Ebola Virus Disease

Directive #1 for Hospitals – Revised January 14, 2015

THIS DIRECTIVE REPLACESTHE REVISED DIRECTIVE #1 ISSUED ON OCTOBER 30, 2014. THE REVISED DIRECTIVE #1 ISSUED ON OCTOBER 30, 2014 IS REVOKED AND THE FOLLOWING SUBSTITUTED:

Issued under Section 77.7 of the Health Protection and Promotion Act, R.S.O. 1990, c. H.7 ("HPPA")

WHEREAS under section 77.7(1) of the HPPA, if the Chief Medical Officer of Health ("CMOH") is of the opinion that there exists or there may exist an immediate risk to the health of persons anywhere in Ontario, he or she may issue a directive to any health care provider or health care entity respecting precautions and procedures to be followed to protect the health of persons anywhere in Ontario;

AND WHEREAS, under section 77.7(2) of the HPPA, for the purposes of section 77.7(1), the CMOH must consider the precautionary principle where in the opinion of the CMOH there exists or there may exist an outbreak of an infectious or communicable disease and the proposed directive relates to worker health and safety in the use of any protective clothing, equipment or device;

AND HAVING REGARD TO Ebola virus disease (EVD), associated with a high fatality rate, and currently spreading in certain countries in West Africa and at risk of spreading to Canada and to Ontario – health care workers in hospitals being particularly at risk;

I AM THEREFORE OF THE OPINION that there exists or may exist an immediate risk to the health of persons anywhere in Ontario from EVD;

AND DIRECT pursuant to the provisions of section 77.7 of the HPPA that:

Ebola Virus Disease Directive #1 for Hospitals

Date of Issuance: January 14, 2015

Effective Date of Implementation: January 14, 2015

Issued To*: public hospitals (not including complex continuing care or rehabilitation facilities)

* Hospitals must provide a copy of this directive to the co-chairs of the Joint Health & Safety Committee or the Health & Safety Representative (if any).

Introduction

Ebola virus disease (EVD) is associated with a high fatality rate, particularly when care is initiated late in the course of illness. There is currently widespread transmission of EVD in several countries/areas in West Africa. Although the risk in Canada is very low, Ontario's health care system must be prepared for persons with the disease, or incubating the disease, entering the province.

In Ontario, those most at risk are individuals recently returned from affected countries/areas in West Africa who had direct exposure to persons with EVD[1] and health care workers[2] (HCWs) who manage patients with EVD. The Ministry of Health and Long-Term Care (the ministry) maintains a list of affected countries/areas on its EVD website at www.ontario.ca/ebola.

The ministry has developed a three-tier hospital framework[3] to ensure that the health care system is prepared to manage patients with EVD in Ontario. Hospitals serve one of three roles:

- treatment hospitals manage a person under investigation (PUI)[4] or confirmed case[5] of EVD
- testing hospitals manage a PUI
- screening hospitals[6] screen ambulatory patients and isolate a PUI until he/she is transferred by paramedic services to a designated treatment or testing hospital

This Directive provides instructions to hospitals – including treatment, testing and screening hospitals – concerning control measures[7] necessary to protect workers and reduce the risk of

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[1] As of November 10, 2014, the Public Health Agency of Canada has implemented enhanced measures to manage travellers from countries/areas affected by EVD. Quarantine Officers at Canadian borders are issuing orders (under the federal Quarantine Act) to travellers from EVD affected countries/areas to report to their public health unit. The public health unit monitors the travellers' symptoms during a 21-day monitoring period and supports travellers to access an appropriate testing or treatment hospital if they start to develop symptoms compatible with EVD. The public health unit notifies the hospital that a traveller with symptoms is about to arrive. This process reduces the likelihood that a traveller will present at a screening hospital. This process also reduces the likelihood that a traveller will present at a testing or treatment hospital without prior notification to the hospital by the public health unit. The ministry's document entitled Public Health Management of Travellers from Countries/Areas Affected by Ebola Virus Disease provides more details on the public health unit monitoring process.

[2] The term HCWs refers to any person who performs work or supplies services for monetary compensation in the hospital. Students (excepting senior residents and fellows) and volunteers should not be involved in the management of a person under investigation (PUI) or confirmed case.

[3] The ministry's document entitled A three-tier approach to Ebola virus disease (EVD) management in Ontario outlines the designated testing and treatment hospitals. The hospitals designated under the ministry's three-tier hospital framework are subject to change.

[4] As per the ministry's document entitled EVD Outbreak Case Definitions, a PUI is a person that has travel history to an EVD-affected area/country, that has at least one clinically compatible symptom and for whom EVD laboratory testing results are pending.

[5] As per the ministry's document entitled EVD Outbreak Case Definitions, a confirmed case is a person with laboratory confirmation of EVD.

[6] Screening hospitals include all other hospitals with emergency departments and/or urgent care centres.

spreading the disease. This Directive also provides instructions to hospitals on the requirement to train[8] HCWs on the appropriate control measures to protect workers, patients and visitors from the risk of EVD and on activities that hospitals must ensure their workers carry out in connection with patients with EVD.

This Directive includes guidance on control measures for EVD that may include a higher level of precautions than is being recommended by the Public Health Agency of Canada or the World Health Organization. The Chief Medical Officer of Health has issued this Directive based on the application of the precautionary principle. This Directive does not prohibit hospitals from adopting additional safeguards and precautions where appropriate.

Symptoms of Ebola Virus Disease

The symptoms of EVD include:

- fever
- severe headache
- muscle pain
- diarrhea
- vomiting
- sore throat
- abdominal pain
- unexplained bleeding

Precautions and Procedures

Risk Assessment

Transmission of EVD may occur:

- directly through contact with blood and/or other body fluids or droplets
- indirectly through contact with patient care equipment, materials or surfaces contaminated with blood and/or other body fluids
- possibly through generation of aerosols created during aerosol-generating procedures

Hospitals must conduct an organizational risk assessment in consultation with the Joint Health & Safety Committee (JHSC) or Health & Safety Representative (HSR) (if any), Occupational Health and Safety (OHS) team and Infection Prevention and Control (IPAC) team to assess

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[7] The control measures in this document are based on the hierarchy of controls – which includes controls directed at the source (engineering controls), along the path (administrative controls) and at the HCW (PPE). PPE is the least preferred control measure.

[8] The term training refers to both theoretical training (e.g., lectures, webinars and online modules) and applied training activities that requires more active participation of HCWs (e.g., “hands-on” practice, tests and drills). See the section on Awareness and Training for more information.

the risk of exposure to EVD, considering the likelihood and consequence of transmission for all individuals in the setting (HCWs, patients and visitors). The risk assessment must also identify, establish and put into effect appropriate control measures (i.e., engineering controls, administrative controls and personal protective equipment (PPE)) and procedures to reduce or ideally prevent/eliminate the risk of exposure.

Hospitals must train HCWs on the control measures in this Directive. HCWs must incorporate the control measures from this Directive in their point of care risk assessments, including any enhancements to PPE controls. HCWs must conduct a point of care risk assessment before each interaction with a patient and/or the patient's environment or waste to evaluate the likelihood of exposure to an infectious agent/infected source and apply the required safe work practices.

Restricting Access

In consultation with the JHSC or HSR (if any), hospitals must use the organizational risk assessment to determine if and when to apply control measures to restrict access points and control flow through the hospital.[9]

Patients Presenting at Outpatient Clinics

Hospitals must screen[10] patients presenting at outpatient clinics for travel in the previous 21 days to affected countries/areas and any symptom compatible with EVD. A HCW must escort a patient who fails the screening process in a controlled manner to the emergency department for further assessment.

Reception staff in outpatient clinics must continue to follow Routine Practices and Additional Precautions to inform the selection of appropriate PPE.[11]

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 infectious diseases. Routine Practices include the use of hand hygiene, cleaning and disinfection of all shared equipment, regular environmental cleaning using an approved hospital-grade disinfectant, meticulous attention to safety around the use of needles and sharps and a complete and careful point of care risk assessment performed prior to every patient encounter.

In general, the precautionary principle[12] should be applied.

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[9] Hospitals should direct patients seeking care at the emergency department through a single entrance to facilitate screening/triage on entry to the emergency department.

[10] Screening in outpatient clinics may be achieved by active or passive screening processes.

[11] Hospitals should ensure reception staff in outpatient clinics have ready access to any required PPE.

[12] The Ontario Health Care Health and Safety Committee has developed a guidance note for Workplace Parties on the Application of Hazard Control Principles, including the Precautionary Principle to Infectious Agents. This guidance note provides information on the application of the precautionary principle.

Screening/Triage

Patients presenting at emergency departments must be screened for EVD.

Passive Screening

Hospitals must post signs at all entrances asking patients about travel in the previous 21 days to an affected country/area.[13] The signs must instruct patients that fail the passive screening process to use alcohol-based hand rub, put on a surgical mask and proceed immediately to the screening/triage area in the emergency department.

Active Screening[14]

At the screening/triage area in the emergency department, a HCW must ask patients about travel in the previous 21 days to affected countries/areas (or travel in the 21 days prior to symptom onset if any symptoms are present) and any symptom compatible with EVD.

The HCW must instruct a patient who fails the active screening process[15, 16] to use alcohol-based hand rub and wear a surgical mask. A HCW must escort the suspect case in a

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[13] A sample sign is available on the ministry's EVD website at www.ontario.ca/ebola.

[14] Hospitals should have a suitable structural barrier in place to protect HCWs conducting screening/triage. A suitable structural barrier should meet the following criteria: impermeable, transparent, easily cleaned and decontaminated (including any communication mechanisms, such as a microphone or filter), allows for two-way communication without direct exposure to blood and/or other body fluids and is of sufficient height and breadth to prevent physical contact and passage of droplets/splash/spray. Examples of a suitable structural barrier include a (Plexi)glass/transparent panel or a closed booth with capacity for verbal communication between the HCW and patient. In consultation with the JHSC or HSR (if any), OHS team and IPAC team, hospitals should use the organizational risk assessment to determine appropriate control measures for the screening/triage area, including assessing the suitability of any existing structural barriers.

[15] A person who fails the EVD active screening process is known as a suspect patient. A suspect patient does not become a PUI until an infectious disease physician (in consultation with the public health unit and PHOL) has determined that the patient requires EVD testing.

[16] Hospitals should develop a process for managing a patient that self-identifies through the active screening process as having travel history and no symptoms. A HCW should further assess the patient to rule out EVD. The HCW should also provide advice to the patient on self-monitoring for symptoms compatible with EVD for 21 days after leaving the affected country/area. In addition, the HCW should establish that the patient is linked with the public health unit.

controlled manner[17] from the screening/triage area to a single patient room with a dedicated washroom/commode, separate from other patients.[18]

Following the identification of a suspect case, hospitals must close off, clean and disinfect the screening/triage area.[19] HCWs must conduct a point of care risk assessment to determine the extent of the screening/triage area that needs to be closed off for cleaning and disinfection.

Assessment, Testing and Referral

Screening Hospitals

An infectious disease specialist or, if one is not available, another physician must conduct an assessment of a patient who fails the active screening process in consultation with the public health unit[20] and Public Health Ontario Laboratories (PHOL)[21] to determine whether the patient is a PUI. This assessment must include a review of the patient's epidemiologic risk factors (e.g., travel history to and activities in an EVD affected country/area) and clinical presentation.

If the patient is determined to be a PUI, the screening hospital must contact CritiCall Ontario[22] to arrange for an interfacility transfer to a testing or treatment hospital for EVD testing.[23]

Testing and Treatment Hospitals

An infectious disease specialist or, if one is not available, another physician must conduct an assessment of a patient[24] who fails the active screening process in consultation with the public

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[17] Hospitals should conduct an organizational risk assessment in consultation with the JHSC or HSR (if any), OHS team and IPAC team to determine the procedure to escort patients that fail the active screening process in the screening/triage area to a single patient room with dedicated washroom/commode for assessment. This includes determining the appropriate engineering, administrative and PPE controls such as identifying HCWs who may escort the patient, developing procedures for HCWs to escort the patient to minimize risk of exposure to others (e.g., identifying the route and process to exclude other people from the route) and developing procedures to notify all HCWs at risk of exposure to ensure appropriate precautions are taken as outlined in this Directive.

[18] Where available, hospitals should place suspect patients in an airborne infection isolation room (AIIR) with negative pressure, an anteroom and a dedicated washroom/commode.

[19] See Appendix A for more information on cleaning and disinfection.

[20] Hospitals may use the ministry's public health unit locator tool to find their public health unit's contact information.

[21] Hospitals may contact PHOL through its Customer Service Centre at 416-235-6556 or 1-877-604-4567 (Monday to Friday 7:30 a.m. – 7:00 p.m., Saturday 8:00 a.m. – 3:45 p.m.) or the Duty Officer after-hours at 416-605-3113.

[22] Hospitals may contact CritiCall Ontario at 1-800-668-HELP (4357) 24 hours a day, 7 days a week.

[23] In general, screening hospitals should not initiate testing for EVD and should not conduct laboratory testing for other agents and clinical conditions on a PUI. However, in exceptional circumstances – and if the hospital has procedures in place to provide testing safely – testing for treatable alternative diagnoses for which time to diagnosis is critical may be undertaken in consultation with the public health unit and PHOL. Empiric therapy for other conditions requiring urgent treatment may be considered in PUIs.

health unit and PHOL to determine whether the patient is a PUI. This assessment must include a review of the patient's epidemiologic risk factors (e.g., travel history to and activities in an EVD affected country/area) and clinical presentation.

Testing and treatment hospitals may also receive a PUI through the referral of a symptomatic traveller who is being monitored by the public health unit or the interfacility transfer of a PUI from a screening hospital.

A PUI must be placed in an AIIR with negative pressure, an anteroom and a dedicated washroom/commode.

Testing and treatment hospitals initiate testing for EVD[25] through the PHOL. Prior to ordering a test for EVD, the physician must consult with the public health unit, PHOL and hospital laboratory management and/or microbiologist. The physician must also consult with the public health unit, PHOL and hospital laboratory management and/or microbiologist on the need to order other tests to confirm/rule out other more common and potentially fatal diseases.[26]

If EVD is ruled out, the hospital returns to following Routine Practices and Additional Precautions.[27] If the PUI is confirmed to have EVD, he/she must be transferred from a testing hospital to a treatment hospital. The testing hospital must contact CritiCall Ontario to arrange this interfacility transfer.

A PUI may also be transferred to a treatment hospital before EVD has been confirmed if he/she is unstable and/or deteriorating. The testing hospital must contact CritiCall Ontario to arrange this interfacility transfer.

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[24] Testing and treatment hospitals may need to assess a patient that fails the active screening process in the ED/triage area, as well as a suspect case that is transported to the hospital by paramedic services after failing the paramedic services' active screening process (e.g., active screening conducted by paramedic services during a 911 call).

[25] Two EVD tests may be required to confirm/rule out EVD as it may take up to 72 hours after symptom onset for the virus to reach detectable levels. If a negative result is received on a sample taken at least 72 hours after symptom onset, no further EVD testing is needed. If a negative test result is received from a sample that was taken less than 72 hours after symptom onset, a second sample collected 72 hours or more after symptom onset should be tested if EVD is still suspected on reassessment of the patient (e.g., in a patient who is not improving clinically at 72 hours after symptom onset). If a second test is ordered, the PUI must remain in isolation with the HCWs using appropriate control measures until the second negative test result is received.

[26] The document entitled Ebola Clinical Care Guidelines (developed by the Canadian Critical Care Society, Canadian Association of Emergency Physicians and Association of Medical Microbiology & Infectious Disease Canada) provides more information on testing guidelines for other more common and potentially fatal diseases.

[27] Patients at risk for EVD often develop fevers from other causes (e.g., malaria, typhoid and viral illnesses). If a PUI recovers after testing negative for EVD, then subsequently develops a new illness compatible with EVD within 21 days since the last date of potential exposure, he/she should be re-evaluated for possible EVD, as the initial febrile illness may have been due to another cause.

Care of Persons under Investigation and Confirmed Cases

Screening Hospitals

Screening hospitals must manage a PUI according to the control measures in this Directive until transfer to a testing or treatment hospital is arranged through CritiCall Ontario and paramedic services.[28] Hospitals must minimize the number of HCWs who come into contact with a PUI.

Testing and Treatment Hospitals

Hospitals must minimize the number of HCWs who come into contact with a PUI or confirmed case. Visitors must be excluded from entry to the patient's room.[29]

The patient care area must be monitored at all times. Hospitals must log the movement of all HCWs in and out of the patient's room.

Care for a PUI or confirmed case must be provided by at least two registered nurses at all times. The two nurses do not need to be in the room at the same time and all the time – this depends on the patient care activities and the organization's procedures.[30] These nurses must have no other duties while caring for a PUI or confirmed case.

For each HCW who enters the patient's room, a trained observer[31] must watch the donning and doffing of PPE to ensure that inadvertent contamination of eyes, mucous membranes, skin or clothing does not occur. At the point of care, hospitals must adopt and make available procedures for donning and doffing of PPE.[32]

Hospitals must ensure that space and layout allow for clear separation between clean (cold zone), potentially contaminated (warm zone) and contaminated areas (hot zone). Physical barriers or a space clearly indicated by demarcation or signage must be used to separate these zones. PPE must be donned in the cold zone[33] and doffed in the warm zone[34] according to the hospital's procedures.

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[28] This transfer process takes time, as CritiCall Ontario and paramedic services need to schedule, plan and implement the transfer in partnership with the receiving testing or treatment hospital.

[29] For paediatric patients (or certain adult patients e.g., individuals with cognitive impairment), a parent/caregiver may be admitted to the patient's room following informed consent and training on the use of PPE and other precautions. The parent/caregiver must be excluded from the room if an aerosol-generating procedure is performed.

[30] In some cases, the second nurse may be better placed outside the patient room in order to provide supplies.

[31] The trained observer is in addition to the two registered nurses providing care. The trained observer is a dedicated HCW with the responsibility of ensuring adherence to donning and doffing procedures for PPE. Whenever possible, the observer should also watch HCW activities in the patient's room (e.g., through a glass-walled critical care unit or video link).

[32] The Public Services Health & Safety Association has developed sample PPE donning and doffing checklists. Hospitals may adapt these checklists to meet their needs (while maintaining consistency with the PPE controls in this Directive) or they may use existing checklists.

[33] The cold zone may be a dedicated room or the entrance to the patient's room.

A manager or supervisor must be available on site at all times. This individual must liaise with the OHS and IPAC teams.

Only essential equipment should be taken into the patient room. Medical devices and equipment should be disposable whenever possible. Reusable equipment should be dedicated to the patient until the diagnosis of EVD is excluded, the patient is discharged, or the precautions are discontinued. All reusable equipment must be cleaned and disinfected prior to leaving the patient's room. Noncritical equipment must be cleaned and disinfected using an approved hospital-grade disinfectant and according to the manufacturer's recommendations prior to reuse on a subsequent patient.[35] Semi-critical and critical equipment must be reprocessed according to Spaulding's Classification.[36] Where transport of semi-critical and critical equipment is necessary (done off-site), this must be handled in a manner that reduces the risk of exposure and/or injury to HCWs and other personnel or contamination of environmental surfaces.

Use of needles and sharps must be kept to a minimum and for medically essential procedures only. The requirements of the Needle Safety Regulation (O. Reg. 474/07) under the *Occupational Health and Safety Act* must be met. Extreme care must be used when handling sharps.[37] A puncture-resistant sharps container must be available at point of use.

Aerosol-generating procedures on a PUI or confirmed case must be performed in an AIIR with negative pressure.[38] Aerosol-generating procedures must only be performed if medically necessary. Hospitals must minimize the number of HCWs in the room during an aerosol-generating procedure. Visitors must not be present.[39]

Following an aerosol-generating procedure, the environment must be cleaned and disinfected.

Personal Protective Equipment

Hospitals must provide applied training on the use of PPE for HCWs identified as being at risk for exposure to a PUI or confirmed case and/or that patient's environment or waste. This includes hands-on practice, tests and drills. See the section on Awareness and Training for more information.

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[34] The warm zone should be considered contaminated and must not be used for donning of PPE or for the storage of PPE.

[35] See Appendix B for additional information on the cleaning and disinfection of reusable noncritical equipment that cannot be dedicated to a PUI or confirmed case

[36] The Provincial Infectious Diseases Advisory Committee's Best Practices for Cleaning, Disinfection and Sterilization in All Health Care provides more information on Spaulding's Classification.

[37] The risk of transmission of EVD through percutaneous injury is high; therefore, HCWs experienced in drawing bloods or starting lines (e.g., IV and arterial) should perform these tasks.

[38] The document entitled Ebola Clinical Care Guidelines (developed by the Canadian Critical Care Society, Canadian Association of Emergency Physicians and Association of Medical Microbiology & Infectious Disease Canada) provides more information on conducting aerosol-generating procedures on a PUI or confirmed case.

[39] Aerosol-generating procedures should be performed by experienced HCWs.

Personal Protective Equipment for Active Screening in All Hospitals

When protected by a suitable structural barrier[40], HCWs conducting screening/triage in the emergency department must have ready access to the following PPE:[41]

- a fit-tested N95 respirator
- full face shield
- gloves
- fluid-resistant gown

HCWs must don this PPE immediately upon the identification of a person who fails the active screening process (i.e., travel history and any symptom compatible with EVD).

HCWs conducting screening/triage not protected by a suitable structural barrier must wear the PPE described above at all times.

Personal Protective Equipment for Care and Treatment in All Hospitals

HCWs caring for a suspect case, PUI or confirmed case and/or entering the patient's environment and/or touching anything that may be contaminated with the patient's blood or other body fluids must wear:[42]

- fit tested, seal-checked N95 respirator
- full face shield[43]
- double gloves (one under and one over cuff)
- full body barrier protection – the aim is no skin exposure, which for example may be achieved by the use of the following components:
    - single use (disposable) impermeable gown that extends to at least mid-calf, single-use (disposable) impermeable boot covers that extend to at least mid-calf and single-use (disposable) surgical hood

  OR

    - single use (disposable) impermeable coveralls – with an integrated or separate hood and integrated or separate impermeable boot covers

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[40] See the section on Active Screening for more information on what constitutes a suitable structural barrier.

[41] An algorithm that outlines control measures to manage the risk of EVD transmission in an emergency department prior to assessment is available on the ministry's EVD website at www.ontario.ca/ebola.

[42] The HCW may add a single-use (disposable) impermeable apron based on the risk of exposure to blood or other body fluids.

[43] Goggles may be added to the full face shield if preferred by the HCW.

Personal Protective Equipment for Aerosol-Generating Procedures in Testing and Treatment Hospitals[44, 45]

In testing and treatment hospitals, HCWs entering the AIIR during an aerosol-generating procedure on a suspect case, PUI or confirmed case must wear:[46]

- powered air-purifying respirator (PAPR) with a hood or a fit-tested, seal-checked N95 respirator[47] with a full face shield[48, 49]
- double gloves (one under and one over cuff)
- full body barrier protection – the aim is no skin exposure, which for example may be achieved by the use of the following components:
  - single use (disposable) impermeable gown that extends to at least mid-calf, single-use (disposable) impermeable boot covers that extend to at least mid-calf and single-use (disposable) surgical hood

  OR

  - single use (disposable) impermeable coveralls – with an integrated or separate hood and integrated or separate impermeable boot covers

Internal Transportation of Persons under Investigation and Confirmed Cases

A PUI or confirmed case must not leave his/her room or be transferred internally except for essential medical procedures that cannot be performed in his/her room, or for transfer to a testing or treatment hospital. Transport staff must be notified about the patient’s status and the required PPE. The patient must wear a mask to contain respiratory droplets during transport. During initial transport from the emergency department or during subsequent transport, HCWs, other patients and visitors must be excluded from the transport pathway wherever possible.

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[44] Aerosol-generating procedures should only be performed on a PUI or confirmed case in testing and treatment hospitals, except in an urgent or life threatening situation.

[45] In screening hospitals, aerosol-generating procedures are not expected to be performed on patients with EVD as PUIs are to be transferred to testing and treatment hospitals. In the event of an urgent or life threatening situation that requires a screening hospital to conduct an aerosol-generating procedure on a PUI, HCWs must use a fit-tested, seal-checked N95 respirator, full face shield, double gloves and full body barrier protection when entering the room during an aerosol-generating procedure.

[46] The HCW may add a single-use (disposable) impermeable apron based on the risk of exposure to blood or other body fluids.

[47] In testing and treatment hospitals, the HCW’s decision to use a PAPR or a fit-tested, seal-checked N95 respirator should be informed by the assessment of balance of risk among comfort, familiarity with the equipment and risk of contamination during doffing.

[48] Goggles may be added to the full face shield if preferred by the HCW.

[49] Testing and treatment hospitals should ensure that HCWs who enter the AIIR during an aerosol-generating procedure are trained on the use of fit-tested, seal-checked N95 respirators and PAPRs. This includes testing on the procedures to don and doff this equipment, as well as drills to practice using the equipment. HCWs should have access to a fit-tested N95 respirator and a PAPR.

If an internal transfer for essential medical procedures cannot be avoided, HCWs must ensure that the new room is ready before transfer to minimize time outside of the patient room. Prior to transporting the patient for diagnostic testing, the receiving unit must be notified of the case's impending arrival and must be prepared to perform testing immediately. The patient must be transported in a controlled manner using the most direct route to their destination. Following the procedure, the internal transfer route, room, equipment and transport device must be cleaned and disinfected. HCWs must conduct a point of care risk assessment to determine the extent of cleaning and disinfection for the internal transfer route.

Duration of Precautions

For a PUI, precautions must remain in place until EVD is no longer being considered (based on review of epidemiologic risk and symptoms or appropriately timed negative test results) or the PUI is transferred to another hospital.

For confirmed cases recovering from EVD, precautions must remain in place until all symptoms have resolved and appropriate testing comes back negative. Confirmed cases should be assessed on a case-by-case basis in consultation with an infectious disease specialist.

Management of Exposed Health Care Workers

Hospitals must develop policies for managing exposed HCWs. The hospital's OHS team is responsible for the follow-up of exposed HCWs in collaboration with the public health unit.

HCWs who have been exposed to a confirmed case and subsequently develop fever must:

- not report to work or immediately stop working
- notify his/her supervisor and the OHS team
- seek prompt medical evaluation and testing as clinically indicated
- comply with work exclusion as per their OHS team and public health unit until they are deemed no longer potentially infectious to others

HCWs with a percutaneous, mucous membrane or non-intact skin exposure to blood, other body fluids, secretions or excretions from a PUI or confirmed case must:

- stop working, leave the patient care area and immediately wash any affected skin surfaces with soap and water; for mucous membrane splashes (e.g., conjunctiva) irrigate with copious amounts of water or eyewash solution[50]
- immediately contact a supervisor and the OHS team for assessment and post-exposure management for blood-borne pathogens (e.g., hepatitis B virus, hepatitis C virus and HIV) as per usual organizational policy

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[50] Emergency eyewash station must be available. HCWs must have access to facilities including regular showers to wash or clean skin that has become contaminated.

For asymptomatic HCWs who had an unprotected exposure (e.g., not wearing recommended PPE at the time of patient contact or through direct contact with blood or other body fluids) to a confirmed case and/or the confirmed patient's environment or waste:

- these HCWs must receive medical assessment and be advised to check their temperature twice daily and monitor for other symptoms compatible with EVD
- these HCWs must be advised to report fever greater than 38^{0}C or other symptoms compatible with EVD immediately to their OHS team and public health unit and to self-isolate
- the public health unit must follow-up with HCWs for 21 days from their last exposure to discuss potential symptoms and document fever monitoring checks[51]
- the public health unit must advise on any restrictions regarding activities and travel for 21 days from the HCW's last exposure
- these HCWs must not have patient contact for 21 days from their last exposure

For asymptomatic HCWs who had protected exposure (e.g., wearing recommended PPE at all times) to a confirmed case of EVD and/or the case's environment or waste:

- the hospital's OHS team, in partnership with the public health unit, must monitor HCWs while they are providing care to the confirmed case and for 21 days from their last exposure

Awareness and Training

Hospitals must train HCWs on the appropriate control measures to protect the health and safety of workers, patients and visitors from the risk of EVD. In particular, hospitals must train HCWs who are at risk of exposure to a PUI or confirmed case and/or that patient's environment or waste on the use of PPE.[52] As the removal of PPE is particularly hazardous, HCWs must demonstrate proficiency in donning and doffing PPE prior to any exposure to a PUI or confirmed case and/or that patient's environment or waste.

Hospitals must arrange and deliver training for HCWs within their organizations.[53] Hospitals should incorporate the precautionary principle in all training activities.

The *Occupational Health and Safety Act* outlines the requirement for training that applies to all workplaces. Under the *Occupational Health and Safety Act*, hospitals must provide information, instruction and supervision to a worker to protect the health and safety of the worker. The Health Care and Residential Facilities Regulation (O.Reg 67/93) has requirements for training and PPE including a requirement that hospitals, in consultation with the JHSC or HSR (if any), develop, establish and provide training and education programs concerning

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[51] The hospital may choose to do additional monitoring as well.

[52] Treatment hospitals need to train the largest group of HCWs, given the risk of exposure to a confirmed case for a longer period of time than a testing or screening hospital.

[53] In addition to the resources available on the ministry's EVD website at www.ontario.ca/ebola, hospitals may access resources from the following organizations to support the delivery of training activities: Ministry of Labour, Public Services Health & Safety Association, Ontario Hospital Association, Infection Prevention and Control Canada and the Regional Infection Control Networks.

health and safety measures and procedures for HCWs that are relevant to their work. This includes requirements to provide instruction and training to HCWs on the care, use and limitations of PPE before wearing or using it and at regular intervals thereafter.

Awareness

Hospitals must provide HCWs with awareness information (e.g., electronic bulletins, videos) to ensure that all staff have a basic understanding of EVD, the hospital's plan to address the risk posed by EVD and how staff should respond if they are the unintended first contact with a patient with EVD.

Training

As described in the Risk Assessment section, hospitals must conduct an organizational risk assessment in consultation with the JHSC or HSR (if any), OHS team and IPAC team to identify HCWs who are at risk of exposure to a PUI or confirmed case and/or that patient's environment or waste. Through this process, hospitals must review and prioritize the training needs of different employee groups and job functions[54] including:

- HCWs screening patients at the emergency department screening/triage area
- HCWs caring for a PUI or confirmed case
- HCWs acting as a trained observer to ensure HCW adherence to the hospital's PPE donning and doffing procedures
- HCWs at risk of exposure to a PUI's or confirmed case's environment or waste
- HCWs transporting samples from a PUI or confirmed case to the laboratory
- HCWs handling samples from a PUI or confirmed case in the laboratory
- managers and supervisors who oversee the activities of HCWs at risk of exposure to a PUI or confirmed case and/or that patient's environment or waste[55]
- other HCWs who may be exposed to a PUI or confirmed case and/or that case's environment or waste
- HCWs handing the dead body of a PUI or confirmed case

Topics

Based on the results of the organizational risk assessment, hospitals must determine the appropriate training topics.[56]

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[54] HCWs at increased risk of exposure to a PUI or confirmed case and/or that case's environment or waste should receive more intensive training (i.e., more detailed, applied and frequent) than those HCWs at a lower risk of exposure.

[55] Managers and supervisors should be trained on how to assist the HCWs they are monitoring.

Methods

Based on the results of the organizational risk assessment, hospitals must determine the appropriate training methods. This includes theoretical training (e.g., lectures, webinars and on-line modules) and applied training involving more active participation of HCWs (e.g., "hands-on" practice, tests[57] and drills[58]).

Frequency

Based on the results of the organizational risk assessment, hospitals must identify the appropriate training frequency. This includes initial and refresher training.[59]

Hospitals must develop plans to deliver "just-in-time"[60] training for HCWs once a PUI or confirmed case of EVD has been identified in the hospital.

Applied Training on the Use of PPE

Hospitals must provide applied training on the use of PPE (i.e., hands-on practice, tests and drills) for HCWs identified as being at risk for exposure to a PUI or confirmed case and/or that patient's environment or waste. This training must incorporate best practices on use of PPE, including PPE controls in this Directive as well as the PPE selected for use at the hospital. Hospitals must ensure PPE is available to provide applied training.

Hospitals must provide HCWs with initial and refresher training on the use of PPE (training intervals should be based on the results of the organizational risk assessment), as well as just-in-time training in the event of a PUI or confirmed case of EVD.[61]

HCWs must be tested by a competent trainer to assess, verify and document their competency in donning and doffing of PPE (see the section on Documentation for more information).

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[56] Potential training topics include EVD symptoms and transmission, the hierarchy or controls (engineering controls, administrative controls and PPE) in place to manage a PUI or confirmed case, the hospital's emergency preparedness and response plan as it related to EVD, the HCW's roles & responsibilities with respect to managing a PUI or confirmed case and the internal responsibility system as it relates to EVD. The Ministry of Labour's Fact Sheet entitled The Internal Responsibility System – A Workplace Partnership provides more information on the internal responsibility system.

[57] A test is a supervised activity to assess and verify a HCW's knowledge of and proficiency with a control measure or procedure for EVD. Test results should be documented to verify competency. The results will support the hospital to identify opportunities for follow-up training.

[58] A drill is a supervised activity, typically conducted with more than one HCW to test a team's knowledge of and proficiency with a specific control measure or procedure for EVD. A drill also allows the hospital to test and/or get feedback from HCWs on a specific control measure or procedure. Results should be documented so that best practices and lessons learned are incorporated into the hospital's response plans, control measures and procedures for EVD.

[59] As new information becomes available, additional training may be required.

[60] Just-in-time training may also be referred to as point of care training. Just-in time training reinforces the initial and refresher training that HCWs receive on control measures and procedures for EVD.

[61] Additional training may be required when PPE controls in this Directive change and/or the hospital selects new makes/models of PPE.

Hospitals must implement drills to allow HCWs to exercise the hospital's procedures for donning and doffing, including the role of the trained observer. Drills also allow HCWs to practice conducting patient care and/or other activities while wearing PPE.

Applied training on the use of PPE must cover the following topics:

- selection of PPE based on the results of the point of care risk assessment[62], which considers engineering (e.g., structural barriers) and administrative controls (e.g., active and passive screening) in place
- proficiency in donning and doffing of PPE consistent with the hospital's procedures and the PPE selected for use in the hospital
- process to raise concerns with the hospital on procedures related to the use of PPE (e.g., the hospital's donning and doffing procedures)
- strengths and limitations of the PPE being used
- practice conducting patient care and/or other activities while wearing PPE
- ensuring the proper fit of PPE
- inspecting PPE for damage or deterioration prior to use and prior to doffing
- appropriate disposal of used PPE
- requirement to change PPE
- roles and responsibilities of the trained observer and on-site manager or supervisor

Documentation

Hospitals must document the status of training activities including:

- name of trainee
- employee group or job function
- type of training (e.g., topics and methods)
- date of training

HCWs identified as requiring proficiency in the use of PPE (i.e., HCWs at risk of exposure to EVD) must be tested by a competent trainer using a step-by-step checklist[63] to assess, verify and document their competency in donning and doffing of PPE.[64]

[62] Employers should ensure that HCWs are incorporating the PPE controls from this Directive in their point of care risk assessments.

[63] The Public Services Health & Safety Association has developed sample checklists that hospitals may use to train HCWs on donning and doffing procedures. Hospitals may adapt these checklists to meet their needs (while maintaining consistency with the PPE controls in this Directive) or they may use existing checklists.

Communications

Testing and treatment hospitals must establish internal and external communication plans for EVD.

Reporting

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

Those reporting a PUI or confirmed case 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 other HCWs described in HPPA subsection 25(2) are required to provide the information regarding a PUI or confirmed case to the medical officer of health as specified in section 5, paragraph 4 of Ontario Regulation 569 (Reports) under the HPPA.

Hospitals must report workplace-acquired infections, including EVD, to the Ministry of Labour, JHSC or HSR (if any) and union (if any) in accordance with the *Occupational Health and Safety Act* and its Regulations.

Questions

Hospitals and HCWs may contact the ministry's Health Care Provider Hotline at 1-866-212-2272 or by email at emergencymanagement.moh@ontario.ca with questions or concerns about this Directive.

Hospitals and HCWs are also required to comply with applicable provisions of the *Occupational Health and Safety Act* and its Regulations.

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Interim Chief Medical Officer of Health

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[64] The requirement to test HCWs using a step-by-step checklist applies to tests conducted by hospitals after the release date of this revised Directive (January 14, 2015). Hospitals that have already tested HCWs on the use of PPE are not required to retest HCWs with a step-by-step checklist (provided that core competencies were assessed, verified and documented in the initial test).

Appendix A. Cleaning and Disinfection

Blood and all other body fluids from EVD patients 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 are paramount.

Experienced environmental services staff trained in OHS and IPAC practices and the use of PPE should be assigned to perform these tasks. Environmental services staff have the same PPE requirements as other HCWs.

Approved hospital-grade disinfectants used in accordance with the manufacturer's recommendations are sufficient for cleaning the room.

The frequency of cleaning should be based on the level of contamination with blood and/or other body fluids and at least daily. Housekeeping equipment should be disposable or remain in the room for the duration of the patient's admission.

Upon discharge of a confirmed case or discontinuation of precautions, discharge/terminal cleaning of the room must follow the recommended practice for discharge/terminal cleaning of a room on contact/droplet precautions. HCWs entering the room must continue to wear the PPE recommended in this Directive until the discharge/terminal cleaning is completed. In addition to routine cleaning:

- all dirty/used items (e.g., suction containers and disposable items) should be removed/discarded
- curtains (privacy, window and shower) should be disposed of before starting to clean the room
- everything in the room that cannot be cleaned should be discarded
- fresh cloths, mop, supplies and solutions should be used to clean the room
- several cloths should be used to clean the room
- each cloth should be used one time only
- cloths should not be dipped back into disinfectant solution after use
- all surfaces should be cleaned and disinfected allowing for the appropriate contact time with the disinfectant as per manufacturer's recommendations
- all housekeeping equipment should be cleaned and disinfected before putting it back into general use

Appendix B. Cleaning and Disinfection of Noncritical Equipment

HCWs should incorporate the following key principles in the management of reusable noncritical equipment that cannot be dedicated to a PUI or confirmed case:

- Hospitals should ensure that an approved hospital-grade disinfectant, at the appropriate dilution, is available within the patient's room, the anteroom and outside the room. If this is a solution, HCWs must prepare it daily unless it is provided in a 'ready-to-use' format. All HCWs involved in the care of a PUI or confirmed case must be trained on the appropriate use of the disinfectant, the approved contact time required by each product and the process required for cleaning the reusable noncritical equipment so that it is safe to use with other patients.
- The equipment should remain in a PUI's or confirmed case's room until the clinical procedure is complete (e.g., x-ray has been processed and deemed acceptable).
- HCWs should cover non-essential components of the equipment with a wrapping that may be disinfected and safely removed prior to bringing it in the patient's room. The outer surfaces of the equipment and wrapping must be wiped down with an approved hospital-grade disinfectant prior to being removed from the patient's room.
- Once the equipment is in the anteroom, HCWs[65] wearing appropriate PPE should remove the wrapping and discard into medical waste. HCWs should thoroughly clean and disinfect the equipment before it is taken out of the anteroom. To clean the wheels, HCWs should move the equipment over a disinfectant-impregnated mat.
- Once outside the patient's room and anteroom, HCWs wearing appropriate PPE[66] should conduct a final cleaning and disinfection of the equipment before it is placed back into service.
- HCWs should document the cleaning and disinfection of each piece of equipment.
- HCWs must minimize the contamination of equipment with blood and other body fluids. HCWs must make every effort to limit the area/surfaces exposed to blood and other body fluids using protective mechanisms.

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[65] HCWs should do this second cleaning and disinfection in the same PPE (if these are the same HCWs that were in the patient's room). Alternatively, the HCWs could pass the equipment off to different HCWs in the anteroom who have donned new PPE.

[66] HCWs should don new PPE to conduct the final cleaning and disinfection.