PICNet PROVINCIAL INFECTION CONTROL NETWORK OF BRITISH COLUMBIA

PICNet Infection Control Guidelines:

Providing Health Care to the Client Living in the Community

FINAL

August 1, 2009

Table of Contents

PICNet WORKING GROUP MEMBERS

PICNet would like to acknowledge the contribution and expertise of the Working Group members who developed this document:

Joanne Archer, R.N., B.Tech, M.A.
Infection Prevention and Control Educator/Consultant, PICNet

Jacqueline D'Auria, B.Sc., R.N.
Infection Control Practitioner (retired)

Fern Davey – R.N., B.Sc.N, C.I.C.
Epiquest Consulting

Bruce Gamage, R.N., B.Sc.N., B.Sc. (Micb), C.I.C.
Network Manager, PICNet

Nicki Gill, R.N., B.Sc.N., C.I.C.
Infection Control Practitioner, Central Okanagan Residential and Community Services, Interior Health

Louise Holmes, R.N., B.Sc.N., C.I.C.
Educator, Infection Prevention and Control, Vancouver Coastal Health-Communicable Disease Control

Marilyn Jack, R.N., B.Sc.N.
Central Educator, Adult and Older Adult Program, Vancouver Community, Vancouver Coastal Health

Kimberly Leslie, R.N., B.Sc.N.
Infection Prevention and Control Practitioner, Kamloops, Interior Health

Kathleen McWhinney, R.N., B.Sc.N., C.I.C.
Infection Control Manager, Fraser Health Authority

Sarah Pugh, B.A., M.A..
Projects and Communications Coordinator, PICNet

Lisa Schwartz, R.N., B.Sc.N.
Infection Prevention and Control Practitioner, South Okanagan Residential and Community Interior Health

Shelley Sing, R.N., B.Sc.N., O.H.N.(c), C.I.C.
Infection Prevention and Control Practitioner, Community, Vancouver Island Health Authority.

ACRONYMS

ARO: Antibiotic Resistant Organism

ABHR: Alcohol Based Hand Rub

BCCDC: British Columbia Centre for Disease Control

CA-MRSA: Community-Associated Methicillin Resistant *Staphylococcus aureus*

CCAR: Canadian Committee on Antibiotic Resistance

CCDR: Canada Communicable Disease Report

CDC: Centers for Disease Control and Prevention (Atlanta)

HAI: Health Care-associated Infection

HCW: Health Care Worker/Provider

ICP: Infection Control Practitioner/Professional

MHO: Medical Health Officer

MRSA: Methicillin Resistant *Staphylococcus aureus*

MSSA: Methicillin-Sensitive *Staphylococcus aureus*

OHS: Occupational Health and Safety

PHAC: Public Health Agency of Canada

PIDAC: Provincial Infectious Disease Advisory Committee

PPE: Personal Protective Equipment

TB: Tuberculosis

VRE: Vancomycin Resistant Enterococcus

1.0 INTRODUCTION

Trends in health care have seen many changes that have shifted pressure onto community care givers. Early hospital discharge, increased age and acuity of discharged clients, increasing associated chronic illnesses and lifestyle factors are some of the challenges home health care providers face. New technologies and treatments have permitted clients with previously fatal diseases to survive and live longer in the community with health care provided in their homes.

Community health centers and home health providers are now delivering increasingly more complex, invasive care, such as intravenous therapy, hemodialysis, wound care, or ventilator therapy. These changes bring about increasing opportunities for transmission of infection.[1]

Health care provided in the community or home setting is multidisciplinary. It includes, but is not limited to, care provided by home care nurses, home support workers, dieticians, social providers, speech therapists, occupational therapists, and physiotherapists.

There is little evidence to suggest that the provision of health care in the home setting results in substantial disease transmission. Most infections in this setting are related to procedures and devices such as urinary or intravascular catheters. Risks of transmission relate to aseptic practices of the care giver; cleaning and disinfection of equipment and supplies used between clients; and environmental cleanliness.[2]

A systematic approach to infection prevention and control requires that each health care provider play a vital role in protecting everyone who utilizes the health care system, in all of its many forms: pre-hospital settings, hospitals, clinics, offices, home care and community programs, etc. Health care providers need to follow infection prevention and control practices at all times and use critical thinking and problem solving in managing clinical situations.[3]

An extensive literature search was conducted and reviewed in preparation for this document. Guidelines from other credible resources (i.e. Public Health Agency of Canada, Centers for Disease Control and Prevention) were adapted where possible. The remaining guidelines were developed in collaboration with a working group of professionals from long term care and home and community care. They are based on the most recent evidence-based literature addressing best practices and, where this evidence is unavailable, on the collective experience and consensus of the working group members.

1.1 Purpose and Scope

This document is meant to provide Regional Infection Prevention and Control Programs, and Managers of community health care and home care programs and settings, with guidance in the writing of policies pertaining to infection prevention and control within these settings. While front line staff are welcome to read and use this document, it is not intended to supersede direction given by their local Infection Control Practitioner or their Regional Infection Prevention and Control program.

The client, resident, or individual receiving health care, for the purposes of this document, will be referred to as the 'client' throughout. The types of settings covered by this document are assisted living, supportive housing, client's homes, group homes, hospice, ambulatory care, outpatient clinics and street clinics.

These guidelines do not address guidelines for Physicians' offices, or private clinics. These areas are covered in the BC Centre for Disease Control Guidelines[4], available at: http://www.bccdc.ca/NR/rdonlyres/84DA413D-C943-4B5F-94F1-794C5B76C9CE/0/InfectionControl_GF_IC_In_Physician_Office.pdf

2.0 GENERAL INFORMATION ABOUT INFECTIONS

Microorganisms are very much a part of our world. They perform a variety of essential functions and interact with every living creature. The majority of microorganisms do not cause illness. There are several categories of microorganisms that may cause infection. These are bacteria, viruses, fungi, and parasites. Some of these microorganisms are more pathogenic (likely to cause disease) than others. However, if conditions are favourable, many microorganisms are capable of causing disease in humans.

In health care settings, infections are generally categorized into whether the person likely acquired the infection from his or her interaction with health care, or whether it was acquired from the community. Please see pages 29-31 for definitions of types of infections.

Usually when an individual develops an infection they will show signs and symptoms such as fever, vomiting, diarrhea, and/or cough. In some instances, the interaction between the individual and the microorganism may only be a detectable immune response such as a tuberculosis (TB) skin test conversion (subclinical infection).[5]

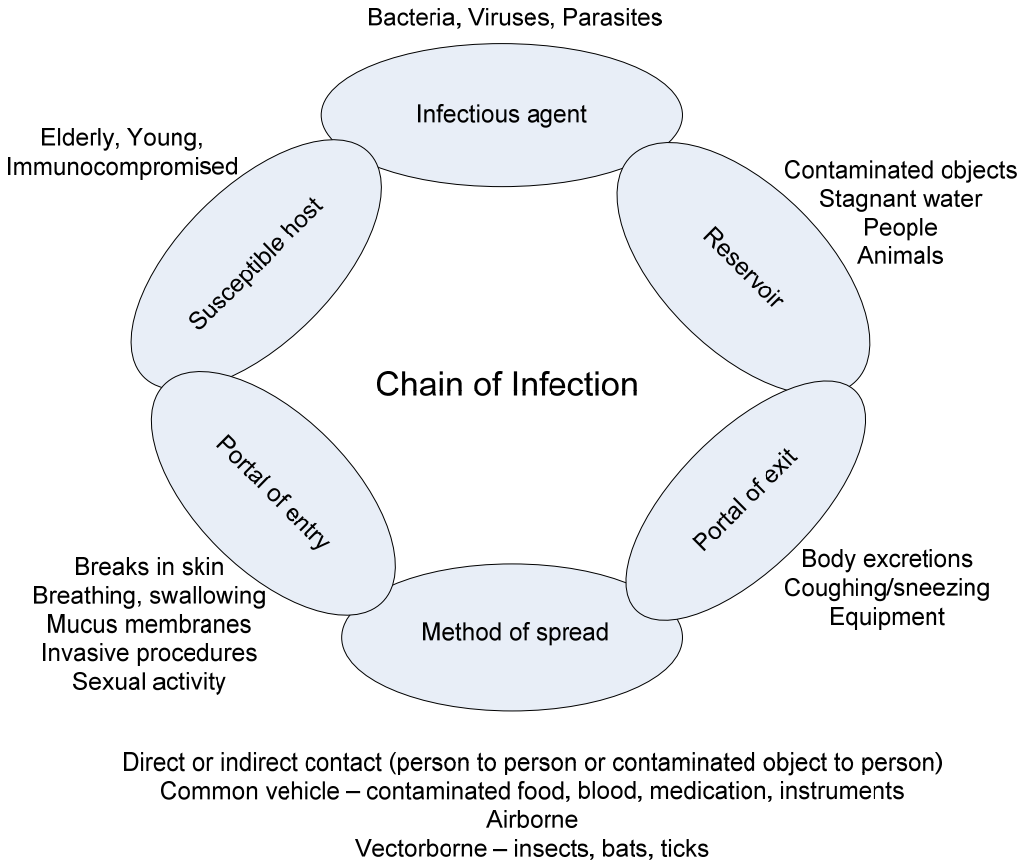
2.1 Common Clinical Signs of Infection

Inflamed Skin	Skin that is red, hot, swollen, or has a rash
Fever or chills	Temperature above 38°C*
Pus	Green or yellow drainage or discharge from a wound or body cavity
Nausea or Vomiting	Unexplained by change in diet, medications, etc.
Diarrhea	Persistent or copious loose bowel movements, unexplained by diet or medication
Pain	Sore throat or other pain, also pain that is disproportionate to severity of injury
Cough	Productive, persistent or new cough
Painful Urination	Painful and/or frequent urination

* A change in temperature (higher or lower) may be an indication of infection in elderly clients or infants. A client who is taking immunosuppressant medications also may not demonstrate a fever.[5]

2.2 The Chain of Infection

Because microorganisms can, in some circumstances, threaten our health, control measures have been developed to inhibit their spread. These control measures are based on knowledge of the six main factors that influence the spread of microorganisms. These factors are collectively known as The Chain of Infection. The individual links of the chain of infection are explained below:



adapted from APIC[6]

Infectious Agent: Each microorganism that causes human infections has characteristics that influence its ability to cause an infection. These include the number of organisms required to cause infection, ability of the organism to cause disease, ability of the organism to breech natural barriers, ability to survive in the environment, and ability to develop resistance to antimicrobials.[5]

Reservoir and Source of Infection: All microorganisms have both a reservoir and a source. These may be the same or different. A reservoir is the place where the organism maintains its presence, metabolizes and replicates. Reservoirs of infection include: people (both healthy and ill), animals, or inanimate objects. A source is the place from which the microorganism passes to the host. Sources may be animate or inanimate. An example of a reservoir and source being the same is from a common source outbreak such as measles, where both the reservoir and the source is a person. An

example of a different reservoir and source is one in which contaminated tap water (reservoir) is vaporized through a humidifier (source). Other examples of sources include medical instruments (surgical instruments); or equipment (blood pressure cuffs, commodes).[5]

Portal of Exit: The exit of the pathogen is dependent on the location of the microorganism in the body. Microorganisms can be expelled from the respiratory tract during breathing, coughing or sneezing, and from the gastrointestinal tract (GI) via saliva, emesis, feces or drainage from sites within the GI tract. Urine, blood, genital secretions and drainage from wounds may also carry microorganisms out of the body. Hepatitis A, for example, exits the body via the GI tract and can be transmitted through vomiting, diarrhea, and/or improperly washed hands after toileting.[5]

Means of Transmission: Microorganisms can be transmitted from their reservoir or source to a susceptible host by several routes:

- Direct Person to Person Contact - This is the most common mode of transmission and can occur from skin to skin contact, especially from one's hands following sneezing or coughing.

- Indirect Contact - Hands pick up organisms from contaminated surfaces or equipment and then inoculate the individual or transmit the organisms to others.

- Droplet Contact - This involves exposure of the mucus membranes of the conjunctiva, nose and mouth as a result of sneezing or coughing by an infected person. These droplets are heavy and usually travel no more than approximately two metres (six feet) before falling to the ground.

- Airborne Transmission – This occurs by dissemination of an infectious agent either by droplet nuclei or tiny particles in the air. The agent can be widely dispersed by air currents and remain suspended in the air for extended periods of time (hours), enabling it to be inhaled.

- Common vehicle – A contaminated inanimate vehicle such as food, water, or blood products may serve as a passive vector for transmission or even allow the microorganism to multiply within them.

- Vectors – Vectors (i.e. mosquitoes, flies and bats) carry microorganisms as part of their normal flora, or as an infection, and may infect humans through a bite.

Some microorganisms have single routes of transmission (e.g. TB) while others have two or more routes (e.g. influenza, measles, salmonella).[5]

Portal of Entry: These may be the same as the portals of exit. All of the portals have natural barriers that protect the body from microorganisms. The barriers are normally effective, but microorganisms may enter if the barriers are damaged, or if they have been compromised by invasive medical devices (e.g. catheters, feeding tubes).

Examples of portals of entry include the gastrointestinal tract where the infection is by ingestion, or the urinary system via a urinary catheter.

Susceptible Host: Humans have defense mechanisms to protect against infections. These include skin; mucous membranes; certain body secretions such as tears; inflammatory response; genetic, hormonal, nutritional and/or behavioural mechanisms; and personal hygiene.[5] The same organism may produce different severity of illness in individuals depending upon host mechanisms. Occasionally, circumstances arise where the normal balance between microorganisms and their host is disturbed. This may be due to a disease process, altered immune status, extremes of age, invasive procedures, drug therapy, poor nutrition, irradiation, etc. Should the host develop an infection as a result of this disturbance, a new reservoir of microorganisms may be established, thus further increasing the risk of infection to other people.

2.3 Interruption of the Chain of Infection

By understanding the basic roles and functions of microorganisms in our environment, principles can be applied to interrupt the chain of infection. Good personal hygiene and proper handling of body excretions and secretions cannot be over-emphasized. **Diligent hand hygiene remains the single most important element in controlling the spread of infections.** Preventing infections is everybody's business.

3.0 ROUTINE PRACTICES

Routine practices is the term used by Public Health Agency of Canada[1] to describe the system of infection prevention and control practices used to prevent the transmission of infections in health care settings. Routine practices should be used with all clients at all times. The document outlining these practices can be downloaded at:

http://www.phac-aspc.gc.ca/publicat/ccdr-rmtc/99vol25/25s4/index.html

Close attention to routine practices is fundamental to preventing transmission of microorganisms from client to client, client to staff, staff to client, and staff to staff in all health care settings.

The four basic elements of Routine Practice include:

3.1 Hand Hygiene

Hand hygiene is everybody's responsibility: staff, clients, visitors and volunteers. Hand hygiene is the most effective way to prevent the transmission of microorganisms. Compliance with hand hygiene recommendations requires continuous reinforcement.

- Either alcohol based hand rub (ABHR) or soap and warm water are accepted methods of hand hygiene.
    - soap and water is required if hands are visibly soiled
    - ABHR is recommended at "point of care" places in patient care areas

- Clients who are able to participate in self-care should be taught, encouraged and reminded of the importance of hand hygiene before eating or preparing food, after using the toilet or other personal hygiene activities, before leaving their homes for common/public areas and when returning home from public places.

- Clients who are unable to assume responsibility for self-care should be assisted in performing hand hygiene whenever their hands are soiled or may be contaminated, and as recommended above.

- Health care workers (HCW) should use single-use disposable paper hand towels to dry hands, not multi-use hand towels.

3.2 Risk Assessment

Risk assessment, as it relates to client symptoms, care and service delivery, includes assessment for:

- risk factors which contribute to infections
- presence of any infectious diseases
- the need for any additional precautions

3.3 Risk Reduction Strategies

Risk reduction strategies include:

- client screening
- using personal protective equipment (PPE)
- cleaning of environment, equipment, and laundry
- using "single use" only equipment or ensuring proper disinfection and sterilization of reusable equipment
- appropriate waste management and safe sharps handling
- client placement
- using preventative workplace practices such as staff immunization policies

3.4 Education of Health Care Providers, Clients and Families/Visitors/Volunteers[7]

All health care providers should receive general education on agency policies, which includes information regarding the principles of infection prevention and control. Review of hand hygiene; routine practices and additional precautions; and chain of infection should be included and refreshed at intervals. Specific information should be emphasized, as it relates to the work environment.

Education for clients should include specific information about their general condition (usually this is provided by the attending physician), and specific information concerning any infection. If the client has an infection, this information should include practices necessary to reduce the risk of spread.

The health care provider should provide education for the client and family as appropriate for the presenting condition. Education should include:

- the importance of how and when to perform good hand hygiene (before leaving their residences for public areas and upon returning home from outings; after using the toilet; and before eating or preparing food).

- how to practice good respiratory etiquette, which includes covering the nose and mouth with a disposable tissue or the upper arm when coughing or sneezing (even when this is due to allergies or dust), using a disposable tissue to blow/wipe nose and always performing hand hygiene afterwards.

- the importance of keeping hands away from the mucous membranes of the eyes, mouth and nose (eg. avoid rubbing the eyes and nose, or biting fingernails).

BC Health Files are helpful as a client/family reference.[8] They may be downloaded at: http://www.healthlinkbc.ca/healthfiles/httoc.stm#C

Cover your Cough Posters can be found at: http://www.vch.ca/flu/docs/cover_your_cough.pdf or http://www.cdc.gov/flu/protect/covercough.htm

4.0 ROUTINE PRACTICES AND ADDITIONAL PRECAUTIONS AS THEY PERTAIN TO HOME CARE SETTINGS

4.1 Hand Hygiene

Hand hygiene is the single most important procedure for preventing the transmission of any kind of infection in any setting. When performing hand hygiene in a client's home, it is preferred that the provider use their own hand hygiene supplies provided by the agency. The client's bar soap should not be used, as it may be contaminated.

An alcohol-based hand rub (ABHR) of at least 60% alcohol is recommended for hand hygiene unless hands are visibly soiled; however recent research suggests that 70% ABHR may be more effective for some viruses such as norovirus.[9]

When hands are visibly soiled or when the client has gastrointestinal symptoms such as diarrhea and the cause is unknown, then hand washing is the preferred hand hygiene method.

A neutral soap from a disposable dispenser should be used for hand washing; remove jewelry prior. Fingernails should be kept short. Artificial nails and nail extenders are not acceptable in health care settings, as they are known to harbour infectious organisms.[10]

Care givers should perform hand hygiene:

- before and after all client care

- before and after handling, preparing or serving food

- after using toilet facilities, blowing the nose, and/or covering a sneeze
- after changing a diaper or assisting a client in using the toilet (ensure client also performs hand hygiene)
- after handling pets
- after touching inanimate sources that are potentially contaminated

Since intact skin is the first line of defense for microorganisms, attention to skin care and use of a hand lotion is recommended. Care givers with open lesions on their hands should apply an occlusive (air and water tight) bandage before starting work; if the lesions are extensive, the care giver should consult with his or her physician or occupational health service about appropriate coverage of the affected area, or exclusion from the work setting.

4.2 Admission and Risk Assessment of Client

Any client admitted to home and community care programs may carry potential risks for introducing and transmitting infections within the service; from client to health care worker (HCW), from HCW to client, or from client to client. It is important for the health care provider to keep in mind that the information on the referral form may not present the complete picture. Early identification, in conjunction with education for the client and family, is an essential component of infection prevention and control in the community. The need for the use of additional precautions should be included in the admissions assessment. See page 17 for more details.

Risk assessments also provide an opportunity to identify new health issues that require intervention and to evaluate whether the care given is meeting the client's needs.

It is also important to be aware that some communicable diseases are reportable to Public Health.[11] The list of reportable diseases can be downloaded from:
http://www.bccdc.ca/util/about/annreport/default.htm

Depending upon the intake process for new clients there may be two opportunities to perform a risk assessment:

1. While booking the initial appointment, questions regarding potential infectiousness should be asked, such as whether the individual has a fever, cough, rash or vomiting/diarrhea. This risk assessment should be ongoing for all interactions.
2. During the admission process, a more complete health history is performed by using information from the person's intake form, or other documentation as well as interviewing the client.

The admission risk assessment of the client should include questions about:

- tuberculosis: previous or present evidence (if the client is from an identified risk group)
- antibiotic-resistant organisms such as Methicillin Resistant *Staphylococcus aureus* (MRSA), Vancomycin Resistant Enterococci (VRE)

- the presence of any chronic infections
- skin and soft-tissue infections (boils, cellulitis), determine if secretions are contained
- infestations (i.e. scabies, head or body lice)
- gastrointestinal illness (nausea, vomiting, diarrhea)
- any acute respiratory infection (fever, cough)
- the client's ability to comply and cooperate
- continence issues

Ongoing assessment of the client should include:

- skin and soft-tissue infections (boils, cellulitis), determine if secretions are contained
- infestations, if previously identified (i.e. scabies, head or body lice)
- gastrointestinal illness (nausea, vomiting, diarrhea)
- any acute infection (fever, cough)
- the client's ability to comply and cooperate
- continence issues

Factors demonstrated to increase one's risk of developing infections include[7]:

- extremes of age
- recent or extended stay in an acute care facility, or recurrent hospitalizations
- invasive procedures and presence of invasive devices (i.e. IV, urinary catheter, tracheostomy, gastrostomy feeding tube)
- recurrent antibiotic use
- presence of a surgical wound, decubitus ulcer, or other chronic wound
- exposure to a person who is infected with an organism and had draining skin lesions or wounds or copious respiratory secretions
- age- or medication-related or malnutrition and/or immunosuppression
- chronic illness and/or underlying medical conditions (e.g. HIV/AIDS)
- conditions requiring extensive hands-on care

- poor personal and/or household hygiene
- cognitive challenges (i.e. brain injury, dementia, mental health conditions)

NOTE: The presence of a microorganism such as MRSA or VRE should not exclude the client from home or community care as long as they meet the criteria for home nursing services.

4.2.1 Immunizations

All clients should be encouraged to discuss their immunization needs with their family physician and keep their immunization status current. Please refer to the Public Health Agency of Canada's Immunization Guide at: http://www.phac-aspc.gc.ca/publicat/cig-gci/p03-02-eng.php In addition to the regular baseline adult immunizations, the following are recommended:[12]

- combined tetanus-diphtheria (Td) vaccine: should be updated if a booster has not been given in the previous 10 years. During the adult years one of the Td boosters should also contain acellular pertussis
- annual influenza vaccine
- pneumococcal vaccine: to eligible individuals who have not received one previous dose in their lifetime (depending upon age and underlying medical conditions a booster in 5 years may be advisable)

These immunizations are publically funded and may be obtained from the client's general practitioner or local Public Health unit.

4.3 Use of Personal Protective Equipment (PPE)[1]

4.3.1 Gloves

Touch is a fundamental part of human interaction and can be an important aspect of quality client care. Gloves are not needed for routine client care when the contact is limited to a client's intact skin (i.e. assisting in bathing). Glove use is not a substitute for hand hygiene. When using gloves:

- wear the appropriate type of glove for the task (see below)
- remove hand jewelry (jewelry reduces the effectiveness of thorough hand hygiene and can tear gloves).
- do not wash gloved hands and re-use gloves for care on another client.
- perform hand hygiene before putting on and after removing gloves
- dispose into regular garbage (if disposable)

Three types of gloves are available: sterile disposable, clean non-sterile disposable and non-disposable rubber gloves.

Sterile (surgical) gloves are worn to protect clients from contamination during an aseptic procedure. They also provide protection for the wearer. Use these gloves when performing a sterile procedure (i.e. inserting or changing a urinary catheter).

Clean (non-sterile) disposable gloves (single-use medical examination gloves – vinyl, latex or copolymer nitryl or nitrile) are worn to protect the wearer from sources of contamination. Use these gloves when touching blood or other body secretions and excretions, mucous membranes, undiagnosed rashes, or protecting the care giver's skin if he or she is at risk due to non-intact skin such as dermatitis. Choose the appropriate glove to fit the specific task (i.e. Nitrile gloves for exposure to chemicals).[7] See Appendix 1 for more details.

Non-disposable rubber gloves (i.e. rubber household gloves) are for tasks other than client care. Use these gloves to protect the hands from chemicals and detergent solutions while performing routine housekeeping. Rubber gloves should be cleaned after use and only be used in one home.

4.3.2 Gowns and Protective Apparel (i.e. Aprons)[1]

The routine use of gowns and aprons for basic client care is not necessary. Gowns and/or plastic aprons should be worn when a staff member's clothing is likely to become soiled with blood, feces, urine or any other secretions, or if significant contamination of the environment is occurring. Examples of significant contamination of the environment include:

- uncontrolled diarrhea that cannot be contained with incontinence products and resident is not confined to bed
- draining, infected wound in which dressing cannot reliably contain drainage
- excessive skin desquamation

Gowns or aprons should be used for specific clients only and disposed into regular garbage immediately after each use. Gowns/aprons must always be changed between clients.

4.3.3 Masks and/or Other Face Protection (Goggles, Face Shield)[1]

Masks are not often required in home care settings. The science regarding respiratory protection is still evolving.

Health care providers should wear a mask that covers the mouth and nose, **and** goggles or a face shield during client-care activities that are likely to cause splashes or sprays of blood, body fluids, secretions or excretions onto the face such as: irrigation using fluid under pressure, suctioning, or tracheotomy care. Prescription eyewear does not provide adequate protection; therefore goggles or face shields that fit over eyewear must be worn whenever splashes or sprays are anticipated.

Surgical masks filter particles down to 5 microns in size (large droplets). They provide a physical barrier against respiratory droplet secretions that are spread during close contact, sneezing, coughing, singing and certain procedures. A surgical mask should be worn when within two meters of a coughing client, for activities that are likely to cause splashes or sprays onto the face or for aseptic procedures. They are single-use only and usually worn in conjunction with eye protection. An exception to this may be the use of a surgical mask when performing some aseptic procedures.

N95 respirators by definition will filter 95% of particles to 1 micron in size and are used to protect against infectious respirable particles (also known as droplet nuclei). N95 respirators should be worn when caring for individuals who require airborne precautions or when performing aerosolizing procedures. Procedures which fall into this category are: bronchoscopy, open suctioning of airway secretions, endotracheal intubation and resuscitation involving emergency intubation or cardiopulmonary resuscitation[13]. When an individual with an infectious disease such as tuberculosis speaks, coughs or sings, a wide range of particle sizes are generated. Some of these are immediately or respirable size (i.e. droplet nuclei less than 5 microns in size) while others may quickly desiccate, remain viable and become respirable. These smaller droplet nuclei can also remain aloft for long periods of time. If a N95 respirator is considered necessary, a process called fit testing is a WorkSafe BC regulatory requirement to ensure that the correct respirator type and size is worn and that the wearer is taught how to do a fit check to ensure a proper facial seal each time the device is worn. Health care workers should only use the type of respirator for which they were successfully fit tested.

Principles for using masks and respirators:

- perform hand hygiene before putting on a face mask
- the mask should fit snugly over the face and should fully cover the nose, mouth and chin
- the metallic wire part of the face mask should be fixed securely over the bridge of the nose to prevent leakage
- tie all strings that keep the mask in place or fix the rubber bands of the mask around the ears properly. Do not dangle the mask around your neck
- change mask if it becomes wet, soiled or dirty
- perform hand hygiene after removing and discarding the mask

It is important to remove PPE in a way that does not contaminate oneself. Please see appendix 2 for a protocol for putting on (donning) and taking off (doffing) PPE.

4.4 Additional Precautions

Occasionally, routine practices are not sufficient to interrupt the transmission of certain organisms and additional precautions are required. These precautions fall into three categories; contact, droplet, and airborne precautions, and are based upon the actual mode of transmission of the organism. These precautions are used in addition to the routine practices described earlier. Additional precautions are implemented differently in a home and community care setting than in a hospital setting, where the risk of transmission of infection is higher.

4.4.1 Contact Precautions

Contact precautions are used for clients known or suspected to have microorganisms that can be spread by direct contact with the client or by indirect contact with environmental surfaces or client care equipment. Examples of conditions that require contact precautions are: enteric infections, skin infections that are highly contagious (impetigo, scabies, non-contained abscesses), and respiratory

infections, especially when cough etiquette is not well used. Gloves should be worn for all direct contact with the client as well as direct contact with the client's immediate environment, personal items and equipment. A clean gown should also be worn to protect the health care provider's clothing from contamination when there is substantial contact with the client or environmental surfaces, as well as when the client is incontinent or has diarrhea, an ileostomy, a colostomy, or uncontained wound drainage. After the gown and gloves are removed, hand hygiene is required. No special treatment is required for linen, or dishes and eating utensils. Attention should be focused on preventing the transmission of the organisms to the next client or environment visited.[3]

4.4.2 Droplet Precautions

Droplet precautions are used for clients known or suspected to have microorganisms transmitted by large particle droplets (larger than 5 microns). These droplets may be produced during coughing, sneezing or certain procedures such as suctioning. These particles are propelled a short distance, usually less than two meters (six feet), and do not remain suspended in the air. Common conditions that may be encountered in the home and community care setting include: acute respiratory infection, streptococcal pharyngitis, mumps and influenza. In addition to routine practices, health care providers should wear a surgical mask and eye protection when providing direct care to the client or when they are in close proximity (2 metres). If in a group environment individuals should be spatially separated from others (2 meters), although they do not require placement into a separate room. No special treatment is required for linen or dishes and eating utensils.[3]

4.4.3 Airborne Precautions

Airborne precautions are used for clients known or suspected to have microorganisms spread by the airborne route. These may consist of small particle residue (5 microns or smaller) that result from the evaporation of large droplets or dust particles containing skin squames and other debris. These can remain suspended in the air for long periods of time and are spread by air currents within a room or over a long distance. Conditions that require this level of precautions include: pulmonary or laryngeal TB, disseminated herpes zoster, chickenpox or measles. In addition to routine practices, health care providers should wear an N-95 respirator, for which they have been fit tested, upon entering the home. No special treatment is required for linen or dishes and eating utensils.[3]

Note: Some conditions require a combination of precautions i.e. influenza requires droplet and contact precautions, and disseminated herpes zoster require airborne and contact precautions.[5]

Should a client that requires additional precautions need to seek medical care, the office or site should be notified in advance of the additional precaution requirement. In cases of droplet or airborne precautions the client should be asked to wear a surgical mask and perform hand hygiene prior to leaving their home.

Clients should also be instructed not to take public transit or utilize volunteer transportation services until no longer infectious.

In all cases when additional precautions are necessary, clients and family members should receive basic education about how to prevent transmission of the illness and proper use of any personal protective equipment needed.

4.5 Client Activities

In group living arrangements in the community, the need for using infection prevention and control principles (routine practices and additional precautions) when providing care of the client in the home must be balanced with promoting an optimal, healthy lifestyle, and not placing other persons at risk.

Decisions regarding communal activities should be based upon the clinical presentation of the client that day. Individuals with symptoms such as fever, cough, diarrhea, vomiting, or with wounds in which the drainage cannot be covered and contained, should not participate in group events until symptoms have resolved.

It is important to promote and facilitate hand hygiene among all clients, volunteers and visitors.

4.6 Visitors

Visitors who may have a communicable disease (i.e. chicken pox, measles, or diarrhea) should not visit clients during the period when they are ill. Education regarding disease communicability should be provided according to need.

Visitors with respiratory tract infection or gastrointestinal symptoms should be asked to postpone their visits until they have recovered. Those who are visiting someone with respiratory symptoms should wear a mask or respirator, as appropriate.

All visitors should be encouraged to perform hand hygiene and use good cough etiquette.

4.7 Pets

Pets can enhance a client's quality of life. Assisted living settings should have their own policy regarding pets. Appropriate infection control precautions will protect clients from pet-borne disease. The needs of clients with severe allergies should be considered, as well as the safety of all. General guidelines are:

Pets should be in good general health, house trained, good tempered, clean and examined regularly by a veterinarian. Vaccinations should be up to date.

Pets should not be allowed in common food preparation areas.

Pets should have their own area for sleeping and eating.

There should be an individual designated to be responsible for all care of the pet i.e. feeding, exercise and hygiene (which includes clean up of any excrement).

In individual homes it is recommended that the family pet is not in the room when active care is given especially clean or aseptic procedures such as initiating IVs, dressing changes or inserting foley catheters.

A useful reference document can be found in the American Journal of Infection Control; "*Guidelines for animal-assisted interventions in health care facilities"*.[14]

5.0 MAINTAINING A CLEAN, SAFE ENVIRONMENT

5.1 Nursing Supply Bag

The supply container/bag is not commonly associated with spreading infections as it does not come in contact with the client. Although it may contain critical items, the bag itself is not in contact, thus there is no scientific evidence for placement of a barrier between the bag and the client's environment.[3]

If possible, leave any equipment in the client's home until discharge. This equipment should be dedicated to the client, and handled according to cleaning guidelines at time of discharge.

If non-critical client care equipment, (i.e. stethoscope) cannot be left in the home, clean and disinfect the item using a low level disinfectant, before taking it from the home. Alternatively, place reusable items in a plastic bag for transport and subsequent cleaning[3] (follow own agency policy and procedure).

Care providers should perform hand hygiene prior to reaching into the bag to obtain supplies. Any equipment used on the client should be cleaned prior to being returned to the bag. Inside the supply container/bag, semi-critical items should be kept covered and critical items should be contained in sterile wrappers that will prevent contamination.

The health care provider's supply container/supply bag should be made of material that is easily cleaned or washable. The bag should be cleaned whenever it is visibly soiled, and at regular intervals as determined by the agency. Wipe the inside of the bag with an approved disinfectant.

5.1.1 Contents and Equipment

Prior to going into a client's home the care giver should determine what supplies are necessary to provide care. In all settings, the amount of equipment and supplies going into the home should be limited.

If a client requires additional precautions, supplies should include the personal protective equipment needed for routine practices and additional precautions. Care givers may find it useful to leave a box in the client's home, with the necessary supplies. The box should be kept separate and in a clean area.

The care giver may determine, in a specific situation, to pack necessary supplies in a disposable plastic or paper bag to take into the client's home. The nursing supply bag can then be left in the trunk of the car.

If the nursing supply bag cannot be taken into the home, a box of disposable gloves, plastic aprons, a CPR mask and hand hygiene supplies should be kept in the client's home for staff members' use.

The supply container/bag should not be taken into dwellings that are infested with cockroaches, ants, rodents, or other vermin whenever possible

Waist packs containing personal protective equipment and supplies may be another alternative to taking a nursing supply container/bag into the home. The same principles for cleaning and use apply.

5.2 Computer/Paper Medical Records

Do not take a computer or medical record into an area where contamination is likely to take place. Perform hand hygiene between client contact and documentation. The medical record or technological equipment can be accessed after the client visit for charting. (See computer care guidelines: appendix 3)

5.3 Needles and Sharps[1]

The person using a disposable item (i.e. needles, scalpel blades, etc.) is responsible for its safe disposal in an appropriate container (sturdy with a tightly fitting lid). Examples of clinical sharps are: needles, stitch cutters, and any other sharp object, which may have been in contact with blood, body fluids or exudates.

Needles must **not** be recapped, purposely bent, broken, removed from a disposable syringe or manipulated by hand. Sharps containers should be readily available in all areas of client care. A small sharps container should be carried in each home care vehicle. Sharps containers must be puncture resistant, have a tight fitting lid that seals, and be clearly labeled.

Do not uncap a needle unless there is an appropriate container accessible for immediate disposal. Use "point of use" disposal receptacles for sharps.

Ensure that containers are safely placed in the client's home, mobile clinic or other settings, in consideration of children, confused adults, drug abusers, etc.

Sharps containers must **not** be over filled. Most containers indicate a "fill line" at about the ¾ full mark, beyond which the container should not be filled. Remove and replace sharps containers when the "fill line" is reached. Broken glass contaminated with body fluids may be disposed of in the sharps containers. Replace full containers immediately.

Teach clients, their family members, friends or other care givers in the home the correct procedures for safe handling and disposal of sharps and sharp containers.

Some municipalities in British Columbia may allow needles used in the home to be disposed of as general waste. They may require decontamination by adding bleach before sealing the lid. Check with local authorities in your region for the appropriate disposal method. Local pharmacies often have an exchange program for sharps containers.

5.4 Laboratory Specimens

Collect specimens in an appropriate, sterile container. Avoid contaminating the outside of the specimen container with potentially infectious blood and body fluids. Close container securely and wipe the outside surfaces of any soiled specimen container with disinfectant such as 70% alcohol.

Bag and label all specimens, attach the requisition to the outside of the bag, and transport specimen according to laboratory requirements. Do not send leaking or soiled specimen containers to the laboratory. Pertinent clinical information should be documented on the requisitions.

5.5 Household Cleaning

Consistent, regular cleaning assists in reducing the potential for environmental transmission of microorganisms. Encourage clients and their care givers to perform regular cleaning of frequently touched surfaces (i.e. taps, sinks, toilets, bedside tables) as one way to prevent the spread of infection to others in the home. Housekeeping routines should involve cleaning followed by disinfecting surfaces, toys and objects with a low level disinfectant using the correct concentration and contact time. Please ensure that any toys cleaned with a disinfectant are also rinsed well, especially if they may be chewed, sucked or otherwise put in the mouths of youngsters.[3] See appendix 4 for description of disinfectants.

5.6 Bath Tubs

Good hygiene should be encouraged for all clients. Clients at home or in a group living arrangement may not have access to private bathroom facilities; bath tubs should therefore be cleaned after each use.

Use regular soap for bathing. Use of antimicrobial soap in the home and community is neither necessary nor recommended.

Clients infected or colonized with an antibiotic resistant organism (ARO) or who have diarrhea or fecal incontinence, with resulting extensive fecal contamination of skin, can be bathed in the bathtub as necessary for healthy skin care regardless of diagnosis. The bath tub should be cleaned and disinfected after each use, or if a special purpose tub, according to the manufacturer's instructions.

5.7 Personal Care Supplies

Personal Care supplies pertain to those items used for elements of a person's routine care such as bathing, skin care, nail care, oral care and denture care. It is important that personal care supplies are not shared and are kept clean. This can prevent the transmission of infection or infestations (i.e. lice, scabies). Clients should have their own soaps, lotions or creams, toothbrush, toothpaste, denture box, comb, hairbrush, nail file, nail clippers, shaver (electric or disposable), and bath towel. These items should not be shared with others, including family members.

5.8 Client Care Equipment and Supplies

Clients should be evaluated on a case-by-case basis to determine whether dedicated equipment is indicated.

Limit the amount of reusable equipment that is brought into the home of clients infected or colonized with organisms such as MRSA or VRE.

Minimize supplies going into the home. Unused disposable supplies should be disposed of once the client is discharged from home care services, and should **not** be returned to the health unit.

If dedicated client care equipment is required, it should be left in the home until the client is discharged from home care services. The equipment should be cleaned and reprocessed appropriately before use with another client.

Clean and disinfect any non-critical client care equipment (i.e. stethoscopes) that cannot remain in the home before removing it from the home. Place reusable items in a plastic bag for transport to another site for subsequent cleaning and disinfection if necessary.

Reusable semi-critical or critical instruments should be reprocessed at a designated sterile processing department. Please see appendix 5: for reprocessing requirements for specific equipment.

5.9 Food Safety[15]

Clients may become ill from food borne microorganisms. To prevent this:

- hand hygiene is essential before, during, and after preparing or handling food
- clean and disinfect counters and other surfaces before, during, and after preparing food
- rinse fresh fruits and vegetables under running water, including those with skins (i.e. orange) and rinds (i.e. cantaloupe). Rub with hands or scrub with a vegetable brush while rinsing, if skin/rind is firm enough
- ensure juices from raw meats, seafood, poultry or eggs do not mingle with or touch other foods in the fridge or in the preparation area (i.e. cutting board)
- ensure meat, fish, and poultry is thoroughly cooked

A few of the information pamphlets available are: Food Safety: Ten Easy Steps to Make Food Safe - BC HealthFile #59a , Listeriosis – BC Health File #75 or Food Safety for Older Adults, or Food Safety for Families. The latter two links are from the Canadian Partnerships for Consumer Food Safety Education.

5.10 Eating Utensils

Clients often share a communal dining room. Meals are served, and dishes are cleared according to routine efficient working procedures. Handling and storage methods used for dishes and utensils should prevent contamination of clean dishes from soiled items.

Regular dishes can be used for all clients whether or not they have any infectious disease. The combination of hot water and detergents used in dishwashers (60^0 C) is sufficient to clean all dishes, glasses, cups and eating utensils. If washing dishes by hand in a client's home, a water temperature of 44^0 C is recommended.[15] Please see BCCDC guidelines concerning food protection: http://www.bccdc.ca/foodhealth/foodguidelines/default.htm. Note: many hot water heaters are pre-set to 49^0C while adjustable heaters come with a recommended indicator set at 48.9^0C.[16]

5.11 Soiled Linen

Microbial counts on soiled linens are significantly reduced during mechanical action and dilution of washing and rinsing. With the high cost of energy and use of cold water detergents (which do not require heat to be effective), hot water washes may not be necessary. There are several studies that show low temperature laundering will effectively eliminate residual bacteria to a level comparable to high temperature laundering.[17]

Linens used in the health care setting can be laundered together using detergent, and dried in a hot air dryer to ensure killing of microorganisms. Linens soiled with large quantities of organic material (i.e. stool or vomitus) will require pre-treating to remove the material. It is impossible to clean laundry when organic material is present. Although soiled linen has been identified as a source of microorganisms, the risk of actual disease transmission appears low, provided that hygienic handling, storage and processing of clean and soiled linen are carried out.

Clean laundry must be stored apart from soiled linens. Health care providers should handle any laundry soiled with blood or body fluids with gloves and avoid touching it to their clothes or skin; position the laundry basket nearby to reduce handling (keep off the floor and upholstered furniture); handle with minimal agitation and do not shake; remove fecal material into the toilet. Teach family or care givers how to handle contaminated laundry safely. Wash heavily soiled laundry separately and add bleach to wash water according to the manufacturer's instructions if material is bleach tolerant. (See appendix 4)

Hand hygiene is required when task is complete.

5.12 Cleaning of Reusable Medical Equipment

Cleaning, Disinfection and Sterilization

Cleaning is always essential prior to disinfection or sterilization. An item that has not been cleaned cannot be assuredly disinfected or sterilized. The purpose of cleaning is to remove soil, dust, foreign material or contaminants. Soil or other foreign materials can shield microorganisms and protect them from the action of disinfectants or sterilants or interact with the disinfectant or sterilant to neutralize the activity or the process.[4] Cleaning physically removes rather than kills microorganisms. It is accomplished with water, detergents and mechanical action. Thorough and meticulous cleaning is required before any equipment/device may be disinfected and/or sterilized.[18]

Disinfection is a process used on inanimate objects to kill microorganisms when cleaning processes alone do not render them safe for their intended use. Medical equipment/devices must be cleaned thoroughly before effective disinfection can take place. Disinfection does not destroy bacterial spores.[17]

Sterilization is a process used on inanimate objects, which results in the destruction of all forms of microbial life including bacteria, viruses, spores and fungi. [18]

There are three levels of reprocessing equipment.[18]

Low-level disinfection is the level of reprocessing required when processing non-critical medical equipment/devices or some environmental surfaces. These items contact only client's intact skin. Medical equipment/devices must be thoroughly cleaned prior to low level disinfection. Low level disinfection will kill vegetative bacteria, some viruses and some fungi. This class of disinfection cannot be relied on to kill bacterial spores or mycobacteria such as Mycobacterium tuberculosis.[18]

High–level disinfection is the level of reprocessing required when processing semi-critical medical equipment/devices. These items contact client's mucous membranes. High level disinfection processes destroy vegetative bacteria, mycobacteria, fungi and enveloped (lipid) and non-enveloped (non-lipid) viruses, but not necessarily bacterial spores. Medical equipment/devices must be thoroughly cleaned prior to high level disinfection.[18]

Sterilization is the level of reprocessing required when processing critical medical equipment/devices. These items enter client's tissues or sterile cavities. Equipment/devices must be cleaned thoroughly before effective sterilization can take place.[18]

For cleaning of specific equipment commonly found in home care, see appendix 5.

5.13 Waste Disposal

It is important that waste be disposed of safely and properly. Usually, waste generated in health care settings is no more hazardous than general household waste. Non-biomedical waste, such as general office waste, used gloves or non-sharp medical equipment, requires no special handling other than containment during disposal and removal.

However, there are certain items that must be treated as biomedical waste, in accordance with local, regional, provincial and federal regulations on waste segregation, handling and disposal. Legislation requires that biomedical waste be handled and disposed of in such a way as to avoid transmission of potential infections. Waste, such as liquid blood or body fluid drainage in containers that cannot be emptied into a toilet, must also be packaged as biomedical waste. Ensure that appropriate personal protective equipment consistent with routine practices (page 15) is used. See your local, regional, provincial and federal regulations on waste.

If unsure, contact your municipality for policy details. An excellent source for your British Columbia municipality contact information can be found at: http://civicinfo.bc.ca/11.asp

Types of Waste	Definition	Examples
Biomedical	Human blood, tissue or body fluid, contaminated sharps (materials that can puncture, penetrate, or cut the skin **and** have come in contact with a body fluid or microorganism)	items saturated or dripping with blood; body fluids contaminated with blood; needles, lancets, laboratory glass that is broken or easily broken, scalpel blades **NOTE: Biomedical waste does NOT include** waste that is of household origin; or general waste from clients on additional precautions
General	Materials that have not been contaminated or excessively soiled with blood or other potentially infectious materials.	soiled dressings dialysis wastes such as tubing, filters, towels and disposable sheets IV bags and tubing incontinence products soiled feminine hygiene products disposable gloves and aprons catheters specimen containers

(source: CSA guidelines)[19]

5.14 Pests and Infestations

Occasionally home and community care workers may encounter pests (e.g. bed bugs) in individual residences. While pests, such as bedbugs are not associated with transmission of disease; health care workers will need to avoid becoming a "vehicle" for their transfer to other houses. Please see appendix 6 for an example of instructions for staff, from Vancouver Coastal Health. For general information for clients see BC Health Files # 95 http://www.healthlinkbc.ca/healthfiles/hfile95.stm

Other pests, such as mice or rats, have been associated with the transmission of disease. Special care must be taken when cleaning rodent droppings. Please see BC Health Files # 37 http://www.healthlinkbc.ca/healthfiles/hfile37.stm for instructions regarding how to respond if evidence of the presence of rodents (e.g. droppings) is found.

If pests are found in an assisted living facility, especially in the food service area, Public Health should be notified. In most health authority-operated facilities, pests are dealt with by plant services and/or housekeeping.

Home and community care staff may also encounter infestations of lice and/or scabies. These pests are not associated with disease transmission; however staff will need to avoid acquiring them and transmitting them to another home. Please see BC Health Files # 06 at

http://www.healthlinkbc.ca/healthfiles/hfile06.stm for information about lice and BC Health File # 09 at: http://www.healthlinkbc.ca/healthfiles/hfile09.stm for information about scabies.

6.0 AMBULATORY AND OUTPATIENT CLINICS

Hand hygiene and the consistent use of routine practices with all clients are considered essential infection prevention practices for all office/clinic settings, and all clients at all times. If routine practices are closely followed, then clients who have conditions that are spread by direct or indirect contact, such as antibiotic resistant organisms, do not need to be segregated in the office or seen late in the day[20].

All providers should perform hand hygiene before and after client contact.

6.1 Cleaning Outpatient/Ambulatory Clinics

Following the visit of any client, clean soiled surfaces (i.e. examination tables or chairs) with a low-level detergent disinfectant product. Clean the contact surface of any equipment used on the client (e.g. stethoscopes).

Consistent, regular cleaning assists in reducing the potential for environmental transmission of microorganisms. Microorganisms, including MRSA and VRE can be effectively removed from the environment through regular housekeeping and cleaning practices. Microorganisms can be inactivated by using a variety of household cleaning and disinfectant products.[17] Points to consider for cleaning/housekeeping:

- allow the disinfectant to air dry to ensure sufficient "contact time" to inactivate microorganisms
- wear regular, reusable housekeeping gloves
- wash and disinfect reusable housekeeping gloves between uses (remove gloves before washing)
- spills of moist body substance should be cleaned up as soon as possible

Clinics should have a schedule and check list for cleaning clinic equipment and surfaces. See appendix 7 for an example of a janitorial schedule. Ensure that any toys cleaned with a disinfectant are also rinsed well, especially if they may be chewed, sucked or otherwise put in the mouths of youngsters.

6.2 Shared Client Care Equipment

Ensure multi-use equipment is not used in the care of another client until it has been properly cleaned and re-processed. Do not re-use single use items. Use clean hands to handle clean equipment. Any equipment or device that comes in contact with mucous membranes, open areas or beneath the skin in sterile sites must be re-processed according to Ministry of Health Best Practice Guidelines for the Cleaning, Disinfection and Sterilization of Medical Devices for Health Authorities.[21]

http://www.health.gov.bc.ca/library/publications/year/2007/BPGuidelines_Cleaning_Disinfection_Sterilization_MedicalDevices.pdf

For a table of common equipment and level of cleaning required, please see appendix 5.

7.0 HEALTHY WORKPLACE STRATEGIES/OCCUPATIONAL HEALTH

Protecting the health of the care provider is essential in all health care settings, including home and community care. The health care provider's own practices, both personal and professional, should be a role model for the client, family, and other members of the community at large.

The employer also has an important role in the promotion and provision of immunizations, as they are essential in preventing spread of communicable diseases. In order to assist the care provider, the employer should provide Employee/Occupational Health services where possible to assist in following the recognized BCCDC guidelines for immunizations.[22] These guidelines are designed to protect health care providers and clients, and to ensure that care providers remain free of disease in order to work safely.

At start of employment, the employee should have a record of immunization on file in their confidential employee health record, and maintain their immunizations as per the BCCDC Immunization Manual.[22] Recognition and awareness of the care provider's immune status helps define the susceptibility of the provider in the event of exposure to a communicable disease. The health history also helps identify any work limitations or risk factors for the provider or client.

Recommended immunization of health care providers includes an annual influenza immunization plus up-to-date immunizations or immunity for measles, mumps, rubella, tetanus, diphtheria, varicella and for many, hepatitis B. For details please see BCCDC Immunization manual: http://www.bccdc.ca/dis-cond/comm-manual/CDManualChap2.htm.

Screening for tuberculosis should be completed at start of employment and as required.[23]

Any health care worker who requires the use of an N95 respirator should be fit tested and taught the proper application and removal of the respirator.[23,24]

GLOSSARY

Aseptic Technique: Practices based upon the principle that infection may be introduced into the body from the outside. These practices prevent the introduction of microorganisms into the body and maximize and maintain asepsis (absence of pathogenic organisms).

Additional Precautions: These precautions (i.e. contact precautions, droplet precautions, and airborne precautions) are carried out in addition to routine practices when infections caused by organisms transmitted by these routes are suspected or diagnosed. They include the physical separation of infected or colonized clients/residents from other individuals and the use of barriers (i.e. gowns, gloves, masks) to prevent, or limit, the transmission of the infectious agent from colonized or infected individuals to those who are susceptible to infection or to those who may spread the agent to others.

Alcohol-based Hand Rub (ABHR): A waterless hand antiseptic that can be used for performing hand hygiene if hands are not visibly soiled. The optimal strength of alcohol-based hand rubs is 60% to 90% alcohol.

Antibiotic Resistant Organism (ARO): A microorganism that has developed resistance to the action of several antimicrobial agents and that is of special clinical or epidemiological significance.

Cleaning: The physical removal of foreign material (i.e. dust, soil, organic material such as blood, secretions, excretions and microorganisms). Cleaning physically removes rather than kills microorganisms. It is accomplished with water, detergents and mechanical action. Thorough and meticulous cleaning is required before any equipment/device may be decontaminated, disinfected and/or sterilized.

Colonization: The presence and multiplication in or on the body of microorganisms without any symptoms of infection or detected immune reaction. Colonization is often a natural process in the development of natural "normal flora".

Community Associated Infection: An infection that is acquired before admission to hospital or is incubating at the time of admission.

Community Health Manager (Agency): Directs and is responsible for the actions of those individuals employed to provide care as defined by mission of the organization. The manager ensures policies and procedures are in place. Reflecting the policies and procedures, the manager provides staff education on best practices, while ensuring the provider meets standards for infection prevention and control, personal safety and wellness.

Community Health Nurse: Term used to describe both the Public Health Nurse and the Home Care Nurse.

Direct Care: Providing hands-on care, such as bathing, washing, turning client/resident, changing clothes/diapers, dressing changes, care of open wounds/lesions or toileting. Feeding and pushing a wheelchair are not classified as direct care.

Environmental Health Officer (EHO) (Public Health Inspectors): Safeguard the public and the environment by providing Health Protection services. They work in an inter-professional and cross-sectoral manner to ensure that clients are protected from environmental public health risks such as infectious diseases, chemical contaminants, and physical hazards.

Health Care Associated Infection: An infection acquired during the course of receiving any type of treatment for other conditions, or that a Health Care Worker acquires while performing their duties within a health care setting.

Hand Hygiene: A process for the removal of soil and transient microorganisms from the hands. Hand hygiene may be accomplished using soap and running water or by the use of alcohol-based hand rubs. Optimal strength of alcohol-based hand rubs should be 60% to 90% alcohol.

Health Care Provider: Individual providing or supporting health care services that will bring them into contact with clients/clients/ residents. This includes, but is not limited to: emergency service providers, physicians, dentists, chiropractors, nurses, podiatrists, respiratory therapists and other allied health professionals, students, support services (e.g. housekeeping, dietary, maintenance, hairdressers), and volunteers.

Home and Community Care: A wide-range of medical, nursing, rehabilitation, hospice, and social services delivered to clients in their place of residence (i.e. private residence, senior living centre, assisted living facility). Home health care services include care provided by home health aides and skilled nurses, respiratory therapists, dieticians, physicians, chaplains, and volunteers; provision of durable medical equipment; home infusion therapy; and physical, speech and occupational therapy.

Home Care Nurse: A nurse whose focus is clinical care and treatment that is directed towards health restoration, health maintenance and palliation in order to enable the client to live in their home.

Hospital-grade Disinfectant: A disinfectant that has a drug identification number (DIN) from Health Canada indicating its approval for use in Canadian hospitals.

Infection: An invasion of the body by microorganisms that multiply and cause an interaction between the host and the organism. The interaction may only be a detectable immune response such as a TB skin test conversion (subclinical infection) or produce signs and symptoms resulting from the altered physiology and/or associated cell damage (clinical disease).

Infection Prevention and Control: Evidence-based practices and procedures that, when applied consistently in health care settings, can prevent or reduce the risk of transmission of microorganisms to and between health care workers, clients/patients/residents and visitors.

Infection Prevention and Control Professional/Practitioner (ICP): Trained individual responsible for a health care setting's infection prevention and control activities.

Loaned Equipment: Medical equipment/devices used in more than one facility, including borrowed, shared or consigned equipment/devices, which are used on patients/clients/residents. Reprocessing is carried out at both loaning and receiving sites. Loaned equipment may also be manufacturer-owned and loaned to multiple health care facilities.

Medical Health Officer (MHO): A medical practitioner with training, knowledge, skills and experience in community medicine who is designated to this title by the Lieutenant Governor of BC. The MHO provides advice and direction on public health issues including health promotion and health protection and related practices, bylaws and policies. The MHO has jurisdiction for public health issues in a geographical area of BC and reports to the public those matters which are deemed to be in the public interest.

Nosocomial Infection: An infection that develops during hospitalization or after discharge as a direct result of hospitalization.

Occupational Health Program : Occupational health is the specialty practice that provides for and delivers health and safety programs and services to providers, provider populations and community groups. The practice focuses on promotion and restoration of health, prevention of illness and injury and protection from work related and environmental hazards.

Personal Protective Equipment (PPE): Clothing or equipment worn by staff for protection against hazards such as blood, body fluids, and infectious secretions.

Public Health Nurse: Public Health nurses care for the physical and mental health needs of the community as a whole. They may work with families in the home, with community groups, in schools, in government agencies and at workplaces.

Routine Practices: Routine practices is the term used by Health Canada/Public Health Agency of Canada to describe the system of infection prevention and control practices recommended in Canada to be used with all clients/patients/residents during all care to prevent and control transmission of microorganisms in health care settings.

Appendix 1: Glove Use

The choice of glove should always be made according to the task that is being done and only worn for that task. **Hand hygiene is performed before and after any glove use**.

Before Wearing Gloves:

- remove rings
- perform hand hygiene
- have short nails
- cover abrasions or cuts with a clean dry dressing
- inspect glove for tears or holes

Types of Gloves:

Vinyl - Non sterile

- found in client care areas and other departments for general barrier protection
- use for protection when exposure to blood/body fluids is anticipated
- tasks should require minimal stress on the glove such as:
    - oral care, suctioning
    - IV starts
    - additional precautions
    - emptying urinals/bedpans

Nitrile – Non sterile

- found in client care areas and other departments where enhanced protection is needed
- use for barrier protection when tasks are longer duration and gross soilage with blood/body fluids (i.e. autopsy, trauma)
- use for tasks that increase stress on the glove i.e. repetitive handling
- use for chemotherapy drug prep and administration
- use when working with tissue samples and formaldehyde
- use if individual has a sensitivity to vinyl

Adapted from Interior Health Pamphlet, "Glove Use Facts and Myths".[24]

Appendix 2: Personal Protective Equipment Donning and Doffing

Donning – **Prior to entering room or clients personal area (approx. 2 meters on either side of the client)**

1. Hand Hygiene

(either soap and water or AHR)

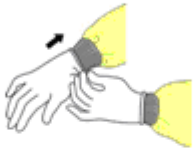
2. Put on mask (if required)

3. Put on Eye Protection

(goggles or visor) if indicated

4. Put on Gown

5. Put on Gloves



Doffing - **When care has been completed: just before leaving room or at the edge of client's personal area**

1. Remove Gloves

2. Remove Gown

3. Hand Hygiene

When out of the room, or away from client's personal care area

4. Remove Eye Protection if worn

5. Remove Mask (handle by strings only)

6. Hand Hygiene

Appendix 3: Care of Computer Equipment in the Home and Community Setting [27]

Use a "clean hands" approach. Wash hands with soap or use an alcohol based hand rub:

- prior to touching the device (refers to any computer equipment i.e., computer, laptop, tablet)
- after touching the device and before providing care to the client

Keep the device away from spills, splashes, sprays and other sources of water.

Place the device on a clean surface or use a barrier, i.e. cloth, plastic, paper.

Store the device in a safe, dry place away from liquids that might leak or spill.

Avoid:

- going back and forth between the device and the client
- taking the device into areas where there is a high risk of contamination

Cleaning recommendations: Always turn the device off before cleaning

LCD/Regular Monitor

- use computer-monitor specific cleaner only. Do not use other products, i.e. glass cleaner, hand sanitizers or wipes, alcohol, acetone, or ammonia-based products etc, as these can damage the screen or film.
- spray cleaner onto non-abrasive cloth (i.e. soft, cotton, lint-free, eye-glass cloth). Never apply the cleaner directly to the computer. Ensure cloth is damp only.
- wipe screen with cloth in one direction from the top of screen to the bottom.
- use an approved disinfectant to wipe computer, mouse, and keyboard.
- tablets should be inverted while wiping keypads to avoid getting liquid into device.

If the device becomes grossly soiled with blood or a body substance, turn the device off, put in a plastic bag and contact Information Systems or expert advice for advice on cleaning.

Appendix 4: Disinfectant Uses, Advantages and Disadvantages [18,28]

Disinfectant/Use	Advantages	Disadvantages
Alcohols Intermediate level disinfectant Disinfect external surfaces of some equipment	Fast acting No residue Non-staining	Volatile Evaporation may diminish concentration May harden rubber or cause deterioration of glues Intoxicating
Chlorine 1:500 solution added to laundry (250 ml bleach in an average size washing machine) 1:100 solutions are used for disinfecting general household surfaces. (10 ml bleach to 990 ml water). 1:50 bleach solutions are used for disinfecting surfaces contaminated with bodily fluids and waste like vomit, diarrhea, mucus, or feces. (20 ml bleach to 980 ml water) 1:10 Solutions are used for disinfecting surfaces contaminated by blood. (100 ml bleach to 900 ml water)	Low cost Fast acting Readily available in non-hospital settings	Surfaces must always been cleaned first Corrosive to metals Inactivated by organic material Irritant to skin and mucous membranes Must be used in well-ventilated areas Shelf life shortened when dilution
Glutaraldehydes High level disinfection for heat sensitive equipment (2%)	Non-corrosive to metal Active in presence of organic material Compatible with lensed instruments Sterilization may be accomplished in 6-10 hours	Extremely irritating and toxic to skin and mucous membranes Shelf life shortened when diluted (effective for 14-30 days depending on formulation) High cost Concentration must be monitored in reusable solutions
Disinfectant/Use	**Advantages**	**Disadvantages**

Hydrogen peroxide Low level disinfectant (3%) High level disinfectant (6%)	Strong oxidant Fast acting Breaks down into water and oxygen	Can be corrosive to aluminum, copper, brass or zinc Surface active with limited ability to penetrate
Phenolics Low/intermediate level disinfectants Clean floors, walls and furnishings	Commercially available with added detergents to provide one-step cleaning and disinfecting	Leaves residual film on environmental surfaces Cannot be used in nurseries Not recommended for use on food contact surfaces May be absorbed through skin or by rubber Some synthetic flooring may become sticky with repetitive use
Quaternary ammonium compounds Low level disinfectant Clean floors, walls and furnishings	Generally non irritating to hands Usually have detergent properties Non-corrosive	Cannot be used to disinfect instruments Limited microbicidal spectrum

Appendix 5: Reprocessing Requirements for Specific Equipment [27]

Table of Common Items Found in Home and Community Care

HUW- Health Unit Worker **LLD**-Low Level Disinfection
HLD-High Level Disinfection

Equipment	Class	Process Required	Frequency Of Action
Blood pressure equipment	Non-critical	Low Level Disinfection (LLD)	Cuff: weekly and when visibly soiled Monitor: Weekly and when visibly soiled
Breast pump -bottle, tubing, shield, piston, valve, white flap, rings	Semi-critical	Single client use or High Level Disinfection (HLD) or Sterilization.	Between clients
Breast pump-electric case and pump motor	Non-critical	LLD. Follow manufacturer's directions.	Weekly or if visibly soiled
Camera and Pixelare Equipment	Non-critical	As per manufacturer's directions	When visibly soiled See Appendix E-steps 1-6
Centrifuge	Non-critical	As per manufacturers directions	
Chair cushions (Used for client positioning)	Non-critical	Laundered-full cycle	Between clients
Client assist equipment i.e. bath boards, transfer boards, bath chairs, wheelchairs, canes, crutches, walkers	Non-critical	Low level disinfection	Between clients When visibly soiled
Clinic room carts, lamps, work surfaces, etc	Non-critical	Low level disinfection	At end of clinic or when visibly soiled
Commode Chairs	Non-critical	Low level disinfection	Between clients Daily and when visibly soiled for same client
Cord clamp remover	Critical	Single use only	Discard after use
Minor surgery set	Critical	Sterilization	Between clients
Diaphragm fitting rings	Semi-critical	Single use or HLD or Sterilization	Between clients
Ear syringe kits	Critical	Sterilization	Between clients

Equipment	Class	Process Required	Frequency Of Action
Electrotherapy modalities (i.e. TENS, high-volt, interferential)	Non-critical	Carbon-electrodes-reusable-cleaned with warm water and soap. Disposable – discard between clients Exterior: LLD	Between clients
Exam tables/Stretchers	Non-critical	Low level disinfection: A new barrier (paper, sheet) should be used between clients	Between clients if no barrier is used If barrier used change barrier between clients and disinfect when visibly soiled
Flashlight	Non-critical	Low level disinfection	Between uses involving mucous membrane contact
Foot care equipment	Critical	Sterilization	Between clients
Glucometer	Non-critical	Low-level disinfection as per manufacturer's directions.	Between clients and when visibly soiled
Goniometer	Non-critical	Low level disinfection	Between clients and when visibly soiled
Intravenous Poles	Non-critical	Low level disinfection	Between clients and when visibly soiled
Mats for parent-infant groups, physio	Non-critical	Low level disinfection	Between activities and when visibly soiled
Metal probes for wound care	Critical	Sterilization	Between clients
Mirrors used to assist clients to view procedures/wounds	Non-critical	Low level disinfection	Between clients
Needle exchange tongs	Non-critical	Low level disinfection	Daily or when visibly soiled
Nipple shields	Semi-critical	Single use or HLD or sterilization	Between clients
Otoscope, Ophthalmoscope	Non-critical	Ear and nasal specula single use only. Machine: as per manufacturer's directions.	Specula-single use only Machine: Daily or when visibly soiled
Pressure mapping equipment	Non-critical	Low level disinfection as per manufacturers directions	Between clients
Respiratory equipment-i.e. Spirometer machine with filter	Non-critical	As per manufacturer's direction	

Equipment	Class	Process Required	Frequency Of Action
Peak flow meters	Non-critical	Low level disinfection	Between clients and when visibly soiled
Disposable mouth piece for peak flow meters	Semi-critical	Single Use only	Discard after use
Valved spacer (i.e. aero-chamber, opti-chamber)	Semi-critical	Single use only or high level disinfection or sterilization. Refer to manufacturer's directions	Between clients
Mask/nebulizer/nasal prongs, Incentive spirometers	Semi-critical	Single client use disposable	Discard after use
Oximeter probe	Non-critical	Low-level disinfection as per manufacturer's directions. Do not immerse in solution.	Between clients
Reflex hammers	Non-critical	Low level disinfection	Between clients
Roho cushions	Non-critical	Low-level disinfection. Clean and disinfect thoroughly while inflated. Deflate to clean and disinfect base.	Between clients. Not suitable for re-use unless it can be cleaned thoroughly. Gel cushions cannot be cleaned.
Scales-infant/adult	Non-critical	Low-level disinfection. Infant scale: A new barrier (paper, sheet) should be used between clients Adult Scale: may use barrier as needed	Between clients if no barrier is used. If barrier used change barrier between clients. Thorough cleaning once a week* and when visibly soiled Weekly and when visibly soiled
Scissors for non-sterile procedures	Non-critical	Low level disinfection	Between clients
Scissors/forceps for sterile procedures	Critical	Single use (supplied sterile) Sterilization if re-usable	Single use Between clients
Speculum-non disposable	Semi-Critical	Sterilization Disposable recommended	Between clients
Speculum light	Non-critical	Low level disinfection	Between clients

Equipment	Class	Process Required	Frequency Of Action
Staple remover-non disposable	Critical	Sterilization	Between clients
Stethoscope	Non-critical	Low level disinfection	After each use Thorough weekly cleaning and when visibly soiled
Supplementary Nursing System equipment (SNS)	Semi-critical	Single use or sterilization	Between clients
SNS tubing	Semi-critical	Single use discard after use	Single use only
Swallowing assessment kits	Non-critical	Use dishwasher with sanitizing cycle or wash in soap and hot water and sanitize in a 0.05% bleach solution.	Between clients
Thermometers-covered with plastic sheath	Non-critical	Low-level disinfection. Wipe entire thermometer with alcohol and allow to air dry	Between clients
Tourniquet	Non-critical	Single use recommended or low-level disinfection. Discard if visibly soiled	Between clients
Toys	Non-critical	Low level disinfection	Once a week or when visibly soiled
Transfer belts	Non-critical	Laundered	Between clients
Ultrasound /Doppler on intact skin	Non-critical	Low-level disinfection as per manufacturer's guidelines for agents.	Between clients

For items that require reprocessing and are not on this list, please refer to the *Best Practice Guidelines for the Cleaning, Disinfection and Sterilization of Medical Devices in Health Authorities*, March 2007, BC Ministry of Health which can be found at http://www.health.gov.bc.ca/library/publications/year/2007/BPGuidelines_Cleaning_Disinfection_Sterilization_MedicalDevices.pdf

Appendix 6: Bedbug Protocols for Care Providers Who Make Home Visits [24]

A. Recommendations to reduce the risk of infestation while making home care visits:

Limit supplies brought into client's home to essential items needed for one visit only

Carry all items into a client's home, in a Ziploc bag that is sealed, and opened only to retrieve essential care items, such as dressing supplies, B/P cuff, Stethoscope. Put knapsack or nursing bag in a Ziploc bag.

Alternatively, use a light colored bag or pack to carry essential supplies only. Ideally, if you can avoid putting the bag down, you will be less likely to get a hitchhiking bedbug. If you must set the bag down, put it on a white surface such as a plastic bag or fabric drape. The drape/bag will then be considered infested and needs to be stored in a Ziploc bag between uses.

Place all essential materials needed to provide care, (such as dressing trays), onto a white plastic bag, or surface:

If returning bags of supplies or used equipment to the unit, they must be sealed in a Ziploc bag, e.g., BP cuff. Alternatively, they could be stored in such a way that bedbugs will not escape the storage container. You could put equipment into a Rubbermaid style container and put double-sided carpet tape around the edge of the container. Any hitchhiking bedbugs would be stopped as they try to cross the tape.

Avoid sitting on upholstered chairs or client's bed, while providing care, or doing interviews. Stand or find a hard surface on which to sit.

Use personal protective equipment as outlined in routine precautions when providing direct care. Wear a white plastic apron or gown to provide care.

Use a plastic Tupperware container with a lid, in the trunk of your car, for transport of supplies, charts, and bag or pack from client's home back to the office.

If you suspect you've been infested during a visit, shower and change into clean clothes, (save old clothes in Ziploc bag, for placing in a hot drier for 5 – 10 min), either before you leave work, or ASAP upon arrival at home.

If you need to leave an evening chart, or care plan in the client's home, place it in a sealed Ziploc bag.

B. For all care providers, including home support, assisting the client to deal with bedbug infestation.

Once a room infestation has been identified and treatment ordered, it is essential that the directions provided by the pest control company be followed. If there are no instructions provided, ask for them.

Encourage/assist the client to de-clutter as much as possible. This will improve effectiveness of decontamination. If client is unwilling or unable to assist with this, contact the Case Manager and your supervisor for further direction.

Pack and enclose all infested items to be discarded in plastic before disposal. This will stop the bedbugs from falling off on the way to the garbage and prevent spreading the infestation to the rest of the dwelling. Mark the bag to deter others from taking home the infested items. Place infested items directly into a garbage bin.

If there is a vacuum, vacuum the room thoroughly, especially along carpet edges. To prevent spread from one room to another, use a vacuum designated for bedbug-infested rooms. The bag must be changed and the vacuum cleansed after use. Dispose of used bags in a sealed, marked plastic bag that is disposed into a garbage bin.

Move furniture away from the walls. Dismantle the bed. If mattress is to be disposed of, ensure it is wrapped in a heavy plastic, sealed bag before it is taken out of the room. Remove pictures from walls, and electrical outlet covers.

Discard the plastic bag used to transport infested clothes and bed linens to laundry or use dissolvable laundry bags. Sort laundry on a clean surface.

All bed linen and clothing to be washed in hot water, detergent, and placed in a hot dryer for at least 5 minutes, or till dry. Alternatively, if the only purpose of doing laundry is to rid the items of bedbugs, place dry clothes and linens in a hot dryer for a minimum of 5 – 10 min. Keep cleaned linens and clothing in pest proof bags until the premises is treated.

When providing personal care to a client in bed:

1. Wear a disposable gown to protect clothing

2. Set supplies required for care, on a white surface

3. Use Routine Infection Control Practices

If any of the above is problematic, contact the case manager or your supervisor.

Appendix 7: Janitorial Schedule for Ambulatory Care Clinics [30]

RECEPTION AREAS, GENERAL OFFICE AREAS, MEETING ROOMS AND HALLWAYS
Daily
• Spot clean desks, walls and doors with neutral cleaner
• Dust mop, sweep and/or vacuum and damp mop all hard-surface floor areas with neutral cleaner
• HEPA-filter vacuum all carpeted areas and walk-off mats
• Empty waste receptacles and dispose of items marked for garbage removal; liners should be changed at least weekly, or more often if odorous; transport waste to designated location; transport recyclables to designated location
• Damp wipe reception and waiting area countertops and chairs using a low-level disinfectant solution
• Spot clean windows, mirrors and other reflective surfaces
• Damp wipe light switches, telephones, doorknobs and handles with a low-level disinfectant solution
Weekly
• Damp wipe all fixtures and office furniture using a low-level disinfectant, including: desks, countertops and computers (not screen or keyboard)
Monthly
• Clean desk policy: on the last cleaning day of each month tops of all desks, credenzas, file cabinets, etc., to be damp wiped using a low-level disinfectant solution. Staff responsible for clearing horizontal surfaces.
• HEPA-filter vacuum fabric furniture, damp wipe plastic and leather furniture with low-level disinfectant.
• HEPA-filter vacuum around all furniture and baseboards
• Dry dust all blinds and damp wipe window ledges
• Dry dust all light fixtures, ceiling vents, and areas above 2 metres (6 feet) such as corners and horizontal surfaces
MEDICAL EXAMINATION, LABORATORY AND TREATMENT ROOMS
Daily for every day open (i.e. if open Sat/Sun, done 7 consecutive days)
• Damp wipe all counters, sinks, dispensers, cabinet doors and fixtures using a low-level disinfectant solution

• Damp wipe all examination beds and tables using a low-level disinfectant solution, including top, undersides and supports), recliners and bedside tables
• Empty waste receptacles and wash using a low-level disinfectant solution; liners should be changed; transport waste to designated location; transport recyclables to designated location
• Damp wipe all equipment arms and bases using a low-level disinfectant solution, including exam room computer sides/tops, but not screen or keyboard
• Damp mop all floors using a low-level disinfectant solution
• HEPA-filter vacuum all carpeted areas
Weekly
• Wipe down all walls using a neutral cleaner
Monthly
• Dry dust all blinds and damp wipe window ledges
• Dry dust all light fixtures, ceiling vents, and areas above 2 meters (6 feet) such as corners and horizontal surfaces
BATHROOMS
Daily for every day open
• Restock all dispensers (paper product, soap, sanitizer, etc.)
• Damp wipe all dispensers and surrounding wall areas using a low-level disinfectant solution
• Polish mirrors, glass and other reflective surfaces
• Disinfect all toilets, toilet seats and handles inside and out, including urinals
• Disinfect sinks, faucets and door locks/handles, including showers, tubs, and their plumbing and fixtures, if applicable
• Remove liners and empty waste receptacles, including sanitary containers, and wash using a low-level disinfectant solution as required
• Spot clean walls as required
• Dust mop, sweep and/or vacuum and damp mop all floor areas using a low-level disinfectant solution
Monthly
• Damp wipe walls up to 2 metres (6 feet) using a neutral cleaner
• Dry dust all blinds and damp wipe window ledges
• Dry dust all light fixtures, ceiling vents, and areas above 2 metres (6 feet) such as corners and horizontal surfaces

COFFEE AREAS AND LUNCH ROOMS
Daily for every day that staff are working
• Damp wipe counter tops, chairs, and table tops as required with neutral cleaner
• Damp wipe exterior of all appliances and cupboards with neutral cleaner
• Empty waste receptacles and dispose of items marked for garbage removal
• Clean sinks, faucets and handles with a low-level disinfectant
• Dust mop, sweep and/or vacuum and damp mop hard-surfaces floor areas with neutral cleaner
Weekly
• Clean drinking fountains or water dispensers with non-phenolic disinfectant
Monthly
• Detail edge vacuum around all furniture and baseboards
• Damp dust all blinds and damp wipe window ledges
• Damp dust all light fixtures, ceiling vents, and areas above 2 meters (6 feet) such as corners and horizontal surfaces
STAIRWELLS
• Clean handrails, ledges, etc.; clean stairs, risers, landings, etc.; professionally scrub, water extract
ANNUALLY FOR ALL AREAS
• Clean walls and doors to full height, windows, ducts, grills, vents and radiators with appropriate cleaning solution, including any other vertical surfaces and high ceilings
ADDITIONAL SPECIFICATIONS
• Surfaces should be cleaned using a low-level disinfectant. Accelerated hydrogen peroxide and quaternary ammonium compounds are appropriate for use in daily cleaning and disinfection of surfaces. Phenolics are also suitable unless this surface could come in contact with an infant or small child (e.g. toys, weight scale, change table). Disinfectant strength should correspond to instructions on the bottle.
• Blood and body fluid spills should be cleaned using a detergent to remove organic material. The area should then be disinfected with a disinfectant solution (i.e. one part of household bleach (5.25%) added to nine parts of water applied for at least 60 seconds or any other hospital approved disinfectant). Gloves should be worn during cleanup of any blood or body fluid.
• HEPA-filter vacuum cleaners should be used for all vacuuming.

• Double-bucket (one bucket is disinfectant and the other is clean water) should be used for all mopping.
• Cleaning solutions, cloths, mops and tools should be changed frequently, and cleaned and dried between uses.
• **Frequent-touch areas (i.e. light switches and doorknobs) should receive special attention (at least daily if not more often).**

REFERENCES

1. Public Health Agency of Canada. Infection Control Guidelines for Routine Practices and Additional Precautions for Preventing Transmission of Infection in Health care. CCDR 25S4; July 1999.
2. Ontario Ministry of Health. Ontario Ministry of Health and Long Term Care Infection Prevention and Control Competencies Program; 2005.
3. Rhinehart E, & McGoldrick, M. Infection Control in Home Care and Hospice. 2nd ed. American Professional for Infection Control inc. Jones and Bartlett Publishers Inc.; 2006.
4. British Columbia Center for Disease Control. Guidelines for Infection Control in Physicians Offices; 2004.
5. Jarvis W, editor. Bennet & Brachman's Hospital Infections. 5th ed. Philadelphia: Lippincott Williams & Wilkins; 2007.
6. Association for Professionals in Infection Control and Epidemiology, editor. APIC Text of Infection Control and Epidemiology. 2nd ed.; 2005
7. Canadian Committee on Antibiotic Resistance. Infection Prevention and Control Best Practices for Long Term Care, Home and Community Care including Health Care Offices and Ambulatory Clinics; 2007.
8. British Columbia Ministry of Health Services. BC Health Files.
9. Gehrke C, Steinmann, J., & Goroncy-Bermes, P. Inactivation of the Feline Calici Virus, a Surrogate of Norovirus (formerly norwalk-like virus) by Different Types of Alcohol in Vitro and Vivo. Journal of Hospital Infection. 2004; 56:49-55.
10. Centers for Disease Control and Prevention. Guideline for Hand Hygiene in Health Care Settings. MMWR; October 25, 2002 / Vol. 51 / No. RR-16.
11. British Columbia Centre for Disease Control. List of Reportable Communicable Diseases in British Columbia; 2008.
12. Public Health Agency of Canada. Canadian Immunization Guide, 7th edition; 2006.
13. The Society for Healthcare Epidemiology of America, 2009. SHEA Position Statement: Interim Guidance on Infection Control Precautions for Novel Swine-Origin Influenza A H1N1 in Healthcare Facilities.
14. Lefebvre S. GG, Chistensen E., Castrodale L., Aureden K., Bialochowski, A., et al. . Guidelines for Animal-assisted Interventions in Health Care Facilities. American Journal of Infection Control. 2008; 36(2):78-85.
15. British Columbia Centre for Disease Control. Food Protection: Vital to Your Business; 2003.

16. Bradford White Corporation. Installation & Operating Instruction Manual for Flammable Vapor Ignition Resistant System Equipped Water Heater. In press 2007.

17. Fallis P. Infection Prevention and Control in Office-based Health Care and Allied Services. Canadian Standards Association; 2004.

18. Health Canada. Hand Washing, Cleaning, Disinfection and Sterilization in Health Care. CCDR 24S8; 1998.

19. Canadian Standards Association. Handling of Waste Materials in Health Care Facilities and Veterinary Health Care Facilities; 2006

20. Provincial Infection Control Network. Antibiotic Resistant Organism Provincial Guidelines; 2008.

21. British Columbia Ministry of Health Services. Best Practices for Cleaning, Disinfection and Sterilization of Medical Devices in Health Authorities; 2007.

22. British Columbia Centre for Disease Control. Communicable Disease Manual: Immunization Guidelines; 2009.

23. British Columbia Centre for Disease Control, Tuberculosis Control Manual; 1999.

24. Occupational Health and Safety Agency for Health Care in BC. Protecting The Faces of Health Care Workers: Knowledge Gaps and Research Priorities for Effective Protection Against Occupationally-acquired Respiratory Infectious Diseases; 2004.

25. Interior Health Authority. Glove Use, Myths and Facts, 2006.

26. Centers for Disease Control and Prevention. Guidance for the Selection and use of Personal Protective Equipment (PPE) in Health Care Settings. 2004.

27. Vancouver Coastal Health. Cleaning, Disinfection and Sterilization of Reusable Medical Equipment and other Equipment used for Infant Child Youth; Adult Older Adult; and Primary Care Programs. Vancouver Community Client Care Guidelines; 2007

28. Centers for Disease Control and Prevention. Guideline for Disinfection and Sterilization in Healthcare Facilities, 2008.

29. Vancouver Coastal Health. Bedbug Policy, 2008.

30. Vancouver Island Health Authority. Infection Prevention and Control Manual; 2008