Designated Officers Manual
For Infection Prevention

REDUCING THE RISK
FOR FRONT-LINE STAFF

simcoe muskoka
DISTRICT HEALTH UNIT

CREATED BY THE ONTARIO ASSOCIATION FOR DESIGNATED OFFICERS 2015

For more information, please contact the

Simcoe Muskoka District Health Unit

simcoe muskoka
DISTRICT HEALTH UNIT

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On-Call Investigator for afterhours, weekends and holidays 1-888-225-7851

Sexual Health
(Blood or Body Fluid Exposures, MBTA Support) ..... 705-721-7520 ext. 8376

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Afterhours, weekends and holiday emergencies 1-888-225-7851

Vaccine Preventable Disease Team..... 705-721-7520 ext. 8806

Health Connection

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Definitions for Terms Used in the Manual

Acute Respiratory Infection – (ARI)

A new onset of symptoms focused in the respiratory tract that includes a new or worsening cough, shortness of breath and a high fever (>38˚C). ARIs are spread by droplet transmission and anyone presenting with signs or symptoms of ARI require droplet precautions. ARI is also known as Febrile Respiratory Illness (FRI) or Influenza-like Illness (ILI). Also known as SRI, severe respiratory illness.

Additional Precautions

Refer to use of control measures (client placement, personal protection equipment (PPE) use etc.) that are based on either the client's symptoms or a known diagnosis and are centred on the method of transmission. They are used in conjunction with routine practice and are identified by the method of transmission they are preventing: i.e., Contact Precautions, Droplet Precautions and Airborne Precautions.

Airborne Precautions

Additional precautions used to protect against the spread of illnesses that produce small droplet nuclei that remain suspended in the air and may be inhaled. Airborne precautions require the use of a fit-tested particulate respirator such as an N95 or reusable (elastomeric) respirator, and should be used with any client known or suspected of having a disease transmitted by the airborne route (tuberculosis (TB), measles and chickenpox). N95 and reusable (elastomeric) respirators should be NIOSH-certified.

Alcohol-Based Hand Rub – (ABHR)

Also referred to as hand sanitizer. ABHR is a liquid or foam consisting of 62% to 90% alcohol. A solution of 70% alcohol has been shown to be effective against viruses such as norovirus and is the preferred concentration of alcohol to be used in health care. ABHR kills the transient infectious agents picked up on hands when it is rubbed on the hands for approximately 15 seconds.

Antibiotic-Resistant Organisms – (ARO)

A microorganism that has developed resistance to multiple antimicrobial agents (such as antibiotic or antiviral medication), and has clinical and/or epidemiological significance. Some examples of AROs are Methicillin-Resistant Staphylococcus aureus (MRSA) and Extended Spectrum Beta-Lactamase organisms (ESBLs).

Blood-To-Blood Contact

The action of one person's blood coming into direct contact of an open wound or mucous membrane of another person. For example, a bite that breaks the skin when the biter's mouth is bleeding, or a needle-stick injury drawing blood where the needle is contaminated with another person's blood.

Client

A general term used to describe any person requiring services or care by emergency service workers (ESWs) or justice service workers (JSWs) for any reason. This includes but is not limited to patients, suspects, victims, accused, witness, complainants, residents, prisoners, youth in custody, inmates and members of the general public.

Cleaning

The process of physically removing visible soil from a surface and rendering the object safe for handling before disinfection is performed. Cleaning requires water, detergent and mechanical action.

Colonization

The presence of a microorganism on or in a body that is growing and multiplying, but they are not invading tissue or causing the client to be ill. Clients do not have signs or symptoms of disease when colonized.

Contact Precautions

Are additional precautions used to prevent the spread of infections that can be picked up on the hands of an ESW from directly touching an infectious client's blood, mucus membrane or bodily fluids or indirectly by touching the client's contaminated environment. The ESW can then spread the infection to other clients, ESWs or equipment if they are not using contact precautions. Diseases such as Norwalk virus and MRSA require contact precautions. PPE worn for contact precautions are medical gloves and gowns.

Contamination

The presence of an infectious agent on the surface of the skin, clothing, PPE, inanimate objects, equipment etc. that requires removal before disinfection may occur.

Communicable Disease

Communicable diseases are caused by microorganisms (i.e. virus, bacteria, and parasites) that can make a person sick or cause death. These diseases can live, be carried or transmitted by humans, animals, insects and equipment as well as in food, water or soil.

Direct Client Care

Engaging in hands-on care for a client.

Disinfection

The process of killing disease-producing microorganisms through the application of high heat and/or chemicals. Cleaning must occur before disinfection takes place.

Discretionary Time – (DT)

Refers to any situation of a nature that affords the worker ample time for thoughtful assessment and subsequent decision making.

Droplet Precautions

Are additional precautions used when coming within two metres of a client that has respiratory symptoms (ARI,ILI,FRI) or when the ESW comes in direct contact with a client's respiratory secretions during a procedure that causes aerosolization (suction or intubation). Droplet precautions protect the ESW's mucus membranes of the nose and eyes, as well as exposed skin and their uniform. Diseases such as influenza and pertussis (whooping cough) require the use of droplet precautions. PPE used during droplet precautions are protective eyewear, surgical masks, gloves and gowns.

Emergency Service Worker – (ESW)

Any person involved in providing a service under the umbrella of 911 emergency response that includes police, fire or paramedic services. ESW is interchangeable with the term "Pre-hospital Care Provider" (PHCP).

Enhanced Personal Protective Equipment – (EPPE)

The use of PPE above and beyond what is required for additional precautions due to the virulence of the suspected or confirmed disease. Enhanced Personal Protective Equipment is usually recommended by the Chief

Medical Officer of Health in response to threats from new and emerging diseases of public health importance. (i.e. Ebola)

Febrile Respiratory Illness – (FRI)

An acute illness of the respiratory tract, potentially spread by droplet transmission, that presents with fever > 38˚, a new or worsening cough or shortness of breath. It is synonymous with influenza-like illness (ILI), Severe Respiratory Illness (SRI) and Acute Respiratory Infection (ARI).

Fever

A temperature of > 38˚ in an otherwise healthy client. In people who are immuno-compromised, such as the very young, the elderly or people with other medical conditions, a fever may or may not be present.

Hand Hygiene

The action of rendering the skin of the hands safe for use through the removal of visible soil and transient microorganisms from the skin's surface. It is accomplished through the use of either ABHR or soap and water and keeping the skin on the hands healthy through use of hand cream.

HEPA Filter

A High Efficiency Particulate Air (HEPA) filter that can remove 99.9% of airborne particles > 0.3 microns in diameter.

High-Risk Exposures

High-risk exposures occur when the worker is exposed to a communicable disease that may be life-threatening in a way that facilitates the infectious agent having a portal of entry into the worker, such as an injury with a contaminated sharp, or respiratory secretions from a client with meningitis contacting a worker's unprotected mucous membranes.

Hospital-Grade Disinfectant

A disinfectant that has a Drug Identification Number (DIN) from Health Canada, indicating that it is approved for use in Canadian health care settings. All pre-hospital care environments should employ the use of hospital-grade disinfectant when disinfecting equipment used in the provision of emergency medical care.

Infection

Occurs when a microorganism has entered into the tissue of a host and is growing and multiplying, causing cellular injury. Infection may be clinical (resulting in signs and symptoms of disease) or sub-clinical, where the microorganism is causing cellular injury, but below the threshold to cause clinical signs and symptoms.

Infection Prevention & Control

Evidence-based practices and procedures that, when applied consistently in pre-hospital care settings can prevent or reduce the risk of exposure and transmission of communicable disease to the worker and/or the client.

Infectious Agent

Any organism; specifically bacteria, viruses, parasites, fungi and prions, which are capable of invading body tissues and multiplying, thereby causing disease in a human host and then spreading to other people.

Influenza-Like Illness – (ILI)

Any illness of the respiratory tract with an acute onset, presenting with a new or worsening cough and a fever > 38˚. Signs and symptoms may also include tiredness, muscle aches, headache, chills and loss of appetite. Also known as Febrile Respiratory Illness (FRI), Severe Respiratory Illness (SRI), and Acute Respiratory Infection (ARI).

Justice Service Worker – (JSW)

Any person involved in providing a service or care to a prisoner, inmate, client or resident in a holding facility or institutional setting under the umbrella of the Ministry of Community Safety and Correctional Services or the Ministry of Children and Youth Services of Ontario, which oversees youth justice issues. This includes but is not limited to, prisoner escort officer and correctional workers. This term is interchangeable with Judicial Care Provider (JCP).

N95 Respirator

A personal protective device that is fit-tested to properly fit and seal the face of the worker and is worn over the nose and mouth. They are worn to protect the worker from inhaling airborne particles. N95s may be single-use only; however reusable (elastomeric) respirators that use R-type or P-type filters may also be used in certain situations. All respirators must be NIOSH certified.

Non-Critical Medical Equipment

Equipment used in the diagnosis or treatment of clients that is meant to come in contact with the client's intact skin. Examples include: Blood-pressure cuffs, stethoscopes and pulse oximeters. Non-critical medical equipment requires cleaning and disinfection with a low-level hospital grade disinfectant between uses.

Non-Discretionary Time – (NDT)

Refers to any situation of a nature that does not afford time for thoughtful assessment and decision making. The sudden nature of the situation instead forces split-second decision making and response.

Personal Protective Equipment – (PPE)

Equipment designed to act as a barrier to protect the worker from infectious agents or other environmental hazards. (I.e. client's mucous membranes, respiratory tract, or non-intact skin.) PPE includes: Eye protection, face shields, N95 and R- or P-Type respirators, procedural masks, medical gloves, bunker gear and disposable gowns. PPE can also include CPR barrier masks.

Personal Protection Strategy Model – (PPS)

A model developed to help the worker through the process of assessing the risk of exposure to communicable diseases in any situation, and then taking steps to reduce those risks. The PPS is based on the system of Routine Practice.

Point–of–Care

The place and moment in time where the ESW, the client and the activities of providing emergency medical care converge. For example, the point-of-care at a motor-vehicle collision (MVC) would occur when the ESW begins his/her hands-on assessment of the client's injuries.

Pre-Hospital Care Provider – (PHCP)

SEE Emergency Service Worker.

Resident

Any person living within a correctional or youth facility serving a judicial sentence. Synonym: inmate or youth. It may also refer to a client living in a long-term care/nursing home or a person who lives in a group home or supportive housing.

Reusable

Equipment that can be cleaned and disinfected between each client use to allow for them to be reused again on another client. For example: handcuffs, vehicles, and radios. Reusable medical equipment, such as stethoscopes, blood pressure cuffs and pulse oximeters, must be cleaned and disinfected between uses on different clients.

Reusable (Elastomeric) Respirators

Respirators that use R-type or P-type filters that can be used in certain client-care situations instead of an N95. They must be fit-tested to the wearer. Reusable respirators must be maintained and have their filter cartridges replaced as per the manufacturers' recommended schedule. As with all client-care equipment they must be cleaned and disinfected between uses. All respirators must be NIOSH certified.

Routine Practice

The systematic application of IPAC practice and procedures with every client interaction and every environmental assessment in the pre-hospital care environment. It involves evaluating the risk of communicable disease in any situation, and then taking steps to reduce those risks. The PPS is based on the system of Routine Practice.

Sharps

Any item or objects capable of breaking the skin, most commonly used to refer to medical devices, such as needles, syringes or scalpels. In the pre-hospital environment, sharps can also refer to: broken glass, bladed weapons, torn metal, and other environmental items capable of causing harm. Sharps should always be disposed of in an appropriate puncture-proof container.

Signs

Objective physical changes in the body caused by illness or trauma which is measured by mechanical means, such as through taking a blood pressure, temperature or pulse, or calculating a respiratory rate.

Single-Use

A term used to describe medical equipment which is only used one time, and then disposed of. Examples include: syringes, PPE and medical gloves. This symbol indicates that the medical device is single use disposable. 

Surgical Mask

Personal protective equipment that secures either over the ears or ties around the back of the head, and covers the nose and mouth of the worker. It will reduce the risk of exposure to respiratory droplets created by a coughing or sneezing client or from splashes and sprays of a client's blood or bodily fluids. It does not create a seal around the nose and mouth and will not protect a worker from airborne infections.

Symptoms

Subjective physical changes in the body usually observed by the worker or reported by the client. They can include (but are not limited to) blood and body fluid, fever, chills, swelling, pain or redness, cough, diarrhea, nausea and/or vomiting.

Vaccine-Preventable Disease – (VPD)

A communicable disease for which effective immunization for protection and prevention exists.

Worker

A general term referring to police, fire, paramedic and justice service personnel.

1

INTRODUCTION

Introduction

- **Boards of health are responsible for post-exposure follow-up with emergency service workers and justice service workers as per the Ontario Public Health Standards.**
- **Each emergency service must have a Designated Officer to help facilitate this process.**
- **Emergency and justice service workers must assess for risk of exposure to communicable diseases during performance of their duties, roles and functions.**
- **Emergency service workers (police officers, firefighters and paramedics) as well as justice service workers (Youth Justice Services and Correctional Services) may be exposed to communicable diseases during the course of their duties, roles and functions.**

In 1994, boards of health were mandated to ensure the implementation of the Ministry of Health and Long-Term Care's (MOHLTC) *Notification of Emergency Service Workers Protocol (August 23, 1994)*. This was then replaced by the *Ontario Public Health Standards (OPHS): Exposure of Emergency Service Workers to Infectious Diseases Protocol, 2008.*

The OPHA PHS were developed to ensure emergency service workers (ESWs) are both notified of specific communicable disease exposures and have access to their local public health units so that appropriate action may be taken.

The purpose of this manual is to ensure that a Designated Officer (DO) or alternate from every Ontario emergency service is trained in the assessment of communicable disease exposures. If an exposure is assessed as high risk, the DO or the alternate will act as the point of contact between the ESW and Simcoe Muskoka District Health Unit (SMDHU).

Emergency and justice service workers (JSWs) are called to react and perform their job function in environments that are often uncontrolled and in situations where they may need to jeopardize their own safety to protect others. Every emergency and justice service needs to assess the possible risks of exposure associated with their work and work environment and set standards of practice through policies and procedures and/or guidelines that protect their workers. They are also obligated to provide the proper equipment and training to prevent possible exposures.

This section will discuss the roles and responsibilities of:

- Emergency & Justice Service Worker
- Designated Officer
- SMDHU
- Regional Infection Control Network

Roles & Responsibilities

Designated Officers

As per the Ontario Public Health Standards Exposures of Emergency Service Workers to Infectious Disease Protocol pg. 2, 1(c), all emergency service workers (police, fire and paramedics) must have 24-hour access to a DO .

JSWs will have internal policies and procedures to follow concerning reporting of occupational exposures to communicable disease.

The DO, who is assigned by their employer acts as the emergency service worker's representative in investigating all reported exposures to communicable disease. The DO is also the liaison with SMDHU. The DO must have knowledge about the following:

- communicable diseases,
- required and recommended immunizations,
- application of the Personal Protection Strategy,
- the appropriate selections and use of (PPE),
- proper methods and materials for cleaning and disinfection of reusable equipment between uses,
- all applicable legislation, standards and guidelines, local policy and procedures, Workplace Safety and Insurance Board (WSIB) reporting and OHSA standards, as applicable.

In addition to knowledge about the above, the DO also requires the following skills:

- risk assessment,
- analytical,
- research,
- interpersonal, including excellent communication skills,
- accountability,
- peer support.

The DO will need to investigate all exposure incidents and provide current evidence-based information on the possible risks of communicable disease each exposure event may represent.

Upon being notified of a possible exposure, the DO will interview the worker and assess the risk to the worker from the exposure, arrange for medical follow-up if required, advocate for the worker with the health care personnel in the emergency department (ED) if necessary, and complete the assessment and WSIB forms if indicated.

Sometimes the exposure is identified by SMDHU, who will then contact the DO to inform them of the potential risk to their worker. In that instance, the DO will liaise with the worker to advise them about the exposure and the steps they should take, and answer any questions they may have, and have them communicate directly with SMDHU as necessary. The DO will still be responsible for all appropriate WSIB and local forms as indicated in internal policy and procedures.

As exposure to communicable diseases can be a traumatic event, the DO will also offer the worker peer support and encourage the worker to seek counselling as required.

Emergency & Justice Service Workers

The worker is responsible for their own personal safety and to work in compliance with the occupational health and safety program of their institution. The worker plays a key role in preventing exposures to communicable disease in both themselves and the clients they serve. Methods of exposure prevention include:

- application of the Personal Protection Strategy (PPS) Model to prevent or reduce the risk of exposure,

- being immunized, as it is a key strategy in preventing transmission of certain communicable diseases. All workers should be immunized according to the National Advisory Committee on Immunizations (NACI) guidelines, as well as those recommended by their governing ministry and/or internal policy. Immunization is a foundation of the PPS. (See section on Immunization and the Personal Protection Strategy),

- practicing proper, diligent and frequent hand hygiene, the second foundational component of the PPS,

- utilization of appropriate (PPE),

- knowledge and application of all local procedures on: health and safety, infection control, PPE, and cleaning and disinfection,

- compliance with the regulations of the OHSA,

- awareness of the risks of occupational exposures to specified communicable diseases.

It is the worker's responsibility to both know what to do to prevent exposures to communicable disease, and how to respond if one occurs. (See sections on PPS and High-risk Exposures for details.)

Simcoe Muskoka District Health Unit

As representatives of the Medical Officer of Health (MOH), the SMDHU plays a proactive role in disease surveillance. There are established policies and procedures for reporting cases of diseases of public health importance and notifying contacts under the *Health Protection and Promotion Act* (HPPA). Once reports are received on reportable diseases of public health importance, the local PHU is responsible for case and contact management. Exposures identified by the PHU will be followed up by a Public Health Nurse (PHN) or Public Health Inspector (PHI) who has a role in investigation and control of communicable diseases.

All PHUs play an active role in helping DOs assess possible exposures and providing any information DOs may need to inform the worker about any specific actions they should take. SMDHU will provide information on actual risk of disease, post-exposure and follow-up. As well, SMDHU will provide information regarding *Mandatory Blood Testing Act* (MBTA) and the application process, as well as any requirements under the MTBA. If requested through the DO, the PHU will be available to speak with the exposed worker directly if the worker would benefit from such an interaction.

It is important to be aware of the Infection Prevention and Control resources available to you as the DO. Considerations of confidentiality and privacy legislation must be taken into account when requesting information from SMDHU about specific clients. SMDHU should be aware of emergency service and justice service workers and will therefore check to see if the worker is at risk when a client with a communicable disease is identified.

Regional IPAC Offices

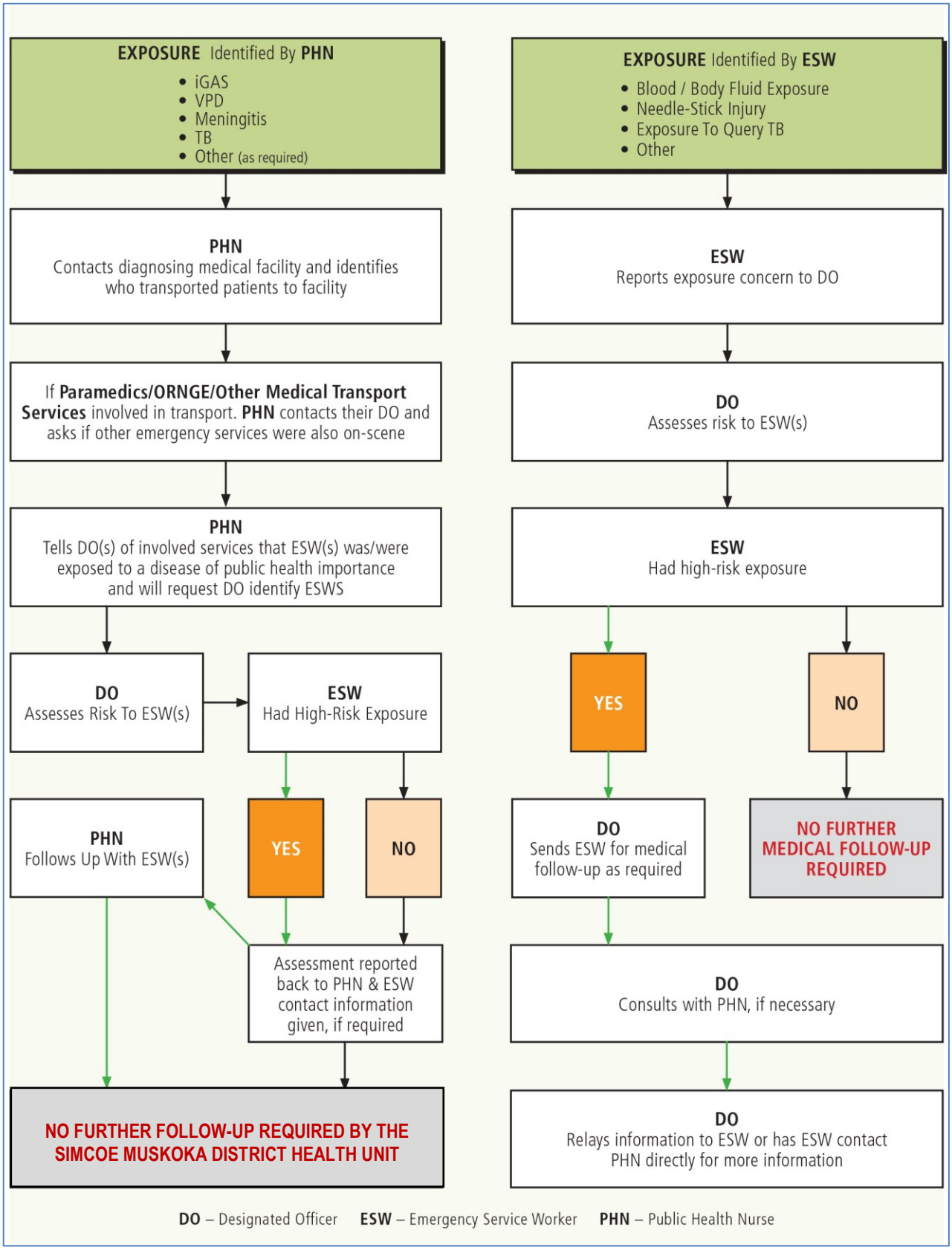
The Regional IPAC Offices fall under the direction of Public Health Ontario (PHO). There are five offices across Ontario that have IPAC experts who provide support and information to assist healthcare providers in implementing best practices in infection prevention and control.

Regional IPAC Offices:

- respond to client requests and inquiries,
- introduce and disseminate PHO guidance, resources and tools,
- support the implementation of IPAC initiatives to achieve best practice,
- facilitate client networks and collaboration,
- iniform IPAC-related research.

For more information, email ipac@oahpp.ca or contact your Regional IPAC Office.

Emergency Service Worker Exposure Response Algorithm



2

LEGISLATION, STANDARDS & GUIDELINES GOVERNING EMERGENCY SERVICES WORKERS

Emergency Service Workers

- **There is legislation, standards and guidelines that must be referenced by every Emergency Service to ensure the effectiveness of their Designated Officer Program.**
- **The URLs for the legislation, standards and guidelines referred to in this chapter are located in the reference section at the end of the manual.**

This chapter will give a brief overview of the governing legislation, standards and guidelines that support IPAC for ESWs.

Although all three Emergency Services may potentially be exposed to the same level of risk for biological hazards when responding to a call, protocols such as selection of a DO and necessity for immunization vary. Always refer to the actual legislation, standards and/or guidelines for comprehensive details on what the expectations and requirements are for your service.

The overriding legislation that dictates all workers in Ontario is the OHSA. There is the general onus on the employer (section 25-26) and supervisor (section 27) to ensure the safety of all workers by providing the necessary protective equipment, procedures and training, and in turn, it is the legal responsibility of a worker (section 28) to comply. As per section 28, it is also the legal responsibility of the worker to report any absence or defect in the issued personal protective equipment that could endanger themselves or other workers.

As mentioned in the previous chapter, the OPHS, under the authority of the HPPA, specify mandatory health programs and services that must be provided by boards of health.

The Infectious Disease Prevention and Control Standard dictates that the board of health shall ensure that the MOH or designate is available twenty-four hours a day, seven days a week to receive reports of and respond to infectious diseases of public health importance in accordance with the Health Protection and Promotion Act; the Mandatory Blood Testing Act, 2006 (or as current); the Exposure of Emergency Service Workers to Infectious Diseases Protocol, 2008 (or as current); the Infectious Diseases Protocol, 2015 (or as current); the Institutional/Facility Outbreak Prevention and Control Protocol, 2015 (or as current); and the Public Health Emergency Preparedness Protocol, 2015 (or as current).

Of importance to ESW is the Exposure of Emergency Service Workers to Infectious Disease Protocol, 2008, that ensures:

- ESWs are notified by the MOH or designate, in the event that they may have been exposed to an infectious disease of public health importance, so that appropriate action can be taken.

- DOs are able to obtain advice from boards of health through the MOH or designate regarding exposure(s) of ESWs to infectious disease of public health importance.

As a resource to DO, a resource manual was created for ESW, Preventing and Assessing Occupational Exposures to Selected Communicable Diseases: An Information Manual for Designated Officers, 1994, that outlines information such as: protocols for notification of for DOs, selection and training of DOs, disease transmission, precautions to reduce the risk of transmission, reporting and assessing risk of transmission and how to work with the MOH.

In addition, each Emergency Services have specific standards/guidelines that help reduce their risk of communicable disease transmission to their staff:

Police Services

- **Policing Standards Manual (2000) - AI-004 Communicable Disease**

    - details requirement to have one or more members be responsible for maintaining a comprehensive strategy to prevent, minimize and manage occupational exposure to communicable diseases for its employees,

    - references a manual specifically as a resource to the communicable disease coordinator,

    - itemizes equipment required in biohazard kits for police officers and appropriate civilian members.

- **Guidance Note #7 – Searching Hazardous Environments**

    - Outlines requirements to develop and implement a workplace program to protect workers engaged in searches of hazardous environments, to identify potential chemical, biological and physical hazards, and to asses risk exposed through all routes of exposures, e.g. inhalation, absorption and ingestion.

    - Also references two regulations that dictate the legislative requirements:

        - Ont. Regulation 833/90 – Control of Exposure to Biological or Chemical Agents

        - Ont. Regulation 860/90 – Workplace Hazardous Material Information System.

Fire & Emergency Services

- **Guidance Note #2-5(33) – Designated Officer Program for Communicable Disease**

    - specifies training requirement, e.g., disease awareness, PPE, personal hygiene, equipment and supplies, N95 fit testing, D O protocol, etc.

- **Guidance Note #4-14 - Infection Control and Exposure Control Practices**

    - enforces routine practices for infection prevention and exposure control based on the premise that all persons are potentially infectious, even when they display no symptoms, i.e., same standards of practice should be used routinely with persons during care at all times, including in-station operations,

    - references other guidance notes (Section 4 – Personal Protective Equipment), that dictate the personal protective equipment required to apply routine practices, e.g., eye protection, respiratory protection program, etc.

Paramedic (Ambulance) Services

- **Ambulance Service Patient Care & Transportation Standards**
    - outlines requirement to implement program and training is completed on these four areas:
        - communicable disease management
        - exposure followup
        - cleaning and disinfection
        - influenza control
- **Ambulance Service Communicable Disease Standards (updated 2015)**
    - paramedics must provide proof of immunization or evidence of immunity,
    - paramedics must not provide patient care when exhibiting signs and/or symptoms of an acute illness that may be communicable.

If despite best efforts to prevent exposures, an exposure occurs to blood and body fluid and voluntary consent cannot be obtained from the client who has exposed the emergency services or justice services worker, then the M BTAct, 2006, can be used. (See chapter on the MBTA).

It is important that each DO be aware of the legislation, standards and guidelines that mandate how their internal IPAC program should be run. All legislation, standards and guidelines mentioned in this chapter are available in the reference section of this manual.

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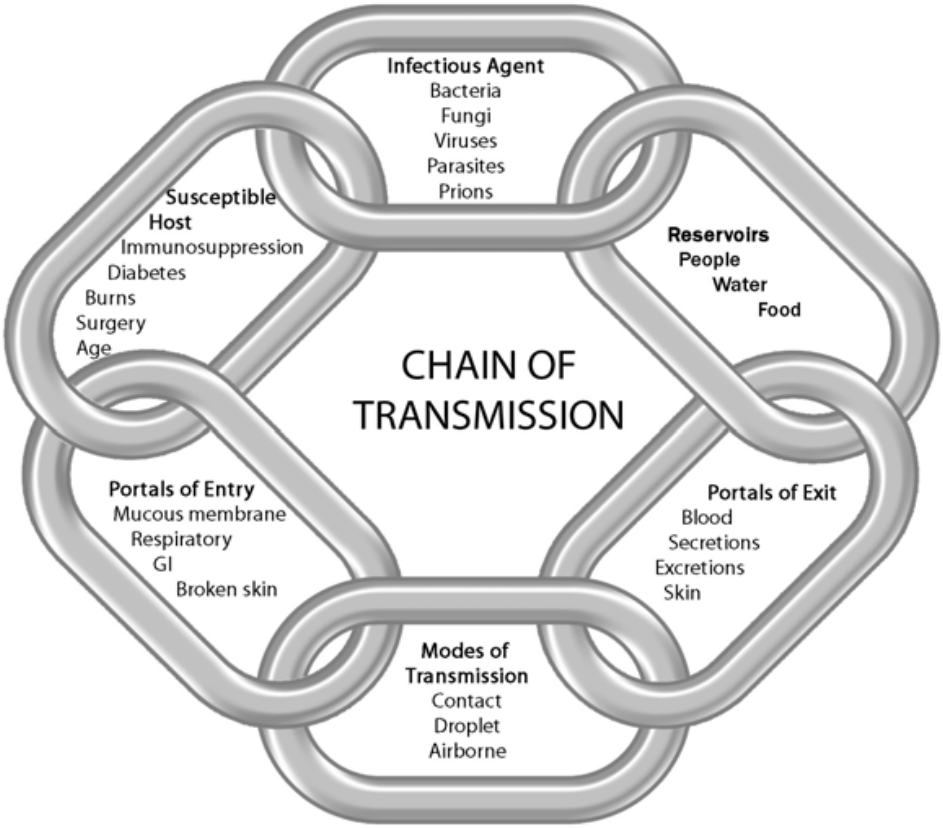
CHAIN OF TRANSMISSION

Chain of Transmission

- **Transmission of disease requires all links in the chain to be intact.**
- **Breaking the Chain of Transmission at any point will prevent transmission.**

The Chain of Transmission helps us to understand the infectious process of communicable diseases. For a communicable disease in one individual to become harmful to others, infectious agents require places to survive and grow, and a means of moving from one person to another. The set of circumstances that allows this to happen is called the Chain of Transmission. Each link of the chain represents a factor related to the spread of communicable diseases. Transmission does not take place unless all six of the elements in the Chain of Transmission are present:



Provincial Infectious Diseases Advisory Committee. Routine Practices and Additional Precautions in all Health-Care Settings. Rev ed. Toronto: Ontario Agency for Health Protection and Promotion (Public Health Ontario); 2012. Figure 1: The Chain of Transmission; Page. 1.

Infectious Agent

The first link in the chain is the infectious agent. Infectious agents are viruses, bacteria and fungi, to simple one-celled protozoan parasites. (More complex life forms such as worms, ticks, lice or bedbugs can spread person-to-person, but are not considered infectious as they do not use human tissue for multiplication). Some infectious agents have characteristics that make them more successful in causing infection. To cause infection these agents must be capable of entering human tissues and multiplying, which usually causes damage to the human host. The infectious agent must be sufficiently able to overcome the host's immune system in order to cause disease. This is referred to as virulence. Other factors that affect the agent's ability to cause disease include the amount of infectious agent required to cause illness (the infective dose), how able they are to mutate to get around the host's immune system, such as with influenza, and whether or not they are able to develop resistance to antibiotics or disinfectants, which allows them to continue to spread.

Bacteria

- While larger than viruses, bacteria can only be seen with a microscope. The cell membranes of bacteria are surrounded by a rigid cell wall that protects them from damage. Unlike viruses, bacteria do not require host cells for reproduction and can reproduce themselves by splitting in two. To protect themselves from a hostile environment, some species of bacteria are able to form a protective coat called a spore, which is impregnable to most disinfectants and antibiotics. Bacteria are generally classified by their shape, staining characteristics, and whether or not they use oxygen.

Fungi

- Are larger and more complex than bacteria. They are either single-celled (e.g., yeasts) or multi-celled (e.g., moulds). Fungi do not spread person-to-person, and only infect people through environmental exposure. People with non-intact immune systems are most susceptible to infection with fungi.

Parasites

- Are the largest of all the infectious agents. They range from small, one-celled worms called protozoa to large multi-celled worms called helminths, which can vary in size from 1 mm to 1m. Mites, lice, fleas, bed bugs, scabies and ticks belong in this category. The majority of parasites, such as those that cause dysentery or giardiasis, are obtained through contact with an environment contaminated by the parasites or their egg. This occurs most efficiently through drinking contaminated water or eating contaminated food. Other parasites, such as lice and scabies make their homes primarily on humans, and are readily spread person-to-person through direct contact. Larger parasites, such as lice, fleas etc. are not considered infectious however, as they do not use human tissue for their reproduction and/or multiplication.

Prions

- Are abnormal, transmissible agents that usually have a long incubation period, after which they progress rapidly and always result in death. Prion diseases (also called transmissible spongiform encephalopathies (TSEs)) are a family of rare progressive degenerative disorders that affect both humans and animals, such as Creutzfeldt-Jakob (mad cow) Disease, Fatal Familial Insomnia and Kuru. Prion diseases are transferrable when a human eats an infected animal, or is operated on with surgical instruments contaminated with prions. Prion diseases are extremely rare and not considered an occupational hazard for ESWs or JSWs.

Viruses

- Are the smallest of the infectious agents and are visible only with an electronic microscope. Viruses consist of a centre of nucleic acid, either DNA or RNA, wrapped in a protein coat. Some viruses may also have an outer coat or envelope. Viruses cannot reproduce on their own and must use the cells of the host to reproduce. Viruses enter the cells of the host through specialized attachment points on their surface, called receptors. If a host cell doesn't have receptors that match the virus, the virus cannot enter that cell. This is why certain viruses attack only certain parts of the body. Antibiotics are not effective against viruses; however, there are antiviral drugs that may be used to combat some viral infections.

Reservoir

Is the second chain in the Chain of Transmission and is the place where the infectious agent normally lives or reproduces. The three most common reservoirs are: humans, animals, and the environment, which can include objects as well as contaminated consumables, such as food, water and medicines. The reservoir is often called the source of the infectious agent: in the right conditions, the agent can exist there for an extended period of time. While infectious agents can survive on surfaces, they cannot reproduce without proper nutrients. Therefore, infectious agents thrive in reservoirs, which supply nutrients for their growth and reproduction/multiplication.

Portal of Exit

Is the third chain in the Chain of Transmission and the path by which an infectious agent leaves the reservoir. It is the path the agent takes out of the body. In humans, the portals of exit include:

- the respiratory tract, as the agent is expelled through breathing, coughing or sneezing,- the genitourinary tract through urine or sexual secretions,
- the gastrointestinal tract, which includes both the mouth and rectum and involves saliva, vomit, feces or other drainage from the intestines,
- non-intact skin, which may bleed or have drainage of fluid or pus,
- the mucous membrane of the eyes, nose and mouth and genitals and transplacental from the mother to her fetus,
- in breast milk,
- in blood.

Controlling the excretions and secretions of clients, therefore, is an extremely important way of breaking the Chain of Transmission person-to-person.

Mode of Transmission

Is the four chain in the Chain of Transmission and is the method by which the infectious agent reaches a susceptible host. There are three modes of transmission that can be spread disease from person-to-person. (See section on Modes of Transmission for more details.):

Airborne Transmission

- This refers to the transmission of viruses and bacteria that, when expelled from the respiratory tract, are light enough to float in the air for a long enough period of time to be inhaled by another person. There are only three diseases known to be transmitted person-to-person through the airborne route: TB, measles and chickenpox (varicella), although both measles and chickenpox can be picked up by the hands from contaminated surfaces as well. Airborne diseases are affected by air currents and ventilation, which may reduce their numbers and thereby reduce their infectivity. Airborne diseases are controlled for through: good ventilation, the use of respirators and having the sneezing and coughing client cover their mouth.

Contact Transmission

- This refers to the transmission of diseases that are picked up from another person or the environment and transferred to non-intact skin or unprotected mucous membranes by unclean hands or pieces of equipment. Common examples of diseases spread through contact include pink eye (conjunctivitis) and impetigo (caused by Staphylococcus aureus). Diseases spread through droplet transmission, such as influenza, can also be picked up from the environment when heavy respiratory secretions land on surfaces. Contact transmitted diseases are controlled for through the use of barrier PPE such as gloves and gowns, excellent hand hygiene, and proper cleaning and disinfection of equipment.

Droplet Transmission

- This refers to the transmission of diseases that are expelled from the body in large respiratory droplets through coughing and sneezing. These droplets are heavy, and only travel from one to two metres away from the person before gravity forces them to fall. They can be either inhaled, or they can land on unprotected mucous membranes of the eyes, nose and mouth if you are within two metres of the person when they cough or sneeze. Large respiratory droplets can also be picked up off of surfaces by hands and directly transferred to the eyes, nose and mouth through touch, which is also a form of contact transmission. Diseases spread through droplet transmission usually cause symptoms of an acute respiratory infection (ARI), and include fever, coughing and sneezing. Droplet transmitted diseases are controlled through the use of barrier PPE, such as eye protection, gloves and gowns, having the coughing/sneezing client cover their nose and mouth, excellent hand hygiene and proper cleaning and disinfection of equipment.

Portal of Entry

Is the fifth chain in the Chain of Transmission and is the path by which the infectious agent enters the susceptible host. In humans, the portals of entry include non-intact skin, unprotected mucous membranes, and the lungs when diseases are inhaled. All of the portals have natural barriers that protect the body from infectious agents. The barriers are normally extremely effective against disease, but certain infectious agents are readily able to get around these natural barriers (such as influenza), or may enter if the host's immune system is unable to protect against disease, or if the barrier have been compromised either by invasive medical devices, such as urinary catheters, or through breaks or cuts in the skin. Protecting the portals of entry, through proper use of PPE

and covering all non-intact skin with fluid-resistant dressings, is one of the best ways of preventing infection from communicable disease.

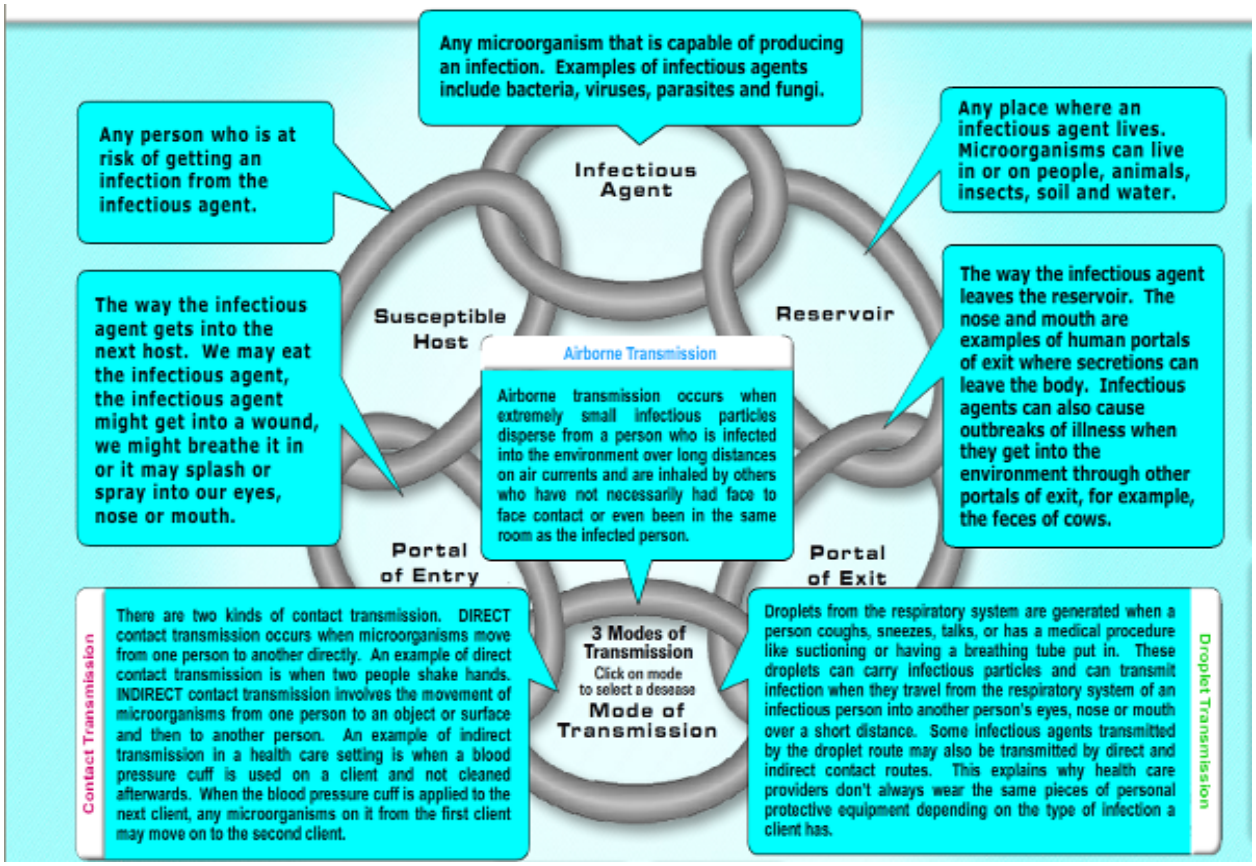
Susceptible Host

The sixth and last chain in the Chain of Transmission is a person that lacks resistance to the infectious agent. Many factors can influence an individual's susceptibility to a particular disease and the extent to which he/she will be sick, including:

- age, sex, ethnic background & genetics,
- occupation,
- socio-economic status,
- stress,
- sleep hygiene
- lifestyle, including sexual activity,
- nutritional status,
- pregnancy,
- recent trauma,
- vaccination status.

Young children, older adults, and people with underlying disease or who are taking certain medications may be more susceptible to infectious agents than otherwise healthy adults. Diligent and frequent hand hygiene, controlling stress, getting adequate sleep, eating properly, getting enough exercise and ensuring complete immunization is the best way to protect against disease.

The Chain of Transmission in Summary

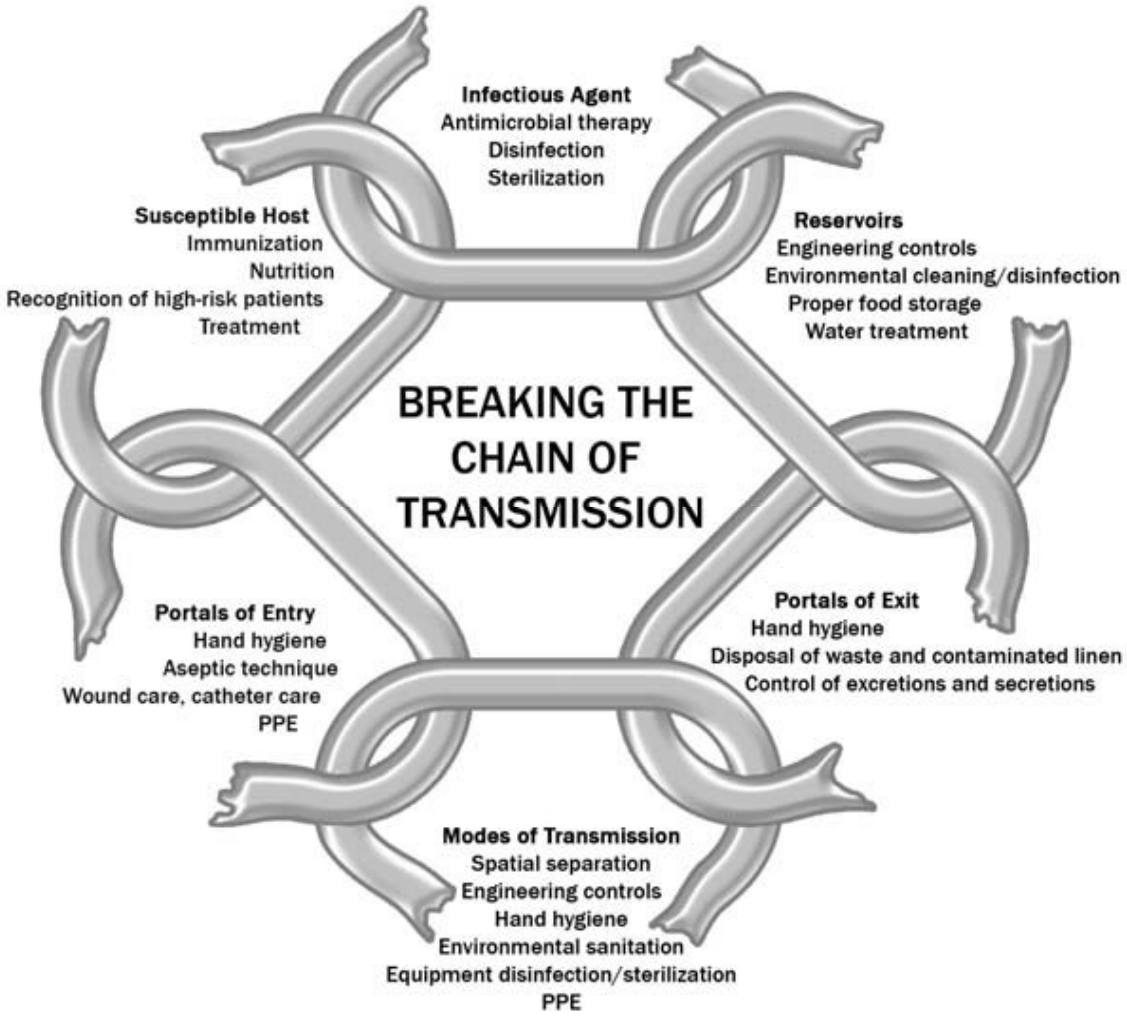


Adapted from Public Health Ontario (PHO).

Breaking the Chain

Control of infectious diseases involves breaking the Chain of Transmission by altering the host, the environment or the agent.

Immunization, hand hygiene, appropriate use of PPE, controlling of location, duration, proximity and interaction with clients and proper cleaning and disinfection of surfaces and equipment are the best ways you can ensure disease does not have the opportunity to spread from one person to another. Preventing infection is everybody's responsibility and the key is you.



Provincial Infectious Diseases Advisory Committee. Routine Practices and Additional Precautions in all Health-Care Settings. Rev ed. Toronto: Public Health Ontario; c2012. Figure 2; Breaking the Chain of Transmission; page. 2.

4

MODES OF DISEASE TRANSMISSION

Modes of Disease Transmission

- **There are three modes of disease transmission from person-to-person: airborne, droplet and contact.**
- **Airborne transmitted diseases are tine nuclei that are breathed in. The three diseases transmitted by the airborne route are TB, measles and chickenpox.**
- **Droplet transmitted diseases land on mucous membranes of the eyes, nose and throat from coughing and sneezing.**
- **Contact transmitted diseases are picked up on hands and transferred to mucous membranes or non-intact skin (MRSA).**
- **Preventing transmission requires hand hygiene, use of appropriate personal protective equipment, environmental controls and cleaning and disinfection of all used equipment.**

The Mode of Transmission is the mechanism by which an infectious agent is spread from the reservoir to the portal of entry of a susceptible host. (See section on Chain of Transmission for more details). Interrupting the Chain of Transmission at the 'portal of entry' link is the most effective method to prevent the transmission of infectious agent (i.e. viruses and bacteria) from person-to-person.

While there are other ways disease is spread, such as through contaminated food and water sources or insect and animal bites, in the emergency and justice service work environments infectious agents of concern are those that easily spread from person-to-person. There are only three Modes of Transmission that allow for infectious agents to spread person-to-person: airborne, droplet and contact transmission.

Airborne Transmission

Airborne transmission refers to the spread of infectious agents that are small enough and light enough to remain suspended in the air. They consist of droplet nuclei smaller than five microns, which are light enough to float for prolonged periods of time. They can be dispersed widely by air currents and may be inhaled by a susceptible host some distance from the original infected client.

While all diseases have the capacity to become aerosolized under certain circumstances, there are only three common diseases that are known to spread primarily by airborne transmission: TB, measles and chickenpox. Smallpox is also spread by airborne transmission, however smallpox was declared eradicated in 1977 (CDC).

Diseases spread through airborne transmission must be inhaled in order to cause infection. TB must be inhaled in order to infect a new host. Both chickenpox and measles can also be spread through droplet transmission from direct contact with infected secretions from the upper respiratory tract.

Airborne transmission whereby small particles travel long distances

Prevention of Airborne Transmission

- **wear a fit tested N95 or reusable (elastomeric) respirators,**
- **have client wear a surgical mask (if available),**
- **ensure proper ventilation in buildings and vehicles of at least 9 to 12 air exchanges per hour,**
- **follow precautionary signs within health care settings that indicate the client is under airborne precautions.**

POLICE OFFICERS
Wearing Reusable Respirators

PARAMEDIC
Wearing N95 Respirator

Droplet Transmission

Droplet transmission refers to large droplets (greater than five microns) that are generated from the respiratory tract and aerosolized into the air when a person coughs or sneezes. Certain high-risk medical procedures, such as suctioning and intubation will also cause the aerosolization of these large droplets and cause them to be expelled into the air (see section on high-risk procedures for more information). The heavy droplets can travel up to two metres away from the original infected host, allowing them to be inhaled directly into the lungs of another person. The droplets might also land on unprotected mucous membranes of the eyes, nose and mouth the person is within two metres of the infected client. The droplets can also land on objects in the immediate environment. If a worker touches those objects and then touches their hands to their face, they may transfer the infectious agent to vulnerable mucous membranes.

Diseases spread by the droplet route are easily identifiable by the client's visible symptoms. ARI and ILI, which include symptoms of fever and new or worsening cough, are spread through the expulsion of heavy respiratory secretions from the nose and mouth. However, since TB can both present with fever and cough, it is important to always wear the highest level of respiratory protection available when dealing with a client with symptoms of ARI.

Examples of diseases spread by droplet transmission include influenza, meningitis, SARS, rhinovirus and respiratory syncytial virus (RSV).

Droplet transmission from coughing or sneezing

Prevention of Droplet Transmission

- **Wear eye protection and a surgical mask within two metres of client with ARI.**
- **Wear medical gloves within two metres of client.**
- **Perform hand hygiene with ABHR or soap and water for 15 seconds after gloves are removed and ensure cleaning and disinfection of all reusable equipment.**
- **Follow precautionary signs within health care settings that indicate the client is under droplet precautions.**

FIREFIGHTER
Wearing PPE for droplet precautions

Contact Transmission

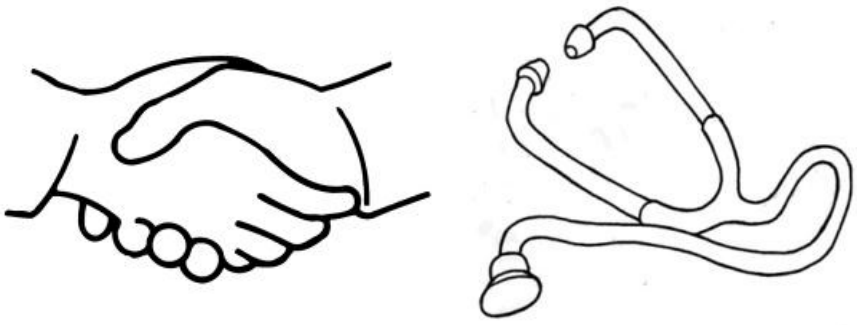
Contact transmission occurs when a person or object that is a reservoir for an infectious agent is touched and then hands are not cleaned. This allows for the transfer of the infectious agent somewhere else, such as another person or inanimate object or to non-intact skin or unprotected mucous membranes. Contact transmission can also occur when a contaminated piece of equipment is used on another client without it being cleaned and disinfected between uses.

Clients with nausea, vomiting and diarrhea, with wounds leaking or draining fluid or pus, or clients with non-intact skin or who are bleeding are all exhibiting signs and symptoms that would require the use of contact precautions.

As well, clients who have signs and symptoms of ARI should be assumed to have contaminated their environment with infected respiratory secretions within two metres of their coughing and sneezing. Heavy respiratory secretions can land on surfaces and thereby be picked up on the hands and transmitted through indirect contact.

Blood-to-blood contact, such as when a used needle pierces the skin or when body fluid lands directly on mucous membranes or non-intact skin are also examples of contact transmission.

Examples of disease transmitted by direct and indirect contact transmission include Norwalk virus, Methicillin-Resistant *Staphylococcus aureus* (MRSA), Vancomycin-Resistant *Enterococcus* (VRE) and *Clostridium difficile*. Diseases transmitted through blood or body fluid include: Hepatitis B and C and Human Immunodeficiency Virus (HIV).



Contact transmission from hands (direct) or objects (indirect)

Prevention of Contact Transmission

- **Wear medical gloves if there is potential blood or bodily fluid contact.**
- **Wear gowns or bunker gear if close contact with the client is expected.**
- **Perform hand hygiene with ABHR or soap and water for 15 seconds after gloves are removed and ensuring cleaning and disinfection of all reusable equipment.**
- **Follow precautionary signs within health care settings that indicate the client is under contact precautions.**

PARAMEDIC
Wearing PPE for contact precautions.
Stethoscope will need to be cleaned & disinfected after client contact.

When a client has signs and symptoms of an ARI, when there are copious amounts of blood and/or body fluid, or when assessment warrants, it may be appropriate to wear a combination of PPE to be fully protected. Eye protection including face protection shields, N95 or reusable (elastomeric) respirators, gowns or bunker gear and gloves should be worn in combination to prevent exposure. (See section on PPE for more details.) In some cases, enhanced PPE will be required.

5

PERSONAL PROTECTION STRATEGY

Personal Protection Strategy

- **Police officers, firefighters, paramedics and JSWs have a responsibility to prevent the transmission of communicable disease within their work environments and within the communities they serve.**
- **Immunization and hand hygiene using ABHR or soap and water for 15 seconds are the foundation of the model.**
- **The assessment phase involves critical thinking about the risks of communicable disease both to and from the client, and from the environment.**
- **The actionable steps of using PPE, controlling your location, duration, proximity and interaction and cleaning and disinfecting all reusable equipment are fluid and do not need to be used linearly.**
- **All ESWs and JSWs are an integral part of Infection Prevention and Control (IPAC) in their own work environments.**

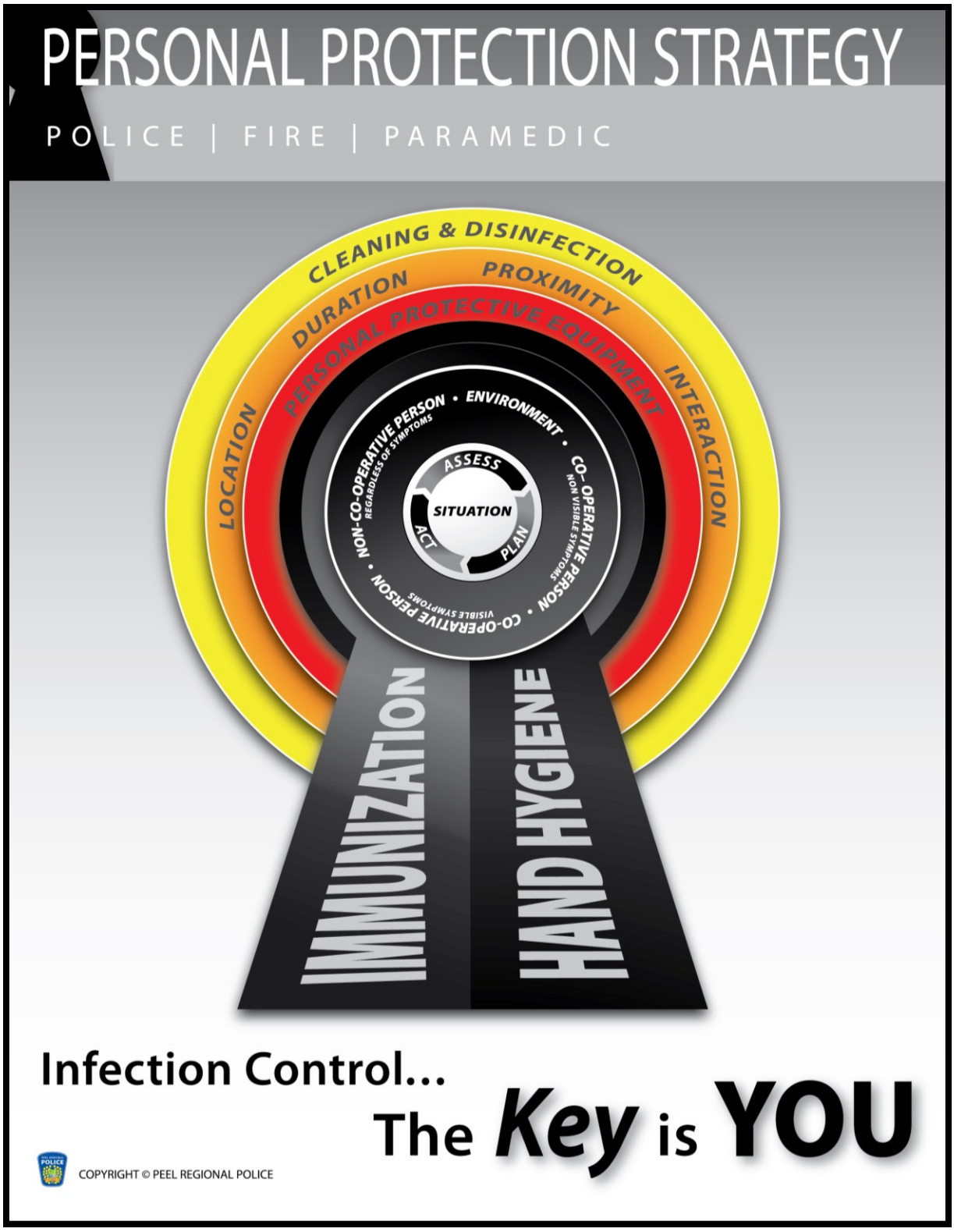
Clients can interact with a wide variety of ESWs and JSWs as they move through the medical and judicial continuums of care before eventually returning to the community. Therefore, there is a significant onus of responsibility for police, fire, paramedics and JSWs to prevent the transmission of communicable disease within their work environments and into the communities they serve.

JSWs have the benefits of ministry IPAC policies and procedures and have access to health care staff in each institution. They are also trained in the medical model of Routine Practice. However they can also benefit from an IPAC training strategy that is not as focused on the medical model of infection control, and is consistent with the training received by their emergency service peers.

The purpose of the PPS model is to create and develop a mechanism for delivery of IPAC training that has the ability to introduce unfamiliar information regarding communicable disease and infection control to ESWs and JSWs in an organized and structured format, which can be readily understood and translated into critical thinking and practical application.

Central to the model's layout is its key-hole shape, accompanied by the tag line: "Infection Control the key is YOU". The purpose is to have each individual user project themselves into the model in order to understand they are an integral part of IPAC in their work environment. An individual's choice to participate and engage the model is the "key" to having the model's protective principles be effective and personally beneficial to the user. Without engagement, the model offers no protection.

The principles of the initial PPS were modelled after the Ontario Use of Force Model, which is a deeply entrenched and widely established provincial teaching aid used to train police officers in how to manage traditional notions of risk associated with criminal assailants. Those principles of risk assessment and strategic response are directly transferable to infection prevention and control.


PERSONAL PROTECTION STRATEGY
POLICE | FIRE | PARAMEDIC
CLEANING & DISINFECTION
DURATION
PROXIMITY
PERSONAL PROTECTIVE EQUIPMENT
LOCATION
INTERACTION
NON-CO-OPERATIVE PERSON
REGARDLESS OF SYMPTOMS
ENVIRONMENT
CO- OPERATIVE
NON VISIBLE SYMPTOMS
ASSESS
SITUATION
ACT
PLAN
CO-OPERATIVE PERSON
VISIBLE SYMPTOMS
IMMUNIZATION
HAND HYGIENE
Infection Control...
The Key is YOU
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THE COMPONENTS OF THE MODEL ARE IN 3 PHASES

PHASE 1 – Building a Foundation of Protection

Immunization & Hand Hygiene

Immunization

Immunization is one of the most important and proactive steps ESWs and JSWs can take to ensure that they are protected against vaccine-preventable diseases (VPD) (see section on immunization). Immunization makes exposures to VPDs a nuisance rather than a potentially debilitating health-hazard. While paramedics are required to have all provincially scheduled vaccines before hire as per the *Ambulance Act - O. Reg. 257/00*, police, fire and JSWs do not have the same legislated pre-hire requirements. For those ESWs and JSWs the decision to become immunized is a personal one which requires accurate information about vaccines and awareness of the hazards of VPDs themselves.

Information on recommended vaccines for adults can be found in the section on immunization, and on the Canadian Coalition for Immunization Awareness and Promotion website. ESWs and JSWs who are unsure of their vaccination status are advised to consult with their family doctor. This is especially pertinent for those ESWs/JSWs who were not born or raised in Canada and who may have participated in different vaccine schedules, as they may not be fully protected.

Hand Hygiene

Hand hygiene is another important step ESWs and JSWs can take to ensure they are routinely and consistently protected from communicable disease. Hand hygiene has two parts. The first is ensuring that the skin of the hands is cleaned regularly and that moisturizer is used to protect the skin against breakdown from excessive dryness. The second involves daily inspection of the skin of the hands for areas that require water-resistant dressings because they are non-intact. Cuts, scrapes, scratches or abrasions can compromise the skin's natural barrier to communicable disease and must be covered.

There are two acceptable methods of hand hygiene in the pre-hospital and justice environments: alcohol-based hands rub (ABHR) and soap and water (see section on hand hygiene for more information).

PHASE 2 – Situational Assessment

Assess, Plan, Act

Whether dealing with a victim, suspect, witness, complainant, patient, inmate or resident, ESWs and JSWs should perform situational risk assessments for IPAC in order to assist them with creating a strategy of protection from communicable disease.

The cyclical centre of the model is representative of the fluidity of the situational assessment. ESWs and JSWs are reminded to focus on the situation with the intention of first assessing, then creating a plan from the assessment using the actionable steps from the model, and then acting on this plan.

The situational assessment does not stop with one singular action however. The circular direction of the arrows in the centre of the model is representative of the fluidity of the assessment, and implies a continual flow from assessment to planning to action and back to assessment where the process may start again. Situations may change several times before the incident is completed, and each change requires a new and appropriate strategic response to protect both the ESW/JSW and the client from exposure.

Looking for signs and symptoms of illness in the client is an extremely important step in the situational assessment. Signs are measured by mechanical means, such as blood pressure or temperature. Symptoms are physical changes in the body usually observed by the worker or reported by the client, which can include fever, chills, nausea, vomiting, swelling, pain or redness. Signs and symptoms are clues that allow the worker to better assess the client's presenting situation, however it is important to remember that not all clients will present with signs and/or symptoms of illness.

Assessment of the situation should start as soon as information is given via 911 dispatch and through both the everyday and emergency internal communications at the Correctional or Youth Centre.

Examples:

- A police officer is dispatched to a scene where an assault is in progress. The worker should:
  - be aware that this situation has the potential for violence and/or clients acting erratically.
  - be aware that blood and/or body fluid may be present.

- A firefighter is dispatched to a motor-vehicle collision involving personal injury. The worker should:
  - consider the possibility that body fluids might be present prior to arriving on scene and that immediate medical aid might be required.

- A paramedic is dispatched to an "unknown medical." The worker should:
  - consider potential risks when approaching the client, as the client's condition is unknown.

- A JSW is dispatched on a "code blue." The worker should:
  - be aware that the situation may involve multiple parties who are acting unpredictably and are potentially violent,
  - be aware that blood and/or body fluids may be present.

Situational Factors

Environment

Risk from communicable disease may be present in the work environment even without the presence of another person. The ESW/JSW is encouraged to go about their work environments considering all IPAC risks. All high-touch surfaces and items such as sharps or previously used equipment can serve as a reservoir for communicable disease without another person being there.

Any communal, shared and reusable equipment from both medical and judicial continuums of care that is used for patient or client care will require cleaning and disinfection between uses (see section on cleaning, disinfection and sterilization for more details).

Examples:

- A police officer searches a house during the execution of a search warrant where there are signs of intravenous drug use. The worker should:
  - be aware there may be a risk of injury from contaminated sharps (such as used needles),
  - never put hands anywhere that is not visible, such as inside garbage cans, between cushions and under car seats (if a vehicle is involved).

- A firefighter attends a medical call where the client has been symptomatic with nausea, vomiting and diarrhea for several days. The worker should be:
  - aware that the environment around the client may be contaminated,
  - wearing medical gloves and performing hand-hygiene before and after use,
  - ensuring all reusable equipment that was used is cleaned and disinfected before reuse.

- A paramedic is dispatched to a call for a person with an ILI. The worker should:
  - be aware that any part of the environment that has been within two metres of the client can be contaminated with infected droplets,
  - be aware that any respiratory interventions chosen should minimize the aerosolization of droplets into the air,
  - wear appropriate PPE, such as medical gloves, eye protection and an N95 respirator and perform hand-hygiene before putting on and after removal,
  - ensure all reusable equipment that was used has been cleaned and disinfected before reuse.

- A JSW is searching a cell. The worker should:
  - consider that environmental surface areas in the cell can be contaminated,
  - inspect their hands and cover any breaks in the skin with a water-resistant bandage,
  - wear disposable gloves and perform hand hygiene before putting on the gloves and after the search has been completed and gloves have been removed,
  - clean hands and put on a new pair of gloves before searching the next cell.

Cooperative Person – Non-Visible Symptoms

The majority of clients fall into this category of situational factors. Persons exhibiting cooperative behaviour are those who are willing and able to follow the instructions of the ESW/JSW and are acting in a predictable and compliant manner and are not considered to pose any physical threat. These clients may include victims, patients, residents, complainants, witnesses, suspects and everyone else involved in routine interactions, including co-workers. Of paramount importance however, is the understanding that compliant people may still pose an unintentional risk of communicable disease. Individuals not presenting with symptoms can still be colonized or infected with communicable disease, and may be able to spread disease to others.

ESWs and JSWs should be aware that clients who have a communicable disease may not disclose this fact for a variety of reasons. There are several possible barriers for a client to disclose communicable disease status to an ESW or JSW. A client who is infected with a communicable disease may not disclose because:

- they do not have a need/reason to share personal health information,
- they know they are infected; however they are unable to communicate due to injury or language barrier,
- they know they are infected but are unwilling to disclose due to embarrassment, fear of social stigmatization, fear of deportation or negative impact on immigration or fear of improper disclosure of personal health information,
- they know or think they are infected and will not disclose due to a deliberate intent to harm the ESW/JSW,
- they don't know they are infected.

In Correctional and Youth Centres, health care staff obtains a medical history from all clients. This information cannot be shared with non-health care staff, but if indicated, staff will be advised as to what additional precautions may be required.

Communicable disease risks are ever present and need to be considered in every interaction regardless of its innocuousness or the demeanor of the client.

Examples:

- A police officer is approached by a young child and kneels down to have a conversation. The worker should be:
  - aware that even seemingly healthy individuals not presenting with symptoms may pose communicable disease risks,
  - performing hand hygiene after contact,
  - cleaning and disinfecting any reusable equipment the client may have contacted.

- A firefighter is asked to pose for a photograph by a group of tourists and they put their hand on one of the tourist's bare shoulders. The worker should be:
  - aware that even seemingly healthy individuals that are not presenting with symptoms may have a communicable disease,
  - performing hand hygiene after contact.

- A paramedic is offered a coffee by an elderly man and shakes the man's hand afterwards. The worker should be:

- aware that even seemingly healthy individuals that are not presenting with symptoms may have a communicable disease,
- performing hand hygiene after contact.

➢ A JSW accepts a drive with a colleague to work and touches the door handle and radio controls of the vehicle. The worker should be:
- aware that even seemingly healthy individuals that are not presenting with symptoms may have a communicable disease,
- performing hand hygiene after contact.

Cooperative Person – Visible Symptoms

Discretionary Time / Non-Discretionary Time

Cooperative persons with signs and/or symptoms of illness or injury may pose a risk to the ESW/JSW even if the client is acting predictably and being compliant. Visible symptoms, including fevers, coughing, sneezing, vomiting, nausea, rashes, bleeding or loss of other body fluid should immediately alert the ESW/JSW to engage the principles of the PPS. They should assess their situation and then develop a plan for self-protection such as: use of appropriate PPE, controlling for their location, duration, proximity and interaction (LDPI), as well as cleaning and disinfecting all reusable equipment after the situation been resolved.

Before giving medical attention, all ESW/JSWs are encouraged to ask all clients:
- if they have a new, or worsening cough,
- if they have a fever,
- if they have nausea, vomiting or diarrhea from a distance of at least two metres back.

This efficient assessment allows for the ESW/JSWs to decide if PPE will be required before approaching. If the client cannot answer, or if the ESW/JSW and the client do not have a language in common, the ESW/JSW can decide to wear PPE until a physical assessment can be completed.

Examples:

➢ Police officers, firefighters and paramedics are dispatched to a motor-vehicle collision (MVC) involving personal injury. The clients have open fractures. The ESWs should be:
- aware that the client's non-intact skin puts the client at risk from infection,
- aware that there may be a threat of splash or spray from blood and/or body fluid from the open wound,
- performing hand hygiene before and after putting on and removing PPE,
- ensuring all reusable equipment has been cleaned and disinfected after use.

➢ A JSW is admitting a client who is feeling unwell, coughing and complaining of a fever, and health care staff are not on duty. The JSW should:
- be aware that any part of the environment that has been within two metres of the client can be contaminated with infected droplets,
- wear a surgical mask if working within two metres of the client and a physical barrier does not exist,
- performing hand hygiene before and after putting on and removing PPE.

Non-Cooperative Person – Regardless of Symptoms

When a client is non-cooperative, acting erratically or engaging in violent behaviour, the ability of the ESW or JSW to effectively plan their strategy against communicable disease will be limited. Non-cooperative clients force workers into a non-discretionary time component of the model. Parallel risk assessments need to occur with little or no time between protecting oneself from physical harm and harm from communicable disease. PPS options need to be engaged to ensure adequate protection against communicable disease, as the probability of close contact with body fluids, (i.e., blood, saliva) is high.

By ensuring that they are completely and appropriately immunized, the ESW/JSW will have successfully engaged the foundation of the PPS model, and will have given themselves powerful pre-exposure protection. As well, if the ESW/JSW has received dispatch information that suggests the situation may be violent or unpredictable, they may be able to develop an adequate PPS before they engage with the situation and client. Proactively putting on certain pieces of PPE, such as eye protection and medical gloves will help prevent exposure should a client's behaviour change suddenly.

Examples:

- A police officer attends a violent domestic. The husband, who is cut and bleeding, is found assaulting his wife. The worker should be:
  - aware of communicable disease risks while performing this non-discretionary component to their job function,
  - be confident and comfortable regarding their safety from hepatitis B virus because they have ensured all immunizations are up to date, including hepatitis B vaccine,
  - using all the necessary PPE at their disposal along with their use of force tools to safely take control of the bleeding and non-compliant client,
  - performing hand hygiene after client interaction,
  - prepared to clean and disinfect all reusable equipment after use.

- A firefighter or a paramedic is rendering medical assistance to a patient with a head injury when the patient suddenly begins to struggle. They should be:
  - aware of communicable disease risks while performing this non-discretionary component to their job function,
  - be confident and comfortable regarding their safety from hepatitis B virus because they have ensured all their immunizations are up to date, including hepatitis B vaccine.
  - using all the necessary PPE and medical supplies at their disposal to safely take control of the bleeding and non-compliant client,
  - performing hand hygiene both before and after client care,
  - prepared to clean and disinfect all reusable equipment after use.

- A JSW is "in taking"/"logging" a client who begins to struggle and resist. The client suddenly turns and spits in their eye. The worker should be:
  - be confident and comfortable regarding their safety from hepatitis B virus because they have ensured all immunizations are up to date, including hepatitis B vaccine,
  - flushing their eye thoroughly to ensure no bacterial contaminants from the spit remain on mucous membranes,
  - obtaining medical aid as required.

PHASE 3 – Strategic Action

From the information collected in the situational assessment phase of the PPS (described above), the ESW or JSW will select the most appropriate actionable steps to protect themselves from exposure to communicable disease. The strategic action phase is both linear and fluid, allowing the ESW/JSW to move "up" and "down" the steps as required to maximize their self-protection.

Examples:

- An immunized police officer, firefighter, paramedic, or JSW provides care to a client who has symptoms of an acute respiratory infection (ARI). They move through the PPS model by:

    - controlling their LDPI (described below) by maintaining a two metre distance and asking the client about signs and/or symptoms of an ARI before approaching,
    - selecting appropriate PPE such as eye protection and N95 respirator or mask, as per service protocol, to protect against droplet transmission,
    - performing hand hygiene before and after client care,
    - cleaning and disinfecting all their reusable equipment after use.

Personal Protective Equipment (PPE)

PPE is useless unless it is available, functioning, easily accessible and worn properly. Each ESW and JSW should ensure that they wear personal-issue PPE and that other PPE is available to them to use when warranted by the situational assessment. Each service (police, fire, paramedic and justice services) provides their workers with different PPE, since each service performs different duties, roles and functions in the medical and judicial continuums of care.

It is the personal responsibility of the ESW and JSW to know and understand how and when to use each piece of PPE per the policies and procedures of their service (see chapter on PPE for more information).

Location, Duration, Proximity & Interaction (LDPI)

The effective management of LDPI is an important principle in IPAC. This section offers direction on what available options an ESW or JSW has to choose from when interacting with clients in various situations. In some instances, when there is discretionary time, the ESW/JSW will have more capacity to manipulate the LDPI than in those involving non-discretionary time.

Location

- Refers to the place where the interaction with the client is occurring. In some instances in firefighter, paramedic and JSW work environments, this will be difficult to control due to the nature of the job.

- The ESW/JSW should change closed and confined spaces to open, well-ventilated areas whenever possible or increase space between worker and client.

Examples:

- a police officer moves a cooperative client exhibiting symptoms of a respiratory illness from a cramped, stuffy basement apartment to outside the building before beginning their interview;

- a firefighter helps move a patient from a small bathroom into the larger bedroom to help minimize unnecessary skin-to-skin contact;

- a paramedic decides to complete their patient assessment in the back of the ambulance as the patient's residence is heavily contaminated with animal feces;

- a JSW is interviewing an inmate in a small office and the inmate begins coughing and complains of feeling unwell. The JSW discontinues the interview and refers the client to health care for assessment.

Duration

- Refers to the length of time spent with the client. In some instances in firefighter and paramedic work environments, this will be difficult to control due to the nature of the job.

- Minimize the duration of time spent with a client exhibiting signs and symptoms of a communicable disease whenever possible.

Example:

- A police officer is about to take a statement from a witness in the witness' small apartment. The witness has a deep pronounced cough. Instead of taking a lengthy statement, the officer collects the pertinent information out in the hallway and schedules to meet the witness for an in-depth interview at a later date.

Proximity

- Refers to the physical distance maintained between the ESW/JSW and the client.

- Proximity of no less than two metres should be attempted for any client with signs and symptoms of ARI until PPE is put on.

Examples:

- A police officer recognizes that the victim they are interviewing is showing signs and symptoms of an ARI, and they choose to maintain a two metre distance from the victim while taking the statement.

- A firefighter crew sends in only one member to assess a patient in order to minimize risk to the whole crew.

- A paramedic asks a patient if he has had a “new or worsening cough and/or a fever, or any nausea, vomiting or diarrhea,” from a distance of at least two metres before approaching to continue their medical assessment.

- A JSW puts on a mask when walking with a client exhibiting signs and symptoms of an ARI when escorting the client to the health care unit.

Interaction

- Refers to the type of contact between ESWs, JSWs and their clients.

- Controlling and managing the types of interactions performed with clients to minimize contact that might cause exposure to communicable disease.

Examples:

- A police officer or a JSW makes a deliberate attempt to de-escalate and control a non-cooperative client who is bleeding from the nose through use of tactical communication to avoid engaging use of force options that would require close contact.

- A firefighter carefully observes the area around a patient for broken glass before kneeling to perform an assessment of the patient.

- A paramedic takes appropriate care and attention with the epi-pen they take from a patient to ensure they don’t receive a sharps injury.

Limitations due to the necessity of certain client interactions may make it difficult for ESWs and JSWs to control the LDPI. In some instances, one group of ESWs or JSWs may be in a position to maintain a safe distance while performing their required functions, while others may not, such as police acting as crowd-control at a MVC while paramedics and firefighters render care. ESWs and JSWs should always be aware of the LDPI in their everyday work environments and their power to manipulate it to their advantage in creating and promoting a safe work environment whenever possible.

Cleaning & Disinfection

Cleaning and disinfection is the process of cleaning any visible dirt and/or soiling off of reusable equipment, rendering it safe for handling, followed by disinfecting the equipment to ensure that any infectious agents on the surface are killed, thereby preventing their transmission to another worker or to a client. Cleaning must be performed consistently and well in order to ensure disinfection can take place. Each ESW/JSW should check the policies and procedures of their organization and manufacturers' instructions to ensure they are using the supplied cleaner/disinfectant properly. (See chapter on Cleaning, Disinfection and Sterilization for more information.)

Examples:

- A police officer touches their radio with bloody medical gloves after a violent altercation with a client. They should:
    - take off the medical gloves, perform hand hygiene, and put on new gloves,
    - wipe down the radio once with the supplied disinfectant wipes to clean the radio,
    - wipe down the radio again with a new disinfectant wipe to disinfect it,
    - remove gloves and perform hand hygiene with either ABHR or soap and water before continuing work.

- A firefighter uses their pulse oximetre on the finger of a patient. After the paramedics take over care they should:
    - take off medical gloves, perform hand hygiene and put on new gloves,
    - observe the pulse oximetre both inside and out to see if there is visible dirt,
    - if there is no visible dirt, they should wipe down the pulse oximetre once with the supplied disinfectant wipes to clean and disinfect the pulse oximetre in one step,
    - remove gloves and perform hand hygiene with either ABHR or soap and water before continuing work.

- A paramedic has just taken over use of the ambulance for the day shift. They should:
    - perform hand hygiene and put on clean medical gloves,
    - wipe down the high-touch surfaces on the inside of the cab and back of the ambulance with the supplied disinfectant wipes,
    - remove gloves and perform hand hygiene with either ABHR or soap and water before beginning work.

- A JSW is taking over duties from a colleague, including using a communal desk-top computer. They should:
    - wipe down the keyboard, mouse, telephone and other high-touch areas of the workspace with supplied disinfectant wipes,
    - perform hand hygiene with either ABHR or soap and water before beginning work.

The Personal Protection Strategy (PPS)

Model for Infection Prevention & Control

The PPS model is designed to be an effective educational tool to assist police, fire, paramedics and JSWs in protecting themselves from communicable disease that may exist in their shared client base and overlapping work environments.

The PPS model is an interactive, fluid and dynamic system to enable ESWs and JSWs to conceptualize protective IPAC strategies they can adopt while engaging their work environments. Consistent use of the PPS is the most important step ESWs and JSWs can take to protect themselves, their families, friends, co-workers and communities from communicable disease.

Ensuring proper immunization against vaccine-preventable diseases, caring for skin on hands and performing hand hygiene regularly, using issued PPE, being mindful of their location, duration, proximity and interaction while with others, as well as routinely cleaning and disinfecting all reusable equipment, will help ensure a work environment with reduced risk from communicable disease.

There is a significant onus of moral and ethical responsibility involved in practicing safe and responsible IPAC strategies that sits squarely on the shoulders of each and every ESW and JSW in everything they do. Whether you are a police officer, firefighter, paramedic, correctional officer or youth justice worker, the key to infection control is you.

6

IMMUNIZATION

Immunization

- **Immunization protects the worker from severe illness or death from vaccine-preventable diseases (VPD).**
- **If the worker is unsure of their vaccination status, they can ask their health care provider to order a blood test that will determine immunity to vaccine-preventable diseases.**
- **Immunization is an extremely safe and effective way to become immune to a communicable disease without becoming infected from the disease itself.**

Due to the nature of their jobs, ESW,JSW, and students training for these jobs are at risk of exposure to communicable diseases. ESWs and JSWs have a responsibility to be immunized against communicable disease both to protect their own health, that of their family and co-workers, and the health of their clients, who may otherwise be exposed to vaccine-preventable diseases carried by the worker. Immunization protects the worker from severe illness or death. Paramedics are required to be immunized and maintain their immunization under the Ambulance Act; however, other workers are not. It is strongly recommended that police officers, firefighters, and JSWs are immunized.

The immunization recommendations for emergency and JSWs are the same as the immunization recommendations provided to health care workers. These recommendations are available through the National Advisory Committee on Immunization website. The recommendations include: measles, mumps, rubella, diphtheria, tetanus, polio and pertussis and chickenpox (varicella) if the worker has no prior immunization or medical history. Hepatitis B vaccine and annual immunization against influenza is also highly recommended.

Each service may require that workers be immunized against identified diseases or require proof of immunity be provided. Proof of immunity may consist of laboratory documentation of immunity or a medically documented history of prior disease. Immunization is not required if there is proof of a serious allergic reaction to either immunization or the components of the vaccine.

For paramedics, health care provider or laboratory documentation is required for measles, chicken pox and hepatitis B vaccination.

If you are unsure of your immunization status, a simple blood test may be arranged through your health care provider. The blood test will show what antibodies (protection) you may already have to vaccine-preventable diseases through either prior exposure or previous immunization.

The Immunization Strategy in Canada

The National Advisory Committee on Immunization (NACI) provides the Public Health Agency of Canada with ongoing and timely medical, scientific and public health advice relating to immunization. NACI is an independent committee made up of recognized experts in the fields of paediatrics, infectious diseases, immunology, medical microbiology, internal medicine, and public health. They are responsible for the creation of The Canadian Immunization Guide. The goal of NACI is the elimination of vaccine-preventable diseases in Canada and worldwide, such as the eradication of smallpox in 1977.

Each province and territory is responsible for the development of their own publicly funded immunization programs. NACI's recommendations are used to develop these programs and schedules for both children and adults.

Immunization protects individuals and communities by preventing the spread of disease. As more people are immunized, the disease risk for everyone is reduced. Vaccines are highly regulated, complex biologic products designed to induce a protective immune response both effectively and safely.

Documentation

It is your responsibility to keep a personal record of the immunizations you have had in your lifetime.

- **Keep it in a safe place with your other personal medical information.**
- **Bring it with you each time you are immunized so it can be updated.**

If You Do Not Know Your Immunization Status, You Can:

- check with your health care provider who may have a record in your file,

- check with the local public health unit where you were immunized as a child. All public health units maintain a registry of childhood immunizations for their area,

- check with your employer. Some employers keep proof of immunization.

If you cannot locate any record of immunization, you may ask your health care provider to order a blood test that will determine your immunity to vaccine-preventable diseases. Depending on the results of the test, it may be necessary to repeat some immunizations to ensure that you are fully protected.

How Immunization Works

When you are infected with a disease, two events start to occur simultaneously.

1. **Your immune system identifies the foreign invader, called an antigen and starts creating specialized cells, called antibodies, to fight the antigen.**
2. **The infectious agent (bacteria or virus) is busy using your body to grow, which damages your tissues.**

The battle between the bacteria or virus and your immune system and the destruction caused by the bacteria or virus and your body's immune response is what makes you look and feel sick.

Immunization allows your immune system to create antibodies against the infectious agent without you becoming sick. Since the bacteria and viruses are either severely weakened or killed in the vaccine, they are unable to grow in your body and cause illness.

Immunization is an extremely safe and effective way to become immune to a communicable disease without becoming sick from the disease itself.

Immunization works at two levels. It protects the individual who receives the vaccine from the specific disease and, when large numbers of people are immunized, it lowers the amount of that disease in the community so that even non-vaccinated people are protected. Being vaccinated therefore, protects you, your co-workers, your family, your clients and your entire community.

Immunity

The immune system helps protect the body against infection by making disease fighting antibodies.

The immune system may take several days or longer to respond to an invading infectious agent and create an antibody the first time it enters the body. However, after either exposure or vaccination, the immune system will recognize the virus or bacteria (the antigen) and respond much more quickly and powerfully the second time it is exposed.

Antibodies target specific diseases, and antibodies against one disease will not work against others. This is why it is important to receive immunization against all vaccine-preventable diseases to ensure you have maximal protection. There is no limit of the number of diseases your immune system can protect you against.

The length of time the vaccine protects the body varies with different vaccines. This is why some vaccines are given more than once or require regular boosters to maintain protection.

Immunization for all Adults

Immunization is the best protective strategy against VPDs. It is a lifelong process of preventing infection and disease.

Certain childhood immunizations, such as tetanus (lockjaw), pertussis (whooping cough) and diphtheria, will require booster shots. Others, such as measles, mumps and rubella, are only required in childhood and are not given again unless a childhood dose was missed.

Adults who did not receive all the necessary vaccinations when they were children may be at risk of infection from other vaccine-preventable diseases.

If you were born outside of Canada, you:

- may be lacking adequate immunization,
- may not have immunity to diseases such as chickenpox,
- may not have a reliable immunization record.

The immigration medical examination does not routinely include a review of immunization status or serologic testing, which means that you, or a family member, might be vulnerable to vaccine-preventable diseases. If you don't know your immunization status, check with your health care professional.

There are also a number of vaccines that all adults (≥ 18 years) require, either as a booster shot (such as tetanus) or because the risk from that disease increases with age (such as pneumococcal).There are also other vaccines that you may require depending on your occupation, travel plans or travel history, your underlying medical conditions and your lifestyle. Health care providers and those in high-risk professions, such as JSWs, also require certain immunizations to ensure they are fully protected. These include hepatitis B and annual immunization against influenza.

All adults should be immunized against diphtheria, tetanus, pertussis (whooping cough), measles, mumps and rubella. They should also be immunized against chickenpox (varicella) if they have no previous history of the disease.

All Canadian adults require maintenance of immunity to tetanus and diphtheria, preferably with combined (Td) toxoid and a single dose of acellular pertussis vaccine. This is because it is now known that immunity to pertussis (whooping cough) wanes by early adulthood and requires a booster to maintain protective levels of antibodies.

Canadian Adult Immunization Schedule

VACCINE	DOSING SCHEDULE (No Record or Unclear History of Immunization)	BOOSTER SCHEDULE (Primary series has been completed)
Diphtheria is given as Td; and *Pertussis* is given as Acellular *Pertussis* vaccine (Tdap)	Doses 1 & 2, 4-8 weeks apart and dose 3 at 6-12 months later; one of the doses should be given as Tdap for Pertussis (whooping cough) protection	Td every 10 years; 1 dose should be given as Tdap for *Pertussis* (whooping cough) protection if not previously given in adulthood
Influenza	1 Dose every year at the beginning of Influenza Season	Annual immunization recommended
Measles, Mumps & Rubella Given as MMR	1 Dose for adults born in or after 1970 without a history of Measles, A second dose is required for selected individuals, such as those working in health care	Not required if immune Third dose may be necessary for certain individuals.
Polio	Doses 1 and 2 at 4-8 weeks apart and Dose 3 at 6-12 months later for susceptible adults with no prior history of Polio exposure	Not routinely required
Pneumococcal	1 Dose at > 65 Years of Age	Not currently recommended
Varicella (Chickenpox)	Doses 1 & 2, at least 4 weeks apart for susceptible adults (no history of natural disease or seronegativity)	Not currently recommended

An Overview of Vaccines and the Diseases They Prevent

Diphtheria

- Diphtheria is a contagious bacterial disease that causes a thick coating at the back of the throat, and can lead to severe breathing problems, heart failure and nerve damage. Five to 10% of those sick from diphtheria will die. Immunization has greatly decreased the incidence of this disease but it remains essential to keep diphtheria under control. Serious outbreaks of diphtheria have occurred in countries where immunization programs lapsed or were interrupted. After the breakdown of the infrastructure of the former Soviet Union in 1989, rates of immunization dropped in that population, which caused an outbreak of diphtheria. By 1999 approximately 150,000 people had been infected, and 5,000 died.

- Workers may be exposed to clients returning from or emigrating from geographic areas in which diphtheria outbreaks are occurring. Ensuring your immunity against diphtheria is therefore strongly advised.

Diphtheria & Tetanus

- Adults need a tetanus-diphtheria booster shot every 10 years. The vaccines against diphtheria and tetanus are combined into one shot.

Hepatitis B

- The vaccine to protect against this serious viral disease of the liver is now included in publicly funded immunizations for all children and adolescents in Canada.

- Immunization with hepatitis B vaccine is recommended for people who are at an increased risk of occupational exposures to blood, blood products and body fluids or who may be at an increased risk of sharps injury, bites or penetrating injuries from people who may be infected with hepatitis B virus. Hepatitis B is found in all blood and body fluids, including saliva. The risk of infection after exposure to hepatitis B can be as high as 30%. Approximately 0.5% of adults in North America are infected with HBV. One out of every 100 people infected with hepatitis B will die from the disease.

- Immunization against hepatitis B requires two or three doses as directed by the Publicly Funded Immunization Schedule for Ontario. Unimmunized adults should receive one 1-mL dose initially, which is repeated again at one and six months. You should be checked for antibodies to hepatitis B between one and six months after your final dose. If you are found to have antibodies against hepatitis B at that time, you are considered immune for life.

Influenza – (The Flu)

- The flu is a serious respiratory disease, especially for older adults and anyone with certain medical conditions that may leave them vulnerable to complications from influenza, which may include pneumonia, worsening of heart conditions or encephalitis. The flu should not be confused with the “common cold,” which is a less serious disease and for which there is no vaccine. Annually, influenza kills approximately 500,000 people worldwide, about 5,000 of them in Canada.

- All adults should receive influenza vaccine each year, especially those over the age of 65, under the age of two, pregnant women, and adults who have underlying medical conditions, such as heart disease, diabetes, or conditions that affect the lungs, liver or kidneys. Influenza is transmitted through droplet and contact transmission and is highly contagious. As people are contagious 24 hours before symptoms develop, it is very possible to pass influenza on to vulnerable clients without realizing you are even getting sick.

- In Ontario, influenza vaccination is available for free. A new dose is needed each year, as the influenza virus mutates from one year to the next, making the antibodies created from previous vaccines ineffective, and antibodies created from previous immunization wane to below protective levels in approximately 12 months. Influenza vaccine is created with dead virus. Therefore you cannot catch the flu from the vaccine.

- Immunization is one of the foundations of the PPS and one of the most powerful steps you can take to protect your health.

Measles

- Adults born prior to 1970 can be assumed to have acquired natural immunity to measles. Adults born after 1970 who have not already had measles disease (acquired natural immunity) or measles vaccine, require measles vaccination. A second dose of MMR was included in the vaccination schedule for children after 1995. It is recommended that adults who are in high-risk occupations, such as health care, and did not receive a second dose of measles vaccination do so as soon as possible.

- Measles is a very contagious viral illness. It is transmitted through both airborne and droplet transmission, and if you are not vaccinated, you have a 90% chance of becoming infected with measles after only five minutes of exposure. Measles usually causes a rash and fever but can also lead to pneumonia or a serious brain infection called encephalitis, resulting in deafness, blindness or even death. Most North American cases are travel-related as measles is endemic in a majority of countries, including the United Kingdom. Three out of every 1,000 cases of measles in North America will suffer severe complications and die. Worldwide, nearly 1 million people die from measles every year. According to the World Health Organization (WHO) , there were approximately 267,000 measles cases worldwide in 2014, down from 1,982,355 in 1980.

- The measles vaccine is given in combination with mumps, and rubella in the MMR vaccine. All health care workers are required to have two doses of MMR or proven evidence of immunity.

Measles, Mumps & Rubella – (MMR Vaccine)

- Combined measles, mumps, rubella vaccine (MMR) is preferred for vaccination of people not previously immunized against one or more of these viruses. Immunization with MMR provides long-lasting protection against all three diseases and is not harmful to persons already immune against one or more of its components.

Mumps

- Workers can generally be presumed to be immune to mumps if they have documented evidence of vaccination on or after their first birthday, laboratory evidence of immunity, a history of laboratory-confirmed mumps disease, or if they were born in Canada before 1970.

- Mumps is an acute viral disease characterized by fever and swelling and tenderness of one or more salivary glands. Mumps infection during the first trimester of pregnancy may increase the rate of miscarriage. Before routine vaccination against mumps, it was the leading cause of encephalitis-induced deafness in North America.

Pertussis

- Pertussis, also known as whooping cough, is a highly contagious infection of the respiratory tract. While people at any age can be affected, infected infants have the most severe disease. The initial pertussis illness causes a runny nose and irritating but mild cough. The cough then worsens, becoming severe and spasmodic over the next one to two weeks, and can last upwards of two to three months. The coughing comes in violent, uncontrollable fits called paroxysm. These paroxysms cause the afflicted person to cough so frequently and rapidly that it becomes difficult to inhale in-between coughing. This results in the

characteristic high-pitched ‘whooping’ sound as the afflicted person sucks in a breath after a paroxysm.

- This is difficult for children and adults, but the violence of the coughing and the inability to breath effectively can be deadly for infants who are too young to have been vaccinated. Approximately 200,000 infants and young children die every year from pertussis world-wide.

- Pertussis is spread through contagious respiratory secretions, especially within the first two weeks of illness, gradually dying down until by the end of the third week, it is no longer contagious. However the respiratory symptoms can last for months longer. Non-immunized people are universally vulnerable to pertussis, with infants being the most susceptible. Secondary attack rates of communicability in unimmunized households can be as high as 90%.

- Protection from pertussis vaccination wanes by early adulthood. All adults therefore require a second dose of pertussis vaccine given with their booster dose of tetanus.

Polio

- People without polio immunization or with unknown polio immunization history should receive two doses of inactivated polio virus (IPV), given four to eight weeks apart, with a third dose six to 12 months later.

- Poliomyelitis is a highly contagious viral disease that can cause irreversible paralysis and even death. Due to massive global efforts at eradication, there were only 359 reported cases in 2014 according to the WHO. However, two countries remain polio-endemic (Afghanistan and Pakistan) which, without complete eradication, children in all countries are at risk for contracting polio. As with all vaccine-preventable diseases, it is extremely important to ensure you are vaccinated against polio if your status is unknown.

Rubella – (German Measles)

- Rubella is rarely a serious disease for adults but it causes birth defects if a woman gets rubella in early pregnancy. There is an extremely high chance her baby will be born with blindness, deafness, heart disease, intellectual disability and physical malformations. All women of child-bearing age and all workers should get the rubella vaccine if they are not previously vaccinated or already immune. There are at least 200,000 cases of rubella worldwide annually, but this number is probably grossly underreported due to poor surveillance.

Tetanus

- Tetanus (lockjaw) is caused by bacteria that live throughout the environment, particularly in soil. It causes extremely painful, unrelenting muscle contractions that can cause permanent damage. Infection occurs when a victim receives an injury that breaks the skin in any dirty or dusty environment, allowing the tetanus bacterial spore to enter into the wound. Even minor wounds can cause tetanus infections. Even with medical support in hospital, three out of 10 victims will die. Every adult needs to be vaccinated against tetanus because infection with tetanus causes severe illness but does not result in immunity. Approximately 300,000 people die every year from tetanus worldwide.

Varicella – (Chickenpox)

- Any adult who has never had chickenpox should consider getting this vaccine.

- Compared to children, complications from chickenpox are more common and often more serious for adult who catch the disease. Chickenpox is a highly contagious virus that spreads through airborne and droplet transmission as well as contact transmission from the exudates from the chickenpox rash. Based on studies of transmission among household members, about 90% of susceptible close contacts will get varicella after exposure to persons with disease. One in every 5,000 adults who become sick with chickenpox will die.

- Besides ensuring you are protected against chickenpox, it is also important to be immune to chickenpox to avoid transmitting it to other, more vulnerable people. Adults who are particularly susceptible to chickenpox include:

    - women of child-bearing age: becoming infected with chickenpox while pregnant will result in malformations of the baby in three per cent of cases. Babies born to mothers who are sick with chickenpox from five days before birth to two days, after have a 30% chance of dying from chickenpox themselves;- people who have weakened immune systems, such as those undergoing chemotherapy, are far more likely to develop chickenpox pneumonia or encephalitis, secondary bacterial infections, or cases of chickenpox severe enough to cause death;

    - children under five years or over nine, as they are more likely to suffer from severe forms of the disease; and

    - people coming to Canada from tropical climates where chickenpox is much less common compared their risk from death due to chickenpox is much higher.

- While not 100% protective against getting chickenpox entirely, immunization is highly protective against severe or even deadly forms of the disease.

7

HAND HYGIENE

HAND HYGIENE

- **Hand hygiene includes using alcohol-based hand rub (ABHR) or soap and water to clean hands.**
- **Using moisturizer and bandages to protect skin is an important component of hand care that supports hand hygiene.**
- **Hand hygiene must be performed frequently, covering all surfaces of the hands with ABHR or soap lather for at least 15 seconds to be effective in preventing the spread of disease.**
- **Hand hygiene must be performed before and after putting on medical gloves and/or other PPE.**
- **Hand hygiene is a foundation of the Personal Protection Strategy model.**

Hand hygiene is the most important and effective method of preventing the transmission of communicable diseases person-to-person. Hand hygiene, along with immunization, is the foundation of the Personal Protection Strategy.

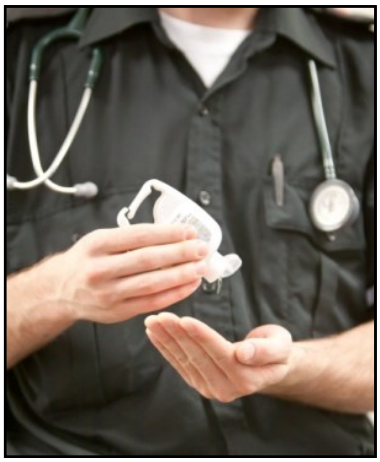
While performing activities of daily living, infectious agents, such as bacteria and viruses are picked up from the environment by the hands. These transient infectious agents can then be easily transferred to objects, other people, or non-intact skin (touching an open wound) or mucous membranes (through touching the eyes, mouth or nose). Once transient infectious agents have been given access through non-intact skin or mucous membranes, they are then capable of causing illness or infection (see chapter on Modes of Disease Transmission for more information).

According to Zoutman et al. (2003), 8,000 Canadians die every year from infections acquired in hospitals from the dirty hands of health care workers.

Hand hygiene is the process of cleaning dirt and removing or killing of infectious agents off your hands. Hand care, which involves ensuring the skin on your hands is kept protected and remains intact, is also equally as important as hand hygiene, as skin that is dry, cracked or affected by rashes can be painful to clean and act as a portal of entry for disease. There are two methods of hand hygiene: Alcohol-Based Hand Rub, and soap and water.

Alcohol-Based Hand Rub (ABHR)

ABHRs are liquid, gel or foam products containing a form of ethanol or isopropyl alcohol mixed with water. The alcohol in the ABHR kills transient infectious agents by denaturing the proteins that make up the structure of the bacteria or viruses. Proper use of ABHR will kill 99.9% of all infectious agents on the surface of the hands within 15 seconds.



While ABHRs with alcohol concentrations of at least 62% are effective in killing transient bacteria and viruses, Health Canada recommends ABHR containing 70%. Seventy per cent alcohol is the minimum concentration required to kill noroviruses, which cause illnesses defined by severe nausea, vomiting and diarrhea. Concentrations above 90% do not have enough water content to effectively kill infectious agents. Emergency and justice service organizations should only purchase ABHR with a Drug IdentificationNumber (DIN) or Natural Product Number (NPN) received from Health Canada.

ABHR is considered the most effective method for hand hygiene that are not visibly soiled and should be used preferentially by emergency and JSWs.

Hand Hygiene Technique using ABHR:

- Hands must be visibly clean for ABHR to be effective. ABHR cannot penetrate blood to kill the infectious agent.

- If hands are visibly soiled and soap and running water is not available, a moist towelette should be used to remove dirt from hands before using ABHR.

- If hands are visibly soiled and the worker is in the field and there is neither running water nor towelettes, ABHR should be used on hands as a stop-gap measure. Hands should be washed with soap and water as soon as possible.

- Ensure any jewellery, watches and clothing are not acting as impediments to hand hygiene. Remove hand jewellery and move watches further up the forearm. Roll up sleeves if they extend to the wrist.

- Put enough ABHR into palm to completely cover both your hands (which is an amount about the size of a quarter or a loonie depending on hand size).

- Spread ABHR over the entire surface of both hands, paying special attention to in-between fingers, backs of hands, wrists and base of thumbs.

- Clean under fingernails by “rubbing” nails against the palm of the other hand to force ABHR underneath.

- Clean nail-beds by “swirling” the backs of fingernails against the palm of the other hand.

- Continue rubbing ABHR all over surface of hands until it is completely dry. This takes approximately 15 seconds. Rubbing until ABHR is dry ensures maximum kill of infectious agents.

- ABHR is potentially flammable when wet. Ensure hands are dry before manipulating any open flame, such as lighting a cigarette.

- Do not use ABHR immediately after washing hands with soap and water as it could increase skin drying and irritation.

- The alcohol in ABHR is not absorbed through the skin. The Muslim Scholar Board of the World Muslim League has declared that alcohol may be used externally to kill infectious agents.

Soap and Water

Soap and water should be used when hands are visibly soiled. Soap and water is not as effective as ABHR.

Soap and water work together to clean hands by breaking up the fats and oils naturally present on skin. This causes the fats and oils, and the transient bacteria and viruses that have stuck to those oils, to lift off the surface of the hands and be washed away while rinsing. Bacteria and viruses are not killed by soap and water, but merely removed from the surface of the hands. It takes at least 15 seconds of lathering with soap and water to remove enough transient infectious agents for hands to be considered clean.

Because soap and water removes the natural oils present on your hands, soap and water washing is more drying and potentially more irritating to skin than ABHR. It is important therefore to engage in frequent hand care by the routine use of moisturizers whenever soap and water washing is performed.

Liquid and foam soaps from non-refillable containers are the recommended soap delivery system for work environments. Bar soap, and containers that are ”topped-up” or refilled should not be used because they can easily become breeding grounds for bacteria, causing your hands to be contaminated with infectious agents when they are washed instead of being cleaned.

Soaps used should be unscented, non-drying, non-irritating and compatible with the medical gloves used by your organization so that the material of the gloves won’t be broken down.

Antimicrobial/antibacterial soaps (soaps containing agents that kill bacteria) are only recommended for hospitals, and specifically for areas where health care workers care for patients who are highly vulnerable to infection, such as Intensive Care Units, nurseries or operating rooms. Antimicrobial soaps are not recommended for other work environments as:

- They are harsher on skin resulting in skin breakdown, and since broken skin is painful to wash, people tend to stop washing their hands.

- They require at least 30 seconds of washing for the antimicrobial agent to kill transient bacteria and viruses. The majority of people do not wash their hands for 30 seconds.

- Using antimicrobial soaps for less than 30 seconds per wash can actually encourage antimicrobial resistance to develop in infectious agents, as those that are not killed can mutate against the antimicrobial properties in the soap, making future use of antimicrobial soap less effective.

- The most common chemicals used in non-hospital grade antimicrobial soaps are extremely detrimental to the environment.

Hand Hygiene Technique using Soap and Water:

- Ensure any jewellery, watches and clothing are not acting as impediments to hand hygiene. Remove hand jewellery and move watches further up the forearm. Roll up sleeves if they extend to the wrist.

- Turn on taps to a temperature that is comfortably warm. Water that is too cold or too hot may irritate or dry the skin on your hands. Water should be left running for the entire time hands are being washed.

- Wet hands and put enough liquid or foam soap onto palm to completely cover both your hands. This is an amount about the size of a quarter or a loonie depending on the size of the hand. Hands must be made wet before soap is used; otherwise soap may stick to hands and can cause irritation.

- Vigorously lather all surfaces of both hands, paying special attention to in-between fingers, backs of hands, wrists and base of thumbs.

- Clean under fingernails by “rubbing” nails against the palm of the other hand to force lather underneath.

- Clean nail-beds by “swirling” the backs of fingernails against the palm of the other hand.

- Continue lathering both hands for at least 15 seconds to ensure all transient infectious agents are completely removed.

- Rinse hands thoroughly under running water. Soap that is left on hands can be drying and irritating to skin.

- If taps are a lever design and can be turned off with forearm or elbow, turn off taps as soon as hands have been thoroughly rinsed, otherwise leave taps running.

- Dry hands with paper towel or a clean cloth towel that is personal issue and one-use-only before being laundered. Cloth towels should never be used by more than one person in the work environment and should be laundered after every use. Wet towels are an excellent breeding ground for bacteria, causing hands to become contaminated while they are being dried.

- Dry hands gently to prevent irritation.

- If taps are still running, turn off taps with paper towel or cloth towel. This prevents hands from being re-contaminated by touching the dirty taps.

- If the exit is through a doorway, paper towels or cloth towels should be used to open the door to prevent hands from becoming re-contaminated by touching a dirty door handle.

- Put cloth towel into laundry or throw paper towel away.

- Do not use ABHR immediately after washing hands with soap and water as it could increase skin drying and irritation.

The 4 Moments for Hand Hygiene

The MOHLTC created the Just Clean Your Hands (JCYH) program in 2006 as a way to improve hand hygiene compliance in acute and long-term care settings. This initiative was developed to respond to studies demonstrating that most health care providers in Ontario comply with hand hygiene less than 32% of the time.

In order to help improve hand hygiene compliance, the JCYH program focuses on ways to reduce the barriers that prevent health care providers from performing proper hand hygiene.

The 4 Moments for Hand Hygiene were created as a way to help health care workers better understand when hand hygiene should be performed. The four moments include:

- before initial client contact or contact with the client's environment,
- before aseptic procedures,
- after confirmed or potential exposure to blood or body fluid,
- after contact with the client and/or the client's environment.

Even though the four moments were developed for acute and long-term care, they are readily adaptable to the pre-hospital care setting. The following list is a comprehensive guide as to when the ESW or JSW should clean their hands.

When You Should Perform Hand Hygiene:

- before client contact, or contact with the client's environment (moment 1),
- before putting on medical gloves,
- before putting on other PPE, such as a respirator and/or eye protection,
- before and after invasive procedures on a client, such as intubation or starting an IV (moment 2),
- after blood or body fluid risk exposure (moment 3),
- on the way out of a client's room/hospital ward/emergency department. ABHR is usually mounted near all hospital rooms and entrances (moment 4),
- after removing medical gloves or after removing medical gloves and gown,
- after removing eye protection and mask or respirator,
- after searching a client, or handling items belonging to a client or used on a client, such as handcuffs or reusable medical equipment,
- after vehicle and equipment check,
- after cleaning equipment/vehicle,

- before entering and leaving a hospital, long-term care facility, retirement home, shelter, private building or residence,
- before entering vehicle (fire engine, police cruiser, ambulance, court transfer wagon),
- upon re-entry into station,
- before touching your unprotected mucous membranes or non-intact skin,
- before and after preparing food and/or eating,
- before and after smoking,
- after using the bathroom or other personal body functions such as sneezing, coughing into hands and blowing the nose,
- any time hands have visible dirt on them,
- before and after shift,
- any time there is no recall of the last time hands were cleaned or washed.

Hand Care

Healthy skin provides a very effective barrier against infection. Frequent hand washing and cleaning and colder weather may result in increased dryness, chapping, cracking, or irritation of the skin.

After performing hand hygiene, you should protect your skin by applying a moisturizer as soon as possible. Moisturizers should be unscented, non-irritating and compatible with ABHR and medical gloves used by your organization.

As well, hands should be routinely inspected for non-intact skin. Non-intact skin, such as cuts, sores, scrapes, scratches and/or abrasions should be covered with a water-resistant dressing prior to starting work. Any compromise to the skin is a portal of entry for communicable diseases and could place the worker at risk for exposure and possible infection.

Best Practices for Hand Hygiene:

- excessive jewellery on hands and wrists should be removed as they will impede proper hand hygiene techniques. A smooth wedding band is acceptable to wear,
- watches must be moved up the forearm before hand hygiene is performed,
- artificial nails must never be worn. Infectious agents accumulate underneath artificial nails, increasing risk of infection to the worker and others,
- nail polish should not be worn by ESWs who engage in medical care as part of their daily work. If nails are painted, they should be inspected daily to ensure no chipping or flaking has occurred, as these areas can harbour infectious agents and increase the risk of infection to the worker and others,
- don't bite or tear at nails or the skin around your nails (cuticles), as this creates areas of non-intact skin that can be a portal of entry to infectious agents. As well, injured skin stings when washed or cleaned with ABHR, which might prevent the performance of hand hygiene,
- avoid touching the mucous membranes of the eyes, nose and mouth or any non-intact skin before performing hand hygiene to help prevent accidental self-infection.

Performing hand hygiene is one of the most effective ways you can keep your clients, your family, your colleagues and yourself safe from communicable diseases. All emergency service and JSWs in Simcoe Muskoka have access to ABHR and soap and water. Make sure you routinely clean your hands before and after every client contact, every time.

8

PERSONAL PROTECTIVE EQUIPMENT

PERSONAL PROTECTIVE EQUIPMENT – (PPE)

- **PPE is designed to create a barrier between the worker and hazards in the environment.**
- **PPE should be put on as close to point-of-care as possible.**
- **It must be chosen based on a critical assessment of the potential and actual risks of communicable disease exposure present in the situation.**
- **PPE must be put on and taken off in the correct order to ensure minimal risk of incorrect wear and accidental self-contamination.**
- **PPE must always be worn correctly and be in good working order as per manufacturer's instructions.**
- **Reusable PPE, such as some forms of eye protection and reusable (elastomeric) respirators, must be cleaned and disinfected after every use as per manufacturer's instructions.**

PPE refers to equipment worn or used to create a barrier between dangers in the environment and the worker, and is the first actionable step in the PPS. The choice of PPE is dependent on the EMS'sand JSW's assessment of the situation, the demeanour of the client, and is made with the worker's analysis of what their location, duration, proximity and interaction with the client may involve.

There are two types of PPE: Standard, which refers to PPE used for additional precautions, and Enhanced PPE, which is used when required by medical, municipal or provincial directives in response to a new or emerging virulent communicable disease of public health importance.

Standard PPE includes:

- properly fit-tested N95 or reusable (elastomeric) respirators,
- procedural or surgical masks,
- disposable medical gloves,
- protective eyewear, including goggles or face shield. This does not include prescription eyeglasses, as they do not offer adequate protection,
- disposable water resistant gowns.

Enhanced PPE may include all of the above AND:

- fluid impermeable hoods,
- face shield over eyewear and N95 respirator/procedural mask,
- fluid impermeable gowns (full body suits may also be used),
- fluid impermeable leg/foot coverings.

PPE may also include bunker gear for firefighters and One-Way Valve CPR mouth barrier masks, depending on the service.

All PPE must be inspected for tears or other damage prior to wearing. Damaged equipment must not be worn and must be discarded unless it can be properly repaired.

Factors to consider when choosing PPE:

- Ease of Use: PPE that is complicated or difficult to put on or remove easily increases the risk of self-contamination.
- Familiarity: if your workers have previously been using a certain type of PPE it will be easier for them to adapt to new PPE that is similar to what they've already used.
- Sizing: how many sizes will you need? What number of each size?
- Safety: could the PPE become hazardous for your worker? For example, hoods that are used to protect the sides of the face and the neck shouldn't be able to be used to choke the worker, and foot covers should provide traction in wet or icy conditions.
- Pre-existing Conditions: there needs to be a plan in place for those workers who may have medical issues, such as asthma, who might not be able to safely use PPE for a prolonged period of time. As well other conditions, such as pregnancy or being overweight, may make wearing of PPE more difficult and even potentially unsafe, and must be considered.
- Accessibility of Other Items: if PPE is meant to completely cover the worker, have provisions been made for them to be able to access other items? For example, how will paramedics use their stethoscopes, or how will police officers access use of force items if they're wearing gowns?
- Hydration:during major events, your workers may be required to wear PPE for prolonged periods. As PPE is hot, it can quickly increase body temperature and cause excessive sweating. Provisions need to be made to ensure workers can be cooled and rehydrated before issues develop.
- Putting PPE On & Removal: where are workers going to be putting on and removing their PPE? Is there enough space? Do they have a place to sit to safely put on and remove leg/foot covers? Where are garbage/biohazard bins and alcohol hand sanitizer/disinfectant wipes located in relation to the workers during removal?

- The ‘Buddy System’: for Enhanced PPE, using the ‘buddy system’ is strongly recommended. This is a system of having a trained observer on-scene who is there to observe the putting on and removal of PPE to ensure no breaches occur and to decrease the risk of self-contamination during the removal process. The ‘buddy’ should be extremely familiar with your services’ checklist to make certain they are aware of the steps for putting on and removal.

- Gross Contamination of PPE & Breaches: your workers must know what to do if their PPE becomes grossly contaminated and/or if it’s breached. Disinfectant wipes can be used to clean off gross contamination and trained observers can help identify breaches and ensure workers are aware of next steps if breaches are discovered.

- Training: how will your workers be trained to use the PPE? How often? A regular training schedule should be developed to ensure that workers are proficient with the putting on and removal of the chosen PPE.

- Guidance: training aids, such as checklists for putting on and removal of PPE, pictograms and videos should be considered as part of your training to help support workers in proper PPE after training is complete.

PPE Should Always Be Worn When:

- treating, transporting and/or interacting with a client with a known or suspected communicable disease,

- as required by your risk assessment using the PPS if contact with blood, body fluids, mucous membranes, and non-intact skin is likely,

- when performing high-risk medical procedures,

- cleaning the vehicle after client transport, and any equipment used with a client,

- when the worker deems it necessary after carefully assessing the environment and what their interactions with the client may involve,

- when required by medical, municipal or provincial directive.

It is important to pay close attention to the principles behind the use of PPE. The right PPE must be worn at the right time to prevent transmission of disease. This may mean that one item of PPE is chosen, such as medical gloves when touching a client with non-intact skin, or that more is required, such as when a client is exhibiting signs and symptoms of an ARI. The choice of PPE is dependent on the signs and symptoms of the client. (See section on Modes of Disease Transmission for details).

Proper removal of PPE is vital to ensure that the worker doesn’t accidentally contaminate themselves with the contaminated exterior of the PPE when it is removed. Even when not visibly soiled, the exterior of PPE should always be considered contaminated.

Respirators – N95 or Reusable (Elastomeric) Respirators

Respirators are used to prevent airborne transmission of disease.

Respirators provide protection from illnesses that can be transmitted by airborne droplet nuclei that are smaller than 5 microns. These microscopic droplets are light and may remain floating in the air for a prolonged period of time. The three diseases known to be transmitted by the airborne route are: TB, measles and chickenpox.

Dependent on the service, respirators may be issued as the PPE of choice for all suspect respiratory conditions transmitted by both airborne droplet nuclei (< 5 microns) and droplets (>5 microns).

Respirators provide protection against infection from airborne disease by preventing the infectious agent from crossing the protective barrier and being inhaled into the lungs. It protects against droplet transmitted diseases by creating a physical barrier that stops infectious agents from entering the mucous membranes of the nose and mouth.

N95 and reusable (elastomeric) respirators, if worn properly, will filter out at least 95% of airborne particles 0.3 microns (about a third of a thousandth of a millimeter) or more in size. N95 respirators will not protect the wearer against smoke or chemical inhalation.

Recognized standards require that staff must be fit-tested in order to properly wear a N95 respirator to guarantee optimum protection. Fit-testing ensures that the N95 respirator fits snugly against the skin, creating an effective seal, preventing air from entering around the edges of the respirator. As per the Canadian Standards Association Standard for the Selection, Use and Care of Respirators, CSA Z94.4-02, fit-testing must be carried out prior to the worker using the respirator, and the worker must be fit-tested at least every two years. As well, significant body changes can cause a respirator to fit improperly, therefore staff should be fit-tested again following:

- substantial (>15 lb) increase or decrease in weight,
- during the later stages of pregnancy,
- major dental work (braces, dentures),
- other facial changes due to illness or injury.

Dependent on the service, workers may be fit-tested for more than one N95 respirator to ensure respirator availability in the event the primary respirator is unavailable or out of stock.

The area where the N95 respirator seals to the face must be clean shaven. Facial hair may cause an improper seal, which can result in air leaking around the edges of the respirator. Improper fits and/or seals will allow potentially infectious air particles to bypass the filtration of the respirator and could cause infection.

Reusable (Elastomeric) Respirators:

Reusable (elastomeric) respirators may be provided by an emergency service to suit the particular needs of their front-line workers. Some emergency services are unable to properly fit-test staff members for N95 respirators, or the workers require protection against both inhaled chemicals and airborne diseases. N95 respirators will not protect the wearer against chemicals or smoke inhalation.

Reusable (elastomeric) respirators differ from N95 respirators in two key ways. Firstly, they are not disposable. Reusable respirators require cleaning and disinfection after each use. Secondly, they require replacement of the disposable filters that are placed within the canisters of the respirator to filter air before it is inhaled. These filters are specific to the type of face-plate respirator that has been issued. Manufacturer's instructions included with the respirator must be followed for putting on, removing, filter replacement, cleaning and disinfection of the respirator. Because face-plate respirators are not disposable, there is a greater risk of accidental self- or cross-contamination when removing the respirator and when it is cleaned and disinfected.

Indications for Use of an N95 or Reusable (Elastomeric) Respirator:

- if the client is known to have an illness that can be transmitted by airborne transmission, such as TB, measles or chickenpox,

- when required by a medical, provincial or service directive.

DEPENDENT ON THE SERVICE – Use Of N95 / Reusable (Elastomeric) Respirators Will Be Required When:

- the client has signs and symptoms of a fever and respiratory illness is suspected,

- the client has a new or worsening cough and the diagnosis is unknown,

- the client has a fever and a rash and chicken pox or measles is known or suspected and the worker's immunization status for those diseases is unknown,

- the client has signs and symptoms of a respiratory illness and is unable or unwilling to cover their nose and mouth when they sneeze or cough,

- treating, transporting or escorting a person with a known/suspected communicable disease that is transmitted by droplet route and a procedural mask/face shield is not available, as it provides a covering for the mucous membranes of the nose and mouth,

- treating and transporting a client with symptoms of acute respiratory infection and/or influenza-like illness,

- blood or body fluid splash is likely or expected, and a procedural mask/face shield is not available, as it provides a covering for the mucous membranes of the nose and mouth. (Protective eyewear must be worn if a face shield is not available and blood or body fluid splash/spray is likely or expected.),

- Perrforming invasive aerosol-generating medical procedures on the airway such as:
    - patients on oxygen therapies of 50% or higher.,
    - intubation (both nasal and laryngeal),
    - suctioning,
    - nebulizing therapies,
    - needle thoracotomy,
    - tracheostomy

- when required by medical, provincial or service directive.

Points for Use of N95 Respirators:

- N95 Respirators must remain dry for maximum effectiveness. If the N95 respirator becomes wet, it should be exchanged for a new one in a dry area as soon as possible,

- do not wear the respirator around the neck or on top of the head, as this can result in self-contamination,

- do not wear the respirator around the arm before use, as a proper seal cannot be maintained if respirator is bent or crushed,

- respirators should always be stored in such a way as to preserve their integrity. They must not be damp, crushed, bent or folded unless specifically designed to do so,

- do not store N95 respirators in hats or helmets. Check manufacturers' instructions,

- even if worn with no resulting client contact or obvious soiling, the outer surface of the respirators should always be considered to be contaminated. Care must be taken to prevent accidental self-contamination with the infectious agents on the exterior of the respirator both during wear and while taking it off,

- respirators must not be removed over the head as that is a risk for self-contamination,

- N95 and reusable (elastomeric) respirators must never be put on a client with a respiratory condition. Provide client with a mask, if available,

- if an N95 respirator must be worn by the worker while moving the client to the vehicle, the used N95 respirator should be removed, hand hygiene performed, and a new, unused N95 respirator should be put on before going into the cab of the vehicle (ambulance, cruiser or court transfer wagon),
    - N95 respirators are designed for single use only and must be discarded following use,
    - N95 respirators must be placed directly in a waste receptacle as soon as possible after removal,

- used PPE must never be worn in the cab of a vehicle. Never drop used PPE in the vehicle.

Masks (Surgical or Procedural)

Masks provide protection from serious illness that can be spread through droplet transmission. These diseases are transmitted by large particle droplets (> 5 microns) that are expelled by the

client through coughing and sneezing (e.g., mumps, rubella, influenza). These heavy respiratory secretions can travel up to two metres from the infected client before being pulled down by gravity.

Dependent on the service, masks may be issued as the PPE of choice for all suspect respiratory conditions transmitted by droplets (>5 microns) when working within two metres of the infected client.

Masks provide protection against infection by droplet-transmitted disease by creating a barrier that prevents infectious agents from entering the mucous membranes of the nose and mouth. Masks are worn in situations when splashes or sprays of blood and/or body fluids may be generated (most commonly during a medical procedure or when a client is spitting).

Masks are non-fitted and are secured either through tying the mask around the back of the head or by elastic loops slipped over the ears.

DEPENDENT ON THE SERVICE – Use of A Mask Will Be Required When:

- the client has signs and symptoms of a fever and respiratory illness is suspected,
- the client has a new or worsening cough and the diagnosis is unknown,
- The client has signs and symptoms of a respiratory illness and is unable or unwilling to cover their nose and mouth when they sneeze or cough,
- when transporting or escorting a person with a known/suspected communicable disease that is transmitted by the droplet transmission route,
- when treating and transporting a client with symptoms of ARI, and/or influenza-like illness,
- when blood or body fluid splash is likely or expected.

Masks may also be put on clients with respiratory symptoms, as it will prevent them from coughing and sneezing into the environment, and will not hamper their breathing.

Masks may only be used by ESWs and JSWs who will not be performing medical interventions. Interventions, such as intubation, suctioning, or nebulising therapies, can easily aerosolize large respiratory secretions and would require the use of an N95 or reusable (elastomeric) respirator.

Points for Use of a mask:

- even if worn with no resulting client contact or obvious soiling, the outer surface of the mask should always be considered to be contaminated. Care must be taken to prevent accidental self-contamination with the infectious agents on the exterior of the mask both during wear and while taking it off,

- masks must not be removed over the head, as that poses a risk of self-contamination,

- if a mask must be worn by the worker when moving the client to the vehicle, then the used mask should be removed, hand hygiene performed, and a new, unused mask should be put on before going into the cab of the vehicle (ambulance, cruiser or court transfer vehicle),

- never wear a mask on the head or around the neck, as there is a potential for self-contamination when that area is touched at a later time,

- masks are designed for single use only and are to be discarded following use,

- masks must be placed directly in a waste receptacle as soon as possible after removal,

- do not store used masks for later use,

- used PPE must never be worn in the cab of a vehicle. Never drop used PPE in the vehicle.

Medical Gloves

Medical gloves are used to protect the hands from diseases spread through contact transmission. They can be manufactured with either nitrile or latex. Nitrile gloves are recommended as they significantly reduce the risk of allergic reactions that latex may cause.

Medical gloves must be worn when hands will be in contact with mucous membranes, non-intact skin, and blood and/or body fluid (including respiratory secretions) of a client. Medical gloves should also be worn when cleaning and disinfecting equipment used with a client, such as reusable medical equipment, radios or handcuffs.

Medical gloves are not required for routine activities where contact with the client will be limited to intact skin.

Hand hygiene must always be performed before medical gloves are put on and immediately after glove removal. Gloves are not a substitute for hand hygiene. Medical gloves are single-use only and must not be worn for more than one client contact. Used medical gloves must never be worn in the cab of a vehicle.

Indications for the Use of Medical Gloves:

- routinely wear disposable gloves whenever contact with blood and/or body fluids is anticipated,
- wear when treating and/or escorting a client with symptoms of ARI and/or influenza-like illness,
- for contact with blood and/or body fluids including respiratory secretions, a client's mucous membranes, draining wounds or non-intact skin,
- when the client's skin is soiled,
- when the skin on the hands of the worker is not intact and client contact is expected.
- when performing procedures requiring aseptic technique such as starting an intravenous line or intubating a client, as these procedures also have the potential for body fluid exposure and the client will also be at risk of exposure,
- when performing invasive procedures,
- when cleaning and disinfecting the vehicle and reusable equipment following client interaction,
- during searches,
- when blood is present and the client is combative or threatening to staff, disposable gloves should always be put on as soon as conditions permit,
- when handling items that may be soiled with blood and/or body fluids,
- when handling dirty laundry, mattresses, soiled personal items or garbage.

Points for the Use of Medical Gloves:

- do not clean hands with medical gloves on. Soap and water or alcohol-based hand rubs do not properly clean medical gloves and break down the material of the medical gloves. Medical gloves are single-use only,

- change medical gloves and perform hand hygiene after invasive procedures,

- change medical gloves and perform hand hygiene between procedures on the same client and in-between checking areas on the same client (i.e. when securing the client's airway and then assessing their leg wound),

- perform hand hygiene and change medical gloves at break of client contact. This includes the driver of the vehicle when leaving the client in the back of the vehicle or in the patient care compartment,

- be aware of what is touched with medically gloved hands and be sure to clean and disinfect those surfaces, including pens, stethoscopes, pagers, radios and vehicle door handles,

- refrain from writing or transcribing notes on medical gloves as this will damage the material of the medical gloves and limits their effectiveness,

- avoid touching face or hair with gloved hands,

- discard medical gloves in a waste receptacle immediately after removal and perform hand hygiene,

- police officers and JSWs who wear issued duty gloves should put medical gloves over duty gloves to prevent contamination of the duty gloves with blood and/or body fluids. Duty gloves are not protective against exposure to blood and body fluid,

- medical gloves are single use only and must be disposed of immediately after use,

- hands must be considered contaminated after removing medical gloves. Always perform hand hygiene after taking off medical gloves,

- used PPE must never be worn in the cab of a vehicle. Never drop used PPE in the vehicle.

Eye Protection

Eye protection is worn to protect the eyes from exposure to blood and body fluid. They also protect the eyes against respiratory secretions propelled into the air by coughing or sneezing and are therefore an integral part of droplet precautions. Eye protection can and should be worn over prescription glasses. Prescription glasses do not cover enough of the face to be considered protective as they can allow blood and body fluids between the lens and the face.

Eye protection will also protect the wearer from blood/body fluids or other liquid substances that may be thrown at the worker by non-cooperative clients. Reusable eye protection must be cleaned and disinfected following every use.

Full-face or half-face shields may be provided by certain services. They are single-use only and must be thrown out after each use. Perform hand hygiene before putting on eye protection. Face shields are a part of enhanced PPE.

Indications for the Use of Eye Protection:

- any situation in which a mask/N95/reusable (elastomeric) respirator is worn as a barrier to sprays of blood and/or body fluids, including respiratory secretions,
- when treating, transporting and/or escorting a client with a known/suspected communicable disease transmitted by the droplet route, such as influenza,
- when treating, transporting and/or escorting a client with signs and symptoms of ARI,
- when required by medical, Provincial, or service directive,
- when cleaning and disinfecting equipment or surfaces that have large amounts of blood or body fluid on them, where splash or spray might therefore occur,
- when performing invasive procedures such as intubation or suctioning.

DEPENDENT ON THE SERVICE – Eye Protection May Be Worn:

- if a client has a fever,
- if a client has a new or worsening cough,
- when treating, transporting or escorting a client with symptoms of ARI,
- when the client is a victim of a trauma and blood and/or body fluid exposure is possible,
- when the client is non-co-operative and may attempt to spit or throw blood or body fluid at the ESW.

Gowns

Long-sleeved gowns are indicated to protect uncovered skin and prevent soiling of uniforms during activities likely to generate splashes or sprays of blood or body fluids, including secretions

or excretions. Impervious, fluid-resistant gowns are recommended when there is potential for blood and/or body fluids to penetrate and/or soak through unprotected fabric.

Bunker gear issued to firefighters is considered as protective as a gown and may be worn by firefighters in situations where gowns would be required.

Gowns have been shown to be effective in the control of certain epidemiologically important infectious agents, such as Vancomycin-resistant Enterococcus (VRE).

Fluid impermeable gowns are required for enhanced PPE and are used to prevent contamination from body fluid splash or spray when a highly virulent communicable disease (such as Ebola) is suspected or confirmed.

Indications for the Use of Gowns:

- when blood or body fluid splash is likely or expected,

- when providing direct care to, and/or escorting a client with a known or suspected communicable disease transmitted by the droplet or contact route or when advised by health care personnel,

- when caring for a client with leaking or draining wounds, large amounts of non-intact skin, or exhibiting signs and symptoms of nausea, vomiting and diarrhea,

- if it is anticipated that clothing or forearms will be in direct contact with frequently touched environmental surfaces or objects and there is an increased risk of the environment being contaminated, such as from a patient who has diarrhea or wound drainage that is not contained by a bandage/dressing,

- when required by a medical, provincial or service directive.

If bunker gear is worn instead of a gown, it should be removed carefully and cleaned and disinfected before next use as per the policies and procedures of the fire service. If bunker gear is grossly contaminated, it should not be worn in the vehicle, but should be removed, bagged and stored for proper cleaning and disinfection as per service policy and procedure.

Gowns should be removed and discarded immediately following client care, transport or escort. Care must be taken to prevent self-contamination during gown removal. Used medical gowns must never be worn in the cab of a vehicle. Never drop used PPE in the cab of a vehicle.

Hoods and Leg / Foot Coverings

Hoods and leg/foot coverings are designed to prevent gross contamination of the worker in events where they are required to interact with a client who is exhibiting signs and symptoms of a suspected or confirmed highly virulent disease, or when gross amounts of contamination from blood/body fluid is suspected or likely.

Indications for the Use of Hood and Leg/Foot coverings:

- when gross contamination with blood or body fluid is likely or expected,
- when providing direct care to, and/or escorting a client with a known or suspected communicable disease that is considered highly virulent,
- when required by a medical, provincial or service directive.

Putting on Personal Protective Equipment

In order to limit contamination of PPE, it should always be put on as close to the client or as close to point-of-care as possible.

Gloves that are put on before client contact, such as in the cab of the vehicle, can become readily contaminated in the process of the worker getting to the client. Through touching the door handles, picking up medical bags or equipment, opening the door on the way to the client, pressing elevator buttons etc., it is very likely that the outer surface of the gloves will be contaminated, making them unsafe for use in client care.

PPE should always be put on using the same procedure to create a proper protective barrier.

The following directions are not exhaustive and may not reflect the PPE used by your service. Enhanced PPE will require more steps for putting on and removal. Check with the manufacturer to confirm correct putting on of PPE and PPE removal.

1. **Clean hands with ABHR if not visibly soiled. Use soap and water if hands have visible dirt on them.**



2. **Put on gown (if issued) ensuring that gown is the proper size and it opens to the back. Secure ties at neck and waist.**

   Bunker gear must be in good repair before being worn.


3. **Select appropriate fit-tested N95 respirator or personal issue reusable respirator and place over nose, mouth and chin. If there is a flexible nose piece, place on bridge of nose. Adjust to fit.**


4. **Ensure top elastic of N95 is above ears and bottom elastic is below. Secure clip of reusable respirator at back of neck.**

5. **For both N95 and reusable respirator, fix nose piece and check fit:**
   - Cupping hands, cover as much of the respirator's intake as possible without disturbing fit or pressing the respirator against your face.
   - Inhale and exhale sharply, there should be no leakage of air around face.
   - If air leaks, readjust fit.
   - If respirator does not suck in, or if air is felt by the face, reposition and try again.



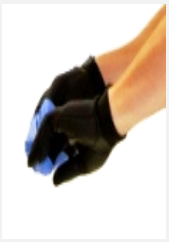
6. **Put on eye protection. Eye protection should be worn over eye glasses. Eye glasses do not completely protect the eyes and should not be worn instead of issued eye protection.**

Removing PPE

The order in which PPE is removed is critical to avoid the possibility of self-contamination. If PPE is consistently removed in the proper order it will greatly reduce the risk of transferring infectious agents from the contaminated PPE to the skin. The exterior of PPE should always be considered to be contaminated and therefore must be kept away from the skin and mucous membranes during removal.

PPE is to be removed following treatment and transport of a client with a known or suspected communicable disease and/or at break of client contact. This includes when the driver of the ambulance leaves the client in the client care compartment. PPE should be removed and clean PPE put on before cleaning and disinfection of the vehicle and equipment. PPE should never be worn in the cab of vehicles.

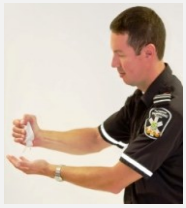

1. **Remove First Glove**
   - Grasp plastic of glove near wrist.
   - Peel glove away from hand.


2. **Remove Second Glove**
   - Hold first glove with other gloved hand.
   - Slide ungloved finger under glove at wrist of remaining glove.
   - Peel off glove allowing it to turn inside-out over glove already held in hand and discard in regular garbage.
   - If wearing duty gloves, remove as well and put aside for washing before reuse.
   - If no gown is worn, perform hand hygiene.


3. **Untie Gown**
   - Untie ties at back of neck.
   - Snap or untie ties at waist, ensuring bare hands do not contact front of gown.


4. **Remove Gown**
   - Remove gown gently to prevent aerosolization of particles on front of gown.
   - Grasping elastic of one sleeve, pull gown over other hand, off shoulder and down arm.
   - Using gown-covered hand, pull other sleeve off shoulder and down arm.
   - Gently roll gown off arms into a bundle, keeping exterior of gown turning inward.

 	• Discard gown in appropriate laundry receptacle if reusable or put in garbage. • If bunker gear is worn, remove carefully, ensuring hands do not contact contaminated surfaces. If this is unavoidable, keep gloves on and remove after bunker gear is taken off. Put bunker gear aside for cleaning and disinfection before reuse.
	**5. Perform Hand Hygiene**
 	**6. Remove Eye Protection** • Grasp by ear pieces and take off straight away from face. • Put aside for cleaning and disinfection or discard in appropriate receptacle if disposable.
  	**7. Remove N95 or Reusable Respirator** • Grasp bottom elastic and lift over head or undo clip on strap at back of neck. Let elastic band dangle. • Do not touch front of respirator. • Grasp top elastic band or strap around back of head and lift respirator straight away from face. • Discard N95 into garbage. • Put reusable respirator aside for cleaning and disinfection. • Perform hand hygiene.

Use of PPE during Transport of Clients on Additional Precautions

Additional precautions refer to the recommended use of PPE when interacting with clients exhibiting signs and symptoms of communicable disease and/or who have a diagnosis of infection spread through airborne, droplet, and droplet/contact or contact transmission.

In the pre-hospital setting, the worker will make the decision as to what PPE to wear based on their situational assessment of the environment and demeanour of the client. When the client is already located in a health-care institution however, such as a hospital or long-term care home, the client may have already been put on additional precautions due to a pre-existing condition or diagnosis.

PPE should be put on as close to point-of-care as possible. In an institution, this means that the worker would put on PPE at the doorway of the client's room, or before entering the client's bed space if the client is in a multi-bed room. This prevents PPE from being contaminated before the worker reaches the client.

Once the client has been transferred to the stretcher and the workers are ready to leave, PPE should be removed at the doorway of the client's room or just after the curtained area if the client was in a multi-bed room within contact of the stretcher. The workers should remove PPE, perform hand hygiene, put on clean gloves, and then wipe down the high touch points on the stretcher, such as the railings and handles, with the available hospital-grade disinfectant wipes. Be mindful of the client on the stretcher to ensure that they are not contacted by the disinfectant. Contaminated gloves should then be removed and hands cleaned.

The workers then need to assess their risk of contamination from the client before they being the process of moving the client through the institution and out to their vehicle.

If The Client is on Airborne Precautions:

- the client should wear a procedural/surgical mask while being moved to the vehicle, and during vehicular transport,

- the worker must wear a fit-tested N95 or reusable (elastomeric) respirator when moving client to vehicle and when transporting client in vehicle regardless of whether or not the client can tolerate a mask.

If The Client is on Droplet Precautions:

- the client should be encouraged to wear a procedural/surgical mask when the client is being moved to the vehicle and when the client is being transported in the vehicle to prevent them from coughing and/or sneezing infected respiratory secretions into the environment,

- if the client cannot tolerate wearing a mask, the worker should wear either a procedural/surgical mask or respirator (depending on what the service issues) and eye protection while moving client to vehicle and when transporting client.

If the Client is on Contact Precautions:

- the workers should consider the likelihood of needing to treat or restrain the client while they are being moved to the vehicle. If the client will not require hands-on care while being moved to the vehicle then PPE is not required,

- if the client will require hands-on care while being moved to the vehicle, the workers should put on clean gloves and gowns at the doorway or just past the curtain before entering the public areas of the institution,

- on the stretcher wrap the patient in sheet and/or blanket to decrease likelihood of patient contact with environment,

- before entering the client-care compartment of the vehicle, the worker who will be with the client will need to remove previously worn PPE (if any), perform hand hygiene, and then put on clean PPE to protect themselves during vehicle transport,

- the worker driving the vehicle will need to remove all PPE and perform hand hygiene before entering cab of vehicle. No PPE should be worn in cab of vehicle.

If the Client is on Droplet/Contact Precautions:

- The workers will be required to use PPE for droplet precautions as listed above, as well as perform a risk assessment as to whether or not they will need to treat/restrain the client while moving the client to their vehicle and when transporting client as per contact precautions above.

If the Client requires Enhanced PPE:

- more steps will be required for putting on and removal of PPE, and the location for PPE putting on and removal may be different then for standard PPE. Follow your service, municipal or provincial directives,

- if the worker has chosen to wear Enhanced PPE due to client presentation, enhanced PPE should be put on as close to the point-of-care for the client as possible. As with Standard PPE, Enhanced PPE should be removed before entering the vehicle's client-care compartment, the worker should then perform hand hygiene and then put on clean Enhanced PPE to protect themselves during client transport.

Transferring the Patient to the Vehicle:

- regardless of the additional precautions used, the same practice should occur once the workers have reached their vehicle,

- if PPE was not worn for moving the client to the vehicle, the workers must perform hand hygiene and put on PPE before loading the client and stretcher into the vehicle. Only the worker(s) required to be in the patient care compartment should wear PPE into the vehicle. The driver of the vehicle should never wear PPE,

- if PPE was worn for moving the client to the vehicle, the workers must remove all PPE, perform hand hygiene and put on clean PPE before loading the client and stretcher into the vehicle. Only the worker(s) required to be in the patient care compartment should wear PPE into the vehicle. The driver of the vehicle should never wear PPE.

A Note on Long Hair:

- if hair is long enough to get into the eyes while with a client, there is the potential that the worker will brush hair away from their face while wearing contaminated medical gloves. After removal of PPE and performance of hand hygiene, the worker may easily re-contaminate their hands by touching their hair. Although not a part of PPE, long hair that has the potential of falling into the eyes and compromising vision should be tied back to prevent accidental self-contamination,

- long hair must always be held back before the use of Enhanced PPE. This may require the use of a hair net and/or hair elastics and head bands. Hair that escapes the confines of PPE should be considered a breach and worker will need to wash their hair when it is safe to do so.

9

SHARPS SAFETY

SHARPS SAFETY

- **Sharps, if not handled correctly, are a potential cause of high-risk exposures to communicable diseases.**
- **Only on immediate removal from a sterile package is a sharp considered sterile, once the sharp is out of its package it should be considered contaminated.**
- **Safety-engineered medical devices (SEMDs) are required for use in all health-care settings.**
- **Sharps containers need to be sized to allow for the sharp to be disposed of properly. Seal and dispose of sharps container when three-fourths full and all sharps containers are to be dispose of through a licensed waste handler.**
- **Sharps containers should always be available at point of care where use or encountering of sharps is likely or expected.**

The term “sharps” refers to any object that is capable of breaking the skin, and particularly those items used for medical procedures. This includes: syringes, needles, lancets and/or scalpels. Other sharps may include: razor blades, broken glass, forensic evidence, such as knives, or any other sharp implement with the potential to cause a penetrating injury such as a puncture, cut or abrasion, if not handled in a safe manner.

Sharps can potentially be contaminated with many different types of infectious agents. HIV, hepatitis B virus (HBV) and hepatitis C virus (HCV) are blood-borne infectious agents that can be found on sharps and are of greatest concern after a sharps injury. Just like any other object however, all sharps have the capacity to transmit any infectious agent that might be on its surface. Unless you have just removed a sharp from a sterile package, all sharps should be treated as contaminated. EMS or JSWs handling or coming in contact with sharp devices are at risk of occupational exposure due to blood-borne infectious agents. Vaccination against hepatitis B should be highly encouraged for any ESW or JSW who may come into contact with contaminated sharps.

Regulation 474/07 Needle Safety, requiring the use of safety engineered medical devices (SEMDs) in all health-care settings came into effect July 1, 2010. Safety engineered medical devices are sharp medical devices or instruments designed to include safety features or mechanisms to eliminate or minimize the risk of injury to the user or others.

Emergency and justice service workers may be exposed to sharps through the course of their duties. For example, a police officer may encounter a used syringe while searching an apprehended vehicle or a JSW may encounter syringes while cataloguing a client’s personal property. The handling of sharps must always be managed in a safe manner to ensure the safety of the worker.

Syringes and needles that are disposed of incorrectly are the leading cause of sharps injuries. Over-filled sharps containers, sharps being stuck into or left in inappropriate places, such as jabbed into stretcher mattresses or left at beside after use can result in injury. Additionally, inappropriately discarded syringes can end up being wrapped up in linen or added to normal waste, increasing the risk of injury to others.

Preventing Sharps Injuries

In General:

- ensure sharps containers are made available at point of care where use or encountering of sharps is likely or expected,
- educate staff about the risks associated with sharps, including safe disposal of sharps in puncture-resistant containers if found in the environment,
- ensure all policies and procedures on sharps use, handling and disposal, and post-exposure actions are up-to-date,
- ensure all staff have been educated on policies and procedures concerning sharps.

When Performing Medical Interventions Requiring Sharps:

- use safety engineered medical devices, such as needleless devices,
- communicate with other personnel to warn them that a device is in use, using a common phrases, such as “sharp out”,
- immediately dispose of sharps in an appropriate sharps container,
- never leave sharps to be disposed of by other workers,
- remain clear of the person who is using the sharp,
- never re-cap a used needle,
- ensure that rigid, puncture-resistant sharps containers are provided at or near the point-of-care to permit safe one-handed disposal of sharps.

When Handling Used Sharps:

- use containers that are appropriate for the sharp, such as larger containers for implements such as knives, screwdrivers and picks,
- never pass exposed sharps from one worker to another worker,
- never reach into waste or sharps containers,
- always handle linen and client’s clothing with care with the assumption that sharps may be present,
- ensure that rigid, puncture-resistant sharps containers are provided at or near the point-of-use to permit safe one-handed disposal of sharps.

When Performing a Search on a Client or Their Environment:

- carefully perform searches on clients and their environments as to minimize sharps injury.,- when performing searches ensure that hands are not put into areas that the worker cannot observe first,

- never carry sharps in pockets,

- ensure that rigid, puncture-resistant sharps containers are provided at or near where search is performed to permit safe one-handed disposal of sharps.

If an Improperly Disposed Sharp is Encountered:

- put on a pair of disposable gloves,

- ideally, take a sharps container to the syringe,

- never re-cap a syringe, even if a cap is available,

- use tongs, or similar implement or a scoop, to pick up the sharp. If no implement is available, carefully pick up the sharp furthest away from the needle or blade,

- carefully place the needle and syringe in the puncture-resistant container.

Sharps Containers

Containers Must:

- be sturdy enough to resist punctures,
- Be clearly identified as sharps container,
- have lids capable of being tightly closed,
- have a biohazard symbol,
- have a maximum fill line,
- have features to prevent withdrawal of contents,
- have handles or other carrying devices,
- be the appropriate size and shape for the type of sharps for which they are to be used,
- be replaced when they are three-fourths full or the sharps have reached the maximum fill line and have a securely closed lid.

Before Using a Sharps Container:

- inspect the container to ensure that it is intact and functioning, and all parts are available i.e. closing lid to secure container once full,
- visually inspect the sharps container for hazards caused by overfilling,
- make sure the sharps container being used is large enough to accommodate the entire device,
- avoid bringing the hands close to the opening of a sharps container,
- never place hands or fingers into a container to facilitate disposal of a device,
- keep the hands behind the sharp tip when disposing of the device,
- if disposing of a sharp with attached tubing, such as a winged steel needle, be aware that the tubing can recoil, pulling the sharp out of the sharps container with it, and lead to injury; maintain control of the tubing as well as the needle when disposing of the device.

After Disposal:

- visually inspect sharps containers for evidence of overfilling before removal. If a sharps container is overfilled, obtain a new container and use an implement, such as forceps or tongs to remove protruding devices and place them in the new container,

- visually inspect the outside of waste containers for evidence of protruding sharps. If found, notify your supervisor for assistance in removing the hazard,

- keep filled sharps containers awaiting final disposal in a secure area,

- filled sharps containers must be disposed of safely through licensed waste handlers.

The handling of sharps is considered part of the worker's interaction with the environment, and is included in the PPS as part of the actionable step of LDPI.

10

CLEANING, DISINFECTION & STERILIZATION

Cleaning, Disinfection and Sterilization

- **Cleaning and disinfection is required for all reusable medical devices/equipment and other items before and after every client and every call.**
- **Disinfection cannot occur unless an item has been properly and thoroughly cleaned beforehand.**
- **Cleaning and disinfection products must be used as per manufacturer's instructions.**
- **New cleaning and disinfection products must not be purchased until the service has consulted with an infection control professional.**
- **Soiled linens and uniforms must be handled properly to minimize the risk of disease transmission.**

Principles of Cleaning & Disinfecting the Environment and Equipment in Pre-Hospital Care

The pre-hospital setting involves complex and unpredictable environments that hold many opportunities for infectious agents to attach to medical devices, equipment and surfaces before and during use with clients. Both client care activities, such as using a blood pressure cuff or a stethoscope, and physically placing equipment in the environment, such as putting medical bags on the ground or onto surfaces, can cause the medical devices and equipment to become contaminated with visible dirt and invisible infectious agents. As well, the surfaces of emergency service vehicles, such as the patient care compartment of an ambulance, or the back of a police cruiser, can also become contaminated through client contact. If infectious agents and dirt are not removed between uses through cleaning and disinfection, they can then easily transfer to the next client or worker who uses that medical device or equipment or riding in that vehicle, potentially causing a preventable infection.

In the pre-hospital care setting, the role of environmental and medical device and equipment cleaning is vital to ensure that the amount of infectious agents are reduced to safe levels through cleaning, and eliminated through disinfection.

Reprocessing

The steps required to prepare used medical equipment/devices for reuse (e.g., cleaning, disinfection and sterilization) are referred to as reprocessing. In the pre-hospital environment, reusable medical devices and equipment are routinely cleaned and disinfected by workers. Sterilization is not done by the services themselves, but is performed by a third party before the items are purchased for use. McGill forceps, used by certain paramedic services, are the only item that requires re-sterilization after use, which is done by a third party.

All reusable medical devices and equipment, and other items used by more than one worker, such as radios or mobile data units, must be first cleaned and then disinfected between uses with a hospital-grade disinfectant to ensure client and worker safety.

Cleaning

Cleaning is the physical removal of foreign material (e.g., dust, soil) and organic material (e.g., blood, secretions, excretions, microorganisms) from a surface, rendering it safe for handling. Cleaning physically removes rather than killing infectious agents and is accomplished with water, detergents and mechanical action.

Cleaning is the most important part of the reprocessing process. Without the proper cleaning of medical devices or equipment, disinfection and sterilization cannot take place. Additionally, if proper cleaning does not take place, the organic load on the object may bind with the active ingredients of the disinfectant and could possibly reduce the disinfectant's activity.

There are many medical devices and equipment used in the pre-hospital environment. The following is a partial list of equipment that may need cleaning and disinfection before and after each client us and after each call:

- Airway Roll
- Blood Pressure Cuff
- Bunker Gear
- Cardiac Monitor & Leads
  Elastomeric Respirator
- End Tidal CO2
- Glucometer
- GPS Unit
- Handcuffs
- Duty Gloves
- Laryngoscope Handle
- Mobile Data Units
- Non-Disposable Cervical Collars
- Oxygen Regulator
- Oxygen Tank
- Pen
- Pen-Light
- Portable Radio
- Portable Suction Unit
- Protective Eyewear
- Pulse Oximetre
- Radio
- Scissors
- Scoop Stretcher / Spinal Board
- Stair Chair
- Stethoscope
- Stretcher & Stretcher Straps
- Unit Suction
- Vehicle Surfaces (Handles, Switches, Steering Wheel)

Items can only be properly cleaned if their surfaces remain intact. If a mattress cover develops cracks, or if the foam on a cervical collar soaks up blood or body fluid for example, the items can no longer be cleaned and disinfected properly, and must be thrown away.

Hospital-Grade Disinfectants

A hospital-grade disinfectant is a product, usually chemical, that is classified as a low-level disinfectant, meaning it is safe for use on items that are classified as non-critical items. Hospital-grade disinfectants must have a DIN from Health Canada in order to be approved for use in Canadian health care institutions and pre-hospital services. Not all hospital-grade disinfectants are able to clean as well as disinfect. For example, sodium hypochlorite (bleach) is denatured when exposed directly to the proteins found in blood and body fluids, which means the surface must be visibly cleaned before bleach is used to disinfect.

Cleaning and disinfection products purchased from retail stores are not hospital-grade and are not appropriate for use on medical devices or equipment. SMDHU or PHO should be contacted for information or advice before any new cleaning/disinfection product is purchased to ensure that it is appropriate for the pre-hospital environment.

Medical devices and equipment that will be used on multiple clients and/or by multiple workers is considered reusable, and must be properly cleaned and disinfected between uses.

Spaulding Classification System

The Spaulding Classification System is a rational approach to disinfection. It involves dividing medical instruments and items for patient care into three categories according to the degree of risk of infection associated with their use. This aids in identifying the level of disinfection or sterilization each instrument requires. The three categories are non-critical, semi-critical and critical:

Non-Critical Items:

Come in contact with intact skin but not mucus membranes. Examples of non-critical items are:

- handcuffs,
- blood pressure cuffs,
- pulse oximetres.

As intact skin is an efficient barrier to infectious agents, items that contact intact skin require low-level disinfection only.

Cleaning & Disinfection of Non-Critical Items:

- visually inspect item for visible contaminants, such as dirt, blood or other body fluids,
- use a hospital-grade combination cleaner/disinfectant wipe for non-critical devices and small surfaces. Use a ready to use liquid cleaner/disinfectant for large surfaces,
- first clean the item to remove visible dirt using a hospital-grade combination cleaner/disinfectant wipe. Use more than one wipe to allow for the proper removal of soil,
- use a second wipe containing the hospital-grade cleaner/disinfectant to disinfect the item. Make sure the item stays wet as per the manufactures instructions for the products required contact time. Contact times may vary 1 to 10 minutes depending on the manufactures instruction,
- some hospital-grade disinfectants such as bleach cannot be used to clean items as it is only used as a disinfectant. Use a detergent/cleaning product to clean the item first before disinfecting the item leaving the item wet for the contact time required by the manufacturer of the hospital-grade disinfectant to ensure proper disinfection has occurred.

Semi-Critical Items:

- medical devices or equipment that come in contact with mucus membranes or non-intact skin. These items must be free of all infectious agents with the exception of bacterial spores. Examples are laryngoscope blades and suction catheters. These items require high-level disinfection to render them safe for use. In the pre-hospital environment, these items are single-use only and are not reprocessed,
- all semi-critical items used during client care must be disposed of after use.

Critical Items:

- medical devices or equipment that enter sterile tissue or the vascular system and therefore present a high-risk of infection if contaminated with any infectious agents, including bacterial spores. It is crucial that critical items, such as IV catheters, endotracheal tubes, needles for injection, and suction catheter covers for deep suctioning, are sterilized by the manufacturer, kept in their intact sterile packaging before use, and disposed of immediately after they have been used. McGill forceps, used by services such as Paramedic Services and ORNGE Transport Medicine, are the only critical item that will be reprocessed for reuse.

Sterile Packaging:

- must be inspected before opening,
- the package must be clean and dry,
- the package must be intact,
- the item must be within its expiration date,

- if the item is not clean, dry and intact, or if it is past the expiration date of its sterilization, the item is unsafe for use on a client, and should be disposed of immediately.

Disinfection

Disinfection is required for items that require more than cleaning to render it safe for its intended use. In the pre-hospital care environment, all items must be cleaned and then disinfected before reuse to ensure they are safe for use by the next worker on the next client.

There are three levels of disinfection used in health care.

1. *Low-Level Disinfection:*

- Low-level disinfection inactivates vegetative bacteria, most viruses and most fungi, but it cannot be relied upon to kill infectious agents resistant to disinfection methods, such as tubercle bacilli or bacterial spores. In the pre-hospital environment, the majority of reusable items needed for client care will require low-level disinfection only. Some examples would be: blood pressure cuffs, protective eyewear and electrode leads.

2. *High-Level Disinfection:*

- High-level disinfection is expected to destroy all infectious agents, except bacterial spores. In the pre-hospital environment, the majority of items that require high-level disinfection, such as laryngoscopes and suction catheters, are single-use only and should be disposed of after every call.

3. *Sterilization:*

- Sterilization is the destruction of all infectious agents, including bacterial spores. The only items required to be sterile in the pre-hospital environment are used by paramedics during patient care. All sterile items are considered single-use only and must be disposed of after use. The only exception is McGill forceps, which may be re-sterilized after use. The service's policy and procedures should be followed for the re-processing of this medical device.

Environmental Cleaning

Surface cleaning requires the removal of any visible contaminants, including blood and/or body fluids from an object or area by staff wearing the appropriate PPE. Routine cleaning of the interior of emergency vehicles, stations, shared workspaces and living areas is essential for both worker and client safety.

There is a risk to the worker when they are cleaning and disinfecting as they will come in contact with equipment or devices contaminated with soil, blood and body fluids. PPE must be worn while cleaning and disinfecting environmental surfaces. Appropriate PPE consists of gloves, and potentially facial protection (mask and eye protection or face shield) as well as a gown if splash or sprays of the blood or body fluid being cleaned, is possible or expected. Cleaning must be followed by disinfecting the area, vehicle or medical devices and equipment to make it safe for further use. Commercial spill kits may be practical in the emergency services setting.

Cleaning is achieved with water, detergents, or combination cleaning/disinfection products, such as accelerated hydrogen peroxide (AHP), and certain sodium hypochlorite and quaternary ammonium products, and mechanical action. Detergents are sufficient for most surface cleaning.

For Proper Cleaning:

- using friction, clean equipment with soap and water or supplied cleaning/disinfection products, to remove any soiling, dirt, dust, blood or body fluids from the surface of the equipment,

- do not spray cleaning fluid directly onto an item, such as bunker gear, as it may cause aerosolization and/or splash/spray of blood/body fluid,

- pour directly onto a cloth and then wipe item to be cleaned,

- rinse off any soap (if used) and allow to dry,

- if using cleaner/disinfectant wipes or liquid, allow sufficient wet contact time to kill infectious agents as per manufacturer's instructions,

- regular schedules for daily cleaning are required. Client contact areas must be cleaned between each client and responsibility for cleaning must be clearly assigned. ESWs need to be given sufficient time for cleaning of vehicles and medical devices/equipment and other

multi-use items between each call for service. There should also be schedules for taking vehicles out of service for deep cleaning on a regular basis.

Biomedical Waste

Biomedical waste is waste material that requires treatment to render it non-infectious before disposal in a landfill or in the sanitary sewer system.

In order for waste to be classified as biomedical waste, it must meet one of these criteria:

1. Human anatomical waste, such as a piece of human tissue, or an amputated hand or foot or large volumes of human liquid blood or blood products.

2. Items that are so saturated with blood or body fluids that they would release fluid if compressed or wrung out.

3. Sharps that have come into contact with blood or body fluid.

4. Items contaminated with blood or body fluid that is suspected or confirmed to contain a highly virulent pathogen, such as Ebola.

Medical gloves, gowns or uniforms contaminated with blood or body fluid would not be considered to require biomedical waste disposal unless they were saturated to the point blood could be wrung out of the items, or they are dripping with blood.

How to Clean & Disinfect After a Blood or Body Fluid Spill:

- assemble materials required for dealing with the spill prior to putting on PPE,

- inspect the area around the spill thoroughly for splatters or splashes,

- restrict the activity around the spill until the area has been cleaned and disinfected and is completely dry,

- put on gloves; if there is a possibility of splashing, wear a gown or bunker gear, and facial protection (mask and eye protection or face shield),

- confine and contain the spill,

- inspect area for syringes or glass and use tongs or a scoop to remove and place in a sharps container,

- carefully wipe up any blood or body fluids immediately using either disposable towels or a product designed for this purpose,

- dispose of materials by placing them into regular waste receptacle, unless the soiled materials are so wet that blood can be squeezed out of them, in which case they must be segregated into the biomedical waste container (i.e., yellow bag),

- use cleaning product to clean the area,

- disinfect the entire spill area with a hospital-grade disinfectant and allow it to stand wet for the correct contact time recommended by the manufacturer,

- wipe up the area again using disposable towels and discard into regular waste,

- care must be taken to avoid splashing or generating aerosols during the clean-up,

- remove PPE in proper order (gloves, gown, hand hygiene, facial protection).

Uniforms & Laundry

PIDAC Best Practices for Environmental Cleaning for Prevention and Control of Infections in All Health Care Settings (2012) states that soiled linen, including uniforms, is rarely implicated in the transmission of communicable diseases as long as it is appropriately managed. All linen, including uniforms, should be handled using the same precautions regardless of the source or setting.

Uniforms

- attention to safe handling of contaminated uniforms and good hygiene practice will help prevent disease transmission. Each emergency service will have policies and procedures dictating whether or not the ESW or JSW should have an extra uniform available in the event that a uniform becomes visibly soiled.

If a Uniform Becomes Visibly Soiled:

- when the call is complete, return to fire hall, ambulance station or police division. If required, put a barrier, such as a blanket, between the worker and the vehicle. Once back at hall/station/detachment put on gloves and then carefully remove visibly soiled uniform, taking care to not aerosolize the soil or cause contamination of the surrounding area,

- in some instances, it may be more appropriate to remove part of the uniform on-scene and bag it there, such as bunker gear or a uniform shirt, if the worker is able to remain appropriately covered through doing so,

- place uniform in a plastic bag,

- take off gloves and wash hands as well as any soiled areas of the skin with soap and water,

- put on a clean uniform.

- launder the dirty uniform. According to PIDAC Best Practices for Environmental Cleaning (2012), home laundering on normal washing and drying cycles or dry cleaning will render the uniform free of risk of disease transmission. If dry cleaning is used, the cleaner should be informed that the uniform is soiled with blood and bodily fluids,

- extensive skin soiling requires immediate assessment of the skin for areas that are non-intact. If non-intact skin is found to have been in contact with blood or body fluids, the ESW should be immediately assessed at the hospital ED where the patient was taken to determine the risk of exposure and if prophylaxis is necessary,

- ESWs exposed to an excessive amount of blood or body fluid will require a shower.

Laundry

- put on gloves and if there is the potential that splashes and sprays may come in contact with the worker they should wear a fluid resistant gown and eye protection.

- remove gross soiling wearing gloves and dispose of the gross soil into a toilet or hopper (It is impossible to clean laundry when organic material is present).

- never remove soil by spraying water or disinfectant, as it can cause aerosolization and splash/spray of blood/body fluid.

- ensure that contaminated laundry is contained at either the point-of-care (such as in hospital ED) or when removed from the vehicle. Do not sort or pre-rinse contaminated laundry in client-care areas.

- client's personal laundry or items should be bagged separately at the point of collection.

- minimize agitation of contaminated laundry to avoid contamination of the air, surfaces and persons (do not shake).

- wrap wet laundry in a dry sheet or towel or otherwise contain wet laundry before placing it in a laundry bag.

- tie linen bags securely and do not over-fill.

- clean laundry must be stored apart from soiled linens.

Cleaning and disinfection is the final actionable step of the PPS. Cleaning and disinfection of all reusable medical devices/equipment and items, proper disposal of single-use items between calls, environmental cleaning and appropriate handling of soiled uniforms and linen protects ESWs, JSWs and their clients.

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HIGH-RISK EXPOSURES TO INFECTIOUS DISEASES

HIGH-RISK EXPOSURES TO INFECTIOUS DISEASES

- **High-risk exposures occur when the worker is exposed to a communicable disease that may be life-threatening in a way that facilitates the infectious agent having a portal of entry into the worker.**
- **Proper assessment is critical to verify if the exposure was high-risk and therefore requires immediate follow-up.**
- **Sharps injuries or when a client's blood contacts the worker's mucous membrane or non-intact skin need to be assessed by a physician within two hours of exposure to determine if post-exposure prophylaxis for HIV is required.**
- **A client's saliva or sputum that comes in contact with a worker's non-intact skin or mucous membranes is only high-risk if the worker is not immunized against hepatitis B.**
- **All high-risk exposures should be treated as critical incidents, requiring emotional as well as medical support.**
- **In Simcoe Muskoka, a public health investigator is available 24/7 to support DOs to assess exposures.**
- **The Designated Officer Manual is the recommended reference for supervisors and front-line staff of the emergency and justice services to use in the event of both high- and low-risk exposures to infectious diseases.**

An exposure is defined as any event that may result in the ESW and JSW coming in contact with pathogens causing a communicable disease. A high-risk exposure occurs when there is potential for the worker to become infected, and specifically infected with a communicable disease that may be life-threatening. The risk from some high-risk exposures (such as human immunodeficiency virus (HIV), hepatitis B virus (HBV), meningitis, some invasive bacterial diseases (iGAS) and rabies) can be mitigated through the immediate post-exposure management and administration of prophylactic immunization and/or medication. For more information on exposures to specific diseases, please see the decision trees and fact sheets at the end of the manual.

Occupational exposure, in addition to the physical risk they represent, can cause tremendous anxiety, fear and stress among workers that can negatively impact not only the worker themselves but also their families and colleagues. All exposures therefore must be treated as significant incidents requiring both emotional and medical support.

Most exposures do not result in infection. There are several important factors that influence the overall risk for occupational exposures to infectious agents. Following a specific exposure, the risk of infection may vary with factors such as:

- the infectious agent involved. Some infectious agents are more able to infect with lower doses than others, such as the Norwalk virus,

- the type of exposure. The infectious agent must have been able to gain access to the body through an unprotected portal of entry (inhalation, mucous membranes or non-intact skin). If this did not occur, then the exposure is not high risk,

- the amount of blood/body fluid involved in a splash/spray or a sharps injury,

- the amount of infectious agent in the client at the time of exposure. For example, low levels of HIV virus in a client's blood or few TB bacteria seen in a client's sputum mean the client is less infectious than those clients with higher amounts,

- the length of time exposed. For example, infection to measles or chickenpox may take as little as five minutes in susceptible (i.e., unimmunized) workers, while exposure to TB can take upwards of 8 to 12 hours of continuous contact with the infectious person,

- the susceptibility of the worker. Workers who are immunized will be significantly less susceptible to those diseases they have been immunized against. This is based on the persons on health status when immunized and when exposed, level of exposure, and other possible exceptions,

- a worker whose immune system is compromised due to previous illness, such as diabetes or cancer, may be more susceptible to communicable disease than a worker whose immune system is intact.

Occupational exposures to infectious diseases are largely preventable through consistent application of infection prevention and control principles and diligent use of the PPS (see chapter on the Personal Protection Strategy model). These preventative measures include:

- immunization - all workers should be fully immunized as per Ontario's Routine Immunization Schedule, as well as against diseases such as hepatitis B and influenza, which are common occupational exposures (See chapter on Immunization),

- consistent performance of hand hygiene (See chapter on Hand Hygiene),

- sharps safety (See chapter on Sharps Safety),

- proper handling, cleaning and disinfection of reusable items and equipment (see chapter on Cleaning, Disinfection and Sterilization),

- proper handling and disposal of used single-use items,

- access to and consistent use of appropriate PPE
  (see chapter on Personal Protective Equipment),

- prompt management of exposures, including providing immediate access to post-exposure prophylaxis (PEP) for meningitis, rabies, HBV and HIV through referral to health care professionals.

High-Risk Medical Procedures

There are some medical procedures performed by workers that are associated with a higher risk of exposure to aerosolized respiratory secretions and/or splash and spray of blood/body fluid. If it is part of the worker's duty, role and function to perform these procedures, extra care must be taken to prevent accidental exposures to potentially infectious agents.

High-Risk Medical Procedures Include:

- oxygen delivery to patients with a suspected or confirmed respiratory illness,
- assessments/interventions/procedures requiring contact with mucous membranes or non-intact skin,
- manual control of bleeding,
- nebulization of medication,
- ventilation support with a bag valve mask resuscitator,
- suctioning,
- intubation (both nasal and laryngeal),
- transportation of a patient with a chest-tube that is not part of a closed system,
- surgical airway insertion,
- needle thoracotomy,
- assisting with childbirth.

Exposures

Non-medical activities associated with the duties, roles and functions of ESWs and JSWs may put them at risk of exposure to communicable disease. While not exhaustive, here are some examples:

- suspect apprehension,
- searching of client and/or property,
- searching with hands in an area that the worker cannot see what they are touching, for example inside garbage cans, between cushions and under car seats or beds
- “intaking/logging” a client with signs and symptoms of communicable disease,
- sharing communal office equipment,
- handling items soiled with blood or body fluids for cleaning and disinfection,
- preparing/processing items soiled with blood or body fluids for evidence,

Only certain body fluids are capable of transmitting HIV, HBV and HCV. The following body substances **cannot** transmit HIV or HCV unless they contain visible blood:

- feces & urine
- nasal secretions
- sweat
- tears
- vomit

As saliva and sputum contain HBV antigens, there is a theoretical risk of HBV infection from contact with saliva and sputum to non-intact skin and/or unprotected mucous membranes.

Saliva and/or sputum landing on a worker's mucous membranes or non-intact skin must be considered high-risk for HBV if the worker is not immunized against hepatitis B virus. There is no risk of HIV or HCV from saliva, sputum or feces unless there is visible blood.

Hepatitis C virus requires blood-to-blood contact. Hepatitis C cannot be transmitted through body fluids or from infected blood contacting mucous membranes.

High-Risk Exposures

High-risk exposures occur when the worker is exposed to a communicable disease that may be life-threatening in a way that facilitates the infectious agent having a portal of entry into the worker. High-risk exposures include:

- an injury that breaks the skin (percutaneous injury) such as a puncture or cut with a sharp object that is contaminated with the blood of a client,

- contact of mucous membrane (eyes, nose, and mouth) or non-intact skin (e.g., exposed skin that is chapped, scratched, scraped or afflicted with dermatitis) with blood,

- a human bite breaking the skin. The risk may be greater to the biter than to the bitten person,

- unprotected exposure to respiratory secretions from a client with known or suspected meningitis if those secretions make direct contact with the mucous membranes of the worker's nose and mouth,

- unprotected exposure to drainage from a wound, contaminated skin or contact with respiratory droplets from a patient with invasive Group A Streptococcal disease or invasive Staphylococcal disease, such as 'flesh-eating disease' (also known as necrotizing fasciitis),

- a bite, lick or scratch from an animal known or suspected to have rabies,

- unprotected exposure with blood and/or body fluid from a client with a viral hemorrhagic fever, such as Ebola or Marburg hemorrhagic fevers,

- saliva and/or sputum that contacts mucous membranes or non-intact skin should only be considered high-risk for hepatitis B if the worker is not vaccinated against hepatitis B or if their HBV titres are not known. (See chapter on Immunization for more details).

NOTE

- The risk of HIV from sharps injury is only 0.3 - 0.5%. The risk of HIV from splash/spray of blood/body fluid on non-intact skin or mucous membranes is only 0.09%.

- The risk of HCV from sharps injury or splash/spray of blood on non-intact skin is only 3%. The risk of HCV from splash/spray of blood on mucous membranes is zero.

- The risk of HBV from sharps injury or splash/spray of blood/body fluid, including saliva or sputum, on non-intact skin or mucous membranes is 30% if the worker is unvaccinated. If the worker is vaccinated, the risk is zero.

If the exposure involves blood or body fluid that is capable of transmitting HIV, HBV and HCV, and falls into a high-risk category (as listed above), the exposed worker should have a risk assessment performed by a health care professional ideally within two hours. This is the optimal time period for the exposed worker to receive post-exposure prophylaxis (PEP) for HIV, if required. HIV PEP given within two hours of exposure is estimated to reduce HIV infection by 81%. See Appendix A for recommendations from St. Michael's Hospital on when an exposed ESW should receive HIV PEP.

If the worker is unvaccinated, PEP for HBV must be given within 24 hours after exposure to ensure its effectiveness. Its efficacy drops significantly after >48 hours after exposure and PEP for HBV is considered ineffective if given seven days or more post-exposure.

There is no PEP for HCV.

Workers should be advised that they should follow up with the treating physician from the emergency department or clinic where they were assessed, or with their family physician. Ensuring follow-up for the worker is extremely important for their emotional and physical well-being, and must be arranged if PEP was prescribed.

Specific WSIB forms must be filled out for every exposure. The DO or the worker may also need to fill out an exposure report for their organization according to internal policies and procedures. The worker may continue their duties and does not need to book off shift unless immediate medical attention is required.

Assessing an Exposure (For Emergency Service Workers Only)

It is the responsibility of the DO to help the exposed worker assess whether or not an exposure is high risk.

Questions should be as open-ended as possible, allowing the worker to give as many details as necessary instead of being required to answer only “yes” or “no.” The DO must remain non-judgemental and refrain from punitive statements. Exposures are critical events and require sensitivity to help decrease their emotional impact.

Each service should have an appropriate exposure report form available with the following questions pre-printed to facilitate rapid assessment and follow-up.

The DO must ask the worker the questions listed below in order to ascertain what follow-up, if any, is required.

What Happened?

- this gives the worker the opportunity to explain in their own words the series of events that led up the exposure. It is important that the DO give the worker the opportunity to respond to this question without feeling judged,

- the DO should listen for key statements that would indicate the exposure was high-risk, such as the worker receiving a needle-stick or cut from a dirty sharp, or received a blood and/or body fluid splash on non-intact skin or a mucous membrane. A complete list of exposures that could be deemed high-risk is found above,

- the explanation from the worker should include a description of the activity they were performing before the exposure, such as starting an IV, searching a vehicle or performing cardio pulmonary resuscitation (CPR).

Were You Wearing PPE?

- This question is used to establish the worker’s use of PPE during the exposure. If a paramedic received a blood splash on the face, but was wearing eye protection and an N95 for example, then the worker may be reassured that they were fully protected from exposure and have not been put at risk.

- It is possible that the worker could have been protected from exposure by the use of PPE, but had chosen not to wear it. It is not appropriate to demand to know why PPE was not worn at this time. The worker should not be made to feel defensive or ashamed of their decision not to wear PPE right after the exposure has occurred. The DO should make a note that the worker was not wearing PPE, and address it as a teaching/learning moment at a later date, when follow-up for the exposure is complete.

Does the Worker Have All Scheduled & Recommended Vaccines?

- Immunization is the most effective means of ensuring workers are protected from vaccine-preventable diseases. All Ontario public health units are required to provide follow-up on known exposures to vaccine-preventable diseases. However, if a worker is up-to-date with their vaccinations, no further action will be required (see chapter on Immunization for a list of scheduled and recommended vaccinations for adults).

What was the Length of Exposure?

- Certain diseases, such as TB, require a significant amount of exposure time in order to actually put the worker at risk of infection.

Follow-Up Procedure for High-Risk Exposures

Procedure Following – EXPOSURE TO BLOOD OR BODY FLUIDS:

- mucous membrane or eye: Rinse well with water and/or normal saline,
- skin: Wash well with soap and water. If the site is not deep, and soap and running water are not available, ABHR may be used,
- allow injury/wound site to bleed freely, and then cover lightly,
- do not promote bleeding of skin (percutaneous) injuries by cutting, scratching, squeezing or puncturing the skin. This may damage the tissues and increase uptake of any infectious agent,
- do not apply bleach to the injury/wound or soak it in bleach,
- the worker should notify their on-call supervisor as soon as possible after the incident,
- needle-stick injuries must be assessed by a health care professional within two hours of exposure to maximize the effectiveness of PEP for HIV, if required,
- workers not immunized against HBV should be assessed to receive both HBV vaccination and hepatitis B immune globulin (HBIG) within 24 hours of exposure. This will be determined by the assessing health care professional. There is no post-exposure prophylaxis for HCV,
- the on-call supervisor should be considered a DO alternate and must provide the worker with immediate assistance with post-exposure follow-up and care. This may include attending the emergency department where the worker will be seen in order to act as their advocate and to provide support,
- if the supervisor is not the on-call DO, the supervisor should contact the on-call DO to facilitate follow-up,
- if the client was transported to an emergency department, the worker should be assessed at the same emergency department whenever possible,
- the supervisor and worker will complete the exposure report form and the appropriate WSIB form (if medical attention is provided) as soon as possible after the incident and forward to the appropriate internal department,
- public health may be contacted during or after business hours for consultation. Please be aware that cases will be investigated through the public health unit where the client resides.

NOTE

- **It is unlikely that you will immediately know if the client that exposed the worker has a communicable disease. Testing of the client's blood for HIV, HCV and HBV can only be done with the client's consent. (See section on the Mandatory Blood Testing Act).**

Role of SMDHU in Follow-Up for High-Risk Exposures

As per the OPHS (revised 2015), all public health units in the province are required to offer education and counselling and to facilitate follow-up for any ESW or JSW who has been exposed to a disease of public health importance.

Each disease of public health importance is evaluated and followed up according to guidelines and recommendations from public health authorities, such as the Public Health Agency of Canada and the Ministry of Health and Long-Term Care.

A worker may be exposed to an infectious disease from a client whose health status was not yet diagnosed. If the client is diagnosed with a disease of public health importance, the worker will be contacted by SMCHU.

The DO will be contacted if a worker has been identified as being exposed to a disease of public health importance. The DO will be asked to confirm if the worker was wearing appropriate PPE when working with the client.

The DO will then be required to check directly with the worker to find out details of the potential exposure as above. The worker will be considered exposed if:

- They were exposed to a case of TB (TB) deemed to be highly infectious by the TB Control Program and the worker was not wearing a fit tested N95 or reusable (elastomeric) respirator and the worker:
    - performed a cough-inducing procedure such as intubating, suctioning, or CPR, or used an aerosolization mask on the patient,
    - was with the client who was actively coughing and the client was not wearing a procedural/surgical mask,
    - was in close proximity with the client for >8 hours.
- they were exposed to a client with invasive Group A Streptococcal disease (e.g., meningitis, necrotizing fasciitis or gangrene) and had unprotected contact with open skin lesions, or direct mucous membrane contact with the oral or nasal secretions of a case,
- they had intensive, unprotected contact with a client with bacterial meningitis and they intubated (both nasal and laryngeal), suctioned, resuscitated or closely examined the client's nose and mouth without wearing appropriate PPE,
- they were exposed to a client with a vaccine-preventable disease and have a history of incomplete immunization or no immunization against that disease.

Emergency and JSWs are not missed, as follow-up with these workers is included in the algorithms and policy and procedures for contact-tracing for all diseases of public health importance with every public health unit.

simcoe muskoka DISTRICT HEALTH UNIT

Simcoe Muskoka District Health Unit
Communicable Disease Program
15 Sperling Drive Barrie, ON L4M 6K9

Phone: (705) 721-7520 ext 8809
After hours: 1-888-225-7851
Fax: (705) 733-7738

Communicable Disease Reporting

Timely reporting of communicable diseases is mandated and essential for their control. If you *suspect* or have confirmation of the following specified Reportable Diseases or their etiologic agents, (as per Ontario Regulation 559/91 and amendments under the *Health Protection and Promotion Act, R.S.O. c.H.7*) please report them to the local Medical Officer of Health.

REPORTABLE COMMUNICABLE DISEASES

Note: Diseases highlighted (and influenza in institutions) should be **reported immediately** to the Medical Officer of Health. Other diseases can be reported by the next working day by fax, phone, or mail.

Acquired Immunodeficiency Syndrome (AIDS)
Acute flaccid paralysis (AFP)
Amebiasis
Anthrax
Botulism
Brucellosis
Campylobacter enteritis
Chancroid
Chickenpox (Varicella)
Chlamydia trachomatis infections
Cholera
***Clostridium difficile* associated disease (CDAD) outbreaks in Public Hospitals**
Creutzfeldt-Jakob Disease, all types
Cryptosporidiosis
Cyclosporiasis
Diptheria
Encephalitis, including:
1. Primary, viral
2. Post-infectious
3. Vaccine-related
4. Subacute sclerosing panencephalitis
5. Unspecified
Food poisoning, all causes
Gastroenteritis, institutional outbreaks
Giardiasis, except asymptomatic cases
Gonorrhoea
Group A Streptococcal disease, invasive
Group B Streptococcal disease, neonatal
Haemophilus influenzae b disease, invasive
Hantavirus pulmonary syndrome
Hemorrhagic fevers, including:
1. Ebola virus disease
2. Marburg virus disease
3. Lassa Fever
4. Other viral causes
Hepatitis, viral
1. Hepatitis A
2. Hepatitis B
3. Hepatitis C
Influenza
Legionellosis
Leprosy
Listeriosis
Lyme disease
Malaria
Measles
Meningitis, acute
1. bacterial
2. viral
3. other
Meningococcal disease, invasive
Mumps
Ophthalmia neonatorum
Paralytic shellfish poisoning (PSP)
Paratyphoid Fever
Pertussis (Whooping Cough)
Plague
Pneumococcal disease, invasive
Poliomyelitis, acute
Psittacosis/Ornithosis
Q Fever
Rabies
Respiratory infection outbreaks in institutions
Rubella
Rubella, congenital syndrome
Salmonellosis
Severe Acute Respiratory Syndrome (SARS)
Shigellosis
Smallpox
Syphilis
Tetanus
Trichinosis
Tuberculosis
Tularemia
Typhoid Fever
Verotoxin-producing E. coli infection indicator conditions including, Haemolytic Uraemic Syndrome (HUS)
West Nile Virus Illness
Yellow fever
Yersiniosis

For further information related to infectious diseases, please visit SMDHU's Primary Care Portal at:
http://www.simcoemuskokahealth.org/JFY/PCPortal.aspx

Revised December 1, 2016

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MANDATORY BLOOD TESTING ACT, 2006

Mandatory Blood Testing Act – (MBTA)

- **MBTA applications must be submitted to SMDHU within seven days post-exposure. This count includes weekends and holidays.**
- **All forms must be correct and complete.**
- **Contact SMDHU for information on MBTA applications.**

The MBTA, 2006) is a law that enables ESWs and JSWs and others to apply to request information about the source person's blood with respect to hepatitis B, C and HIV, if they are exposed to high-risk blood and body fluids, in the course of their work (see chapter on High-risk Exposures for more details).

The legislation is implemented by the Ministry of Community Safety and Correctional Services.

There is no requirement to submit an application when an exposure has occurred; this is the worker's personal decision.

In the MBTA, the person making the request is known as the applicant, and the person who is required to respond is known as the respondent.

It is important to know that the application process has strict timelines and specific criteria for eligibility. Detailed information to support a worker who would like to apply is available at the Ministry of Community Safety and Correctional Services website.

The respondent's local public health unit receives MBTA applications, assess them for validity and then contacts the respondent to either voluntarily provide their blood for testing, or to submit to testing as ordered under the MBTA. Under the MBTA, blood is tested for HIV, HBV and HCV only.

It is of the utmost importance that all DOs contact SMDHU in advance of a MBTA application to understand how SMDHU will help with the process and what they will require from the Emergency and Justice Service when an actual application is made. The DO will need to know the appropriate contact numbers, including their fax number and whom to contact if an application needs to be made after hours.

A list of Ontario public health units can be found at this website:

http://www.health.gov.on.ca/en/common/system/services/phu/locations.aspx

Legislation Documents

- The *Mandatory Blood Testing Act*
  Directs the process for blood testing.

- Ontario Regulation 449/07
  Sets the requirements and procedures that must be followed with respect to an order for compulsory blood testing.

- Ontario Regulation 244/08
  An amendment to Regulation 449/07, which describes the inclusion of members of the College of Physicians and Surgeons and medical students in training as those eligible to apply under the Act.

Definition of the Applicant

The person wishing to apply to a MOH have another person's blood tested is called the applicant.

To be eligible to apply, the applicant must have come into contact with the other person's blood and/or body fluids in any of the following circumstance:

- while providing emergency health care,
- while providing emergency health care services or emergency first aid to the person, if the person was ill, injured or unconscious as a result of an accident or other emergency,
- as a result of being the victim of a crime.
- In the course of his or her duty when the applicant belongs to a specified class or group of people. These groups are:
- persons who are employed in a correctional institution, place of open custody or place of secure custody,
    - police officers, civilian employees of a police service, First Nations constables and auxiliary members of a police service,
    - firefighters (including volunteer firefighters),
    - paramedics and emergency medical attendants and paramedic students on field placement,
    - members of the College of Nurses of Ontario,
    - members of the College of Physicians and Surgeons of Ontario,
    - medical students engaged in training.

To be eligible as a victim of a crime the applicant report must state that the applicant (a) reported the alleged crime to the police; and (b) has consented to the release by the police of any information from the police report to the board in the event that the application is referred to the board.

The completed and correct application must be received by the office of the MOH in the health unit for the area where the respondent lives no more than seven days after the date of the occurrence/exposure or the application will be rejected.

Definition of the Respondent

The respondent is the person who has been identified by the applicant as the person whose body substances the applicant may have contacted. The respondent is the person who may be ordered to submit to a blood test.

There are many requirements and legal criteria that must be met to result in an order for mandatory testing of the respondent's blood. An application does not always mean that mandatory testing will be ordered. There is also an opportunity within the process for the respondent to voluntarily provide this information. Even though a respondent may provide a voluntary blood sample for analysis, the applicant should still submit an application. Without an application, SMDHU is unable to advocate on behalf of the applicant due to Personal Health Information Protection Act, 2004,legislation. The submission of an application grants their local public health unit the legal capacity to aid in obtaining information from the respondent and their medical care providers, as well as preventing problems if the respondent changes their mind.

Submitting an Application

An Application Includes 2 Forms:

- **Form 1 – Physician Report**
- **Form 2 – Applicant report**

The Physicians and Applicant Reports are used as the application under the MTBA. Complete forms are available from the Ministry of Community Safety and Correctional Services. Printing off these documents for future use is not recommended, as these forms can change at any time without notification.

Instructions on proper completion are provided on the forms. It is important to follow all of the steps on the form and to answer all the questions and complete all fields as accurately as possible. If the application is not complete, it may not be accepted by the MOH.

If an application is submitted to a different PHU other than the PHU for the area where the respondent lives, the office that receives the application shall immediately forward it to the PHU for the area where the respondent lives.

A complete application under the MBTA includes both the applicant and the physician report form completed in their entirety. The application must be received by the office of the MOH in the PHU for the area where the respondent lives no more than seven days after the date of the occurrence.

Seven business days are counted as follows: The day of the exposure is day zero. Day one is the first day after the exposure. Day two is the second day after the exposure and so on. Be sure to include Saturdays, Sundays and holidays in the count, as the legislation states that the deadline will be extended by only one day if the seventh day (the deadline) falls on a Saturday, Sunday or holiday. If the application is submitted after seven days have passed, it will not be processed.

SMDHU can be contacted during normal business hours or on-call if support is needed to access the MBTA forms or direction is needed from the medical officer of health.

Applications are processed by the health unit responsible for the area where the respondent lives. For help in identifying which health unit is the correct one, you can call SMDHU or the MOHLTC's INFOline at 1-866-532-3161. However, if it is unclear which health unit the respondent belongs to, the application should be submitted to the applicant's local health unit (SMDHU) before the deadline, and they will forward the application appropriately.

To meet the deadline, drop off or fax both completed forms to any health unit no later than 4:00 p.m. on the seventh day after exposure. It will be forwarded to the correct health unit based on the respondent's address.

The Application Must Include:

- a description of the occurrence, including the date and time it occurred,
- if any injuries were sustained by the applicant,
- whether the applicant took any precautions before the occurrence,
- the name, office address, office telephone number and office fax number of the applicant's family physician, if different from the reporting physician,
- the statement that the applicant consented to an examination by the reporting physician
- applicant's immunization history,
- include the name and address of the respondent and their telephone number, if known,
- the respondent's sex, age and date of birth,
- the applicant's agreement to have counselling about the exposure and treatment options
- the applicant's agreement to arrange to have their blood tested for their baseline HIV, HBV and HCV status,
- the applicant's consent to the release of their personal information and personal health information relating to the application to the Board in the event that the application is referred to the Board,
- Give consent for the release of information on the police report if they were the victim of a crime.

The application will be read by the MOH and by members of the Consent and Capacity Board if the application is forwarded for an order.

Blood test results will be shared with the doctor who completed the physician report, the applicant's family physician, if named, and with the Consent and Capacity Board members if requested.

None of the applicant's personal information will be shared with the respondent.

Processing an Application

The regulations to the act require specific timelines be followed. Despite the shortened timeframes intended by the legislation, the process itself has many steps and time will vary depending on many factors.

Voluntary Process:

- when an application is received by the correct PHU and all requirements are met, it proceeds to the voluntary stage. This means that the MOH assigns a PHN to contact the respondent and ask that they voluntarily provide either a blood sample to test for the three diseases, or evidence of testing that was done within the past four weeks for hepatitis B and C, and HIV,

- two days are allowed for this stage of the process,

- if after two days the respondent cannot be reached, the application is forwarded to the Consent and Capacity Board who will hold a hearing within seven days,

- the PHN continues to try to reach the respondent and if successful, will notify the Consent and Capacity Board and ask to have the application withdrawn if the hearing hasn't yet started,

- when the respondent is contacted, the PHN will explain the request and keep information about the applicant confidential,

- the nurse will help the respondent to arrange for blood testing for hepatitis B and C, and HIV. The respondent will be asked to sign a consent form giving permission for the test results to be shared with the MOH, the respondent's physician and the applicant's physician,

- the respondent must show identification when the testing has been done. The person taking the blood is required to carefully handle the specimens, send them to the Ontario Public Health Lab and ask for immediate analysis.

- when the test results are received by the MOH, the results will be immediately forwarded to the applicant's physician. The applicant is notified and asked to make an appointment with their doctor so that testing results can be interpreted to the applicant.

Order Process:

- when the respondent cannot be reached within two days or when the respondent refuses to voluntarily provide the information requested, the application is forwarded to the Consent and Capacity Board,

- the Consent and Capacity Board now has seven days to start and conclude a hearing and one more day to make a decision about whether to issue an order compelling the respondent to provide a sample,

- the hearing is public and any person involved with the application may be called as a witness,

- the applicant, respondent and MOH will be notified of the decision made by the Board,

- when a respondent is ordered to provide a blood sample, they must do so within seven days of the order,

- if the respondent does not comply with an order made by the Board, the applicant may apply to a judge of the Superior Court of Justice for an order requiring the respondent to comply with the order of the Board. A person who does not comply with the order could be fined up to $5,000 per day, or any part of a day on which the offence occurs or continues,

- when an order is written and the respondent complies, the respondent is provided with a laboratory requisition and must go to a designated person to have the blood drawn. The respondent must bring identification,

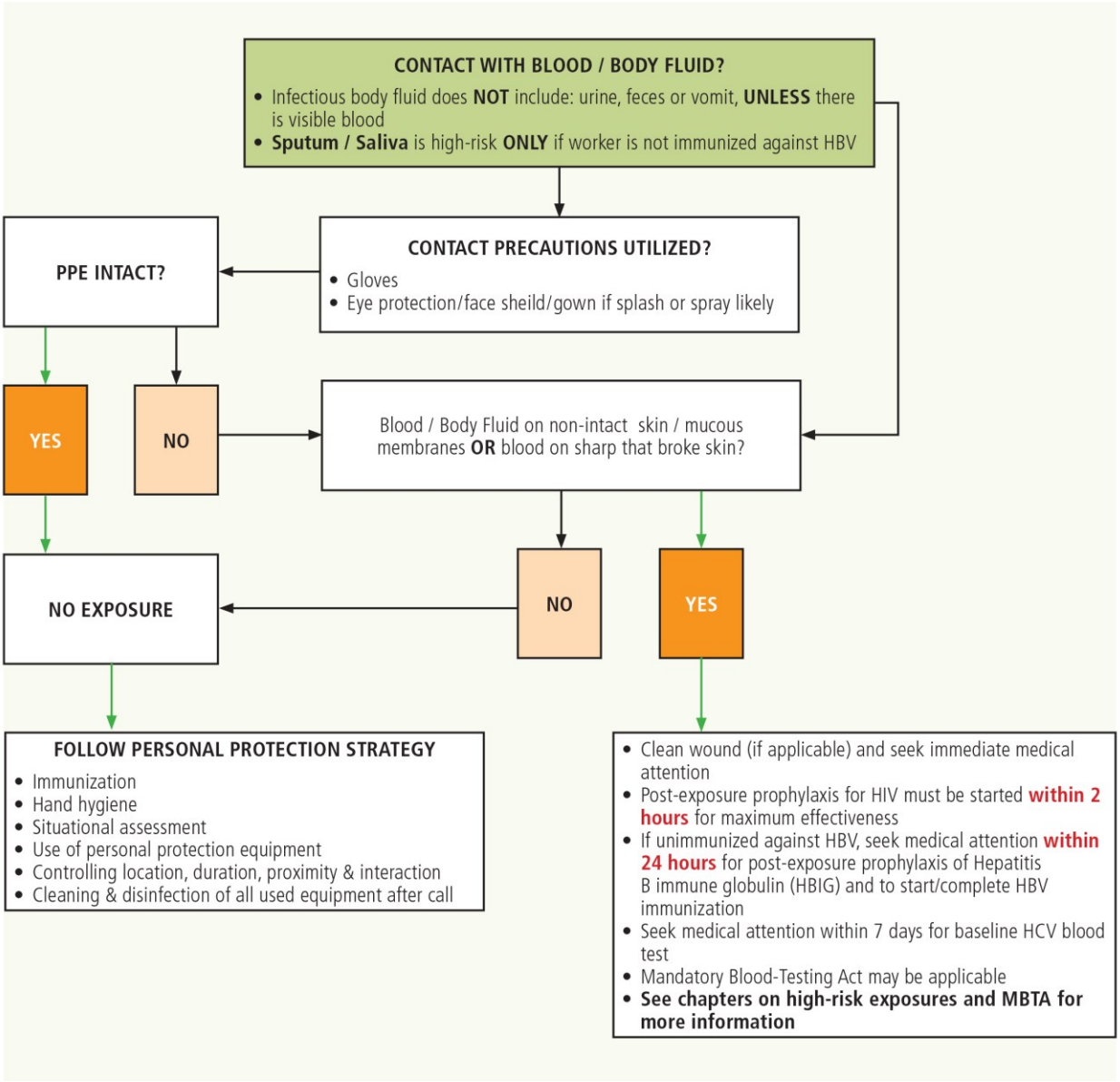
- the results of the blood tests will be sent to the applicant's physician and the applicant is notified to make an appointment with their physician to have the results interpreted.

More information on the MBTA is available through the website of the Ministry of Community Safety and Correctional Services. SMDHU staff are available to answer questions and provide support. Contact SMDHU with any questions.

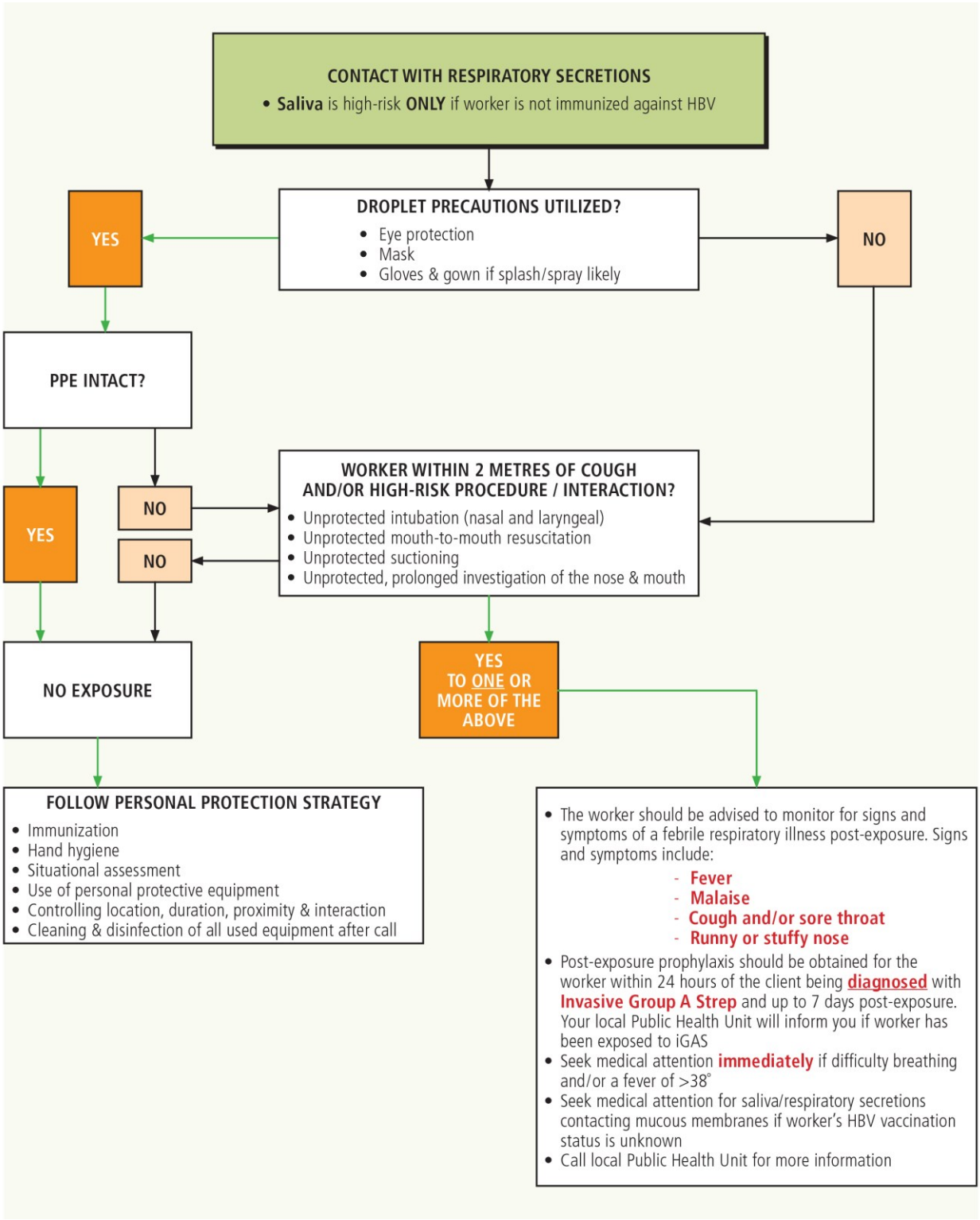
A

DECISION TREES & INFECTIOUS DISEASE FACT SHEETS

Exposure to Blood/Body Fluid



Exposure to Respiratory Secretions



Bacterial Meningitis

Meningitis is an infection of the membranes and fluid covering the brain and spinal cord. Viruses, bacteria, fungi and toxins can cause meningitis. While all types of meningitis can be considered a serious medical condition and are reportable to SMDHU, most are not a risk to ESWs/JSWs or others. Only meningitis caused by specific kinds of bacteria results in SMDHU initiating contact tracing and exposure follow-up.

Bacterial meningitis can result in severe illness and may cause permanent brain damage, hearing loss and/or learning disabilities. While there are over 50 different types of bacteria that can cause meningitis in susceptible hosts, the ones of most concern in the pre-hospital environment are caused by *Haemophilus influenzae* type b (HiB), *Streptococcus pneumoniae* and *Neisseria meningitides*. These three types of bacteria cause over 75% of all confirmed bacterial meningitis and over 90% of all meningitis in children. There are vaccines available for *Haemophilus influenzae* type b (HiB), *Streptococcus pneumoniae* and some strains of *Neisseria meningitides*.

Bacterial meningitis is commonly found in infected secretions of the upper respiratory tract. Respiratory secretions from an infected individual must contact the nose and throat of a susceptible host. Emergency and JSWs can be at risk of exposure to meningitis through any activity that can increase the risk of contact to infected respiratory secretions.

High-risk activities include:

- unprotected intubation (nasal and laryngeal),
- unprotected mouth-to-mouth resuscitation,
- unprotected suctioning,
- unprotected, prolonged investigation of the nose and mouth.

The signs and symptoms of bacterial meningitis include:

- rapid onset of severe illness,
- fever, headache, stiff neck that can include an unwillingness to move the head up and down,
- nausea and vomiting,
- sensitivity to bright light.
- people with this disease are visibly sick and may be confused, irritable or drowsy,
- sometimes a rash may be present as well.

To prevent the spread of bacterial meningitis:

If you are with a client where bacterial meningitis is suspected or confirmed, follow the PPS by:

- control your proximity if possible by staying one to two metres back from the client if they have signs and symptoms of bacterial meningitis;

- if you must be within two metres of the client, wear eye protection and a surgical mask to prevent contaminated respiratory secretions from landing on your eyes, nose and mouth. If your service does not issue surgical masks, wear your fit-tested N95 or reusable (elastomeric) respirator;

- clean and disinfect any surface and/or reusable equipment that were within two metres of the client as it may have come in contact with contaminated respiratory secretions;

- remove gloves and clean hands with ABHR or soap and water for at least 15 seconds before and after all client contact.

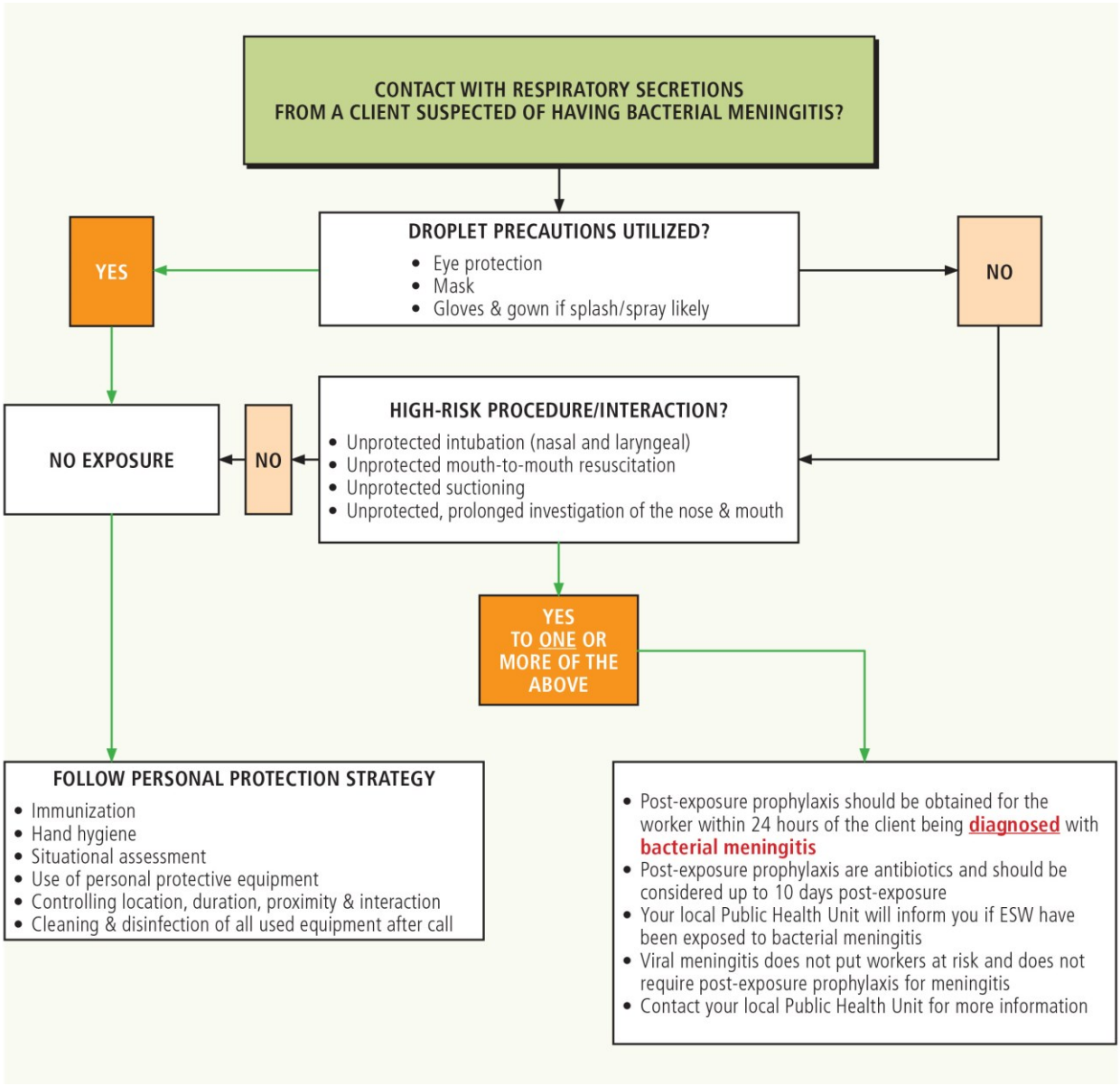
SMDHU receives reports on all suspected and confirmed cases of bacterial and other meningitis in their local region, and will follow-up with emergency and JSWs if it is possible an exposure has occurred. If an emergency or JSW has received a high-risk exposure, post-exposure prophylaxis with antibiotics may be recommended if indicated for that specific type of meningitis.

Remember:

It is extremely rare to develop bacterial meningitis even after a high-risk exposure. The risk of developing bacterial meningitis after exposure is only 1%.

If you have any questions, contact your DO or SMDHU.

Bacterial Meningitis



Bed Bugs — more information

Bed bugs are bloodsucking insects that feed on exposed human skin. Bed bugs are nocturnal and that is why they feed mainly at night when humans are sleeping.

Bed bugs are flat, wingless crawling insects that are reddish-brown in colour. They are approximately a quarter inch or 5 mm long (the size of an apple seed) and, after feeding, their bodies can double in size. They feed at night and hide during the day. Ninety per cent of their lifespan is spent in hiding places. Bed bugs prefer dark areas and hide in cracks and crevices to protect themselves close to where the person normally sleeps.

Bed bugs spread through two different mechanisms: migration and 'hitch hiking.' Migration occurs when the population of bed bugs grows to such an extent that the insects migrate to new areas of the home or building in search of food. Due to their small size they can easily crawl through openings such as an electrical outlet, plumbing or under doors to migrate to different areas.

Hitch hiking occurs when bed bugs climb into bags, on clothing or even cling to the treads of shoes and boots and are then moved by the person using the bags and/or wearing the clothing to another place. This makes it possible for ESWs to become accidentally contaminated with bed bugs and then bring them into their vehicles, back to their division, hall or base, or even into their homes.

When bitten by a bed bug, human skin may become irritated, inflamed and itchy through an allergic reaction to the bug's saliva. A bed bug feeds by extracting a small amount of blood from skin, which is usually painless.

No disease is known to have been transmitted to humans through bed bugs, however, the itching is a nuisance, and intense scratching may break the skin, introducing bacteria and causing infection.

Bed bugs in a home do not necessarily mean a problem with cleanliness or personal hygiene.

To prevent the spread of bed bugs:

- apply the PPS Model,
- learn how to identify bed bugs,
- when entering a residence, bring in only what you need,
- keep equipment and response bags away from walls and furniture. If possible, place bags in light-coloured plastic bags and inspect the outside of the plastic bags for bed bugs when leaving. It is unlikely that bed bugs will move from the environment to equipment or response bags.

- stand rather than sit, and avoid sitting on cloth furniture. Wood or metal chairs are harder for bed bugs to climb,

- wear a gown when caring for the client if possible,

- have client remove outer clothing and wear gown or jumpsuit,

- wrap the client in a clean blanket before putting them in your vehicle,

- transport client's personal belongings (electronics included) in a sealed plastic bag,

- inspect shoes, clothing (especially below the knee) and belongings for bed bugs after leaving, and kill them immediately if seen,

- spraying soles and edges of shoes with rubbing alcohol after leaving the residence can prevent beg bugs from being transported,

- if required, bag work clothes in plastic for transport, and then put them in the dryer on the hottest setting (above 50°C) for at least 30 minutes,

- if processing a client for the judicial system, bagging all their personal items, including their civilian clothes and shoes as per policy is sufficient to prevent spread.

If you think your residence is contaminated with bed bugs, you should consult with a licensed pest control firm.

Exposure to bed bugs is not considered a medical emergency and does not require immediate medical follow-up.

Further information:

Toronto Public Health: http://www.toronto.ca/health/bedbugs/factsheets.htm

*Or contact your DO or **SMDHU**.*

Clostridium *difficile*

Clostridium difficile (C. diff) is a spore-forming bacteria that produces a toxin that causes diarrhea and more serious intestinal conditions. It is one of the most common infections in hospitals and long-term care homes in Canada.

Clients can be either infected or colonized with C. *diff.* If they are colonized, then the client will test positive for C. *diff* and/or its toxin, but they have no clinical symptoms of disease and do not require contact precautions. Clients who are sick with C. *diff* have clinical symptoms and test positive for C. *diff* and/or its toxin. It is not recommended to test for the presence of C. *difficile* bacteria without the client having symptoms.

Symptoms of C. *difficile* illness (CDI) include: watery diarrhea (at least three loose bowel movements per 24 hours for two or more days beyond what is normal for the client). Fever, loss of appetite, nausea, abdominal pain and/or abdominal tenderness may also be present.

Laboratory testing for CDI involves detection of the toxins produced by C. *difficile*. Specimens of diarrheal stool (liquid or conforming to the collection container, not formed stools) should be collected by the hospital/LTCH as soon as possible after the onset of symptoms.

C. *difficile* is found in feces, and spread through the oral-fecal route, meaning that the bacteria must be eaten. Commodes, bathing tubs and rectal thermometers are examples of items that become contaminated by tiny, non-visible particles of feces and, therefore, may spread CDI person-to-person when touched. Clients and workers can become infected by touching items that are contaminated with feces and then touching their mouths, allowing them to swallow the bacteria. Clients can also become infected by health care workers whose hands are contaminated with C. *diff* and do not clean their hands properly before providing care.

Other risk factors for acquiring CDI include older age, prolonged hospitalization, bowel surgery, chemotherapy, underlying illness and/or antibiotic usage. Treatment with antibiotics alters the normal levels of the bacteria found in the intestines. When there are fewer of these bacteria, C. *difficile* can thrive and produce toxins that can cause illness. People in good health usually do not get CDI.

Clients who have CDI must be transported using contact precautions (gloves and gown).

C. *diff* spores are hard to kill and can only be killed using a sporicidal disinfectant. Killing C. *diff* requires higher concentrations of chemicals which are sporicidal (spore-killing), such as accelerated hydrogen peroxide or bleach. Refer to the product label to ensure the product being used will kill CDI. However the action of mechanical cleaning (washing and wiping) will remove spores from medical devices and equipment, rendering them safe for reuse.

Treatment for C. *diff* is not required for people with mild symptoms. If antibiotic use is the cause, symptoms usually clear up once the patient stops using antibiotics. For severe cases, different antibiotic treatment may be used, and in extreme circumstances, surgical interventions may be required. After treatment, repeat C. *difficile* testing is not recommended unless symptoms reoccur.

To prevent the spread of C. diff:

- apply the PPS Model,

- wash your hands with soap and water for at least 15 seconds before and after any client contact,

- as ABHR does not kill C. *diff* spores, soap and water is recommended to remove them off the hands. If no water is available, use ABHR or 'baby wipes' to physically remove bacteria from your finger-tips and then wash hands as soon as possible,

- use contact precautions (gloves and gown) when interacting with all clients who have signs and symptoms of diarrhea,

- wrap the client in a blanket for transport, if possible, to minimize the chance of seats/stretchers becoming contaminated,

- clean and disinfect with a sporicidal disinfectant all equipment used with the client, and all surfaces the client may have touched. The mechanical action of wiping down these surfaces with wipes that contain a sporicidal disinfectant will reduce and removes the C. *diff* bacteria spores and prevents the bacteria from infecting other clients.

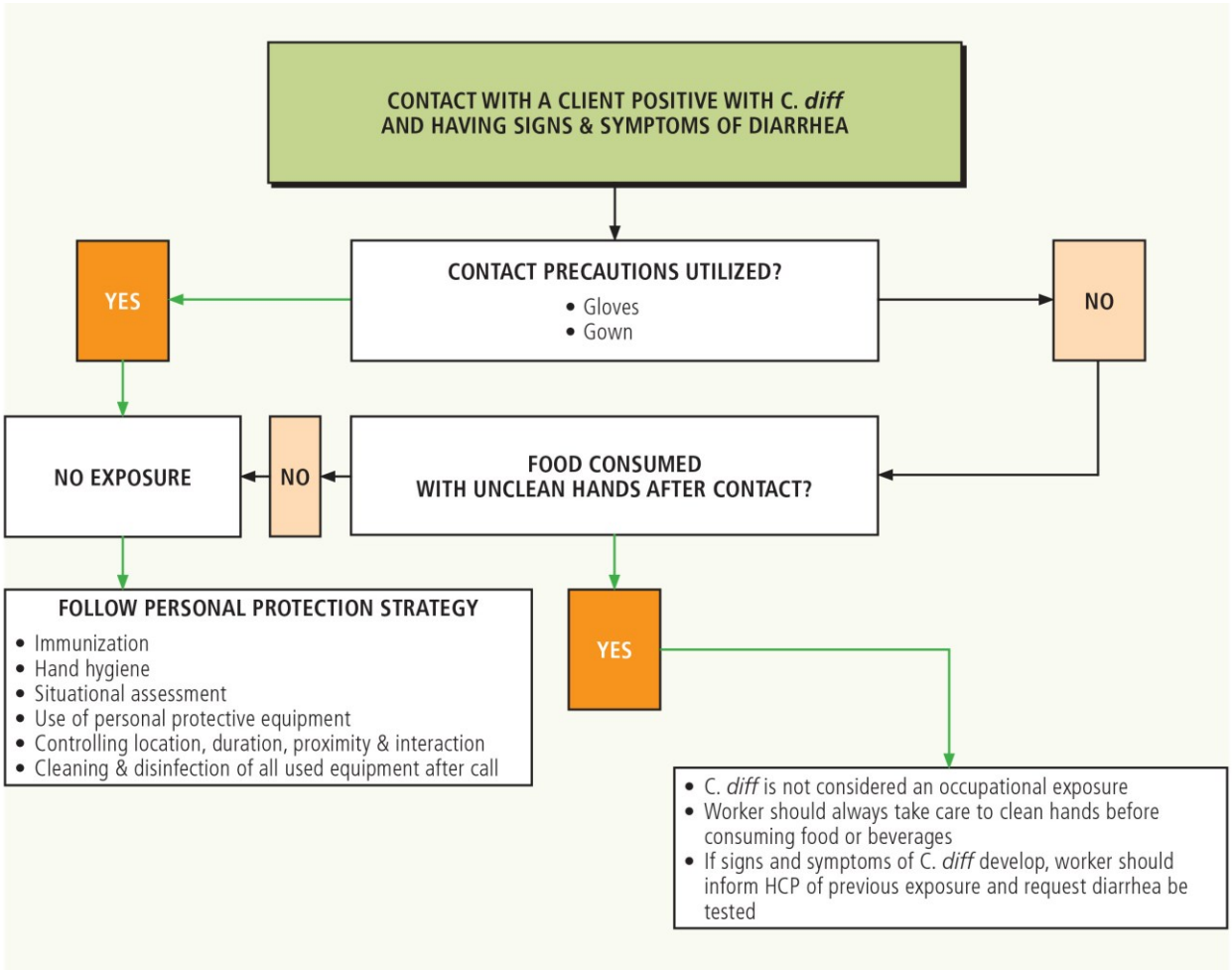
  Sporicidal disinfectants

  - Sodium hypochlorite (1,000 - 5,000 parts per million) for 10 to 30 minutes (dependent on concentration
  - Hydrogen peroxide enhanced action formulation (HP-EAF) (4.5%) for 10 minutes
  - Peracetic acid (0.26%) for 5 minutes

- Remember to always conduct hand hygiene before eating!

If you have any questions, contact your DO or SMDHU.

Clostridium *difficile* (C. diff.)



Ebola Viral Disease (EVD)

Ebola Viral Disease (EVD) is a severe, often-fatal disease in humans and nonhuman primates (monkeys, gorillas, and chimpanzees) that has appeared sporadically since it was first identified in 1976. The disease is caused by infection with Ebola virus, named after a river in the Democratic Republic of the Congo (formerly Zaire) in Africa, where it was first recognized. The virus is one of two members of a family of RNA viruses called the Filoviridae. There are five identified subtypes of Ebola virus. Four of the five have caused disease in humans.

Confirmed cases of EVD have been reported in the Democratic Republic of the Congo, Gabon, Sudan, the Ivory Coast, Uganda, and recently in the 2014-2015 outbreak in Guinea, Sierra Leone, Liberia and Nigeria.

Signs and Symptoms of EVD:

The Ebola virus causes a severe, acute viral illness with common symptoms of:

- fever
- headache
- joint & muscle aches
- sore throat
- weakness
- diarrhea
- vomiting
- stomach pain
- lack of appetite

A rash may develop on the skin and mucous membranes of the mouth which can then progress to small, clustered bruises under the skin. Eyes may become red and swollen.

In about 50% of cases, the patient will start bleeding from their nostrils, gums and intestines and sites of recent injections. The bleeding is accompanied by wasting and dehydration, and in severe cases, the patient will suffer from blood disorders, multi-organ failure and death.

Transmission of EVD:

The Ebola virus spreads person-to-person through contact with infected blood and body fluid that is then transferred to unprotected mucous membranes (eyes, nose, mouth) or non-intact skin. People can also be exposed to Ebola virus through contact with objects, such as needles, that have been contaminated with infected blood or body fluid. It is considered highly contagious. However, only people with signs and symptoms of disease are able to spread EVD, and contagiousness increases with the number and severity of the symptoms.

The incubation period is two to 21 days after exposure, although eight to 10 days is most common.

Treatment:

At the time of publication there is still no treatment for EVD beyond supportive therapy, which consists of replacing blood, fluids and electrolytes, monitoring of vital signs and supportive nursing care. While an Ebola vaccine is in development, currently there is no vaccine available.

To Prevent the Spread of EVD:

- apply the PPS Model,
- follow service, municipal or provincial directives,
- use enhanced PPE (eye protection/face shield and mask, gloves, hood, gown and leg covers) when interacting with all clients who have signs and symptoms of viral hemorrhagic fever,
- officers should wear medical gloves over their service gloves,
- ensure any non-intact skin (cuts, scrapes,) are covered with fluid-resistant bandages,
- be sure to inform receiving hospital that you are bringing a client with suspected EVD,
- wrap the client in a blanket for transport to minimize the chances of seats/stretchers becoming contaminated,
- remove all PPE and dispose of it immediately after call is finished,
- remove service gloves and immediately bag them for washing,
- clean hands thoroughly with alcohol-based waterless hand sanitizer or soap and water as soon as possible after PPE is removed,
- clean and disinfect all equipment used with the client and all surfaces the client may have touched before reuse,
- any items of clothing and/or linens that are contaminated with blood or body fluid suspected of being infected with Ebola virus must be bagged and disposed of immediately.

It is vitally important to avoid contact with the blood or body fluid of any client with suspected or confirmed EVD. Enhanced PPE must also be used when manipulating a deceased client with known or suspected EVD as handling of the bodies of clients who have died of EVD has caused transmission of disease.

Further Information:

Public Health Ontario's Ebola Viral Disease page: http://www.publichealthontario.ca/en/BrowseByTopic/InfectiousDiseases/Pages/Viral-Hemorrhagic-Fevers.aspx

Public Health Agency of Canada's Ebola information page: http://www.phac-aspc.gc.ca/id-mi/vhf-fvh/ebola-eng.php

Or contact your DO or SMDHU.

Extended Spectrum Beta-Lactamase Organisms (ESBL)

ESBL organisms are bacteria that are commonly found in the lower digestive tract. They can also be found in: urine, blood, wounds and sputum. Several different types of bacteria can be classified as ESBL. ESBLs produce enzymes that break down some antibiotics, specifically those in the cephalosporin class of antibiotics, which includes penicillin, and antibiotics in the class of fluoroquinolones. This means that those antibiotics are no longer effective in killing the ESBL organisms. Infections caused by ESBLs are treated with other antibiotics effective against the bacteria. Colonization of the bowel by ESBLs is not treated as it does not cause illness.

ESBLs are found in feces, and are spread through the oral-fecal route, meaning that the bacteria must be eaten. Clients become infected by heath care workers whose hands are contaminated with ESBLs and who do not clean their hands properly before providing care. Non-intact skin and indwelling devices, such as urinary catheters, can become contaminated with ESBLs and cause infection if they are touched by contaminated hands of clients and their health-care providers.

Items, such as commodes, bathing tubs and rectal thermometers can easily become contaminated by tiny, non-visible particles of feces and therefore may spread ESBLs person-to-person when touched.

Clients and workers can become infected by touching items that are contaminated with feces and then touching their mouths, allowing them to swallow the bacteria.

Risk factors for colonization with an ESBL:

- prolonged and/or extensive treatment with third-generation cephalosporin or fluoroquinolone antibiotics,
- prolonged hospital/ICU stay,
- severe illness requiring invasive and/or multiple medical interventions,
- receiving a transplant,
- having an indwelling catheter.

To prevent spread of ESBLs:

- apply the PPS Model,
- clean your hands with ABHR or soap and water for at least 15 seconds before and after any client contact,
- use contact precautions (gloves and gown) when interacting with all clients who have signs and symptoms of diarrhea,
- wrap the client in a blanket for transport, if possible, to minimize the chance of seats/stretchers becoming contaminated,

- clean and disinfect all equipment used with the client, and all surfaces the client may have touched,

- remember to always clean your hands before eating!

If you have any questions, contact your DO or SMDHU.

Head Lice (Pediculosis)

Head lice is an insect that lives and breeds on your head that feeds by biting your scalp to suck minute amounts of blood. Having head lice (pediculosis) is common; as many as six to12 million people worldwide get head lice each year.

Anyone who comes in close head-to-head contact with someone who already has head lice can get head lice. Head lice are found more often among children between the ages of three to 10, and their families.

Signs & symptoms of head lice:

- tickling feeling of something moving in the hair,
- itching, caused by an allergic reaction to the bites,
- sores on the head caused by scratching. These sores can sometimes become infected.

Head lice are spread by:

- close head-to-head contact with someone who already has head lice, such as bending to care for a client in a way that allows your hair to contact theirs,
- activities where articles that contact the head, such as helmets and protective equipment, might be shared,
- using hats, scarves, combs, brushes, hair ribbons, pillows or towels recently used by someone with head lice where lice or nits (eggs of lice) have transferred.

Lice are tiny, wingless insects that move quickly and are difficult to see. They cannot jump or fly. They are 1 to 2 mm long and greyish-brown in colour. There are three forms of lice: the nit (egg), the nymph and the adult.

Nits are head lice eggs. They are hard to see and are often confused with dandruff or hair spray droplets. Nits are found firmly attached to the hair shaft. They are oval and usually yellow to white. Nits take about one week to hatch.

The nit hatches into a baby louse called a nymph. It looks like an adult head louse, but is smaller. Nymphs mature into adults about seven days after hatching. Nymphs must have blood within the first 24 hours of life or they will die.

The adult louse is about the size of a sesame seed, has six legs, and is tan to greyish-white. Females lay nits and are usually larger than males. Adult lice can live up to 30 days on a person's head. To live, adult lice need to feed on blood. If a louse falls off a person and cannot feed, it dies within 48 hours. Head lice do not spread disease.

There are many products available to treat head lice. Before buying any product, talk to a pharmacist to see what product may be appropriate for your use. A doctor should be consulted before treating a child less than two years of age, or people with a seizure disorder or non-intact skin of the scalp such as a skin condition or infection. Head lice treatment should not be used post-exposure if no symptoms are present.

To prevent the spread of lice:

- apply the PPS Model,
- do not allow your head to touch the heads of clients or colleagues,
- do not share personal items, such as hats, scarves, hairbrushes, combs and pillows Items, such as helmet or protective equipment for the head, which may be worn by more than one person should be cleaned and disinfected as per manufacturer's instructions between uses,
- if you have long hair, tie it back. Braids hold the hair tightly and discourage lice from clinging to it,
- all family members with head lice should be treated at the same time,
- tell all close contacts of the person with head lice to check their head. If it is a child, inform their school and/or daycare,
- check young school age children weekly for head lice; more often if there is an outbreak.

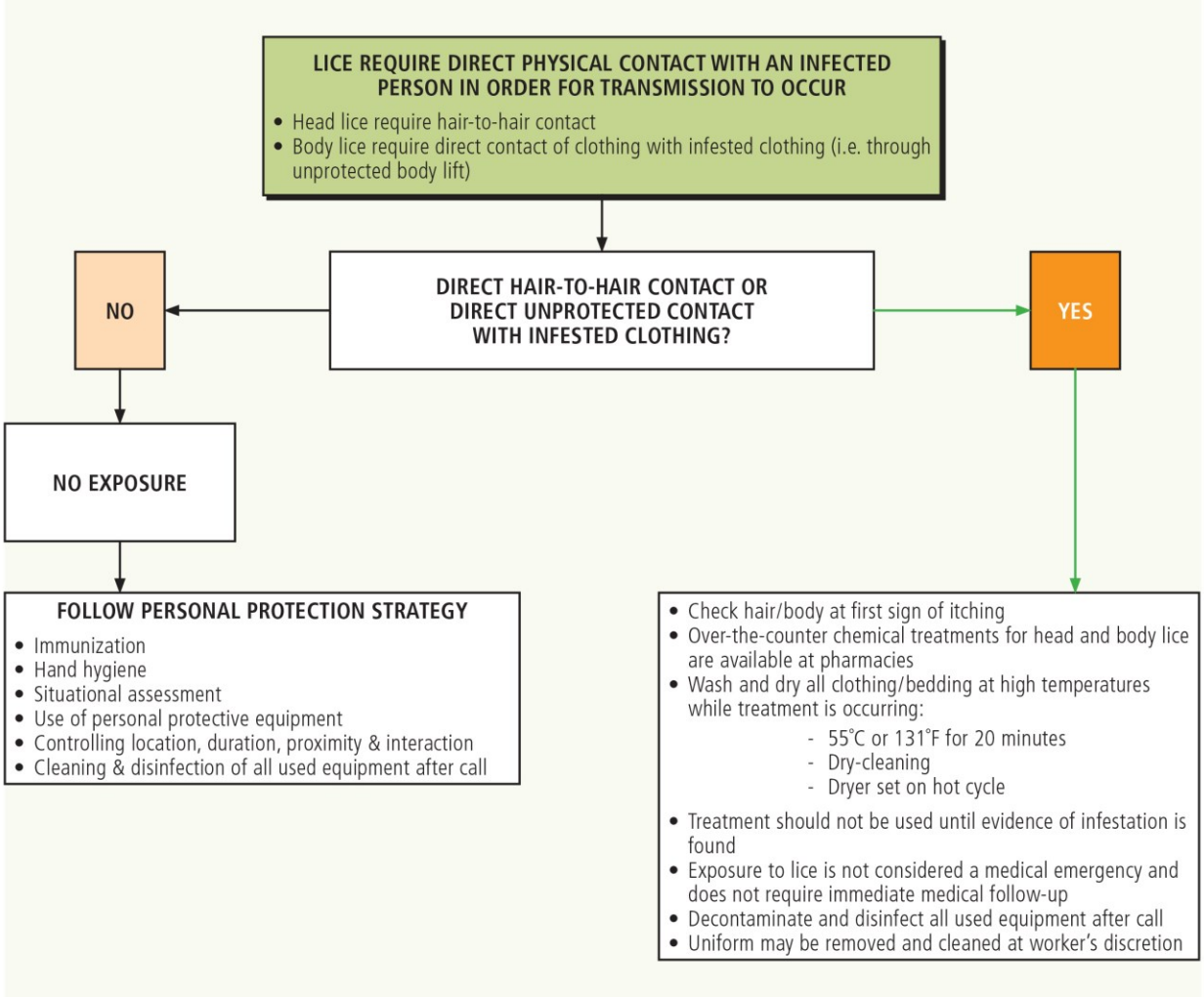
Exposure to lice is not considered a medical emergency and does not require immediate medical follow-up.

Further Information:

CDC lice treatment page: http://www.cdc.gov/parasites/lice/head/treatment.html.

Or contact your DO or SMDHU.

Head & Body Lice (Pediculosis & Phthiriasis)



Hepatitis A

Hepatitis A is a liver infection caused by the hepatitis A Virus (HAV).

Hepatitis A virus is found in feces, and spread through the oral-fecal route, meaning that the bacteria must be eaten. It is not transmitted through blood or body fluid. People are most infectious a week or two *before* symptoms occur. It is most common to become infected with hepatitis A while in areas where it is prevalent such as on vacation or volunteering in a developing country. Some people may be more at risk of exposure to HAV due to their work. Hepatitis A is not considered a work-related exposure for emergency service or JSWs.

Symptoms can last anywhere from one week to several months, however, some people, particularly young children, have no symptoms at all. Symptoms of hepatitis A infection include:

- fever
- body aches (malaise)
- loss of appetite
- upset stomach and abdominal discomfort
- dark-coloured urine
- jaundice (yellowing of the skin and/or the whites of the eyes).

There is no treatment for hepatitis A. Most people will suffer from an acute infection that will get better in one to two weeks. Once someone has recovered from hepatitis A infection, they develop immunity and cannot become infected again. It is unusual for people to become carriers of HAV.

To prevent the spread of HAV:

- apply the PPS Model,
- clean hands with ABHR or soap and water for at least 15 seconds before and after any client contact,
- use contact precautions (gloves and gown) when interacting with all clients who have signs and symptoms of diarrhea,
- wrap the client in a blanket for transport, if possible, to minimize the chance of seats/stretchers becoming contaminated,
- clean and disinfect all equipment used with the client, and all surfaces the client may have touched,
- consider being vaccinated against HAV, especially if travel outside of Canada is planned. The cost of HAV vaccine is covered by service benefits packages,
- remember to always clean your hands before eating!

Further information:

The Canadian Liver Foundation, 416-491-3353 or 1-(800) 563-5483 or www.liver.ca

Or contact your DO or SMDHU.

Hepatitis B

Hepatitis B Virus (HBV) is a viral infection of the liver. Some people who get hepatitis B never feel sick. Others develop flu-like symptoms, such as fatigue and nausea. Some become very ill with fever, loss of appetite, abdominal pain, dark urine, clay-coloured stools and develop a yellowish colour to their skin and eyes called jaundice. Most people who get hepatitis B recover completely and then have immunity to future hepatitis B infections. Less than 1% of people with acute hepatitis B die from the disease. Some people become carriers of hepatitis B and will require continual medical follow-up. Approximately 0.5% of adults in North America are chronic carriers of HBV.

Hepatitis B carriers are people who carry the virus in their blood and body fluids for the rest of their lives:

- Ssx to 10 per cent of people with hepatitis B become chronic carriers,

- carriers look and feel well but can continue to pass the infection to others,

- Twenty-five per cent of carriers develop cirrhosis (scarring) or cancer of the liver later in life.

Hepatitis B is spread to others by:

- contact with infected blood or body fluids, including saliva. The infected blood or body fluid must enter a break in the skin or be absorbed through a mucous membrane, such as the eyes, nose, mouth or genital areas,

- bites, if they break the skin, and infected blood or saliva from the biter is then able to contact the bloodstream,

- through sharing of contaminated drug paraphernalia, such as needles,

- a carrier mother who can pass the virus to her baby during childbirth,

- objects, such as patient-care equipment, which is contaminated with blood or body fluid coming in contact with non-intact skin or mucous membranes, as HBV can live on surfaces for upwards of seven days,

- flakes of dried blood contaminated with HBV coming into contact with non-intact skin or unprotected mucous membranes during cleaning or preparation of evidence, as HBV can live in dried blood for upwards of one month.

There is no treatment for HBV. It is highly recommended that emergency service and JSWs vaccinate themselves against HBV. Unvaccinated people have a 30% chance of being infected with HBV every time they are exposed to infected blood and body fluids. If the person is fully vaccinated, the exposed person is provided with over 90% protection from HBV if they are exposure to infected blood and body fluids. The cost of vaccine is reimbursable through service health benefits packages.

To Prevent the Spread of HBV:

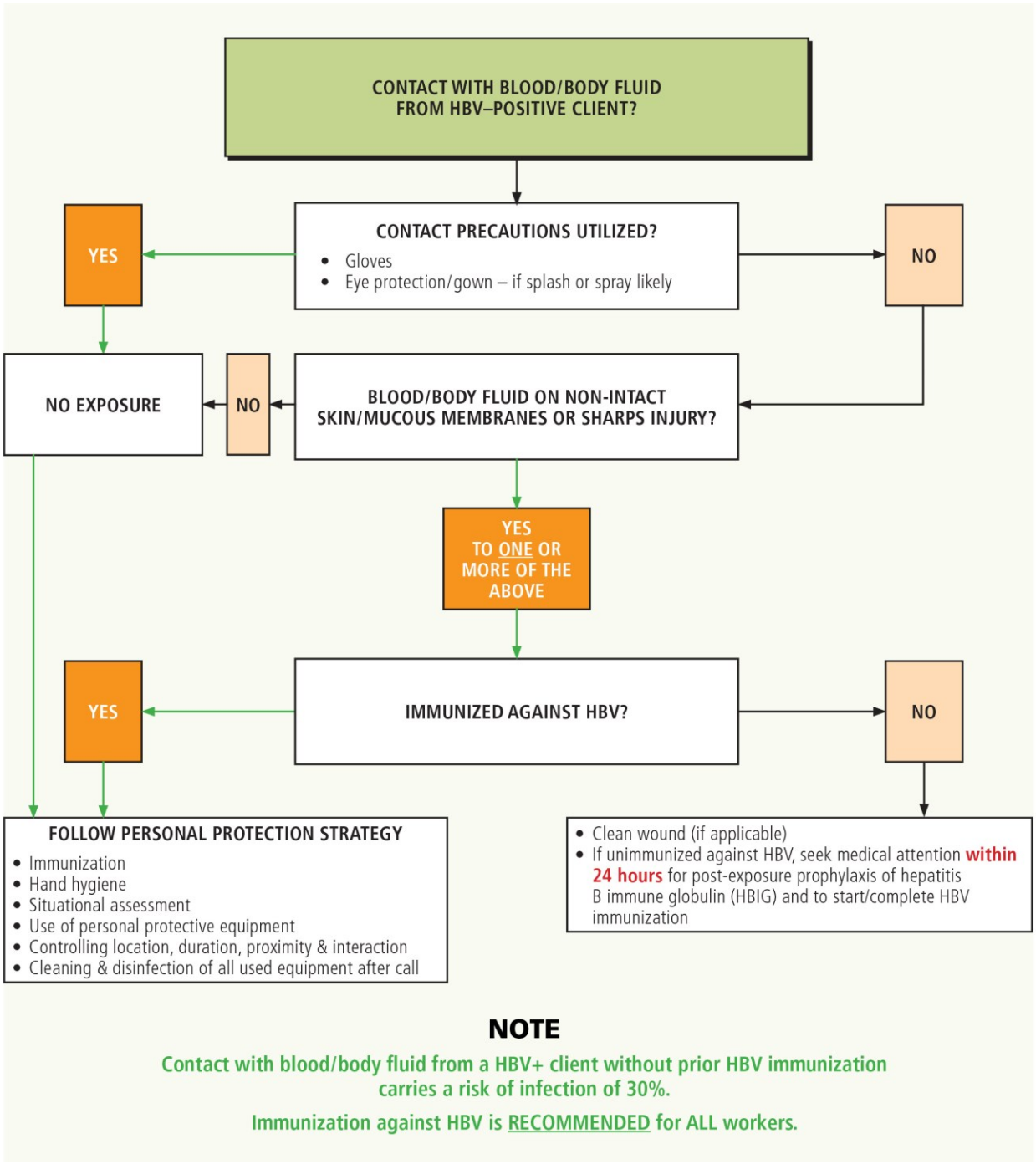
- apply the PPS Model,
- check skin for any areas that are non-intact and cover with a water-resistant dressing,
- wear medical gloves to reduce the risk of blood/body fluid entering the body through breaks in the skin of the hands,
- if your service wears duty gloves, medical gloves should be worn over them to prevent blood and body fluid from leaking through,
- wear eye protection and mask/respirators if:
    - blood or body fluid spray is likely
    - your activity may aerosolize flakes of dried blood
    - yhe client is likely to spit
- clean and disinfect any surface and/or reusable equipment that may have come in contact with blood/body fluids,
- remove gloves and clean hands with ABHR or soap and water for at least 15 seconds before and after all client contact.

Further information:

Canadian Liver Foundation, 416-491-3353 or 1- (800) 563-5483 or www.liver.ca

Or contact your DO or SMDHU.

Hepatitis B (HBV)



Hepatitis C

Hepatitis C virus (HCV) is a virus that causes an acute or chronic inflammation of the liver. Hepatitis C can lead to liver damage and may lead to liver cancer. As HCV is easily spread through blood and blood products, blood for donation in Canada has been screened for HCV since 1992.

Symptoms of HCV may appear two weeks to six months after exposure to the virus, but 75% of infected people will show no signs of illness. Of those with symptoms, the most common is chronic fatigue, but they may also include lack of appetite, nausea, vomiting, itchiness, development of a yellowish colour to their skin and eyes called jaundice and joint and muscle aches. Complications of hepatitis C include chronic liver disease such as cirrhosis, liver cancer and liver failure.

Seventy-five to 85% of people infected with hepatitis C become chronic carriers. This means that they will have the virus in their blood for the rest of their lives and can unknowingly spread it to others. Most carriers remain symptom-free for many years. However, some will eventually become ill because of ongoing damage to their liver. Approximately half of all carriers of HCV will develop cancer of the liver.

Hepatitis C is spread to others by:

- sharing needles, spoons, straws and other drug-related equipment that is contaminated with HCV-infected blood or body fluid,

- getting tattoos or body parts pierced with used or non-sterile needles that have been contaminated with HCV-infected blood or body fluid,

- receiving medical care where multi-use patient care equipment is not adequately sterilized between uses and remains contaminated with HCV-infected blood or body fluid,

- receiving a transfusion of blood that has not been screened,

- having received blood transfusions or blood products in Canada before 1992,

- having an HCV-infected mother. Studies show that 5- 10% of women who have HCV pass it on to their babies before or at the time of birth,

- the risk of HCV through occupational exposure, such as through needle-stick injuries or splash or spray of infected blood or body fluid on non-intact skin is less than 3%,

- hepatitis C cannot be transmitted through mucous membranes.

To prevent the spread of HCV:

- apply the PPS Model,

- check your skin for any areas that are non-intact and cover with a water-resistant dressing,

- wear medical gloves to reduce the risk of blood/body fluid entering your body through breaks in the skin,

- if your service wears duty gloves, medical gloves should be worn over them to prevent blood and body fluid from leaking through,

- clean and disinfect any surface and/or reusable equipment that may have come in contact with blood/body fluids,

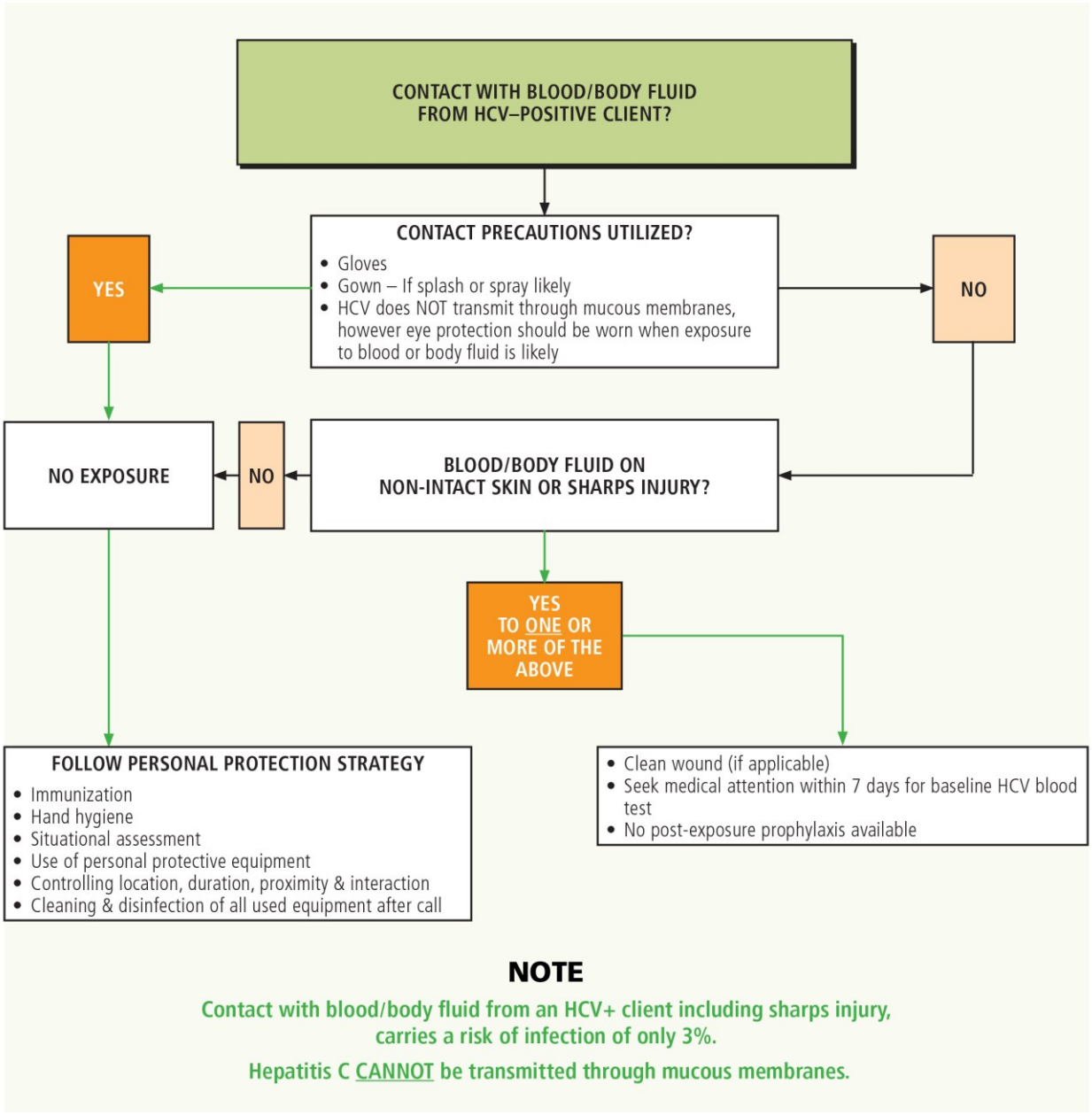
- remove gloves and clean hands with ABHR or soap and water for at least 15 seconds before and after all client contact.

Further information:

The Canadian Liver Foundation, 416-491-3353 or 1-(800) 563-5483 www.liver.ca

Or contact your DO or SMDHU.

Hepatitis C (HCV)



Human Immunodeficiency Virus (HIV)

Human Immunodeficiency Virus (HIV) is the virus that causes Acquired Immunodeficiency Syndrome (AIDS). This virus attacks the body's immune system, lowering its ability to fight disease. According to the WHO, it is estimated that 37 million people worldwide were infected with HIV in 2014.

HIV is spread to others by contact with infected blood or body fluids. The infected blood or body fluid must enter a break in the skin or be absorbed through a mucous membrane, such as the eyes, nose, mouth or genital areas. HIV cannot be passed through casual contact such as shaking hands or hugging. HIV does not survive on inanimate objects and cannot be transmitted through them. It is not spread through saliva, urine, feces or vomit unless they are visibly contaminated with blood.

HIV is spread most efficiently through unprotected sexual contact, but can also be spread through sharing of contaminated drug paraphernalia, such as needles; and equipment used for tattooing, piercing, electrolysis or acupuncture that has not been properly sterilized. A carrier mother may also pass the virus to her baby during childbirth or breastfeeding. Blood or blood products that have not been properly screened can also pass on HIV. Having an untreated sexually transmitted infection can increase the chance of contracting HIV if exposed.

It is extremely rare for an occupational exposure to HIV, such as a needle-stick, to result in infection. A study commissioned by the Public Health Agency of Canada (PHAC) from April 2000 to March 2001, showed that, in over 1,200 high-risk exposures to HIV-infected blood, not a single health care provider contracted HIV. The risk of being infected with HIV from a needle-stick injury is considered less than 0.3 – 0.5%. An exposure to blood/body fluid on a mucous membrane, such as the eyes, nose, or mouth, on non-intact skin or through a bite has a risk of infection of 0.09%.

Even though the risk of infection is extremely low, if the worker has been exposed to blood and/or body fluid through a needle-stick injury or blood/body fluid contacting non-intact skin or mucous membranes, medical follow-up is required. Post-exposure prophylaxis for HIV must be started within two hours of exposure to be maximally effective. If taken within two hours of exposure, PEP can reduce the risk of HIV by 83%.

HIV testing is done by taking blood and looking for antibodies to HIV. It can take up to 12 weeks for these antibodies to develop in the body. Therefore, testing may not be accurate until 12 weeks after exposure. This time is called the "window period."

To prevent the spread of HIV:

- apply the PPS Model,

- check skin for any areas that are non-intact and cover with a water-resistant dressing,

- wear medical gloves to reduce the risk of blood/body fluid entering the body through breaks in the skin,

- if your service wears duty gloves, medical gloves should be worn over them to prevent blood and body fluid from leaking through,

- wear eye protection and mask/respirator if blood or body fluid spray is likely,

- clean and disinfect any surface and/or reusable equipment that may have come in contact with blood/body fluids.

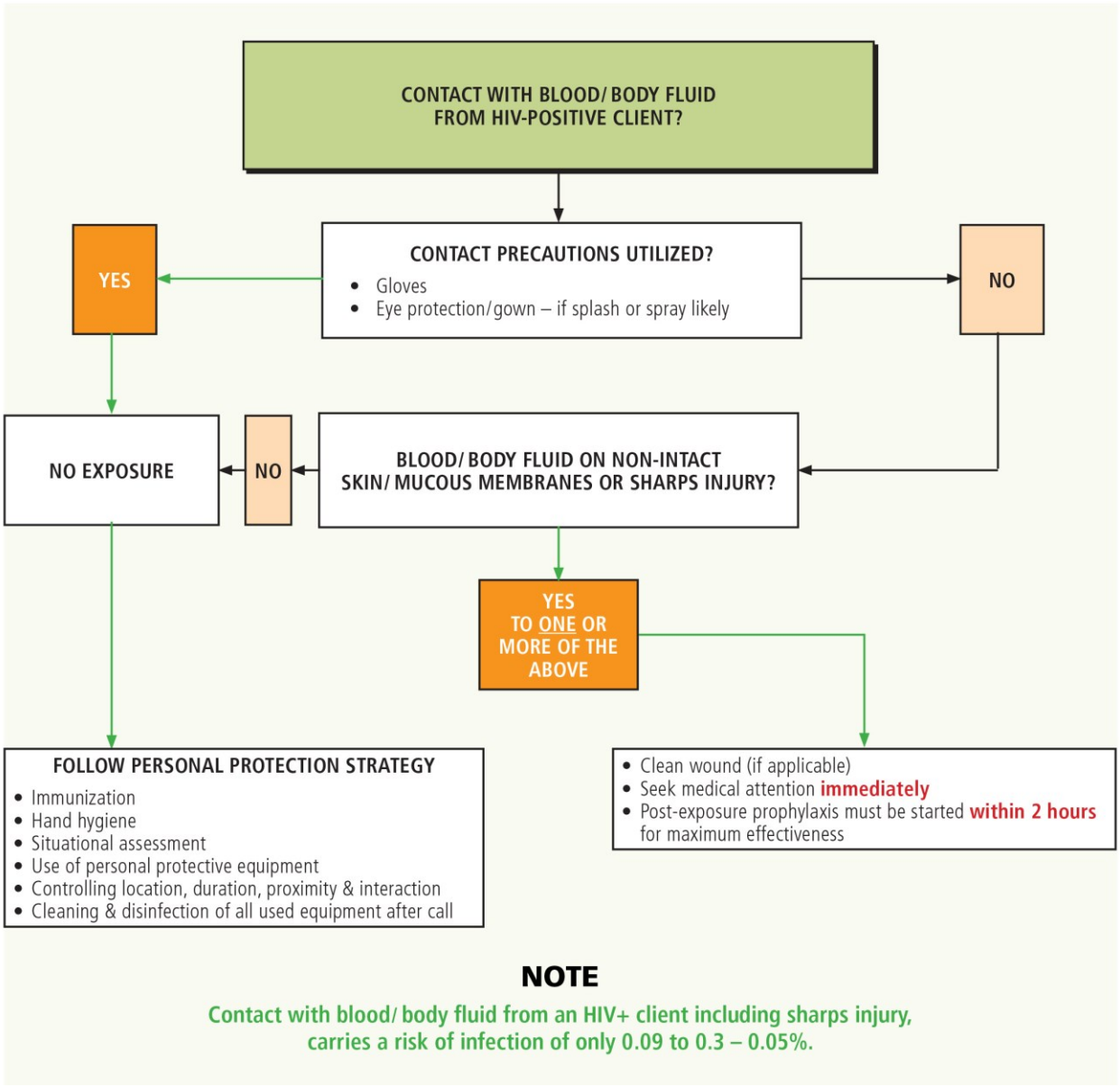
Remove gloves and clean hands with ABHR or soap and water for at least 15 seconds before and after all client contact.

Further Information:

CATIE http://www.catie.ca/en/basics

Or contact your DO or SMDHU.

Human Immunodeficiency Virus (HIV)



Summary of St. Michael's Hospital Guidelines For Prescribing PEP for HIV

Management of HIV Exposure Based on Occupational Exposure and Source

Source Individual					
Exposure Type	HIV Negative	Low Titre Exposure: Asymptomatic HIV infection & low load count	Higher Titre Exposure: Advanced AIDS primary HIV infection/ acute seroconversion, high or increasing viral load, low CD4 count and source is not currently taking HIV medication.	Higher Titre Exposure and source has taken or is currently taking HIV medication. The antiviral medication history of source patient should be obtained.	HIV Status Unknown

Mucous Membrane or Non-Intact Skin Exposure (E.G. Chapped Skin, Dermatitis, Abrasions, Open Wounds)					
Small Volume of Blood (e.g. a few drops for a short duration, i.e. less than several minutes)	No PEP	No PEP or consider Basic Regimen	Basic Regimen	Basic Regimen & consult ID	No PEP
Large Volume of Blood or major blood splash (e.g. Several drops, major blood splash and/or longer duration, i.e. several minutes or more.)	No PEP	Basic Regimen	Expanded Regimen	Expanded Regimen & consult ID	Consider Basic Regimen in settings where exposure to HIV-infected person is likely

Percutaneous / Sharps Exposure					
Solid needle or superficial injury (e.g. superficial scratch)	No PEP	Basic Regimen	Expanded Regimen	Expanded Regimen & consult ID	Consider Basic Regimen in settings where exposure to HIV-infected person is likely
Large-bore hollow needle or more severe injury. (e.g. deep puncture, visible blood on device or needle used in source patient's artery or vein)	No PEP	Expanded Regimen	Expanded Regimen	Expanded Regimen & consult ID	Consider Basic Regimen in settings where exposure to HIV-infected person is likely

Adapted from: St. Michael's Hospital (2016). Pocket P.E.P.: Clinical management of non-occupational and occupational exposure to blood-borne pathogens. Retrieved: http://www.stmichaelshospital.com/pdf/programs/pocket-pep.pdf

Influenza (the flu)

Influenza is a serious respiratory infection caused by the influenza virus. The flu spreads easily through the expulsion of infected respiratory secretions into the environment through coughing and sneezing. These heavy respiratory secretions can travel as much as two metres before landing on unprotected mucous membranes of the eyes, nose or mouth, or on surfaces, such as keyboards, tables, steering wheels or radios. When these surfaces are touched, the virus can be easily transferred to the mucous membranes of the eyes, nose and mouth when someone touches their face without cleaning their hands first. The flu can be prevented by getting vaccinated against influenza every year and by practising good hand hygiene.

While colds, stomach flu and other infections are often confused with the flu, they are not the same. Influenza can be a much more serious infection:

SYMPTOMS	COLD	INFLUENZA
Fever	Rare	Usually high (102°F/39°C-104°F/40°C), sudden onset, lasts 3-4 days
Headache	Rare	Usual, can be severe
Aches & pains	Sometimes, mild	Usual, often severe
Fatigue and weakness	Sometimes, mild	Usual, severe, may last 2-3 weeks or more
Runny, stuffy nose	Common	Common
Sneezing	Common	Sometimes
Sore throat	Common	Common
Chest discomfort, coughing	Sometimes, mild to moderate	Can become severe
Complications	Unusual	Pneumonia, respiratory failure. Can be life-threatening.

Influenza, while usually a mild-to-moderate self-limiting illness in the young and healthy, can be devastating for very young children, those with underlying medical conditions, and the elderly. As people are contagious with influenza up to 24 hours before they develop symptoms, it is very possible for emergency service or JSWs to accidentally infect vulnerable clients who could develop severe illness or die as a consequence. It is for that reason that immunization against influenza is recommended for every emergency and JSW.

While antiviral medication is available to treat influenza, it is only effective within the first 48 hours of symptoms. Many types of influenza are already immune to the available antiviral medication.

To prevent the spread of Influenza:

- apply the PPS Model;

- get vaccinated against influenza every year. The influenza vaccine is available free of charge. The injection form of the vaccine contains dead virus while the nasal spray contains a live modified version of the flu virus and cannot give you the flu;

- because the virus changes every year, and because immunity wanes from influenza vaccination after about 12 months, you need to be revaccinated every flu season;

- control your proximity if possible by staying two metres back from the client if they have signs and symptoms of an influenza-like illness;

- if you must be within two metres of the client, wear eye protection and a surgical mask to prevent contaminated respiratory secretions from landing on your eyes, nose and mouth. If your service does not issue surgical masks, wear your fit-tested N95 or reusable (elastomeric) respirator;

- clean and disinfect any surface and/or reusable equipment that were within two metres of the client as it may have come in contact with contaminated respiratory secretions;

- remove gloves and clean hands with ABHR or soap and water for at least 15 seconds before and after all client contact.

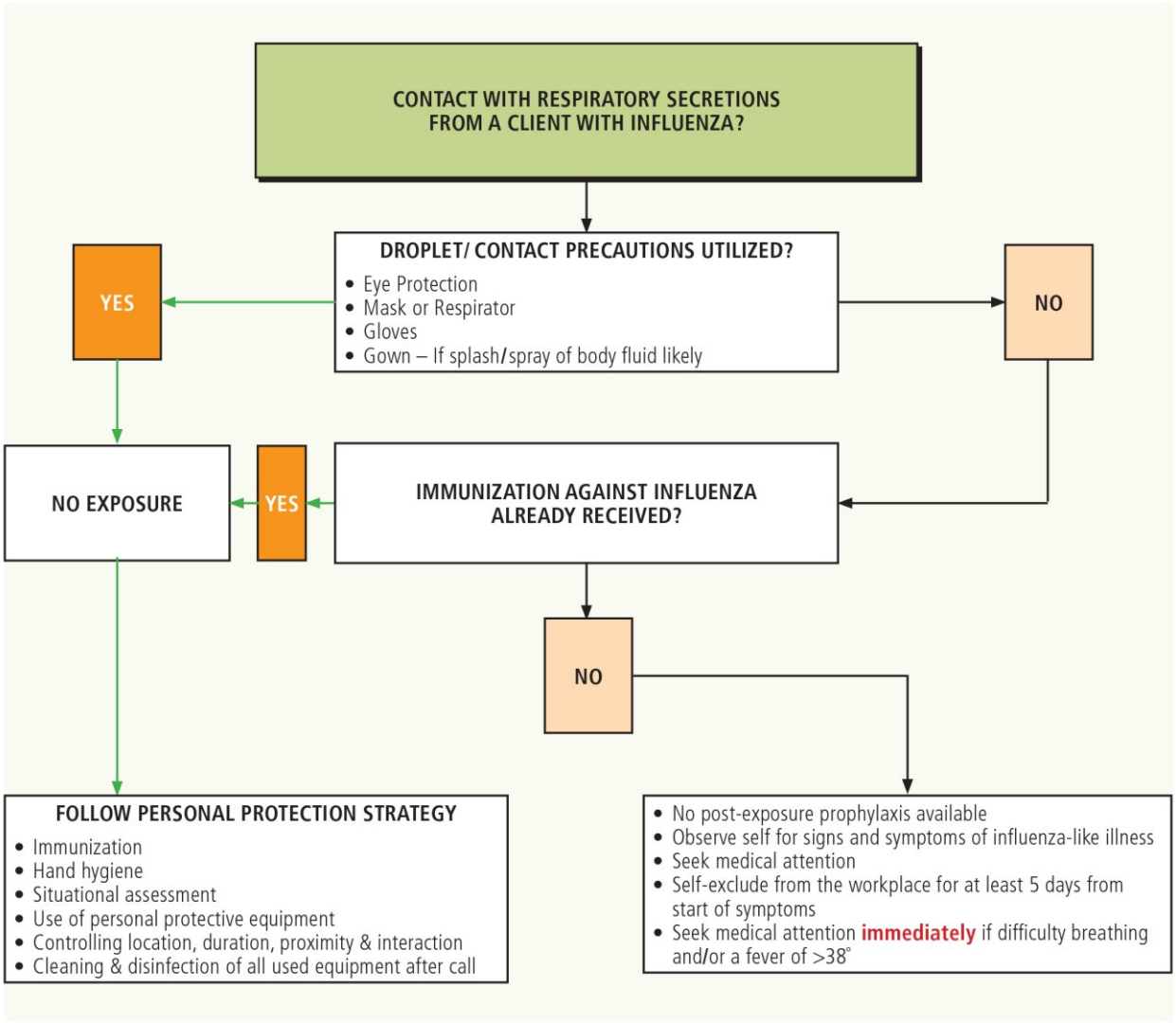
Further information:

www.FightFlu.ca

www.gettheflushot.ca

Or contact your DO or SMDHU.

Influenza


CONTACT WITH RESPIRATORY SECRETIONS FROM A CLIENT WITH INFLUENZA?
DROPLET/ CONTACT PRECAUTIONS UTILIZED?
• Eye Protection
• Mask or Respirator
• Gloves
• Gown – If splash/spray of body fluid likely
YES
NO
NO EXPOSURE
YES
IMMUNIZATION AGAINST INFLUENZA ALREADY RECEIVED?
NO
FOLLOW PERSONAL PROTECTION STRATEGY
• Immunization
• Hand hygiene
• Situational assessment
• Use of personal protective equipment
• Controlling location, duration, proximity & interaction
• Cleaning & disinfection of all used equipment after call
• No post-exposure prophylaxis available
• Observe self for signs and symptoms of influenza-like illness
• Seek medical attention
• Self-exclude from the workplace for at least 5 days from start of symptoms
• Seek medical attention immediately if difficulty breathing and/or a fever of >38°

What is Group A Streptococcal (GAS) infection?

Group A Streptococcus (GAS) are bacteria commonly found in the throat and on the skin. People may carry these bacteria and have no symptoms of illness. When they do cause illness, the resulting disease will occur in one of two forms:

- invasive GAS infection; or
- non-invasive GAS infection.

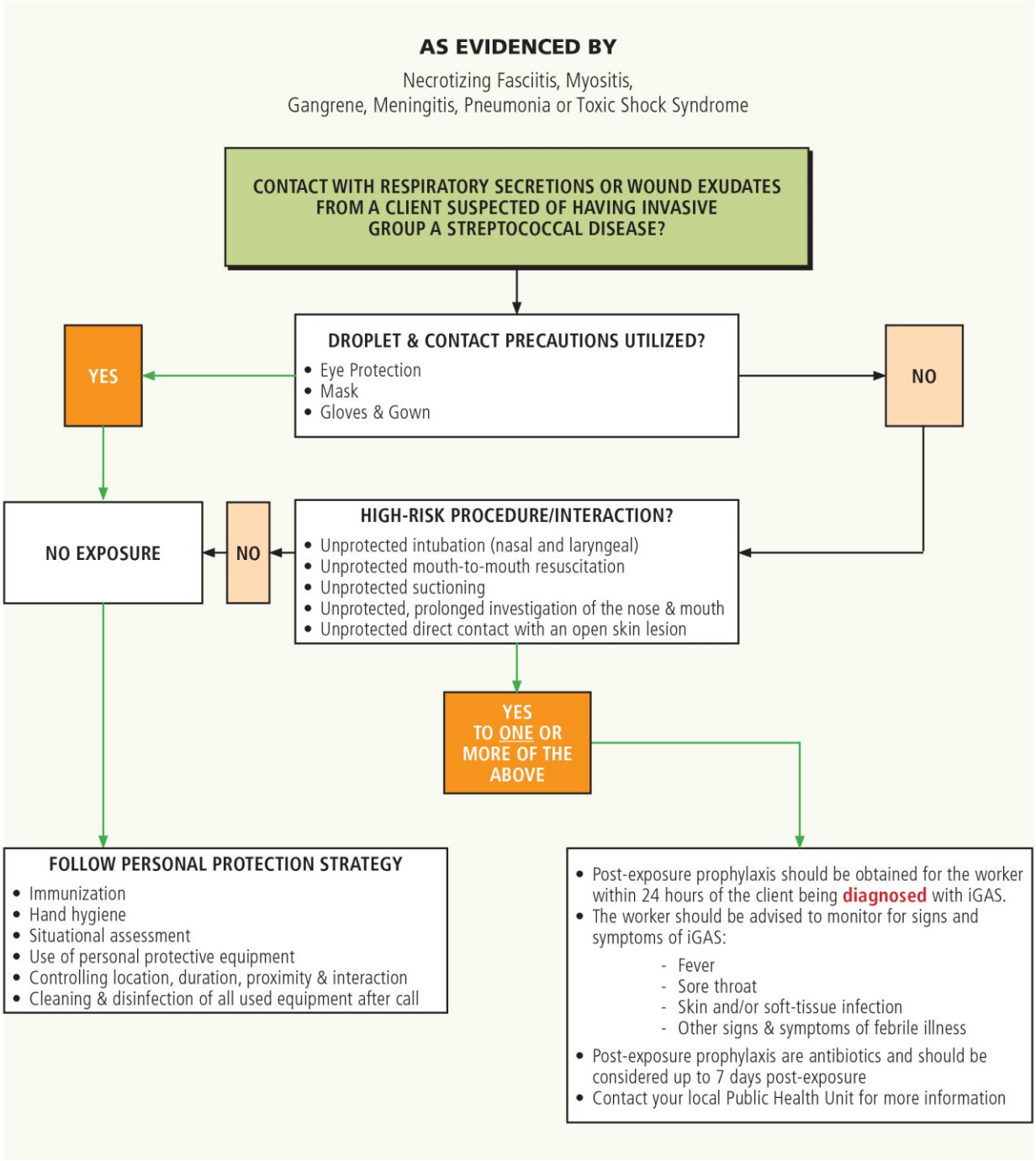
What is the difference between invasive and non-invasive GAS?

Common non-invasive GAS infections include strep throat, scarlet fever, impetigo, and ear infections. These infections are less severe and more contagious than invasive GAS infections.

Invasive GAS disease may occur when bacteria get into parts of the body where bacteria usually are not found, such as the blood, muscle, or the lungs. Two of the most severe, but least common, forms of invasive GAS disease are necrotizing fasciitis and streptococcal toxic shock syndrome. Necrotizing fasciitis (commonly known as “flesh-eating disease”) is a rapidly spreading disease which destroys muscles, fat and skin tissue. Streptococcal toxic shock syndrome results in a rapid drop in blood pressure and organ failure (i.e. kidneys, liver, lungs and brain).

GAS is spread by direct contact with secretions from the nose or throat of an infected person, or through contact with an infected wound or sore on the skin. The incubation period for GAS, which is the time from when you are exposed to the bacteria until symptoms develop, is one to three days. Activities such as open mouth kissing (“french kissing”), mouth-to-mouth resuscitation, sexual intercourse and sharing needles may put you at greater risk of becoming infected. It is rarely spread by casual contact or by touching common surfaces or shared objects.

Invasive Group A Streptococcal Disease (iGAS)



Post-Exposure Prophylaxis Recommendations For iGAS

SMDHU may recommend that emergency and JSWs who have had a high-risk exposure to a severe case of iGAS take post-exposure antibiotics to prevent the development of an iGAS infection.

Post-exposure prophylaxis (PEP) should be taken as soon as possible and preferably within 24 hours of the emergency or JSW being identified as having had a high-risk exposure. PEP is still recommended up to seven days post-exposure if the ESW or JSW cannot be contacted within the first 24 hours.

The following table are recommendations for iGAS PEP from the Public Health Agency of Canada (2006).

	DRUG	DOSAGE	COMMENTS
FIRST LINE	First-generation Cephalosporins: Cephalexin (Keflex) Cephadroxil Cephradine	Adults: 25-50 mg/kg daily to a maximum dose of 1g/day in 2 to 4 divided doses x 10 days	Recommended drug for pregnant and lactating women. Should be used with caution in patients with allergy to penicillin. Use of Cephalosporin's with nephrotoxic drugs (e.g. aminoglycosides, vancomycin) may increase the risk of cephalosporin-induced nephrotoxicity
SECOND LINE	Erythromycin	Adults: 500 mg every 12 hours (base) x10 days	Contraindicated in persons with pre-existing liver disease or dysfunction and during pregnancy
	Clarithromycin	Adults: 250 mg po bid x10 days	Contraindicated in pregnancy
	Clindamycin	Adults: 150 mg every 6 hours x10 days	Alternative for persons unable to tolerate beta-lactam antibiotics

Public Health Agency of Canada. Guidelines for the Prevention and Control of Invasive Group A Streptococcal Disease. CCDR 2006; Vol. 32S2:1-26

Methicillin-Resistant Staphylococcus *aureus* (MRSA)

Staphylococcus *aureus* (Staph *aureus*) is bacteria that may normally be present on the skin and in the nose of people without any sign of infection. This is known as colonization. Staph *aureus* can cause common infections such as impetigo, pink eye (conjunctivitis) and boils. Sometimes it causes more serious illnesses such as blood infections, surgical wound infections and pneumonia.

Methicillin-resistant Staphylococcus aureus, also called MRSA, is a Staph aureus that is resistant to several antibiotics. Illnesses caused by MRSA are no more serious or severe than those caused by non-resistant Staph *aureus,* however, any infection caused by MRSA is harder to treat. Due to its resistance, the number and type of antibiotics that can be used to treat MRSA are more limited.

MRSA is transmitted from person to person, mainly through direct contact. Emergency and JSWs can become colonized by touching or rubbing their noses with their hands while caring for clients colonized with MRSA. They can also transmit MRSA to other clients if they do not clean their hands and equipment carefully between clients. Objects and surfaces can also become contaminated with MRSA and may be a source of transmission.

MRSA infections can occur anywhere on or in the body. However, the most common infections occur on the skin and in soft tissue (the layers of flesh below the skin). MRSA infection can also develop in the lungs or blood of susceptible individuals. MRSA infections can be treated, but there are less antibiotics that can be used and those antibiotics are more costly.

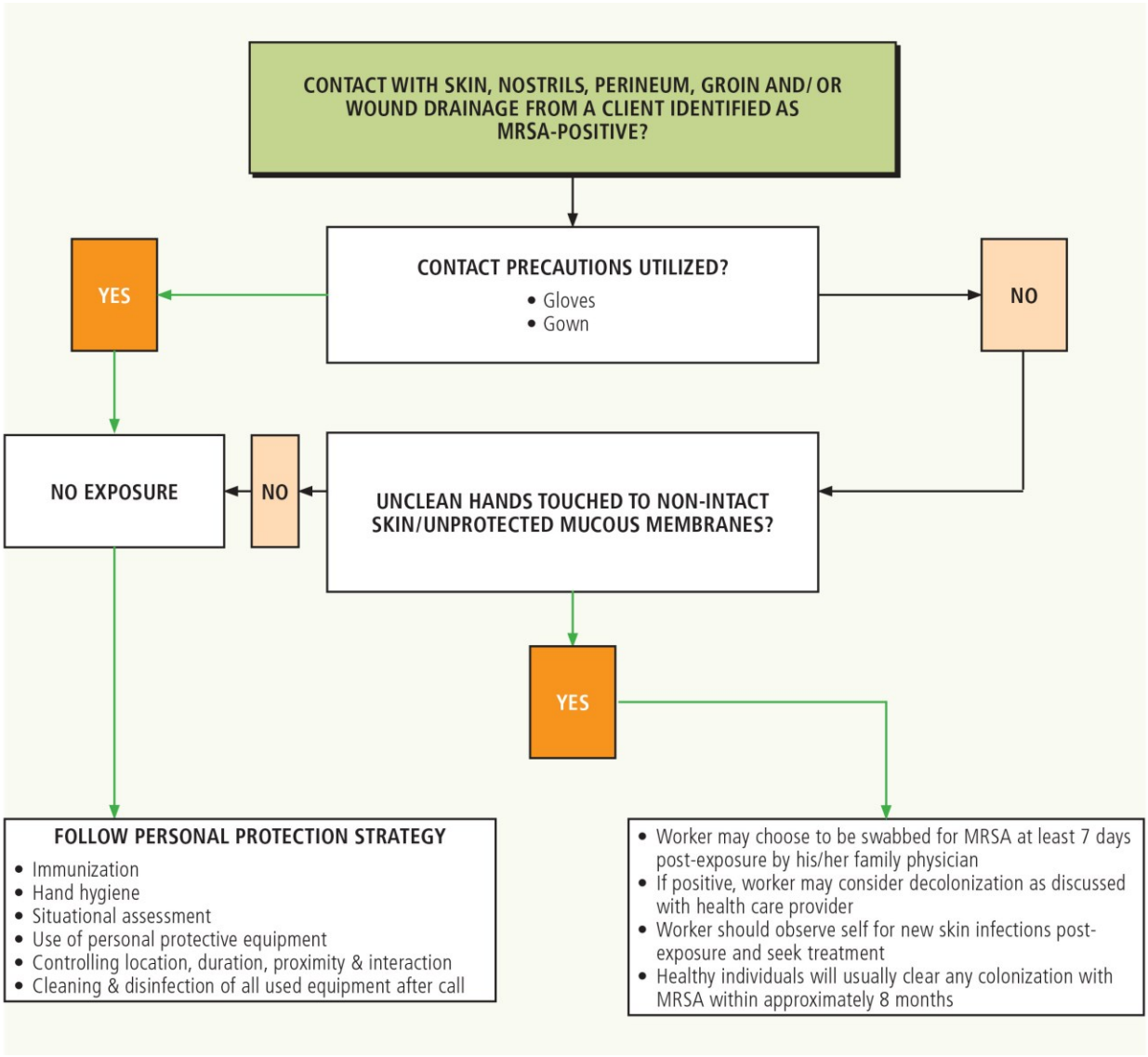
Even if accidentally colonized, healthy people will usually clear their MRSA colonization within six to eight months.

To prevent the spread of MRSA:

- apply the PPS Model,
- clean your hands with ABHR or soap and water for at least 15 seconds before and after any client contact,
- use contact precautions (gloves and gown) when interacting with all clients who have signs and symptoms of a skin and/or soft tissue infection or who have been identified as being colonized or infected with MRSA,
- wrap the client in a blanket for transport, if possible, to minimize the chance of seats/stretchers becoming contaminated,
- clean and disinfect all equipment used with the client, and all surfaces the client may have touched,
- remember to always clean your hands before touching your nose, as that is a common area of MRSA colonization.

If you have any questions, contact your DO or SMDHU.

Methicillin-Resistant Staphylococcus aureus (MRSA)



Measles

Measles is a highly contagious viral disease. It's spread through airborne, droplet and contact transmission, which means that the virus can stay in the air long enough to be breathed in as well as be picked up on your hands through contact with infected upper respiratory tract secretions and then transferred to the unprotected mucous membranes of your eyes, nose or mouth. Five minutes of exposure to measles will cause illness in 90% of people who are not immune.

Signs & Symptoms of Measles:

- high fever
- cold-like symptoms, such as cough, runny nose
- sore, watery eyes
- red rash lasting four to seven days that is usually all over the body.

Measles also weakens the immune system for months after infection, which can allow other infections, such as ear infections and pneumonia to occur. Encephalitis (inflammation of the brain) occurs in about one out of every 1000 cases. This severe complication can result in permanent brain damage, blindness and/or deafness. In rare cases, measles can cause the development of a fatal brain disease called SSPE that can occur years after the attack of measles.

People who are immunocompromised, children under one year of age and pregnant women are particularly at risk after exposure to measles to developing a severe or life-threatening case. A woman who is pregnant and becomes sick with measles has a higher risk of premature labour, spontaneous abortion and having a child with a low birth-weight.

Measles is a VPD. Measles vaccine has been used routinely in Canada since the early 1960s. Before the onset of routine immunization against measles there were 50 to 75 deaths, 5,000 hospital admissions and 400 cases of encephalitis every year. Measles is given as part of the MMR (measles, mumps, rubella) vaccination and is routinely given at 12 months and again between four and six years of age. The second dose of MMR was added to Ontario's routine vaccination schedule after 1995.

Anyone born before 1970 is considered to have had a measles infection as a child and is considered immune. Those born after 1970 would have received one dose of MMR at 12 months of age, while those born after 1985 would most likely have received their second dose of MMR while still a child.

To Prevent the Spread of Measles:

- apply the PPS Model,
- if you have had only one dose of MMR talk to your health care provider about getting a second dose of MMR to ensure you are fully protected,
- if you don't know your vaccination history or are unsure of your immunity to measles, speak to your health care provider about having a blood test to check for immunity and/or arranging to receive two doses of MMR vaccine at least 28 days apart,
- wear a fit-tested N95 or C50 (elastomeric) respirator, eye protection, gloves and gowns with anyone exhibiting signs and symptoms of measles,
- clean and disinfect any surface and/or reusable equipment that were within two metres of the client as it may have come in contact with contaminated respiratory secretions,
- remove gloves and clean hands with ABHR or soap and water for at least 15 seconds before and after all client contact,
- protection of health care workers – On the job exposures can be prevented by all ESWs having two documented MMR vaccinations or proof of immunity through blood work (a titre, blood work ordered through your doctor.)

Further Information:

http://www.phac-aspc.gc.ca/im/vpd-mev/measles-rougeole-eng.php

Or contact your DO or SMDHU.

Rabies

Rabies is an infectious viral disease that affects the central nervous system of humans and other mammals. It is spread through contact with saliva and the mucous membranes of an infected animal. Humans and other mammals can become infected through a bite, cut or scratch from an animal with rabies or if the rabies virus comes into contact with the mucus membranes in their mouth, nose or eyes.

In Ontario, the animals that most often transmit rabies are foxes, skunks, bats and raccoons. Pets and humans can become infected when they come in contact with these animals.

Small rodents such as squirrels, rats, mice, hamsters, guinea pigs, gerbils, chipmunks and rabbits are almost never found to be infected with rabies. Bites by these animals are usually not considered a risk of rabies unless the animals were sick or behaving in an unusual manner and rabies was widespread in the area.

Rabies virus can be found in animal saliva days before any obvious symptoms develop. From the time of exposure, it can take from two weeks to several months for the symptoms to start showing in many animals, but they are still contagious even without obvious symptoms. Eventually, all animals that have the virus will develop symptoms and all will die of the disease. Rabies in animals can appear in two basic forms: Dumb rabies and Furious rabies.

Signs of dumb rabies:

- some animals may become depressed and retreat to isolated places,
- wild animals, especially skunks, may lose their fear of humans,
- animals may show signs of paralysis such as abnormal facial expressions, drooping heads, sagging jaws or paralyzed hind limbs.

Signs of furious rabies:

- animals may show extreme excitement and aggression,
- animals may gnaw and bite their own limbs,
- animals may attack stationary objects or other animals.

To prevent the spread of rabies:

- if rabies is suspected, contact animal services for that municipality;

- do not approach, interact with or handle wild or domestic animals whose rabies vaccination status cannot be verified or if that are acting strangely;

- if interaction with a wounded animal cannot be avoided, use the PPS Model to control for location, duration, proximity and interaction to ensure you are not bitten or scratched;

- wear gloves, eye protection and a respirator to prevent splash or spray of blood/body fluids contacting your eyes, nose or mouth or non-intact skin;

- consider wearing a gown or bunker gear if contamination of your uniform is likely;

- clean your hands with ABHR or soap and water for at least 15 seconds before and after any contact with animals;

- clean and disinfect all equipment used with the animal (if any), and all surfaces the animal may have contacted;

- if you have been bitten or scratched by an animal that may have rabies, or suspect you have been bitten or scratched, you should:

    - clean and wash the bite or scratch thoroughly with soap and water

    - seek medical attention immediately

    - anyone bitten by any animal, including raccoons, must immediately seek medical attention and call SMDHU.

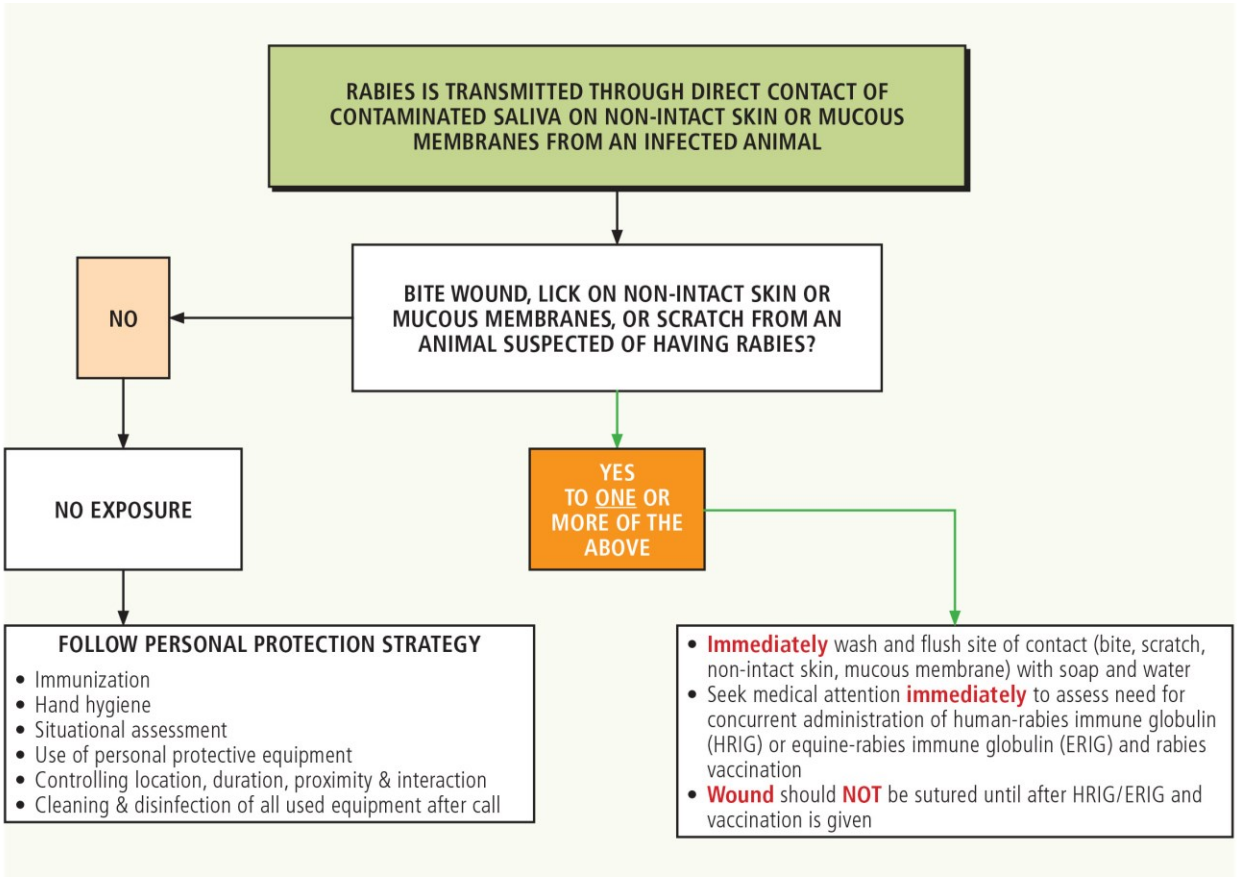
Treatment for rabies (called rabies prophylaxis) usually consists of a series of five injections given over a one-month period. Vaccination must be given as soon as possible after exposure. The treatment is safe and effective.

Further Information:

http://travel.gc.ca/travelling/health-safety/diseases/rabies

Or contact your DO or SMDHU.

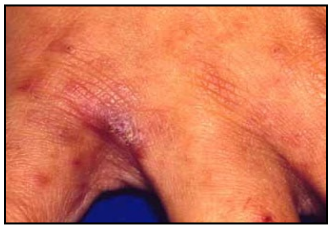
Rabies


RABIES IS TRANSMITTED THROUGH DIRECT CONTACT OF CONTAMINATED SALIVA ON NON-INTACT SKIN OR MUCOUS MEMBRANES FROM AN INFECTED ANIMAL
BITE WOUND, LICK ON NON-INTACT SKIN OR MUCOUS MEMBRANES, OR SCRATCH FROM AN ANIMAL SUSPECTED OF HAVING RABIES?
NO
NO EXPOSURE
YES TO ONE OR MORE OF THE ABOVE
FOLLOW PERSONAL PROTECTION STRATEGY
• Immunization
• Hand hygiene
• Situational assessment
• Use of personal protective equipment
• Controlling location, duration, proximity & interaction
• Cleaning & disinfection of all used equipment after call
• Immediately wash and flush site of contact (bite, scratch, non-intact skin, mucous membrane) with soap and water
• Seek medical attention immediately to assess need for concurrent administration of human-rabies immune globulin (HRIG) or equine-rabies immune globulin (ERIG) and rabies vaccination
• Wound should NOT be sutured until after HRIG/ERIG and vaccination is given

Scabies

Scabies is a common and annoying condition caused by tiny insects (mites) that dig under the skin, causing a very itchy rash. Scabies is spread by humans through prolonged skin to skin contact, such as during sexual contact, dancing or holding hands. Other means of transmission can be through sharing clothing, bedding or towels. Scabies is not caused by lack of proper cleanliness and it can affect anyone.

Signs of scabies usually do not appear until about three weeks after mites dig under the skin.



The rash looks like curvy white threads, tiny red bumps, scratches or tiny blisters. It is very itchy, especially at night. Scabies do not spread disease, but scratching the rash can break the skin, allowing a portal of entry for infectious agents, which can cause infection.

Often the rash first appears between the fingers, around wrists, and elbow creases. It also can be found in the armpits, under the breasts, along the belt line and navel, the inner thighs, the buttocks and genitals. People, who are immunocompromised, such as with HIV infection or the elderly, may develop Norwegian or Crusted scabies, which results in a generalized dermatitis (inflammation of the skin) with scaling or crusting.

Scabies should be diagnosed by a doctor as other skin conditions can also cause a rash and itching.

To prevent the spread of scabies:

- apply the PPS Model,
- wear gloves when in contact with the skin of a client who is complaining of itching, or who has signs and symptoms of an itchy rash,
- it takes approximately an hour for a mite to burrow into the skin. Therefore, performing excellent hand hygiene with ABHR or soap and water for at least 15 seconds before and after patient contact is highly protective against scabies,
- keep personal items personal and do not share towels, pillows or clothing with colleagues without laundering first,
- do not use anti-scabies medication unless scabies infestation is confirmed.

If you have scabies, you can buy medicated treatment at a pharmacy without a prescription. If you are pregnant or breastfeeding, talk to a doctor or pharmacist. Follow the instructions for treatment very carefully.

Do not have close contact with others until the treatment is finished. Any sexual partners and household contacts within the past month of scabies diagnosis need to be treated at the same time. A second treatment may be necessary.

On the same day that you use the medicated treatment, wash your bedding, towels and clothes in hot water. Place these in the dryer on the hottest cycle for 20 minutes. Dry clean anything that cannot be washed or place items in a sealed plastic bag for three to seven days. Vacuum your mattress and empty out the vacuum.

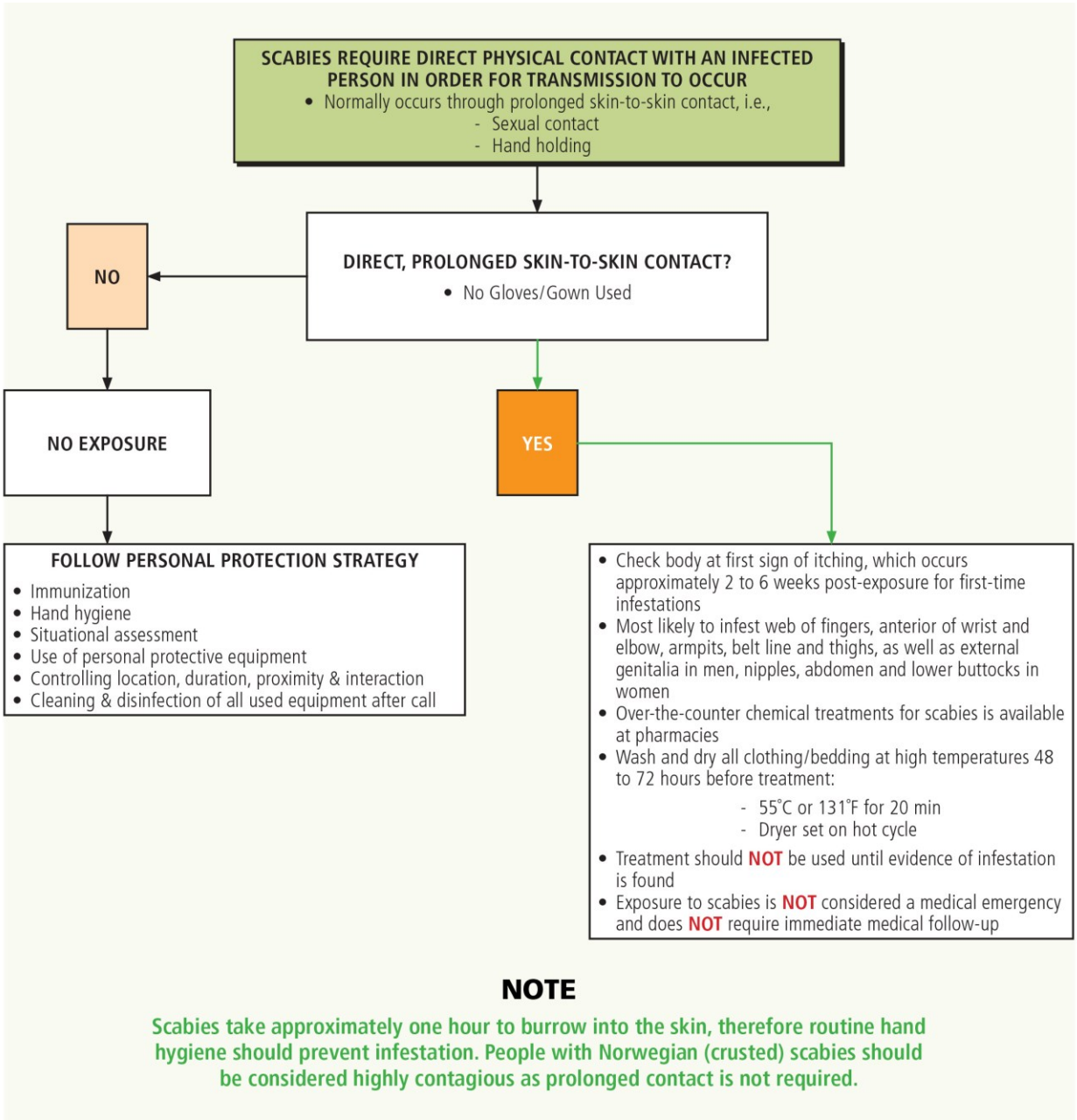
Itching can last for several weeks after treatment with the medication. Itching is due to eggs and waste materials under the skin left behind by the mites. It must be broken down by your immune system before itching will stop. Itching can also be caused by the treatment as it dries out the skin. The itching will go away with time.

Anti-scabies treatment should only be used as prophylaxis for a known or suspected scabies exposure at the recommendation of your health care provider. Treatment should only be used when scabies infection is identified.

Exposure to scabies is not considered a medical emergency and does not require immediate medical follow-up.

If you have any questions contact your DO or SMDHU.

Scabies


SCABIES REQUIRE DIRECT PHYSICAL CONTACT WITH AN INFECTED PERSON IN ORDER FOR TRANSMISSION TO OCCUR
• Normally occurs through prolonged skin-to-skin contact, i.e.,
- Sexual contact
- Hand holding
DIRECT, PROLONGED SKIN-TO-SKIN CONTACT?
• No Gloves/Gown Used
NO
NO EXPOSURE
FOLLOW PERSONAL PROTECTION STRATEGY
• Immunization
• Hand hygiene
• Situational assessment
• Use of personal protective equipment
• Controlling location, duration, proximity & interaction
• Cleaning & disinfection of all used equipment after call
YES
• Check body at first sign of itching, which occurs approximately 2 to 6 weeks post-exposure for first-time infestations
• Most likely to infest web of fingers, anterior of wrist and elbow, armpits, belt line and thighs, as well as external genitalia in men, nipples, abdomen and lower buttocks in women
• Over-the-counter chemical treatments for scabies is available at pharmacies
• Wash and dry all clothing/bedding at high temperatures 48 to 72 hours before treatment:
- 55°C or 131°F for 20 min
- Dryer set on hot cycle
• Treatment should NOT be used until evidence of infestation is found
• Exposure to scabies is NOT considered a medical emergency and does NOT require immediate medical follow-up
NOTE
Scabies take approximately one hour to burrow into the skin, therefore routine hand hygiene should prevent infestation. People with Norwegian (crusted) scabies should be considered highly contagious as prolonged contact is not required.

Tuberculosis (TB)

TB is an infectious disease caused by the TB bacteria. TB bacteria usually cause an infection in the lungs but may travel through the blood and affect other parts of the body. The greatest risk in SMDHU for developing TB is having lived in, or travelled to, countries where TB is common.

TB is only infectious person-to-person if the disease is in the lungs or larynx. This is called active pulmonary TB and means the person is coughing the bacteria into the air. Other people can then breathe the TB bacteria into their lungs and become infected. Infection usually requires close, prolonged contact (>8 hours) with TB bacteria. People cannot get TB by sharing cutlery, dinner plates, drinking cups or toilet seats.

TB is spread to others through airborne transmission, meaning that, after the bacteria is coughed out of the larynx or lungs, the bacteria float in the air for a prolonged period of time, allowing others to breathe it in. The risk of infection increases when:

- you have spent more than eight hours with the person,
- you have been in an area with poor ventilation where the client has been coughing for a prolonged period of time (>8 hrs.),
- you perform an intervention on the client (such as intubation) that causes the client to cough.

When a person breathes TB bacteria into their lungs, certain cells in the immune system will either destroy the TB bacteria or wall the bacteria off, rendering the bacteria inert, non-infectious and non-contagious. People may not even know they have been infected.

A skin test is able to detect TB antibodies by showing whether someone has been infected by the TB bacteria. People who have had sufficient contact with TB to become infected will have a positive skin test two to eight weeks after initial exposure. This is known as TB infection.

TB skin tests are recommended for all emergency service and JSWs at the beginning of your employment, so that your previous skin-test status will be known if you are ever identified as having been exposed to TB.

People infected with TB, but who have no signs and symptoms of disease in their lungs, are not contagious.

Signs & Symptoms of TB:

Pulmonary TB may not produce any early symptoms until the infection in the lung has reached a size that is visible on x-ray. Symptoms in adults may include cough, loss of appetite, fatigue, weight loss, fever and night sweats. TB may be misdiagnosed as bronchitis or pneumonia. Any cough lasting longer than three weeks should be thoroughly investigated.

Sometimes, the disease is outside the lung such as in the kidney, lymph nodes and bone, causing symptoms such as pain and discomfort in those sites. TB that occurs outside the lungs (extra-pulmonary TB) is less contagious person-to-person.

People infected or actively sick with TB disease will receive free medication through their local public health unit.

To prevent the spread of TB:

If you are with a client where active TB disease is suspected or confirmed, follow the PPS by:

- putting on your fit-tested N95 or reusable (elastomeric) respirator, especially when performing procedures that may induce coughing,
- increasing ventilation in your vehicle during transport through turning on the ventilation or opening windows,
- have the client wear a mask or cover his/her mouth when coughing,
- minimizing the amount of time you spend with the client.

Remember:

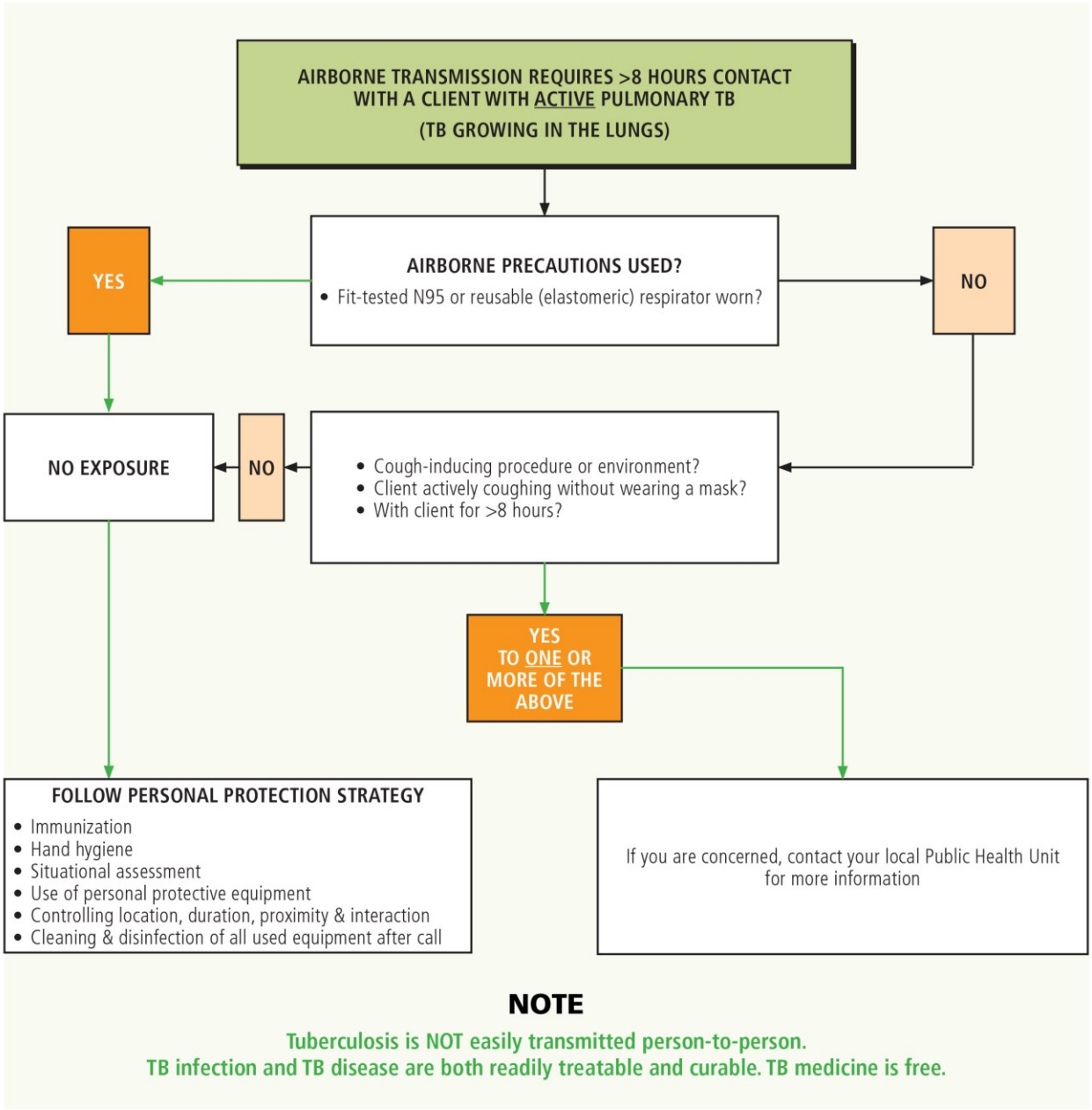
Tuberculosis is only contagious if the disease is active in the lungs or larynx. A TB skin test can determine if you have been exposed to the TB bacteria. Medication is effective in preventing and curing TB.

Further Information:

http://www.respiratoryguidelines.ca/tb-standards-2013

Or contact your DO or SMDHU.

Tuberculosis



Vancomycin-Resistant Enterococcus (VRE)

Vancomycin-resistant enterococcus (VRE) is a strain of enterococcus bacteria that normally lives in most peoples' bowels and has developed resistance to many commonly used antibiotics, specifically an antibiotic called Vancomycin.

VRE is found in feces, and spread through the oral-fecal route, meaning that the bacteria must be eaten. Commodes, bathing tubs and rectal thermometers are examples of items that become contaminated by tiny, non-visible particles of feces and therefore, may spread VRE person-to-person when touched. Clients and workers can become infected by touching items that are contaminated with feces and then touching their mouths, allowing them to swallow the bacteria. Clients can also become infected by health care workers whose hands are contaminated with VRE and do not clean their hands properly before providing care.

There are very few antibiotics that can be used to treat VRE infections. Clients who are very sick from diseases that decrease their ability to fight infections are at highest risk for getting an infection with VRE. Healthy people with intact immune systems are not at risk from VRE.

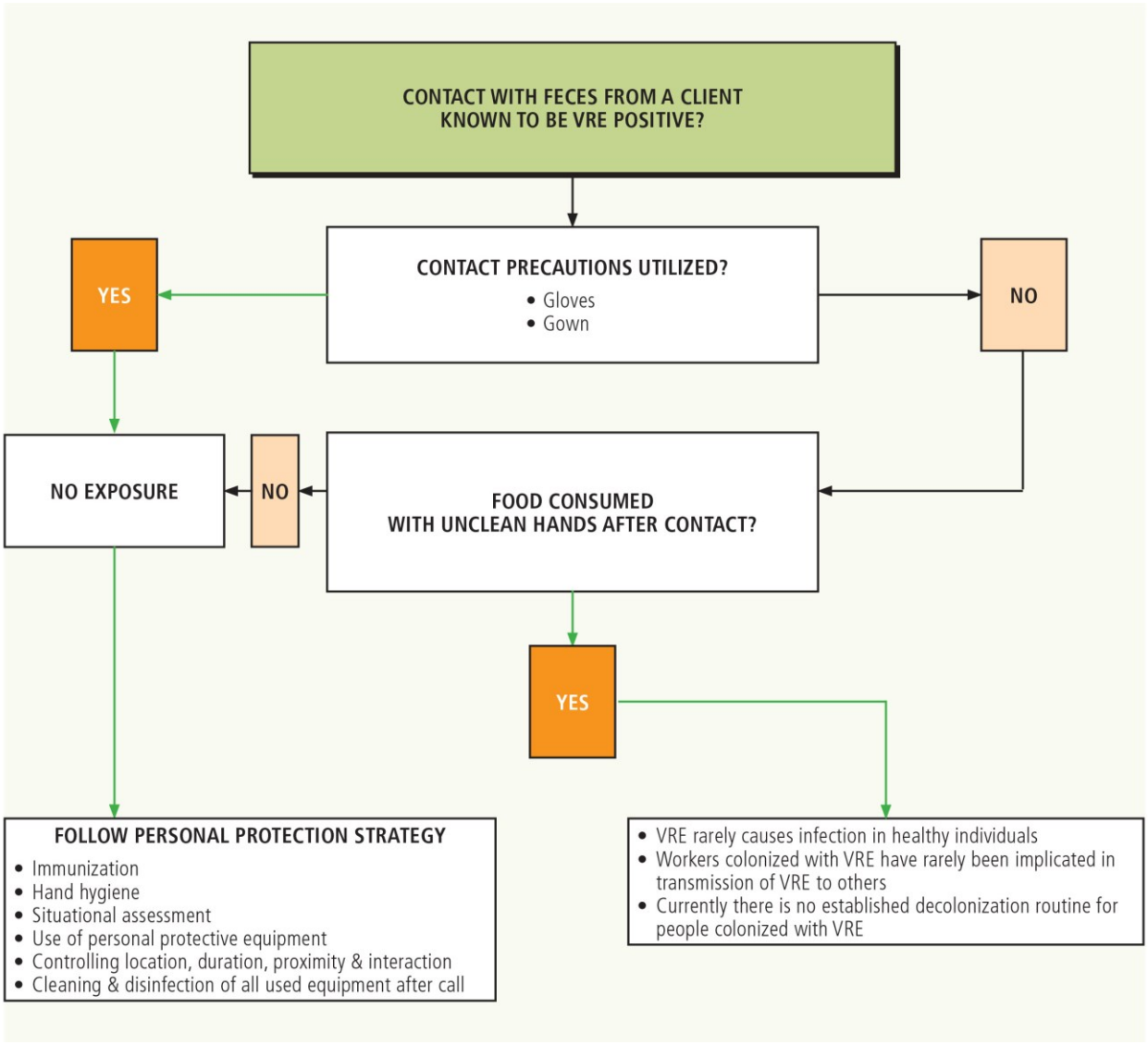
VRE is a concern in the acute care setting as there is a risk that the resistance that VRE has developed to Vancomycin could be shared with other bacteria and therefore cause greater antibiotic resistance overall. This is the rational for why certain health care institutions may place a client who is colonized or infected with VRE (VRE positive) on contact precautions while they are in hospital.

To prevent the spread of VRE:

- apply the PPS Model,
- clean your hands with alcohol-based hand sanitizer or soap and water for at least 15 seconds before and after any client contact,
- use contact precautions (gloves and gown) when interacting with all clients who have signs and symptoms of diarrhea.
- wrap the client in a blanket for transport, if possible, to minimize the chance of seats/stretchers becoming contaminated,
- clean and disinfect all equipment used with the client, and all surfaces the client may have touched,
- remember to always clean your hands before eating!

If you have any questions, contact your DO or SMDHU.

Vancomycin-Resistant Enterococcus (VRE)



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