Ebola Virus Disease:
Infection Prevention and Control
Measures for Prehospital, Primary Care and Acute Care Settings in Nova Scotia

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Ebola Virus Disease:
Infection Prevention and Control Measures for Healthcare Settings

About This Document

The following interim guidance has been developed by Infection Prevention and Control Nova Scotia (IPCNS) at the Department of Health and Wellness (DHW). It is to provide provincial infection prevention and control guidance for healthcare settings to manage a patient with suspected or confirmed case of Ebola Virus Disease (EVD) and in preparing their own facility/organization specific plans. The guidance in this document is based on the assumption that healthcare settings in Nova Scotia already have basic infection prevention and control systems and practices in place.

This document has been developed based on the best available scientific evidence at the time. This information may be subject to change. As changes are incorporated, the most recent version of these guidelines will be available on the DHW website.

The information included in this document has been adapted from guidance published by the Public Health Agency of Canada (PHAC) including Advice on Infection Prevention and Control Measures for Ebola Virus Disease in Healthcare Settings from the Infection Prevention and Control Expert Group (PHAC), the World Health Organization (WHO) Interim Infection Prevention and Control Guidance for Care of Patients with Suspected or Confirmed Filovirus Haemorrhagic Fever in Health-Care Settings, with Focus on Ebola and Infection Prevention and Control Guidance for Patients With Suspected or Confirmed Ebola Virus Disease (EVD) in Ontario Health Care Settings from Public Health Ontario.

This guideline does not describe the clinical management of a patient with EVD. The Ebola Clinical Care Guidelines: A guide for clinicians in Canada has been developed by the Canadian Critical Care Society, Canadian Association of Emergency Physicians and the Association of Medical Microbiology and Infectious Diseases Canada. Clinicians should refer to these guidelines at:
http://www.ammi.ca/media/73235/Ebola%20Clinical%20Care%20Guidelines%20v2%2028%20Oct%202014.pdf
Addressing Healthcare Worker Concerns

Healthcare workers (HCWs) have expressed concerns for their personal safety and the safety of their families related to caring for patients with EVD. EVD is an illness with a high mortality rate and HCWs are worried that they will not be provided with the correct personal protective equipment (PPE) or training to do their job safely.

This fear and concern has been heightened by media images and the changing guidance in some jurisdictions regarding the type of PPE which should be worn when caring for patients. Some of these decisions may not be based on science or evidence. Inconsistent guidelines can provide confusing messages to HCWs and the public on the mode of transmission of the Ebola virus. Additionally, use of coveralls, body suits and other types of advanced PPE, such as powered air-purifying respirators, while providing similar protection to the worker, are often not designed for or are very complex to remove safely without self-contamination occurring. The removal poses a recognized risk of self-contamination if worn by HCWs who are not truly adept and experienced with their use.

Recent recommendations to increase the level or amount of PPE worn by HCWs may not provide improved protection for the HCW. Experiences with EVD care have shown that HCWs are placed most at risk of self-contamination when removing their PPE. This could place a HCW in a position of using PPE that is unfamiliar and more complicated to remove resulting in inadvertent self-contamination.

To assist in addressing HCW concerns, the following should be emphasized:

- **It is important to acknowledge that most HCWs will never be expected to be involved in the care of a patient with EVD.** Training and education will be targeted at HCWs who are likely to be involved based on points of entry of a patient (e.g. emergency departments) or designated inpatient units who will care for patients at the Victoria General Site, Capital Health or the IWK Health Centre.
- Evidence has shown that EVD is **not transmitted via airborne route.**
- Precautions and PPE for HCWs caring for EVD cases is based on contact/droplet precautions with the addition of enhanced PPE, such as impermeable head/neck and foot/leg coverings.
- HCWs should be provided with comprehensive education and training on EVD. This should include the mode of transmission and why a tiered approach to PPE based on risk assessment and the patient’s symptoms/clinical presentation exists.
- HCWs should receive detailed, hands-on training in how to properly put on and remove PPE. Training should be documented and be ongoing. As well, practicing putting on and removing PPE is paramount, particularly when using enhanced PPE which may be new to many HCWs.
- Untrained HCWs should not care for patients with suspected/confirmed EVD.
- HCWs should also be engaged in open dialogue about their concerns so they can be addressed quickly by subject matter experts in their organizations.
- Facility/organizational staff should be actively involved in planning for how suspected/confirmed patients will be managed in their hospital/organization.
HCWs should understand that images of other workers caring for patients with EVD in Africa may not reflect what is necessary for workers in Canadian healthcare settings. In field medical settings, additional PPE may be necessary when workers may not have the ability to prepare for potential exposures or if working in clinics with limited resources (e.g., no running water, no climate control, no floors, inadequate medical supplies), and workers could be in those areas for several hours with a number of Ebola infected patients.

- Additionally, certain job responsibilities and tasks, such as attending to dead bodies or working with specimens in the lab, may also require different PPE than what is used when providing care for patients with EVD in a hospital.

**Clinical Presentation of Ebola Virus Disease**

Ebola Virus Disease (EVD) is a severe acute viral illness. Symptoms of EVD begin within two to 21 days (mean 4-10 days) after exposure. EVD cases present with the sudden onset of fever, usually with headache, malaise and myalgia. Gastrointestinal symptoms (i.e., diarrhea, abdominal pain, nausea, vomiting) are common. Additional symptoms and signs may occur (e.g., sore throat, chest pain, cough, rash, conjunctival injection). Haemorrhagic manifestations, occurring in fewer than 10% of clinical cases, arise toward the end of the first week of illness and include petechiae, blood loss from venipuncture sites, bruising and gastrointestinal bleeding.

The case fatality rate from EVD ranges from 30% to 90% depending on the subtype of the virus. The primary cause of death is typically hypovolemic shock due to gastrointestinal losses (vomiting and diarrhea) and third spacing (not haemorrhagic), and severe electrolyte abnormalities. Renal failure is frequent in the late phase of severe disease.

Ebola virus can only be transmitted through contact with infected blood or bodily fluids from humans or animals. Person-to-person transmission occurs primarily through direct contact (e.g. through broken skin or mucous membranes) with the blood or other body fluids (e.g. stool, emesis, urine, saliva, semen and sweat) of someone who is sick or deceased, and/or indirectly through contact with environmental surfaces and fomites contaminated with blood or other body fluids. **EVD is not transmitted through the air;** therefore brief interactions such as walking by a person pose no risk.

Cases are not considered to be communicable before the onset of symptoms. Communicability increases with each subsequent stage of the illness. A person with EVD is most infectious in the later stages when viral load increases and they experience copious fluid loss due to diarrhea, vomiting or hemorrhage. A person with EVD is communicable as long as the virus remains in the bodily fluids.

There is no effective antiviral treatment for EVD. Treatment is supportive, and is directed at maintaining renal function and electrolyte balance, and at combatting haemorrhage and shock.
When to Suspect Ebola Virus Disease: Triage and Screening

EVD should be suspected in all patients with fever AND at least one of the other symptoms AND a positive travel history or epidemiological exposure within 21 days of illness onset. A positive travel history includes travel to any country where EVD outbreaks are occurring.

The DHW has developed *Ebola Virus Disease: Standardized Triage Screening Tool* (Appendix A). This standardized screening triage tool has been developed to obtain the correct information on symptoms and travel history for patients who present for care in primary care offices, emergency departments and for screening calls made to EHS Communications Centre (911) and 811.

In addition to EVD screening, healthcare settings should have the following *routine* triage measures in place. These triage measures are a basic component of regular, day-to-day infection prevention and control practices (not EVD-specific):

- Signage to direct patients with symptoms of acute infection (e.g., cough, fever, vomiting, diarrhoea, coryza, rash, conjunctivitis) to specific waiting areas.
- A physical barrier (i.e. plastic partition at triage desk) located between infectious sources (e.g. patients with symptoms of a transmissible respiratory infection) and susceptible hosts (i.e. other patients, staff).
- Supplies for respiratory hygiene and emesis management are available (e.g. tissues, basins, hand hygiene products, designated hand hygiene sinks and no-touch waste receptacles).

Reporting to the Medical Officer of Health

When any patient meets the screening criteria for EVD as outlined in the questions in the standardized triage screening tool (Refer to Appendix A), **immediate notification by phone must be made to the local Medical Officer of Health (MOH)**. EVD is a notifiable illness and must be reported as soon as suspected under *It’s the Law: Reporting Notifiable Diseases and Conditions*.

During business hours the local MOH is contacted through the local public health office [http://novascotia.ca/dhw/publichealth/cpho-contact-information.asp](http://novascotia.ca/dhw/publichealth/cpho-contact-information.asp) and after hours through QEII Locating at 902-473-2222 and asking for the MOH on-call. The MOH will coordinate further assessment and decisions regarding patient assessment and disposition.

It is vital to inform the local MOH for the following reasons, to:

- Determine if the person meets the national case definition (Refer to Appendix B)
- Identify any symptomatic contacts as early as possible
- Determine if further clinical assessment is warranted and where
- Facilitate prompt and safe laboratory diagnostic testing; and
- Reduce the amount of time between the onset of illness and isolation in order to reduce the opportunity for transmission to others
Infection Prevention and Control Measures

A) In All Healthcare Settings

Hierarchy of Controls for EVD

The most effective way to minimize a hazard is to implement a hierarchy of controls. There are three levels in the hierarchy of controls as they apply to infection prevention and control; engineering controls, administrative controls and personal protective equipment. Implementing infection prevention and control measures in the context of this hierarchy of controls helps to achieve maximum protection against infectious agents.

![Hierarchy of Controls Diagram]

**Figure 1: Hierarchy of Controls**

**Engineering Controls**

Engineering controls are the broadest level in the hierarchy of controls. Engineering controls are ‘built into’ the healthcare facility and include elements such as structure, design and ventilation. Engineering controls reduce the opportunity for error or inconsistency in the application of infection prevention and control measures by eliminating the individual’s (staff, visitor, etc.) choice about when or if to apply them. For EVD, engineering controls can be effective at preventing or eliminating exposure in the first place. Examples of engineering controls in managing patients with EVD include:

- Accommodation of patients in single, inpatient rooms with designated private toilets
- Use of airborne isolation rooms for aerosol-generating medical procedures
- Dedicated staff hand washing sinks
- Point-of-care alcohol-based hand rub (ABHR)
- Point-of-care lab testing
- Point-of-use sharps containers
Administrative Controls

Administrative controls are the next level on the hierarchy of controls. Administrative controls are the policies, procedures, education and training and patient care practices intended to prevent exposure and transmission of microorganisms during the provision of care. Administrative controls require organizational commitment and resources for their implementation and sustainability. For EVD, administrative controls must be implemented immediately from the first encounter with a patient. Examples of administrative controls for EVD include:

- Implementation of the Standardized Triage Screening Tool (fever, symptoms & travel history)
- Triage procedures and prompt initiation of PPE
- Case and contact tracing
- Designated regional centers for care of patients with EVD
- Designated transport vehicles
- Designated care teams
- Buddy system for care and monitoring of putting on and removing PPE
- Specialized training in selection, application, use, removal and disposal of PPE
- Respiratory protection programs

Personal Protective Equipment

The use of personal protective equipment (PPE) is the final step in the hierarchy of controls to minimize exposure to and subsequent transmission of infectious agents. PPE provides a barrier between the healthcare provider, visitor or other susceptible host, from the source which may be the patient with suspected or confirmed EVD, or contaminated environmental surfaces/medical equipment. Examples of PPE are gloves, gowns, masks, facial protection and respirators. PPE is highly dependent on the user’s adherence and is for this reason, the weakest tier in the hierarchy of controls. Strategies to strengthen PPE training and education and PPE must be used in conjunction with the higher tiers of administrative and engineering controls to reduce the hazards in caring for patients with EVD.

Organizational Risk Assessment

Healthcare settings in NS should evaluate of the components in the above hierarchy of controls to minimize the risk of exposure to and transmission of microorganisms, including Ebola virus, within their facilities. This organizational risk assessment (ORA) is central to any healthcare organization’s preparation and planning to protect all individuals (i.e. HCW, patient, visitor) from EVD. Organizations have a responsibility to provide information and train HCWs regarding the organization’s ORA and its impact on their practice. The ORA will need to assess and evaluate the effectiveness of present organizational control measures and the extent or breadth of the hierarchy of controls needed to prevent transmission of the Ebola virus.
Routine Practices

In some cases, patients with EVD may not be recognized immediately. The consistent and appropriate use of Routine Practices remains the best defense against the transmission of EVD and other infections.

Routine Practices includes:

- Point-of-care risk assessment
- Hand hygiene program (including point-of-care ABHR)
- Source control
- Patient placement, accommodation, and flow
- Aseptic technique
- Use of PPE
- Sharps safety and prevention of bloodborne pathogen transmission
- Management of the patient care environment
  - Cleaning of the patient care environment
  - Cleaning and disinfection of non-critical patient care equipment
  - Handling of waste and linen
- Education of patients, families and visitors
- Visitor management

**Point-of-Care Risk Assessment (PCRA)**

Healthcare workers (HCWs) should have sufficient knowledge, skills and resources to perform PCRA before every interaction with a patient in order to apply appropriate control measures. Prior to any patient interaction, all HCWs have a responsibility to assess the infectious risk posed to themselves and to other patients, families, visitors, and HCWs. This risk assessment is based on professional judgment about the clinical situation and up-to-date information on how the specific healthcare organization has designed and implemented engineering and administrative controls, along with the availability and use of personal protective equipment (PPE). Refer to Table 1 below.

In the case of EVD, HCWs must conduct a risk assessment to evaluate their potential exposure to blood and/or body fluids. This should be used to determine the need for additional or enhanced PPE. The need for additional PPE, as outlined in this document, such as the use of double gloves, foot/leg coverings, head and neck covers or impervious gowns, depends on the potential for fluid contact. This is determined by the nature of the procedure being performed and the presence of clinical symptoms that increase the likelihood of contact with body fluids. As the patient’s condition changes, the risk to HCWs may also change.
## Table 1: Factors influencing risk of exposure to Ebola Virus

<table>
<thead>
<tr>
<th>Source</th>
<th>Lower Risk of Exposure</th>
<th>Higher risk of exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Patient with EVD</strong></td>
<td>✓ Early stage of EVD (e.g., fever with fatigue and myalgia)</td>
<td>✓ Later stages of EVD, involving copious fluid loss such as diarrhea, emesis, bleeding</td>
</tr>
<tr>
<td></td>
<td>✓ Convalescing stage of EVD when diarrhea and vomiting have resolved</td>
<td>✓ Patient's body fluids are soiling the environment</td>
</tr>
<tr>
<td></td>
<td>✓ Patient is continent and/or body fluids are contained (e.g., not bleeding, formed stool, no emesis)</td>
<td>✓ Incontinence</td>
</tr>
<tr>
<td></td>
<td>✓ Good hygiene</td>
<td>✓ Poor hygiene</td>
</tr>
<tr>
<td></td>
<td>✓ Capable of self-care</td>
<td>✓ Not capable of self-care due to physical condition, age, compliance or cognitive impairment</td>
</tr>
<tr>
<td></td>
<td>✓ Adequate patient placement</td>
<td>✓ Inadequate patient placement</td>
</tr>
<tr>
<td><strong>HCW Interventions</strong></td>
<td>✓ Procedures or interventions that do not put the HCW in direct contact with patient's body fluids (e.g., triage or history taking)</td>
<td>✓ Involving a 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)</td>
</tr>
<tr>
<td></td>
<td>✓ Providing the patient with an emesis basin to use whenever possible based on his/her condition</td>
<td>✓ Involving 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)</td>
</tr>
<tr>
<td></td>
<td>✓ Supporting the patient in independent use of toilet and bathroom whenever possible based on his/her condition</td>
<td>✓ Direct or indirect contact with contaminated environment or fomites (e.g., cleaning and disinfection of patient care equipment and environment)</td>
</tr>
<tr>
<td></td>
<td>✓ Allowing the patient to complete the vomiting or diarrhea episode before providing direct care whenever possible</td>
<td></td>
</tr>
<tr>
<td></td>
<td>✓ Use of disposable or single-use equipment</td>
<td></td>
</tr>
</tbody>
</table>

Patient Placement

When a suspected case of EVD is identified through the mandatory provincial triage screening process, the patient should be moved immediately to a single room, ideally with a dedicated washroom. If a dedicated washroom isn’t available, a dedicated commode can be provided. The door to the room should remain closed at all times. While EVD is not spread through the air and airborne precautions are not required, a closed door will minimize unnecessary entry into a patient’s room by visitors and non-authorized persons.

For ease of care, the use of an isolation room that has a dedicated anteroom for putting on or removal of PPE should be considered. Signage should be placed on the door to indicate additional precautions are necessary. As the infrastructure of each facility and setting will differ, additional considerations for hospital settings (e.g. emergency departments) are outlined further within Section D: Special Considerations for Hospital Settings.

Droplet/Contact Precautions

The Ebola virus is transmitted:
- Directly through contact (e.g. through broken skin or mucous membranes) with the blood and/or body fluids (e.g. diarrhea, emesis, urine, saliva, semen) of an infected individual.
- Indirectly through contact with equipment or surfaces contaminated with blood and/or body fluids of an infected individual.

*Note: EVD is not transmitted through air, food or water.*

Therefore, patients with suspected or confirmed EVD must be managed using both contact and droplet precautions, in addition to Routine Practices. Ensuring appropriate patient placement, as described above, is an important component of droplet and contact precautions. Additional risks for transmission may occur when conducting aerosol-generating medical procedures (AGMPs). While AGMPs should be avoided, if they are necessary, additional infection control precautions are required and outlined on page 25.

Hand Hygiene

Frequent use of alcohol-based hand rub (ABHR) (60-90%) or washing with soap and water (if hands are visibly soiled), including but not limited to:
- Before entry to a patients room and putting on PPE,
- Before putting on clean pair of gloves for the removal of soiled or used PPE,
- After contact with blood/body fluids and after removing PPE (i.e. gloves, gown, facial protection)
- After leaving the patient room.
Personal Protective Equipment (PPE)

PPE provides a barrier between the healthcare provider, visitor or other susceptible host, from the source which may be the patient with suspected or confirmed EVD, or contaminated environmental surfaces/medical equipment. It is crucial that HCWs understand and apply the basic principles of safe and effective PPE use for EVD.

The following section outlines the appropriate PPE that should be worn by all individuals who enter the room of a patient with suspected or confirmed EVD. The PPE chosen is based on the PCRA conducted and whether there is a lower risk of exposure or higher risk of exposure outlined in Table 1.

Whenever PPE is used for the care of a patient with EVD, the following should be monitored and observed:

- PPE must be large enough to allow unrestricted free movement of body.
- PPE must be intact and correctly in place before entering the patient care area.
- PPE must be worn for the duration of the exposure to potentially contaminated areas.
- PPE should not be adjusted during patient care. If a breach occurs, the HCW should stop patient care and initiate PPE removal in the designated removal area (e.g. by entrance of patient room or anteroom).
- Clean and contaminated areas should be clearly demarcated and evident to all HCWs. Traffic flow should minimize the risk of contamination.
- Removal of PPE presents a high-risk of self-contamination if not done properly.
  - The HCW should have sufficient, undisturbed time to put on and remove PPE correctly.
  - A trained monitor will be assisting the HCW put on and remove PPE. Refer to the Role of the Trainer Monitor on page 15.
  - The sequence for putting on and removing PPE may vary depending on organizational needs, PPE choices, availability and preferences and the PCRA. Each healthcare organization should develop comprehensive policies and procedures for removing PPE with a clear goal of reducing the possibility of self-contamination. Sample procedures for donning and removing PPE can be found in Appendix C & D.
  - Note: Given the complexity in the sequence for removing PPE and the need for multiple glove changes, cleaning gloved hands with a disinfectant wipe may be considered, with caution, by organizations developing guidelines for PPE removal. At this time, there is limited evidence to support this practice and the glove material may or may not be compatible with the product used.

PPE for Lower Risk of Exposure

- All individuals entering the patient’s room must wear at least:
  - **Gown** (disposable fluid resistant or impermeable)
  - **Surgical facemask**
  - **Eye/Face protection** (face shield preferred, or goggles; masks with visors are not suitable)
  - **Gloves** (nitrile preferred)
Enhanced PPE for Higher Risk of Exposure

- In late stages of EVD, there may be copious secretions and excretions. The need for ‘Enhanced PPE’ is determined by assessing the risk of exposure to blood and body fluids.

Enhanced PPE includes:
- Foot and leg coverings
- Gowns (Refer to Table 2 regarding proper fluid resistant rating levels)
- Surgical Facemask or N95 respirators
- Eye/Face Protection (face shield preferred, or goggles; masks with visors are not suitable)
- Head and neck covering
- Double gloves (nitrile preferred)

Table 2: PPE Guidance for Selection and Use with Patients with EVD

<table>
<thead>
<tr>
<th>PPE</th>
<th>Guidance for Selection &amp; Use</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Foot and Leg Coverings</strong></td>
<td>Foot/leg coverings should be fluid-impermeable and cover all exposed areas below the gown.</td>
</tr>
<tr>
<td></td>
<td>Disposable foot and leg coverings should be discarded into a no-touch waste receptacle immediately after use.</td>
</tr>
<tr>
<td><strong>Gowns</strong></td>
<td>Gowns used as PPE should be cuffed and long-sleeved, and offer full coverage of the body front, from neck to mid-thigh or below and fully overlap in the back with adequate closures to keep the gown secured.</td>
</tr>
<tr>
<td></td>
<td>A gown that meets the CSA/AAMI Standard for “Isolation Gown” as level 2 (fluid resistant) gown is sufficient for those encounters for triage, initial screening, brief interactions and moving of a patient to an isolation room for further investigation or assessment.</td>
</tr>
<tr>
<td></td>
<td>In selection of gowns for use in providing direct care for patients with increasing symptoms of EVD, the gown should meet the CSA/AAMI Standard for “Isolation Gown” as a Level 3 (fluid resistant) or Level 4 (fluid impermeable). Choice of fluid resistant or fluid impermeable will be made based on the risk and amount of fluid exposure anticipated during the patient or patient environment encounter.</td>
</tr>
<tr>
<td></td>
<td>Disposable gowns should be discarded into a no-touch waste receptacle immediately after use.</td>
</tr>
<tr>
<td><strong>Eye/Face Protection</strong></td>
<td>Facial protection (i.e. masks and eye protection, or mask and face shield) should be worn on entry to the room.</td>
</tr>
<tr>
<td></td>
<td>Full face shields are preferred to ensure maximum barrier protection. Face shields should be long enough to prevent splashing underneath. Masks with visors are not suitable.</td>
</tr>
<tr>
<td></td>
<td>Eye glasses are not suitable eye protection. Eye protection should fit over prescription eye glasses.</td>
</tr>
</tbody>
</table>
The use of N95 respirators is not required except in instances where AGMP are to be done. Their use when not required may be associated with some risk (e.g. impaired breathing by the HCW).

**Head and Neck Coverings**
- Head and neck coverings should be impermeable and cover all exposed areas above the shoulders except the face.
- Disposable head and neck coverings should be discarded into a no-touch waste receptacle immediately after use.

**Gloves**
- Gloves should fit securely over gown cuff (so there is no exposed skin)
- Double gloves should be considered for situations where there is a risk of exposure to blood and body fluids.
- Gloves should be removed and discarded into a no-touch waste receptacle.

**NOTE:** The above listed PPE is recommended by the Public Health Agency of Canada and is supported by the DHW. Organizations may choose to use other types of EVD PPE for convenience and comfort (e.g. powered purifying respirators (PAPRs), coveralls etc). While facilities in other provinces may choose to use PAPRs, these are not required for the care of patients with EVD. Removal of equipment such as PAPRs or coveralls poses a recognized risk of self-contamination if worn by HCWs who are not adept at their use.

### The Use of Anterooms for Putting On and Removing PPE

Ensuring compliance with the proper steps to put on and remove PPE is crucial in preventing HCW self-contamination. Determining the exact location/space where PPE is to be put on and removed is an important part of the planning for patient accommodation within a facility. Key principles include the clear separation of “clean” and “dirty” processes.

- Whereas each facility will have different physical layouts for an isolation/single room and anteroom (if available), it will be necessary to conduct an organizational risk assessment to determine the optimum designation of areas for storing and putting on clean PPE and then the area to be designated for removal of PPE and collection of waste.
- The anteroom can be designated as a “clean area” for storing and putting on PPE as there may be additional supplies required than are normally stocked in a PPE caddy or mobile cabinet. For removing of PPE, an area just within the doorway of the patient room will then be designated for that purpose. There will need to be access to hand hygiene sinks and products along with a waste receptacle to collect the used PPE.
- If space within the patient room is limited and safe removal of PPE would be difficult due to proximity to the patient or other equipment, the hospital can designate the anteroom for removing purposes. The anteroom would then be considered a “dirty area”. Space in the outside corridor would then be dedicated to the storage and donning of PPE.
- Removal and disposal of used PPE should not be done in an external corridor.
- **The anteroom is either a “clean” or “dirty” space, never both.**
**PPE Education and Training**

- HCWs should have frequent comprehensive, hands-on education and training on how to choose, put on and remove PPE correctly.
- Initial and ongoing training/practice sessions should be conducted and documented.
- HCWs who have not received PPE training should not care for a patient with suspected or confirmed EVD.
- Trained monitors should be used to monitor and ensure that HCWs appropriately select and apply, remove and dispose of PPE appropriately, to ensure HCWs are not self-contaminating and to monitor/log entry into room (i.e. limit entry to only essential HCWs). See below for information on the role of the trained monitor.

**Role of the Trained Monitor**

The responsibility of the trained monitor is to assist with and ensure adherence to putting on, wearing, and removing PPE by HCWs providing direct patient care. The role of the trained monitor includes the following:

- Monitor and/or supervise putting on, wearing and safely removing PPE. The monitor generally does not enter the patient’s room.
- Guide/read aloud to HCW, each step in putting on the PPE, using a checklist. Refer to *Appendix E: Sample Trained Monitor Checklist* for an example.
- Ensure appropriate PPE is selected and correctly used.
- During PPE removal, observe and assist with removal of specific components of PPE.
- If assistance is provided to the HCW during the removal of PPE, the trained monitor will put on and wear PPE based on a risk assessment.
- 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 or if a breach occurs.
- Understand the steps to take in event of unintended breach in procedure (e.g. exposure management plan).

**Designated Care Teams/HCWs**

Organizations/facilities should build plans that encourage designated care teams. Cohorting staff to provide care/support to a suspect or confirmed patient is ideal but must take operational resources into consideration so that other patient care is not compromised. In implementing patient care models that minimize the number of HCWs exposed, healthcare providers may need to take on non-traditional tasks (e.g., light housekeeping in patient room).
Environmental Cleaning

Specific practices related to environmental cleaning for healthcare settings are described further in this guideline. Of vital importance is ensuring that all healthcare settings use an effective hospital-grade disinfectant which meets the requirements outlined in the text box below:

Effective Disinfectant Products:

*Routinely-used hospital disinfectant products with a broad spectrum virucide claim with a DIN should be used according to the manufacturer’s instruction. In selecting disinfectants to inactivate the Ebola virus on non-critical hard surfaces, the label should have a “broad spectrum virucide” claim and/or acknowledge effective testing against any of the following viruses: Adenovirus type 5, Bovine Parovirus, Canine Parovirus, Poliovirus type 1.*

Dedicated Equipment

- Only essential equipment should be taken into the patient room.
- Medical devices and equipment should be disposable whenever possible.
- Non-disposable, non-critical equipment should be dedicated to the patient until the diagnosis of EVD is excluded, the patient is discharged or the precautions are discontinued.
- Non-disposable, non-critical equipment should be disinfected according to manufacturer/organizational policy before reuse with another patient.
- Single-use devices should be used and discarded in a no-touch waste receptacle after use.
- The use of disposable bedpans is preferred over reusable bedpans and commodes for the patient unable to use a toilet. If reusable bedpans are used, consider the use of disposable bedpan liners.
- Reusable bedpans and commodes should be provided for single patient use and labeled appropriately.
- **NOTE:** If transporting, cleaning and reprocessing of reusable equipment cannot be done in a safe manner, healthcare settings should discard reusable equipment.
Reprocessing of Reusable Medical Equipment

- Provide education, hands-on training, repeated practice and appropriate PPE to those responsible for reprocessing (decontamination, cleaning, disinfection and sterilization) reusable medical devices and equipment.
- In selecting disinfectants to inactivate the Ebola virus on reusable medical equipment and devices, the label should have a "broad spectrum virucide" claim and/or acknowledge effective testing against any of the following viruses; Adenovirus type 5, Bovine Parovirus, Canine Parvovirus, Poliovirus type 1.
- Assign responsibility and accountability for reprocessing non-critical patient care equipment. Non-critical patient care equipment should be cleaned and disinfected after each use and when visibly soiled to reduce environmental bio-burden.
- Bedpans and commodes should be reprocessed with cleaning and sterilized before use by another patient. The use of single-patient-use disposable bedpans or disposable bedpan liners is preferred.
- The use of other single-patient use disposable items, such as blood pressure cuffs, is preferred.
- Semi-critical and critical equipment is reprocessed according to usual organizational policies and procedures.  
  *NOTE: If transporting, cleaning and reprocessing of reusable equipment cannot be done in a safe manner, healthcare settings should discard reusable equipment.*

Sharps

- In Nova Scotia, laboratory testing will only be done at the CDHA Virology laboratory. No specimens should be collected from suspect or confirmed patients presenting to hospitals other than the QEII Health Sciences Centre (HSC) or IWK Health Centre. Blood tests and other laboratory testing will only be taken from the patient once transferred to Halifax for assessment at the QEII HSC or IWK Health Centre. Refer to “Diagnosis & Laboratory Precautions” for additional information of laboratory testing and procedures.
- Use of needles and sharps should be kept to a minimum and used for medically essential procedures only. Starting an IV line for fluid replacement may be an essential procedure in the patient who is experiencing volume loss and should not be avoided when needed.
- A needleless system and safety-engineered medical devices should be used.
- Extreme care should be used when handling all sharps. Used needles should not be recapped; used needles and other used single-use sharp items should be disposed of immediately into designated puncture-resistant containers that are easily accessible at the point-of-use.
- The risk of transmission of EVD through percutaneous injury is high, therefore only those individuals extremely skilled in performing phlebotomy should draw bloods or start lines (e.g. IV, arterial).
Transportation of Suspect or Confirmed Patients

**Internal Transportation**
Patients should not leave the room or be transferred internally except for essential medical procedures. Transport staff must be aware of the patient’s status and the required PPE. While EVD is not spread through the droplet route, patients with respiratory symptoms should wear a mask to contain respiratory droplets during transport as per routine practices.

If an internal transfer cannot be avoided, ensure the new room is ready before transfer to minimize time outside of the patient room. HCWs providing transport must discard PPE as they leave the room, and put on new PPE for the transfer. An alternative is to have the HCW inside the room transfer care of the patient to a second HCW in new PPE who is prepared to transport the patient upon exit from the room.

Prior to transporting the patient for diagnostic testing, the receiving unit must be fully aware of the patient’s impending arrival, estimated time of arrival and be prepared to perform testing immediately. Patients should be transported using the most direct route to their destination. Staff transporting the patient should wear “Enhanced PPE” as such patients are potentially unstable and may require care during transportation. If the patient is coughing, a surgical mask should be placed over the mouth and nose of the patient, if they are medically able to tolerate. Following the procedure, the room should be cleaned & disinfected.

**External Transportation**
For external transportation through Emergency Health Services, refer to the following section Special Considerations for Emergency Health Services (EHS).
B) Special Considerations for Emergency Health Services (EHS)

Ensuring that the appropriate triage takes place through the EHS Communications Centre is vital to ensuring preparedness for paramedics and staff working in EHS.

EHS clinicians (e.g. paramedics, nurses, respiratory therapists, physician) can safely manage a patient with suspected or confirmed EVD by following recommended infection prevention and control practices, including Routine Practices, and droplet/contact precautions and the PPE based on the point-of-care risk assessment.

Infection Prevention and Control Practices

Early recognition and identification of patients with potential EVD is critical. When the standardized triage screening questions through EHS Communications Centre result in a positive screen (symptoms, travel history and MOH consultation regarding meeting national case definition), the following processes are important:

- Pre-arrival screening by the EHS Communications Centre and post-arrival screening by paramedics, in conjunction with physician advice (i.e. MOH, EHS physician director and ID physician) obtained through compulsory telephone consultation for patients who meet screening criteria. Refer to NS EVD Protocol at link: [http://novascotia.ca/dhw/cdpc/ebola-documents.asp](http://novascotia.ca/dhw/cdpc/ebola-documents.asp)
- Ongoing and early activation of the provincial and local ED systems of care to ensure integrated patient flow into the Ebola-receiving facility.
- Maintaining strong Routine Practices and strict compliance with the PPE outlined for EVD.
- Completing thorough post-patient contact decontamination.
- Limiting activities, especially during transport that can increase the risk of exposure to infectious material (e.g. airway management, handling of bodily fluids).

Personal Protective Equipment

Recommended PPE should be used by EHS clinicians as follows:

- EHS clinicians should wear the recommended PPE as outlined within this document on page 12 with the following considerations;
  - When a risk assessment or clinical condition indicates potential for exposure to blood or body fluids, the use of a disposable, impermeable coverall should be considered in place of the impermeable gown. This is based on the nature of the space limitations, inability to freely leave the environment, staff who remain in a predominantly seated position and the close proximity of the EHS staff with the patient.
  - Staff should use a fit-tested N95 respirator instead of a surgical facemask.
Staff should consider the routine use of double gloves.

- PPE should be worn upon entry to the scene and continued to be worn until personnel are no longer in contact with the patient or the patient care compartment of the truck.
- Hand hygiene should be performed immediately after removal of PPE.
- EHS clinicians should have comprehensive, hands-on education and training on how to choose, put on and remove PPE correctly. Initial and ongoing training/practice sessions should be conducted and documented. EHS staff who have not received PPE training and education, have not been fit-tested or deemed unable to don, wear or remove PPE based on a fitness to work criteria through the OH program should not care for a patient with suspected or confirmed EVD.
- Trained monitors should be implemented to monitor and ensure that EHS staff appropriately select and apply, remove and dispose of PPE and to ensure EHS staff are not self-contaminating.
- PPE should be placed into a no-touch medical waste container at the hospital or double-bagged and held in a secure location until arrangements for disposal are confirmed and completed.
- Hand hygiene should be performed immediately after removal of PPE.

**Prehospital Resuscitation Procedures and AGMPs**

Prehospital resuscitation procedures such as endotracheal intubation, open suctioning of airways, and cardiopulmonary resuscitation frequently result in a large amount of body fluids, such as saliva and vomit. Performing these procedures in a less controlled environment (i.e. moving vehicle) increases risk of exposure for EHS personnel. Prehospital resuscitation procedures should only be performed on patients with suspected EVD if absolutely necessary and under direction of the EHS Medical Director.

- If a critical intervention is required during transport, it is recommended to pull the ambulance to a complete stop and allow for a controlled setting or withhold intervention until arrival at the hospital.
- In addition to recommended PPE, a fit-tested N95 respirator should be worn (instead of a facemask). Additional PPE must be considered for these situations due to the potential increased risk for contact with blood and body fluids including, but not limited to, double gloving, head/neck covers, impervious shoe/leg coverings.

**Environmental Cleaning & Disinfection of the Ambulance**

If possible, actions will be taken prior to the transport of a suspected patient with EVD, to remove all unnecessary equipment from the vehicle and cover items that may get contaminated during transport.

Following the transport of a patient with suspected EVD, designated and trained EHS staff will perform a terminal/deep cleaning of the vehicle. This will be completed as per EHS policy/protocol.

EHS personnel performing environmental cleaning and disinfection should:

- Wear recommended enhanced PPE.
- Use an effective disinfectant product according to the manufacturer’s instruction to perform environmental cleaning. In selecting disinfectants for EVD, the label should have a "broad
spectrum virucide" claim with a DIN and/or acknowledge effective testing against any of the following viruses; Adenovirus type 5, Bovine Parovirus, Canine Parvovirus, Poliovirus type 1.

- Disinfectant should be available in ready-to-use liquid or as commercially prepared wipes for use during transport.
- Disinfectant wipes/products should be available during the transport to immediately clean and disinfect any surface that becomes contaminated during transport.

**NOTE:** In addition to these guidelines, EHS clinicians will follow their organization-specific EVD guidelines, policies and protocols which may include specific guidance and protocols for clinical management, transport, sequencing for putting on and removing PPE, and procedures for cleaning and disinfection of the vehicle etc.
C) Special Considerations for Primary Care Settings

Triage & Notification to MOH

Primary care settings may include university health clinic, family practice offices, walk in clinics etc.

Asymptomatic travellers returning to Nova Scotia from an affected area in the previous 21 days will be assessed by a PHAC Quarantine Officer upon entry into Canada. These individuals will be required to report to local Public Health (Chief MOH, or Deputy Chief MOH, or MOH on call after hours) and self-monitor for symptoms of EVD. These individuals will be educated and directed to contact Public Health if they develop symptoms during the screening period and not to present to an emergency room or primary care clinic. This mandatory process for returning travellers makes it unlikely a patient with suspected EVD would present at a primary care setting. However, it is necessary that these settings put basic measures, including a screening process, in place.

If a patient presents with sudden onset of fever, the list of symptoms on the *Standardized Triage Screening Tool* (Appendix A) will be asked of patients arriving at a primary care clinic for an appointment or inquiries made to the clinic staff. If a positive screen occurs, based on the patient’s symptoms and travel history, immediately contact the MOH as outlined in *Reporting to the Medical Officer of Health* on page 6.


Primary care settings should have access to the basic personal protective equipment required for droplet/contact precautions in the initial care of a patient with suspected EVD. This includes gloves, facemask, disposable gowns and face/eye protection.

Environmental Cleaning of the Clinic Examination Room

Blood and body fluids from patients with EVD are highly infectious. In the event it is determined by the MOH that a patient meets the case definition as a Person Under Investigation (PUI) for EVD, transfer by EHS to a definitive care site will be arranged. When a patient with suspected EVD is transferred from the primary care setting, the door to the examination room should remain closed to ensure the room is not entered or used. Signage to indicate the room cannot be used is necessary.
If it is deemed by the MOH that the patient does not require further assessment or transfer, the room may be cleaned and disinfected as per usual practice.

If a patient requires transfer as a PUI, primary care settings may not have access to resources, materials and products to complete a terminal cleaning effectively. If this situation occurs, subject matter experts involved in the MOH consultation call will coordinate resources who will provide initial guidance and direct support (e.g. expert resources) to the primary care setting for environmental management, cleaning/disinfection of patient care equipment and management of supplies/waste etc.
D) Special Considerations for Hospital Settings

Patient Placement in Emergency Departments and Hospital Settings

Travellers returning to Nova Scotia from an affected area in the previous 21 days will be assessed by a PHAC Quarantine Officer upon entry into Canada. The current protocol in NS makes it unlikely that returning travellers would present to an Emergency Department without previous consultation and notification from the MoH. However, all EDs need to be prepared for the possibility of managing a patient who meets the screening criteria.

Capital Health and the IWK Health Centre will refer to their internal EVD plans for specific patient placement details within the Emergency Department (ED) and on designated inpatient units.

Patients arriving at any ED outside Capital Health or the IWK Health Centre will also follow their district-specific EVD plans and protocols. Plans and protocols should indicate which rooms will be used in the ED to house patients. All regional hospitals in NS have the appropriate space within their ED to place a patient with suspected EVD. The capacity in other hospitals will vary (Refer to Appendix F).

An “EVD Infection Prevention and Control Kit” may be established and stored in the ED to allow quick and easy access to the PPE, educational materials and dedicated equipment in the event a patient requires additional assessment by the MOH to determine if they meet the national case definition. If determined by the MOH that additional assessment is required at the QEII or the IWK Health Centre (depending on patient age), the hospital must be prepared to hold a patient until appropriate transport can be arranged.

During the screening process, if a patient has a positive travel history and symptoms consistent with EVD as outlined in the Standardized Triage Screening Tool, place patient with suspected EVD in single room with dedicated toilet or commode and keep the door closed.

Although EVD is not transmitted through the airborne route, it may be practical for some facilities with airborne infection isolation rooms (negative pressure rooms) to place suspected EVD patients in this room as it will allow for a dedicated anteroom for putting on or removing PPE. Guidance on appropriate anteroom use is found on page 14.

Other important considerations include:

- Place a droplet/contact precautions sign on door.
- Only essential personnel with appropriate PPE to enter; door should remain closed.
- The ED staff physician must be notified immediately and the MOH contacted.
- Advise and assist the patient to perform hand hygiene and adhere to respiratory hygiene.
- Maintain a log of all persons entering room; only essential personnel should enter the room (Appendix G: Sample Health Care Worker & Visitor Log Sheet).
• Assign trained individual to monitor appropriate selection, application, removal and disposal of PPE, to avoid self-contamination of the HCW, and to monitor entry to room (i.e., limit entry to only essential HCWs).

Aerosol-generating Medical Procedure

Aerosol-generating medical procedures (AGMPs) should not be performed on patients suspected or confirmed to have EVD.

If AGMPs are absolutely necessary (e.g. intubation, bronchoscopy, open endotracheal suctioning), implement strategies to reduce aerosol generation including the following:
  i. AGMPs should be anticipated and planned for.
  ii. Appropriate patient sedation should be used.
  iii. The number of personnel in the room should be limited to those required to perform the AGMP.
  iv. The procedure should be performed by the most highly experienced staff member available.
  v. AGMPs should be performed in airborne infection isolation rooms (also referred to as negative pressure rooms) with the use of airborne/contact precautions. Appropriate ventilation (e.g., level of air filtration and direction of air flow) should be maintained.
  vi. Single rooms (with the door closed and away from other patients), should be used in settings where airborne infection isolation rooms are unavailable.
  vii. All staff who enter the room should wear PPE, with the addition of an N95 respirator instead of a facemask.
  viii. Closed endotracheal suction systems should be used.
  ix. Following the procedure, the room should be cleaned and disinfected. Depending on the air exchanges in the room, cleaning should take place at a time interval after the AGMP has been performed that ensures 99.9% removal of the microorganisms. Consideration for how long to wait prior to cleaning a room can be guided by the following table:

<table>
<thead>
<tr>
<th>Air exchanges per hour</th>
<th>Minutes Required for removal of airborne microorganisms</th>
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<tr>
<td></td>
<td>99% removal</td>
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<tr>
<td>2</td>
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Environmental Cleaning of ED or Inpatient Rooms

Blood and all body fluids from patients with EVD are highly infectious. Cleaning of the patient room is important to reduce environmental contamination, which in turn decreases the risk of transmission to HCWs. Safe handling of potentially infectious materials and the cleaning and disinfection of the patient’s environment is paramount. All environmental cleaning will be done using an effective hospital-grade general virucidal disinfectant as outlined on page 16.

Experienced environmental services (ES) staff trained in IPC practices and use of PPE should be assigned to perform cleaning and disinfection of the patient environment.

- ES staff should have comprehensive, hands-on education and training on how to choose, put on and remove PPE.
- Assign responsibility and accountability for cleaning and disinfection of patient care environment
- A checklist should be developed to aid in education and training and to ensure effective communication in tasks involved in environmental cleaning and disinfection; consider auditing to ensure appropriate processes.
- ES staff should also use a trained monitor outlined earlier to ensure staff appropriately select and apply, remove and dispose of PPE appropriately, to ensure ES staff do not self-contaminate.

Daily Cleaning:

- Housekeeping equipment should be disposable or remain in the room for the duration of the patient admission.
- The frequency of cleaning should be based on the level of contamination with blood and/or body fluids. At a minimum, all horizontal and frequently touched surfaces should be cleaned at least twice daily.
- Additional cleaning and disinfection measures or more frequent cleaning are warranted in situations of gross environmental soiling.
- Surfaces that are likely to be touched and/or used frequently should be cleaned and disinfected on a more frequent schedule. This includes surfaces that are in close proximity to the patient (e.g. bedrails, bedside/over-bed tables, call bells) and frequently touched surfaces in the patient care environment, such as door knobs and surfaces in the patient’s bathroom.

Discharge/Terminal Cleaning:

Upon discharge of the patient, discharge/terminal cleaning of the room should follow the recommended practices. In addition to routine cleaning:

- Remove all dirty/used items (e.g. suction container, disposable items). Any used items saturated or containing blood or body fluids must be discarded as biohazardous waste as per hospital policy.
- Remove curtains (e.g. privacy, shower, window) before starting to clean the room.
- Discard everything in the room that cannot be cleaned and disinfected.
- Use fresh cloths, mop, supplies and solutions to clean the room.
- Use several cloths to clean a room. Use each cloth one time only; do not dip a cloth back into disinfectant solution after use. DO NOT RE-USE CLOTHS.
- Clean and disinfect all surfaces and allow for the appropriate wet contact time with the disinfectant.
- All housekeeping equipment (e.g. mop handles, buckets etc.) must be cleaned and disinfected before being put back into general use or discarded.

**Duration of Precautions**

The duration of precautions will be determined on a case-by-case basis in consultation with the Medical Officer of Health, Infectious Disease experts and infection prevention and control professionals.

**Handling Waste**

- Collected human waste (i.e. urine, feces or vomit) may be disposed and flushed down a toilet within the patient room. Any attempts to bring human waste outside of the room for disposal should be avoided.
- General and biomedical waste (e.g., sponges, dressings and surgical drapes soaked with blood or secretions) should be contained in clearly labelled impervious, rigid biohazardous containers or double bags according to municipal/regional regulations.
- Facilities should develop a plan and procedure on how to safely transfer and store the generated biohazardous waste until it can be picked up.

**Handling Linen, Dishes & Cutlery**

- Patient bed linen should be changed regularly and when soiled, upon discontinuation of precautions and following patient discharge.
  i. Soiled linen should be placed in a no-touch biohazardous waste receptacle at the point-of-use. Do not rinse soiled linen.
  ii. Soiled linen should be handled with minimum agitation.
- Use disposable dishes/cutlery and dispose in a biohazardous waste receptacle at the point of use.

*NOTE: Further guidance on management of waste, including the disposal of urine, stool and emesis, and linen will be outlined in national Infection Prevention and Control Measures for the Management of Ebola Virus Disease-associated Waste and Linen in Canadian Healthcare Settings from PHAC (pending). This document will provide IPC guidance to complement provincial/territorial efforts in establishing appropriate precautions for the safe management (handling, containment and transport) of waste, including urine, stool, and emesis, and linen contaminated or potentially contaminated with Ebola virus.*
Additional Infection Prevention and Control Considerations

Diagnosis & Laboratory Precautions

Public health authorities should be involved in provision of information regarding laboratory testing requirements and specimen transport protocols. Ebola and other viral hemorrhagic fevers are class 4 pathogens and as such, the collection and processing of specimens including blood for routine tests, requires enhanced PPE and laboratory protocols including the processing of all specimens in a class II biosafety cabinet.

The decision for specimen collection and testing should be predicated on the clinical status of the patient and based on an on-going risk assessment. The MOH and the Provincial Public Health Lab Network at the QEII HSC will approve any laboratory testing on patients with suspected or confirmed EVD.

In Nova Scotia, laboratory testing will be done at the QEII HSC Virology laboratory. **No specimens should be collected from patients presenting to hospitals outside the QEII HSC or IWK Health Centre.** Blood tests and other laboratory testing will only be taken from the patient once transferred to Halifax to be assessed at the QEII HSC or IWK Health Centre. If the patient is deemed too ill to transport, specimen collection should only be considered after discussions with the MOH and the Microbiologist on-call.

The virology laboratory will provide collection kits to facilitate the safe collection of blood and ensure that the appropriate transport requirements are met. Any laboratory tests collected at the IWK Health Centre will be sent to the QEII HSC laboratory. To ensure safe transportation and handling of specimens, the laboratory must be contacted immediately prior to collection and transport of specimens. Specimens should be taken by staff experienced in the required techniques. Specimen collection may be facilitated by a second person. The same PPE described in these guidelines under Droplet/Contact precautions should be worn by those staff obtaining laboratory specimens. The addition of double gloves is recommended to facilitate the cleaning of the exterior of the specimen container. Once the specimen is collected, the entire outside of each specimen container should be wiped with an effective hospital-grade general virucidal disinfectant. The specimens can then be double bagged and placed in a secure container for transport and the outer layer of gloves can be removed. Specimens must be taken carried directly to the laboratory. Specimens should not be transported in a pneumatic tube system. **Appropriate specimen collection is outlined in the Laboratory Testing Requests, Specimen Collection and Transport for Patients with Suspected VHF policy and procedure document (CC 85-090).**

The processing and testing of specimens from suspected or confirmed Ebola patients will occur within the virology laboratory in a dedicated room using enhanced PPE in a class II biosafety cabinet. The staff within the QEII HSC Laboratory who will receive specimens from patients under investigation for Ebola Virus Disease (EVD) must be aware that improper handling of these specimens poses serious risk to the health of laboratory personnel. Consult the policy and procedure document **CC 85-090** before any testing occurs.
Patients with suspected EVD should be tested for the Ebola virus and should also have appropriate testing performed to rule out more common infectious causes of fever in the returned traveler (e.g. malaria, typhoid). Blood testing should be minimized and only testing essential to the diagnosis and acute management of the patient should be performed. Consultation with the MOH, microbiologist and an infectious disease specialist is recommended to ensure appropriate diagnostic tests are collected. Blood will not be processed on automated analyzers but rather on point-of-care equipment used in the virology laboratory. The use of point of care technology will limit the testing menu to electrolytes (including Na, K, Cl, HCO3, ionized calcium), urea, creatinine and a CBC. Because of the need for dedicated technologists, the number of times blood testing can be done on a daily basis would be a maximum of 3-4 times.

Testing for the Ebola virus or other Viral Haemorrhagic Fevers (VHF) will require confirmation by the National Microbiology Laboratory (NML). The Virology laboratory at QEII HSC will arrange the appropriate transportation and notification of the NML Operations Center Director (OCD) at 1-866-262-8433 and activation of the Emergency Response Assistance Plan (ERAP).

**Guidance and Monitoring for HCWs Working with EVD Patients**

Prior to working with patients with suspected or confirmed EVD, HCWs should undergo a process to ensure ‘fitness to work’. Fitness to work incorporates factors that relate to an individual’s ability to safely perform the duties of the job. Certain health conditions or pregnancy preclude some HCWs from providing care for EVD patients. The ability of a HCW to engage in work activities (e.g. wearing appropriate PPE) related to caring for an EVD patient should be assessed by an Occupational Health professional.

Follow-up of HCWs who are potentially exposed is the role of occupational health services. Hospital or organizational occupational health departments, in conjunction with public health, should develop policies and protocols for monitoring and management of HCWs who may be potentially exposed to patients with EVD.

These protocols and policies should include the provision of education about the signs and symptoms of EVD and appropriate control measures:

- Eating or drinking must not occur in areas where direct patient care is provided or in reprocessing or laboratory areas.
- HCWs with open skin areas/lesions on hands or forearms should not have contact with suspected or confirmed EVD cases or their environment.
- To prevent self-contamination, workers should avoid touching the mucous membranes of their eyes, nose and mouth with their hands.
- Potential occupational/community exposure to EVD (e.g. direct exposure without appropriate PPE, percutaneous injuries) should be reported to immediate supervisor and occupational health services or delegate as well as to Public Health.
- HCWs need to self-monitor while caring for suspected/confirmed cases of EVD and for 21 days following termination of care. This process should be done in keeping with guidance within the
First aid should be performed immediately if there has been exposure to blood or body fluids.

i. The exposure should be reported immediately to employer and immediate medical attention should be obtained.

ii. The site of a percutaneous injury should be thoroughly rinsed with copious running water, and any wound should be gently cleansed with soap and water.

iii. Mucous membranes of the eyes, nose or mouth should be flushed with copious running water if contaminated with blood, body fluids, secretions or excretions.

iv. Non-intact skin should be rinsed thoroughly with copious running water if contaminated with blood, body fluids, secretions or excretions.

Visitor Management

The entry of visitors to the patient room should be strictly avoided. Exceptions may be considered on a case-by-case basis for those who are essential for the patient’s wellbeing. For these instances, a procedure for monitoring, managing and training visitors should be established by healthcare facilities.

Procedures for monitoring, managing and training visitors should include:

- Screening for EVD before arrival or entry to the patient room
- Evaluating the risk to the health of the visitor
- The ability of the visitor to comply with precautions and;
- The process for providing instruction to visitors before entry into the patient care area.

Instructions will include hand hygiene, limiting surfaces touched, and use of PPE according to the current facility policy while in the patient’s room.

Visitors who were exposed to the patient before they were admitted should be screened for infectious symptoms and sent immediately for EVD medical assessment if febrile. Public health follow up will occur for all individuals who are considered ‘contact’ of a case as per DHW Ebola Virus Disease: Public Health Management found at: http://novascotia.ca/dhw/cdpc/ebola-documents.asp

Education of Patients and Visitors

Patients, their visitors, families and their decision-makers should be educated about the precautions being used, the duration of precautions, as well as the prevention of transmission of disease to others, with a particular focus on hand hygiene and respiratory hygiene. If a patient is visited by family members and visitors, HCWs who are trained monitors will ensure these visitors put on and remove the appropriate PPE correctly as above.

Discharge planning (including but not limited to continuation of infection prevention and control precautions in the home setting) should be managed on a case-by-case basis in consultation with the MOH, Public Health, infectious disease specialists, and infection prevention and control professionals.
Handling Bodies of Deceased Patients

In the event of a patient death, healthcare facilities will contact the Nova Scotia Medical Examiner’s Service (NSMES) at 902-424-2722 (24 hours). The staff at the NSMES will be providing removal service of ALL deceased with suspected or confirmed EVD, regardless of whether they are a Medical Examiner’s cases or not.

Healthcare Facility Staff:

1. If a patient death has occurred, hospital/facility staff will ensure the deceased remains within the patient room with the door closed until collected by the NSMES.
2. The deceased should not be prepared for removal by hospital staff and they should be left as they died. This includes ensuring medical devices (e.g. intravenous catheters, urinary catheter, or endotracheal tubes) are left in the decedent. Tubing and bags shall be detached from machines and placed on the decedent’s abdomen.
3. After removal by the NSMES, environmental cleaning of the patient room will be completed by trained Environmental Services/designated staff at the facility.

NSMES Staff:

1. The staff at the NSMES will follow their internal protocol for communication, collection of the body, transportation and any environmental cleaning practices, if applicable.
2. NSMES will ensure clear communication with the staff at the retrieval facility or site which includes discussion on roles, removal plan logistics, supplies, site access and chain of custody.
3. NSMES will follow Droplet/Contact precautions, in addition to Routine Practices, when handling deceased bodies.
4. The NSMES should bring their own PPE to the healthcare facility or site for collection and transportation. Used PPE will be placed in red biomedical bags and buckets with appropriate labelling.
5. At the site of the death, the body is wrapped in a plastic sheet.
6. The body will be placed in a hermetically sealed coffin. Once closed the coffin should not be reopened.
7. Handling of human remains should be kept to a minimum. No autopsies, embalming, or post-mortem care will be completed.

F) Public Health Management and Self-Monitoring at Home

The public health management of EVD cases and contacts is outlined within the Ebola Virus Disease: Public Health Management. This document outlines processes for case management and contact tracing. In addition, the protocols for returning travellers based on the risk of EVD exposure in affected countries. The NS protocol outlined in this document is based on mandatory requirements and recommendations under the federal Quarantine Act and guidance documents developed by PHAC.
Appendix A

Standardized Triage Screening Tool

(Refer to [http://novascotia.ca/dhw/cdpc/ebola-documents.asp](http://novascotia.ca/dhw/cdpc/ebola-documents.asp) for most current tool)

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<thead>
<tr>
<th>Ebola Virus Disease (EVD)</th>
<th>Standardized Triage Screening Tool - Version 11</th>
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</thead>
</table>

The following information should be obtained from patients who present for care in an emergency department or primary health care setting (e.g. university health clinics, family practice office or walk-in clinic) or to assist in responses for EHS Communications Centre and 811.

If the presenting symptoms include:

- sudden onset of fever AND one of the following:
  - malaise (weakness)
  - myalgia (muscle pain)
  - headache
  - conjunctival injection (red eyes)
  - pharyngitis (sore throat)
  - abdominal pain (stomach pain)
  - vomiting
  - diarrheas, with or without blood
  - unexplained bleeding/hemorrhage
  - erythematous maculopapular rash on trunk (rash)

*Note: If the patient presents with sudden onset of fever, please ask about all listed symptoms.*

**Ask Question 1:**

**Question 1:** Have you travelled outside of Canada in the past 21 days?

If the answer is YES, ask Question 2. If answer is NO, triage as per norm.

**Question 2:** Has your travel been to or through the following countries in West/Central Africa?

- Sierra Leone
- Guinea
- Liberia

*If the patient answers YES to Questions 1 & 2, in clinical settings, place the patient in a single room immediately, with a closed door, and implement contact/droplet precautions (gloves, gown, mask & eye protection/face shield). Immediate notification by phone to the local Medical Officer of Health (MOH) is required. During business hours the local MOH is contacted through the local public health office ([http://novascotia.ca/dhw/publichealth/cpho-contact-information.asp](http://novascotia.ca/dhw/publichealth/cpho-contact-information.asp)) and after hours phone 902-473-2222 and ask for the MOH on-call. The MOH will coordinate further assessment and decisions regarding patient assessment and disposition.*
Appendix B: National Case Definition: EVD

For surveillance purposes, a person with EVD-compatible symptoms is defined as an individual presenting with fever of ≥38.6 degrees Celsius AND at least one of the following additional symptoms/signs:

- malaise
- myalgia
- severe headache
- conjunctival injection
- pharyngitis
- abdominal pain
- vomiting
- diarrhea that can be bloody
- bleeding not related to injury (e.g., petechiae, ecchymosis, epistaxis)
- unexplained hemorrhage
- erythematous maculopapular rash on the trunk

Person Under investigation (PUI): A person with EVD-compatible symptoms (as defined above) not attributed to another medical condition AND at least one of the following epidemiologic risk factors within the 21 days before the onset of symptoms:

- Residence in or travel to an area where EVD transmission is active
- Healthcare workers (HCWs) / personnel wearing personal protective equipment (PPE) and adhering to appropriate infection prevention and control precautions with no safety breaches, who directly or indirectly care for EVD patients (e.g. direct patient care or contact with environment or fomites of a case)
- Other patients and visitors who spent time in a healthcare facility where EVD patients are being treated without high-risk exposures, as defined below
- Household members of an EVD patient without high-risk exposures, as defined below
- Laboratory worker processing body fluids of probable or confirmed EVD cases with appropriate PPE and standard biosafety precautions and no safety breaches
- Direct exposure to human remains (e.g. through participation in funeral or burial rites) in the geographic area where the outbreak is occurring with appropriate PPE and no safety breaches
- Direct unprotected contact with bats or primates from EVD-affected country

Probable Case: A person with EVD-compatible symptoms (as defined above) not attributed to another medical condition AND at least one of the following high-risk exposures within the 21 days before the onset of symptoms:

- Percutaneous or mucous membrane exposure or direct skin contact with body fluids of a confirmed or probable case of EVD OR
- Sexual contact with a probable or confirmed EVD case OR
- Laboratory worker processing body fluids of probable or confirmed EVD cases without appropriate PPE or standard biosafety precautions OR
- Healthcare worker (HCW) not wearing personal protective equipment (PPE) and/or not adhering to appropriate infection prevention and control precautions, who directly or indirectly cared for a probable or confirmed case of EVD (e.g. direct patient care or contact with environment or fomites of a case) OR
- Direct exposure to human remains (e.g. through participation in funeral or burial rites) in the geographic area where the outbreak is occurring without appropriate PPE

Confirmed Case: A person with laboratory confirmation of EVD infection using at least one of the methods below:

- Isolation and identification of virus from an appropriate clinical specimen (e.g., blood, serum, tissue, urine specimens or throat secretions) OR
- Detection of virus-specific RNA by reverse-transcriptase PCR from an appropriate clinical specimen (e.g., blood, serum, tissue) using two independent targets or two independent samples OR
- Demonstration of virus antigen in tissue (e.g., skin, liver or spleen) by immunohistochemical or immunofluorescent techniques AND another test (e.g., PCR) OR
- Demonstration of specific IgM AND IgG antibody by EIA, immunofluorescent assay or Western Blot OR
- Demonstration of a fourfold rise in IgG serum antibody by EIA, immunofluorescent assay or Western Blot from serial samples

As of August 17, 2014, EVD transmission is active in Guinea, Liberia, Sierra Leone, and Nigeria. Refer to the World Health Organization’s Ebola Virus Disease (EVD) website for updated information on affected areas: http://www.who.int/csr/disease/ebola/en/

Healthcare workers: defined as individuals who provide health care or support services, such as nurses, physicians, dentists, nurse practitioners, paramedics, some emergency first responders, allied health professionals, unregulated healthcare providers, clinical instructors and students, volunteers and housekeeping staff; have varying degrees of responsibility related to the health care they provide, depending on their level of education and their specific job/responsibilities.

Appendix C: Putting On and Removing PPE

Recommended Steps for Putting On Personal Protective Equipment

1. Perform Hand Hygiene

2. Put on Gown
   Tie both neck and waist ties

3. Put on Mask/N95 Respirator
   Place mask over nose and under chin, secure ties, loops or straps
   Mould metal piece to your nose bridge
   For respirators, perform a seal-check

4. Put on Protective Eyewear
   Put on eye protection
   Adjust to fit
   Face shield should fit over brow

5. Put on Gloves
   Put on gloves, taking care not to tear or puncture glove
   If a gown is worn, the glove fits over the gown’s cuff

Adapted from: Ontario Ministry of Health and Long-Term Care/Public Health Division/Provincial Infectious Diseases Advisory Committee; Toronto Canada; August 2009 (ISBN: 978-1-4249-9725-1) by Infection Prevention & Control Services, IWK Health Centre, September 2010

Last Revision October 24, 2014
Recommended Steps for Taking Off Personal Protective Equipment

1. Remove Gloves
   Remove gloves using a glove-to-glove/skin-to-skin technique
   Grasp outside edge near the wrist and peel away, rolling the glove inside-out
   Reach under the second glove and peel away, discard immediately

2. Remove Gown
   Remove gown in a manner that prevents contamination of clothing or skin
   Starting at the neck ties, the outer, ‘contaminated’, side of the gown is pulled forward and turned inward, rolled off the arms into a bundle, discarded immediately

3. Perform Hand Hygiene
   N95 respirators must be removed outside patient room. All other PPE must be removed at doorway or in anteroom

4. Remove Protective Eyewear
   Remove eye protection by handling ear loops, sides or back only
   Discard into waste receptacle or into appropriate container to be sent for reprocessing

5. Remove Mask/N95 Respirator
   Untie bottom tie then top tie, or grasp straps or ear loops, pull forward off the head, bending forward to allow mask/respirator to fall away from the face. Discard immediately into waste receptacle

6. Perform Hand Hygiene

Last Revision October 24, 2014
Appendix D: Sample Putting On and Removing Enhanced PPE

Putting on Enhanced Personal Protective Equipment (PPE)

Note: For Droplet/Contact precautions for Ebola Virus Disease (EVD), all persons entering the patient’s room must wear at least: Gown (disposable fluid resistant or impermeable); Facemask (surgical); Eye/Face Protection (face shield); and Gloves (Nitrile). In late stages of EVD there may be copious secretions and excretions. The need for additional or “Enhanced” PPE is determined by a risk assessment of heavy exposure to blood and body fluids.

Prior to entry to the patient room:
- Inspect PPE for defects and appropriate size prior to putting on
- Remove all personal items [Jewelry, cell phones, pagers, ID’s, lanyards, stethoscope, etc.]
- Ensure hair is secured away from face and neck
- Always put on and remove Enhanced PPE in the presence of a buddy/trained monitor

<table>
<thead>
<tr>
<th>1. Perform Hand Hygiene</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Hand Hygiene Image]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2. Shoe/Leg Covering</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Shoe/Leg Covering Image]</td>
</tr>
<tr>
<td>Fluid resistant</td>
</tr>
<tr>
<td>- To cover closed, puncture resistant shoes</td>
</tr>
<tr>
<td>- Tape pant legs or tuck into socks to ease removal process</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3. Perform Hand Hygiene</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Hand Hygiene Image]</td>
</tr>
</tbody>
</table>
| 4. Mask (fluid resistant, surgical) | Place over nose, mouth and chin  
Note: N95 to be used for aerosol generating procedures |
| Or Respirator (N95) | Fit-testing is required  
If required For aerosol generating procedures only  
Secure on head with top elastic followed by bottom one  
Seal check once secured |
| 5. Head Cover (fluid resistant or impermeable) | Ensure hair, ears and neck are covered |
| 6. First pair of gloves | • Surgical or Nitrile  
• To go under cuffs of gown |

| 7. Gown  
*Long sleeved cuffed, fluid resistant/impermeable gown. Fastened in back at neck and waist* | • If the gown is too small, use 2 gowns  
• Gown #1 fastens in front,  
• Gown #2 fastens in back  
• Ensure gloves are tucked under cuffs of gown |

| 8. Apron  
*(Disposable Plastic)* | • If required for gross soiling |
| 9. Eye and Face Protection | • Eye glasses are not considered protective eyewear  
| *Full face shield* | • Ensure front and sides of face are covered  
| | • Secure strap |

| 10. Second Pair of Gloves | • Second pair of gloves extends over cuffs of gown  
| *(Nitrile)* | • No exposed skin should be showing |

Ask person putting on PPE to perform **Mobility Test** *(i.e. bend and turn)*

Observe for any exposed skin and ensure that gown covers scrubs

While wearing PPE:

• Avoid Touching or Adjusting PPE.
• Do not adjust eyeglasses if wearing under facial protection
• Remove gloves if they become torn or damaged then Perform hand hygiene and put on new gloves

• If during care of the patient PPE becomes grossly contaminated, difficulties arise with it *(i.e. dislodgement, fogging of face shield)* or an exposure risk has occurred, the healthcare worker should stop and assess the situation. The healthcare worker should remove soiled PPE as per removal protocol and put on clean PPE before continuing care. It may be necessary to blot the body fluids with an absorbent blue pad and/or disinfectant wipe prior to removing the PPE.
## Removing Enhanced Personal Protective Equipment (PPE)

The sequence is important to limit the risk to you. Facial protection is the last to be removed to minimize the risk of blood or body fluids entering your mucous membranes.

### Remove PPE at the doorway of patient room

[Buddy/Trained Monitor must observe removal process]

| 1. Remove outer pair of Gloves | • Carefully remove **outer pair** of gloves, taking care not to contaminate inner gloves  
<table>
<thead>
<tr>
<th></th>
<th>• Discard</th>
</tr>
</thead>
</table>
| 2. Remove Apron (if utilized) | • Untie back ties at waist  
|                               | • Gently rip neck strap to pull away from body  
|                               | • Roll inside out to minimize contamination  
|                               | • Buddy may need to assist with removal if grossly soiled |
| 3. Remove Gown | - Unfasten hip tie at waist  
- Unfasten Velcro at neck by pulling forward from shoulder area  
- Pull gown away from neck & shoulders  
- Use caution to avoid touching skin/clothing or agitating gown unnecessarily  
- Turn inside out  
- Fold or roll into a bundle & discard |

| 4. Remove Inner pair of Gloves | - Carefully remove *inner pair* of gloves  
- Use glove to glove/skin to skin technique  
- Outside of gloves are contaminated  
- Discard |
<table>
<thead>
<tr>
<th>5. Perform Hand Hygiene &amp; put on a clean pair of gloves</th>
<th>• Use soap and water if hands are visibly soiled</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Hand sanitizer" /> <img src="image2" alt="Gloves" /></td>
<td><img src="image3" alt="Clean hands" /></td>
</tr>
</tbody>
</table>
| 6. Remove Shoe /Leg Coverings                          | • Remove with gloved hands using caution to not contaminate inner clothing  
<p>|                                                           | • Discard in waste receptacle                     |
| <img src="image4" alt="Shoe coverings" /> <img src="image5" alt="Leg coverings" />    | <img src="image6" alt="Clean shoes" />                           |
| 7. Remove gloves, Perform Hand Hygiene &amp; put on a clean pair of gloves | • Use soap and water if hands are visibly soiled |
| <img src="image2" alt="Gloves" /> <img src="image2" alt="Gloves" />                   | <img src="image7" alt="Clean gloves" />                           |</p>
<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>8.</strong></td>
<td>Remove Eye and Face Protection <em>Full face shield</em></td>
</tr>
<tr>
<td></td>
<td><img src="image1.png" alt="Image" /></td>
</tr>
<tr>
<td></td>
<td>• Outside of face shield is contaminated</td>
</tr>
<tr>
<td></td>
<td>• Handle by head band at back, gently allowing the face shield to fall forward</td>
</tr>
<tr>
<td></td>
<td>• Discard</td>
</tr>
<tr>
<td><strong>9.</strong></td>
<td>Remove gloves, Perform Hand Hygiene &amp; put on a clean pair of gloves</td>
</tr>
<tr>
<td></td>
<td><img src="image2.png" alt="Image" /></td>
</tr>
<tr>
<td></td>
<td>• Use soap and water if hands are visibly soiled</td>
</tr>
<tr>
<td><strong>10.</strong></td>
<td>Remove Head Cover</td>
</tr>
<tr>
<td></td>
<td><img src="image3.png" alt="Image" /></td>
</tr>
<tr>
<td></td>
<td>• Grab back of hood at crown of head and pull forward over head</td>
</tr>
<tr>
<td></td>
<td>• Discard</td>
</tr>
<tr>
<td><strong>11.</strong></td>
<td>Remove gloves, Perform Hand Hygiene &amp;</td>
</tr>
<tr>
<td></td>
<td><img src="image4.png" alt="Image" /></td>
</tr>
<tr>
<td></td>
<td>• Use soap and water if hands are visibly soiled</td>
</tr>
<tr>
<td>put on a clean pair of gloves</td>
<td>![Image of gloves]</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>------------------</td>
</tr>
<tr>
<td>12. Remove surgical Mask</td>
<td>![Image of person wearing mask]</td>
</tr>
<tr>
<td>![Note: if wearing N95 or respirator proceed to highlighted section below]</td>
<td></td>
</tr>
<tr>
<td>![Image of person washing hands]</td>
<td></td>
</tr>
<tr>
<td>13. Remove Gloves, perform Hand Hygiene</td>
<td>![Image of hand sanitizer]</td>
</tr>
<tr>
<td>14. Exit patient’s room</td>
<td>![Image of exit sign]</td>
</tr>
<tr>
<td>![Image of person opening door]</td>
<td></td>
</tr>
<tr>
<td>- Handle only by ties</td>
<td></td>
</tr>
<tr>
<td>- Undo bottom tie first and then top. Allow to fall away from face</td>
<td></td>
</tr>
<tr>
<td>- Discard</td>
<td></td>
</tr>
<tr>
<td>©Microsoft Clip Art 2007</td>
<td></td>
</tr>
</tbody>
</table>
15. Perform Hand Hygiene

- Use Soap and Water

<table>
<thead>
<tr>
<th>If wearing Respirator N95...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exit patient’s room</td>
</tr>
<tr>
<td>• Have someone open door from outside patient room, or use piece of paper towel or wipe on door handle to open</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Remove Respirator N95</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Remove by straps without touching the front and contaminating gloves</td>
</tr>
<tr>
<td>• Remove bottom strap first and then top one allowing mask to fall forward</td>
</tr>
<tr>
<td>• Discard</td>
</tr>
</tbody>
</table>

©Microsoft Clip Art 2007
| Remove Gloves and Perform Hand Hygiene | Use Soap and Water |

While wearing PPE:
- Avoid Touching or Adjusting PPE.
- Do not adjust eyeglasses if wearing under facial protection
- Remove gloves if they become torn or damaged then Perform hand hygiene and put on new gloves

If during care of the patient PPE becomes grossly contaminated, difficulties arise with it (i.e. dislodgement, fogging of face shield) or an exposure risk has occurred, the healthcare worker should stop and assess the situation. The healthcare worker should remove soiled PPE as per removal protocol and put on clean PPE before continuing care. It may be necessary to blot the body fluids with an absorbent blue pad and/or disinfectant wipe prior to removing the PPE.

Images: © Capital Health Infection Prevention and Control Department January 2015.
Appendix E: Sample Trained Monitor PPE Checklist

Personal Protective Equipment (PPE)
Sequence for Putting on and Removing PPE

*A second Healthcare provider will observe the putting on and taking off of PPE to ensure self contamination does not occur.

Date: ________________

Name of Staff & Department (putting on PPE): ____________________________________________

<table>
<thead>
<tr>
<th>Procedure for Putting on PPE</th>
<th>Completed (Initials)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immediately prior to entering the patients room or in the anteroom:</td>
<td></td>
</tr>
<tr>
<td>1. Remove any personal accessories (watch, rings, earrings, ID, pagers, cell phones, etc.)</td>
<td></td>
</tr>
<tr>
<td>2. Tie long hair back</td>
<td></td>
</tr>
<tr>
<td>3. Inspect PPE for defects and size prior to putting on</td>
<td></td>
</tr>
<tr>
<td>4. Perform Hand Hygiene using ABHR or soap and water</td>
<td></td>
</tr>
<tr>
<td>5. Put on Shoe/Leg Coverings</td>
<td></td>
</tr>
<tr>
<td>6. Perform Hand Hygiene</td>
<td></td>
</tr>
<tr>
<td>7. Put on Mask or Respirator (N95) [N95 required for aerosolizing procedures]</td>
<td></td>
</tr>
<tr>
<td>8. Put on Head Cover</td>
<td></td>
</tr>
<tr>
<td>9. Put on 1st pair of gloves (Surgical or Nitrile)</td>
<td></td>
</tr>
<tr>
<td>10. Put on Impermeable gown</td>
<td></td>
</tr>
<tr>
<td>11. Put on disposable plastic Apron if required for gross soiling</td>
<td></td>
</tr>
<tr>
<td>12. Put on Face Shield</td>
<td></td>
</tr>
<tr>
<td>13. Put on second pair of Gloves- Nitrile</td>
<td></td>
</tr>
<tr>
<td>14. Ask person putting on PPE to perform a mobility test (i.e. bend, turn) Check for any exposed skin and correct</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Procedure for Removing PPE</th>
<th>Completed (Initials)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remove PPE at doorway of patient room</td>
<td></td>
</tr>
<tr>
<td>1. Remove Outer pair of Gloves and discard</td>
<td></td>
</tr>
<tr>
<td>2. Remove plastic Apron (if utilized) and discard</td>
<td></td>
</tr>
<tr>
<td>3. Remove Gown</td>
<td></td>
</tr>
<tr>
<td>4. Remove Inner pair of Gloves and discard</td>
<td></td>
</tr>
<tr>
<td>5. Perform Hand Hygiene using ABHR</td>
<td></td>
</tr>
<tr>
<td>6. Put on clean pair of Gloves</td>
<td></td>
</tr>
<tr>
<td>7. Remove Shoe/Leg Coverings</td>
<td></td>
</tr>
<tr>
<td>8. Remove Gloves and discard</td>
<td></td>
</tr>
<tr>
<td>9. Perform Hand Hygiene using ABHR</td>
<td></td>
</tr>
<tr>
<td>10. Put on clean pair of Gloves</td>
<td></td>
</tr>
<tr>
<td>11. Remove Face Shield and discard</td>
<td></td>
</tr>
<tr>
<td>12. Remove Gloves and discard</td>
<td></td>
</tr>
<tr>
<td>13. Perform Hand Hygiene using ABHR</td>
<td></td>
</tr>
<tr>
<td>14. Put on clean pair of Gloves</td>
<td></td>
</tr>
<tr>
<td>--------------------------------</td>
<td></td>
</tr>
<tr>
<td>15. Remove Head Cover and discard</td>
<td></td>
</tr>
<tr>
<td>16. Remove Gloves</td>
<td></td>
</tr>
<tr>
<td>17. Perform Hand Hygiene using ABHR</td>
<td></td>
</tr>
<tr>
<td>18. Put on clean pair of Gloves</td>
<td></td>
</tr>
<tr>
<td>19. Remove surgical Mask and discard [If wearing N95/Respirator for Aerosolizing Generating Procedures—proceed to highlighted section]</td>
<td></td>
</tr>
<tr>
<td>20. Remove Gloves</td>
<td></td>
</tr>
<tr>
<td>21. Perform Hand Hygiene using ABHR</td>
<td></td>
</tr>
<tr>
<td>22. Exit Patient’s Room into anteroom</td>
<td></td>
</tr>
<tr>
<td>Have someone open door from outside patient room, or use piece of paper towel or wipe on door handle to open</td>
<td></td>
</tr>
<tr>
<td>23. Perform Hand Hygiene outside of patient’s room</td>
<td></td>
</tr>
<tr>
<td>• Use soap and water</td>
<td></td>
</tr>
<tr>
<td>Exit patient’s room</td>
<td></td>
</tr>
<tr>
<td>• Have someone open door from outside patient room, or use piece of paper towel or wipe on door handle to open</td>
<td></td>
</tr>
<tr>
<td>Remove Respirator (N95) in anteroom and discard</td>
<td></td>
</tr>
<tr>
<td>Perform Hand Hygiene—using soap and water</td>
<td></td>
</tr>
</tbody>
</table>

**Safe Practices to Protect Healthcare Workers and Limit Spread of Contamination:**
The trained monitor/buddy should observe for the following while an encounter with the patient is occurring.

**Safe Practices:**
- Kept hands away from face
- Hands were cleaned before contact with face
- Once tasks with the patient were underway, PPE was not touched or adjusted
- Eye glasses were not adjusted while wearing PPE
- Limited the surfaces touched in room
- Changed gloves when torn or heavily contaminated
- Remembered to perform hand hygiene when changing gloves
- If a breach in PPE was suspected and there has been an exposure to patient’s body fluids: Task with patient was stopped, PPE was removed, exposed skin or puncture site was washed with soap and water, eye/mucous membrane splash was flushed with water
- Unit Manager, Employee Health Exposure Line (473-4666), and SAFE line (473-SAFE) were notified

**Completed (Initials)**

Name of Trained Monitor: _________________________ Initials__________

Signature of Trained Monitor: __________________________

January 23, 2015
## Appendix F: Provincial ED Infrastructure Capacity to Manage EVD Patients

<table>
<thead>
<tr>
<th>Health Authority</th>
<th>Does the ED in your Regional Hospital in your district meet the infrastructure capacity to manage a patient who meet the screening criteria for EVD until transfer is arranged? This capacity includes a single room (with or without anteroom) with dedicated toilet or commode?</th>
<th>Does the ED in your Regional Hospital have a negative pressure room?</th>
<th>Do all of the community hospitals in your district have the capacity listed in Question 1? If no, please list which hospitals do not and why?</th>
</tr>
</thead>
<tbody>
<tr>
<td>DHA 1</td>
<td>Yes</td>
<td>No</td>
<td>Fisherman’s Memorial Hospital - Yes Queen’s General Hospital - Yes</td>
</tr>
<tr>
<td>DHA 2</td>
<td>Yes</td>
<td>Yes</td>
<td>Roseway Hospital - Yes. Two stretcher room with a dedicated washroom that could be used as a single patient room if necessary. Digby General Hospital - Yes (single room with a dedicated toilet)</td>
</tr>
<tr>
<td>DHA 3</td>
<td>Yes</td>
<td>Yes</td>
<td>Middleton Soldiers Memorial Hospital and Annapolis Community Hospital ED have a private room with a dedicated commode, no anteroom.</td>
</tr>
<tr>
<td>DHA 4</td>
<td>Yes</td>
<td>Yes</td>
<td>Lillian Fraser Memorial Hospital in Tatamagouche - Yes</td>
</tr>
<tr>
<td>DHA 5</td>
<td>Yes.</td>
<td>Yes</td>
<td>Yes. All of the community hospitals have this capacity (single room with a dedicated toilet or commode).</td>
</tr>
<tr>
<td>DHA 6</td>
<td>Yes</td>
<td>No</td>
<td>Aberdeen Hospital is the only hospital in DHA 6 with an ED</td>
</tr>
<tr>
<td>DHA 7</td>
<td>Yes</td>
<td>Yes</td>
<td>No. The other 4 sites do not have single rooms with a bathroom. Patient would need to go to an inpatient room.</td>
</tr>
<tr>
<td>DHA 8</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>DHA 9</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes. Where there aren't private rooms with washrooms, plan is to isolate in private room with dedicated commode.</td>
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<tr>
<td>IWK</td>
<td>Yes</td>
<td>Yes</td>
<td>Not applicable</td>
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Appendix G: Sample Health Care Worker & Visitor Log Sheet

Log sheet for all health care providers and family members/visitors entering the patient environment.

<table>
<thead>
<tr>
<th>Date</th>
<th>Time in</th>
<th>Time out</th>
<th>Name (print clearly)</th>
<th>Job Title/ Department</th>
<th>Reason for Entering Patient Environment</th>
</tr>
</thead>
<tbody>
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</table>

Unit/Location: _______________________________________
References


World Health Organization (WHO). (2014). Interim Infection Prevention and Control Guidance for Care of Patients with Suspected or Confirmed Filovirus Haemorrhagic Fever in Health-Care Settings, with Focus on Ebola. WHO.