Updated March 24, 2014
Draft October 1, 2013

Note: In this reference guide the term "patient" is inclusive of patient, resident or client.

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PART 1: INTRODUCTION

Purpose

The policies and procedures set out in this reference guide are based on national and international published best practices, which may have been modified to reflect the specific needs of Island Health.

As new information becomes available, this document will be reviewed and updated, the most current edition will be accessible on the Island Health website. We advise not to print this document but instead to access it on line as required.

Scope of the Document

This document covers Island Health Acute, Residential Care, Home & Community Care and other community settings as the implementation of **routine practices** applies to all programs and departments.

Guiding Principles

Infection prevention and control strategies are designed to protect patients/residents/clients, healthcare providers and the community from the risk of transmissible disease.

A systematic approach to infection prevention and control requires each health care provider to play a vital role in protecting everyone who utilizes the healthcare system, in all of its many forms: pre-hospital settings, hospital, clinics, residential and home and community care.

To protect patients/residents/clients, staff and visitors from transmitting and/or acquiring hospital associated infections through ensuring adherence to best infection prevention and control practices.

Healthcare providers must adhere to infection prevention and control guidelines and policies at all times, and use critical thinking, risk assessment and problem solving in managing clinical situations.

Reference: Ontario Ministry of Health and Residential Care Infection Prevention and Control Core Competencies Program, Reviewed and revised January, 2011

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PART 2: INFECTION PREVENTION AND CONTROL PRACTICES AND PRECAUTIONS

1. Routine Practices

Routine practices play a key role in preventing the transmission of infectious disease and are to be used at all times with all patients/residents/clients.

Based on the assumption that all blood and certain body fluids (urine, feces, wound drainage, sputum) contain infectious organisms (bacteria, viruses or fungi), routine practices reduce exposure (both volume and frequency) of blood and body fluids to healthcare providers.

The key to implementing routine practices is to assess the risk of transmission of microorganisms before any interaction with patients/residents/clients.

Modified from: The Canadian Committee on Antibiotic Resistance (2007) Infection Prevention and Control Best Practices for Residential care, Home and Community Care including Health Care Offices and Ambulatory Clinics.

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Hand Hygiene

Hand hygiene is the single most important procedure for preventing cross infection. Body secretions, excretions, environmental surfaces and hands of all healthcare workers can carry microorganisms (bacteria, viruses and fungi) that are potentially infectious to them and others. Hand washing is known to reduce patient morbidity and mortality from hospital acquired infection. It causes a significant decrease in the carriage of potential pathogens on the hands. For more information, please see Island Health's Policy 15.1 – Hand Hygiene Policy.

Table 1: Levels of Hand Disinfection

Method	When to Use	Solution
Hand Hygiene	For Routine Practices	Alcohol based hand rub **OR** Soap and Water hand wash **For Hand Disinfection (prior to invasive procedures):** Soap and Water hand wash followed by an alcohol based hand rub
Surgical Hand Antiseptic Scrub	Prior to surgical procedures in the OR setting	As per site / hospital **surgical hand antiseptic scrub** protocol. ***Protocol for:*** Island Health -SI – OPERATING ROOMS – RJH & VGH ** Note: This link available to staff and physicians via the VIHA intranet. You will be prompted to log on if you are viewing this from an external computer. For information on accessing the intranet, click here.*

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Printed Material 1: The 4 Moments for Hand Hygiene

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Procedure 1: Hand Hygiene

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A. Nail and Skin Care

Please refer to Island Health's Policy 15.1 – Hand Hygiene Policy

Procedure 2: Nail and Skin Care

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B. Type of Cleansing Agents

Procedure 3: Cleansing Agents

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1. *Alcohol Based Hand Rub*

Use when hands are not physically soiled

Alcohol based hand rubs (ABHR) can be used in place of soap and water, except where hands are visibly soiled (e.g. feces, blood, etc.). These products should be at the point of care. They are especially useful in situations where hand washing and drying facilities are inadequate or where there is a frequent need for hands to be decontaminated (such as in client's homes).

Alcohol based surgical scrubs are used in specific settings, such as in an operating room or similar department. They are also used following a surgical scrub procedure prior to invasive and surgical procedures.

2. *Soap and Water*

Use when:

- Hands are physically soiled
- Hands look or feel dirty
- Following contact with blood or body fluids
- Following contact with any patient with diarrhea/vomiting, and their environment, including bathroom facilities

It is recommended that hands are washed with soap and water if in contact with spores (e.g. *Clostridium difficile*), because the physical action of washing, rinsing and drying hands has been proven to be more effective than alcohols, chlorhexidine, iodophors and other antiseptic agents. Please refer to Island Health's Policy 15.1 – Hand Hygiene Policy.

The soap and hand towels should be of a quality acceptable to users, so as not to deter hand washing. The skin should be maintained in good condition to discourage the accumulation of bacteria. Hand hygiene should include the cleaning of arms to the elbow, especially when wearing a sleeveless apron.

The areas of the hands that are often missed are the wrist creases, thumbs, fingertips, under the fingernails and under jewelry. For this reason, only a plain wedding band with no stones is acceptable (please refer to Island Health's Policy).

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Point of Care Risk Assessment

A Point of Care Risk Assessment (PCRA) is performed principally to rule out the presence of infectious disease and is completed where the patient, the healthcare worker and the environment interact. The purpose of a PCRA is to assess:

- The degree of exposure likely during an encounter
- To determine the actions, additional precautions and equipment necessary to interact safely with the patient and their environment

Note: In this reference guide the term "patient" is inclusive of patient, resident or client.

Procedure 4: Point of Care Risk Assessment

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Hair/Jewelry/Footwear/Uniforms

3. *Hair*

- Hair should be clean, neat and tidy;
- Hair fastenings should be minimal;
- Long hair should be tied up off the collar when working in the clinical setting.

4. *Jewelry*

Please refer to Island Health's Policy 15.1 – Hand Hygiene Policy for more information.

5. *Footwear*

- Suede or fabric shoes are not acceptable as these cannot be shoe polished or machine washed
- Must be closed toe and not open backed in design

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6. *Dress Code for Staff Who Do Not Wear a Uniform, Including Medical Staff*

- Sleeves should end above the elbow. Please refer to Island Health's Policy 15.1 – Hand Hygiene Policy for more information.
- Ties and lanyards (e.g. hanging nametags) should be tucked in prior to taking part in clinical procedures.

7. *Dress Code for Staff Wearing a Uniform*

- Please refer to Island Health's Policy 5.5.7 Personal Appearance for more information.
- Sleeves should end above the elbow. Please refer to Island Health's Policy 15.1 – Hand Hygiene Policy for more information.
- Material should be such that it may be laundered on a HOT WASH (above 65˚C) to ensure adequate decontamination. A clean uniform must be worn every shift/ working day

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- Sweaters or jackets should not be worn over the uniform, as they can potentially become contaminated with microorganisms
- Uniforms will not be worn when visiting external public areas (e.g. shopping centres) and changed as soon as possible after finishing work

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References:
Department of Health 2007 UNIFORMS AND WORKWEAR *An evidence base for developing local policy*
Halls, F. et al 1984 'A question of uniform'. NURSING TIMES Vol 87: No50, pp 53-54

Additional Precautions

Additional Precautions are required when routine practices are not sufficient to prevent transmission of certain microorganisms.

For example, additional precautions are warranted for:

- Diseases, either suspected or confirmed, during the infectious state
- Situations in which contamination of the patient's environment is likely (e.g. a patient with diarrhea that cannot be contained)
- Patients/residents infected (and/or colonized in acute care) with certain organisms of interest that may be transmitted easily by direct or indirect contact with the patient (intact skin, wounds, or coughing) or with their environment

Reference: **Routine Practices and Additional Precautions for Preventing the Transmission of Infection in Healthcare Settings (2012)**

http://www.ipac-canada.org/pdf/2013_PHAC_RPAP-EN.pdf

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C. Personal Protective Equipment

Personal protective equipment (PPE) is used for two reasons:

- To protect staff from blood or body fluid contamination
- To reduce the risk of cross infection through the reduction in contamination and transferring of microorganisms to other patients/residents/clients, staff, visitors and the environment

1. *Gloves*

The risk of cross infection is reduced by the appropriate use of gloves and adhering to the 4 Moments for Hand Hygiene.

Note: In this reference guide the term "patient" is inclusive of patient, resident or client.

Gloves help prevent the hands becoming contaminated and/or prevent the transfer of organisms already present on the skin or the hands. Hand decontamination will be performed before donning and after the removal of gloves.

Procedure 5: Glove Selection

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When handling chemicals and liquids, follow the manufacturer's guidelines on glove selection.

Staff must ensure that the appropriate type of glove is selected for particular procedures with the purpose to ensure safety and protection for staff /patients/residents/clients. When considering the nature of the task, the need for sterile or non-sterile gloves should be assessed.

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2. *Gowns/Aprons*

Gowns and aprons are worn as single use items and will be changed following procedures, between patients/residents/clients or when heavily contaminated/torn/split during a procedure.

Scrubs or laboratory style coats/jackets worn over clothing are not considered to be PPE and must not be worn in place of a disposable gown. Their long sleeves also inhibit correct hand hygiene, and can be a source of contamination.

Cloth gowns do not meet infection prevention and control requirements and must not be used.

Procedure 6: Gowns and Aprons

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3. *Masks, Visors and Protective Eyewear*

The use of masks with or without attached visor, protective eyewear and full-face shields are important parts of routine practices, as the mucous membranes of the mouth, nose and eyes are susceptible areas for exposure of infectious agents.

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With a patient on droplet precautions masks with or without attached visor are **single use** items and must be appropriately disposed of following a direct patient/resident/client encounter. Mask used during influenza season and not in conjunction with droplet precautions can continue to be used until it is soiled and/or wet. Reusable visors and goggles must be decontaminated following manufacturers written guidelines.

Procedure 7: Masks, Visor and Eyewear

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Printed Material 2: Donning Personal Protective Equipment

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Printed Material 3: Doffing Personal Protective Equipment

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Residential Care | Home and Community Care

Decisions regarding group activities will be based upon the clinical presentation of the client on the day. Symptomatic individuals should not participate in group events until symptoms have resolved.

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D. Management of Cases on Additional Precautions in Diagnostic Areas

Medical intervention and investigation should not be delayed because a patient requires additional precautions (however, if the test or treatment can be provided in the patient room this should be the first consideration).

Procedure 8: Patient Management

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E. Movement of Patients on Additional Precautions

Patients on Additional Precautions where possible **should not** move rooms. If a move is required (from a multi bed room to a private room) then the following procedure should be followed:

1. The patient should be changed into clean clothing with personal belongings bagged.
2. The patient should be walked (or in a wheelchair if not able) to the new room.
3. All furniture should be left in the original room, to be terminally cleaned by housekeeping at the same time as the room change.
4. If a patient is very sick or bedridden and unable to be moved from the bed, then the bed should be cleaned as much as possible before being moved (side rails, headboard etc).

F. Contact Precautions

1. *Purpose*

Contact Precautions are intended to prevent transmission of infectious agents, including epidemiologically important microorganisms, which are spread by direct or indirect contact with the patient or the patient's environment, e.g. scabies, antibiotic resistant bacteria (MRSA, ESBL).

The application of contact precautions for patients/residents infected or colonized with Antibiotic Resistant Organisms.

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Contact Precautions also apply where the presence of excessive wound drainage, fecal incontinence, or other discharges from the body suggest an increased potential for extensive environmental contamination and risk of transmission of microorganisms. The specific agents and circumstances for which contact precautions are indicated may be found in the Infectious Disease module from the Public Health Agency of Canada.

Procedure 9: Contact Precautions

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G. Droplet Precautions

1. *Purpose*

Droplet Precautions are intended to prevent transmission of pathogens spread through close respiratory or mucous membrane contact with respiratory secretions. Droplet route means spread by large particle droplets when patients/residents cough, sneeze or talk (i.e. within a radius of two metres, or 6 feet).

Note: In this reference guide the term "patient" is inclusive of patient, resident or client.

Because these pathogens do not remain suspended over long distances in a healthcare facility, special air handling and ventilation are not required to prevent droplet transmission.

Infectious agents for which droplet precautions are indicated are listed in the Infectious Disease module from the Public Health Agency of Canada and include *B. pertussis*, influenza virus, adenovirus, rhinovirus, *N. meningitidis*, and Group A streptococcus (prior to and for the first 24 hours of antimicrobial therapy).

Procedure 10: Droplet Precautions

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2. *Respiratory Hygiene/Cough Etiquette*[1]

Respiratory hygiene/cough etiquette is targeted at patients/residents and accompanying family members and friends with undiagnosed respiratory infections, and applies to any person with signs of illness, including:

- Cough
- Congestion
- Runny nose, or
- Increased production of respiratory secretions when.

The elements of respiratory hygiene/cough etiquette include:

- Education of source control measures for healthcare facility staff, patients/residents and visitors
  - covering the mouth and nose when coughing or sneezing
  - use tissues to contain respiratory secretions
  - use surgical masks on the coughing person when tolerated and appropriate
- Appropriate signage with instructions to patients/residents and visitors
- Hand Hygiene after contact with respiratory secretions and dispose of used tissues in an appropriate garbage container.
- Separation of affected patients/residents/clients (more than 6 feet/2 metres)

Droplet precautions and hand hygiene are observed when examining/caring for patients/residents/clients with signs and symptoms of respiratory infection. Healthcare personnel who have a respiratory infection must avoid direct patient contact. (If not possible, then a mask should be worn while providing patient care).

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[1] **Modified from:** Siegel, J.D., Rhinehart, E., Jackson, M. Chiarello, L. and the Healthcare Infection Control Practices Advisory Committee (2007) Guideline for isolation precautions: preventing transmission of infectious agents in healthcare settings. June 2007

Note: In this reference guide the term "patient" is inclusive of patient, resident or client.

H. Airborne Precautions

1. *Purpose*

Airborne Precautions prevent transmission of infectious agents that remain infectious over long distances when suspended in the air (e.g. measles virus, varicella zoster virus [chickenpox], pulmonary tuberculosis, smallpox and possibly SARS-CoV). See the Infectious Disease module from the Public Health Agency of Canada for detailed list.

Procedure 11: Airborne Precautions

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2. *Negative Pressure Room*

Negative Pressure rooms have:

- Monitored negative pressure relative to the surrounding area
- 12 air exchanges per hour for new construction and renovation and 6 air exchanges per hour for existing facilities

Please access the Infection Prevention and Control internal web site for a list of Negative Pressure Rooms throughout Island Health.

PLEASE NOTE

This link available to staff and physicians via the VIHA intranet. You will be prompted to log on if you are viewing this from an external computer. For information on accessing the intranet, click here.

Procedure 12: Negative Pressure Rooms

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PLEASE NOTE

Facilities Maintenance and Operations Department must be contacted when a Negative Pressure Room is required to verify that the room is monitored and airflow remains negative to surrounding areas.

PLEASE NOTE

FMO must post, or have available, a record of inspection and maintenance verifying the efficient operation of these negative air pressure room technologies. A regular schedule of inspections of such rooms must be established and maintained. There should be daily monitoring of negative pressure by nursing staff when room is in use and this should be documented in the patient chart.

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Amount of Time Needed (by number of air changes per hour) to remove airborne microorganisms after generation of infectious droplet nuclei has ceased.

Air Changes Per Hour	Minutes Required for Removal of Airborne Micro Organisms	
	99% Removal	99.9% Removal
2	138	207
4	69	104
6	46	69
12	23	35
15	18	28
20	14	21
50	6	8

Canadian Tuberculosis Standards 7th Edition, 2013

Cleaning of rooms

If a room previously occupied by a patient with respiratory TB disease has been ventilated for the appropriate amount of time (see above table), then housekeeping staff may enter the room without Airborne Precautions. If a room is still in use during cleaning, housekeeping personnel should wear an N95 respirator (that they have been fit tested for).

I. Summary of Precautions

Table 2: Precautions Table

Purpose	Contact	Droplet	Airborne
Organism Based Precautions (not complete list)	MRSA, *Clostridium difficile**, lice, scabies	*N. menigitidis,*Mumps, Pertussis, Norovirus, vomiting, Influenza, invasive Group A *streptococcus*	Pulmonary Tuberculosis, Measles, Chickenpox, disseminated Zoster
Syndromic Precautions	Draining wound, diarrhea NYD, infestation	Toxic Shock, 2 or more of the following: • Stiff neck • Fever • Headache • Malaise • Acute cough	Fever, weight loss+ cough, high TB risk, disseminated rash + fever
Private Room	Preferred	Preferred. If in multi-bed room draw curtains	YES
Negative Pressure Room	NO	NO	YES

Note: In this reference guide the term "patient" is inclusive of patient, resident or client.

Purpose	Contact	Droplet	Airborne
Staff Personal Protective Equipment	Gown + Gloves	Gown + Gloves + Surgical grade (120 mmHg) fluid resistant mask with attached visor	Gown + Gloves + N95 mask[2] and face visor (if required following risk assessment)
Visitor Personal Protective Equipment	Gown + Gloves if providing direct care[3]	Surgical grade (120 mmHg) fluid resistant mask with attached face shield (gown + gloves if providing direct care[2])	Surgical grade (120 mmHg) fluid resistant mask (gown + gloves if providing direct care[2])
Transporting patient (need Surgical grade 120 mmHg fluid resistant mask)	Patient – NO Staff - NO	Patient – YES (if condition allows) Staff – YES (with attached face shield)	Patient – YES (if condition allows) Staff – **NO (must wear N95[1])**
Cleaning	Precaution Clean	Precaution Clean	Precaution Clean

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J. Protective (Reverse) Precautions

Patients/residents with a suppressed or deficient immune system may be at increased risk of acquiring infection during hospitalization/healthcare encounter. Gowns, gloves and masks are not routinely required. Medical devices such as catheters are to be used only when essential.

Implementation of Protective Precautions is ordered by the Most Responsible Physician. Variables considered are:

- Severity of immune system depression
- Length of time patient has been neutropenic
- Absolute neutrophil count of 0.5 x 10^9/1 or less (Neutropenia)

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K. Discontinuing Additional Precautions

Routine Practices are used at all times. Additional precautions are in effect when symptoms of infection are present or when concerning infectious diseases are diagnosed. Additional Precautions may ONLY be discontinued after discussing with your Infection Control Practitioner.

[2] Fit tested
[3] Direct care = hands on care (i.e. bathing, dressing changes, toileting)

Note: In this reference guide the term "patient" is inclusive of patient, resident or client.

Once Additional Precautions have been discontinued, immediately request a terminal clean following Island Health Guidelines even if the patient is not being discharged from the Unit/Facility. The Infection Control Practitioner, in consultation with the Infection Prevention & Control Physician, may determine that precautions can be removed earlier for some situations.

Procedure 13: Discontinuing Additional Precautions

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PART 3: SIGNIFICANT INFECTIOUS ORGANISMS

1. Introduction

Antibiotic resistant organisms (AROs) are defined as microorganisms that are resistant to one or more classes of antimicrobial agents.

Examples of resistant bacteria (in order of prevalence in Island Health) are:

- Methicillin Resistant *Staphylococcus aureus* (MRSA)
- Vancomycin Resistant *Enterococci* (VRE)
- Bacteria containing Extended Spectrum Beta-Lactamase (ESBL)
- Carbapenamase Resistant Gram Negative Bacilli (CRGNB) (now known as CRE)
- Or any bacteria resistant to usual antibiotic therapy, such as *Burkholderia cepacia.*

Infectious organisms include some viruses, bacteria, fungi, protozoa, multicellular parasites, and proteins (known as prions).

Examples of infectious organisms are:

- Influenza
- Norovirus
- *C. difficile*

Infectious diseases (also known as transmissible diseases or communicable diseases) are clinically evident symptoms/illness due to infection.

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Definitions

Colonization

Colonization is the presence, growth and multiplication of the organism in one or more body sites without observable clinical symptoms of infection.

Infection

Infection occurs when microorganisms invade a body site, multiplying in tissue and causing clinical manifestations of local or systemic inflammation e.g. fever, redness, heat, swelling, pain.

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Acute Care Screening Protocol

Procedure 14: Acute Care Screening

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Overview of Antibiotic Resistant Organisms

Options for treating these infections are often extremely limited due to their extensive antibiotic resistance. The result is that infections due to AROs often cause increased morbidity and mortality, as well as increased length of hospital stay and costs.

The following factors contribute to emergence of resistance in this setting:

- intensive, prolonged use of broad spectrum antibiotics
- high intensity of medical care provided in the close physical confines of a hospital
- a more vulnerable population, especially patients/residents/clients suffering chronic illness, those who are immuno-compromised, those critically ill, those with invasive devices in place, those requiring intensive medical, surgical care or with prolonged hospital stays

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A. MRSA

Please review Island Health policies 15.2 Management of Patients with MRSA (Acute Care) and 15.4 Management of Residents with MRSA (Residential Care) for more detailed information

Printed Material 4: MRSA Information Sheet for Patients and Visitors

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Note: In this reference guide the term "patient" is inclusive of patient, resident or client.

B. VRE

Please review Island Health Policy 15.3 Management of Patients with VRE (Acute and Residential) for more detailed information

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C. Extended Spectrum Beta-Lactamase (ESBL) Organisms

Extended Spectrum Beta-Lactamase is a bacterial enzyme with the ability to break down (inactivate) a wide variety of antibiotics, including penicillins and all first, second and third-generation cephalosporins. When present, this enzyme results in the bacteria being resistant to antibiotic therapy.

ESBL enzymes are most commonly found in two bacteria – *Escherichia coli* (otherwise known as *E. coli*) and *Klebsiella* species but can also be found in bacteria such as *Salmonella, Proteus, Morganella, Enterobacter, Citrobacter* and *Serratia*.

In many cases, ESBL bacteria can colonize the gut and other body sites without producing disease. Significant infections include urinary tract infections and surgical wound infections. Patients/residents whose gastrointestinal flora has been altered by previous antibiotic treatment are predisposed to acquiring these pathogens.

Printed Material 5: ESBL Information Sheet for Patients and Visitors

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D. CRGNB (now known as CRE)

Please review Island Health policy 15.5 Management of Patients with Carbapenem Resistant Gram Negative Bacillus (CRGNB) (Now known as CRE Carbapenem-resistant Enterobacteriaceae) for more detailed information

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E. ARO Screening and Specimen Collection

Procedure 15: Antibiotic Resistant Organisms Screening

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F. Patient Placement Guidelines

Procedure 16: Patient Placement

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Overview of Infectious Organisms

G. *Clostridium difficile*

Clostridium difficile is a Gram positive, spore-forming, anaerobic bacillus. It is widely distributed in the environment and colonizes the bowel of up to 3-5% of adults without causing symptoms. Certain strains can produce two toxins: toxin A and toxin B, which are responsible for diarrhea.

Spread of C. difficile occurs due to inadequate hand hygiene and environmental cleaning; therefore, consistent hand hygiene and thorough cleaning of the client/patient/resident environment are necessary for control.

C. difficile has been a known cause of health care-associated diarrhea for over 30 years. C. difficile can cause asymptomatic infections or may result in severe, life-threatening disease. It can be acquired in both hospital and community settings.

Risk Factors for CDI

Factors associated with CDI include:

- a history of antibiotic usage, particularly fluoroquinolones
- immunosuppressive therapy post-transplant
- proton pump inhibitors
- bowel disease and bowel surgery
- chemotherapy
- prolonged hospitalization.

Additional risk factors that predispose some people to develop more severe disease include:

Note: In this reference guide the term "patient" is inclusive of patient, resident or client.

- history of CDI
- increased age
- immunosuppressive therapy
- recent surgery
- CDI with the NAP1 strain of C. difficile

Printed Material 6: *C. difficile* Information Sheet for Patients and Visitors

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H. Norovirus

Norovirus (formerly Norwalk-like virus) is the term used to describe a group of viruses that belong to the Calicivirus family. It is often referred to as "winter vomiting disease, viral gastroenteritis, "epidemic viral gastroenteritis" or incorrectly as "stomach flu". It is a common illness and should not be confused with influenza, which is commonly referred to as the "flu". Outbreaks of Norovirus are less noticeable in the general community, but become much more noticeable in "closed communities" such as long term care and acute care facilities.

Outbreaks occur throughout the year but the incidence is higher from the fall through to the late spring.

The most common symptoms are:

- sudden onset of nausea
- vomiting
- non-bloody diarrhea
- stomach cramps

Other symptoms may also include:

- low-grade fever (less than 37.8 degrees Celsius)
- chills
- headache
- muscle aches
- fatigue

Symptoms usually start 24 to 48 hours after infection with the virus, and generally last between 24 to 36 hours. Fluid loss can be a serious problem for the elderly or very young.

Note: In this reference guide the term "patient" is inclusive of patient, resident or client.

Printed Material 7: Norovirus Information Sheet for Patients and Visitors

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I. Seasonal Influenza

- Influenza is an acute viral infection that spreads easily from person to person.
- Seasonal influenza is the annual influenza that affects people in Canada during the winter, between November and April.
- Various strains of influenza virus circulate throughout the world each year.
- Influenza causes annual epidemics that peak during winter in temperate regions.
- Influenza is a serious public health problem that causes severe illnesses and deaths for higher risk populations.
- As with other viral illnesses, antibiotics do not work against an influenza virus. Antiviral medications may be used for treatment or prevention of influenza.
- Vaccination is the most effective way to prevent infection.

Signs and Symptoms

Seasonal influenza is characterized by a sudden onset of respiratory illness with fever and cough **and with one or more of the following**:

- Sore throat
- Athralgia (painful joints)
- Myalgia (muscle pain)
- Runny nose, headache
- Prostration

Within acute care for patients symptomatic with Influenza:

- **Non-ICU** patients should be kept on Droplet precautions for **7 days** from the onset of symptoms
  - Ward patients are treated with Tamiflu for 5 days and the droplet precautions are extended to 7 days total
- **ICU-**patients should be kept on Droplet precautions for **10 days** from the onset of symptoms
  - ICU patients are treated with Tamilfu for 10 days and the droplet precautions are for 10 days total

For those patients who have been exposed to patients who have confirmed influenza - defined as having shared a room with a symptomatic case for > 4 hours:

Note: In this reference guide the term "patient" is inclusive of patient, resident or client.

- Assess for vaccination status and most-responsible physician should check for symptoms of influenza daily
  - Symptomatic exposed patients should receive Oseltamivir at treatment doses
- Vaccinated exposed inpatients do not need prophylaxis
- Unvaccinated exposed inpatients should receive Oseltamivir at prophylactic doses

Prophylaxis of roommates is not recommended.

The IPAC practitioner will inform the physicians most responsible nurse of the exposed patient/s are informed that a roommate has been confirmed with influenza and on treatment in order to ensure appropriate follow up:

- If the exposed patient/s are vaccinated, no further intervention is required
- If not vaccinated, prophylaxis for 5 days is recommended.
- It is not necessary for exposed roommate/s of a patient with confirmed Influenza to be placed on Droplet precautions unless they become symptomatic

Influenza lowers the body's ability to fight other infections. It can lead to bacterial infections, such as pneumonia, and even death especially in the elderly and people with chronic medical conditions.

For more information on where flu is active within Canada, visit the Public Health Agency of Canada's FluWatch web site: http://www.phac-aspc.gc.ca/fluwatch/index-eng.php

For the most up to date information: http://www.bccdc.ca/dis-cond/a-z/_f/Flu/default.htm

Printed Material 8: Influenza Patient and Public Information

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Note: In this reference guide the term "patient" is inclusive of patient, resident or client.

J. Key Management Issues

Table 3: Key Management Issues for Significant Infectious Organisms

MRSA – Methicillin Resistant *Staphylococcus aureus*	
Presentation	**Infection or colonization of any site on the body; most often skin and wound infections**
ARO Status	A patient is colonized with MRSA when the culture report is positive for *Staphylococcus aureus* resistant to Cloxacillin with no clinical signs/symptoms or infection. Notice of previous colonization within an Island Health facility will be recorded in: · Within Powerchart under Patient Information/Patient Demographics/Disease Alert · The Admission Record which shows "ALERT" for ARO status
Reservoirs	Contaminated environmental surfaces (high touch areas: over bed tables, blood pressure machine, wheelchairs, etc.) may also serve as a reservoir. Therefore, routine cleaning of the environmental surfaces is necessary to reduce the potential bacterial load.
Mode of Transmission	Direct and indirect contact (see Part 8: Transmission) The primary mode of transmission is from one patient to another are hands that have become transiently colonized by either: · after direct contact with colonized or infected patients/residents/clients while performing care · when removing gloves · when touching contaminated surfaces *Droplet transmission* is possible with patients/residents/clients that are MRSA colonized within their nares/respiratory system **and** have a productive cough.
Likelihood of Transmission	The likelihood of transmission increases in patients/residents/clients with: · Draining wounds or open skin lesions · Poor respiratory hygiene and coughing · Fecal or urinary incontinence, diarrhea, ileostomy or colostomy, poor hygiene · Invasive devices in place · Requiring intensive contact care, i.e. post CVA, dementia, post major surgery, Intensive Care treatment · Requiring mobility assistance, i.e. paraplegic, amputee · Infection due to greater number of organisms present As these patients/residents/clients are more likely to disperse large numbers of organisms into the environment
Precautions Needed for Patients	Routine practices are to be applied at all times and all staff must adhere to Island Health's Hand Hygiene Policy. · In acute and residential care, contact precautions must be put in place including donning a gown/apron and gloves for all contact with the patient and their physical environment. Ensure Contact Precautions sign is posted · Droplet precautions should be put in place if the patient has a cough with or without productive sputum · All patients/residents/clients admitted to acute care will be screened using the ARO Screening Questionnaire. All patients/residents/clients identified 'At Risk' will be swabbed · Swab sites will include o Nares o Groin (creases at junction of torso with the legs, on either side of pubic area) o Open wound(s) o Urine (if catheter present)

Note: In this reference guide the term "patient" is inclusive of patient, resident or client.

MRSA – Methicillin Resistant *Staphylococcus aureus*	
	· All patients/residents/clients admitted to an intensive care unit or designated in-patient renal unit will be swabbed at specific time frames – please refer to page 2 of Island Health's Policy 15.2 Management of Patients with MRSA (Acute Care) · Screening/swabbing is not required for residents being admitted to or transferred from acute care to Residential care · Residents – previously identified as MRSA positive – will be swabbed one month after admission/transfer Policy 15.4 Management of Patients with MRSA (Residential Care) · The infection prevention and control measures to prevent the spread of MRSA are the same, whether the patient is colonized or infected · Unit staff will initiate and maintain nursing orders for Additional Precautions · Ensure ongoing communication of the patient's status with other relevant healthcare workers (e.g. diagnostics, housekeeping, etc) · Place the patient in an appropriate room (see patient placement) · Provide the patient with dedicated toilet/commode facilities · Encourage the patient with meticulous hand hygiene, particularly on leaving the room and after toilet, etc **Staff Must:** · Complete a point of care risk assessment · Wear gloves and gown/apron for contact with the patient/resident/client and/or their environment. A surgical grade mask (120 mmHg) with visor may be required **Visitors Must:** Visitors must speak with the patient's/resident's/client's primary nurse before visiting patient so that proper Additional Precautions and procedures can be discussed, including the importance of hand hygiene Visitors are required to adhere to contact precautions and wear protective clothing only when providing close personal care. **Patients/Residents/Clients Must:** · Wear clean dressing gown/clothing when exiting the room · Wear shoes or slippers; no bare feet · Have a clean dry dressing covering any skin/soft tissue infections
Precautions Needed for Patients **(continued)**	**Acute Care Patients:** · The patient may be out of their room for tests, mobilization or rehabilitation · Patient must perform hand hygiene on exiting and re-entering their room · They must not visit public areas within the facility (unit kitchen, cafeteria, shops/kiosks in main entrance, etc) · Are encouraged not to visit any other patients' rooms **Residential Care Patients** · The resident/client can leave their room for all activities, but is to be excluded from food preparation activities
Decolonization	All patients/resident/client found to be MRSA positive will be considered for topical decolonization treatment, in an attempt to eradicate MRSA and reduce the risk of subsequent infection. Please refer to Island Health's Policy 15.2 - Management of Patients with MRSA (Acute Care) for acute care and Island Health's Policy 15.4 - Management of Residents with MRSA (Residential Care) for residential care
Treatment	For *infected* patients/residents/clients, treatment is determined by the Most Responsible Physician (MRP). Please refer to the Antimicrobial Prescribing Guide for Adult Patients: System Wide Initiative (SWI) booklet for more detail

Note: In this reference guide the term "patient" is inclusive of patient, resident or client.

MRSA – Methicillin Resistant *Staphylococcus aureus*	
Discontinuing Additional Precautions	For colonized patients/residents/clients, wait **7 days** post completion of any antibiotic treatment (topical, oral or injectable) or following decolonization. · Separate swabs from nares, groin and any other sites previously found to be positive · Two negative sets of swabs **7 days** apart (the first swabs must be negative before doing the second set). Please refer to island Health's Policies 15.2 - Management of Patients with MRSA (Acute Care) and 15.4 - Management of Residents with MRSA (Residential Care) for further information · If first swab is positive, consider decolonization if not already done so, wait **7 days** before doing another swab · Notify the Infection Control Practitioner if the swabs have been done and are negative For infected patients/residents/clients, wait **30 days** post completion of any antibiotic treatment (topical, oral or injectible) prior to initial set of swabs being taken. Then follow the above steps
Discharge or Transfer	· The MRP may discharge the patient/resident/client as soon as their physical condition permits · The receiving facility or home care must be notified prior to transfer for patients/residents/clients colonized or infected with MRSA. The Most Responsible Nurse must record status on the Home Care Transfer Form · If cultures remain positive on discharge, decolonization may be continued following consultation with MRP
Environment	Laundry Waste Cleaning Patient Care Equipment – once patient/resident/client has been discharged or precautions have been discontinued, precaution signage will remain in place and all patient equipment will remain in the room. Equipment will be removed by housekeeping only after appropriate disinfection and signs will be removed by Housekeeping after cleaning is complete.

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Note: In this reference guide the term "patient" is inclusive of patient, resident or client.

ESBL – Extended Spectrum Beta Lactamase and CRGNB - Carbapenem Resistant Gram Negative Bacillus (Now known as CRE Carbapenem-resistant Enterobacteriaceae)	
Presentation	ESBL: A variety of gram negative bacteria, most commonly *Escherichia coli* and *Klebsiella* species, have acquired antibiotic resistance and are classed as Extended Spectrum Beta Lactamase (ESBL). Usually found in lower gastrointestinal tract and/or in urine and moist wounds. CRE: *Klebsiella* species and *Escherichia coli (E. coli)* are examples of Enterobacteriaceae, a normal part of the human gut bacteria, that can become carbapenem-resistant. Types of CRE are sometimes known as KPC (*Klebsiella pneumoniae* carbapenemase) and NDM (New Delhi Metallo-beta-lactamase). KPC and NDM are enzymes that break down carbapenems and make them ineffective.
ARO Status	A patient is colonized when a culture report is positive for ESBL or CRE with no clinical symptoms or infection Notice of previous colonization within an Island health facility will be recorded in: · The Powerchart under Patient Information/Patient Demographics/Disease Alert · The Admission Record which shows "ALERT" for ARO status
Reservoirs	Contaminated environmental surfaces (high touch areas: over bed tables, blood pressure machine, wheelchairs, etc.) may also serve as a reservoir. Therefore, routine cleaning of the environmental surfaces is necessary to reduce the potential bacterial load.
Mode of Transmission	Direct and indirect contact (see Part 8: Transmission) ESBL producing bacteria and CRE can be spread by direct contact with feces and secretions (i.e. wound drainage, sputum and urine) from an infected person. The primary mode of transmission is from one patient to another are hands that have become transiently colonized by either: · after direct contact with colonized or infected patients/residents/clients while performing care · when removing gloves · when touching contaminated surfaces
Likelihood of Transmission	The likelihood of transmission increases in patients/residents/clients with: · Draining wounds or open skin lesions · Fecal or urinary incontinence, diarrhea, ileostomy or colostomy, poor hygiene · Invasive devices in place · Requiring intensive contact care, i.e. post CVA, dementia, post major surgery, Intensive Care treatment · Requiring mobility assistance, i.e. paraplegic, amputee · Infection due to greater number of organisms present As these patients/residents/clients are more likely to disperse large numbers of organisms into the environment Rapidly identifying patients/residents/clients colonized or infected with these organisms and placing them on Contact Precautions when appropriate, using antibiotics wisely, and minimizing device use are all important parts of preventing ESBL and CRE transmission.

Note: In this reference guide the term "patient" is inclusive of patient, resident or client.

ESBL – Extended Spectrum Beta Lactamase and CRGNB - Carbapenem Resistant Gram Negative Bacillus (Now known as CRE Carbapenem-resistant Enterobacteriaceae)	
Precautions Needed for Patients	Routine practices are to be applied at all times and all staff must adhere to Island Health's Hand Hygiene Policy. Once colonization is confirmed: · In acute and residential care, contact precautions must be put in place including donning a gown/apron and gloves for all contact with the patient and their physical environment. Ensure Contact Precautions sign is posted · Measures to prevent the spread of ESBL or CRE are the same, whether the patient is colonized or infected · In residential care, apply contact precautions for all close personal care · Notify the Infection Control Practitioner · Ensure ongoing communication of the patient's status with other relevant healthcare workers (e.g. diagnostics, housekeeping, etc) · Place the patient in an appropriate room (see patient placement) · Provide the patient with dedicated toilet/commode facilities · Encourage the patient with meticulous hand hygiene, particularly on leaving the room and after toileting, etc **Staff Must:** · Complete a point of care risk assessment · Wear gloves and gown/apron for contact with the patient/resident/client and/or their environment **Visitors Must:** Provided that visitors of patients/residents/client with ESBL/CRE are healthy, there is no restriction on visiting, and it carries no risk. Visitors must speak with the patient's/resident's/client's primary nurse before visiting so that proper Additional Precautions and procedures can be discussed, including the importance of hand hygiene upon entering and exiting the patient's/resident's/client's room. Visitors are required to adhere to contact precautions and wear protective clothing only when providing close personal care. **Patients/Residents/Clients Must:** · Wear clean dressing gown/clothing when exiting the room · Wear shoes or slippers; no bare feet · Have a clean dry dressing covering any skin/soft tissue infections **Acute Care Patients:** · The patient may be out of their room for tests, mobilization or rehabilitation · Patient must perform hand hygiene on exiting and re-entering their room · They must not visit public areas within the facility (unit kitchen, cafeteria, shops/kiosks in main entrance, etc) · Are encouraged not to visit any other patients' rooms
Decolonization	There is no decolonization therapy for ESBL or CRE
Treatment	For patients/residents/clients infected with ESBL, treatment and repeat cultures should be ordered by the Most Responsible Physician (MRP) in consultation with the Medical Microbiologist.

Note: In this reference guide the term "patient" is inclusive of patient, resident or client.

ESBL – Extended Spectrum Beta Lactamase and CRGNB - Carbapenem Resistant Gram Negative Bacillus (Now known as CRE Carbapenem-resistant Enterobacteriaceae)	
Discontinuing Additional Precautions	**For ESBL(colonized)** Wait **7 days** post completion of any antibiotic treatment (topical, oral or injectable). · Separate swabs from rectum and any other sites previously found to be positive · Mid-stream or catheter specimen of urine, specifying an ESBL screen · Two negative sets of results **7 days** apart (the first swabs/specimens must be negative before doing the second set) · If first swab/ specimen is positive, wait **7 days** before doing another swab/specimen · Notify the Infection Control Practitioner if the swabs/specimens have been done and are negative For infected patients/residents/clients, wait **30 days** post completion of any antibiotic treatment (topical, oral or injectible) prior to initial set of swabs being taken. Then follow the above steps **For CRGNB (now known as CRE)** · Please refer to Island Health's Policy 15.5 Management of Patients with New Carbapenem Resistant Gram Negative Bacillus (CRGNB) (now known as CRE) · Notify the Infection Control Practitioner if the swabs have been completed and are negative
Discharge or Transfer	· The MRP may discharge the patient/resident/client as soon as their physical condition permits · The receiving facility or home care must be notified prior to transfer for patients/residents/clients colonized or infected. The Most Responsible Nurse must record status on the Home Care Transfer Form
Environment	Laundry Waste Cleaning Patient Care Equipment – once patient/resident/client has been discharged or precautions have been discontinued, precaution signage will remain in place and all patient equipment will remain in the room. Equipment will be removed by housekeeping only after appropriate disinfection and signs will be removed by Housekeeping after cleaning is complete.

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Note: In this reference guide the term "patient" is inclusive of patient, resident or client.

***Clostridium difficile* (C. *difficile*)**	
Presentation	Clostridium difficile is a Gram positive, spore-forming, anaerobic bacillus. It is widely distributed in the environment and colonizes the bowel of up to 3-5% of adults without causing symptoms. Most commonly found in lower gastrointestinal tract and may be present urine, blood and moist wounds.
Reservoirs	Contaminated environmental surfaces (high touch areas: over bed tables, blood pressure machine, wheelchairs, etc.) may also serve as a reservoir. Therefore, routine cleaning of the environmental surfaces is necessary to reduce the potential bacterial load.
Mode of Transmission	Direct and indirect contact (see Part 8: Transmission) C.*difficile* can be spread by the fecal-oral route and through environmental reservoirs. The primary mode of transmission is from one patient to another are hands that have become transiently colonized by either: · after direct contact with colonized or infected patients/residents/clients while performing care · when removing gloves · when touching contaminated surfaces
Likelihood of Transmission	The likelihood of transmission increases in patients/residents/clients with: · Fecal incontinence, diarrhea, ileostomy or colostomy, poor hygiene · Draining wounds or open skin lesions · Invasive devices in place · Requiring intensive contact care, i.e. post CVA, dementia, post major surgery, Intensive Care treatment · Requiring mobility assistance, i.e. paraplegic, amputee · Infection due to greater number of organisms present
Precautions Needed for Patients	Routine practices are to be applied at all times and all staff must adhere to Island Health's Hand Hygiene Policy. Once C.*difficile* infection is confirmed: · In acute and residential care, contact precautions must be put in place including donning a gown/apron and gloves for all contact with the patient and their physical environment. Ensure Contact Precautions sign is posted · In residential care, apply contact precautions for all close personal care and contact with the residents environment · Notify the Infection Control Practitioner · Ensure ongoing communication of the patient's status with other relevant healthcare workers (e.g. diagnostics, housekeeping, etc) · Place the patient in an appropriate room (see patient placement) · Provide the patient with dedicated toilet/commode facilities · Encourage the patient with meticulous hand hygiene, particularly on leaving the room and after toileting, etc
Precautions Needed for Patients (continued)	**Staff Must:** · Complete a point of care risk assessment · Wear gloves and gown/apron for contact with the patient/resident/client and/or their environment **Visitors Must:** Visitors must speak with the patient's/resident's/client's primary nurse before visiting so that proper Additional Precautions and procedures can be discussed, including the importance of hand hygiene upon entering and exiting the patient's/resident's/client's room.

Note: In this reference guide the term "patient" is inclusive of patient, resident or client.

***Clostridium difficile* (C. *difficile*)**	
	Visitors are required to adhere to contact precautions and wear protective clothing only when providing close personal care. **Patients/Residents/Clients Must:** · The patient may be out of their room for tests, mobilization or rehabilitation · Wear shoes or slippers; no bare feet · Have a clean dry dressing covering any skin/soft tissue infections **Acute Care Patients:** · The patient may be out of their room for tests, mobilization or rehabilitation · Patient must perform hand hygiene on exiting and re-entering their room · They must not visit public areas within the facility (unit kitchen, cafeteria, shops/kiosks in main entrance, etc) · Are encouraged not to visit any other patients' rooms
Treatment	For patients/residents/clients infected with C.*difficile*: · Physician to coordinate treatment regimen and may wish to discuss with Infection Prevention and Control ID Physician/Microbiologist or Pharmacy · Avoid anti-diarrheal agents · Observe and document progression or recurrence of symptoms in patient/resident chart and utilizing approved Bristol stool chart for standardization
Discontinuing Additional Precautions	· Following a point of care risk assessment additional precautions may be removed 48 hours after formed/normalized stool whether or not CDI treatment is on-going or was initiated · Re-testing for C. difficile cytotoxin is not necessary to determine when precautions may be discontinued · Contact Precautions should not be discontinued until the room/bed space has received terminal CDI cleaning
Discharge or Transfer	· The MRP may discharge the patient/resident/client as soon as their physical condition permits · The receiving facility or home care must be notified of the diagnosis prior to transfer for patients/residents/clients. The Most Responsible Nurse must record status on the Home Care Transfer Form
Environment	Laundry Waste Cleaning Patient Care Equipment – once patient/resident/client has been discharged or precautions have been discontinued, precaution signage will remain in place and all patient equipment will remain in the room. Equipment will be removed by housekeeping only after appropriate disinfection and signs will be removed by Housekeeping after cleaning is complete.

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Note: In this reference guide the term "patient" is inclusive of patient, resident or client.

Norovirus (formerly Norwalk-Like Virus)	
Presentation	**Norovirus is highly infectious and is a major cause of viral gastroenteritis—an inflammation of the linings of the stomach and small and large intestines that causes vomiting and diarrhea.**
Reservoirs	Contaminated environmental surfaces (high touch areas: over bed tables, blood pressure machine, wheelchairs, etc.) may also serve as a reservoir. Therefore, routine cleaning of the environmental surfaces is necessary to reduce the potential bacterial load.
Mode of Transmission	Direct and indirect contact (see Part 8: Transmission) Noroviruses are found in the feces and vomit of infected people. This virus is very contagious and can spread rapidly throughout healthcare facilities.
Likelihood of Transmission	People can become infected with the virus in several ways: ・ Having direct contact with another person who is infected (a healthcare worker, visitor, or another patient) ・ Eating food or drinking liquids that are contaminated with norovirus ・ Touching surfaces or objects contaminated with norovirus, and then touching your mouth or other food items
Precautions Needed for Patients	Routine practices are to be applied at all times and all staff must adhere to Island Health's Hand Hygiene Policy. Once Norovirus infection is confirmed: ・ In acute and residential care, droplet precautions must be put in place including donning a gown/apron, 120mmHg water repellent mask (within 6ft of the patient) with attached visor and gloves for all contact with the patient and their physical environment. Ensure Droplet Precautions sign is posted ・ Notify the Infection Control Practitioner ・ Ensure ongoing communication of the patient's status with other relevant healthcare workers (e.g. diagnostics, housekeeping, etc) ・ Provide the patient with dedicated toilet/commode facilities ・ Encourage the patient with meticulous hand hygiene, particularly after toileting. **Staff Must:** ・ Complete a point of care risk assessment ・ Wear gown/apron, 120mmHg water repellent mask with attached visor (within 6ft of the patient) and gloves for contact with the patient/resident/client and/or their environment **Visitors Must:** Visitors must speak with the patient's/resident's/client's primary nurse before visiting so that proper Additional Precautions and procedures can be discussed, including the importance of hand hygiene upon entering and exiting the patient's/resident's/client's room. **Patients/Residents/Clients Must:** ・ Remain in their room unless tests are required for their acuity of care **Acute Care Patients:** ・ The patient will remain in their room unless tests are required for their acuity of care
Treatment	Gastroenteritis caused by Norovirus is usually self limiting and resolves itself without treatment within a few days. Viruses are not affected by antibiotics and antidiarrheal medications may prolong the infection. Norovirus infections should be treated by: ・ drinking plenty of fluids, such as water and juice, to prevent dehydration caused by vomiting and diarrhea ・ intravenous fluids if severe nausea prevents drinking, particularly in small children ・ Bristol Stool Chart for standardization

Note: In this reference guide the term "patient" is inclusive of patient, resident or client.

Norovirus (formerly Norwalk-Like Virus)	
Discontinuing Additional Precautions	Following a point of care risk assessment additional precautions may be removed 48 hours after formed/normalized stool
Discharge or Transfer	· The MRP may discharge the patient/resident/client as soon as their physical condition permits · The receiving facility or home care must be notified of the diagnosis prior to transfer for patients/residents/clients. · The Most Responsible Nurse must record status on the Home Care Transfer Form
Environment	Laundry Waste Cleaning Patient Care Equipment – once patient/resident/client has been discharged or precautions have been discontinued, precaution signage will remain in place and all patient equipment will remain in the room. Equipment will be removed by housekeeping only after appropriate disinfection and signs will be removed by Housekeeping after cleaning is complete.

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Note: In this reference guide the term "patient" is inclusive of patient, resident or client.

Seasonal Influenza	
Presentation	Influenza is a respiratory disease that affects the nose, throat and lungs. It is caused by the influenza virus that is easily passed from person to person. Symptoms typically start with a headache, chills and cough, followed rapidly by fever, loss of appetite, muscle aches and fatigue, running nose, sneezing, watery eyes and throat irritation. Nausea, vomiting and diarrhea may also occur, especially in children.
Reservoirs	Contaminated environmental surfaces: the virus can live on hard surfaces such as door handles, telephones, light switches, computer keyboards, counter tops for up to 48 hours, and on soft surfaces like clothing for 8–10 hours. Therefore, routine cleaning of the environmental surfaces is necessary to reduce the potential bacterial load.
Mode of Transmission	Direct and indirect contact (see Part 8: Transmission) Influenza spreads rapidly among people: · The virus passes from person to person when an infected person coughs, sneezes or talks. Tiny drops of moisture (droplets) containing the virus can enter the eyes, nose or mouth of people nearby · The virus can live on hands and is then passed to surfaces through touching
Likelihood of Transmission	People can become infected with the virus in several ways: · Being within 6 feet of an affected person when they cough, sneeze or talk · When people touch any surface contaminated with the virus and then touch their own mouth, nose or eyes before washing their hands People usually develop symptoms of influenza within four days after becoming infected. People are contagious for five days after symptoms start. Children, especially younger children, individuals with weakened immune systems and those with severe illness may be contagious for a longer period, i.e., up to 10 days.
Precautions Needed for Patients	Routine practices are to be applied at all times and all staff must adhere to Island Health's Hand Hygiene Policy. Once Influenza infection is confirmed: · In acute and residential care, droplet precautions must be put in place including donning a gown/apron, 120mmHg water repellant mask (within 6ft of the patient) with attached visor and gloves for all contact with the patient and their physical environment. Ensure Droplet Precautions sign is posted · Notify the Infection Control Practitioner · Ensure ongoing communication of the patient's status with other relevant healthcare workers (e.g. diagnostics, housekeeping, etc) · Provide the patient with dedicated toilet/commode facilities · Encourage the patient with meticulous hand hygiene, particularly after toileting. **Staff Must:** · Complete a point of care risk assessment · Wear gown/apron, 120mmHg water repellant mask with attached visor (within 6ft of the patient) and gloves for contact with the patient/resident/client and/or their environment **Visitors Must:** Visitors must speak with the patient's/resident's/client's primary nurse before visiting so that proper Additional Precautions and procedures can be discussed, including the importance of hand hygiene upon entering and exiting the patient's/resident's/client's room. **Patients/Residents/Clients Must:** · Remain in their room unless tests are required for their acuity of care

Note: In this reference guide the term "patient" is inclusive of patient, resident or client.

Seasonal Influenza	
	Acute Care Patients: · Remain in their room unless tests are required for their acuity of care
Treatment	Influenza vaccination is the first and most important step in protecting against the flu. Anti Viral Drugs are important treatment options for influenza. (They are not a substitute for vaccination, which can **prevent** flu illness.). For best results, Antiviral drugs should be started soon after symptoms start (within two days). They can help by making flu symptoms milder and shorten the duration of illness.
Discontinuing Additional Precautions	Following a point of care risk assessment additional precautions may be removed once Droplet precautions have been in place for 7 days after illness onset or until 24 hours after the resolution of fever and respiratory symptoms, whichever is longer, while a patient/resident/client is in a healthcare facility.
Discharge or Transfer	· The MRP may discharge the patient/resident/client as soon as their physical condition permits · The receiving facility or home care must be notified of the diagnosis prior to transfer for patients/residents/clients. · The Most Responsible Nurse must record status on the Home Care Transfer Form
Environment	Laundry Waste Cleaning Patient Care Equipment – once patient/resident/client has been discharged or precautions have been discontinued, precaution signage will remain in place and all patient equipment will remain in the room. Equipment will be removed by housekeeping only after appropriate disinfection and signs will be removed by Housekeeping after cleaning is complete.

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Infection Prevention and Control Information on Selected Infections and Conditions

For type and duration of Additional Precautions for various infectious diseases, please review the on-line Infectious Disease module from the Public Health Agency of Canada.

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Note: In this reference guide the term "patient" is inclusive of patient, resident or client.

PART 4: ENVIRONMENTAL SUPPORT SERVICES

1. Clean Environment

[NOTE: This includes direction relating to current housekeeping service levels only.]

A. Principles

As a guiding principle, all healthcare workers share the role of maintaining a clean environment.

B. Guidelines

Patient rooms, equipment used in the assessment and care of patients/residents/clients, diagnostic treatment and service delivery areas are to be cleaned according to the infection prevention and control standards described in this document.

Housekeeping Services within Island health are to establish and maintain a clean, sanitary, and aesthetically pleasing environment for patients/residents/clients, staff and visitors.

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C. Quality Auditing

In addition to audits done by Housekeeping Services and Environmental Support Services, the Infection Prevention and Control (IPAC) team may conduct independent audits of the environment, to determine adherence to quality standards.

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D. General Cleaning

Routine practices are used at all times when handling soiled items. This includes the wearing of PPE and hand hygiene which must be performed upon completion of the task.

Note: In this reference guide the term "patient" is inclusive of patient, resident or client.

Procedure 17: Cleaning Guidelines

Click for Procedures

All items of reusable equipment and furnishing in healthcare settings must be cleaned and disinfected/sterilized according to the manufacturer's instructions **between patient use** (e.g. stretchers, BP cuffs, etc).

Non-critical and other items made of fabric material should be cleaned when visibly soiled and following exposure to blood or body fluids as per manufacturers' guidelines. These items should also have an established routine cleaning with an intermediate or low-level disinfectant. Items such as blood pressure cuffs, which come into contact with the patient, should be decontaminated between patients/residents/clients rendering it safe for further use.

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Play Equipment and Toys

Toys can be a reservoir for potentially pathogenic microorganisms that can be present in saliva, respiratory secretions, feces or other body substances. Toys referred to in this section include infant and toddler toys, dolls, games, books, puzzles, cards, craft supplies, electronic equipment and teaching toys/dolls.

For a child on Additional Precautions, the items are to be dedicated to that particular child and terminally cleaned upon discharge or when precautions are discontinued.

Toys should be removed from general waiting rooms if an adequate process cannot be established to ensure their daily inspection, cleaning and disinfection. Any toy that is found to be damaged, cracked or broken will be discarded.

Modified from:
CHICA-Canada Practice Recommendations for Toys, November 20 2011

Gloves that meet WorkSafe BC standards for the task are to be used for all work requiring chemicals, cleaners, and disinfectants.

Housekeeping services are responsible for developing and maintaining written protocols on the use of non-disposable household gloves and ensuring that employees are aware of, and comply with these protocols.

Note: In this reference guide the term "patient" is inclusive of patient, resident or client.

- All housekeeping staff will adhere to Island Health's Policy 15.1 – Hand Hygiene

Cleaning of patient/resident/client rooms and equipment will be performed in accordance to the Housekeeping Checklist.

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Scheduled and Cycled Cleaning & Disinfection

Cleaning and disinfection of the following items not captured during routine daily or discharge cleaning will be managed on a cyclic basis and following additional written policies.

Care & Assessment Equipment

- In some areas, an arrangement has been made with Central Processing and Sterilization departments to clean pumps such as gastric, IVAC, nutrition administration, continuous pumps; crash cart and defibrillator, emergency cart, and continuous renal replacement therapy (CRRT) machines

Clean and soiled equipment will be stored/held within separate designated areas on all units. Areas will be identified using clear signage, for example:

- **Clean commodes only** (return all other equipment to designated area)
- **Clean equipment only**
- **Soiled equipment only**

Clean and soiled areas should be at least 1 metre (3 feet) apart

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E. Evaluating Products

Infection Prevention and Control Program consultation is required when new hospital equipment is being considered for purchase (see Items for Purchasing that Require Review from Infection Prevention and Control). Written guidelines will be obtained from the manufacturer prior to the IPAC team reviewing the product in order for a thorough assessment to be completed.

Items that cannot be appropriately decontaminated must not be purchased. Discuss purchase of new equipment with Infection Control Practitioner (ICP) **prior to** purchasing in order to assess its suitability for use within the clinical area with regard to decontamination.

Products used for cleaning and disinfection must be approved by those responsible for product selection, an individual from OHS and by a member of the IPAC Team. The

Note: In this reference guide the term "patient" is inclusive of patient, resident or client.

equipment being considered for purchase must be compatible with the cleaning and disinfecting agents used in the health care setting and manufacturer's recommendations for cleaning must be followed.

Responsibility for cleaning must be established prior to purchase and installation.

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F. Laundry

All laundry is treated the same regardless whether a patient is on routine or additional precautions. There must be segregation of clean and dirty linen and sufficient storage facilities for both (Housekeeping Section).

Procedure 18: Linen - Clean and Soiled

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1. Clean Linen

Linen will NOT be removed from large linen carts and placed onto small carts stored in hallways. If small carts are used during a shift to distribute linen, remaining linen will be placed in laundry tote at the end of the shift and cart cleaned.

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2. Soiled Linen

According to the principles of routine practices, soiled or used linens generated from all sources are considered to be contaminated and must be contained prior to transportation. Clean linen that has been dropped on the floor is considered soiled.

Dirty linen is not to be placed on bedside tables, chairs, floors or in the sink.

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3. Handling Soiled Linen Contaminated With Hazardous Materials

When hazardous materials are used, stored or disposed of, written safe work procedures must be developed and implemented for preparation, administration and waste handling. Departments intending to return soiled linens that are contaminated with hazardous materials must ensure that there is no potential risk to staff or patients/residents.

Hazardous materials include, but are not limited to:

- Chemicals that are a risk due to being toxic, poisonous, carcinogenic, noxious, flammable, combustible, corrosive or reactive with other chemicals.
- Radioactive substances that are present on soiled linen will be decontaminated at the site at which the patient resides. Linen contaminated by radioactive substances will not be sent to the Laundry until it is decontaminated by removing the radioactive nuclide contaminants or setting it aside for the appropriate time (i.e. ten half lives).
- Chemotherapy drugs (i.e. Antineoplastics).

Any contaminated linen identified by the user site as not able to be safely laundered will be safely disposed of by the user and the Regional Laundry informed of the disposal.

Items of linen from patients/residents/clients with unusual infections (e.g. Anthrax, Lassa Fever) should not be disposed of without consulting either the Medical Microbiologist in the first instance or the Infection Control Practitioner.

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4. Laundering on the Units

Laundering on units is not advocated in acute care setting. Items such as transfer belts, mattress covers, patient slings, etc. will be sent to Island Health's Regional Laundry or an industrial laundry facility. Only those items which are site specific will be laundered at the onsite laundry.

Note: In this reference guide the term "patient" is inclusive of patient, resident or client.

5. Laundry Facilities in Non Acute Care

When appropriate precautions are followed by health care workers and laundry workers for collecting, transporting, handling, washing and drying soiled linen, the risk of cross infection can be virtually eliminated.

- The laundry room must be sited within a facility ensuring that soiled articles are not carried through areas where food is stored, prepared, cooked or eaten
- The laundry room will have a flow of 'soiled to clean'. Clean items will not pass back through the 'soiled' area of the laundry
- Foul or infected linen is immediately bagged and must not be taken through other patients/residents/clients rooms
- Soiled laundry must be stored in a designated area within the laundry, separate from the area where clean laundry is handled

Procedure 19: Laundry Facilities in Non Acute Care

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2. Waste

Island Health is committed to the safety of the general public, patients/residents and staff. Local municipal regulations on waste segregation will be followed.

Procedure 20: Waste

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A. Waste Containers

Only impervious waste containers dedicated for the transporting of clinical waste should be used to minimize the potential for spillage and subsequent contamination of work place areas.

Garbage bins used in all non-office environments should all have lids that ideally open with a foot-operated mechanism.

Waste trolleys must be able to be easily cleaned and drained. The waste must be easily loaded, secured and unloaded. Clinical waste must not be transported in any other type of trolley. Biohazardous waste, sharps and general waste must never be mixed.

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B. Spillage of Blood or Body Fluids

Spillages are, by nature, highly unpredictable. Contamination of the environment and risk of exposure to infectious agents increases where the spillage is left unattended, or ineffectively managed. Spillages may consist of blood, body fluid or excreta and carry a risk of infection transmission. All spillages should be treated as potentially infectious and Routine Practices observed.

Assessment should be made of the:

- Content of the spillage – blood, urine, other
- Size of the spillage
- Material on which the spillage has occurred – fabric, vinyl, metal, other
- Grossly soiled carpets or fabric items in shared accommodation should always be replaced
- Ensure that all members of staff receive the level of training necessary for them to fulfill their individual responsibilities

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C. Safe Handling of Sharps

Safe management of sharps can help to reduce the potential risk of exposure to infectious agents such as blood borne viruses.

The prevention of sharps injuries is an essential part of routine practices, including handling and disposing of sharps in a manner that will prevent injury to the user and others.

- ***It is the responsibility of the user to ensure the safe disposal of a sharp at point of care;***
- ***Sharps must not be recapped after use, prior to disposal directly into a disposal container;***
- ***Never bend or break needles after use;***
- ***Do not disassemble needles from syringes or other devices; always dispose of as a single unit; and***
- ***Never fill a sharps disposal container more that ¾ full or above the maximum indicator line.***

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Note: In this reference guide the term "patient" is inclusive of patient, resident or client.

3. Managing Dishes, Glasses, Cups and Eating Utensils

Dishes/utensils are managed in the same manner, regardless whether a patient is on routine practice or additional precautions.

Procedure 21: Dishes, Glasses, Cups and Eating Utensils

Click for Procedures

Food Service Workers will not deliver/collect trays for anyone with gastro-intestinal symptoms

Food Service Workers will not pick up any trays that contain bodily fluids or sharps. They will bring this to the attention of the nursing staff

It is recommended that anyone who prepares food for others, successfully complete the "Food Safe' course

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4. Bed Bug Infestation

If a bed bug infestation is suspected, contact the Housekeeping Supervisor through the call centre.

Review Bed Bug information on Environmental Support Services web page

A. Pests and Infestations

If pest infestation is suspected or confirmed, inform the Home and Community Care leader. Although pests are not generally associated with transmission of disease, health care workers will need to avoid becoming a vehicle for their transfer to other homes. If an infestation is suspected/confirmed, clinician bags will remain in the vehicle.

If the infested home is in an apartment building, inform Environmental Health (through Public Health Unit) as other apartments may also become infested.

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Note: In this reference guide the term "patient" is inclusive of patient, resident or client.

PART 5: OUTBREAK MANAGEMENT

Infectious disease outbreaks occur year round and in different settings including acute care, residential and home and community care. Early recognition of unusual clusters of illness and swift actions in response to these episodes are essential for effective management of outbreaks. It is vital that all healthcare workers collaborate to facilitate prompt identification, reporting, specimen collection, and implementation of appropriate infection prevention and control measures to help minimize the impact of an outbreak.

Patients/residents/clients and staff should be assessed on an ongoing basis for signs/symptoms of an infectious disease. An outbreak may be declared anytime the number of individuals presenting with similar signs/symptoms meets the outbreak case definition for a given organism.

Procedure 22: Outbreak Management

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1. Reporting a Suspected Outbreak

Prompt reporting allows for early identification and interventions to interrupt transmission, thereby reducing morbidity and mortality. Report any suspicion of an outbreak ***as soon as possible***.

The table below identifies whom to contact for your area.

Table 4: Contact List

Type of Facility	Infection Prevention and Control Contact	Medical Physician Contact
Island Health Acute Care	Island Health Infection Prevention and Control	Island Health Infection Prevention and Control Physician
Island Health Amalgamated LTCF (Owned/Operated)	Island Health Infection Prevention and Control	Island Health Infection Prevention and Control Physician
Island Health Affiliated LTCF, Private LTCF, and Community	Public Health: CD Nurses (ILI); CD Environmental Health Officers (NLI)	Public Health Medical Health Officers (MHO)
After hours contact: · **Medical Microbiologist (MM) On-Call** – covers all medical microbiology calls and any **URGENT** infection prevention and control issues that cannot wait until the IPAC is available. Contact the MM through the RJH switchboard (250-370-8000). · **Weekends/Stat Holidays** – IPAC On-Call from 1100-1400 hours, for all acute care hospitals, St. Joseph's Acute and Residential, and all Island Health-owned residential facilities. Contact the IPAC through your manager-on-call · **Medical Health Officer On-Call** – Covers all questions from affiliated continuing care facilities. (MHO Numbers)		

Note: In this reference guide the term "patient" is inclusive of patient, resident or client.

2. Initial Infection Prevention and Control Precautions

Routine practices are to be used at all times with all patients/residents/clients. In addition, based on the type of outbreak, appropriate Additional Precautions will need to be implemented as soon as possible.

DO NOT wait until the causative agent is identified before implementing Additional Precautions.

The appropriate type of precautions (e.g. contact and/or droplet) must be determined by the presenting symptoms and the procedure being undertaken (e.g. mask with visor for any cough inducing procedure for suspected ILI).

The Suspected Influenza or Norovirus Outbreak algorithm provides guidance as to what initial infection prevention and control precautions are required in the event of any ILI/GI outbreak.

Printed Material 9: Suspected Influenza or Norovirus Outbreak Algorithm

Click for Printed Materials

(This document includes the Suspected Influenza or Norovirus outbreak Algorithm, the Respiratory Illness Other than Influenza Algorithm; the Outbreak Restrictions Imposed Algorithm; and the Outbreak Restrictions Not Imposed Algorithm)

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3. Confirming an Outbreak

The ICP, in consultation with the ***IPAC Medical Microbiologist and/or the IPAC Consultant***, will review the data and confirm that patients/residents/clients meet the case definition prior to declaring an outbreak.

The ICP will notify the Outbreak Management Structure (OMS) Lead (Program or Site Director) and housekeeping services that the unit/facility is on outbreak status by sending an email and posting the information on Healthspace.

The OMS Team implements and organizes a clear, reliable, integrated, and timely response to the outbreak and ensures that communication is provided to senior administration, staff, patients/residents/clients and the public.

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4. Room/Unit Closures

The IPAC Team, in collaboration with the OMS Team, will determine room, unit closures, admission and transfers.

Note: In this reference guide the term "patient" is inclusive of patient, resident or client.

5. Lost Bed Days

It is the responsibility of the Clinical Coordinator/Manager of Patient Care (or designate) to ensure that the bed days lost is recorded at the beginning of each day.

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6. Patient Tracking Forms

IPAC requires a daily completion of the Patient Tracking Form used for tracking pertinent information with regard to sign and symptoms during outbreaks or increased incidence. This data will ensure the OMS Team can make informed decisions.

Printed Material 10: CDI Patient Tracking Form

Click for Printed Materials

Printed Material 11: GI-Noro Patient Tracking Form

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Printed Material 12: ILI Patient Tracking Form

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7. Signage

Outbreak signage must be posted at the entrance of the facility/unit advising staff and visitors of the outbreak and any necessary Additional Precautions.

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8. Healthy Workplace

Worksafe BC refers to the term "workplace contaminants" as meaning chemical or biological substances arising from workplace processes, and may include airborne contaminants or contaminants on surfaces, such as tables, benches, eating utensils, clothing, or skin. The employer must ensure food is not stored or consumed in areas where the presence of these contaminants could result in a hazard to workers as a result of ingestion with food or beverages.

Staff will refrain from keeping or consuming food in an area of a workplace where it could become unwholesome because of workplace contaminants[4]

[4] WorkSafe BC refers to the term "workplace contaminants" as meaning chemical or biological substances arising from workplace processes, and may include airborne contaminants or contaminants on surfaces, such as tables, benches, eating utensils, clothing, or skin. The employer must ensure food is not stored or consumed in areas where the presence of these contaminants could result in a hazard to workers as a result of ingestion with food or beverages. **Reference:** WorkSafe BC, OHS Regulation and Related Materials. General Conditions 4.84 Eating Areas, accessed December 5 2011

Note: In this reference guide the term "patient" is inclusive of patient, resident or client.

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9. Staff

- Cohort staff to affected areas if practical, or assign staff to care for asymptomatic patients before symptomatic patients
- Consider minimizing movement of staff, students and volunteers between floors/units
- Consider excluding non-essential staff, students, and volunteers from working in affected areas
- Symptomatic staff that fit the case definition for GI illness should be excluded from work at all care facilities until 48 hours following the last episode of vomiting and/or diarrhea
- Symptomatic staff are required to report to their manager/designate and to OH&S Call Centre at **1.866.922.9464**
- Staff that have no GI infection symptoms during the outbreak, or are free of symptoms for at least 48 hours, may continue to work at any care facility, even if they are employed at a facility with an ongoing GI illness outbreak
- Refer to GI/Norovirus Algorithm for Staff
- Restrictions will be made by the Outbreak Management Team in consultation with the unit/facility administration

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10. Patients/Residents/Clients

- Restrictions regarding patient admissions/readmission/transfer and activities during an outbreak are only modified or lifted by MHO designate or IPAC
- Even when restrictions are lifted, symptomatic patients/residents/clients must remain on isolation precautions to prevent the spread of infection
- A patient that is hospitalized at another facility prior to the outbreak should not be transferred back to the facility until the outbreak is declared over. EXCEPTION: if a patient from the outbreak facility was hospitalized due to GI infection, he/she may return to the outbreak facility upon discharge
- Restrictions typically remain in place until the outbreak has been declared over

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Note: In this reference guide the term "patient" is inclusive of patient, resident or client.

11. Students

Healthcare students should follow the requirements of their Educational Facility with respect to completion of the British Columbia Centre for Disease Control- recommended immunizations and Tuberculosis screening. Students should maintain records of their immunizations and related laboratory tests for reference.

Students should understand that in the case of an exposure (i.e. varicella) if they are not immune, they will be subject to work restrictions which will impact significantly on their practicum experience. The Educational Facility instructor is responsible for explaining and ensuring compliance with such restrictions.

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12. Visitors

Visitation to an outbreak unit should be restricted to 2 visitors per patient at any one time during scheduled visitation hours. Patients/residents/clients should be reviewed and visitors determined on an individual basis, considering the needs and medical condition of the patient. Staff must be consistent with their approach to facility visitation throughout the outbreak.

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13. Restrictions on Patient Activities

All previously scheduled patient social activities/events be cancelled on the affected unit(s) for the duration of the outbreak.

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14. Meals

All patients/residents/clients will dine in their room with tray service. The dining room will be closed during the outbreak and communal activities will be postponed until the outbreak has been declared over.

Nourishment Areas/Sharing of Food

- Close the kitchen/nourishment areas accessed by patients/visitors/clients and ensure there is no communal sharing of food in outbreak areas

- Remove shared food containers from dining areas (e.g. pitchers of water, salt and pepper shakers, etc)
- Ensure high touch areas of tables and chairs are cleaned and disinfected after each use
- No sharing or open food items at nursing desks/stations

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15. Pets

Pets will not visit on affected units. Please visit Island Health's Policy 9.1.10 for Pet Visitation

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16. Recreational Reading Material and Games

For operations during an outbreak situation: Magazines/books/puzzles/clutter will be removed from waiting rooms and patient lounges, in order to ensure required additional cleaning can be achieved. The Infection Prevention & Control Program will provide direction for the removal of magazines/books/puzzles/clutter from waiting rooms and patient lounges, during these times.

For normal operations outside of an outbreak situation: Magazines, book and puzzles in optimal condition may be placed in waiting areas and patient lounges for everyone's enjoyment.

For normal operations outside of an outbreak situation: Magazines, book and puzzles in optimal condition may be placed in waiting areas and patient lounges for everyone's enjoyment. If magazines/books/puzzles are torn, soiled or wet they must be removed and discarded.

Mobile book and magazine carts:

- Alcohol Hand Rub is available on the cart.
- If magazines/books/puzzles are torn, soiled or wet they must be removed and discarded.
- Carts that take books and magazines to patients on units should be terminally cleaned daily and when soiled. They should not be taken into patient bed spaces or rooms where additional precautions are in place, or onto units with outbreaks.
- Children or adults on additional precautions should have dedicated toys, books, magazines, and puzzles, which should be discarded or taken home on discharge.

Consensus: Books/magazines, etc can be circulated from a patient to other patients or waiting rooms as long as the patient is not on precautions or an outbreak is in effect.

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Note: In this reference guide the term "patient" is inclusive of patient, resident or client.

17. Environmental Cleaning

- Increased frequency of cleaning (Precaution Plus) of high touch surfaces is an important contribution to the control of spread. High touch surfaces may include:
  - Bed rails
  - Call bell cords
  - Bathroom surfaces – taps, toilet handles
  - Door knobs, light switches
  - Elevator buttons
  - Tables, counter tops
  - Nourishment areas (fridges, ice machines, cupboard handles)
  - Nurses station
- Equipment that is shared between patients shall be thoroughly cleaned and disinfected in between each use.

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18. Linen

If there is risk of contamination of staff clothing from body fluids or secretions then appropriate PPE shall be worn to minimize contamination otherwise, no special handling/cleaning of linen is required.

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19. Heightened Surveillance Post-Outbreak

- It is strongly recommended that heightened GI illness surveillance be maintained for at least 72 hours after the outbreak has been declared over and after restrictions have been lifted, in the event that unrecognized transmission is occurring in the unit/facility
- Report any new cases during this period in the same manner as an outbreak is reported
  - The IPAC or MHO/designate will assess to determine if restrictions should again be implemented

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Note: In this reference guide the term "patient" is inclusive of patient, resident or client.

A. Influenza-Like Illness (ILI) Outbreaks

1. Introduction

Outbreaks of influenza generally occur in Canada between fall and early spring. Influenza viruses cause disease among all age groups. Rates of serious illness and death are highest among persons of any age who have medical conditions that place them at increased risk from complications. In most local outbreaks, complications and/or deaths related to influenza A may occur in the elderly, immunocompromised and pediatric patients/residents.

It is recommended that each facility have a process in place to ensure eligible inpatients receive influenza immunization each year.

Annual influenza immunization is the primary tool for preventing influenza and its severe complications. According to the Canadian National Advisory Committee on Immunization (NACI) statement on influenza vaccination, all healthcare workers have a duty to promote, implement, and comply with influenza immunization recommendations to decrease the risk of infection and complications in vulnerable populations for which they provide care.

The optimal time for delivering organized immunization campaigns for both patients/residents and staff is in the autumn

Although elderly persons and those with chronic diseases may have a lower immune response to the vaccine than healthy young adults, the vaccine is still very effective in preventing lower respiratory tract infections such as pneumonia and other secondary complications, thereby reducing the risk for hospitalization and death.

The influenza virus changes from year to year so the vaccine is adjusted to match with the viruses expected to be circulating during the current influenza season.

Influenza A and B virus can survive on hard surfaces for 24 to 48 hours, on softer, porous surfaces for 8 to 12 hours and on the hands for up to 5 minutes. The influenza virus is easily inactivated by soap and water[5] and commercially available alcohol-based hand rub.

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[5] Jefferson T, Del Mar CB, Dooley L, *et al.* (2011). "Physical interventions to interrupt or reduce the spread of respiratory viruses". *Cochrane Database Syst Rev* (7): CD006207

Note: In this reference guide the term "patient" is inclusive of patient, resident or client.

2. Confirming an ILI Outbreak

The following two tables help to differentiate between signs and symptoms of influenza and other respiratory organisms.

Table 5: Common Differences between Influenza and Common Cold Symptoms

Symptoms/Description	Influenza	Common Cold
Fever	Usually high	Sometimes
Chills, aches, pain	Frequent	Slight
Loss of appetite	Sometimes	Sometimes
Cough	Usual	Sometimes
Sore throat	Sometimes	Sometimes
Sniffles or Sneezes	Sometimes	Common
Involves whole body	Often	Never
Symptoms appear quickly	Always	More gradual
Extreme Tiredness	Common	Rare
Complications	Pneumonia - can be life threatening	Sinus infection Ear infection

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Table 6: Respiratory Infections

ORGANISM	SYMPTOMS	MODE OF TRANSMISSION	INCUBATION PERIOD	PERIOD OF COMMUNICABILITY	RESTRICTIONS
INFLUENZA TYPE A or B	Sudden onset of respiratory illness with fever and cough and with one or more of the following: sore throat, athralgia (painful joints), myalgia (muscle pain), runny nose, headache, prostration Note: Fever may not be prominent in those >65 years or in paediatric populations or those who are immunocompromised In children under 5, gastrointestinal symptoms may also be present	Person to person by droplets or direct contact with articles recently contaminated with respiratory secretions.	1 to 4 days	**Adults:** Usually 24 hours prior to symptoms and up to 4 days after clinical onset **Pediatric & Immunocompro-mised**: Usually 24 hours prior to symptoms and up to 7 days after clinical onset	**Precautions: Droplet** **Cases** should remain on precautions until they are over the acute illness and have been afebrile for 48 hours (minimum of **5 days** from onset of acute illness). **Unit restrictions** for an influenza outbreak remain in place for **6 days** after onset of symptoms in the last case.

Note: In this reference guide the term "patient" is inclusive of patient, resident or client.

ORGANISM	SYMPTOMS	MODE OF TRANSMISSION	INCUBATION PERIOD	PERIOD OF COMMUNICABILITY	RESTRICTIONS
RESPIRATORY SYNCYTIAL VIRUS (RSV)	Similar to common cold symptoms; usually mild but can be moderate to severe. Severe lower respiratory tract disease can occur in the elderly.	Person to person usually by direct or close contact with contaminated secretions which may involve droplets or fomites. Virus may live on environmental surfaces for many hours and for a half-hour or more on hands.	2 to 8 days, average 4 to 6 days	Period of viral shedding is usually from 3 to 8 days but may be longer in pediatric and those who are immunocompromised.	**Precautions:** **Adults: Droplet precautions** **Pediatrics: Droplet precautions while symptomatic** In pediatric settings, unit restrictions may be recommended by Infection Prevention and Control. **Cases** should remain on precautions until they are over the acute illness.
PARAINFLUENZA Type 1, 2, 3	Similar to common cold symptoms. Can also cause serious lower respiratory tract disease with repeat infection (e.g. pneumonia, bronchitis, and bronchiolitis) in the elderly	Person to person through direct contact with infected persons or exposure to respiratory secretions on contaminated surfaces or objects.	2 to 6 days	Varies with different types.	**Adults: Droplet precautions** **Pediatrics: Droplet and contact precautions while symptomatic** In pediatric settings, unit restrictions may be recommended by Infection Prevention and Control. **Cases** should remain on precautions until they are over the acute illness.
ADENOVIRUS	Similar to common cold symptoms; usually mild but can be moderate to severe.	Person to person through direct contact with infected persons or exposure to respiratory secretions on contaminated surfaces or objects.	2 to 14 days	While symptomatic.	**Adults: Droplet precautions** **Pediatrics: Droplet precautions while symptomatic** In pediatric settings, unit restrictions may be recommended by Infection Prevention and Control. **Cases** should remain on precautions until they are over the acute illness.

Note: In this reference guide the term "patient" is inclusive of patient, resident or client.

ORGANISM	SYMPTOMS	MODE OF TRANSMISSION	INCUBATION PERIOD	PERIOD OF COMMUNICABILITY	RESTRICTIONS
HUMAN META-PNEUMOVIRUS	Similar to common cold symptoms; usually mild but can be moderate to severe. **Note:** unlike influenza, patients/residents usually maintain a normal appetite.	Person to person through direct contact with infected persons or exposure to respiratory secretions on contaminated surfaces or objects.	2 to 8 days	While symptomatic	**Adults: Droplet precautions** **Pediatrics: Droplet and Contact Precautions while symptomatic** In pediatric settings, unit restrictions may be recommended by Infection Prevention and Control. **Cases** should remain on precautions until they are over the acute illness, for a minimum of **5 days.**

Reference: John Hopkins University, Infection Prevention Guidelines for Healthcare Facilities with Limited Resources.

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Table 7: Case Definition for ILI and an ILI Outbreak

Influenza-like Illness (ILI) Case Definition	ILI Outbreak Suspected
Influenza like illness (ILI) New or worsening cough **and** Fever[6] and one or more of the following: • sore throat • athralgia (painful joints) • myalgia (muscle pain) • runny nose • headache • prostration *****Temp >38 or fever that is abnormal for that individual. Temp <35.6 or >37.4 may be indicative of health conditions or medical therapy such as use of anti-inflammatory medications, or corticosteroids etc. Temp > 38 may not always be present in infected elderly persons. Subjective report of fever may be sufficient in some cases.	Within a LTCF, or a geographic area of an acute care setting (e.g. floor, unit), the occurrence of: 2 or more cases of ILI occurring in residents, patients/residents, clients or staff within 48 hours, **or** 3 or more symptomatic cases among residents, patients/residents, clients or staff within 1 week. **Note:** ILI outbreak definition primarily applies to LTCF settings as outbreaks in Acute Care settings may only be identified in long stay units (e.g. psychiatry, rehab, or transitional care units). Symptomatic staff cases must have worked within the facility or area during the 3 days prior to onset of symptoms (i.e. during their incubation period).

Fever may not be present in many respiratory infections, patients/residents/clients who are very old or very young and patients/residents with pertussis and mild upper respiratory tract infections are often afebrile. Therefore, the absence of fever does not always exclude respiratory infections.

[6] **Note:** BCCDC/BC Facility Influenza Immunization Policy: October 18, 2010

Note: In this reference guide the term "patient" is inclusive of patient, resident or client.

3. ILI Outbreak Management

All ILI illness is to be treated as if it is Influenza A or B until proven otherwise. Once influenza is ruled out it is quite possible that IPAC will require all the following restrictions to remain in place save for those that are described for unvaccinated staff.

Practices and Precautions

Influenza can be spread by contact and droplet routes; consequently, droplet precautions are required.

Droplet precautions include:

- Thorough hand washing before and after any patient contact
- Wearing of a gown and gloves
- Surgical grade mask with attached visor or face shield
- Appropriate hand washing while removing protective attire. This is important as contamination from used attire may occur during removal

Patients/residents symptomatic with a respiratory illness should be restricted to their room, on droplet precautions for a minimum of **five (5) days** after the start of the illness, or until the symptoms are no longer present, whichever time period is longer.

Procedure 23: ILI Outbreak Management

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Working Restrictions for Asymptomatic Healthcare Workers

Working Restrictions for Asymptomatic Staff, immediately following the identification of the outbreak:

Working on the Outbreak Unit

Island Health Policy 5.8.6 Influenza Protection Policy

Unvaccinated staff are subject to exclusion from work within the outbreak facility or reassignment until the outbreak is declared over. An exception to exclusion of unvaccinated staff may be made if the unvaccinated staff take antiviral medication as prescribed and the antiviral medication is continued until the outbreak is declared over. These workers must be alert to the signs and symptoms of influenza, particularly in the first **two (2) days** after starting

antiviral prophylaxis, and should be excluded from the patient care environment should they develop symptoms[7].

During an outbreak of laboratory confirmed influenza[8], unvaccinated healthcare workers or those vaccinated within **two (2) weeks** of the onset of outbreak[9] must obtain antiviral medication, if they are to work on the outbreak unit.

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Working on a Non-Outbreak Unit

Asymptomatic healthcare workers, who are **not** vaccinated for influenza and have worked on an outbreak unit within **four (4) days** of the outbreak declaration, will need to follow the Staffing Algorithm for Influenza Outbreak and consult with OH&S prior to returning to work. This is to ensure that they remain free from infection following their last exposure. Once the three days has lapsed, and if they remain without symptoms, they may work on a non-outbreak unit or facility. This includes casual staff who work in several areas.

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Working Restrictions for Symptomatic Healthcare Workers

All symptomatic staff (including students and physicians) must remain off work for a minimum of **five (5) days** after onset of illness or until asymptomatic, whichever is the longer time period.

Printed Material 13: Staffing Algorithm for Influenza Outbreaks

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Prophylaxis for Laboratory Confirmed Influenza

Prophylaxis is the prevention of a disease (in this case influenza) through the use of medication. As the type of anti-viral medication used varies based on the strain of influenza and patterns of organism resistance, it is important that the prophylaxis used is the one recommended by the Medical Health Officer during the current influenza season.

Also, as patients/residents/residents kidney function may change, it is important that both the Physician's prepared order form and the patient's creatinine levels are updated annually.

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[7] Unvaccinated staff can use the form letter "Family Physicians ordering Health Care Worker Anti-viral Medication" to obtain prophylactic medication. **Note:** the cost of antiviral medication is not covered by the employer.
[8] If the presentation meets the outbreak definition for ILI then one should assume it is influenza, until proven otherwise by the MHO or IPAC Team
[9] Those considered not protected at the time the outbreak commences. Vaccinated staff should discuss with Occupational Health & Safety about when they can discontinue taking prophylactic medication.

Note: In this reference guide the term "patient" is inclusive of patient, resident or client.

B. Gastrointestinal Illness (GI) Outbreaks

1. Introduction

Gastrointestinal (GI) infections may be caused by a variety of agents, including bacteria, viruses and protozoa. Healthcare associated transmission of GI infections often result from contact with infected individuals, the consumption of contaminated food, water or other beverages, or from contaminated objects or environmental surfaces.

The most important characteristic of microorganisms that are responsible for GI outbreaks is their ability to be rapidly transmitted in healthcare settings to highly susceptible individuals.

Infectious gastrointestinal (GI) illness or gastroenteritis can be associated with a high incidence of morbidity and mortality. Many of these infections are attributable to Norovirus (previously known as Norwalk-like virus). Norovirus is extremely communicable and outbreaks are common.
Outbreak management is aimed at the early detection and elimination of any common sources of exposure. Infection control measures are vital to control and decrease the rate of transmission and must be implemented promptly, without waiting for laboratory confirmation of a causative agent. Transmission can occur via fecal/oral or vomitus/oral route, but also by contact or droplet spread.

For more information please refer to: Agents that Are Common in GI Infection Outbreaks:
PICNET GI Infection Outbreak Guidelines for Healthcare Facilities - Page 23

Symptoms of Gastroenteritis include:

- nausea,
- vomiting,
- diarrhea, and/or
- abdominal pain, which may be accompanied by myalgia, headache, low-grade fever, and malaise.

Although most gastroenteritis cases are mild and self-limiting, serious dehydration and/or aspiration pneumonia secondary to emesis can occur in debilitated individuals. Transmission usually occurs via the fecal/oral or vomitus/oral route, but can also include fomite (objects or environmental surfaces) or droplet spread.

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2. Confirming a GI Outbreak

Outbreaks of diarrhea in hospitals, nursing homes and NICUs have been associated with a wide variety of organisms including salmonella, shigella, *Clostridium difficile*, vibrio (cholera), *Staphylococcus aureus*, cryptosporidium, rotavirus and other enteroviruses.

Note: In this reference guide the term "patient" is inclusive of patient, resident or client.

Table 8: Common Bacterial and Viral Causes of Gastroenteritis

Organism name	Description
Clostridium difficile (formerly called antibiotic-resistant diarrhea or pseudomembranous colitis)	• **Symptoms**: diarrhea ranges from mild and self-limiting to severe pseudomembranous colitis, which can be fatal • **Incubation Period:** there is no incubation period. People in good health usually don't get Clostridium difficile disease • **Source:** contact transmission from contaminated articles or the hands of health care workers
Escherichia coli	• **Symptoms**: acute diarrhea • **Incubation Period:** usually 3-4 days after exposure • **Source**: contaminated meat/food that was not cooked sufficiently and contact transmission from contaminated articles or the hands of health care workers
Rotavirus	• **Symptoms**: sudden onset of vomiting and diarrhea. Fever and upper respiratory symptoms are present in about half the cases. • **Incubation Period:** within 48–72 hours(2–3 days) after exposure • **Source** virus may be present in the sputum or secretions for several days and stool may contain virus for up to 2 weeks post exposure
Salmonella (salmonellosis)	• **Symptoms**: fever, nausea and vomiting followed by diarrhea that frequently contains mucus (whitish and stringy) • **Incubation Period:** less than 3 days • **Source:** fecal/oral transmission from acutely infected patients/residents/clients
Shigella (shigellosis)	• **Symptoms**: rapid onset of diarrhea, with stools containing mucus and often blood. Infected persons are often more sick than is typical for other infecting agents • **Incubation Period:** 1–6 days • **Source:** fecal/oral transmission from acutely infected patients/residents/clients
Vibrio cholerae	• **Symptoms**: acute, severe diarrhea • **Incubation Period:** 2 hours-5days • **Source**: usually associated with contaminated water sources

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Note: In this reference guide the term "patient" is inclusive of patient, resident or client.

Table 9: Gastrointestinal Illness Case Definition

GASTROINTESTINAL ILLNESS (GI) CASE DEFINITION	GI OUTBREAK SUSPECTED IF:
Norovirus Like Illness: Sudden unexplained **vomiting and/or diarrhea** in the absence of a functional cause. **Note:** To be defined as a **case**, the person must have been **present in the facility** during the period of time it takes to incubate the disease. If a staff member has not been in the facility **within the past 3 days,** they would be considered a "community", not "workplace", associated case.	An outbreak should be **suspected** if the following occurs on a **designated geographical unit**[10]: • Two or more unrelated cases with similar illness that can be epidemiologically linked to one another (associated by time and/or place and/or exposure) • Cases must be confirmed[11] with the IPAC Team.

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3. GI Outbreak Management

All GI illness are to be treated as if it is Norovirus until proven otherwise.

Procedure 24: GI Outbreak Management

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Working Restrictions for Staff

Working Restrictions for Staff, please review the GI/Norovirus Algorithm for Staff on the Infection Prevention and Control internal web site.

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Collection and Transportation of Stool Specimens

Management strategies for outbreaks of gastrointestinal illness **are not** dependent on laboratory confirmation. However, it is valuable to collect stool specimens from cases during outbreaks to try to identify the etiology.

[10] Outbreak Unit designation varies based on the design and layout of the physical structure. The boundaries of the Outbreak Unit will be established by the Outbreak Lead/Medical Lead in collaboration with the Responsible Physician and the facility administrator.
[11] Cases must meet the case definition and then the number of cases must be adequate to meet the outbreak definition.

Note: In this reference guide the term "patient" is inclusive of patient, resident or client.

Island Health Laboratory can test both stool and emesis specimens for confirmation of Gastroenteritis/Norovirus.

Continue collecting specimens from newly symptomatic patients/residents/clients until the laboratory confirms the organism or you are instructed to stop by the IPAC Team/Public Health, Medical Health Officer, Microbiologist or Infectious Disease/Control Physician.

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C. Outbreaks Caused by Other Organisms

1. *Clostridium difficile* Outbreak

Clostridium difficile infection (CDI) should be considered when a patient experiences sudden unexplained diarrhea in the absence of a functional cause.

The case definition for CDI is:

- Acute onset of diarrhea (3 or more loose stools within a 24 hr period) without another etiology (diarrhea should be liquid enough to take the shape of the container).

  And one or more of the following:

- Laboratory confirmation (positive toxin), **or**
- Diagnosis of typical pseudo-membranes on sigmoidoscopy or colonoscopy or histological/pathological diagnosis of CDI, **or**
- Diagnosis of toxic megacolon.

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Confirming a CDI Outbreak

The outbreak definition for CDI is three or more cases who meet the above case definition within a defined geographical area and are found to be hospital acquired on the same unit (i.e. does not include community acquired cases or those readmitted or transferred from a different unit).

The IPAC Team will review and validate that the outbreak criteria has been met.

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Note: In this reference guide the term "patient" is inclusive of patient, resident or client.

Laboratory samples

Stool that is liquid enough to assume the shape of the container is an acceptable specimen for CDI testing.

Send repeat samples only on patients/residents that meet the definition of relapse or re-infection. Relapse or re-infection is defined as a reoccurrence of symptoms within 30 days of a previous diagnosed case of CDI.

Further testing to establish the patient/resident/client is no longer infected is not required.

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2. Work Restrictions

There are no staff work restrictions associated with a CDI outbreak.

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Practices and Precautions

- Initiate contact precautions and ensure the patient/resident/client is in a private room or cohort with other cases diagnosed with *C. difficile.*

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3. Scabies

Definitions

Clinical features of infestation

- skin penetration visible as papules or vesicles
- burrows formed by mites under the skin are visible as linear tracts
- lesions are seen most frequently in inter-digital spaces, anterior surfaces of wrists and ankles, axillae, folds of skin, breasts, genitalia, belt-line and abdomen. Infants may have lesions of the head, neck, palms and soles of the feet
- itching does not always occur with a primary infestation, but when it does it is most intense at night
- itching may continue for approximately 6 weeks after treatment. This does not mean treatment was not successful
- If patient/resident/client has the above symptoms they will be considered a suspected case

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Clinically diagnosed case

- Patient has the above clinical features of scabies but skin scraping does not positively confirm the presence of scabies

Confirmed case

- Patient with skin scraping showing mites, eggs or fecal pellets, or a written opinion by a dermatologist based on signs and symptoms

An outbreak is considered when:

- Two or more patients/residents/clients are diagnosed with scabies on one unit within a 2-week period; or
- One patient **plus** one or more staff members on one unit are diagnosed with scabies within a 2-week period.

For more information visit the BC Centre for Disease Control at:

Infection Control of Scabies February 2005

or visit the Center for Disease Control at: http://www.cdc.gov/parasites/scabies/

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Crusted (Norwegian) Scabies

Is usually seen in immunocompromised people, this form of scabies is characterized by widespread, extensive crusting and scaling of the skin. Rash may be present and on any area of the body and thousands of mites may be present. This form of scabies is highly communicable.

Procedure 25: Scabies

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Specific Interventions

The Infection Prevention and Control Team will validate an outbreak and its extent. This may involve consultation with a dermatologist to attempt to confirm the diagnosis by obtaining skin scrapings.

Assessment of all current patients/residents/clients, staff, volunteers and students on the unit for symptoms must be carried out prior to administration of treatment or prophylaxis of cases or contacts. All patients/residents cared for on the unit and staff assigned on the unit in the previous 6 weeks will be tracked and contacted

Note: In this reference guide the term "patient" is inclusive of patient, resident or client.

Laboratory Samples

- Skin scrapings are obtained by a person trained in collection of the specimen using a kit requested from the Microbiology Laboratory

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Control Measures

- Upon validation of an outbreak, the unit will be closed to admissions and transfers. Discharged patients/residents/clients should be assessed for symptoms and advised of the need for treatment or prophylaxis
- Treatment of symptomatic cases and prophylaxis of all contacts (including asymptomatic patients/residents, healthcare workers, volunteers and visitors) must take place within the same 24-hour period
- Only patients/residents/clients that have symptoms, or have positive skin scrapings, need to be placed on contact precautions **until** 24 hours after initiation of treatment.

Patients/residents/clients with Crusted Scabies remain on precautions until symptoms have abated

For more information please see http://www.cdc.gov/parasites/scabies/gen_info/faqs.html

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Scabies Outbreak Conclusion

The unit may be reopened to admissions and transfers when all patients/residents/clients involved have received treatment or prophylaxis and follow-up baths. Symptomatic patients/residents/clients may still be cared for using appropriate additional precautions.

Monitoring continues for at least 6 weeks following last exposure for development of new cases.

Reference: *Scabies Control Guidelines circular #2005: 02, BC Centre for Disease Control February 2005.*

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PART 6: SPECIFIC PROCEDURAL RECOMMENDATIONS

Storage of Decorative Items

Procedure 26: Storage of Decorative Items

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Furniture

Procedure 27: Furniture

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Fixtures and Fittings

Procedure 28: Fixtures and Fittings

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Signage and Other Posted Materials

Procedure 29: Signage and Other Posted Materials

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Note: In this reference guide the term "patient" is inclusive of patient, resident or client.

PART 7: SPECIFIC CLEANING INSTRUCTIONS

Procedures for:

Cleaning Agitator Tubs/Hydrotherapy Tanks

Procedure 30: Cleaning Agitator Tubs/Hydrotherapy Tanks

Click for Procedures

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Cleaning Fans

Procedure 31: Cleaning Fans

Click for Procedures

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Cleaning Commodes

Procedure 32: Cleaning Commodes

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Cleaning Suction Regulators

Procedure 33: Cleaning Suction Regulators

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Blood Glucose Monitoring (BGM) - Cleaning and Disinfection of Glucose Meters

Refer to the Blood Glucose Monitoring (BGM) - Cleaning and Disinfection of Glucose Meters*.*
This link available to staff and physicians via the VIHA intranet. You will be prompted to log on if you are viewing this from an external computer. For information on accessing the intranet, click here. .

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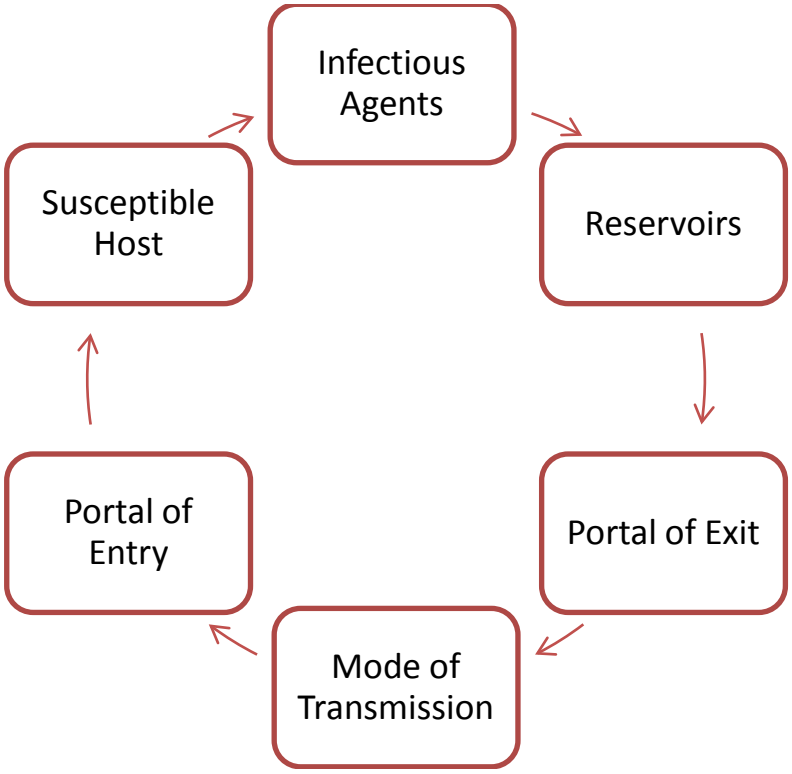
PART 8: EDUCATION / GENERAL INFORMATION

1. The Chain of Infection

The spread of infection is best described as a chain with six links:

1. Pathogen or causative (infectious) agent
2. Reservoir
3. Portal of exit from the reservoir
4. Mode of transmission
5. Portal of entry into the host
6. Susceptible host

Procedure 1: Chain of Infection



Infection prevention and control measures are designed to break the links in the chain of infection and thereby prevent new infection. The chain of infection is the foundation of infection prevention and control.

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D. Causative Agents

Bacteria, viruses, fungi and protozoa (microorganisms) are very common in the environment. Most of these microorganisms cause people no harm, and can in fact be beneficial. Creating an environment with no organisms is not a realistic goal.

Table 10: List of Causative Agents

Agent	Description
Bacteria	Single celled organisms, some of which can cause disease. We all live with numerous bacteria, referred to as our "normal flora" or "resident bacteria", which usually do not cause disease unless their balance is disturbed. It usually takes thousands of bacteria to cause disease, not just one or two. Bacteria vary in infectivity and virulence.
Viruses	Intracellular pathogens, either DNA or RNA, meaning they can only reproduce inside a living cell. Viruses such as HIV and Hepatitis B and C have the ability to enter and survive in the body for years before symptoms of disease occur. Others, such as the influenza viruses, quickly announce their presence through characteristic symptoms.
Fungi	Prevalent throughout the world, but only a few cause diseases in humans, most of which predominately affect the skin, nails and subcutaneous tissue. Fungal infections can be life threatening in critically ill patients/residents.
Prions	These are a form of infectious protein believed to be the cause of Creutzfeldt Jakob disease (CJD).
Protozoa	Single or multi-celled microorganisms that are larger than bacteria. Examples of disease causing protozoa include Amoebas and Giardia, which cause diarrhea, and Plasmodium species, the cause of malaria. They may be transmitted via direct or indirect contact or the bite from an arthropod vector.
Parasites	Larger organisms that can infect or infest people. Infestation with arthropods, such as lice and scabies, occurs by direct contact with the arthropod or its eggs. Heminths include roundworms, tapeworms and flukes. They infect humans principally through ingestion of fertilized eggs or when the larvae penetrate the skin or mucous membranes.

Causative organisms can be eliminated by several methods, including:

- Sterilizing surgical instruments and anything that comes into contact with sterile spaces of the body
- Using good food safety methods
- Providing safe drinking water
- Vaccination
- Treatment for those affected
- Following good hand hygiene practices

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E. Reservoirs

Microorganisms require water to grow and reproduce.

In some cases the environment can serve as the reservoir. For example, water supplies may become contaminated by Legionella species. Inadequate air exchange can allow pathogens such as Mycobacterium tuberculosis and *Aspergillus* to contaminate air supplies. Environmental contamination by pathogens such as *Staphylococcus aureus* and *Enterococcus* species also commonly occur in bathrooms and/or on equipment. Appropriate infection prevention and control measures and engineering controls can prevent these reservoirs.

Common reservoirs in healthcare facilities include:	Actions we take to eliminate reservoirs include:
• Ill people • Well people. Our normal flora includes bacteria that can be pathogenic if in the wrong part of the body • Food; raw meat may harbor pathogens • Water from fish tanks or flower vases may contain pathogens, which can cause harm especially for compromised patients/residents	• Treating people who are ill • Vaccination • Safe handling and disposal of body fluids appropriately • Handling food safely • Monitoring for water contamination, and restricting flowers in sensitive areas of the hospital

Table 11: Human Reservoirs and Transmission of Infectious Agents

Reservoir	Transmission vehicle	Infectious agents	
Blood	Blood, needle stick, other contaminated equipment, splashes	• Hepatitis B and C • HIV	• *Staphylococcus aureus* *Staphylococcus epidermidis*
Skin and Soft Tissue	Drainage from a wound or incision	• *Staphylococcus aureus* • Coliforms	• *Pseudomonas*
Reproductive tract and genitalia	Urine, semen, vaginal secretions	• *Neisseria gonorrhoeae* • *Treponema pallidum*	• *Herpes simplex* virus • Hepatitis B
Respiratory tract	Droplets from sneezing or coughing	• Influenza viruses • Group A *streptococcus*	• *Staphylococcus aureus* • Tuberculosis
Gastrointestinal tract	Vomitus, feces, bile, saliva	• Hepatitis A • Shigella • Salmonella	• Norovirus • Rotavirus
Urinary tract	Urine	• *Escherichia coli* • *Enterococci*	• *Pseudomonas*

Note: This list is not exhaustive
Reference: Routine Practices and Additional Precautions for Preventing the Transmission of Infection in Healthcare Settings (2012)
http://www.ipac-canada.org/pdf/2013_PHAC_RPAP-EN.pdf

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F. Portal of Exit

The portal of exit is the way in which the causative agent gets out of the reservoir, and it is the link of the chain that we can do the least about. Any break in the skin, including natural anatomical openings and draining lesions, may be the portal of exit; any bodily fluid may carry microorganisms out of the body.

Reducing risk:

- Cough and sneeze etiquette
- Wearing appropriate personal protective equipment (gloves, gowns, mask with or without visor) then performing correct hand hygiene
- Cover draining wounds with an appropriate dressing
- Health care workers refraining from work when symptomatic

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G. Transmission

Transmission is the weakest link in the chain of infection. Most efforts to prevent the spread of infection are aimed at eliminating the mode of transmission.

Microorganisms are transmitted by several routes, and may be transmitted by more than one. There are five main routes of transmission; contact, droplet, airborne, common vehicle and vector borne. For the purpose of this manual, common vehicle and vector borne will be discussed only briefly, as neither plays a significant role in Healthcare associated infection.

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Table 12: Types of Transmission

Contact Transmission	**Direct contact**	The most important and frequent mode of transmission of HCAI, and is divided into direct and indirect contact transmission
	Indirect contact	Usually involves contact between a susceptible host and a contaminated inanimate object, such as equipment, instruments or environmental surfaces. This is often the result of contaminated hands touching an object or environment. For example, activity staff who use a ball to pass from resident to resident
Droplet Transmission	Theoretically, droplet transmission is a form of contact transmission. However droplets are generated from the source person primarily during coughing, sneezing and talking, and during the performance of certain procedures such as suctioning and administering nebulized medications. Transmission occurs when large droplets containing microorganisms are propelled a short distance through the air and deposited on the host's conjunctivae, nasal mucosa or mouth. Droplets do not remain suspended in the air and must not be confused with airborne transmission. Droplets can also contaminate the surrounding environment and lead to indirect contact transmission.	
Airborne Transmission	Airborne transmission occurs by dissemination of either airborne droplet nuclei; small particle residue (five microns or smaller in size) of evaporated droplets containing microorganisms or dust particles containing the infectious agent (e.g. dust created by rotary powered foot care tools). Microorganisms carried in this manner remain suspended in the air for long periods of time and can be dispersed widely by air currents. These may be inhaled by a susceptible host within the same room, or over a longer distance from the source patient/resident. Environmental controls are important – special air handling, ventilation (airborne precaution room/negative pressure), and the use of N95 masks help reduce airborne transmission.	
Common Vehicle Transmission	Common vehicle transmission applies to microorganisms transmitted by contaminated items such as food, water and medications, to multiple hosts, and can cause explosive outbreaks. Control is through using appropriate standards for handling food and water, preparing medications and appropriate hand decontamination.	
Vector Borne Transmission	Vector borne transmission occurs when vectors such as mosquitoes, flies, rats and other vermin transmit microorganisms. This route of transmission is of less significance in healthcare facilities in Canada than in other settings.	

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H. Portal of Entry

The Portal of Entry is an opening allowing the microorganism to enter the host. Portals include body orifices, mucus membranes, or breaks in the skin. Portals also result medical devices, such as urinary catheters, or from punctures produced by invasive procedures such as intravenous fluid replacement.

Table 13: Portals of Entry

Examples of portals of entry include:	Actions to protect portals of entry include:
• Mouth, nose and eyes • Other anatomical openings • Skin breaks (cuts, rashes) • Surgical wounds • Intravenous sites • Anatomical openings with tubes in place (these are more susceptible than those without) • Needle puncture injuries	• Wound Dressings • IV site dressings and care • Elimination of tubes as soon as possible • Correct PPE • Needle stick injury prevention • Food and water safety

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I. Susceptible Host

Susceptible Host is a person who is susceptible to a microorganism and lacking immunity or physical resistance to overcome the invasion by the pathogenic microorganism.

Host factors that influence the outcome of an exposure include the presence or absence of natural barriers, the functional state of the immune system and the presence or absence of an invasive devise.

Table 14: Susceptible Hosts

Examples of susceptible hosts include:	Actions required to minimize risk to susceptible hosts include:
• People with chronic diseases • People with invasive devices or tubes in place (e.g. catheters) • Malnourished people • The very old and the very young • People who are tired or under high stress • People with skin breaks such as surgical wounds, IV sites or chronic rash • People undergoing steroid therapy or treatment for cancer • People with HIV Infection • People who are well and healthy. No one is immune to all disease	• Vaccinating people against illnesses to which they may be exposed • Preventing new exposure to infection in those who are already ill, receiving immunocompromising treatment or are infected with HIV • Maintaining good nutrition • Maintaining good skin condition • Covering skin breaks • Encouraging rest and balance

The nature of healthcare settings makes patients/residents vulnerable to the spread of infections, because it brings together many ill people who are both reservoirs and susceptible hosts. Staff are also both reservoirs and susceptible hosts, so we cannot eliminate those two major links of the chain of infection. This is why we must make such efforts to eliminate the mode of transmission; **hand hygiene is still the single most effective way to prevent the spread of infection.**

The reservoir and the susceptible host may reside in the same person, if the individual's normal flora gets into the "wrong" part of the body it may cause infection.

Preventing the spread of infectious organisms includes:

- Early identification of the infectious organism
- Prompt appropriate precautions put in place for patients/residents
- Initiation of appropriate treatment

Source: *Evans, N and McDonald, M. Infection Control Guidelines for Healthcare Professionals.*

Routine Practices are to be applied at ALL times by ALL staff.

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J. Patient/Visitor Perception of Personal Protective Equipment (PPE)

It is important to be sensitive to the effect that Additional Precautions may have on patients and others. Patients can feel isolated when Personal Protective Equipment (e.g. gowns, masks, etc) is necessary to provide safe care and other patients/visitors may be concerned about their own personal safety. It is best to advise all concerned that the interventions are taken to protect everyone – patients, staff and the public alike.

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2. Asepsis

Asepsis is defined as the freedom from infection or the prevention of contact with microorganisms.

Aseptic technique can be described as any health care procedure in which added precautions, such as use of sterile gloves and instruments, are used to prevent contamination of a person, object, or area by microorganisms.

Mosby's Medical Dictionary, 8th edition. © 2009, Elsevier.

Note: In this reference guide the term "patient" is inclusive of patient, resident or client.

The Seven Keys of Asepsis

- Know what is clean
- Know what is contaminated
- Know what is sterile
- Keep clean, contaminated and sterile items separated
- Keep sterile sites sterile
- Resolve contamination immediately
- Train yourself to realize when you have broken technique

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Know what is clean

Clean techniques are any procedures that involve contact with intact skin or mucous membranes only. For example, when you are taking blood pressure or temperature, these articles need to be clean only.

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Know what is contaminated

Certain procedures like dressing changes produce contaminated materials. These contaminated materials must be disposed of properly by incineration or autoclave. Touching non-intact skin is a contaminated procedure; wear clean gloves unless a sterile procedure (like a dressing change) is being done.

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Know what is sterile

During certain procedures (for example, the insertion of an IV or urinary catheter), sterile technique must be used. The level of sterile procedures increases with the level of invasiveness. For example, surgical procedures require stricter aseptic technique than starting an IV. Sterile gloves are required for sterile procedures.

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Keep clean, contaminated and sterile items separated

Keep contaminated articles from touching clean or sterile items. Store clean and sterile items separately from contaminated areas or items. Keep sterile items from touching anything but a sterile field or another sterile item.

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Keep sterile sites sterile

Once a tube has been inserted into the body, care must be given to mitigate the travel of microorganisms up the catheter or tube. Give dressing changes or catheter care and replace catheters per your facility's policy and procedure.

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Resolve contamination immediately

If sterile technique cannot be used or is broken (e.g. during an emergency), resolve contamination when it occurs. For example, if an IV is inserted during an emergency, replace the IV as soon as possible after the code is completed.

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Train yourself to realize when you have broken technique

If a technique is broken, remedy the problem if possible. For example, if during the insertion of an IV the catheter is contaminated by touching a non-sterile surface, replace the catheter before insertion. If contamination cannot be resolved, report it to the proper person. For example, if the bowel is nicked during surgery, the case classification will change from clean or clean-contaminated to contaminated and extra care should be given to prevent infection.

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3. Spaulding Classification

In 1968 Earle Spaulding devised a rational approach to disinfection and sterilization. Spaulding believed that instruments and equipment should be cleaned and reprocessed according to the level of risk associated with their intended use.

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 involved in the use of the equipment/device.

The classification system developed by Spaulding divides medical equipment/devices into three categories based on the potential risk of infection involved in their use:

Level of risk	Application	Process
Critical	Entry or penetration into sterile tissue, cavity or bloodstream	Sterility required
Semi-critical	Contact with intact non sterile mucosa or non intact skin	Sterilisation preferred where possible.If sterilisation not possible then high-level chemical disinfection required.
Non-critical	Contact with intact skin	Clean as necessary with detergent and water

Spaulding EH. The Role of chemical disinfection in the prevention of nosocomial infections. In: PS Brachman and TC Eickof (ed). *Proceedings of International Conference on Nosocomial Infections, 1970.* Chicago, IL: American Hospital Association: 1971: 254-274.

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BROWSE BY RECENT UPDATES

March 2014

Removed "Draft" from the document
Added new headers/footers

Page 3 – Cleansing Agent updated reference
Page 5 – Point of Care Risk Assessment- Procedure – updated algorithm in second box
Page 6 – Updated Additional Precautions Reference
Page 6 – Glove Selection revised
Page 37 – Added information on Laundering on the Units
Page 65 – Updated "References" on Additional Precautions after Table 11

February 2014:

Combined the following buttons into "Introduction, Icon Definition and Search to:
Information: Introduction/Icons/Search

January 2014:

Replaced Seasonal Influenza section.

November 2013:

Cover Added the following Buttons,
Table of Contents
Introduction
How to Navigate
Search

Added Moving Patients on Additional Precautions

Added updated information concerning Recreational Reading Material and Games

Added Amount of Time Needed (by number of air changes per hour) to remove airborne microorganisms after generation of infectious droplet nuclei has ceased.

Page 7 Masks, Visors change

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Page 84 Other Infectious Diseases Button has been changed to Information on Selected Infections & Conditions and Parasites

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BROWSE BY TOPIC

Outbreaks

Environmental Support Services

Specific Procedural Recommendations

Significant Infectious Organisms

Personal Protective Equipment

Equipment

Practices & Precautions

Hand Hygiene

Education/ General Information

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Outbreaks

- Reporting
- Influenza Like Illness (ILI)
- Gastro-intestinal (GI)
- *Clostridium difficile* (*C. diff*)
- Scabies

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Significant Infectious Organisms

- MRSA for Acute Care Policy
- MRSA for Residential Care Policy
- VRE Policy
- ESBL
- CRGNB Policy (now known as CRE)
- Key Management Issues for ESBL, MRSA & CRGNB
- ARO Screening Protocol and Specimen Collection
- Patient Placement Guidelines
- Information on Selected Infections & Conditions and Parasites

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Practices & Precautions

- Routine Practices
- Hand Hygiene
- Personal Protective Equipment
- Negative Pressure Room
- Contact Precautions
- Droplet Precautions
- Airborne Precautions
- Additonal Precautions

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Environmental Support Services

- General Cleaning
- Bed Bugs & Other Pests
- Housekeeping Checklist
- Evaluating Products
- Laundry (clean and soiled linen)
- Laundering on Units
- Spillage of Blood or Body Fluids
- Managing Eating Utensils
- Waste

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Personal Protective Equipment

Gloves

Gowns & Aprons

Masks, Visors and Protective Eyewear

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Hand Hygiene

- General Information
- Hand Hygiene Policy
- 4 Moments for Hand Hygiene
- Alcohol Based Hand Rub
- Soap & Water
- Nail & Skin Care
- Auditing

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Specific Procedural Recommendations

- Decorative Items
- Furniture
- Signage & Other Posted Materials
- Fixtures and Fittings
- Evaluating Products

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Equipment

- Agitator Tubs and Hydro-Therapy Tanks
- Commodes
- DEKO Washers
- MEIKO Bedpan Washer
- Fans
- Suction Regulators
- Glucose Meter
- Play Equipment & Toys
- Recreational Reading Material & Games
- *HSSBC* NO GO List

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Do you have a topic you'd like added to this section?
Email your suggestion to ipc@viha.ca

Note: In this reference guide the term "patient" is inclusive of patient, resident or client.

Education/General Information

- Chain of Infection
- Asepsis
- Pets
- Colonization vs Infection

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BROWSE BY FREQUENTLY ASKED QUESTION

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Hand Hygiene:

Can you tell me where to find a topic on dress code: especially proper maintenance and position of staff "hair".

What is routine practice?

What are the 4 moments for HH?

Precautions:

For patients on contact precautions

- Who can go in a 4 bed room?
- Who cannot go in a 4 bed room?

What personal protection equipment should visitors use when patients are on precautions?

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