

Droplet Contact Precautions Modified for Patients with Suspected or Confirmed Ebola Virus Disease (EVD) in New Brunswick Health Care Settings

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- Provincial EVD Preparedness Task Group:

Consultations:

- Infection Prevention and Control Team (Horizon Health Network, Vitalité Health Network, Ambulance New Brunswick, Department of Health)

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About This Document

The following guidance has been released by the Department of Health to assist healthcare settings in preparing for possible cases of suspected and confirmed Ebola virus disease (EVD) related to the ongoing outbreak in several West African countries that began in March 2014. This is the largest EVD outbreak recorded.

The guidance is limited to Droplet Contact precautions modified for Ebola virus disease secondary to the outbreak situation. It is based on advice provided by the Public Health Agency of Canada's Infection Prevention and Control Expert Working Group.

This guidance applies to all healthcare settings where there is potential for contact with a symptomatic patient who is suspected (person-under-investigation or probable) or confirmed to have EVD. With the implementation of enhanced screening processes at Canadian borders, including direction to those arriving from affected countries it is not expected that persons with EVD will access the health system via local Public Health or hospital Emergency Department not via community settings.

Transmission

The Ebola virus is transmitted by direct and indirect contact with infected body fluids/tissues. The virus enters the body through breaks in the skin and through the mucosal membranes. Ebola has a very small infectious dose. Ebola is not transmitted through the air. Healthcare workers are generally infected secondary to a sharps injury or breaks in infection prevention and control technique e.g. donning/doffing personal protective equipment or touching the eyes/nose/mouth with contaminated hands.

Transmission can occur from:

- Direct contact of blood or body fluids (**all** body fluids are infectious, including sweat) with mucous membranes or broken skin,
- Indirect contact via surfaces and patient care equipment that has been contaminated with blood or body fluids
- Aerosol generating medical procedures (AGMPS). This has not been documented but is theoretically possible.

Droplet measures are in place for all contact with a patient suspected or known to have Ebola virus disease (EVD) regardless of whether or not respiratory symptoms are present.

Healthcare workers must be extremely careful not to touch the "T Zone" (eyes, nose, and mouth) of the face with contaminated hands.

Cases with EVD are not infectious prior to the onset of symptoms. Infectiousness increases as the disease progresses secondary to both an increased viral load in the body and the copious body fluid losses contaminating the environment. The case remains infectious during the convalescence stage and post mortem

Routine Practices

Routine practices are the measures undertaken by every healthcare worker with every patient for every contact. These measures are the first defense against the transmission of all infectious organisms,

including Ebola. Because EVD may not be recognized immediately, the consistent and appropriate use of routine practices including point of care risk assessments prior to all patient interactions will be the only defense against transmission of Ebola.

Refer to your organization's policies for routine practices and hand hygiene. If none exist refer to the documents published by the Public Health Agency of Canada:

- Routine Practices and Additional Precautions for Preventing the Transmission of Infection in Healthcare Settings 2013 at: http://publications.gc.ca/collections/collection_2013/aspc-phac/HP40-83-2013-eng.pdf
- Hand Hygiene Practices in Healthcare Settings at: http://publications.gc.ca/collections/collection_2012/aspc-phac/HP40-74-2012-eng.pdf

Management of Healthcare Workers

See the New Brunswick document Employee/Occupational Health Management of Healthcare Workers who are Close Contacts or Contacts of Ebola Virus Disease for guidance regarding:

- Fitness-to-work with EVD cases
- Management of HCWs who are considered Contacts and Close Contacts
- Immediate actions following actions following an exposure such as mucocutaneous /percutaneous exposure or a failure of personal protective equipment

Droplet Contact Precautions Modified for Ebola Virus Disease

The measures recommended for managing a possible case of EVD during this outbreak differ from the usual Droplet Contact measures contained in the Routine Practices and Additional Precautions document. The recommendations here take into consideration the ongoing person-to-person transmission occurring in West Africa, lack of effective therapy, the low infectious dose required to cause illness, the high mortality rate, and the expectation that particularly in the late phase of illness there may be copious amounts of blood and body fluids in the patient environment.

Controls

- Screen for travel or contact with a traveler from areas affected by ongoing intense transmission of EVD and the presence of signs/symptoms compatible with EVD at the first point of contact (by phone or in person)
- At first point of physical contact with suspected EVD have patients clean their hands, don a procedure/surgical mask, and clean their hands again. Ensure the patient is instructed on the infectiousness of all body fluids and measures required to protect others including hand hygiene and respiratory hygiene.
- As soon as EVD is suspected place the patient in a single room/separation area with dedicated bathroom or dedicated commode with the door closed.
- An airborne infection isolation room (AIIR) is preferred, especially for inpatient admission. Early placement in an AIIR reduces the requirement to move the patient should aerosol generating medical procedures be required. Once the patient is in a room with the door closed the patient's face mask may be removed
- Consideration should be given to future deterioration in the patient's condition when selecting the

- room for admission (space, equipment, etc.)
- All suspected (persons under investigation and probable cases) and confirmed EVD will be admitted to a designated hospital
- Determine HCW fitness-to-work with EVD patients. Refer to the New Brunswick guideline *Employee/Occupational Health Management of Healthcare Workers who are Close Contacts or Contacts of Ebola Virus Disease (EVD)*
- Only essential personnel to enter the room
- Maintain a log with the date, names and contact information of all persons entering the room
- Maintain a log of all Laboratory personnel handling suspect/confirmed EVD specimens
- Provide the logs to Regional Public Health and Employee Health daily
- Designate skilled experienced staff to provide care, particularly for invasive procedures—the risk of disease following a percutaneous injury is high
- Keep to a minimum the personnel who have exposure to the patient (i.e. maintain a cohort of caregivers)
- Utilize disposable medical equipment where possible and when re-usable medical equipment must be used consider discarding that as well
- Implement **Ebola Site Managers** and **Trained Monitors** when a suspected or confirmed case of EVD is admitted. See Appendix A for a chart taken from Public Health Agency of Canada’s document *Guidance for Ebola Virus Disease: Infection Prevention and Control Measures for Canadian Healthcare* that outlines the roles and responsibilities for Ebola Site Managers and Trained Monitors
- Training and retraining of HCWs, EVD site managers, and PPE monitors cannot be over-emphasized

Patients with symptoms compatible with airborne infections (i.e., measles, tuberculosis) as indicated by a Point of care risk assessment (PCRA), should be placed in an airborne infection isolation room (AIIR) as soon as possible.

Training and Monitoring

Healthcare workers need to train and regularly practice with the Personal Protective Equipment (PPE) required for EVD.

Each HCW providing care within the EVD patient room requires a dedicated trained monitor to:

- Supervise the HCW in a clear step-by-step manner with the putting on of PPE
- Observe for any potential breaches while providing care in the room
- Supervise and provide assistance as required in the slow methodical removal of PPE

A trained monitor is required for each healthcare worker in the room providing direct care to the patient.

For the duration of an EVD patient admission an Ebola site manager is required to be onsite or on-call with a rapid response time at all times. The site manager is responsible for all aspects of infection prevention and control regarding EVD in the facility.

See Appendix A for a chart taken from Public Health Agency of Canada’s document *Infection Prevention and Control Expert Working Group: Advice on Infection Prevention and Control Measures for Ebola Virus Disease in Healthcare Settings* that outlines the roles and responsibilities for Ebola Site Managers and Trained Monitors

Personal Protective Equipment (PPE)

Personal protective equipment (PPE) is required for all persons who enter the room

- A Point of Care Risk Assessment (PCRA) must be completed prior to each entry into the room and prior to each intervention while in the room to assess the risk of exposure to blood and/or body fluids. A higher risk of exposure to blood/body fluids requires enhanced PPE
- Wearing scrubs beneath PPE is recommended for ease of putting on and removing PPE as well as more comfortable for the wearer.
- Scrubs worn beneath PPE can be laundered as regular hospital laundry unless there is a breach in PPE and the scrubs are contaminated by blood/body fluids. If such a breach occurs:
 1. Immediately implement the exposure actions per Employee/Occupational Health Management of Healthcare Workers who are Close Contacts or Contacts of Ebola Virus Disease
 2. Discard the contaminated scrubs in compliance with Transport Canada's *Transportation of Dangerous Goods Regulation* (see section on Waste)
- See Appendix B for an EVD PCRA taken from Public Health Agency of Canada's document *Infection Prevention and Control Expert Working Group: Advice on Infection Prevention and Control Measures for Ebola Virus Disease in Healthcare Settings*
- See Appendix C for detailed examples on how to put on and remove PPE for both a lower risk of blood and body fluid exposure and a higher risk of blood and body fluid exposure. **Note:** the processes for putting on and removing PPE in an organization may differ depending on the specific types and style of PPE provided
- Sufficient space must be allotted for the safe removal of PPE
- Clean and soiled areas must be clearly delineated. PPE must **NOT** be removed in the same area that clean supplies and PPE are stored or PPE is put on
- **Following an aerosol generating medical procedure (AGMP)** N95 respirators **must not** be removed until after exiting the room and closing the door unless enough time has passed to ensure that any generated airborne aerosols have been cleared
- Great care must be exercised when removing contaminated PPE so the face is not touched with contaminated hands

Gloves

- Nitrile gloves with a cuff
- Must fit securely cover the cuff of gown/coverall/hazardous material suit
- When the PCRA indicates 2 pairs of gloves be worn the inner pair goes securely under the cuff of the gown/coverall/hazardous material suit with the second pair securely over the cuff
- When gloves are removed to the skin hand hygiene must be completed prior to donning another pair.

Gowns

- Fluid resistant or fluid impermeable disposable gowns/coveralls/hazardous materials suit providing full body coverage are required
- The gown/coveralls/hazardous materials suit must be cuffed to permit the cuff of gloves to securely cover the cuff
- The skin of the hands and forearms must be completely covered
- A fluid impermeable gown/coverall/hazardous materials suit that meets body coverage and cuff requirements is required when enhanced PPE is required by PCRA
- All securement devices (e.g. gown ties/velcro) on gowns/coveralls/hazardous materials suits must be utilized

Face Protection

- A fluid resistant surgical face mask is required to protect the mucous membranes of the mouth and nose
- A fluid resistant surgical mask is required even when a full face shield is worn
- Fluid resistant N95 respirators -- fit-tested and seal checked-- must be worn by all persons in the room for aerosol generating medical procedures (AGMP)

Eye Protection

- Eye glasses are **NOT** effective protection for the membranes of the eyes
- Face shields¹ are required. Face shields must be long enough to prevent splashing underneath
- Surgical masks with visors are not adequate
- Healthcare workers are not to clean and disinfect eye goggles themselves. Goggles are to be either disposed in the waste or be sent to the Medical Device Reprocessing Department for disinfection. The provincial pandemic stockpile has sufficient numbers of goggles that goggles can be discarded after each use with EVD
- A face shield is preferred when enhanced PPE is required by PCRA

Head and Neck Covers

- Fluid resistant or fluid impermeable head and neck covers to prevent any exposed skin is required when the PCRA indicates enhanced PPE
- The sequence of donning and removing head and neck covers is dependent on the style selected.
 - ✓ Some covers must be put on prior to gowns/coveralls/hazardous material suits;
 - ✓ Some are intended to be placed over the gown/ coverall/hazardous suit;
 - ✓ Some coveralls/hazardous material suits have integrated head and neck covers
- Local training must take into account these variations
- Ideally HCWs will be trained on a single style of head and neck covers

Foot and leg covers

- Fluid resistant or fluid impermeable foot and leg covers are required when the PCRA indicates enhanced PPE

Aerosol Generating Medical Procedures

- Aerosol generating medical procedures (AGMP) should be performed only if medically necessary as life saving measures
- Do not perform AGMPs in the community setting if EVD is suspected/confirmed
- AGMPs must be performed by the most highly experienced healthcare professional available
- All AGMPs should be performed in an airborne infection isolation room (AIIR)
- If an AIIR is not available and an AGMP absolutely must be performed (e.g. intubation,, open ventilation: Use a single room with the door closed and away from other patients),
- Room doors should be kept closed during the procedure except when entering or leaving the room, and this should be minimized
- Limit the number of staff to the minimum required to safely perform the procedure
- All persons in the room must wear fit tested and seal checked N95 respirators as well as other PPE as determined by the PCRA

¹ Goggles are sufficient when during patient contact with a lower risk of exposure to blood or body fluids. Goggles are not included in this guidance document as both Regional Health Authorities and Ambulance New Brunswick are only using face shields

- Utilize appropriate patient sedation to maintain control of the procedure
- N95 respirators must continue to be worn by all persons in the room until enough time has passed that any generated aerosols have cleared. For patients regularly receiving AGMPs it may be prudent to require N95 respirators for every entry to the room
- If an AGMP is performed in a room other than the patient's own room it must be terminally/discharged cleaned prior to use by another patient
- Visitors should not be present during aerosol-generating medical procedures

Patient Care Equipment

If challenges for the safe disinfection/reprocessing of equipment are anticipated consider discarding re-usable equipment

- Only essential equipment should be taken into room
- Whenever possible disposable equipment and supplies should be used**
- Single-patient-use bedpans are preferred for patients unable to use the toilet
- When non-disposable non-critical equipment must be used dedicate it to the patient until EVD is ruled out or the precautions are discontinued. The equipment must be either discarded or cleaned and disinfected per manufacturer instructions prior to reuse with another patient. The disinfectant used must be registered in Canada with a Drug Identification Number (DIN) and a broad spectrum virucide claim **and/or** acknowledge effective testing against **any** of:
 - ✓ Adenovirus type 5
 - ✓ Bovine parvovirus
 - ✓ Canine parvovirus
 - ✓ Poliovirus type 1

**Each organization must do a risk assessment for the disposal of used bedpans/urinals/emesis basins. For example, macerator disposal systems may pose risks secondary to transport from patient room to the macerator site and some macerators may pose an aerosolization risk.

- Semi-critical and critical re-usable equipment must be either discarded or cleaned and high-level disinfected or sterilized using standard procedures prior to use with another patient. The organization must have a processes and procedures in place for the safe packaging and transport of this equipment to the medical device reprocessing department (MDRD), including but not limited to:
 - ✓ Required pre-cleaning done in the patient room
 - ✓ Devices are not removed from room until the MDRD is ready to receive them
 - ✓ Double bagging
 - ✓ Disinfection of outer bag using a cleaner disinfectant that meets the specifications listed above
 - ✓ Placement of the bagged items in a transport container located outside the patient room
 - ✓ The transport container must be rigid, durable, leak-proof, and able to be securely closed
 - ✓ The transport container must be clearly labelled Ebola
 - ✓ The transport container must be placed into the custody of the person delivering it to the MDRD who places it into the direct custody of a medical device reprocessing technician (MDRT)
 - ✓ Staff in the Decontamination room must wear enhanced EVD PPE per increased risk of exposure to blood and body fluids. A trained monitor is required to observe the

MRDT during the putting on and removing PPE as well as during the decontamination processes –see Appendix A for example

- ✓ Cleaning and disinfection of the decontamination area after processing EVD contaminated items must be done

Waste

- Waste includes:
 - ✓ Human waste, e.g. blood and body fluids (urine, feces, emesis, etc.)
 - ✓ Non-sharps waste, e.g., PPE, linen (bedding, towels, washcloths, gowns, privacy drapes, etc.), dressings, sponges, pads, procedure drapes, diapers, replaced string/cloth call bells and light cords, cleaning clothes, mop clothes/wipes, spills, intravenous/gastrointestinal/urine catheters and bags, dialysis tubing, non-fluid-impermeable pillows or mattresses, etc., patient’s blood and body fluids - e.g., respiratory and throat secretions, semen, emesis, feces, urine, used dialysate, and all other bodily secretions and excretions
 - ✓ Sharps waste, e.g., syringes, needles, razors, scalpels, etc.
- All waste will be packaged and transported off-site in compliance with Transport Canada’s *Transportation of Dangerous Goods Regulations*
- Non-sharps waste will be collected in no-touch, leak-proof bags/receptacles/containers
- Sharps waste must be collected in single-use, leak-proof, puncture-resistant containers designed for medical sharps waste
- Soiled linen should be handled with a minimum of agitation to prevent contamination of surfaces and persons
- Linen should be carefully folded in on itself to contain soil
- Use disposable dishes/cutlery and discard as waste
- Contain all waste at the point-of-care
- Wipe down the outside of waste bags/ containers and sharps containers with approved disinfectant prior to removing from room
- Human waste including blood/suctioned fluids, excretions, and secretions should be disposed of in a sanitary sewer or septic system. **Do not open closed collection devices (chest tube drainage containers, suction bags, bedpan liners etc.) to empty in the sewer. Dispose as biomedical non-sharps waste**
- Do not remove human waste from the patient area to dispose of it in macerators or bedpan flushers. If the patient is unable to use the toilet facilities utilize bedpan/commode liners
- Consider the use of fecal incontinence collectors
- Add absorbent material to collection containers (e.g. bedpan/commode liners) to aid in soaking up liquids
- All waste containers must be clearly labelled and moved to a designated holding area to await pick-up by the designated disposal contractor
- Prior to leaving the facility all waste must be packaged to meet Transport Canada’s *Transportation of Dangerous Goods Regulations*

Environmental Cleaning

- Use, according to manufacturer instructions, a cleaner disinfectant registered in Canada with a Drug Identification Number (DIN) and a broad spectrum virucide claim **and/or** acknowledge effective testing against **any** of:
 - ✓ Adenovirus type 5
 - ✓ Bovine parvovirus
 - ✓ Canine parvovirus
 - ✓ Poliovirus type 1
- All horizontal and frequently touched surfaces (e.g. bed rails, knobs, pump/monitor controls, handles, levers)in the patient room must be cleaned at least twice daily and when soiled, including commode chair

- The entire room and a bathroom must be thoroughly cleaned and disinfected daily
- Additional cleaning measures and/or frequency may be indicated when heavy environmental soiling is occurring
- Dedicate re-usable cleaning equipment to the patient room
- When precautions are discontinued of the patient is moved/discharged everything in the room that cannot be cleaned and disinfected must be discarded per Transport Canada's *Transportation of Dangerous Goods Regulations*. This includes items such as the mattress if not fluid impermeable. .
- All re-useable housekeeping equipment must be cleaned and disinfected prior to leaving the room

Management of Blood and Body Fluid Spills

- "Spill" management of EVD-associated human waste (blood, emesis, urine, stool, etc.)
- Only trained individuals should be involved in the cleanup
- 'Spill kits' should be made available for use in designated assessment/care areas.
- The following measures should be followed:
 - ✓ Allow fluid and droplets to settle
 - ✓ Wear appropriate PPE
 - ✓ Gently cover the spill with disposable paper towels
 - ✓ Gently remove organic material
 - ✓ Apply cleaner disinfectant to the spill surface and allow the surface to air dry for a minimum of 10 minutes or as per manufacturers' instructions,
 - ✓ Do not spray the disinfectant or use a wet vacuum, to avoid any splashes and splatter,
 - ✓ Start at one end of the affected area and move in one direction until all surfaces have been disinfected
 - ✓ Do not use a circular motion.

Management of Blood and Body Fluid Spills outside the Patient Care Area

This section is under development and will added in a future revision

Patient Transport

- Patients should not leave the room or be transferred internally except for essential medical procedures that cannot be performed in the room
- The receiving area/Ambulance NB must be aware of the precautions required and ready to accept the patient prior to the patient leaving the room (e.g. medical imaging ready to perform test as soon as patient arrives) to reduce time in common areas
- Determine the route of travel prior to leaving room and block it off to prevent exposure to others
- Fresh gown on patient and fresh linens on transport stretcher
- If risk of incontinence place an incontinence device on the patient
- Patient to perform hand hygiene and wear a face mask
- Transport personnel must remove PPE as they leave the room, perform hand hygiene, and don fresh PPE
- Use an additional person to manage doors, elevators etc.
- Use most direct route to destination
- Persons involved with the procedure wear appropriate PPE
- Following the procedure the room must be cleaned per the environmental cleaning section

Visitors

- Only essential visitors should enter the room to minimize the risk of inadvertent exposure
- Visits should be planned in advance and visitors limited to those persons essential to the health and wellbeing of the patient e.g. a mother to visit child
- As contacts of suspected/confirmed EVD all visitor names and contact information must be reported to Regional Public Health and must be able to comply with Public Health Measures
- Essential visitors must be logged on the sign in sheet with contact information and instructed in:
 - ✓ Correct hand hygiene techniques
 - ✓ Basic hygiene practices that prevent the spread of microorganisms, such as respiratory hygiene
 - ✓ Appropriate use of PPE
 - ✓ Limiting the surfaces touched
 - ✓ Risks associated with direct contact with the patient
 - ✓ Self-screening for fever twice daily for 21 days post last contact with the EVD patient
- Visitors must be assisted with donning and doffing of PPE
- Visitor should be screened for EVD on arrival
- Visitors should be excluded from visiting if:
 - ✓ They are unable or unwilling to comply with twice daily fever checks for 21 days after last exposure (facility may have to provide a thermometer and instruction)
 - ✓ They are unable to comply with precautions
 - ✓ They have signs/symptoms of an illness

Duration of Precautions

The duration of precautions for individual patients will be determined on a case-by- case basis in consultation with Infectious Diseases, Regional Medical Officer of Health, and Infection Prevention and Control.

- PCR testing for EVD may be negative if within 3 days of symptom onset and a second test may be required to rule out EVD
- If EVD is ruled out maintain/implement appropriate Additional Precautions for other infectious diseases
- In most cases recovering confirmed EVD cases will require repeat PCR testing for EVD to aid in determining duration of the precautions

References

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11. Province of New Brunswick: Specimen collection guidelines for suspected cases of EVD. October 8, 2014

Appendix A

Public Health Agency of Canada's document: *Infection Prevention and Control Expert Working Group: Advice on Infection Prevention and Control Measures for Ebola Virus Disease in Healthcare Settings*

	Ebola Site Manager	Trained Monitor
Responsibility	To oversee safe and effective delivery of EVD patient care with responsibility for all aspects of EVD infection prevention and control in a facility.	To assist with and ensure adherence to entire PPE use and removal process by HCWs providing direct patient care.
Role	<ul style="list-style-type: none"> • Oversee the overall safe care of EVD patients in a facility at all times • Oversee implementation of administrative and engineering controls • Monitor and evaluate by direct observation, care before, during and after HCW enters an isolation or treatment area • Provide immediate corrective instruction in real-time if HCW is not following recommended steps • Know and apply the facility EVD exposure management plan in event of unintended breach in procedure • Monitor and evaluate supplies • Monitor entry to room (i.e., limit entry to only essential HCWs) 	<ul style="list-style-type: none"> • Monitor / supervise PPE use and safe removal; does not enter patient room • Guide / read aloud to HCW, each step in putting on the PPE (use checklist) • Ensure PPE fits correctly and that all skin is covered before the HCW enters patient room • During PPE removal, observe and assist with removal of specific components of PPE as indicated in the PPE checklist • Visually confirm and document that each step was completed correctly for PPE use and removal • Constantly monitor technique while HCW is in patient room • Provide immediate corrective instruction in real-time if HCW is not following recommended steps • Should know the facility EVD exposure management plan in event of unintended breach in procedure
Number needed	At least one Site Manager must be either onsite or on-call with a rapid response time at all times in the location where an EVD patient is being cared for	One Trained Monitor at all times for each HCW providing patient care

Appendix B

Taken from Public Health Agency of Canada's document: *Infection Prevention and Control Expert Working Group: Advice on Infection Prevention and Control Measures for Ebola Virus Disease in Healthcare Settings*

Source	Lower risk of exposure to blood and body fluids	Higher risk of exposure to blood and body fluids
EVD-infected patient Factors	<ul style="list-style-type: none"> • Early stage of EVD (e.g., fever with fatigue and myalgia) • Convalescing stage of EVD when diarrhea and vomiting have resolved • Patient's body fluids (e.g., blood, formed stool, emesis) contained • Formed stool • No emesis • Contenance • Good hygiene • Capable of self-care • Adequate patient placement 	<ul style="list-style-type: none"> • Later stages of EVD, involving copious fluid loss (e.g., vomiting, diarrhea, bleeding) • Patient's body fluids (e.g., blood, diarrhea, emesis) soiling the environment • Diarrhea • Emesis • Incontinence • Poor hygiene • Not capable of self-care due to physical condition, age or cognitive impairment • Inadequate patient placement
Intervention Related Factors	<ul style="list-style-type: none"> • Procedures or interventions that do not put the HCW in direct contact with patient's body fluids (e.g., triage or history taking) • Providing the patient with an emesis basin to use whenever possible based on his/her condition • Supporting the patient in independent use of toilet and bathroom whenever possible based on his/her condition • Allowing the patient to complete vomiting or the diarrhea episode before providing direct care whenever possible • Use of disposable or single use equipment 	<ul style="list-style-type: none"> • Risk of percutaneous injury to the HCW with a sharp instrument or needle contaminated with the patient's body fluids (e.g., phlebotomy, intravenous insertion) • Direct contact with patient's blood or other body fluids (e.g., changing incontinence product, cleaning soiled environment, attending to the patient during diarrhea or vomiting, and post-mortem care) • Direct or indirect contact with contaminated environment or fomites (e.g., cleaning and disinfection of patient care equipment and environment)

Quick Reference Chart for Selection of PPE

Based on Public Health Agency of Canada: *Infection Prevention and Control Expert Working Group: Advice on Infection Prevention and Control for Ebola Virus Disease in Healthcare Settings*, December 2014

Required Personal Protective Equipment (PPE)	Lower risk of exposure to BBF	Higher risk of exposure to BBF Enhanced PPE
Nitrile gloves	Yes	
Fluid resistant gown/coverall/hazardous materials suit	Yes	
Goggles ² or face shield	Yes	
Fluid resistant surgical mask (if not performing an AGMP)	Yes	Yes
Fluid resistant N95 respirator	If AGMP	If AGMP
Double nitrile gloves		Yes
Fluid impermeable gown/coverall/hazardous materials suit		Yes
Fluid impermeable apron		Yes
Fluid impermeable head and neck covering		Yes
Full face shield		Yes
Fluid impermeable foot and leg covers		Yes

² Goggles are sufficient eye protection during patient contact with a lower risk of exposure to blood or body fluids. Goggles are not included in this guidance as both Regional Health Authorities and Ambulance New Brunswick are only using face shields

Appendix C: PPE for Lower Risk of Exposure to Blood and Body Fluids

Based on Public Health Agency of Canada's document: Infection Prevention and Control Expert Working Group: Advice on Infection Prevention and Control for Ebola Virus Disease

Table 3: Types of PPE for lower risk of exposure to blood or other body fluids

Recommended PPE for contact and droplet precautions include: gloves, fluid-resistant or impermeable gown, fluid-resistant mask with eye goggles or fluid-resistant mask with face shield. Head and neck coverings, and foot and leg coverings are not required.

Note: If there is a risk of exposure to blood or other body fluids, the HCW should cover all exposed skin with enhanced PPE.

SUGGESTED SEQUENCE FOR PUTTING ON PPE

The type of PPE and the sequence for putting on and removing PPE may vary depending on organizational needs, PPE choices and preferences. Each healthcare organization should develop comprehensive policies and procedures for putting on and removing PPE with a clear goal of reducing the possibility of self-contamination.

- Prior to entry to the patient room.
- Inspect PPE for defects and appropriate size prior to putting on.
- Remove all personal items (e.g., jewelry, identification tag, stethoscope, cell phone, pager, pens, etc.).
- Pull back hair from face and neck and secure.

Perform hand hygiene (HH)

- Using ABHR (60-90%) or hand washing using soap and water if hands visibly soiled.

Put on gown

- Fluid-resistant or impermeable, cuffed, long enough to cover from neck to knees and to wrists (including sleeves).
- Tie gown securely at the waist and neck (in the back), with edges overlapping to completely cover clothing, front and back.

Put on facial protection (i.e., mask and eye goggles, or mask and face shield)

- Fluid-resistant mask with eye goggles or fluid-resistant mask with face shield long enough to prevent splashing underneath.
- Secure ties, loops or straps.
- Mould metal piece to nose bridge.
- Eyes, nose, mouth, and chin are fully covered with minimal gap between the mask and the face.
- Masks with visors are not suitable.
- Eye glasses are not suitable eye protection.
- Eye protection must fit over prescription eye glasses.

Put on gloves

- Durable and fit appropriate to the task.
- Fit securely over gown cuff

Table 3: Types of PPE for lower risk of exposure to blood or other body fluids

PROPER USE OF PPE DURING PATIENT CARE

- Inspect PPE equipment continually for tears and/or fluid penetration.
- If difficulties with PPE (e.g., fogging, tearing of gloves), the HCW should stop patient care, initiate PPE removal process (as described below), and then leave the patient room.
- If PCRA indicates increased risk of exposure to blood or other body fluids (e.g., patient at risk for vomiting or experiencing diarrhea), the HCW should stop patient care, initiate PPE removal process (as described below), and then leave the patient room. After completion of PPE removal process, HCW should put on enhanced PPE (as described in Table 4) prior to re-entering patient room.
- Do not touch facial protection.
- Do not wear same PPE equipment for successive patients.

SUGGESTED SEQUENCE FOR REMOVING PPE

The type of PPE and the sequence for putting on and removing PPE may vary depending on organizational needs, PPE choices and preferences. Each healthcare organization should develop comprehensive policies and procedures for putting on and removing PPE with a clear goal of reducing the possibility of self-contamination

- Inspect PPE prior to taking it off to assess for visible contamination, cuts, or tears.
- Remove PPE before leaving the patient room or in a designated soiled area immediately outside the patient room.
- Additional opportunities for HH may be present based on risk assessment.

Remove gloves

- Remove gloves using the glove-to-glove/skin-to-skin technique.
 1. Grasp outside edge near the wrist and peel away, rolling the glove inside out.
 2. Reach under the glove on the other hand and peel away.
- Discard immediately into a designated no-touch biohazard waste receptacle.

Perform HH

Remove gown

- Remove gown, without contaminating self, by undoing the neck and waist ties, pull and remove gown without touching skin/clothing or agitating gown unnecessarily, then turn gown inside out on itself, and roll it up.
- Discard disposable and reusable gowns into a designated no-touch biohazard waste receptacle.

Perform HH

Remove facial protection (i.e., mask and eye goggles, or mask and face shield)

- Remove facial protection carefully without contaminating self (skin, hands or clothes).
- Remove the face shield by tilting the head slightly forward, grabbing the rear strap and pulling it over the head, gently allowing the face shield to fall forward.
- Remove the eye goggles by pulling gently on the straps of the goggles away from face.
- Remove the mask by untying the bottom tie then the top tie, or grasp straps or ear loops of mask. Pull forwards off the head, bending forward to allow mask to fall way from face.
- Discard disposable facial protection immediately after use into a designated no-touch

Table 3: Types of PPE for lower risk of exposure to blood or other body fluids

biohazard waste receptacle.

Perform HH and exit patient room or designated soiled area.

Appendix D: PPE for Higher Risk of Exposure to Blood and Body Fluids

Taken from Public Health Agency of Canada's document: *Infection Prevention and Control Expert Working Group: Advice on Infection Prevention and Control for Ebola Virus Disease*

Table 4. Types of enhanced PPE for higher risk of exposure to blood or other body fluids

Recommended PPE for enhanced PPE include: double gloves, fluid resistant or impermeable body coverings including foot and leg coverings, head and neck coverings (such as surgeons head covering), gown, or hazardous material suit; fluid impermeable apron, facial protection (mask with eye goggles or mask with facial shield) and a respirator for AGMP. **All exposed skin is covered.**

SUGGESTED SEQUENCE FOR PUTTING ON ENHANCED PPE

The type of PPE and the sequence for putting on and removing PPE may vary depending on organizational needs, PPE choices and preferences. Each healthcare organization should develop comprehensive policies and procedures for putting on and removing PPE with a clear goal of reducing the possibility of self-contamination.

- Prior to entry to the patient room.
- Inspect PPE for defects and appropriate size prior to putting on.
- Remove all personal items (e.g., jewelry, identification tag, stethoscope, cell phone, pager, pens, etc.).
- Pull back hair from face and neck and secure.

Sequence if gown used

Perform hand hygiene (HH)

- Using ABHR (60-90%) or hand washing using soap and water if hands visibly soiled.

Put on foot and leg coverings

- Fluid-resistant or impermeable, and long enough to cover the legs below the gown, and secured in place.
- Securely fitted to avoid risk of tripping.
- Shoe compatible with coverings, and allows for easy removal.

Perform HH

Put on mask (if no AGMP)

- Fluid-resistant.
- Secure ties or loops.
- Mould metal piece to nose bridge.
- Nose, mouth, and chin are fully covered with minimal gap between the mask and the face.
- Masks with visors are not suitable.

Put on

respirator (instead of mask, for AGMP)

- Fit-testing is required.

Table 4. Types of enhanced PPE for higher risk of exposure to blood or other body fluids

- Place elastic bands correctly to hold in place.
- Seal check is required to assess adequate fit.

Put on eye goggles (if face shield not used)

- Secure straps.
- Masks with visors are not suitable.
- Eye glasses are not suitable eye protection.
- Eye goggles should fit over prescription eye glasses.

Put on head and neck coverings (depending on head covering selected gown may have to be put on first)

- Fluid-resistant or impermeable.
- Cover all of the hair and the ears, and extend past the neck and shoulders.

Put on inner gloves

- Durable and fit appropriate to the task.
- Fit securely under gown cuff.

Put on gown

- Fluid-resistant or impermeable, cuffed, long enough to cover from neck to knees and to wrists (including sleeves).
- Tie gown securely at the waist and neck (in the back), with edges overlapping to completely cover clothing, front and back.

Put on apron (if used)

- Fluid-impermeable apron to provide additional protection to the front of the body against exposure to the patient's body fluids.

Put on face shield (if used; preferred over eye goggles as part of enhanced PPE for EVD care)

- Face shield should be long enough to prevent splashing underneath.
- Secure strap.
- Face shield should fit over prescription eye glasses.

Put on outer gloves

- Durable and fit appropriate to the task.
- Fit securely over gown cuff.

OR

Sequence if hazardous material suit used

Perform HH

- Using ABHR (60-90%) or hand washing using soap and water if hands visibly soiled.

Put on foot and leg coverings (if not part of hazardous material suit)

- Fluid-resistant or impermeable, and long enough to cover the legs below the suit, and secured in place.
- Securely fitted to avoid risk of tripping.

Table 4. Types of enhanced PPE for higher risk of exposure to blood or other body fluids

- Shoe compatible with coverings, and allows for easy removal.

Perform HH

Put on mask (if no AGMP)

- Fluid-resistant.
- Secure ties or loops.
- Mould metal piece to nose bridge.
- Nose, mouth, and chin are fully covered with minimal gap between the mask and the face.
- Masks with visors are not suitable.

Put on respirator (instead of mask, for AGMP)

- Fit-testing is required.
- Place elastic bands correctly to hold in place.
- Seal check is required to assess adequate fit.

Put on eye goggles (if face shield not used)

- Secure straps.
- Masks with visors are not suitable.
- Eye glasses are not suitable eye protection.
- Eye goggles should fit over prescription eye glasses.

Put on head and neck coverings (if not part of hazardous material suit)

- Fluid-resistant or impermeable.
- Cover all of the hair and the ears, and extend past the neck and shoulders.

Put on inner gloves

- Durable and fit appropriate to the task.
- Fit securely under suit cuff.

Put on hazardous material suit

- Fluid-resistant or impermeable, whole body garment allowing unrestricted freedom of movement.
- Ensure suit is appropriately sized.

Put on apron (if used)

- Fluid-impermeable apron to provide additional protection to the front of the body against exposure to the patient's body fluids.

Put on face shield (if used; preferred over eye goggles as part of enhanced PPE for EVD care)

- Face shield should be long enough to prevent splashing underneath.
- Secure strap.
- Face shield should fit over prescription eye glasses.

Put on outer gloves

- Durable and fit appropriate to the task.
- Fit securely over hazardous material suit cuff.

Table 4. Types of enhanced PPE for higher risk of exposure to blood or other body fluids

Note: when enhanced PPE are required to care for a patient with EVD, the preferred eye protection would be a faceshield long enough to prevent splashing underneath.

PROPER USE OF ENHANCED PPE DURING PATIENT CARE

- Inspect PPE equipment continually for tears and/or fluid penetration.
- If difficulties with PPE (e.g., fogging, tearing of gloves), the HCW should stop patient care, initiate PPE removal process (as described below), and then leave the patient room or designated soiled area.
- Do not touch facial protection.
- Do not wear same PPE equipment for successive patients.

SUGGESTED SEQUENCE FOR REMOVING ENHANCED PPE

The type of PPE and the sequence for putting on and removing PPE may vary depending on organizational needs, PPE choices and preferences. Each healthcare organization should develop comprehensive policies and procedures for putting on and removing PPE with a clear goal of reducing the possibility of self-contamination.

- Inspect PPE prior to taking it off to assess for visible contamination, cuts, or tears.
- Remove PPE before leaving the patient room or designated soiled area immediately outside the patient room, except for the respirator, which should only be removed outside the patient room, and discarded immediately into a designated no-touch biohazard waste receptacle.
- Items used in designated soiled area (such as swivel stool) should remain in that area or be cleaned if removed from that area.
- Additional opportunities for HH may be present based on risk assessment.

Sequence if gown used

Remove outer gloves

- Outer gloves should be removed first.
- Remove outer gloves by pulling on outside of gloves, while taking care not to contaminate inner gloves.
- Discard gloves immediately into a designated no-touch biohazard waste receptacle.

Remove apron (if used)

- Remove apron, without contaminating self, then roll apron from inside to outside.
- Discard apron immediately after use into a designated no-touch biohazard waste receptacle.

Remove gown

- Remove gown, without contaminating self, by undoing the neck and waist ties, pull and remove gown without touching skin/clothing or agitating gown unnecessarily, then turn gown inside out on itself, and roll it up.
- Discard disposable and reusable gowns into a designated no-touch biohazard waste receptacle.

Remove inner gloves

- Remove gloves using the glove-to-glove/skin-to-skin technique.
 1. Grasp outside edge near the wrist and peel away, rolling the glove inside out.
 2. Reach under the glove on the other hand and peel away.

Table 4. Types of enhanced PPE for higher risk of exposure to blood or other body fluids

- Discard immediately into a designated no-touch biohazard waste receptacle.

Perform HH and put on a clean pair of gloves

Remove face shield (if used)

- Remove face shield carefully without contaminating self (skin, hands or clothes).
- Remove the face shield by tilting the head slightly forward, grabbing the rear strap and pulling it over the head, gently allowing the face shield to fall forward.
- Discard disposable face shield immediately after use into a designated no-touch biohazard waste receptacle.

Remove gloves as instructed above, discard into a designated no-touch biohazard waste receptacle, perform HH and put on a clean pair of gloves

Remove head and neck coverings

- Remove head and neck coverings without contaminating self by unfastening the coverings, and gently pulling coverings away from the face.
- Discard disposable head and neck coverings immediately after use into a designated no-touch biohazard waste receptacle.

Remove gloves as instructed above, discard into a designated no-touch biohazard waste receptacle perform HH and put on a clean pair of gloves

Remove mask (if used)

- Remove mask carefully without contaminating self (skin, hands or clothes).
- Untie bottom tie then top tie, or grasp straps or ear loops of mask. Pull forwards off the head, bending forward to allow mask to fall way from face.
- Discard mask immediately after use into a designated no-touch biohazard waste receptacle.

Remove eye goggles (if used)

- Remove eye goggles carefully without contaminating self (skin, hands or clothes).
- Remove the eye goggles by pulling gently on the straps of the goggles away from face.
- Discard disposable eye goggles immediately after use into a designated no-touch biohazard waste receptacle.

Remove gloves as instructed above, discard into a designated no-touch biohazard waste receptacle perform HH and put on a clean pair of gloves

Remove leg and foot coverings (if used)

- While sitting down (on a swivel stool for example) in the designated soiled area, untie fastening; remove one leg and foot covering. Slowly pivot clean foot into the designated clean area at proximity.
- Discard disposable leg and foot covering into a designated no-touch biohazard waste receptacle.
- Remove the second leg and foot covering, discard as above, then remove the gloves and discard as above, and slowly pivot second foot into the designated clean area at proximity.

Table 4. Types of enhanced PPE for higher risk of exposure to blood or other body fluids

Perform HH and exit patient room or designated soiled area.

If respirator is used, put on a clean pair of gloves and remove respirator once outside the patient room

- If disposable respirator is used, remove respirator by straps without touching its front and contaminating gloves.
- Discard disposable respirator immediately after use into a designated no-touch biohazard waste receptacle.
- If reusable respirator is used, remove respirator carefully to avoid self-contamination. Removal of reusable respirators requires particular attention to detail and observed practice to ensure no contamination.
- Place reusable respirator into appropriate receptacle for reprocessing.

Remove gloves

- Remove gloves using the glove-to-glove/skin-to-skin technique.
 1. Grasp outside edge near the wrist and peel away, rolling the glove inside out.
 2. Reach under the glove on the other hand and peel away.
- Discard immediately into a designated no-touch biohazard waste receptacle.

Perform HH

Sequence if hazardous material suit used

Remove outer gloves

- Outer gloves should be removed first.
- Remove outer gloves by pulling on outside of gloves, while taking care not to contaminate inner gloves.
- Discard gloves immediately into a designated no-touch biohazard waste receptacle.

Remove apron (if used)

- Remove apron, without contaminating self, then roll apron from inside to outside.
- Discard apron immediately after use into a designated no-touch biohazard waste receptacle.

Remove hazardous material suit

- Remove suit, by tilting head back to reach zipper or fasteners. Unzip or unfasten biohazardous material suit completely before rolling down and turning inside out.
- Avoid self-contamination during removal process by ensuring that soiled inner gloves and outside of suit do not touch inner clothing or skin.
- Discard disposable suit into a designated no-touch biohazard waste receptacle.

Remove inner gloves

- Remove gloves using the glove-to-glove/skin-to-skin technique.
 1. Grasp outside edge near the wrist and peel away, rolling the glove inside out.
 2. Reach under the glove on the other hand and peel away.
- Discard immediately into a designated no-touch biohazard waste receptacle.

Perform HH and put on a clean pair of gloves

Table 4. Types of enhanced PPE for higher risk of exposure to blood or other body fluids

Remove face shield (if used)

- Remove face shield carefully without contaminating self (skin, hands or clothes).
- Remove the face shield by tilting the head slightly forward, grabbing the rear strap and pulling it over the head, gently allowing the face shield to fall forward.
- Discard disposable face shield immediately after use into a designated no-touch biohazard waste receptacle.

Remove gloves as instructed above, discard into a designated no-touch biohazard waste receptacle, perform HH and put on a clean pair of gloves

Remove head and neck coverings

- Remove head and neck coverings without contaminating self by unfastening the coverings, and gently pulling coverings away from the face.
- Discard head and neck coverings immediately after use into a designated no-touch biohazard waste receptacle.

Remove gloves as instructed above, discard into a designated no-touch biohazard waste receptacle, perform HH and put on a clean pair of gloves

Remove mask (if used)

- Remove mask carefully without contaminating self (skin, hands or clothes).
- Untie bottom tie then top tie, or grasp straps or ear loops of mask. Pull forwards off the head, bending forward to allow mask to fall way from face.
- Discard mask immediately after use into a designated no-touch biohazard waste receptacle.

Remove gloves as instructed above, discard into a designated no-touch biohazard waste receptacle, perform HH and put on a clean pair of gloves

Remove eye goggles (if used)

- Remove eye goggles carefully without contaminating self (skin, hands or clothes).
- Remove the eye goggles by pulling gently on the straps of the goggles away from face.
- Discard disposable eye goggles immediately after use into a designated no-touch biohazard waste receptacle.

Remove gloves as instructed above, discard into a designated no-touch biohazard waste receptacle, perform HH and put on a clean pair of gloves

Remove leg and foot coverings (if used)

- While sitting down (on a swivel stool for example) in the designated soiled area, remove one leg and foot covering by first untying fastening. Slowly pivot clean foot into the designated clean area at proximity.
- Discard disposable leg and foot covering into a designated no-touch biohazard waste receptacle.
- Remove the second leg and foot covering, discard as above, then remove the gloves and discard as above, and slowly pivot second foot into the designated clean area at proximity.

Table 4. Types of enhanced PPE for higher risk of exposure to blood or other body fluids

Perform HH and exit patient room or designated soiled area.

If respirator is used, put on a clean pair of gloves and remove respirator once outside the patient room.

- If disposal respirator is used, remove respirator by straps without touching its front and contaminating gloves.
- Discard disposable respirator immediately after use into a designated no-touch biohazard waste receptacle.
- If reusable respirator is used, remove respirator carefully to avoid self-contamination. Removal of reusable respirators requires particular attention to detail and observed practice to ensure no contamination.
- Place reusable respirator into appropriate receptacle for reprocessing.

Remove gloves

- Remove gloves using the glove-to-glove/skin-to-skin technique.
 1. Grasp outside edge near the wrist and peel away, rolling the glove inside out.
 2. Reach under the glove on the other hand and peel away.
- Discard immediately into a designated no-touch biohazard waste receptacle.

Perform HH