BRITISH COLUMBIA | Office of the Provincial Health Officer

Recommendations for Emergency Departments in Caring for Potential Ebola Virus Disease (EVD) Patients

Provincial Ebola Expert Working Group

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Contents

A. Preamble

While the probability of Ebola virus disease (EVD) in British Columbia is low, careful planning is necessary to ensure these patients receive high quality care in emergency department, at the same time as ensuring health care workers are protected from the virus

The purpose of this document is to provide guidance on the risk assessment, testing and care of potential EVD patients in B.C. emergency departments. This document has been developed by those involved in emergency medicine, infection control, and public health.

B. Guiding Principles

1. Safety of patient and health care worker is paramount.
2. Health care workers in emergency departments must receive appropriate personal protective equipment (PPE) and training in donning and doffing. The recommended PPE for lower and higher transmission risk scenarios, as well as guidance on how to safely don/doff this PPE can be found on the Provincial Health Officer's Ebola Web-site: www.health.gov.bc.ca/pho/physician-resources-ebola.html
3. Both the number of health care workers and their duration of exposure to patients with EVD must be minimized, and staffing levels must be planned accordingly.
4. Like all patients, those with potential or confirmed EVD should be treated in a compassionate, evidence-based (wherever possible) and ethically-supported manner.

C. Introduction

It remains highly unlikely, but not impossible, that individuals who may have been exposed to the Ebola virus in affected areas could develop symptoms after returning to British Columbia.

Transmission of Ebola virus occurs through direct contact with infected animals; exposure through broken or non-intact skin or mucous membranes with blood, body fluids or tissues of infected persons; or medical equipment that is contaminated with infected body fluids. People do not transmit Ebola before they develop symptoms.

The incubation period (time from exposure to onset of symptoms) of Ebola virus disease ranges from two to 21 days. For asymptomatic people who may have been exposed more than 21 days ago, Ebola does not need to be considered in the differential diagnosis.

Ebola virus disease is a severe, often fatal, acute viral infection that causes hemorrhagic fever in humans and animals. Symptoms consist of sudden onset of fever, intense weakness, muscle pain, headache and sore throat. This is followed by vomiting, diarrhea (sometimes bloody), rash, impaired kidney and liver function and, in about 50 per cent of cases, both internal and external bleeding. Treatment is supportive.

D. Risk Assessment

Health care workers receiving a patient in an emergency department who is concerned about Ebola, or has symptoms that are compatible with EVD should perform a risk assessment. A diagram of this algorithm is in Appendix A, and associated questions are contained in Appendix B.

1. Begin by determining if, in the 21 days prior to symptom onset, the patient has:
   - Lived or travelled to/from an affected area.
   - Been exposed to a suspected or confirmed case of Ebola.
   - Been told to self-monitor for EVD.

If the answer is **no**, the patient can continue with normal triage and care.

If the answer is **yes** to any of these, the patient should be instructed to perform hand hygiene, put on a surgical mask, and move to a designated assessment area.

If there are any concerns or the next step is unclear, consult with the medical health officer for advice.

2. Once the patient has completed these tasks and moved to the designated assessment area, proceed with determining if their symptoms are compatible with EVD. These symptoms include:
   - fever, malaise, myalgia, severe headache, conjunctival injection, pharyngitis, abdominal pain, vomiting, diarrhea that can be bloody, bleeding not related to injury (e.g., petechiae, ecchymosis, epistaxis), unexplained hemorrhage, erythematous maculopapular rash on the trunk.

If the patient's symptoms **are not** compatible with any of the symptoms associated with EVD and listed above, continue normal triage and patient care. Call the medical health officer to arrange for monitoring and follow up for when the patient leaves the emergency department and returns to the community.

If the answer is **yes** to the presence of any symptoms associated with EVD, isolate the patient and notify emergency physician. **Health care workers should put on personal protective equipment according to the level of risk identified**.[2]

- Avoid normal triage procedures while still providing urgent emergency care if necessary.
- Move patient to designated isolation room. Follow strict contact and droplet precautions.
- Move accompanying persons to separate area for further assessment and referral to a medical health officer.
- Post signage and use sign in/out sheets.
- Contact the medical health officer. If EVD is in the differential diagnosis, the medical health officer will call the expert risk assessment team.

3. Once the person is isolated and health care workers have donned the appropriate personal protective equipment, the physician should perform an in-depth assessment with further review of history, and signs and symptoms.
   - Contact the medical health officer. If EVD is in the differential diagnosis, the medical health officer will call the expert risk assessment team
   - Review and confirm need for diagnostics, treatment and transfer with expert team.

If the physician determines there is **no risk** after their in-depth assessment, continue with normal triage and patient care.

If there is a **confirmed risk** and **transfer is required**

- Contact the Patient Transfer Network to organize receiving site and transfer.
- Prepare the patient for transfer.

If there is a **confirmed risk**, but **no transfer is necessary** at this point:

- Proceed with protocol based investigation and care.

E. Investigation

The result of an EVD Nucleic Acid Testing (EVD NAT) test performed by the British Columbia Public Health Microbiology Laboratory is most reliable in a patient with a minimum of three days (72 hours) of symptoms.[3] As such, the result of an EVD NAT test must be considered in association with the clinical status of the patient and an understanding of the history of symptom development before assessing the next steps in the patient's care plan.

[2] *BC Ebola Virus Disease Personal Protective Equipment Guidelines*. www.health.gov.bc.ca/pho/pdf/ebola-ppe-guidelines-2014-11-17.pdf

[3] BC Centre for Disease Control (2014) BC Public Health Microbiology and reference Laboratory: Laboratory Trends Oct. 17, 2014. www.bccdc.ca/NR/rdonlyres/E4330C15-1F3D-4B6A-9C27-1FDA74E644AE/0/Oct2014LaboratoryTrends.pdf

If laboratory testing is required identify Ebola infection, assess according to the following in conjunction with the known history of symptom onset. Appendix C contains a visual of this algorithm. Continue to provide supportive urgent care to the patient in the isolation room while awaiting the test results.

- If **EVD NAT positive**, transport patient to Surrey Memorial Hospital or BC Children's Hospital following established protocols for EVD patients.[4]
- If **negative** and an alternative diagnosis **is identified**:
  - Assess and treat patient for alternative diagnosis.
  - Consult with expert team to determine if further EVD testing is indicated based on clinical status and risk factor history.
    - If indicated, repeat EVD NAT 72 hours after onset of symptoms.
- If **negative** and an alternative diagnosis **is not identified** :
  - Continue to assess clinical status of the patient.
  - Consult with expert team to determine if further EVD testing is indicated based on clinical status and risk factor history.
    - If indicated, repeat EVD NAT 72 hours after onset of symptoms.

If previously negative EVD NAT is subsequently **positive at 72 hours**, transport patient to Surrey Memorial Hospital or BC Children's Hospital following established protocols for EVD patients.

If a patient's clinical status changes and EVD is suspected despite negative EVD NAT, transfer to a Type 3 Facility might be warranted.

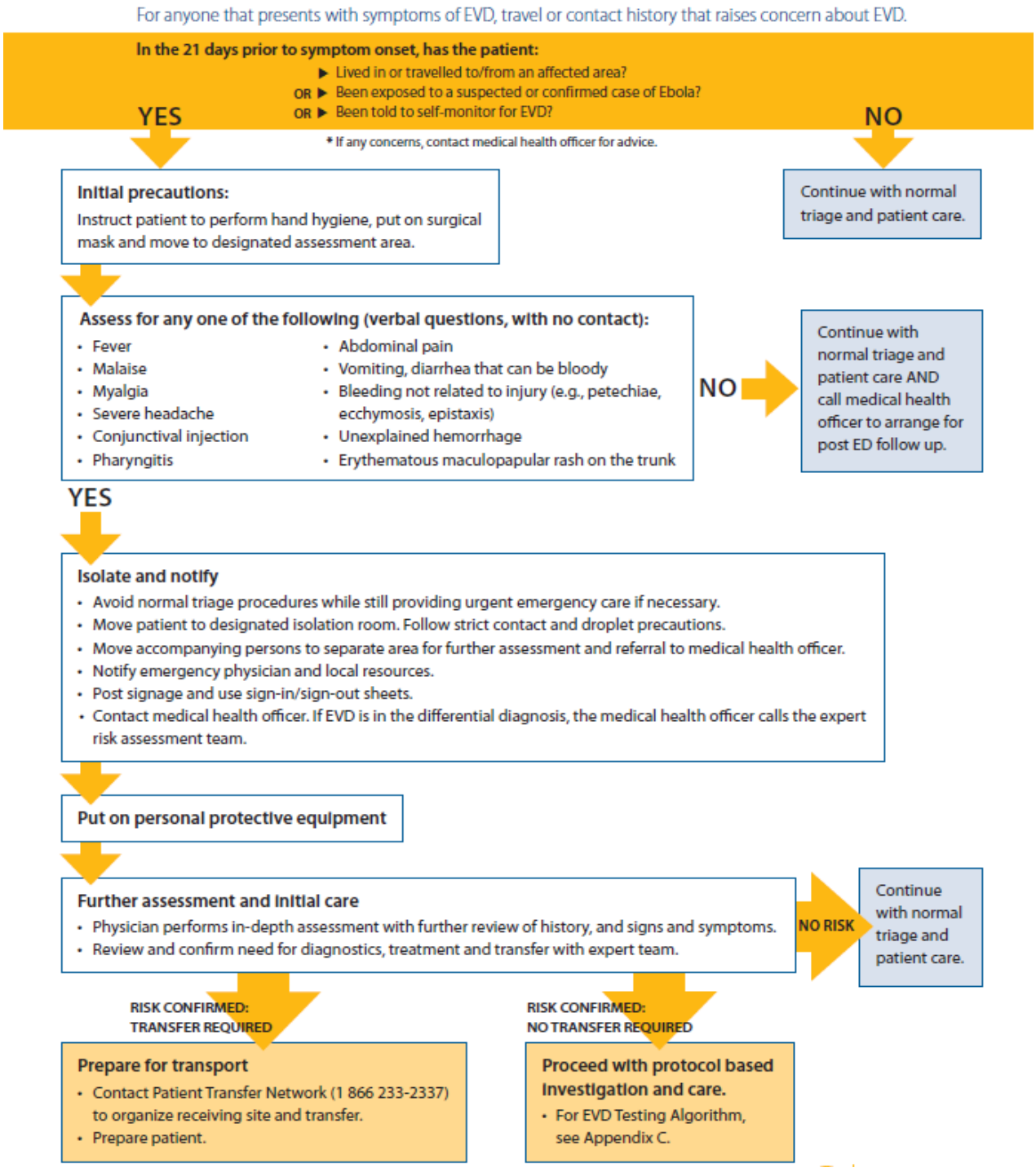
F. Discharge to Community

Once a patient's EVD NAT is negative for 72 hours, consult the medical health officer for instructions on how to best monitor the patient once they have left the emergency department and returned to the community. If their health was previously being monitored because of a potential exposure history and they are still in the 21 day window, this monitoring must continue.

Facilities should develop a communication protocol for notification once EVD has been definitively ruled out, so EVD precautions can be discontinued and those who have been alerted can stand down. Systematic and complete communication is required for all parties, including the personnel involved in the care of the patient.

[4] *B.C. Ebola Transportation Policy*

Appendix A – EVD Risk Assessment Algorithm



Medical Health Officer Contact Information

When you call, be explicit that you are a calling about an urgent matter related to Ebola.

The medical health officer for your region can be reached at the following numbers:

- Fraser Health: 604 587-3828 (M-F, 8:30-4:30) OR 604-527-4806 (after hours)
- Interior Health: 1 866 457-5648 (24/7)
- Island Health: 250 519-3406 (M-F, 8:30-5:00) OR 1 800 204-6166 (after hours)
- Northern Health: 250 565-2000 (24/7)
- Vancouver Coastal Health: 604 675-3900 (M-F, 8:30-5:00) OR 604-527-4893 (after hours)

Appendix B – EVD Screening Questions

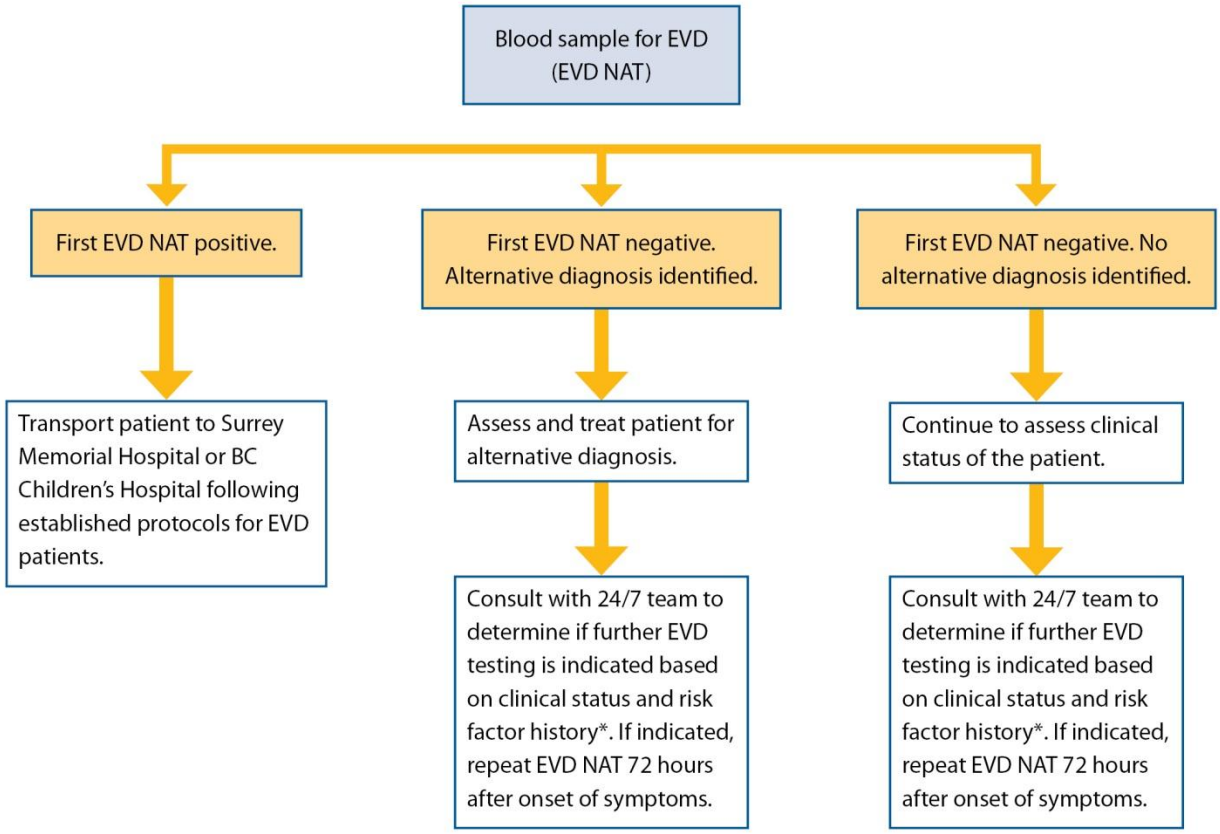
If a person presents to an emergency department in B.C. with symptoms of EVD, travel or contact history that raises concern about EVD, ask the following questions:

1. Have you (or a close family member) travelled to a viral hemorrhagic fever/Ebola virus disease outbreak region within the last 21 days (three weeks)?
2. Do you have fever (≥ 38°C) **or other** symptoms such as headache, muscle pain, vomiting, diarrhea, abdominal pain or unexplained hemorrhage? See additional signs and symptoms below.
3. When did symptoms first start?
4. What countries did you visit? For what duration? Was it for work or pleasure? If for work, was it to provide health care to others?
5. Were you visiting mostly the city, the country or both?
6. Have you come into contact with live or dead people or animals known, or strongly suspected, to have viral hemorrhagic fever/Ebola virus disease?
7. Have you visited caves/mines or had contact with non-human primates (monkeys, gorillas, lemurs, gibbons, chimpanzees, etc.), bats, or rodents within outbreak countries?
8. Have you worked in a laboratory within the outbreak area or come into contact with any bodily fluids from humans suspected to have the disease?
9. Have you participated in the funeral of someone suspected or known to have Ebola virus disease?
10. Have you been in contact with, or provided personal care to somebody suspected or known to have Ebola virus disease?
11. Have you been in contact with body fluids of somebody known to have Ebola virus disease?
12. Have you had a needle-stick injury in the past 21 days (three weeks)?
13. Did you spend time in any medical clinic, health care facility or hospital while travelling?
14. Do you have malaria? Were you diagnosed or treated for malaria while travelling? Did you take medicines to prevent malaria while travelling?

Ebola Virus Disease Signs and Symptoms

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

Appendix C – EVD Testing Algorithm for EDs



* If clinical status changes and EVD is suspected despite negative EVD NAT, transfer to a Type 3 facility may be warranted.