Ebola Hemorrhagic Fever
Interim Guidance

As of August 22nd 2014

Ouellette and Met Campuses

Updates since August 8th, 2014 distribution is grey highlighted text

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Note: Due to the dynamic nature of the situation in countries affected by the Ebola Virus this information is to current as of distribution date. As new information is received this document will be updated to reflect. For any concerns or issues related to this or any other infection prevention and control issue please contact Erika Vitale at Cellphone: (519) 564-9480 or Karen Riddell at cell 519-995-0413.

Background Information

Ebola hemorrhagic fever (Ebola HF) is one of numerous Viral Hemorrhagic Fevers. It is a severe, often fatal disease in humans and nonhuman primates (such as monkeys, gorillas, and chimpanzees). Ebola HF is caused by infection with a virus of the family *Filoviridae*, genus *Ebolavirus*. When infection occurs, symptoms usually begin abruptly. Ebola is not a new disease. The first Ebola virus species was discovered in 1976 in what is now the Democratic Republic of the Congo near the Ebola River. Since then, outbreaks have appeared sporadically in remote villages where there is not a lot of travel to and from.

Signs and Symptoms

Ebola virus disease (EVD) is a severe illness that starts with the abrupt onset of fever, usually with headache, malaise and myalgia. Gastrointestinal symptoms (i.e., diarrhea, abdominal pain, vomiting) are common. Additional symptoms and signs may occur (e.g., sore throat, chest pain, cough, rash, conjunctivitis). Hemorrhagic findings (e.g., petechiae, ecchymosis, and hemorrhage) occur in 50% of cases. Leukopenia, thrombocytopenia and transaminitis (elevated liver enzymes) are common laboratory findings. The case fatality rate ranges from 50 to 90 per cent.[5] However, outbreaks have often occurred in areas where the capacity for supportive care is limited and therefore, case fatality rates in well-resourced healthcare systems are uncertain.

Symptoms can begin **2 to 21 days** after exposure, although **8 to 10 days is most common**. Patients are not infectious during the incubation period and prior to the onset of symptoms. Person-to-person transmission can occur, primarily through direct contact with blood, body fluids, secretions and excretions of someone who is sick or through indirect contact with material contaminated with these substances. Ebola can be transmitted through contact with an infected patient's sweat, making contact with intact skin a means of transmission. Ebola virus is not an airborne pathogen. Transmission of EVD during the incubation period while the person is still well has not been reported.

Clinical Presentation Summary
Initial symptoms include:

- Fever, chills, headache, muscle pain

Additional symptoms include:

- rash on chest, back and stomach
- nausea, vomiting and diarrhea
- chest and abdominal pain
- jaundice (yellowing of the skin and whites of the eyes)
- swelling and pain in the stomach area
- severe weight loss
- delirium (possible restlessness and incoherent speech) and shock (cool clammy skin, weak pulse, may be nauseous)
- massive haemorrhaging (bleeding from inside and outside the body)

Transmission

Ebola can spread through human-to-human transmission, with infection resulting from **direct contact** (through broken skin or mucous membranes and **intact skin**) with the **blood, secretions, organs or other bodily fluids of infected people**, and **indirect contact** with environments contaminated with such fluids. It is not always possible to identify patients with Ebola early because initial symptoms may be non-

specific. For this reason, it is important that health-care workers apply **Routine Practices** consistently with all patients – regardless of their diagnosis – in all work practices at all times. Routine Practices include the use of hand hygiene according to the 4 moments of hand hygiene, cleaning and disinfection of all shared equipment, regular environmental cleaning using a hospital approved disinfectant, meticulous attention to safety around the use of needles and sharps, and a complete and careful risk assessment performed prior to any patient encounter.

When an infection does occur in humans, the most common ways in which the virus can be transmitted to others include:

- direct contact with the blood or secretions of an infected person
- exposure to objects (such as needles) that have been contaminated with infected secretions
- direct contact with the intact skin of a person who has passed away from Ebola

The viruses that cause Ebola HF are often spread through families and friends because they come in close contact with infectious secretions when caring for ill persons.

During outbreaks of Ebola, the disease can spread quickly within health care settings where hospital staff are not wearing appropriate protective equipment, such as masks, gowns, and gloves. Proper cleaning and disposal of instruments, such as needles and syringes, is also important. If instruments are not disposable, they must be sterilized before being used again. Without adequate sterilization of the instruments, virus transmission can continue and amplify an outbreak.

When to Suspect Ebola

EVD should be suspected in all patients with fever 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 (e.g. Sierra Leone, Guinea, Liberia, and Nigeria as of August 2014.) Check the WHO website8 at: www.who.int/csr/disease/ebola/en/ for an updated list of active outbreaks or any direct exposure to a human or animal with known or suspected EVD. Additionally, EVD (or other VHF) should be suspected in patients with a compatible clinical illness that have travelled within 21 days to any country where sporadic cases of VHF occur, or where Lassa fever is endemic. Clinical assessment of risk of EVD, including risk factors of exposure, clinical status and consideration of differential diagnoses is required prior to requesting testing for Ebola virus.

Screening

All patients presenting to the Emergency Department at both Ouellette and Met Campus are screened routinely for new onset of fever or chills, travel history in the last 14 days, and history of contact with a sick person who has travelled in the last 14 days.

- Security will conduct the initial travel screen on presentation at both Emergency Departments. Anyone identified as having recent travel to Africa (in the last 21 days) will be masked, and a call placed to the Charge Nurse.

- The patient will then be immediately isolated in an Airborne infection Isolation Room (AIIR) in the Emergency Department. Security guard will be placed outside of room to monitor traffic into/out of room- ensure logs are kept up to date, and that appropriate PPE/HH occurs

For those patients presenting at other entry points:

OB Triage: The OB triage nurse will conduct the travel screen assessment. Anyone identified as having recent travel or contact with a sick person who has travelled to Africa (in the last 21 days) will be masked and placed in a private room, and IPAC is to be consulted.

Outpatient Clinics: Passive screening signage asking the patient about recent travel to Africa or contact with someone who has travelled will be posted.

Direct Admits: Patients presenting directly to inpatient units are screened for travel history on admission. Any patient identified as having recent travel to Africa (in the last 21 days) or contact with a sick person who has travelled to Africa will be masked. Patient should be moved immediately to an Airborne infection Isolation Room (AIIR) in the Emergency Department. A security guard will be stationed outside of the room to monitor traffic in and out of room, and ensure logs are kept up to date, and that appropriate PPE use and hand hygiene occurs.

For any of the above situations notify immediately the manager/director for the program the after-hours administrator and Infection Prevention and Control.

Additional Precautions

- If an ill person presents with recent travel to Africa (within the last 21 days) or contact with a sick person who has travelled to Africa. They are to be immediately isolated in an Airborne infection Isolation Room (AIIR) in the Emergency Department. They are not to wait in the waiting room.
- Droplet, Contact and Airborne Precautions shall be instituted immediately.
- The number of persons entering the room must be kept to an absolute minimum, and any staff entering the room shall be provided with hospital scrubs.

Contact Information for Obtaining Hospital Provided Scrubs

Campus	Contact	Phone number
Met Campus	Marie Marchand	519.254.5577 ext. 52813 Cell: 519-995-0310
	Stacey Dusik	519-254-1661 ext. 52258 Cell: 519-995-0233
	After hours Charge nurse in OR	Ext. 52201
Ouellette Campus	Jen Trkulja	519.973.4411 ext. 33942 cell: 519-890-3786

Campus	Contact	Phone number
	Jen Smith	519.973.4411 ext. 33916 cell: 519.995-2694

The patient must then be assessed further by asking the following questions:

Which countries have you travelled to in the last 21 days?

The current Ebola outbreak is occurring in **Guinea, Liberia, Nigeria, Sierra Leone, and Congo** (added 8/25/2014). The risk of Ebola is extremely low if the patient has not been to the affected area. Assessment and treatment may continue as required based on patient's presenting complaints. The AIIR and additional precautions are no longer necessary unless the patient has other signs and symptoms that suggest the need for Additional Precautions (e.g. history of MRSA, diarrhea, rule out Tuberculosis, etc.).

If the patient has travelled to Guinea, Liberia, Nigeria, and Sierra Leone, then they must be asked:

Have you had contact with a person sick with Ebola Hemorrhagic Fever?

If the patient has had contact and their symptoms suggest that they may have Ebola refer to the Table 1 on the following page regarding exposure risk and additional follow up measures.

Table 1. Exposure Risk, Clinical Presentation and Additional Follow Up Measures

Exposure Level	Clinical Presentation	Additional Follow Up Measures
HIGH RISK		
• **Percutaneous (e.g., needle stick) or mucous membrane exposure to body fluids of EVD patient** • **Direct care of an EVD patient or exposure to body fluids without appropriate personal protective equipment (PPE)** • **Laboratory worker processing body fluids of confirmed EVD patients without appropriate PPE or standard biosafety precautions**	Fever (temperature ≥ 38.6°C or patient reports history of fever and/or chills) or other symptoms without fever	• Medical evaluation using infection control precautions for suspected Ebola, evaluation of patient's travel history, symptoms, and clinical signs in conjunction with public health unit, and testing if indicated • If transport is clinically appropriate and indicated, air medical transport only (no public or commercial conveyances permitted) • If infection control precautions are determined not to be indicated: conditional release and controlled movement until 21 days after last known exposure
• **Participation in funeral rites which include direct exposure to human remains in the geographic area where outbreak is occurring without**	Asymptomatic	• Conditional release and controlled movement until 21 days after last known exposure

Exposure Level	Clinical Presentation	Additional Follow Up Measures
appropriate PPE		
LOW RISK		
• **Household member or other casual contact with an EVD patient**	Fever (temperature ≥ 38.6°C or patient reports history of fever and/or chills) or other symptoms without fever	• Medical evaluation using infection control precautions for suspected Ebola, evaluation of patient's travel history, symptoms, and clinical signs in conjunction with public health unit, and testing if indicated • If transport is clinically appropriate and indicated, air medical transport only (no public or commercial conveyances permitted) • If infection control precautions are determined not to be indicated: conditional release and controlled movement until 21 days after last known exposure
• **Providing patient care or casual contact without high-risk exposure with EVD patients in health care facilities in outbreak-affected countries**	Asymptomatic	Conditional release and controlled movement until 21 days after last known exposure
NO KNOWN EXPOSURE		
In affected country	Fever (temperature ≥ 38.6°C or patient reports history of fever and/or chills) or other symptoms without fever	• Medical evaluation using infection control precautions for suspected Ebola, evaluation of patient's travel history, symptoms, and clinical signs in conjunction with public health unit, and testing if indicated • If transport is clinically appropriate and indicated, air medical transport only (no public or commercial conveyances permitted) • Self-monitor (Check temperature and monitor for other symptoms) until 21 days after leaving country
No low-risk or high-risk exposures	Asymptomatic	• No movement restrictions • Travel by commercial conveyance allowed • Self-monitor (Check temperature and monitor for other symptoms) until 21 days after leaving country

Notification

The Windsor Essex-County Public Health Unit, Public Health Ontario Lab, and Infection Prevention and Control must be notified immediately of a suspect case, or any patient presenting sick with a travel history to the affected areas.

Ouellette Campus ext. 33578, Met Campus ext. 52358

After hours: Erika Vitale at 519-564-9480 or **Karen Riddell at 519-995-0413**

Windsor-Essex County Health Unit Phone: 519-258-2146 **After Hours:** 519-973-4510

Public Health Ontario Lab 416-235-6556 or 1-877-604-4567

Refer to Reporting to the Public Health Unit section below for more information.

Patient Placement

- Airborne infection Isolation Room (AIIR) (containing a private bathroom or dedicated commode) with the door closed. Although Ebola is not transmitted by the airborne route, it is more practical for WRH where there is access to with airborne infection isolation rooms (AIIR) to isolate suspected Ebola patients in an AIIR as this will allow an appropriate space (anteroom) for donning and doffing personal protective equipment (PPE), ensure the presence of a dedicated washroom, and allow aerosol generating medical procedures (AGMP) to be performed, if required. Given the infectivity and high mortality related to EVD it is preferable that patients not be moved unless medically required. In determining placement, consideration should be given to ensuring that the patient is placed in a room that can accommodate changes in their clinical condition.

- A log of all staff persons entering the affected patient's room, their department, contact information, date and time shall be maintained for the duration of the patient's stay. Refer to Appendix A.

- A log of all visitors entering the affected patient's room, full name, contact information, date and time shall be maintained for the duration of the patient's stay. Only essential people should enter the room to minimize the risk of inadvertent exposure. Refer to Appendix B.

- Security shall post personnel at the patient's door to ensure appropriate and consistent use of PPE by all persons entering the patient room.

- Bags with absorbent pads (i.e. hygie bags, bedpan liners) and a dedicated commode (if required) should be used for all patient waste management (i.e., urine and feces). The used bags should be treated as other waste from the room (See Waste Management section).

- Commodes (if used by ebola patient) should be wiped down with disinfectant wipes during routine cleaning. Upon patient discharge, the commode should be wiped with disinfectant then sent to **MDRD for reprocessing**.

Personal Protective Equipment (PPE)

- All persons entering the patient room should wear at least:
    - Hospital provided scrubs (staff only)
    - Gloves*

- Gown (fluid resistant** or impermeable – i.e. AAMI level 2 or higher)
- Eye protection (goggles or face shield)
- Facemask.

*gloves must be pulled over the cuff of the gown so that there is no exposed skin or clothing
**fluid resistant (AAMI level 2) is sufficient unless there is uncontrollable drainage

- Additional PPE might be required in certain situations (e.g., copious amounts of blood, other body fluids, vomit, or feces present in the environment), including but not limited to:
  - Double gloving with nitrile gloves
  - Disposable shoe covers
  - Impermeable leg coverings.

  Health care providers (HCPs) must conduct a risk assessment with each patient to evaluate their potential exposure to blood and/or body fluids. The need for additional PPE such as the use of double gloves, foot/leg coverings, head coverings, waterproof gowns or specific biohazard suits depends on the potential for fluid contact as determined by the procedure being performed and the presence of clinical symptoms that increase the likelihood of contact with body fluids. It should be noted that these instances will be **rare** and the PPE initially identified above is appropriate to protect the HCP from exposure to infection. As the patient's condition changes, the risk to HCPs may also change. On-going risk assessments related to appropriate PPE should be performed at least once daily. **If PPE is heavily contaminated with blood or body fluids it must be disposed of as bio-hazardous waste.**

- PPE must be worn by everyone upon entry into the patient's room. Consideration should be given to having a second healthcare provider observe the application and removal of PPE to ensure that inadvertent contamination of eyes, mucous membranes, skin or clothing does not occur. This is of particular importance if the PPE being worn is new or different from what the HCP normally wears. If unfamiliar PPE is being worn, just in time refresher training is recommended prior to application and during removal until the healthcare provider is comfortable with the PPE.

- Upon exit from the patient's room, PPE should be carefully removed without contaminating one's eyes, mucous membranes, or clothing with potentially infectious materials, and discarded. When removing PPE, avoid contact between contaminated gloves/hands and equipment and the face skin or clothing. Hands must be cleaned before contact with the face. If there is any doubt, clean hands again to ensure mucous membranes (eyes, nose, mouth) are not contaminated.

- Hand hygiene should be performed immediately after removal of PPE.

- Hospital provided scrubs should be removed prior to leaving the hospital.

Patient Care Equipment

- All medical equipment used for the provisions of patient care must be dedicated to the patient, and preferably disposable.

- On patient discharge all dedicated, non-disposable medical equipment used for patient care should be cleaned and disinfected according to manufacturer's instructions and hospital policies. Routinely used hospital grade disinfectants, such as Clorox, following the manufacturer's recommendations are sufficient for cleaning.

Patient Care Considerations

- Limit the use of needles and other sharps as much as possible.
- Use safety engineered medical devices.
- Phlebotomy, procedures, and laboratory testing should be limited to the minimum necessary for essential diagnostic evaluation and medical care as per the guidelines contained in this document. No collection of specimens is to occur prior to consultation with Public Health and Infection Prevention and Control.
- All needles and sharps should be handled with extreme care and disposed immediately after use in puncture-proof, sealed containers.

Aerosol Generating Medical Procedures (AGMPs)

- Avoid AGMPs for Ebola HF patients.
- If performing AGMPs, use a combination of measures to reduce exposures from aerosol-generating procedures when performed on Ebola HF patients. Whenever possible the procedure should be performed by the most highly experienced staff member available.
- Visitors should not be present during aerosol-generating medical procedures.
- Limit the number of healthcare providers present during the procedure to only those essential for patient-care and support.
- Conduct the procedures in an Airborne Infection Isolation Room (AIIR). Room doors should be kept closed during the procedure except when entering or leaving the room, and entry and exit should be minimized during and shortly after the procedure.
- Healthcare providers must wear gloves, a fluid resistant gown (AAMI level 2), disposable shoe covers, and either a face shield that fully covers the front and sides of the face or goggles, hair covering, and a seal checked, fit-tested N95 respirator during aerosol generating medical procedures.
- Conduct environmental surface cleaning following procedures (see section below on environmental infection control).

- Although there are limited data available to definitively define a list of AGMPs, procedures that are usually included are Bilevel Positive Airway Pressure (BiPAP), bronchoscopy, sputum induction, intubation and extubation, and open suctioning of airways.

Hand Hygiene

- Healthcare providers should perform hand hygiene frequently, including before and after all patient or patient environment contact, contact with potentially infectious material, and before putting on and upon removal of PPE, including gloves.

- Supplies for performing hand hygiene are readily available throughout both campuses.

Environmental Infection Control

Blood and all body fluids including sweat from Ebola patients are highly infectious. Cleaning of the patient room is important to reduce environmental contamination, which in turn decreases the risk of transmission to HCPs. Safe handling of potentially infectious materials and the cleaning and disinfection of the patient's environment is paramount.

Experienced environmental services (ES) staff trained in IPAC practices and use of PPE should be assigned to perform these tasks. ES staff cleaning the room must use the same PPE as other HCPs. Routinely used hospital grade disinfectants following the manufacturer's recommendations are sufficient for cleaning the room.

- Diligent environmental cleaning and disinfection and safe handling of potentially contaminated materials is paramount, as blood, sweat, emesis, feces and other body secretions represent potentially infectious materials

- Healthcare providers performing environmental cleaning and disinfection must wear recommended PPE (described above) and consider use of additional barriers (shoe and leg coverings, etc.) if needed (i.e. if large spills of blood or body fluids are present in the affected patient's' room.)

- Face protection (face shield or facemask with goggles) should be worn when performing tasks such as liquid waste disposal that can generate splashes.

- Follow standard procedures, per hospital policy and manufacturers' instructions, for cleaning and/or disinfection of:
    - Environmental surfaces and equipment
    - Textiles and laundry
    - Food utensils and dishware

- The frequency of cleaning should be based on the level of contamination with blood and/or body fluids. IPAC shall identify rooms housing Ebola patients on a daily basis, and request additional cleaning as required based on the patient's condition.

- Housekeeping equipment, (buckets, mops, microfiber clothes, etc.) should be disposable or remain in the room for the duration of the patient admission.

- Upon discharge of the patient, discharge/terminal cleaning of the room should follow the recommended practice for discharge/terminal cleaning of a room on Contact/Droplet Precautions. In addition to routine cleaning:
    - Remove all dirty/used items (e.g. suction container, disposable items),
    - Remove curtains (privacy, window, shower) before starting to clean the room,
    - Discard everything in the room that cannot be cleaned,
    - 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 contact time with the disinfectant,
    - All housekeeping equipment must be cleaned and disinfected before being put back into general use.

Waste Management

Routine management for regular waste disposal is sufficient. Waste should be contained at the point-of-use. Collect all solid, non-sharp medical waste using leak-proof waste bags and covered bins. The outside of all waste bags should be wiped down with a hospital grade disinfectant solution prior to removal. Liquids from patient or patient care activities can be disposed of through the normal sanitary sewer system. Biomedical waste should be disposed of in accordance with Ministry of Environment guidelines. **All housekeeping supplies used need to be need to be disposed of as biohazardous.**

Linen Management

Linen from patients with EVD may be heavily soiled with blood and body fluids. Care needs to be taken to minimize the risk of transmission to other patients and/or healthcare providers.

Soiled linen should be placed in clearly-labelled (as soiled), leak-proof bags at the point-of-use and the container surfaces should be disinfected before removal from the site. Linen should be transported directly to the laundry area and handled as per routine protocols. Any staff handling contaminated linen should wear PPE.

Medical Devices and Sharps

Only essential equipment should be taken into the patient room. Medical devices and equipment should be disposable whenever possible. Non-disposable equipment should be dedicated to the patient until the diagnosis of EVD is excluded, the patient is discharged or the precautions are discontinued. All re-usable, noncritical equipment must be cleaned and disinfected using a hospital grade disinfectant and according to the manufacturer's instructions prior to re-use on a subsequent patient. Semicritical and critical equipment should be cleaned and high-level disinfected or sterilized using standard procedures.

Use of needles and sharps should be kept to a minimum and used for medically essential procedures only. A needleless system and safety-engineered medical devices must be used. Extreme care should be used when handling all sharps. A puncture resistant sharps container must be available at point-of-use.

The risk of transmission of Ebola through percutaneous injury is high, therefore only those individuals extremely skilled in performing phlebotomy should draw bloods or start lines (e.g. IV, arterial).

Safe Injection Practices

- Facilities should follow safe injection practices as specified under Standard Precautions.

- Any injection equipment or parenteral medication container that enters the patient treatment area should be dedicated to that patient and disposed of at the point of use.

Duration of Infection Control Precautions

- For patients with confirmed EVD, precautions should remain in place until all symptoms have resolved.

- Duration of precautions shall be determined on a case-by-case basis, in conjunction with the Windsor-Essex County Public Health Unit, infectious disease specialist, or other external experts such as Public Health Ontario.

- Factors that will be considered include, but are not limited to: presence of symptoms related to Ebola Hemorrhagic Fever, date symptoms resolved, other conditions that would require specific precautions (e.g., tuberculosis, *Clostridium difficile*) and available laboratory information.

Monitoring and Management of Potentially Exposed Staff

- An exposure to Ebola Hemorrhagic Fever is defined as percutaneous or mucocutaneous exposures to blood, body fluids, secretions, or excretions from a patient with suspected Ebola Hemorrhagic Fever. An exposure could occur if a staff member fails to use the appropriate PPE or suffers from a needle stick injury for example.

- Persons with percutaneous or mucocutaneous exposures to blood, body fluids, secretions, or excretions from a patient with suspected Ebola Hemorrhagic Fever should
    - Stop working and immediately wash the affected skin surfaces with soap and water. Mucous membranes (e.g., conjunctiva) should be irrigated with copious amounts of water or eyewash solution
    - Immediately contact Employee Health and their manager for assessment and access to post-exposure management services for all appropriate pathogens (e.g., Human Immunodeficiency Virus, Hepatitis C, etc.)

- Healthcare providers who develop sudden onset of fever, intense weakness or muscle pains, vomiting, diarrhea, or any signs of hemorrhage after an unprotected exposure (i.e. not wearing

recommended PPE at the time of patient contact or through direct contact to blood or body fluids) to a patient with Ebola Hemorrhagic Fever should

- Not report to work or should immediately stop working
- Notify their supervisor
- Seek prompt medical evaluation and testing
- Notify local health departments (Employee Health and Infection Control shall assist in reporting to the Public Health Unit)
- Comply with work exclusion until they are deemed no longer infectious to others

- For asymptomatic healthcare providers who had an unprotected exposure (i.e. not wearing recommended PPE at the time of patient contact or through direct contact to blood or body fluids) to a patient with Ebola HF
  - Notify their supervisor.
  - They may continue to work with twice daily fever monitoring checks, based upon policy and discussion with local Public Health Unit /Occupational Health.
  - Each exposure will be investigated on a case by case basis with consultation amongst Infection Prevention and Control, Public Health, Employee Health and Human Resources with an evaluation based on the risk of development of disease, and patient care activities regularly performed by the employee.
  - Should receive medical evaluation and follow-up care including fever monitoring twice daily for 21 days after the last known exposure.

Employee Health shall contact the exposed staff member twice daily to discuss potential symptoms and document fever checks

Healthcare providers returning to work after working with Ebola patients in affected areas in West Africa should notify their organization prior to returning to work and should perform twice daily fever monitoring as above.

Monitoring, Management, and Training of Visitors

Security will be stationed outside of affected patient room to control visitors. Unit staff will collaborate with the Infection Prevention and Control department to identify approved visitors. A list of approved visitors will be provided to the security guard. Case-by-case exceptions may be made when it is essential for the well-being of the patient. Unnecessary visits to patient room are to be avoided. Only visitors who are essential for the patient's wellbeing (i.e. immediate family members) will be allowed to visit.

- Only one visitor at a time will be allowed into the affected patient room.
- Prior to entry the visitor is to be screened for fever or other symptoms of Ebola.
- All visitors must be logged onto the visitor log sheet.
- Visitor must receive education on PPE donning and doffing, hand hygiene, and limiting touching of environmental surfaces and equipment in patient room.

- Visitor must remove PPE and perform HH immediately upon leaving patient room.
- Visitor must leave hospital immediately following patient visit.
- Visitors who were exposed to the patient before they were admitted should be screened for infectious symptoms and sent immediately for Ebola medical assessment if febrile. They should be educated on the importance of self-monitoring for fever and to report to their local PHU if they become febrile.

Diagnosis and Testing

Prior to testing you must notify Infection Prevention and Control, the Infectious Disease Physician, the Director of Laboratory Services, Microbiologist and Public Health Ontario.

Diagnosis is based on clinical presentation and travel history. Laboratory tests may be conducted to confirm.

Patients with suspected Ebola should be tested for Ebola virus and should have appropriate testing performed to rule out more common infectious causes of fever in the returned traveler (e.g. malaria, typhoid). Consultation with a microbiologist and/or infectious disease specialist is recommended to ensure appropriate diagnostic tests are collected. Blood testing should be minimized and only testing essential to the diagnosis and acute management of the patient should be performed.

Specimens should be taken by staff experienced in the required techniques. The same protective clothing as described for other hospital staff should be worn by those obtaining laboratory specimens, with the addition of double gloves 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 a hospital grade disinfectant and the outer layer of gloves can be removed.

To ensure safe transportation and handling of specimens, the laboratory must be contacted prior to collection and transport of specimens. **Specimens should not be transported in a pneumatic tube system.**

Tests to order for diagnosis:

Blood – serology – specify “Haemorrhagic Fever Serology (Yellow Fever, Ebola, Lassa)”

Blood - viral culture

Throat – viral culture

Below is the link to the PHL online requisition, which can be filled out and printed for each specimen.
http://www.publichealthontario.ca/en/eRepository/General_test_fillable_requisition.pdf

To ensure a quick turnaround time for testing of these patients, PHL REQUIRES the following significant information to be clearly marked on the PHL requisition. One PHL requisition is required for each specimen submitted. The following patient information must be completed on the specimen and requisition:

- Patient name and Medical Record Number
- Specimen Type
- Date and time of collection
- Initials of person collecting specimens
- Indicate all "Suspect Ebola" on the Public Health Requisition.
- Include date of illness onset, travel history, signs and symptoms
- Include Physician's direct phone line number, for communication with the Public Health Laboratory Medical Microbiologist
- Request test "Haemorrhagic Fever Serology (Yellow Fever, Ebola, Lassa)" or culture virus on the Public Health form.

Transport the labeled specimens with the completed requisition, to the laboratory. Specimens will be rejected if they do not meet criteria for acceptable specimens.

Other testing information can be found at the Public Health Ontario link below:
http://www.publichealthontario.ca/en/eRepository/Viral_Haemorrhagic_Fevers_(VHF)_Guidelines.pdf

Laboratory Management

ONLY specimens essential for the diagnosis of Ebola Virus Disease will be collected.

(Public Health Ontario, Viral Haemorrhagic Fevers (VHFs) - Sample Collection and Submission Guide)

http://www.publichealthontario.ca/en/eRepository/Viral_Haemorrhagic_Fevers_(VHF)_Guidelines.pdf

NO in house laboratory testing is to occur. i.e. No chemistry, hematology, microbiology or transfusion medicine testing will be accepted or performed.

- **Requests for Malaria testing will be referred out to the Public Health Ontario Laboratory (PHOL).** Approximate TAT for results is 24 hours.
- **In house laboratory testing will only be performed once the patient has been confirmed as Negative for EVD by the PHOL.** Approximate TAT for results is 48 hours.

Prior to Specimen Collection and submission to the Public Health Ontario Laboratory, contact PHOL Customer Service at 416-235-6556 or 1-877-604-4567.

- Proper PPE, including impervious gown, double nitrile gloves, N95 mask, shield is mandatory. (use Airborne/droplet/contact precautions). All items must be placed in a biohazard bag immediately after use and autoclaved or incinerated.
- All equipment used to collect the sample, (sharps, holder, tourniquet, cotton) must be placed in a puncture resistant container immediately after use and be autoclaved or incinerated after use.

- Specimens for testing:
    - 2 gold top tubes for serology
    - 2 purple top tubes for viral culture
    - Throat swab for viral culture

  Note: Malaria testing should be performed to eliminate from the differential diagnosis.
  2 purple top tubes must be collected.

- Each specimen container must be wiped with disinfectant. Each label must bear the patient's name, ID #, source of the specimen, date and time of collection, initials of the person collecting the specimen. Specimen containers should be labelled prior to collection whenever possible.

- The specimen must be placed within a sealable biohazard bag and the accompanying requisition in the side pouch. One specimen per biohazard bag.
  Once specimen is placed in bag the outer pair of gloves should be removed and disposed of in the biohazardous waste container.

- One requisition must be submitted per specimen type. Each requisition must include date of illness onset, travel history, signs and symptoms. Request test Haemorrhagic Fever Serology on the Public Health Requisition. Clearly indicate "SUSPECT EBOLA" on all requisitions.

- Include ordering Physician's direct phone line number on the requisition.

- The exterior of the biohazard bag must be wiped down with a disinfectant. i.e. 1:10 dilution of bleach.

- The specimen must then be placed into a leakproof container for transportation to the lab.

- The specimen must be hand delivered to the laboratory, and handed to a staff member in the laboratory in a leak-proof container. DO NOT transport the specimens via the pneumatic system.

- Laboratory personnel must be alerted to the nature of the specimens.

- Specimens are stored refrigerated until being shipped for testing.

- Shipping of specimens must be done in accordance with the Transport of Dangerous Goods Regulations for a Category A, Infectious Substance. The exterior of the box must be labelled with an Infectious Substance label, UN 2814, and a Declaration of Dangerous Goods form must be completed.

Note: If a patient is tested prior to the onset of fever and results are negative testing should be repeated 4 days after onset of fever symptoms.

Treatment

There is no treatment or vaccine for Ebola. Only supportive care is provided to affected patients.

If a patient dies from Ebola, the Medical Officer of Health is to be contacted immediately and the body is not to be moved from the patient's room until assessed by MOH.

If a patient with suspected or confirmed EVD requires a blood transfusion, there is to be no crossmatch performed. O negative blood is to be administered if required.

Transportation of Suspect and Confirmed Cases

Internal Transport

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. Patients with respiratory symptoms should wear a mask to contain respiratory droplets during transport.

- If an internal transfer cannot be avoided ensure new room is ready before transfer to minimize time outside of the patient room.

- HCPs providing transport must discard PPE as they leave the room, and put on new PPE.

- Prior to transporting the patient for diagnostic testing, the receiving unit must be fully aware of the patient's impending 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 full PPE (gown, gloves, full face shield) 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 patient's mouth and nose.

- Following the procedure, the room should be cleaned, using routine hospital grade disinfectants, e.g. virex, Clorox, etc.

External Transport

- Transport companies and Emergency Medical Services staff must be notified of the patient's status to determine the requirements for the most appropriate PPE.

- In most cases, PPE for specific Contact/Droplet Precautions will suffice.

Communications

Internal Communications

- For cases of suspected or confirmed Ebola, IPAC must be notified immediately. In addition, it is prudent to notify administrative leadership and public relations, as Ebola can generate significant media interest. IPAC shall be responsible for notifying administration and public relations. After hours of on a holiday or weekend notify the After Hours Administrator, who will tehn contact Infection Prevention and Control.

- Laboratory directors and microbiologists must be contacted prior to the collection of any specimens.

- Public relations will assist in developing a strategy for internal communications within the organization to reach all staff.

- Maintaining patient confidentiality in the face of media interest is a challenge. HCPs should be reminded of their legal responsibilities under the Personal Health Information Protection Act. Absolutely no patient information is to be shared outside the circle of care. Direct all media inquiries to the public affairs department.

External Communications

- All cases of suspect or confirmed Ebola shall be reported to the local Public Health Unit immediately. IPAC shall be responsible for notifying the Public Health Unit.

- All media interest shall be directed to the Public Relations Department. Hospitals and health care facilities caring for patients with suspect or confirmed EVD should have a communications plan in place to deal with media interest while ensuring patient confidentiality.

- Note that the Ministry of Health and Long-Term Care (MOHLTC) may activate the Ministry Emergency Operations Centre (MEOC) to coordinate and direct the health system's response in the event of a confirmed case of EVD in Ontario. As part of this coordination, the MEOC will support health system partners to implement a coordinated communications strategy.

Reporting to the Public Health Unit

Infection Prevention and Control is responsible for reporting to the Public Health Unit.

Viral Hemorrhagic Fevers, including Ebola Viral Disease, are designated as a reportable disease in Ontario. As per subsection 25(1) and subsection 27(1) of the Health Protection and Promotion Act, 1990, c. H7 (HPPA), physicians, health care practitioners and hospitals administrators are required by law to report to the medical officer of health of the Public Health Unit in which professional services are being provided, any patient who has or may have a reportable disease such as Ebola. Therefore, any patient being investigated for Ebola must be reported to the appropriate medical officer of health.

Those reporting a patient who has or is under investigation for Ebola are required to provide the medical officer of health with the patient's full name and address, date of birth, sex and date of onset of symptoms. In addition, physicians and healthcare providers described in HPPA subsection 25(2)17 are required to provide the following information regarding the patient who has or is under investigation for Ebola to the medical officer of health:

i. The date of diagnosis.
ii. The name and address of the physician or registered nurse in the extended class attending the person.
iii. The name of the hospital and the date of admission if the person is admitted to a hospital.
iv. Travel history outside Canada.
   A. Date and place of entry into country where disease acquired.
   B. Date of departure from country where disease acquired.
   C. Date and time of entry into Canada and carrier and flight number if applicable.
   D. Travel within country where disease acquired by date, place and length of stay.
   E. Any other places visited en route to Canada.

v. List places and method of travel within Canada in the week prior to and since onset of illness.
vi. Exposure to any of the following: (provide date and time).
   A. Direct contact with the blood or sections of an infected individual.
   B. Exposed to objects that have been contaminated with infected secretions.
   C. Handled corpses with EVD including at the time of burial.
   D. Ingestion of fruit bats, antelope or other animals potentially infected with EVD.
   E. Worked with the virus in a laboratory.

vii. Clinical history.
   A. Date of onset of illness.
   B. Symptoms and signs of the illness.
   C. History of malaria or malaria prophylaxis.

viii. Laboratory specimens.
   A. List all specimens collected by type and date.
   B. Name of laboratory where specimens may be located.

ix. State if ambulance was used and date of use.

Contact Management

The period of communicability of Ebola begins with symptom onset, typically fever. Individuals who should be considered contacts of Ebola are those who have had direct contact with the blood, body fluids, secretions or excretions of cases (including deceased cases) of Ebola once they have become symptomatic.

Based on the communicability of Ebola, those at greatest risk of contracting Ebola are HCPs providing care to an infected individual, and the family and friends who have had close contact with the infected individual or corpse of deceased infected individual without appropriate PPE. Patients should be

interviewed and/or medical charts should be reviewed, in order to determine who may have had contact with the infected individual's blood and body fluids since symptom onset.

Contacts of cases who are feeling completely well need to be screened over the phone by Public Health Units to inquire about symptoms, receive education/counselling and guidance on follow-up action through the incubation period. All contacts should be monitored for the development of fever or other symptoms associated with Ebola for 21 days from the last time they were potentially exposed. Contacts of infected individuals who develop fever or other symptoms within the 21-day time period should be investigated for Ebola. They should receive immediate medical assessment at a hospital and the receiving hospital should be notified that the person will be presenting for assessment of Ebola.

References:

1. Centers for Disease Prevention and Control (2014). Interim Guidance for Monitoring and Movement of Persons with Ebola Virus Disease Exposure. Retrieved August 8th, 2014 from: http://www.cdc.gov/vhf/ebola/hcp/monitoring-and-movement-of-persons-with-exposure.html

2. Centers for Disease Prevention and Control (2014). Infection Prevention and Control Recommendations for Hospitalized Patients with Known or Suspected Ebola Hemorrhagic Fever in U.S. Hospitals. Retrieved August 8th, 2014 from: http://www.cdc.gov/vhf/ebola/hcp/infection-prevention-and-control-recommendations.html

3. Public Health Ontario (2014). Infection Prevention and Control Guidance for Patients with Suspected or Confirmed Ebola Virus Disease (EVD) in Ontario Health Care Settings. Retrieved August 19th, 2014 from: http://www.publichealthontario.ca/en/eRepository/EVD_IPAC_Guidance.pdf

4. Ministry of Health & Long Term Care and Public Health Ontario (2014). What Ontario's Health System needs to Know to Prepare for Ebola Virus Disease. Reviewed August 22nd, 2014

Appendix A

WINDSOR REGIONAL HOSPITAL
OUTSTANDING CARE – NO EXCEPTIONS!

Infection Prevention and Control - Staff Log

Date	Time In	Time Out	Name (Print)	Department	HH	PPE	Scrubs

Infection Prevention and Control - Visitor Log

Date	Time In	Time Out	Name (Print)	Address	Phone Number	HH	PPE