PICNet
PROVINCIAL INFECTION CONTROL NETWORK OF BRITISH COLUMBIA
A program of the Provincial Health Services Authority

BRITISH COLUMBIA | Office of the Provincial Health Officer

Provincial Recommendations for Discontinuation of High Threat Pathogen Precautions and Patient Discharge

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- Provincial Infection Prevention and Control/Workplace Health & Safety COVID-19 Working Group
- BC Biocontainment Unit
- Communicable Disease Medical Health Officer group
- Public Health Response, BC Centre for Disease Control
- Office of the Provincial Health Officer

Introduction

This document provides guidance on the discontinuation of precautions and discharge of patients with a suspected or confirmed high threat pathogen (HTP) This document applies to all acute care settings (i.e., hospital), including emergency departments and outpatient/ambulatory care within acute care facilities, as well as health authority (HA)-operated urgent and primary care centers (UPCCs).

After a HTP has been ruled out or after someone recovering from HTP is determined to no longer pose a risk to others, significant anxiety and stigma (both patient and societal) may occur regarding the patient's ability to infect others in the community. Therefore, the discontinuation of precautions, as well as preparation for discharge, requires an organized, systematic and evidence-based approach.

The purpose of this document is to provide recommendations for two situations:

a) Patient with a suspected HTP – procedure for ruling out HTP and discharging the patient to the community; and

b) Patient with a confirmed HTP who is recovering in hospital and determined to no longer pose a risk to others – procedures for discontinuation of HTP precautions, transferring the patient to another part of the hospital, or discharging the patient to the community.

The information and recommendations provided in this guidance is based on viral hemorrhagic fever (VHFs), specifically Ebola, Marburg, Lassa fever, and Crimean Congo Hemorrhagic Fever (CCHF) and will need to be adapted, in consultation with local infection prevention and control (IPC) physician and/or medical health officer (MHO), for unknown or newly emerging pathogens as new information becomes available. These are subject to change as new evidence emerges.

For supplementary information, see the British Columbia Centre for Disease Control (BCCDC) High Threat Pathogens website.

Definitions

- **Health-care worker (HCW):** for the purpose of this guidance, individuals providing or supporting health-care services for patients who are suspected or confirmed to have an HTP. This includes, but is not limited to emergency service providers, physicians, nurses, laboratory personnel, respiratory therapists and other allied health professionals, support services (e.g., housekeeping, dietary, maintenance).

Background and Clinical Course of VHFs

VHFs are generally not transmissible before the onset of symptoms[1]. Severe illness is strongly associated with high levels of virus production and, therefore, a higher risk of transmission. Clinical course and improvement also varies depending on the pathogen and severity of illness, usually occurring by the second or third week of illness in those patients who survive infection. It is believed that with access to medical

support, including intensive/critical care and supportive therapy, the fatality rate can be substantially reduced[2,3]. Patients may require significant support during the convalescence period.

For Patients with a Suspected HTP: Rule-out of HTP, Discontinuation of HTP Precautions and Process for Patient Discharge

The information provided in this section is relevant to VHFs (specifically Ebola, Marburg, Lassa fever and CCHF) and will need to be adapted, in consultation with local infection prevention and control (IPC) physician and/or medical health officer (MHO), for unknown or newly emerging pathogens as new information becomes available.

High threat pathogen precautions and strategies to reduce aerosol generation should remain in effect until VHF is ruled out.

- For information on HTP precautions, refer to Provincial Infection Prevention and Control Guidance for the Management of a High Threat Pathogen in Acute Care Settings.

Less than 72 hours since symptom onset:

- Due to low-level viremia (and consequently relatively low infectivity) during the early phases of VHF, reverse transcriptase polymerase chain reaction (RT PCR) testing for the VHF in blood may be negative during the first 72 hours after symptom onset. Therefore, a second test after 72 hours may be required to exclude VHF infection.
- A repeat test is not required if the patient has recovered from the illness that required them to seek medical attention[4].

More than 72 hours since symptom onset:

- A single negative RT PCR test result for VHF from a blood specimen collected more than 72 hours after symptom onset rules out VHF[4].

- It should be noted that negative testing for the VHFs specified in this guidance (Ebola, Marburg, Lassa fever and CCHF) does not rule out infection with other VHFs (or other pathogens).
- Should a patient present with epidemiological history and symptoms compatible with other VHFs, appropriate precautions should be maintained until the diagnosis can be excluded.
    - Once HTP is ruled out, use a point of care risk assessment to determine if additional precautions are required for other pathogens.
- Ruling out HTP also requires the following:
    - Clinical review suggests the patient's illness is not likely to VHF, symptoms have resolved and an alternate diagnosis that accounts for the symptoms.
    - Clinical review from the medical team, IPC specialists and likely the MHO agree this is not VHF.
    - Plan for ongoing management in place as required, patient should know what to communicate and to whom if symptoms reoccur.
- Once VHF is ruled out and the patient is ready for discharge:

- If their health was previously being monitored because of a potential exposure history and they are still in the incubation period window, this monitoring must continue.
- Consult the MHO to arrange for continued monitoring and follow up for when the patient leaves the facility and returns to the community, if necessary.

- Ensure a communication plan is in place for notification once VHF has been definitively ruled out, so HTP precautions can be discontinued. Systematic and complete communication is required for all parties, including the HCWs involved in the care of the patient.

For Patients with a Confirmed HTP: Discontinuation of HTP Precautions and Process for Patient Discharge

- Generally, duration of precautions will be determined on a case-by-case basis. This will be based upon the communicable period of the HTP and clinical and laboratory data.
- This should be done in consultation with IPC, infectious disease specialists, local and provincial medical microbiologists, and the MHO, in addition to other expertise that is deemed necessary by this team. Refer to Appendix A for more information on the communicable period for each VHF.
- Consideration will also be given to the presence of other co-existing conditions that may require additional precautions for the patient (e.g., tuberculosis, antibiotic resistant organisms)
- The absence of fever is an unreliable indicator of infectivity in the later stages of disease. It cannot be used as the sole criterion for de-escalation of HTP precautions.

Considerations for the Duration of HTP Precautions

HTP precautions for VHFs may be discontinued and adjusted to routine practices or other additional precautions (e.g., contact/droplet as indicated by the patient's condition) if the following criteria are met:

- ☐ Two negative plasma VHF RT PCR tests at least 24 hours apart – at least one of these tests should be done at least 3 days after onset of symptoms,
- ☐ Agreement between experts in IPC, Infectious Diseases, BCCDC Public Health Laboratory, and Public Health
- ☐ Patient's ability to comply with instructions,
- ☐ Complete resolution of symptoms compatible with VHF (e.g., vomiting or diarrhea) or can be accounted for by an alternative diagnosis.
- ☐ Able to perform activities of daily living, e.g., feed, wash and walk independently, taking into account any previous disabilities.

Criteria for Discharge from Hospital

Patients may be considered for discharge if they meet the following criteria:

Clinical criteria:

- ☐ Three days without fever or significant symptoms. Symptoms that suggest ongoing shedding of virus (e.g., diarrhoea, bleeding, etc.) should have completely stopped. Soft stools are not regarded as an ongoing shedding of virus in children < 5 years of age[1], **AND**
- ☐ A significant improvement in clinical condition.

Supporting laboratory results:

- ☐ The patient has no clinical laboratory results consistent with active VHF, OR
- ☐ Lab results consistent with VHF have been explained due to other pathogens.

Alternatively, due to ongoing care requirements resulting from or unrelated to the HTP, the patient might be referred for transfer to another unit/ward for convalescence when the discharge criteria have been met.

Infection Control Procedures for Discontinuation of Precautions or Discharge

- Patient release procedures are in place to protect HCWs and to ensure that the patient being discharged or moved to another unit for convalescent care does not transfer environmental contamination outside of the patient room/unit.
- Ensure HCWs wear appropriate PPE, based on a point of care risk assessment throughout the discharge or transfer process.

1. Patient preparation for discontinuation of precautions or discharge:
   - Patient will be provided with a clean disposable gown.
   - Patient will shower, using the shower in the treatment room, with chlorhexidine gluconate (maximum 2%)[7] for 10 minutes, and rinse. Assist patient with showering, if needed.
   - Following the shower:
     - If the patient is being discharged, they should put on clean street clothing, perform hand hygiene and exit the unit.
     - If the patient is moving to another part of the hospital for convalescent care, they should put on a clean hospital gown and, just prior to exiting the room, will don new booties and perform hand hygiene.
   - While showering, the paths the patient walked to enter the adjacent treatment room and the shower are mopped with disinfectant with efficacy against enveloped viruses.
   - Patient will be relocated to an adjacent treatment room/area or discharged, avoiding any contact with surfaces and objects along the way to minimize the need for additional environmental cleaning and disinfection.
   - If worn, the gown and booties should be disposed of in designated biohazardous waste container for HTP waste.

[1] For Ebola, Marburg and Lassa fever: although the virus is no longer present in the blood, it may show persistence in sites including testes (semen), eyes and brain, and other body fluids (such as breast milk)[5,6]. This does not preclude discharge but must be taken into consideration when providing discharge instructions to the patient. Refer to section on Discharge Supports for more information.

2. Patient Clothing and Personal Belongings:
   - Any clothing that is clearly contaminated/soiled with blood and/or body fluids that the patient was wearing at the time of admission should be disposed of in a designated biohazardous waste container for HTP waste. Ensure that this is communicated to the patient as this could be a great cost to them.
   - Any other personal items belonging to the patient that entered the treatment unit must be cleaned and disinfected. If this is not possible, they must be disposed of in a designated biohazardous waste container for HTP waste (consult IPC).
     - Use a disinfectant with a Health Canada issued Drug Identification Number (DIN) with broad spectrum virucidal and/or specific HTP (if pathogen is known) claims.
     - Follow the manufacturer's instructions for use (MIFU) regarding dilution and contact time.

3. Hospital Equipment and Supplies:
   - For terminal/discharge cleaning of patient room, refer to Provincial Recommendations for Environmental Services, Biohazardous Waste Management, and Food and Linen Management for High Threat Pathogens
   - For cleaning and disinfection of medical equipment used in the care of patients with HTP, see Provincial Recommendations for Cleaning and Disinfection of Medical Equipment for High Threat Pathogens.

Discharge Supports

- Patients recovering from an HTP/VHF may be weak for some weeks or months and additional help may facilitate recovery. Nutritional support, physiotherapy/ occupational therapy/rehabilitation facility referral, and/or psychosocial assessment and support may be necessary during this convalescent phase.
- Recovering patients must receive education and counselling to address associated disease sequelae during their convalescence.
- Routine practices are adequate to prevent nosocomial transmission of virus once HTP precautions are discontinued. However, some VHF studies have demonstrated detectable virus in certain bodily fluids after virus clearance from the blood. This includes breast milk, urine, sweat and semen. During this time, transmission of virus remains a theoretical possibility. Refer to Appendix A for more information on the communicable period for each VHF.
  - Patients should be advised on the appropriate personal precautions to take with close contacts to prevent transmission to others, including avoidance of breast feeding and abstinence from sexual relations or use of condoms for at least 12 months after onset of disease, or based on the risk for the specific pathogen.
  - Refer to BCCDC's British Columbia Ebola Virus Disease (EVD) Case and Contact Investigation and Management Guideline and the Public Health Agency of Canada's *Public Health Management of Cases and Contacts of Human Illness Associated with EVD* for specific recommendations on management of convalescent confirmed cases after discharge from hospital.
- Based on previous experience of VHF outbreaks, rejection of patients by their communities is common after recovery. Survival from VHF may result in social stigmatization and survivors may require significant support.

- Education regarding VHFs and psychosocial support should be made available to patients and their family members through health authority and community programming, with ample opportunity for questions to be answered.
- Public Health should be in regular contact with the patient during re-integration into community life.

Medical Health Officer Contact Information

When you call, be explicit that you are a calling for assistance with decision making around the discontinuation of precautions and/or discharge of patients with an HTP.

The MHO for your region can be reached at the following numbers:

Fraser Health:	Business hours: 1-866-990-9941 After business hours: 604-527-4806
Interior Health:	1 866 457-5648 (24/7)
Island Health:	Business hours: see Medical Health Officers - www.islandhealth.ca/about-us/medical-health-officers After business hours: 1-800-204-6166
Northern Health:	Business hours: 250-645-3794 After business hours: 250-565-2000, press 7, ask for the MHO on call
Vancouver Coastal Health:	604 675-3900 (M-F, 8:30-5:00) **OR** 604-527-4893 (after hours)

Appendix A: Communicable Period

Pathogen	Incubation period	Case fatality rate	Communicable Period	Notes/comments
Ebola	Range of 2-21 days, but normally 4-10 days[8]	Between 25-100% depending on the virus species[8,9]	The risk of transmission during the asymptomatic incubation period is negligible, the disease is not contagious before the febrile phase.[1] Once symptoms begin, individual remains contagious as long as blood and/or body fluids contain the virus, including if they die from Ebola.	Communicability increases with stage of illness, with the highest risk during the late stages, especially during the "wet" phase of the disease[1] and remains as long as blood and/or body fluids contain the virus, including during the port-mortem period[10]. Transmission through semen appears to be rare but has occurred up to 14 months after clinical recovery for Ebola.
Marburg	From 2 to 21 days; typically 5 to 9 days[11]	Between 23-90%[11,12]	The risk of transmission during the asymptomatic incubation period is negligible, the disease is not contagious before the febrile phase.[1] Once symptoms begin, individuals remain contagious as long as blood and/or body fluids	Communicability increases with stage of illness, with the highest risk during the late stages, especially during the "wet" phase of the disease[1]. Transmission through semen appears to be rare but has occurred up to 7 weeks after clinical recovery for Marburg.

			contain the virus, including if they die from Marburg.	
Lassa Fever	Ranges from 3-21 days (average 10 days)[13].	1-2% in endemic areas, higher in pregnant women (30%) and hospitalized individuals (generally 15-20%, can reach 50% during epidemics)[13,14]	Transmission to close contacts usually only occurs while the patient is symptomatic. Nosocomial transmission can occur via inoculation with contaminated needles and unprotected contact with patients' pharyngeal secretions, saliva, blood, or urine.[15] Additionally, a patient can excrete virus in urine for between 3 and 9 weeks after the onset of illness and via semen for up to 3 months post-infection[16].	One study detected Lassa virus in seminal fluid up to 9 months after patient discharge (testing in cell culture and mice showed viable virus)[6]
Crimean Congo Hemorrhagic Fever	Ranges from 1 to 13 days depending on the mode of transmission[17]	Between 4-60%[17–20]	Specific time period is unknown. There is a high risk of nosocomial transmission related to contact with blood and body fluids from patients with CCHF.[20] Accidental laboratory infections	Horizontal transmission from mother to child has been reported[22] and sexual transmission has been proposed, however, presence of CCHF virus has not yet been confirmed in semen or vaginal fluids[23].

			have also been described.[21]	

References

1. Rollin PE. Ebola-Marburg Viral Diseases. In: Heymann, DL, ed. *Control of Communicable Diseases Manual*. 21st Edition. Control of Communicable Diseases Manual. American Public Health Association; 2015. doi:10.2105/CCDM.2745.058

2. Public Health Agency of Canada. Ebola disease: For health professionals, humanitarian aid workers. Published October 16, 2014. Accessed April 5, 2024. https://www.canada.ca/en/public-health/services/diseases/ebola/health-professionals-ebola.html

3. Critical Care Society, Canadian Association of Emergency Physicians, Association of Medical Microbiology & Infectious Diseases Canada. *Ebola Clinical Care Guidelines A Guide for Clinicians in Canada*. Organized by Public Health Agency of Canada; 2014. Accessed April 5, 2024. https://caep.ca/wp-content/uploads/2016/03/ebola_clinical_care_guideline_english_201505.pdf

4. US Centre for Disease Control. Considerations for Discharging People under Evaluation for Selected Viral Hemorrhagic Fevers (VHF) | Evaluating Patients | Clinicians | Ebola (Ebola Virus Disease) | CDC. Published September 7, 2023. Accessed April 9, 2024. https://www.cdc.gov/vhf/ebola/clinicians/evaluating-patients/discharging.html

5. World Health Organization. Infection prevention and control guideline for Ebola and Marburg disease. Published August 2023. Accessed April 5, 2024. https://www.who.int/publications-detail-redirect/WHO-WPE-CRS-HCR-2023.1

6. Thielebein A, Ighodalo Y, Taju A, et al. Virus persistence after recovery from acute Lassa fever in Nigeria: a 2-year interim analysis of a prospective longitudinal cohort study. *Lancet Microbe*. 2022;3(1):e32-e40. doi:10.1016/S2666-5247(21)00178-6

7. Donskey CJ, Deshpande A. Effect of chlorhexidine bathing in preventing infections and reducing skin burden and environmental contamination: A review of the literature. *American Journal of Infection Control*. 2016;44(5):e17-e21. doi:10.1016/j.ajic.2016.02.024

8. Public Health Agency of Canada. Ebolaviruses: Infectious substances Pathogen Safety Data Sheet. Published May 3, 2023. Accessed March 14, 2024. https://www.canada.ca/en/public-health/services/laboratory-biosafety-biosecurity/pathogen-safety-data-sheets-risk-assessment/ebolavirus.html

9. Alberta Health Services, Critical Care Strategic Clinical Network. *Care of the Adult Critically Ill Patient with Confirmed, Probable or Suspected Ebola Virus Disease (EVD)*.; 2022. Accessed April 5, 2024. https://www.albertahealthservices.ca/assets/info/vhf/if-vhf-ebola-care-seriously-critically-ill.pdf

10. BC Centre for Disease Control. British Columbia Ebola Virus Disease (EVD) Case and Contact Investigation and Management Guidelines. Published January 30, 2023. Accessed April 24, 2024. http://www.bccdc.ca/resource-gallery/Documents/Guidelines%20and%20Forms/Forms/Epid/Enterics/BC%20EVD%20Contact%20Investigation%20and%20Management%20Guideline%20Jan%2030%202023.pdf

11. Public Health Agency of Canada. Marburg Marburgvirus: Infectious substances pathogen

safety data sheet. Published February 18, 2011. Accessed March 14, 2024. https://www.canada.ca/en/public-health/services/laboratory-biosafety-biosecurity/pathogen-safety-data-sheets-risk-assessment/marburg-virus.html

12. US Centre for Disease Control. Signs and Symptoms | Marburg (Marburg Virus Disease). Published August 13, 2021. Accessed April 22, 2024. https://www.cdc.gov/vhf/marburg/symptoms/index.html

13. Public Health Agency of Canada. Lassa virus: Infectious substances pathogen safety data sheet. Published February 12, 2024. Accessed March 14, 2024. https://www.canada.ca/en/public-health/services/laboratory-biosafety-biosecurity/pathogen-safety-data-sheets-risk-assessment/lassa-virus.html

14. US Centre for Disease Control. Signs and Symptoms | Lassa Fever. Published March 6, 2019. Accessed April 22, 2024. https://www.cdc.gov/vhf/lassa/symptoms/index.html

15. Rollin PE. Arenaviral Hemorrhagic Fevers, Old World. In: Heymann, DL, ed. *Control of Communicable Diseases Manual*. Control of Communicable Diseases Manual. American Public Health Association; 2015. doi:10.2105/CCDM.2745.028

16. Lassa fever: origins, reservoirs, transmission and guidelines. GOV.UK. Accessed April 23, 2024. https://www.gov.uk/guidance/lassa-fever-origins-reservoirs-transmission-and-guidelines

17. Public Health Agency of Canada. Crimean-Congo hemorrhagic fever virus: Infectious substances pathogen safety data sheet. Published March 11, 2024. Accessed April 5, 2024. https://www.canada.ca/en/public-health/services/laboratory-biosafety-biosecurity/pathogen-safety-data-sheets-risk-assessment/crimean-congo-haemorrhagic-fever-virus.html

18. Leblebicioglu H, Sunbul M, Barut S, et al. Multi-center prospective evaluation of discharge criteria for hospitalized patients with Crimean-Congo Hemorrhagic Fever. *Antiviral Res*. 2016;133:9-13. doi:10.1016/j.antiviral.2016.07.010

19. US Centre for Disease Control. Signs and Symptoms | Crimean-Congo Hemorrhagic Fever (CCHF). Published September 3, 2013. Accessed April 22, 2024. https://www.cdc.gov/vhf/crimean-congo/symptoms/index.html

20. Frank MG, Weaver G, Raabe V. Crimean-Congo Hemorrhagic Fever Virus for Clinicians—Epidemiology, Clinical Manifestations, and Prevention - Volume 30, Number 5—May 2024 - Emerging Infectious Diseases journal - CDC. 2024;30(5). doi:10.3201/eid3005.231647

21. Rollin PE. IV. Arboviral Hemorrhagic Fevers. In: Heymann DL, ed. *Control of Communicable Diseases Manual*. Control of Communicable Diseases Manual. American Public Health Association; 2015. doi:10.2105/CCDM.2745.026

22. Saijo M, Tang Q, Shimayi B, et al. Possible horizontal transmission of crimean-congo hemorrhagic Fever virus from a mother to her child. *Jpn J Infect Dis*. 2004;57(2):55-57.

23. Pshenichnaya NY, Sydenko IS, Klinovaya EP, Romanova EB, Zhuravlev AS. Possible sexual transmission of Crimean-Congo hemorrhagic fever. *Int J Infect Dis*. 2016;45:109-111. doi:10.1016/j.ijid.2016.02.1008