

Table of Contents

CONTRIBUTORS.....	V
DEFINITIONS FOR TERMS USED IN THE MANUAL	VI
INTRODUCTION	1
Emergency and justice service workers.....	2
Designated Officers in Peel Region	2
Region of Peel Public Health	3
Regional Infection Control Network (RICN).....	4
CHAIN OF TRANSMISSION.....	5
Breaking the Chain	11
MODES OF DISEASE TRANSMISSION	12
Airborne Transmission	13
Droplet Transmission	14
Contact Transmission	15
THE PERSONAL PROTECTION STRATEGY	17
Phase One – Building a Foundation of Protection: Immunization & Hand Hygiene	21
Immunization	21
Hand Hygiene	21
Phase Two – Situational Assessment	21
Assess, Plan, Act	21
Situational Factors	23
Environment	23
Cooperative Person – Non-Visible Symptoms.....	24
Cooperative Person – Visible Symptoms.....	25
Non-Cooperative Person – Regardless of Symptoms	26
Phase Three – Strategic Action	27
Personal Protective Equipment (PPE)	27
Location, Duration, Proximity & Interaction (LDPI)	28
Decontamination & Disinfection	30
The Personal Protection Strategy Model for Infection Prevention & Control.....	31
IMMUNIZATION	32
The Immunization Strategy in Canada	34
Documentation	34

How Immunization Works	35
Immunity	35
Immunization for All Adults	36
Canadian Adult Immunization Schedule	37
An Overview of Vaccines and the Diseases they Prevent	37
Diphtheria and Tetanus	37
Measles, Mumps and Rubella (MMR Vaccine)	38
Varicella (chickenpox)	39
Polio	39
Hepatitis B	40
Influenza (the flu)	40
HAND HYGIENE	41
Alcohol-based Waterless Hand Rub (ABHR)	42
Soap and Water	44
When You Should Clean/Wash Your Hands:	45
PERSONAL PROTECTIVE EQUIPMENT	48
Respirators (N95 or N100)	50
Masks (Procedure or Surgical)	53
Medical Gloves	54
Eye Protection	56
Gowns	56
Putting on Personal Protective Equipment	58
Removing Personal Protective Equipment	60
SHARPS SAFETY	63
Preventing Sharps Injuries	65
Sharps Containers	66
CLEANING, DISINFECTION AND STERILIZATION	69
Decontamination (Cleaning)	69
Disinfection	70

Environmental Cleaning	71
Uniforms and Laundry	73
HIGH-RISK EXPOSURES TO INFECTIOUS DISEASES	75
High-risk Medical Procedures	77
Exposures	78
Assessing an Exposure (for emergency service workers only)	80
Follow-up Procedure for High-risk Exposures.....	81
Role of Public Health in Follow-up for High-risk Exposures	82
THE MANDATORY BLOOD TESTING ACT	84
Legislation Documents	85
Definition of the Applicant	86
Definition of the Respondent	86
Submitting an Application	87
Processing an Application	88
APPENDIX: INFECTIOUS DISEASES	90
Bacterial Meningitis	91
Bed Bugs	92
<i>Clostridium difficile</i>	94
Extended Spectrum Beta-Lactamase Organisms	97
Head Lice	98
Hepatitis A	101
Hepatitis B	102
Hepatitis C	105
Influenza	111
Invasive Group A Streptococcal Disease (iGAS)	114
Methicillin-Resistant <i>Staphylococcus aureus</i>	115
Rabies	116

Rabies	117
Scabies	120
Tuberculosis	123
Vancomycin-Resistant Enterococcus	126
REFERENCES	128

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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).

Additional Precautions – The use of Protective Personal Equipment (PPE) to create an effective barrier against transmission of pathogens. Additional precautions are based on the mode of transmission of the pathogen (airborne, droplet, contact).

Airborne Precautions – A form of additional precautions used against 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 N100, and should be used with any client known or suspected of having a disease transmitted by the airborne route (TB, measles and chickenpox). N95 and N100 respirators should be NIOSH-certified.

Alcohol-based Hand Rub (ABHR) – Also referred to as Alcohol-based Hand Sanitizer (ABHS), ABHR is a liquid or foam consisting of at least 62% alcohol that is used to clean hands when hands are not visibly soiled. ABHR kills the transient pathogens picked up on hands through the activities of daily living in approximately 15 seconds of appropriate use.

Contact Precautions – A form of additional precautions used against illnesses that remain on the skin or other surfaces and may be picked up on hands, clothing or equipment. Diseases such as Norwalk virus and MRSA necessitate the use of contact precautions. Contact precautions require the use of medical gloves and gowns.

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.

Decontamination – The process of removing infectious agents from the surface of hands or equipment through cleaning.

Disinfection – The process of killing infectious agents through the application of high heat and/or chemicals that destroy the infectious agents. Decontamination 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 – A form of additional precautions used against illnesses that cause the expulsion of heavy respiratory secretions that travel approximately two metres before landing on surfaces, exposed skin and mucous membranes or unprotected clothing. Diseases such as influenza and pertussis (whooping cough) necessitate the use of droplet precautions. Droplet precautions require the use of protective eyewear, surgical-type 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).

Evidence Informed Decision-Making (EIDM) – Involves incorporating the best available and most relevant information (usually research-based) to support changes in work practice and policy development. EIDM involves careful selection and evaluation of information sources.

Febrile Respiratory Illness (FRI) – An acute illness of the respiratory tract, that presents with fever and a new or worsening cough or shortness of breath. It is synonymous with influenza-like illness and Acute Respiratory Illness (ARI).

Fever – A temperature in an otherwise healthy client of greater-than or equal-to 38 degrees Celsius. In people who are immunocompromised, such as the very young, the elderly or people with other medical conditions, a fever may or may not be present.

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. They are also known as pathogens.

Infection Prevention and 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.

Influenza-like illness (ILI) – Any illness of the respiratory tract with an acute onset, presenting with a new or worsening cough and a fever. Signs and symptoms may also include tiredness, muscle aches, headache, chills and loss of appetite. Also known as Febrile Respiratory Illness (FRI) and Acute Respiratory Illness (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).

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.

Pathogen – See Infectious Agent.

Personal Protective Equipment (PPE) – Equipment designed to act as a barrier to infectious agents or other environmental hazards contacting mucous membranes, the respiratory tract, or non-intact skin. PPE includes: Eye protection, face shields, N95 and N100 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.

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.

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.

Signs – Are 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.

Symptom – Physical changes in the body usually observed by the worker or reported by the client. They can include 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.

INTRODUCTION

INTRODUCTION

Summary

- Municipal 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 Ontario Public Health Standards 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 Peel Regional 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 Region of Peel Public Health.

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. Each 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 and justice service worker
- Designated Officer
- Region of Peel Public Health
- Regional Infection Control Network

Roles and Responsibilities

Emergency and justice service workers

The worker is responsible for his or her 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
- Immunization 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
- Knowledge and application of all local procedures on: health and safety, infection control, equipment decontamination (cleaning) and disinfection. As well as compliance with the regulations of the *Occupational Health and Safety Act* (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.)

Designated Officers in Peel Region

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 Designated Officer (DO).

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

The DO acts as the emergency service worker's representative in investigating all reported exposures to communicable disease. The DO is also the liaison with Peel Public Health. The DO must have the following knowledge and skills:

- Communicable diseases
- Required and recommended immunizations that can prevent the spread of vaccine-preventable diseases
- Application of the Personal Protection Strategy

- The appropriate use of Personal Protective Equipment (PPE)
- Proper methods and materials for decontamination (cleaning) and disinfection of reusable equipment between uses
- All local policy and procedures, Workplace Safety and Insurance Board (WSIB) reporting and Ontario Health and Safety Association (OHSA) standards, if applicable

In addition to knowledge about diseases, the DO also requires the following skills to use that knowledge effectively:

- Risk assessment
- Analytical
- Research
- Interpersonal, including excellent communication skills
- First aid and CPR
- Accountability

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 the local Public Health Unit, 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, answer any questions and encourage the worker to seek proper medical care and counselling as necessary. The DO will still be responsible for all appropriate WSIB and local forms as indicated in internal policy and procedures.

Region of Peel Public Health

As agents of the Medical Officer of Health (MOH), Peel Public Health 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, Peel Public Health is responsible for case and contact management.

Region of Peel Public Health plays an active role in helping the DO assess possible exposures and providing any information the DO may need to inform the worker about any specific actions they should take. Public Health will provide information on actual risk of disease, post-exposure and follow-up, as well as any requirements under the *Mandatory Blood Testing Act* (MTBA). If requested through the DO, Public Health will be

available to speak with the exposed worker directly if the worker would benefit from such an interaction.

In any health care situation, a patient has a right to confidentiality; Peel Public Health cannot breach the client's right to confidentiality no matter what the exposure. Peel Public Health cannot provide information on the diagnosis of a client, as that information is confidential, or provide treatment advice as that is the role of a physician or nurse practitioner.

Regional Infection Control Network (RICN)

RICNs fall under the direction of the Ontario Agency for Health Protection and Promotion (OAHPP). They support 14 regions across Ontario as resource teams to advance excellence in infection prevention and control. Developed by the Ministry of Health in 2004, RICNs provide a coordinated, credible and proactive resource for evidence-based solutions.

RICNs offer:

- Best-practice information, resources and implementation tools
- Advice, consultations, and communications
- Guidance on applying infection control measures
- Collaboration in designing and delivering education and training
- Integration of infection prevention and control activities
- Leadership to improve response to future infection control threats

It is important to be aware of the Infection Prevention and Control resources available to you, and to know how to use them appropriately. Considerations of confidentiality and privacy legislation must be taken into account when requesting information from Public Health about specific clients. Public Health is aware of emergency service and justice service workers and always checks to see if the worker is at risk when a client with a communicable disease is identified. Emergency and justice service workers do not get missed.

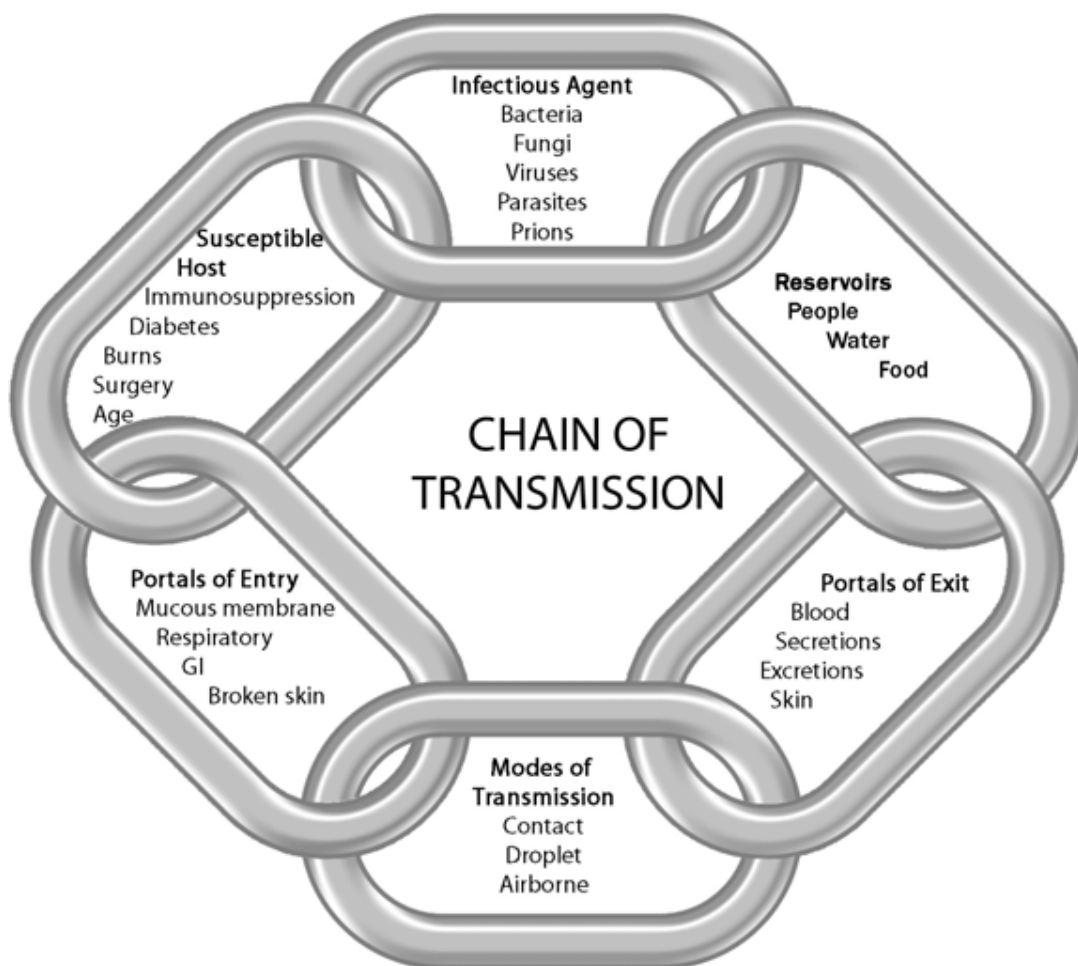
CHAIN OF TRANSMISSION

CHAIN OF TRANSMISSION

Summary

- 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 epidemiology of communicable (infectious) diseases. For an infection in one individual to become harmful to others, bacteria and viruses (as well as other pathogens, such as fungi) require places to survive and grow, and a means of moving from one reservoir 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: Ministry of Health and Long-Term Care; c2010. Figure 1, The chain of transmission; p. 18.

The **infectious agent** is the first link in the chain. Types of infectious agents range from viruses, bacteria and fungi, to simple one-celled protozoan parasites to more complex life forms such as worms, ticks or lice that are clearly visible to the eye. 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 and pathogenicity. Other factors that affect the agent's ability to cause disease include the amount of pathogen 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.

- **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 make more of themselves. 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.
- **Bacteria**, while larger than viruses, 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 the environment, such as through drinking 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.

- **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.

The **reservoir** 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.

The **portal of exit** is 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 blood

Controlling the excretions of clients, therefore, is an extremely important way of breaking the chain of transmission person-to-person.

The **modes of transmission** is the method by which the infectious agent reaches a susceptible host. There are three modes of transmission of disease person-to-person (See section on Modes of Transmission for more details.):

- **Airborne:** This refers to 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 transmitted person-to-person through the airborne route: tuberculosis, measles and chickenpox (varicella). 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 coughing client cover their mouth. Airborne diseases (with the exception of chickenpox which may also spread

through contact) must be breathed in, and cannot be transmitted person-to-person any other way

- **Droplet:** These are 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 transmitted to the eyes, nose and mouth through touch. Diseases spread through the droplet route usually cause symptoms of an acute respiratory illness (ARI), and include fever, coughing and sneezing. Droplet transmitted diseases are controlled for through the use of barrier PPE, such as eye protection, gloves and gowns, having the coughing/sneezing client cover their nose and mouth, proper decontamination (cleaning) and disinfection of equipment, and excellent hand hygiene
- **Contact:** These are diseases that are picked up from 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 transmitted through the droplet route, 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, proper decontamination (cleaning) and disinfection of equipment, and excellent hand hygiene

The **portal of entry** 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.

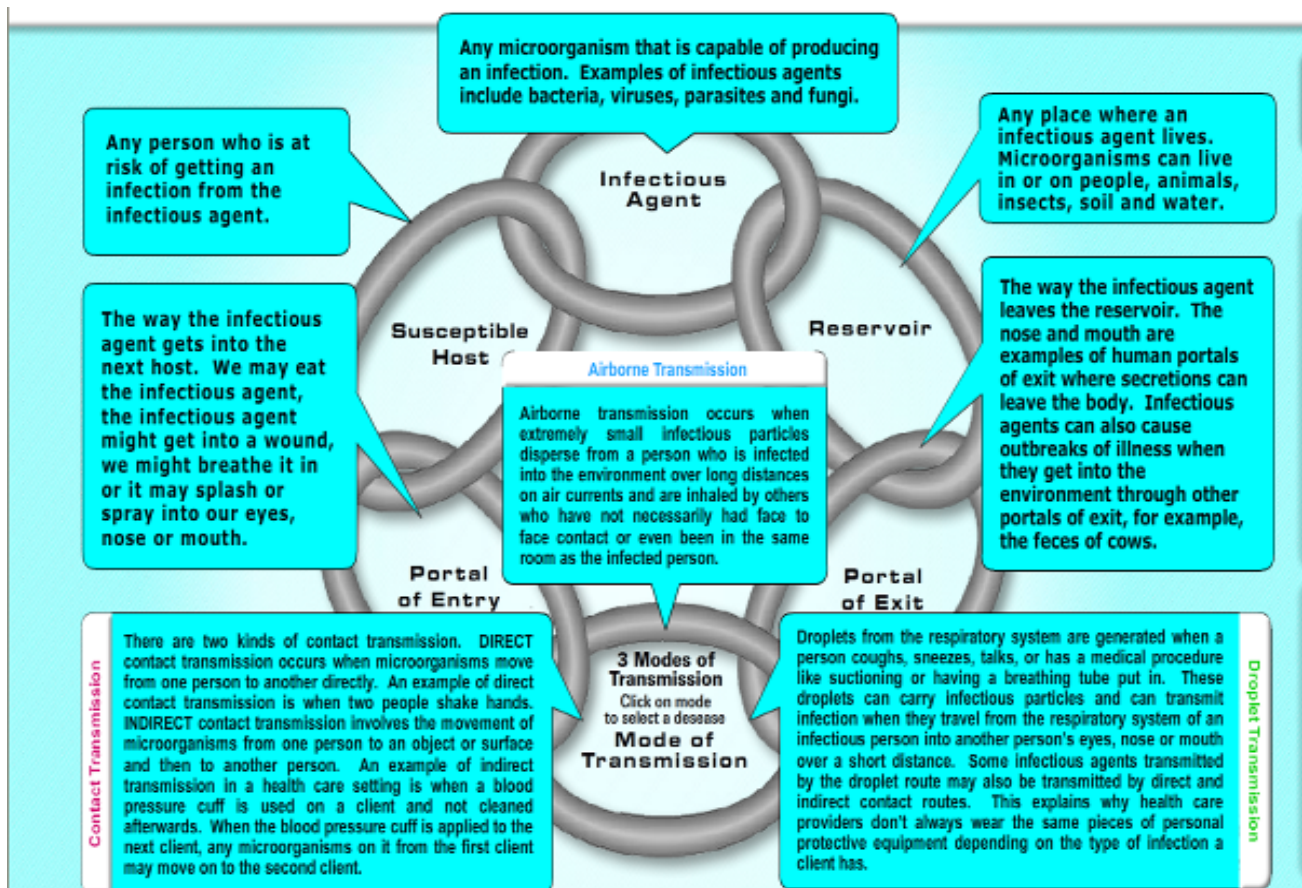
The **susceptible host** is a person that lacks resistance to the infectious agent. Many factors can influence an individual's susceptibility to a particular disease and the extent to which he/she will be sick, including:

- Age, sex, ethnic background and 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 pathogens 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

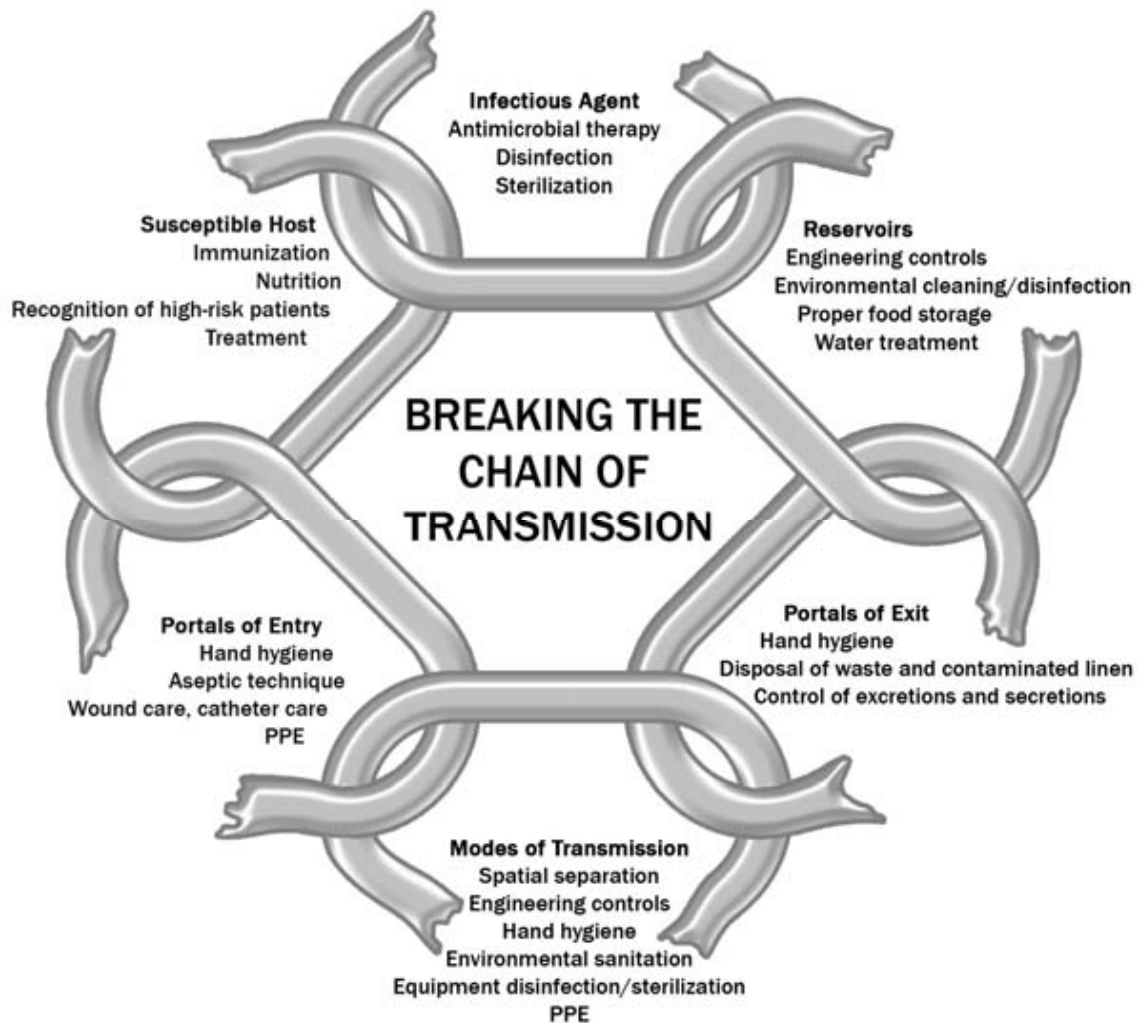


Adapted from Regional Infection Control Network

Breaking the Chain

Control of infectious diseases involves breaking the chain of infection 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 decontamination (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: Ministry of Health and Long-Term Care; c2010. Figure 2, Breaking the Chain of Transmission; p. 19.

MODES OF DISEASE TRANSMISSION

MODES OF DISEASE TRANSMISSION

Summary

- There are three modes of disease transmission: airborne, droplet and contact:
- The three airborne diseases, TB, measles and chickenpox, must be breathed in
- Droplet diseases land on mucous membranes or are transferred there by unclean hands (influenza, common cold, meningitis)
- Contact diseases are picked up on hands and transferred to mucous membranes or non-intact skin (Norwalk virus, MRSA)
- Preventing transmission requires hand hygiene, use of appropriate personal protective equipment, environmental controls and decontamination (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 pathogenic 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 infectious agents that are small enough and light enough to remain suspended in the air. They consist of droplet nuclei smaller than 5 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 sick 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 the airborne route: TB, measles and chickenpox. Smallpox is also spread by the airborne route of transmission, however, smallpox was declared eradicated in 1977 (CDC).

Diseases spread through airborne transmission must be inhaled in order to cause infection. With the exception of chickenpox, which can also be transmitted through contact transmission, tuberculosis and measles *must* be inhaled in order to make a new host sick.

Prevention of Airborne Transmission:

- Wearing of N95 or N100 respirators
- Having client cover their nose and mouth with their sleeve or tissue when coughing, sneezing or speaking
- Having client wear a surgical mask (if available)
- Ensuring proper ventilation in buildings and vehicles of at least 9 to 12 air exchanges per hour



Police Officer in
N100 Respirator



Paramedic in
N95 Respirator

Droplet Transmission

Droplet transmission refers to large droplets (greater than 5 microns) that are generated from the respiratory tract when a person coughs or sneezes. Certain high-risk medical procedures, such as suctioning and intubation will also cause the expulsion of these large droplets. The heavy droplets can travel up to two metres away from the original sick person when coughing or sneezing. If you are within two metres of a client who is coughing and sneezing, the droplets may be inhaled directly into your lungs if you breathe in when someone coughs. The droplets might also land on your unprotected mucous membranes if you are within two metres of the sick client, or on objects in your immediate environment. If you touch those objects and then touch your hands to your face, you may transfer the pathogen to your vulnerable mucous membranes.

Diseases spread by the droplet route are easily identifiable by the client's visible symptoms. Acute Respiratory Illnesses (ARI) and influenza-like illnesses (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 tuberculosis and measles can both present with fever and cough, it is important for you 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).

Prevention of Droplet Transmission:

- Wearing eye protection and a surgical mask (if available) or N95 or N100 respirators when within two metres of client with ARI
- Wearing medical gloves if within two metres of client
- Performing excellent hand hygiene after gloves are removed and ensuring decontamination (cleaning) and disinfection of all used equipment



Firefighters wearing PPE for droplet precautions

Contact Transmission

Contact transmission occurs when you touch a person or object that is a reservoir for an infectious agent, don't clean your hands, and then transfer that pathogen somewhere else, such as another person or inanimate object or to your non-intact skin or unprotected mucous membranes. Contact transmission can also occur when you use a contaminated piece of equipment on another client without cleaning and disinfecting it 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.

Blood-to-blood contact, such as when a used needle pierces your skin or when body fluid lands directly on your 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).

Prevention of Contact Transmission:

- Wearing of medical gloves if close contact with the client is expected
- Wearing of gowns or bunker gear if close contact with the client is expected
- Performing excellent hand hygiene after gloves are removed and ensuring decontamination (cleaning) and disinfection of all used equipment



Paramedic wearing PPE for contact precautions

When a client has signs and symptoms of an ARI, when there are copious amounts of blood and/or body fluid, or when your assessment warrants, it may be appropriate to wear a combination of PPE to be fully protected. Eye protection including face shields, N95 or N100 respirators, gowns or bunker gear and gloves should be worn in combination to prevent exposure. (See section on PPE for more details.)



Droplet and contact precautions

THE PERSONAL PROTECTION STRATEGY

THE PERSONAL PROTECTION STRATEGY

Summary

- Police officers, firefighters, paramedics and justice service workers have a responsibility to prevent the transmission of communicable disease within their work environments and into the communities they serve
- Immunization and hand hygiene 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 Personal Protective Equipment, controlling your location, duration, proximity and interaction (LDPI) and decontaminating (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

Introduction

Despite police officers, firefighters, paramedics and justice service workers all performing different roles and functions, they serve the same client base and share the same risks of exposure to communicable disease. Emergency service workers and justice service workers participate in three-tiered 911 emergency response services, with the expectation that the first emergency service on-scene is responsible for initiating immediate interaction with the client, medical or otherwise. Uniformity and consistency between services in applying infection prevention and control strategies, however, have been lacking. In the case of JSWs their duties and functions are inextricably linked to their clients who have been widely acknowledged and identified as a population vulnerable to communicable disease. 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. There is a significant onus of responsibility therefore, for police, fire, paramedics and justice service workers to prevent the transmission of communicable disease within their work environments and into the communities they serve.

Traditionally, pre-hospital Infection Prevention and Control (IPAC) education has been disease-focused and exposure-driven, causing the information to be foreign, unfamiliar, and difficult for ESWs to understand and apply. As a result, IPAC awareness and compliancy among ESW have been lacking. Ineffective education and training has resulted in preventable exposures as well as unwarranted feelings of anxiety, jeopardy and sometimes even panic.

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 Personal Protection Strategy (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 to 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 | AMBULANCE

2009



Infection Control...

The **Key** is **YOU**



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Personal Protection Strategy Model

The components of the model are in three phases:

Phase One – Building a Foundation of Protection: Immunization & Hand Hygiene

Immunization

Immunization is one of the most important 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 pre-hire requirements. For those ESWs and JSWs who are not covered by the *Ambulance Act*, 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 against VPDs.

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 for hand hygiene in the pre-hospital and Justice Environments: alcohol-based hand rub (ABHR) and soap and water (see section on Hand Hygiene for more information).

Phase Two – Situational Assessment

Assess, Plan, Act

Whether dealing with a victim, suspect, witness, complainant, patient, inmate or resident, ESWs and JSWs are urged to 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 which includes 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 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, 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. 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
- b. 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
- c. 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
- d. A **justice service worker** 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 decontamination/cleaning and disinfection between uses (see section on Cleaning, Disinfection and Sterilization for more details).

Examples:

- a. 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 diligent hand-hygiene before and after use
 - Ensuring all reusable equipment that was used is decontaminated (cleaned) and disinfected before reuse
- b. 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)
- c. A **paramedic** is dispatched to a call for a person with influenza-like illness. The worker should:
 - Be aware that any part of the environment that has been within one to two metres of the sick 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 a respirator and perform diligent hand-hygiene before putting on and after removal
 - Ensure all reusable equipment that was used has been decontaminated (cleaned) and disinfected before reuse
- d. A **justice service worker** is searching a cell. The worker should:
 - Consider that environmental surface areas in the cell can be contaminated

- Inspect her hands and cover any breaks in her skin with a water-resistant bandage
- Wear disposable gloves and perform diligent 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, 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. 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 diligent hand hygiene after contact
 - Decontaminating (cleaning) and disinfecting any reusable equipment the client may have contacted
- b. A **firefighter** is asked to pose for a photograph by a group of tourists and he puts his 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 diligent hand hygiene after contact
- c. A **paramedic** is offered a coffee by an elderly man. She 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 diligent hand hygiene after contact
- d. A **justice service worker** 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 diligent 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, 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 decontaminating (cleaning) and disinfecting as required during and after the situation been resolved.

Examples:

- a. **Paramedics, firefighters and police officers** 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 decontaminated (cleaned) and disinfected after use
- b. **A justice service worker** 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 one to two metres of a client's face 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. Personal Protection Strategy 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, spit) is high.

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

Examples:

- **A justice service worker** is "intaking"/"logging" a client who begins to struggle and resist. The client suddenly turns and spits in his eye. The worker should be:
 - Confident and comfortable regarding his safety because he has ensured all his immunizations are up to date, including hepatitis B vaccine
 - Flushing his eye thoroughly to ensure no bacterial contaminants from the spit remain on his mucous membranes
- **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 his job function

- Confident and comfortable regarding his safety because he has ensured all immunizations are up to date, including hepatitis B vaccine
- Using all the necessary PPE at his disposal along with his use of force tools to safely take control of the bleeding and non-compliant client
- Performing excellent hand hygiene after client interaction
- Prepared to decontaminate (clean) and disinfect all reusable equipment after use
- A **paramedic** or a **firefighter** 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
 - Confident and comfortable regarding their safety 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 excellent hand hygiene after client care
 - Prepared to decontaminate (clean) and disinfect all reusable equipment after use

Phase Three – 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:

- a. An immunized **paramedic, firefighter, police officer** or **justice service worker** provides care to a client who has symptoms of an acute respiratory illness (ARI). They move through the PPS model by:
 - Selecting appropriate PPE such as eye protection and N95 respirator or mask, as per service protocol, to protect against droplet transmission
 - Controlling their LDPI (described below) by maintaining a one to two metre distance when first assessing the client for signs and/or symptoms of an ARI
 - Performing excellent hand hygiene before and after client care
 - Decontaminating (cleaning) and disinfecting all their reusable equipment after use

Personal Protective Equipment (PPE)

PPE is useless unless it is available, 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 Personal Protection Equipment 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.

a. 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 his interview
- A **justice service worker** 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
- A **paramedic** decides to complete her patient assessment in the back of the ambulance, as the patient's residence is heavily contaminated with animal feces
- A **firefighter** helps move a patient from a small bathroom into the larger bedroom to help minimize unnecessary skin-to-skin contact

b. 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

Examples:

- 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

c. Proximity

- Refers to the physical distance maintained between the ESW/JSW and the client
- Proximity of no less than one to two metres should be attempted for any client with signs and symptoms of ARI until PPE is put on
- Consideration should be given to larger/bigger clients who have the physical ability to project droplets at least two metres

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 one to two metre distance from the victim while taking the statement
- A **paramedic** asks a patient if he has had a “new or worsening cough and/or a fever” from a distance of at least two metres before approaching to continue his assessment
- A **justice service worker** 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
- A **firefighter** crew sends in only one member to assess a patient in order to minimize risk to the whole crew

d. 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 **paramedic** takes appropriate care and attention with the epi-pen he takes from a patient to ensure he does not receive a needlestick injury
- A **police officer** or a **justice service worker** 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

Limitations due to the necessity of certain client interactions may make it difficult for ESWs and JSWs to control the LDPI to best prevent exposure to communicable disease. 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.

Decontamination & Disinfection

Decontamination and disinfection is the process of cleaning any visible dirt and/or soiling off of reusable equipment, and then disinfecting the equipment to render it safe for further use. “Decontamination” is another term for cleaning. 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. A **police officer** touches her radio with bloody medical gloves after a violent altercation with a client. She should:
 - Take off her medical gloves, perform hand hygiene, and put on new gloves
 - Wipe down the radio once with the supplied disinfectant wipes to decontaminate (clean) the radio
 - Wipe down the radio again with new disinfectant wipe to disinfect it
 - Remove gloves and perform hand hygiene with either ABHR or soap and water before continuing work
- b. A **firefighter** uses his pulse oximeter on the finger of a patient. After the paramedics take over care she 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
 - Wipe down the pulse oximetre once with the supplied disinfectant wipes to decontaminate (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

- c. A **paramedic** has just taken over use of the ambulance for the day shift. She 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 accelerated hydrogen peroxide (AHP) wipes
 - Perform hand hygiene with either ABHR or soap and water before beginning work
- d. A **justice service worker** is taking over duties from a colleague, including using a communal desk-top computer. She 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 Model for Infection Prevention & Control

The PPS model is designed to be an effective educational tool to assist police, fire, paramedics and justice service workers 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 strategies they can adopt while engaging their work environments to include IPAC. 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 any member of the public or with clients in their custody, as well as routinely decontaminating (cleaning) and disinfecting all reusable equipment, will help ensure a safe work environment free 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.

IMMUNIZATION

IMMUNIZATION

Summary

- Immunization protects the worker from severe illness or death from vaccine-preventable diseases (VPD)
- If you are unsure of your vaccination status, you may ask your doctor to order a blood test that will determine your immunity to vaccine-preventable diseases
- Immunization is an extremely safe and effective way to become immune to a communicable disease without becoming sick from the disease itself

Due to the nature of their jobs, emergency service workers (ESW), justice service workers (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 that 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.

Workers and students should be immunized as per the recommendations of the Canadian Immunization Schedule, which includes: measles, mumps, rubella, diphtheria, tetanus, polio and pertussis, chickenpox (varicella) and hepatitis B. Annual immunization against influenza is also highly recommended.

The immunization recommendations for emergency and justice service workers are the same as the immunization recommendations provided to health care workers. 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 justice service workers consider immunization.

Your service may require that you be immunized against identified diseases or require you to provide proof of immunity (laboratory documentation of immunity or a medically documented history of prior disease).

For paramedics, physician or laboratory documentation is required for measles and hepatitis B and a personal history is required for chickenpox.

Immunization is not required if you have proof of a serious allergic reaction to immunizations. If you are unsure of your immunization status, a simple blood test may be arranged through your family physician. The blood test will show what antibodies (protection) you may already have to vaccine-preventable diseases through either prior exposure or 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 already have a card or booklet to keep track of your immunizations, ask your doctor or local public health office if they can provide you one. You can download a copy [here](#).

If you do not know your immunization status, you can:

- Check with your doctor, who may have a record in your file
- Check with the [local public health office](#) where you were immunized as a child. Some public health offices 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 doctor 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 pathogenic bacteria or virus is busy using your body to grow, which damages your tissues

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

Immunization allows your immune system to create antibodies against the pathogenic bacteria and viruses 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 pathogen 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 vaccine-preventable diseases. 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.

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 (IME) 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.

All adults should be immunized against diphtheria, tetanus, pertussis, 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 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 completed)
Tetanus and diphtheria given as Td; and pertussis given as acellular pertussis vaccine (Tdap)	Doses 1 and 2, 4-8 weeks apart and dose 3 at 6-12 months later; one of the doses should be given as Tdap for pertussis protection	Td every 10 years; 1 dose should be given as Tdap for pertussis protection if not previously given in adulthood
Measles, mumps and rubella given as MMR	1 dose for adults born in or after 1970 without a history of measles, or those individuals without evidence of immunity to rubella or mumps; second dose for selected groups	Not routinely required
Varicella	Doses 1 and 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 and Tetanus

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

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 when they are outside, 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 ten 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.

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 ten percent 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.

Measles, Mumps and 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.

Measles

Adults born:

- prior to 1970 can be assumed to have acquired natural immunity to measles
- 1970 or later who have not already had measles disease (acquired natural immunity) or a measles vaccine require measles vaccination

Measles is a very contagious viral illness. It is transmitted through the airborne route, 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.

The measles vaccine is given in combination with mumps, and rubella in the MMR vaccine.

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. There were approximately 500,000 cases of mumps worldwide in 2009.

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.

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 both airborne and contact transmission. Five minutes of exposure will result in a 90% chance of becoming infected if you are not previously immune to chickenpox. 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, as becoming infected with chickenpox while pregnant will result in malformations of the baby in 3% 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 or over nine, as they are more likely to suffer from severe forms of the disease
- People coming to Canada from tropical climates where chickenpox is much less common compared with Canada as, being adults, 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.

Polio

People without polio immunization or with unknown polio immunization history should receive two doses of inactivated polio virus (IPV), given 4 to 8 weeks apart, with a third dose 6 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 approximately 2,000 cases of polio reported worldwide in 2008. However, recent outbreaks in countries such as Uganda and all of Central Asia indicate that drops in vaccination rates create vulnerable populations. As with all vaccine-preventable diseases, it is extremely important to ensure you are vaccinated against polio if your status is unknown.

Hepatitis B

The vaccine to protect against the 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 increased risk of occupational infection, namely those exposed frequently to blood, blood products and bodily fluids or who may be at 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 three doses, administered in the shoulder. 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 the droplet and contact routes 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. Influenza vaccine is created with dead virus and, therefore, you cannot catch the flu from the vaccine.

Immunization is one of the foundations of the Personal Protection Strategy and one of the most powerful steps you can take to protect your health.

HAND HYGIENE

HAND HYGIENE

Summary

- Hand hygiene includes using alcohol-based hand rub (ABHR) or soap and water to clean hands, and using moisturizer and bandages to protect skin
- 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 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, pathogenic agents, such as bacteria and viruses are picked up from the environment by your hands. These transient pathogens can then be easily transferred to objects, other people, or to vulnerable parts of your own body through non-intact skin (touching an open wound) or mucous membranes (through touching the eyes, mouth or nose). Once transient pathogens 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 both cleaning dirt and pathogens off your hands and ensuring the skin on your hands is kept protected and remains intact. Skin that is dry, cracked or affected by rashes can be a portal of entry for disease. There are two methods for cleaning hands:

Alcohol-based Waterless 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 pathogens by denaturing the proteins that make up the structure of the bacteria or viruses. Proper use of ABHR will kill 99.9% of all pathogens 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% to 90% alcohol. Seventy percent 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 pathogens. Emergency and justice service organizations should only purchase ABHR with a

Drug Identification Number (DIN) or Natural Product Number (NPN) received from Health Canada.

ABHR is considered the most effective method for cleaning hands that are not visibly soiled and should be used preferentially by emergency and justice service workers.

Cleaning hands with ABHR:

- Hands must be visibly clean for ABHR to be effective. ABHR cannot penetrate the visible contamination on your hands, which could allow pathogens underneath the dirt to survive
- If hands are visibly soiled and soap and running water is not available, use a moist towelette to remove dirt from hands before using ABHR
- If hands are visibly soiled and you are in the field and there is neither running water nor towelettes, use ABHR on hands as a stop-gap measure. Wash hands 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 your forearm. Roll up sleeves if they extend to your wrist
- Put enough ABHR into your palm to completely cover both your hands (which is an amount about the size of a quarter or a loonie)
- 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 pathogens
- 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 pathogens

Soap and Water

Soap and water should be used preferentially only when hands are visibly soiled. Soap and water is not as effective for hand hygiene 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 your hands. It takes at least 15 seconds of lathering with soap and water to remove enough transient pathogens 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. 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 can easily become breeding grounds for bacteria, causing your hands to be contaminated when they are washed instead of 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 pathogens, 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

Washing Hands with 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 your forearm. Roll up sleeves if they extend to your wrist

- Turn on taps to a temperature that is comfortably warm. Water that is too cold or too hot may be irritating and drying to skin. 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. You must wet your hands before you put soap on them; 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 pathogens 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, you can turn off taps as soon as you have finished rinsing your hands, 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 your hands from being re-contaminated by touching the dirty taps
- If you must exit through a doorway, use paper towel or cloth towel to open the door to prevent your hands from being re-contaminated by touching a dirty door knob
- 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

When You Should Clean/Wash Your Hands:

- Before client contact, or contact with the client’s environment
- Before putting on gloves
- Before putting on other PPE, such as a respirator and/or eye protection
- After removing gloves

- After blood or body fluid risk exposure
- After removing eye protection and respirator
- Before and after invasive procedures on a client, such as intubation or starting an IV
- 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
- On your way out of a client's room/hospital ward/emergency department. ABHR is usually mounted near to all hospital rooms and entrances
- 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 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 your nose
- Any time hands have visible dirt on them
- Before and after your shift
- Any time you cannot remember when you last cleaned or washed your hands

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

As well, hands should be routinely inspected for non-intact skin, and any non-intact skin, such as cuts, sores, scrapes, scratches and/or abrasions should be covered with water-resistant dressings 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 from communicable disease.



Excellent Hand Hygiene Requires:

- All hand jewellery removed and watches moved up forearm before cleaning. Consider taking rings off before your shift
- Artificial nails must never be worn. Pathogens accumulate underneath artificial nails, increasing risk of infecting yourself and others
- Nail polish should not be worn by ESWs who engage in medical care as part of their daily work. If your nails are painted, inspect your nail polish daily to ensure no chipping or flaking has occurred, as these areas can harbour bacteria and increase the risk of infecting yourself and others.
- Don't bite your nails or tear at your nails or the skin around your nails (cuticles), as this creates areas of non-intact skin that can be a portal of entry to pathogens. As well, injured skin stings when washed or cleaned with ABHR, which might prevent you performing adequate hand hygiene
- Avoid touching the mucous membranes of your eyes, nose and mouth before performing hand hygiene to help prevent accidentally infecting yourself

Performing excellent 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 justice service workers in the Region of Peel have access to ABHR and soap and water. Make sure you routinely clean your hands before and after every client contact, every time.

PERSONAL PROTECTIVE EQUIPMENT

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Summary

- PPE is designed to create a barrier between yourself and hazards in the environment
- 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 N100 respirators, must be decontaminated (cleaned) and disinfected after every use as per manufacturer's instructions

Personal Protective Equipment 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 Personal Protection Strategy. The choice of PPE is dependent on the emergency service worker's and justice service worker's assessment of the situation, the demeanour of the client, and is made with the worker's analysis of what his/her location, duration, proximity and interaction with the client may involve.

Personal protective equipment includes:

- Properly fit-tested N95 or N100 respirators
- Procedure 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
- Gown

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.

PPE should always be worn when:

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

It is important to pay close attention to the principles behind the use of PPE. You must wear the right PPE 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 you do not accidentally contaminate yourself through contact with potentially contaminated PPE as it is taken off. Even when not visibly soiled, PPE should always be considered contaminated.

Respirators (N95 or N100)

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: tuberculosis, 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 droplet nuclei (>5 microns).

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

N95 and N100 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 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 your skin, creating an effective seal, preventing air from entering around the edges of the respirator.

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. Significant body changes can cause a respirator to fit improperly. 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

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

N100 Respirators

N100 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.

N100 respirators differ from N95 respirators in two key ways. Firstly, they are not disposable. N100s require decontamination (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, decontamination (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 decontaminated.

Indications for use of an N95 or N100 respirator:

- If the client is known to have an illness that can be transmitted by airborne transmission, such as tuberculosis, measles or chickenpox
- When required by a medical, Provincial or service directive

Dependent on the service, use of N95/N100 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
- Treating, transporting or escorting a person with a known/suspected communicable disease that is transmitted by droplet route and a procedural mask 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 illness and/or influenza-like illness

- Blood or body fluid splash is likely or expected, and a face shield or procedural mask is not available, as it provides a covering for the mucous membranes of the nose and mouth
- Performing invasive procedures on the airway such as:
- Patients on oxygen therapies of 50% or higher
- Intubation
- Suctioning
- Nebulizing therapies
- Needle thoracostomy
- Tracheostomy
- When required by medical, Provincial or service directive

Points for use:

- N95 Respirators must remain dry for maximum effectiveness. If the N95 respirator becomes wet, exchange it 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 to “store” it, 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. 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 pathogens on the outside of the respirator both during wear and while taking it off
- N95 respirators are designed for single use only and must be discarded following use
- Respirators must not be removed over the head as that is a risk for self-contamination
- N95 and N100 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 during transport of a client, 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 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 (Procedure or Surgical)

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 sick 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 droplet nuclei (>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 pathogens 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 N100 respirator.

Points for use:

- 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 pathogens on the outside of the mask both during wear and while taking it off

- Masks are designed for single use only and are to be discarded following use
- 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 during transport of a client, 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 your head or around your neck, as there is a potential for self-contamination when that area is touched at a later time
- 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.

Medical gloves made of Nitrile are available for all ESWs in the Region of Peel and JSWs throughout the province.

Medical gloves must be worn when hands will be in contact with mucous membranes, non-intact skin, blood and/or body fluid (including respiratory secretions), of a client. Medical gloves should also be worn when decontaminating (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.

Hands must be cleaned before medical gloves are put on and immediately after glove removal every time. 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
- When treating or escorting a person with a known or suspected communicable disease
- 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 decontaminating (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 use:

- Do not clean your hands with medical gloves on. Soap and water or alcohol-based hand rubs break down the material of the medical gloves
- Change medical gloves and perform hand hygiene after invasive procedures and between procedures on the same client
- 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 decontaminate 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 your 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 hatch-type gloves should put medical gloves over hatch gloves to prevent contamination of the hatch gloves with blood and/or body fluids. Hatch gloves are not protective against exposure to blood and body fluid
- 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, as prescription glasses do not cover enough of the face to be considered protective as they allow blood and body fluids to travel 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 decontaminated (cleaned) and disinfected following every use.

Full- 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.

Indications for the use of eye protection:

- Any situation in which a mask/N95/N100 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 required by medical, provincial, or service directive
- When decontaminating 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

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, body fluids, 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 preferentially by firefighters in situations where gowns would be required.

The routine use of gowns is not recommended. Gowns have been found to be of little benefit in preventing the transmission of disease.

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 with diarrhea or drainage from wounds 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 decontaminated (cleaned) and disinfected before next use as per the policies and procedures of the fire service

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.

Putting on Personal Protective Equipment

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

	<ol style="list-style-type: none"> 1. Clean hands with ABHR if not visibly soiled. Use soap and water if hands have visible dirt on them
	<ol style="list-style-type: none"> 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 <ul style="list-style-type: none"> • Bunker gear must be in good repair before being worn
	<ol style="list-style-type: none"> 3. Select appropriate fit-tested N95 respirator or personal issue N100 and place over nose, mouth and chin. If there is a flexible nose piece, place on bridge of nose. Adjust to fit

	<p>4. Ensure top elastic of N95 is above ears and bottom elastic is below. Secure clip of N100 at back of neck</p> <p>5. For both N95 and N100, fix nose piece and check fit:</p> <ul style="list-style-type: none"> • Remove hands • Inhale – respirator should suck in • Exhale – there should be no leakage around face <p>If respirator does not suck in, or if air is felt by the face, reposition and try again</p>
	<p>6. Put on eye protection. Eye protection should be worn over eye glasses. Eye glasses do not completely protect the eye and should not be worn instead of issued eye protection</p>
	<p>7. Put on gloves. Gloves should extend over cuff of gown. If wearing hatch gloves, medical gloves should go over hatch gloves. Hatch gloves do not protect from blood and body fluid</p>

Removing PPE

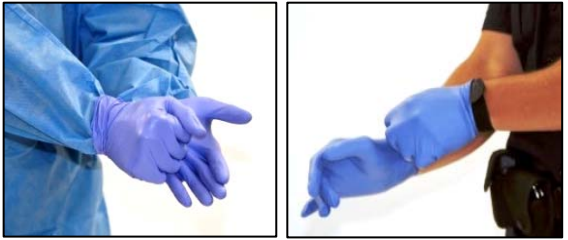


The order in which PPE is removed is critical to avoid the possibility of self-contamination. Following proper removal technique of PPE will prevent transfer of pathogens from the PPE to the skin.




PPE should always be removed in the same manner. The outside of PPE should always be considered to be contaminated and therefore, must be kept away from your 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 not be worn in the cab of vehicles. PPE should be removed and clean PPE put on before decontamination (cleaning) and disinfection of the vehicle and equipment.

Removing Personal Protective Equipment

PPE should always be removed using the same procedure to prevent accidental self-contamination.

	<ol style="list-style-type: none"> 1. Remove first glove <ul style="list-style-type: none"> • Grasp plastic of glove near wrist • Peel glove away from hand
	<ol style="list-style-type: none"> 2. Remove second glove <ul style="list-style-type: none"> • 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 hatch gloves, remove as well • If no gown is worn, perform hand hygiene
	<ol style="list-style-type: none"> 3. Untie gown <ul style="list-style-type: none"> • Untie ties at back of neck • Snap or untie ties at waist, ensuring bare hands do not contact front of gown

	<p>4. Remove gown</p> <ul style="list-style-type: none"> • 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 outside of gown turning inward <ol style="list-style-type: none"> 1. 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 decontamination and disinfection before reuse.
	<p>5. Perform hand hygiene</p>
	<p>6. Remove eye protection</p> <ul style="list-style-type: none"> • Grasp by ear pieces and take off straight away from face • Put aside for decontamination and disinfection or discard in appropriate receptacle if disposable.

	<p>7. Remove N95 or N100 respirator</p> <ul style="list-style-type: none">• 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 N100 aside for decontamination and disinfection• Perform hand hygiene
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A Note on Long Hair

If your hair is long enough to get into your eyes while you are with a client, there is the potential that you will brush your hair away from your face while wearing contaminated medical gloves. After you remove your PPE and perform hand hygiene, you may easily re-contaminate your hands by touching your 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.

SHARPS SAFETY

SHARPS SAFETY

Summary

- Sharps, if not handled correctly, are a potential cause of high-risk exposures to communicable diseases
- Unless immediately removed from sterile packaging, all sharps should be considered contaminated
- Safety-engineered medical devices (SEMDs) are required for use in all health-care settings
- Sharps containers need to be an appropriate size and material for the sharps being thrown away; sealed when three-fourths full and disposed of through licensed waste handlers

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 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 pathogens. HIV, hepatitis B virus (HBV) and hepatitis C virus (HCV) are blood-borne pathogens 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 pathogen that might be on its surface. Unless you have just removed a sharp from a sterile package, all sharps should be treated as contaminated. Emergency or justice service workers handling or coming in contact with sharp devices are at risk of occupational exposure due to blood-borne infectious agents.

Safety engineered medical devices (SEMDs) are now [required](#) in all health-care settings, including pre-hospital care. 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 beside after use can result in injury. Additionally, inappropriately discarded syringes can end up being wrapped up in used linen or added to normal waste, increasing the risk of injury to others.

Preventing Sharps Injuries

When performing medical interventions requiring sharps:

- Use safety engineered medical devices, such as needleless devices
- Communicate with other personnel to warn them with 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-use 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
- 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 carrying 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

In general:

- Replace sharps containers when they are three-fourths full or the sharps have reached the fill line and securely close the lid
- Handle laundry with care
- Educate staff about the risks associated with sharps, including safe disposal of sharps in puncture-resistant containers if found in the environment

If an improperly disposed sharp is encountered:

- Put on a pair of disposable gloves
- Handle the device carefully, keeping the hands behind the tip at all times
- Ideally, take a sharps container to the syringe
- Never re-cap a syringe, even if a cap is available
- Use tongs, or similar implement, to pick up the sharp. If no implement is available, carefully pick up the sharp with the tip (such as the needle or blade) furthest away from yourself
- 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 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

Before using a sharps container:

- 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 your interaction with the environment, and is included in the Personal Protection Strategy as part of the actionable step of location, duration, proximity and interaction (LDPI).

CLEANING, DISINFECTION AND STERILIZATION

CLEANING, DISINFECTION AND STERILIZATION

Summary

- Decontamination (cleaning) and disinfection is required for all reusable equipment after every call
- Disinfection cannot occur unless an item has been properly and thoroughly cleaned beforehand
- Cleaning and disinfectant products must be used as per manufacturer's instructions
- Soiled linens and uniforms must be handled properly to minimize the risk of disease transmission

Reprocessing

The steps required to prepare used medical equipment/devices for reuse (e.g., cleaning, disinfection and sterilization) are referred to as reprocessing.

Decontamination (Cleaning)

PIDAC (2010) describes decontamination (cleaning) as the physical removal of foreign material (e.g., dust, soil) and organic material (e.g., blood, secretions, excretions, microorganisms) from a surface. Cleaning physically removes rather than kills microorganisms and is accomplished with water, detergents and mechanical action.



Cleaning is the most important part of the reprocessing process. Without the proper cleaning of an object or medical device/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 pieces of equipment used in the pre-hospital environment. The following is a partial list of equipment that may need cleaning and disinfection after a call:

Handcuffs	Oxygen tank	Portable radio
Cardiac monitor and leads	Oxygen regulator	Scoop stretcher/spinal board
Airway roll	Unit suction	GPS unit
Portable suction unit	Pen	Stretcher and stretcher straps
Stethoscope	Pen-light	Bunker gear
Pulse oximeter	End tidal CO ₂	Vehicle surfaces – handles, switches, steering wheel
Laryngoscope handle	Protective eyewear	Radio
Glucometer	Stair chair	Mobile Data Units
Scissors	Blood pressure cuff	Non-disposable cervical collars
	Hatch gloves	

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

Disinfection

Disinfection is required for items where merely cleaning them will not render it safe for its intended use. 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 resistant microorganisms, 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.

2. High-Level Disinfection

High-level disinfection is expected to destroy all microorganisms 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 microorganisms, 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. Follow your service's policy and procedures for re-processing of McGill forceps.

Spaulding Classification System

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

Non-critical items come in contact with intact skin but not mucus membranes, such as handcuffs, blood pressure cuffs or pulse oximeters. As intact skin is an efficient barrier to pathogens, items that contact intact skin require low-level disinfection only.

Semi-critical items are those objects that come in contact with mucus membranes or non-intact skin. These items must be free of all microorganisms 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.

Critical items enter sterile tissue or the vascular system and therefore present a high risk of infection if contaminated with any microorganisms, including bacterial spores. It is crucial that critical items, such as IV catheters, laryngoscope 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 Peel Regional Paramedic Services, are the only critical item that will be reprocessed for reuse.

Sterile packaging should always be inspected before opening. The packaging must be clean, dry and intact and the item must be used before its expiration date to ensure the critical item inside has remained sterile and is safe to use on a patient.

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 is essential.

Due to the risk of contamination during cleaning of soiling caused by blood and all body fluids, proper PPE must be worn while cleaning. Appropriate PPE consists of gloves, and potentially facial protection (mask and eye protection or face shield) as well as a gown if splash or spray is possible or expected. Cleaning must be followed by disinfection the area or 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 mechanical action. Detergents are sufficient for most surface cleaning. For proper cleaning:

1. Using friction, clean equipment with soap and water or supplied cleaning/disinfection product, such as AHP, to remove any soiling, dirt, dust, blood or body fluids from the surface of the equipment
2. 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
3. Spray onto a cloth and then wipe item to be cleaned
4. Rinse off soap (if used) and allow to dry
5. If using AHP wipes or liquid, allow sufficient wet contact time to kill pathogens 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 equipment between each call for service. There should also be schedules for taking vehicles out of service for deep cleaning on a regular basis.

How to clean and disinfect after a blood or body fluid spill:

1. Assemble materials required for dealing with the spill prior to putting on PPE
2. Inspect the area around the spill thoroughly for splatters or splashes
3. Restrict the activity around the spill until the area has been cleaned and disinfected and is completely dry
4. 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)

5. Confine and contain the spill; wipe up any blood or body fluid spills immediately using either disposable towels or a product designed for this purpose
6. 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)
7. Disinfect the entire spill area with a hospital-grade disinfectant and allow it to stand for the correct wet contact time recommended by the manufacturer
8. Wipe up the area again using disposable towels and discard into regular waste
9. Care must be taken to avoid splashing or generating aerosols during the clean-up
10. Remove PPE in proper order (gloves, gown, hand hygiene, facial protection)

Uniforms and Laundry

PIDAC Best Practices for Environmental Cleaning for Prevention and Control of Infections in All Health Care Settings (2009) states that soiled linen, including uniforms, is rarely implicated in the transmission of communicable diseases. 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 detachment and carefully remove visibly soiled uniform, taking care to not aerosolize soiling or cause contamination of surrounding area.
- Place uniform in a plastic bag
- Wash soiled areas of the skin with soap and water
- Put on a clean uniform
- Launder the dirty uniform. According to the CDC, 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
- 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

- Remove gross soiling with a gloved hand and dispose of into toilet or hopper (It is impossible to clean laundry when organic material is present)
- Never remove soil by spraying, 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.

Decontamination (cleaning) and disinfection is the final actionable step of the Personal Protection Strategy. Cleaning and disinfection of all reusable equipment and proper disposal of single-use items between calls protects ESWs, JSWs and their clients.

HIGH-RISK EXPOSURES TO INFECTIOUS DISEASES

HIGH-RISK EXPOSURES TO INFECTIOUS DISEASES

Summary

- High-risk exposures occur when the worker is exposed to a communicable disease that may be life-threatening
- Proper assessment is critical to verify if the exposure was high risk and, therefore, requires immediate follow-up
- Needlestick injuries or blood contacting mucous membranes or non-intact skin need to be assessed by a physician within two hours of exposure for post-exposure prophylaxis for HIV
- Saliva or sputum contacting 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
- Peel Public Health is available 24/7 to help DOs assess exposures. Call: 905-791-7800 during business hours and 905-799-7000 on evenings, weekends and holidays.

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 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, invasive bacterial disease 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 critical 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 pathogens. Following a specific exposure, the risk of infection may vary with factors such as:

- The pathogen involved. Some pathogens are more able to infect with lower doses than others, such as the Norwalk virus
- The type of exposure. The pathogen 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 pathogen in the client at the time of exposure. For example, low levels of HIV virus in a client's blood or "scarce" tuberculosis 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 tuberculosis can take upwards of 8 to 12 hours of continuous contact with the infectious person
- The susceptibility of the worker. A worker who is immunized will not be susceptible to those diseases they have been immunized against
- 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 Personal Protection Strategy (see section on the Personal Protection Strategy). These preventative measures include:

- Immunization, especially against diseases such as hepatitis B and influenza, which are common occupational exposures (See section on Immunization)
- Consistent performance of excellent hand hygiene (See section on Hand Hygiene)
- Sharps safety (See section on Sharps Safety for Emergency Service Workers)
- Proper handling, disinfection (cleaning) and decontamination 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 Personal Protective Equipment (see section on Personal Protective Equipment)
- Prompt management of exposures, including providing immediate access to post-exposure prophylaxis (PEP) for meningitis, rabies 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 pathogens.

High-risk medical procedures include:

- Oxygen delivery to patients with a suspected or confirmed respiratory illness
- 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
- Surgical airway insertion
- Needle thoracostomy
- 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
- “Logging” a client with signs and symptoms of communicable disease
- Sharing communal office equipment
- 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 HBV or HCV unless they contain visible blood:

- Feces and urine
- Nasal secretions
- Sweat
- Tears
- Vomit

Saliva and sputum can transmit HBV and saliva and sputum landing on a worker's mucous membrane 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 or sputum.

High-risk exposures are those exposures that may result in the worker becoming infected with a life-threatening communicable disease. High-risk exposures include:

- A percutaneous injury (injury that breaks the skin) such as a needlestick, puncture or cut with a sharp object that is contaminated with the blood of a client
- Contact of mucous membrane (eyes, nose, mouth) or non-intact skin (e.g., exposed skin that is chapped, abraded 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
- A copious amount of blood that contacts intact skin, as the likelihood of a large amount of skin having minute or previously unnoticed injuries is very high
- 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
- Direct, unprotected contact with blood and/or body fluid from a client with a viral hemorrhagic fever, such as Ebola or Marburg hemorrhagic fevers
- Saliva and 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 section on Immunization for more details)

Note:

- The risk of HIV from sharps injury is only 0.3%. 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/body fluid on non-intact skin or mucous membranes is only 3%
- The risk of HBV from sharps injury or splash/spray of blood/body fluid, including saliva, 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 within two hours. This is the optimal time period for the exposed worker to receive post-exposure prophylaxis for HIV, if required. HIV Post-Exposure Prophylaxis (PEP) given within two hours of exposure is estimated to reduce HIV infection by 81%. If the worker is unvaccinated, PEP for HBV should be given within 24 hours after 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 post-exposure prophylaxis for HIV was prescribed.

WSIB Form Seven may be required to be filled out for every exposure. You may also need to fill out an exposure report for your organization, refer to your 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 Designated Officer (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.

1. What happened?
 - a. 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
 - b. The DO should look for key statements that would indicate the exposure was high risk, such as a needlestick or cut from a dirty sharp, blood and/or body fluid on non-intact skin or a mucous membrane. A complete list of exposures that could be deemed high risk is found above
 - c. 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)
2. Were you wearing PPE?

- d. This question is used to establish the worker's use of PPE during the exposure. If a paramedic received a blood splash on his face, but was wearing eye protection and an N95 for example, then the worker may be reassured that he was fully protected from exposure and has not been put at risk
 - e. 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
3. Does the worker have all scheduled and recommended vaccines?
 - f. 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 section on Immunization for a list of scheduled and recommended vaccinations for adults)
 4. What was the length of exposure?
 - g. Certain diseases, such as tuberculosis (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 percutaneous (skin) injuries by cutting, scratching, squeezing or puncturing the skin. This may damage the tissues and increase uptake of any pathogen
- 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
- Needlestick injuries must be assessed by a health care professional within two hours of exposure to maximize the effectiveness of PEP for HIV
- 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

- Immunization against tetanus may also be required
- The on-call supervisor 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 client was transported to an emergency department, the worker should be assessed at the same emergency department whenever possible
- If the supervisor is not the on-call DO, the supervisor should contact the on-call DO to facilitate follow-up
- The supervisor and worker will complete the exposure report form and the WSIB Form Seven (if medical attention provided) as soon as possible after the incident and forward to the appropriate internal department
- Peel Public Health may be contacted during or after business hours for consultation. High risk exposures may be investigated through Peel Public Health or the local 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 Public Health in Follow-up for High-risk Exposures

- As per the Ontario Public Health Standards (2008), 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 Peel Public Health or their local health unit
- 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 tuberculosis (TB) deemed to be highly infectious by the TB Control Program, they were not wearing an N95 respirator and they:
 - Performed a cough-inducing procedure
 - Were with the client who was actively coughing and the client was not wearing a mask
 - Were 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 to a client with bacterial meningitis and they intubated, 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 justice service workers are not missed, as follow-up with these workers is included in the algorithm and policy and procedures for contact-tracing for all diseases of public health importance.

THE MANDATORY BLOOD TESTING ACT

The Mandatory Blood Testing Act (MBTA)

Summary

- MBTA applications must be submitted to a health unit within seven days post-exposure. This count includes weekends and holidays
- All forms must be correct and complete
- Peel Public Health is available 24/7 to help with MBTA applications: 905-791-7800 during business hours, 905-799-7700 after-hours

The *Mandatory Blood Testing Act* (MBTA) 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 fluid in the course of their work (see section 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](#).

Peel Public Health 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.

For immediate help in applying to the MBTA, call Peel Public Health:

- Business hours: 905-791-7800
- Weekends and holidays: 905-799-7700
- Fax number for submitting applications: 905-565-6178

Legislation Documents

- 1) [The Mandatory Blood Testing Act](#) – directs the process for blood testing
- 2) [Ontario Regulation 449/07](#) – sets the requirements and procedures that must be followed with respect to an order for compulsory blood testing

- 3) [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 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 body fluids:

- While providing emergency health care
- While giving emergency first aid
- As a 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, a police report must have been filed and the applicant must consent to disclose this information if asked.

Your completed and correct application must be received by the health unit within seven days of the 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.

Submitting an Application

An application includes two forms:

- The Applicant Record
- The Physician Report

You can apply using the Physicians and Applicant Report/Record. 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 medical officer of health.

A complete application under the MBTA includes both the applicant and the physician report form. Your application must be received by your local health unit within seven days from the time you are exposed. The seven-day count includes Saturdays, Sundays and holidays. If the application is submitted after seven days have passed, it will not be processed.

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 your 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. Peel Public Health has on-call nurses to help you with your application 24 hours a day, seven days a week. Call Peel Public Health at: 905-791-7800 during business hours or 905-799-7700 after hours for help with applications under the MBTA.

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 may call Peel Public Health at: 905-791-7800 during business hours or 905-799-7700 after hours, or The Ministry of Health's INFOLine at 1-866-532-3161. However, if you don't know which health unit to apply to, apply to your local health unit 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 respondents address. The fax number for Peel Public Health is 905-565-6178.

As the applicant you must:

- Provide a description of the circumstances of the occurrence and the details of the exposure and your injury
- Provide your immunization history

- Include the name and address of the person whose blood you are applying to have tested
- Agree to counselling about the exposure and treatment options
- Agree and arrange to have your blood tested for the three diseases: HIV, HBV and HCV
- Provide consent for the release of information about your blood test results, if asked, to the Consent and Capacity Board
- Give consent for the release of information on the police report if you were the victim of a crime

Your application will be read by the medical officer of health and by members of the Consent and Capacity Board if your application is forwarded for an order.

Your blood test results will be shared with the doctor who completed the physician report, your family physician if named, and with the Consent and Capacity Board members if requested.

None of your 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.

a) Voluntary Process

- When an application is received by the correct health unit and all requirements are met, it proceeds to the voluntary stage. This means that the medical officer of health assigns a public health nurse to contact the respondent and ask that he or she 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 is 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 public health nurse 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 public health nurse 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 medical officer of health, the respondent's physician and the applicant's physician

- The respondent must show identification when he or she has the testing done. The person taking the blood is required to carefully handle the specimens, send them to the Central Public Health Lab and ask for immediate analysis
- When the test results are received by the medical officer of health, the results will be immediately forwarded to the applicant's physician. The applicant is notified and asked to make an appointment with his or her doctor so that testing results can be interpreted to the applicant

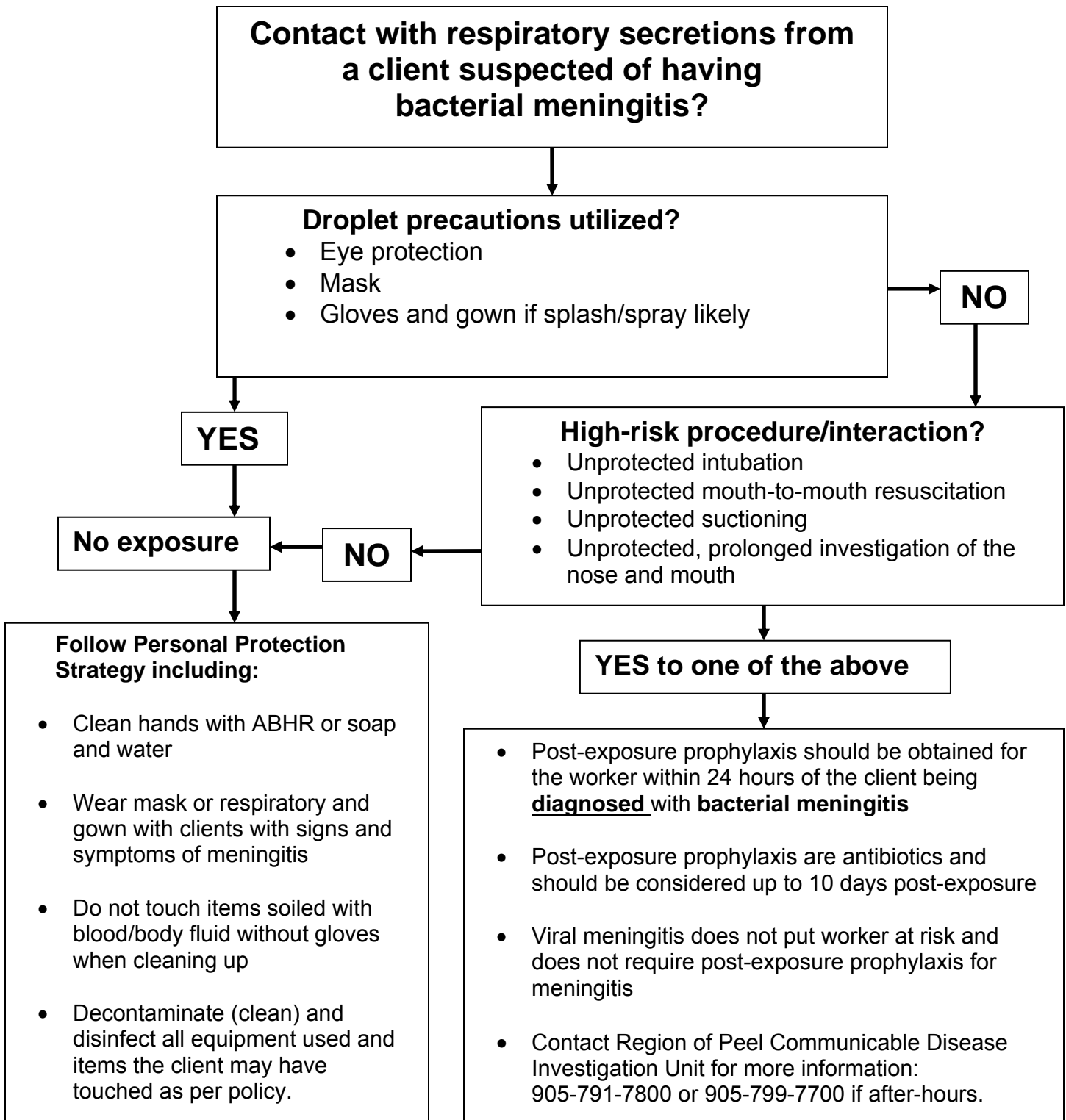
b) Order Process

- 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 medical officer of health will be notified of the decision made by the Board
- When a respondent is ordered to provide a blood sample, he or she 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.
- 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 his or her 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. Health Unit staff are available to answer questions and provide support. Call Peel Public Health at: 905-791-7800 if you have any questions.

APPENDIX: INFECTIOUS DISEASES

Bacterial Meningitis



Bed Bugs

Bed bugs are bloodsucking insects that feed on exposed human skin. Bed bugs are shy 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. 90% 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. They do not nest, but come together in hiding places.

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 can be easily transported in suitcases, hand bags, personal belongings, mattresses, furniture, electronics and other objects. Bed bugs do not travel on people, but if the person lives in a highly infested environment, bed bugs may cling to their clothes.

They can be found in places where people rotate frequently such as in hotels, motels, hostels, boarding houses, airplanes, ships, buses and other places where people may stay for a prolonged period of time.

In cases of severe infestation, bed bugs can travel from room to room through a small opening, such as electrical sockets, as they look for food.

It is important to have a good look at a second-hand mattress or furniture before purchasing them to make sure they are not infested with bed bugs. Either the bed bugs themselves or their feces will be visible. Their feces are dark brown in colour and turn bright red when sprayed with water.

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 Personal Protection Strategy 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
- Wrap the client in a blanket before putting them in your vehicle
- Transport client's personal belongings 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
- If required, bag work clothes in plastic and then put in the dryer for at least 30 minutes on high heat when you get home
- 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.

If you have any questions, contact your Designated Officer or call Peel Public Health at 905-791-7800 or 905-799-7700.

Further information:

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

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. The fact it forms spores makes it very hard to kill.

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, therefore, 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 uncommon to test for the presence of *C. difficile* bacteria without the patient having symptoms.

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

Laboratory testing for CDI involves detection of the toxins produced by *C. difficile*. Specimens of diarrheal stool (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 wash 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).

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.

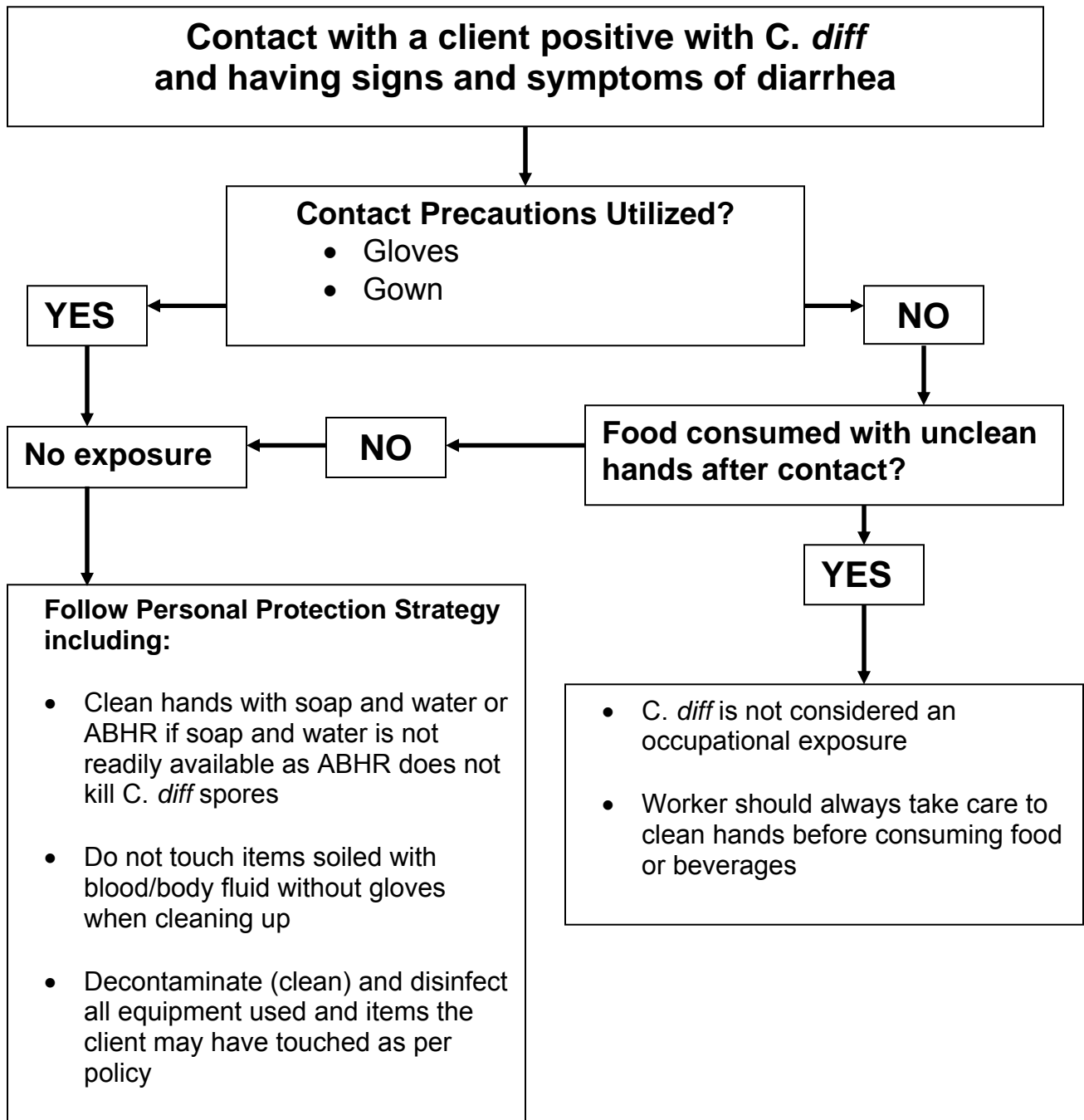
To prevent the spread of *C. diff*:

- Apply the Personal Protection Strategy 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* bacteria, soap and water is most recommended. 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
- Decontaminate (clean) and disinfect all equipment used with the client, and all surfaces the client may have touched. The mechanical action of wiping down these surfaces with the wipes you've been provided removes the *C. diff* bacteria and prevents the bacteria from infecting others
- Remember to always clean your hands before eating!
-

If you have any questions, contact your Designated Officer or call Peel Public Health at 905-791-7800 or 905-799-7700.

Clostridium difficile (*C. diff.*)



Extended Spectrum Beta-Lactamase Organisms (ESBL)

ESBL organisms are bacteria that are commonly found in the bowel. They can also be found in: urine, blood, skin wounds or sputum. Several different types of bacteria can be classified as ESBL. ESBLs produce enzymes that break down some antibiotics, meaning that those antibiotics are no longer effective in killing them. 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. Commodes, bathing tubs and rectal thermometers are examples of items that 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. Clients can also become infected by health care workers whose hands are contaminated with ESBLs and do not wash their hands properly before providing care. Non-intact skin and indwelling devices, such as urinary catheters, can become contaminated with ESBLs and cause infection.

To prevent spread of ESBLs:

- Apply the Personal Protection Strategy Model
- Wash your hands with soap and water or ABHR 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
- Decontaminate (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 Designated Officer or call Peel Public Health at 905-791-7800 or 905-799-7700.

Head Lice (Pediculosis)

The head louse is an insect that lives and breeds on your head. Head lice feed themselves by biting your scalp. Having head lice (pediculosis) is common; as many as 6 to 12 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 3 to 10, and their families.

Signs and 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; they 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 two days. Head lice do not spread disease.

There are many products available to treat head lice. Before buying any product, talk to your pharmacist to see what product may be right for you. A doctor should be consulted before treating a child under 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 Personal Protection Strategy 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, that 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.

If you have any questions, contact your Designated Officer or call Peel Public Health at 905-791-7800 or 905-799-7700.

Head and Body Lice (Pediculosis and Phthiriasis)

Lice require direct physical contact with an infected person in order for transmission to occur

- Head lice require hair-to-hair contact
- Body lice require direct contact of clean clothing with infested clothing (i.e. through unprotected body lift)

Direct hair-to-hair contact or direct unprotected contact with infested clothing?

- No gown used

YES

NO

No exposure

- Check hair/body at first sign of itching
- Over-the-counter chemical treatments for head and body lice are available at pharmacies
- Wash and dry all clothing/bedding at high temperatures while treatment is occurring
 - 55°C or 131°F for 20 min.
 - Dry-cleaning
 - Dryer set on hot cycle
- Treatment should **not** be used until evidence of infestation is found
- Exposure to lice is not considered a medical emergency and does not require immediate medical follow-up

Follow Personal Protection Strategy including:

- Clean hands with ABHR or soap and water
- Wear gloves and gown when touching client with signs and symptoms of lice
- Do not touch items soiled with blood/body fluid without gloves when cleaning up
- Decontaminate (clean) and disinfect all equipment used and items the client may have touched as per policy

Hepatitis A

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

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

- Fever
- Loss of appetite
- Upset stomach and abdominal discomfort
- Dark-coloured urine
- Jaundice (yellowing of the skin and/or the whites of the eyes)

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 when you're on vacation. Hepatitis A is not considered a work-related exposure.

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. HAV can be prevented through vaccination.

To prevent the spread of HAV:

- Apply the Personal Protection Strategy Model
- Wash 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
- Decontaminate (clean) and disinfect all equipment used with the client, and all surfaces the client may have touched
- Consider being vaccinated against HAV, especially if you are planning on travelling outside of Canada. The cost of HAV vaccine is covered by your benefits packages
- Remember to always clean your hands before eating!

If you have any questions, contact your Designated Officer or call Peel Public Health at 905-791-7800 or 905-799-7700.

Further information:

The Canadian Liver Foundation, 416-491-3353 or 1-(800) 563-5483

www.liver.ca

Hepatitis B

Hepatitis B Virus (HBV) is a viral infection of the liver. Some people who get hepatitis never feel sick. Others develop flu-like symptoms, such as fatigue and nausea. Some become very ill with fever, 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 are then protected from future infections by their own natural immunity. 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:

- Six to ten percent of people with hepatitis B become chronic carriers
- Carriers look and feel well but can continue to pass the infection to others
- Twenty-five percent 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 is 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, that 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 7 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 Justice service workers 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. The cost of vaccine is reimbursable through your health benefits packages.

To prevent the spread of HBV:

- Apply the Personal Protection Strategy 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 hatch 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, or if your activity may aerosolize flakes of dried blood
- Decontaminate (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 soap and water or ABHR for at least 15 seconds before and after all client contact

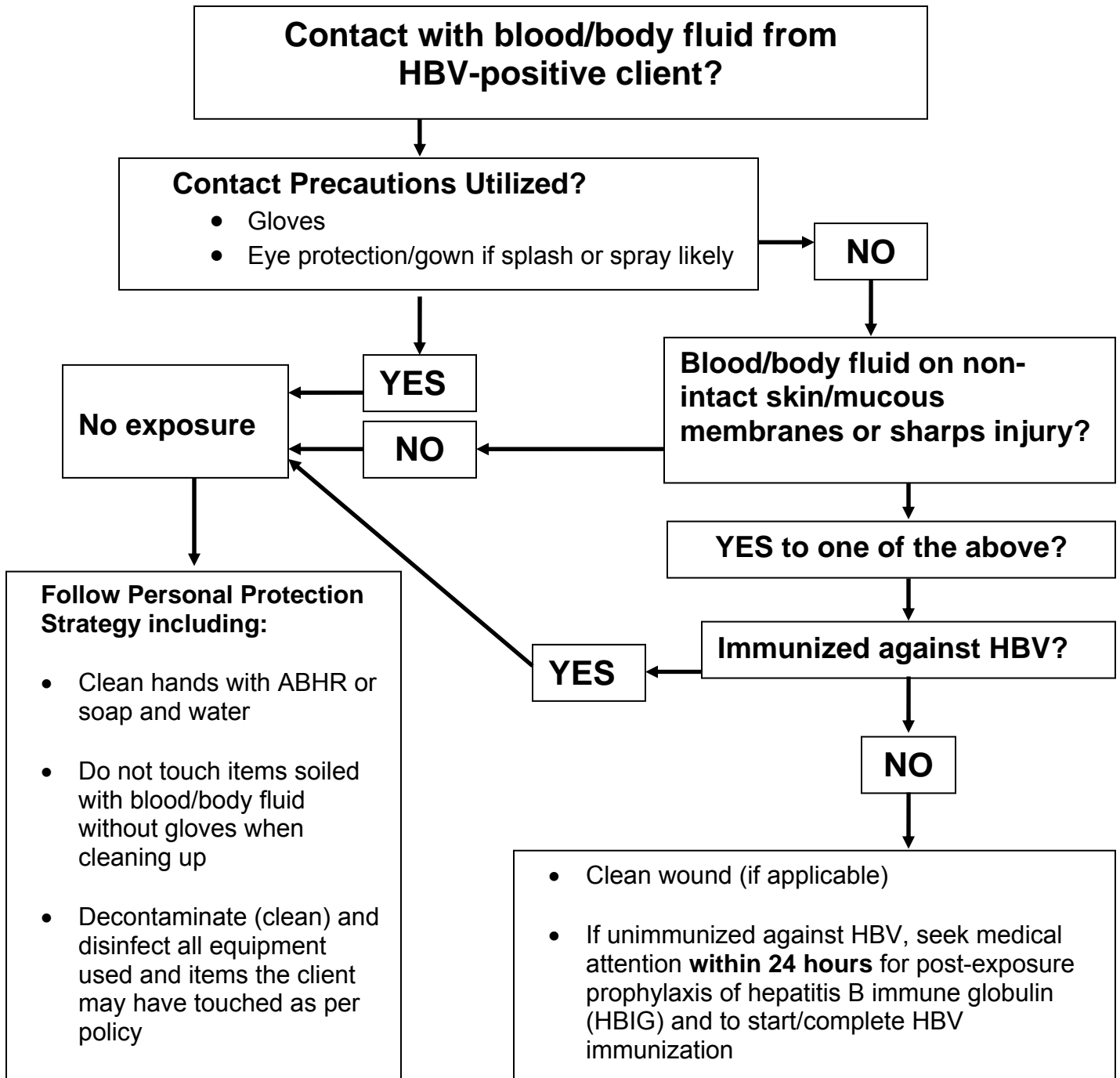
If you have any questions, contact your Designated Officer or call Peel Public Health at 905-791-7800 or 905-799-7700.

Further information:

Canadian Liver Foundation, 416-491-3353 or 1-(800) 563-5483

www.liver.ca

Hepatitis B (HBV)



Note: Contact with blood/body fluid from an HBV+ client without prior HBV immunization carries a risk of infection of 30%. Immunization against HBV is recommended for all workers.

Hepatitis C

Hepatitis C virus (HCV) is a virus that causes hepatitis, 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 2 weeks to 6 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. A special blood test must be ordered by a physician to check for infection with HCV.

Seventy-five to eighty-five percent 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% to 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 needlestick injuries or splash or spray of infected blood or body fluid on non-intact skin or mucous membranes is less than 3%

To prevent the spread of HCV:

- Apply the Personal Protection Strategy 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 hatch 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, or if your activity may aerosolize flakes of dried blood
- Decontaminate (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 soap and water or ABHR for at least 15 seconds before and after all client contact

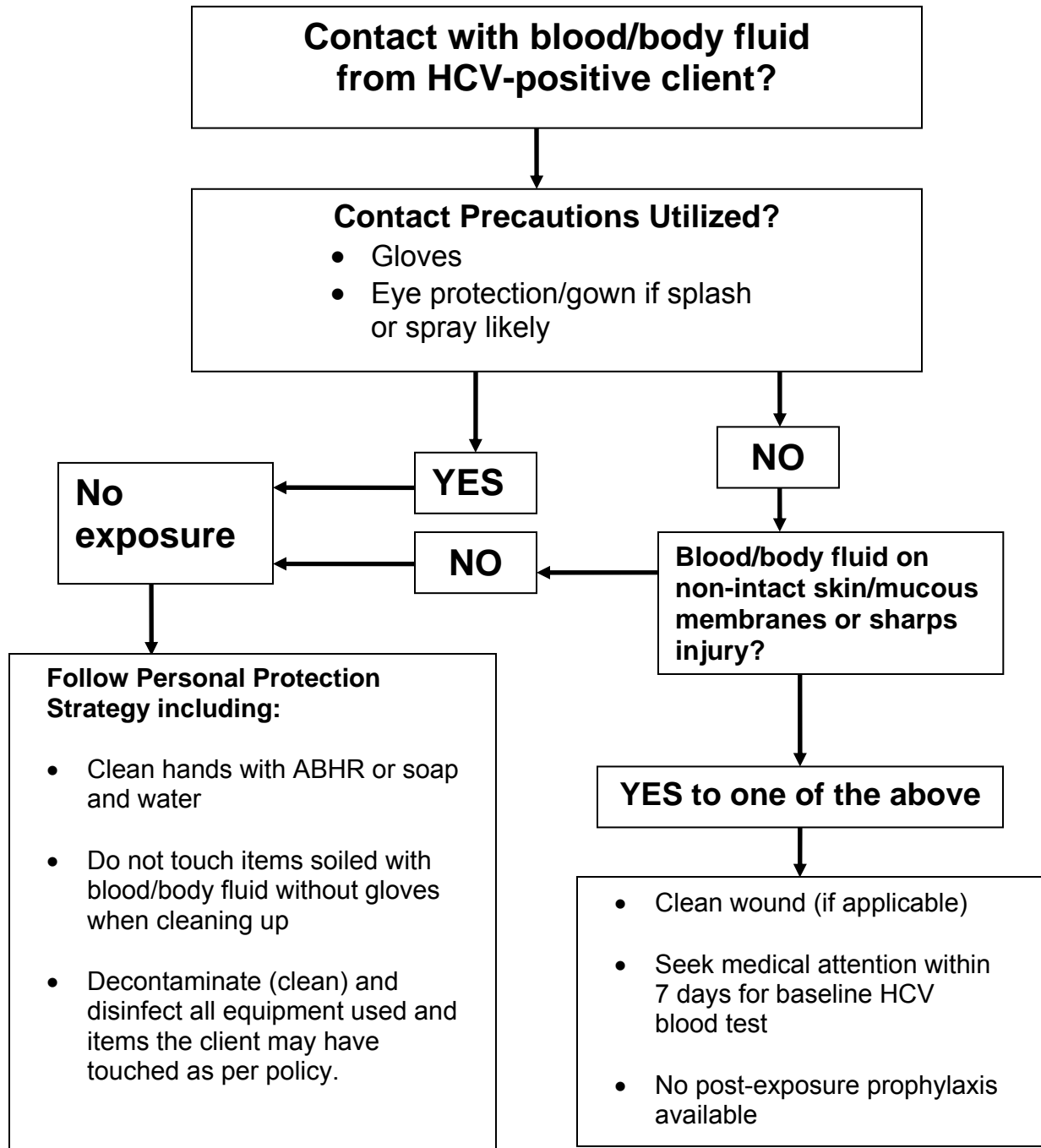
If you have any questions, contact your Designated Officer or call Peel Public Health at 905-791-7800 or 905-799-7700.

Further information:

The Canadian Liver Foundation, 416-491-3353 or 1-(800) 563-5483

www.liver.ca

Hepatitis C (HCV)



Note: Contact with blood/body fluid from an HCV+ client including sharps injury carries a risk of infection of only 3%.

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. It is estimated that 33 million people worldwide are infected with HIV.

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 use 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. 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 needlestick, 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 needlestick injury is considered less than 0.3%. 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 you have been exposed to blood and/or body fluid, 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 2 hours of exposure, PEP can reduce the risk of HIV by 81%.

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."

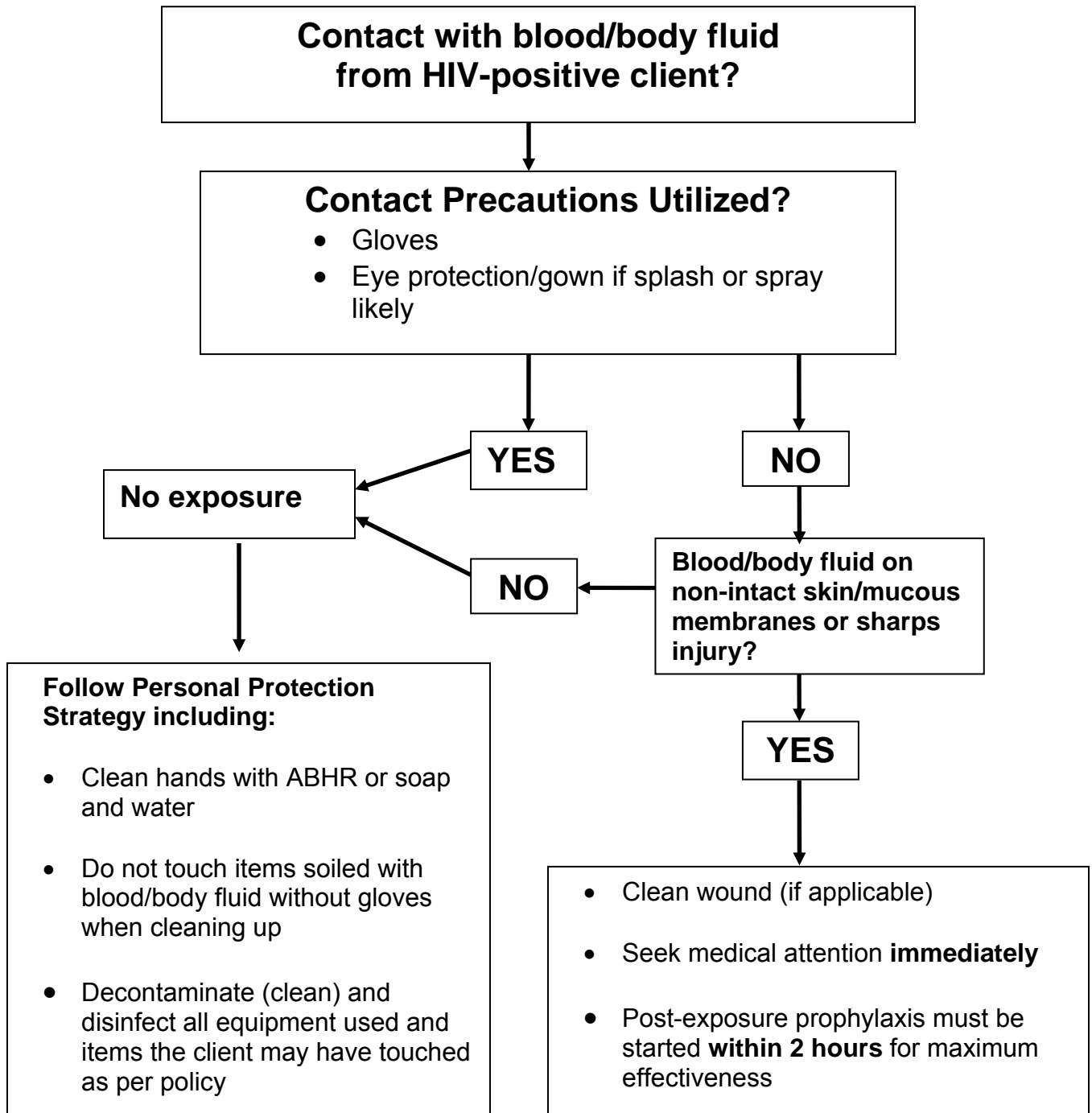
To prevent the spread of HIV:

- Apply the Personal Protection Strategy 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 hatch 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
- Decontaminate (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 soap and water or ABHR for at least 15 seconds before and after all client contact

If you have any questions, contact your Designated Officer or call Peel Public Health at 905-791-7800 or 905-799-7700.

Human Immunodeficiency Virus (HIV)



Note: Contact with blood/body fluid from an HIV+ client, including sharps injury, carries a risk of infection of **only 0.09 to 0.3%**.

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 you touch these surfaces, you can easily transfer the flu virus to your eyes, nose or mouth when you touch your face without cleaning your 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 and 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 justice service workers 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 justice service worker.

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.

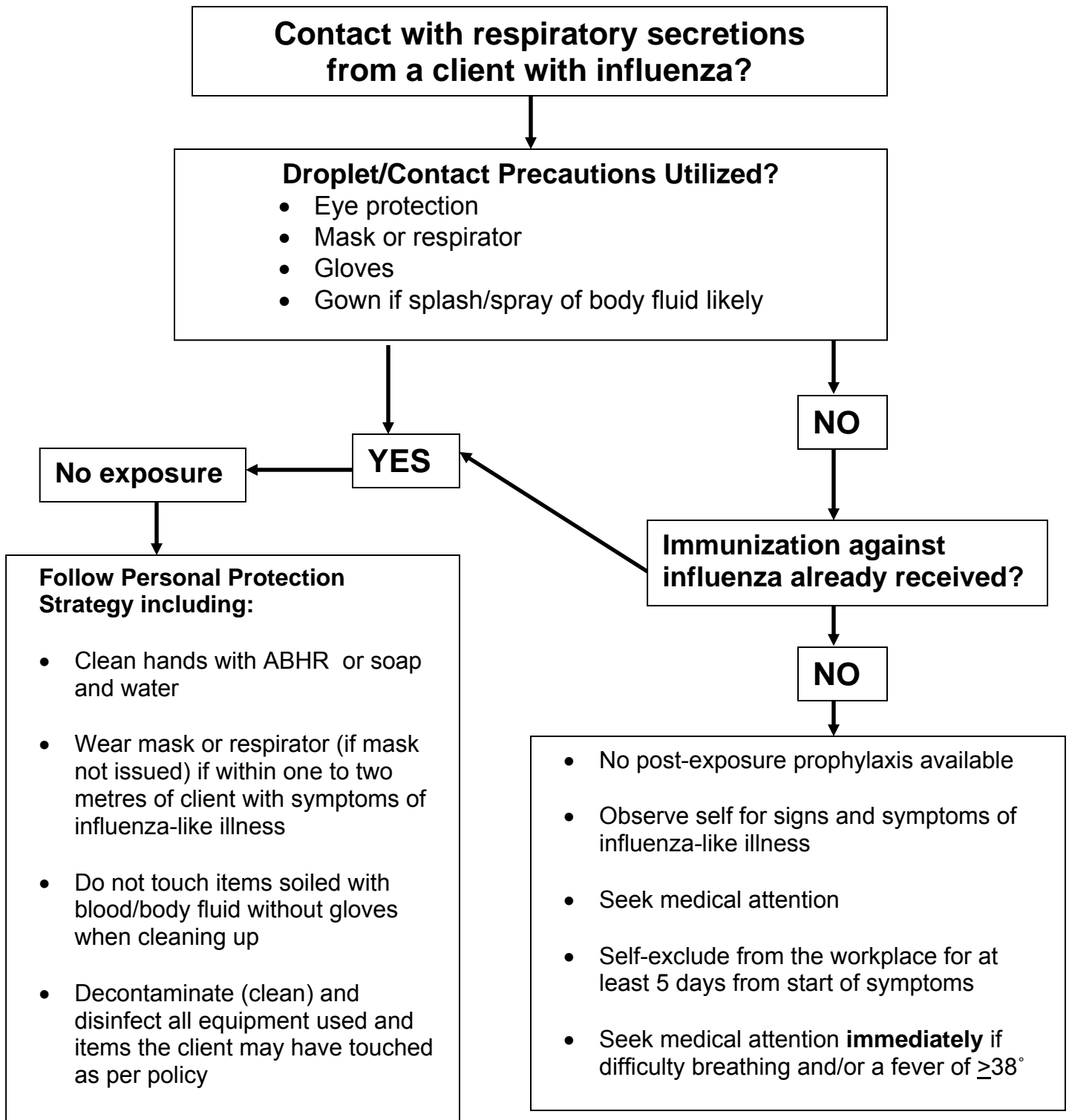
To prevent the spread of Influenza:

- Apply the Personal Protection Strategy Model
- Get vaccinated against influenza every year. The influenza vaccine is available free of charge. The vaccine contains only dead virus and cannot give you the flu. Because the virus changes every year, you need to be revaccinated every flu season
- Control your proximity if possible by staying one to 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 N100 respirator
- Decontaminate (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 soap and water or ABHR for at least 15 seconds before and after all client contact

If you have any questions, contact your Designated Officer or call Peel Public Health at 905-791-7800 or 905-799-7700.

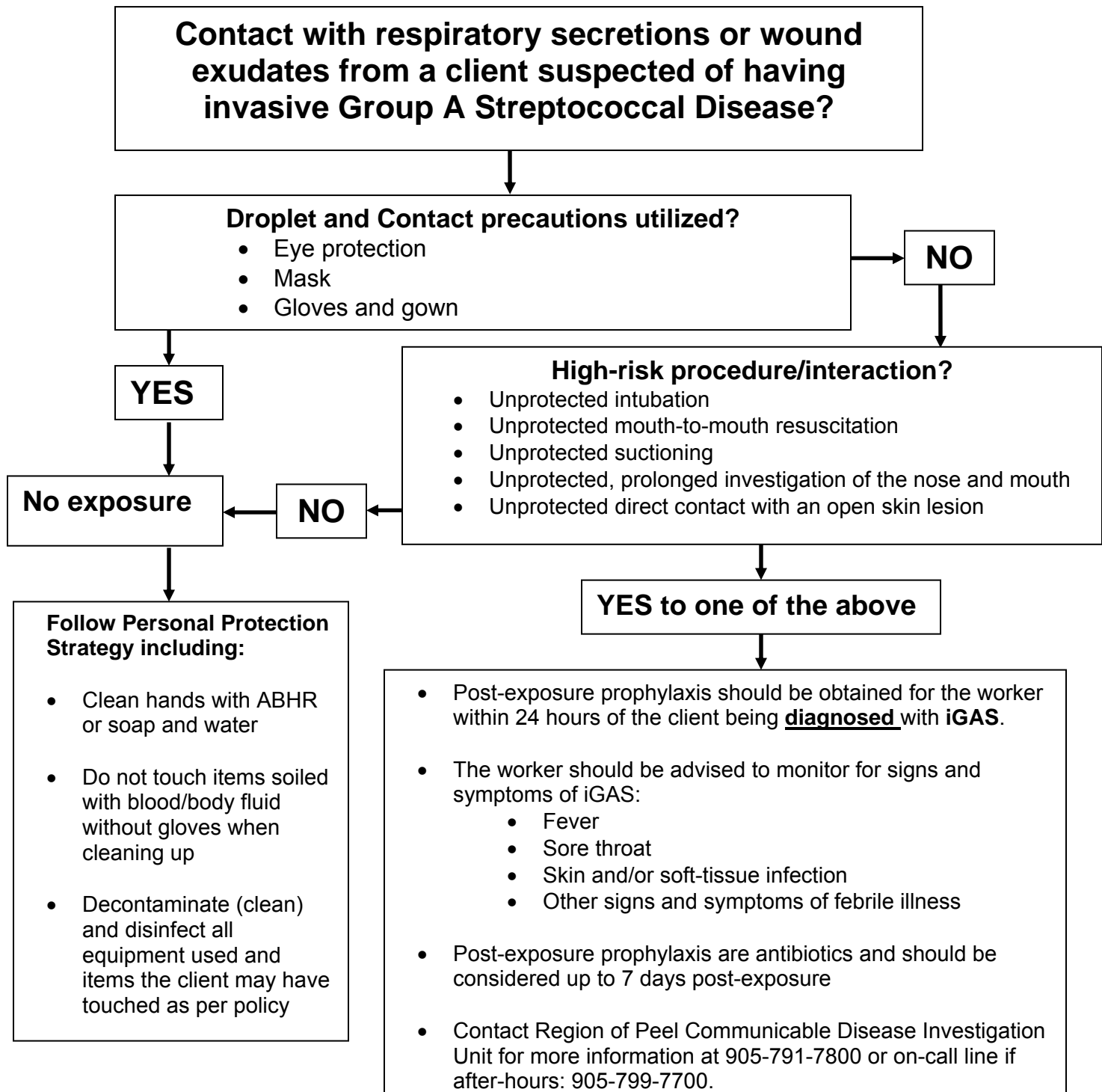
Further information: Health Line Peel at 905-799-7700.
(Caledon residents call free of charge at 905-584-2216)
www.region.peel.on.ca/flu
www.FightFlu.ca
www.gettheflushot.ca

Influenza



Invasive Group A Streptococcal Disease (iGAS)

(As evidenced by: Necrotizing Fasciitis, Myositis, Gangrene, Meningitis, pneumonia or Toxic Shock Syndrome)



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. The number and type of antibiotics that can be used to treat MRSA is more limited.

MRSA is transmitted from person to person, mainly by direct contact with contaminated hands. Emergency and justice service workers can become colonized by touching or rubbing their noses with their hands while caring for clients colonized with MRSA. They may then 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 are skin and soft tissue. MRSA infection can also develop in the lungs or blood of susceptible individuals. MRSA infections can be treated, but the antibiotics that can be used are restricted and cost more.

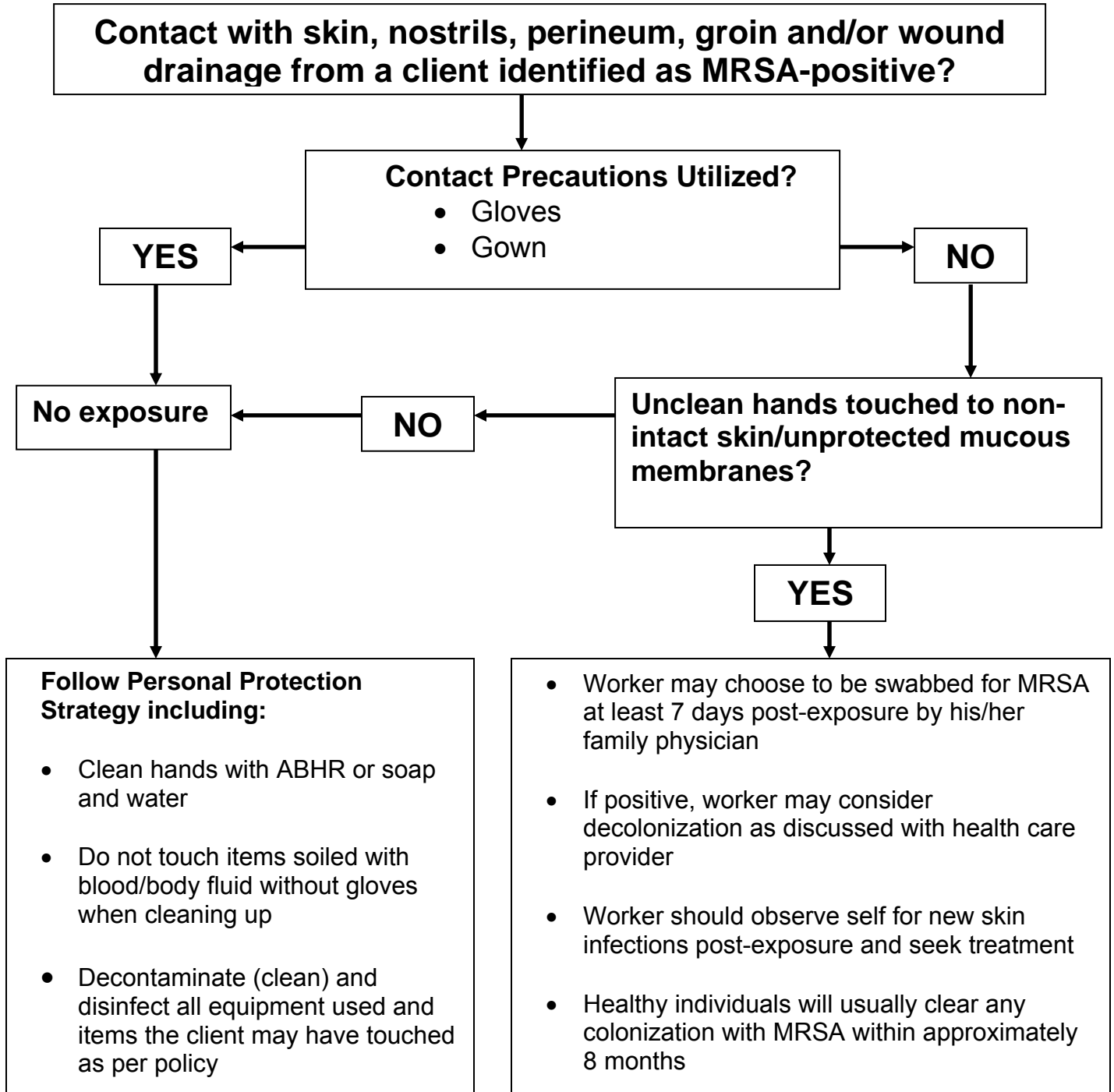
Even if accidentally colonized, healthy people will usually clear their MRSA colonization within six to eight months.

To prevent the spread of MRSA:

- Apply the Personal Protection Strategy 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
- Decontaminate (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 Designated Officer or call Peel Public Health at 905-791-7800 or 905-799-7700.

Methicillian-Resistant *Staphylococcus aureus* (MRSA)



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:

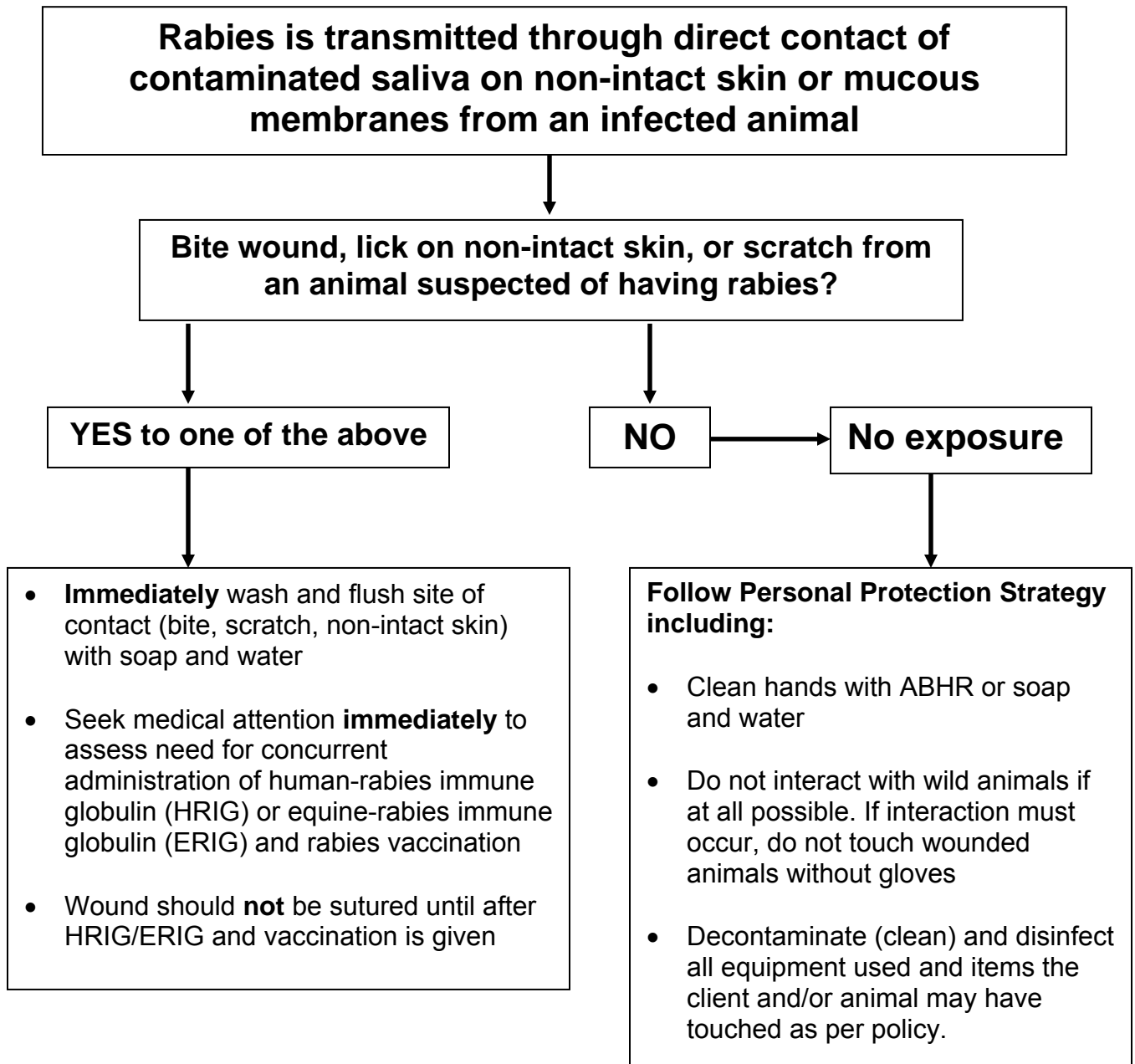
- If rabies is suspected, contact Animal Services for that municipality:
- Brampton – 905-458-5800 and follow prompts
- Caledon – 905-857-5208 or 1-800-563-7881 after hours
- Mississauga – 905-896-5858 or 905-615-3000 after hours
- Do not approach, interact with or handle wild or domestic animals whose rabies vaccination status cannot be verified or if that are acting strangely

- If interaction with a wounded animal cannot be avoided, use the Personal Protection Strategy 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
- Decontaminate (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 Peel Public Health at 905-799-7700.

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.

If you have any questions, contact your Designated Officer or call Peel Public Health at 905-791-7800 or 905-799-7700.

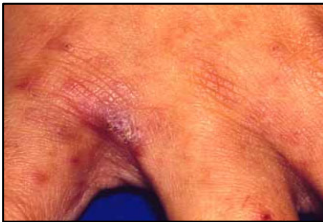
Rabies



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 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 Personal Protection Strategy 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 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 3 to 7 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 not be used as prophylaxis for a known or suspected scabies exposure. Treatment should only be used when scabies infection is identified.

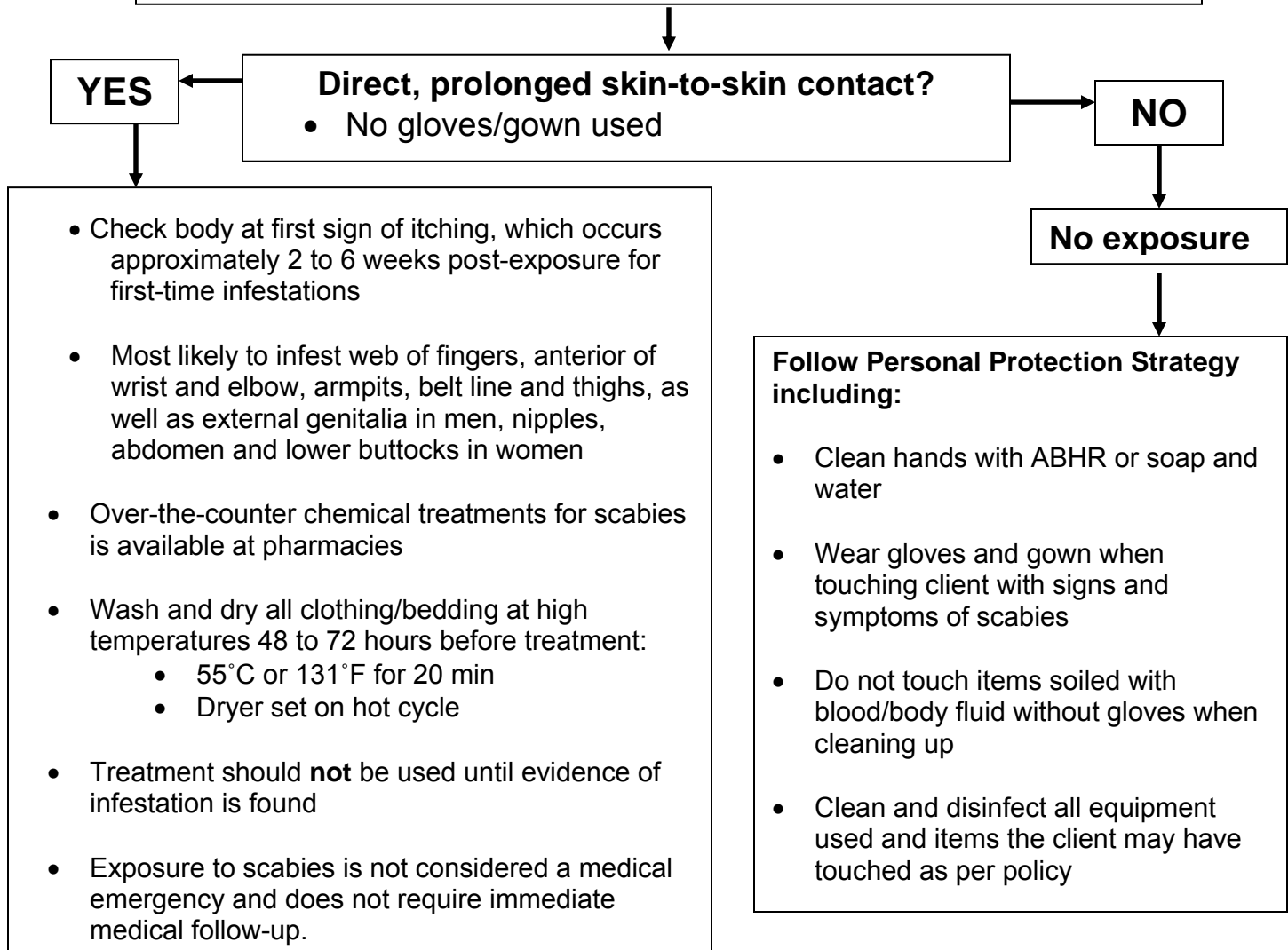
Exposure to scabies is not considered a medical emergency and does not require immediate medical follow-up.

If you have any questions contact your Designated Officer or call Peel Public Health at 905-791-7800 or 905-799-7700.

Scabies

Scabies require direct physical contact with an infected person in order for transmission to occur

- Normally occurs through prolonged skin-to-skin contact
 - Sexual contact
 - Hand holding



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

Tuberculosis (TB) is an infectious disease caused by the tuberculosis bacteria.

The TB bacteria usually causes an infection in the lungs but may travel in the blood stream and affect other parts of the body. The greatest risk in Peel for developing tuberculosis is having lived in, or travelled to, countries where TB is common.

Tuberculosis is only infectious person-to-person if the disease is in the lungs. 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.

Tuberculosis is spread to others through the airborne route, meaning that 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-pathogenic and non-contagious. People may not even know they have been infected.

A [skin test](#) is able to detect TB antibodies. It shows 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 twelve weeks after initial exposure. This is known as TB infection.

TB skin tests are recommended for all emergency service and justice service workers 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 and symptoms of TB:

Pulmonary tuberculosis 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 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 not contagious person-to-person.

People infected or actively sick with TB disease will receive free medication through Peel Public Health.

To prevent the spread of TB:

If you are with a client where active TB disease is suspected or confirmed, follow the Personal Protection Strategy by:

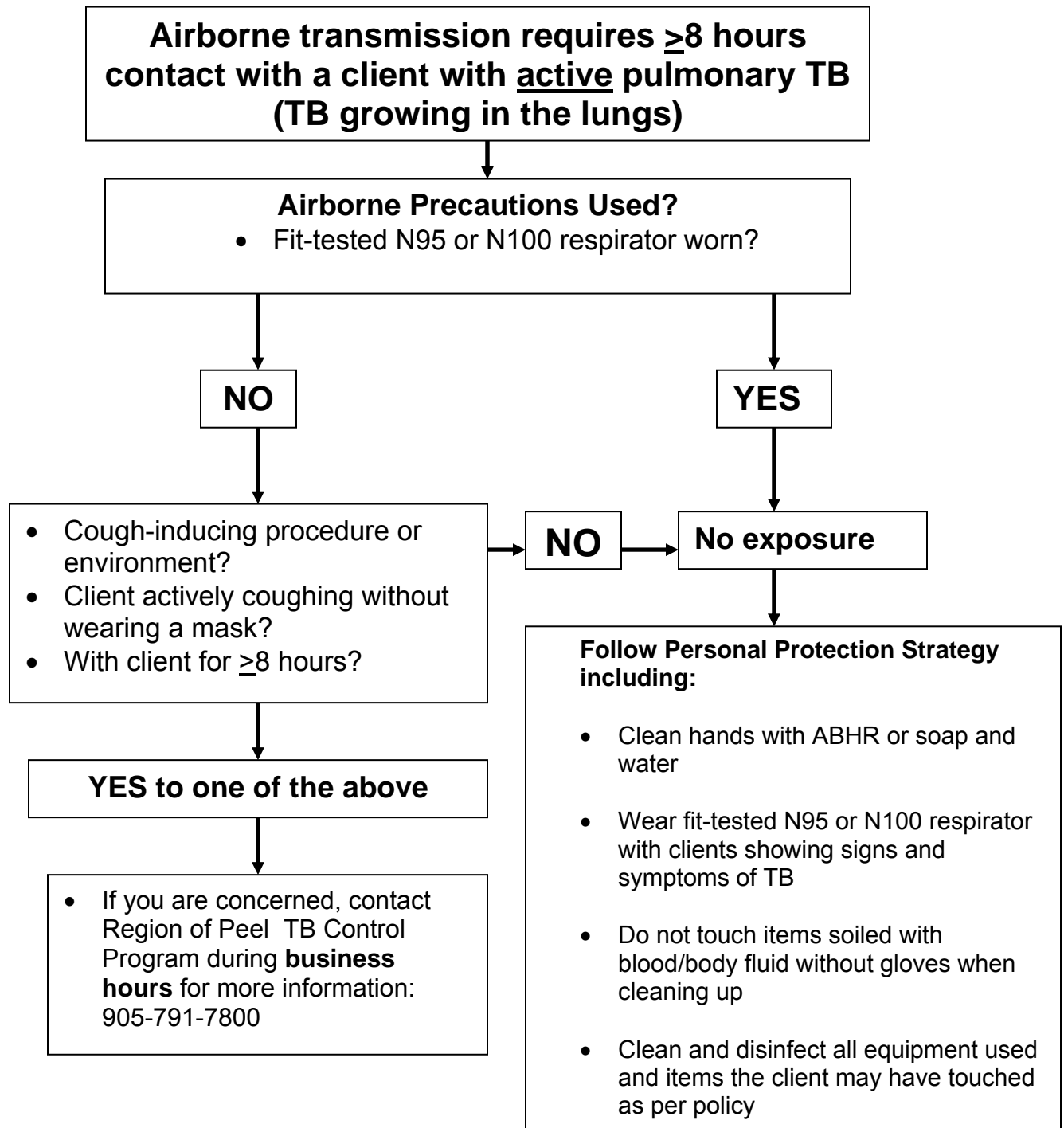
- Putting on your fit-tested N95 or N100 respirator, especially when performing procedures that may induce coughing
- Increasing ventilation in your vehicle during transport through turning on the ventilation or opening windows
- Have the client wear a mask or cover his/her mouth when coughing
- Minimizing 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 tuberculosis.

If you have any questions, contact your Designated Officer or call Peel Public Health at 905-791-7800 or 905-799-7700.

Tuberculosis



Note: Tuberculosis is **not** easily transmitted person-to-person. TB infection and TB disease are both readily treatable and curable. TB medicine is free.

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 wash their hands properly before providing care.

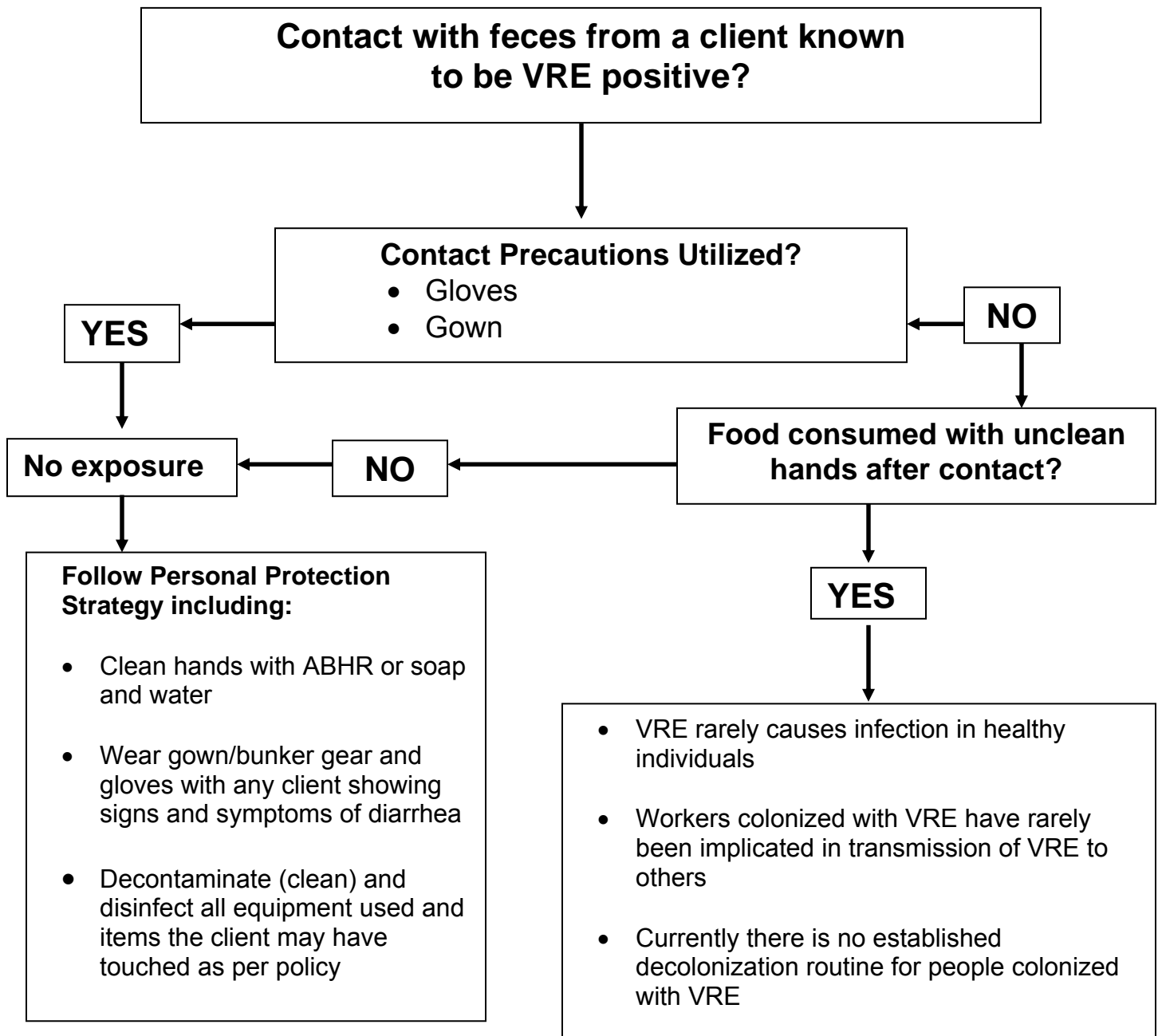
There are very few antibiotics that can be used to treat VRE infections. Clients who are very sick from diseases that decrease their ability to fight infections are at highest risk for getting an infection with VRE. Healthy people with intact immune systems are not at risk from VRE.

To prevent the spread of VRE:

- Apply the Personal Protection Strategy 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
- Decontaminate (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 Designated Officer or call Peel Public Health at 905-791-7800 or 905-799-7700.

Vancomycin-Resistant Enterococcus (VRE)



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