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2026 Ebola Disease Outbreak Due to Bundibugyo Virus in the Democratic Republic of Congo and Uganda: Ontario Preparedness and Response

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Welcome and Land Acknowledgement

Learning Objectives

By the end of this presentation, participants will be able to:

1. Describe the epidemiology of the 2026 Ebola disease outbreak due to Bundibugyo virus in the Democratic Republic of Congo (DRC) and Uganda.
2. Apply a structured approach to conducting a Viral Hemorrhagic Fever (VHF) risk assessment by integrating clinical presentation, exposure history, and travel history, and identify immediate steps to take when VHF is suspected.
3. Summarize key infection prevention and control (IPAC) measures for VHFs in acute care settings and identify relevant Public Health Ontario (PHO) clinical resources.
4. Understand updates to PHO's VHF testing algorithm and identify how to activate the Special Pathogen Notification Pathway when VHF testing is being considered following a detailed risk assessment.

Speakers and Panelists

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Disclosures

- Dr. Zygmunt does not have any conflicts of interest to disclose
- Dr. Nadarajah does not have any conflicts of interest to disclose
- Dr. Clark does not have any conflicts of interest to disclose
- Dr. Bingham does not have any conflicts of interest to disclose

Disclaimer

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Ebola Disease Overview and 2026 Outbreak in the Democratic Republic of Congo (DRC) and Uganda

Overview of Ebola Disease

Characteristic	Description
Etiologic Agent (genus and species)	Orthoebolaviruses (Ebola virus, Sudan virus, Taï Forest virus, Bundibugyo virus)
Reservoir	Forest-dwelling fruit bats
Incubation period	2 to 21 days
Communicability Period	From symptom onset; increases as illness progresses and remains high after death
Transmission	Direct contact with blood and other body fluids (including after death) or contaminated surfaces and objects

Source: Rollin PE. Ebola–Marburg Viral Diseases. In: Heymann DL, editor. Control of communicable diseases manual. 21st ed. Washington, DC: American Public Health Association; 2024. Available from: <https://doi.org/10.2105/CCDM.2745.058>

Clinical Features of Ebola Disease

Clinical Feature	Description
Early ‘Dry’ Phase	Abrupt onset of non-specific symptoms (e.g., fever, fatigue, aches/pains) that resemble common illnesses in returning travellers, such as malaria and typhoid fever
Progression to ‘Wet’ Phase	Gastrointestinal symptoms (diarrhea, nausea/vomiting, abdominal pain) become prominent and may lead to significant fluid losses and dehydration
Hemorrhagic Manifestations	Bleeding is not always present and, when it occurs, may develop later in the course of illness
Severe Disease	May progress to multi-organ failure, septic shock, and death

Source: Rollin PE. Ebola–Marburg Viral Diseases. In: Heymann DL, editor. Control of communicable diseases manual. 21st ed. Washington, DC: American Public Health Association; 2024. Available from: <https://doi.org/10.2105/CCDM.2745.058>

Cases of Ebola Disease Outside of Africa (1976 to May 2026)

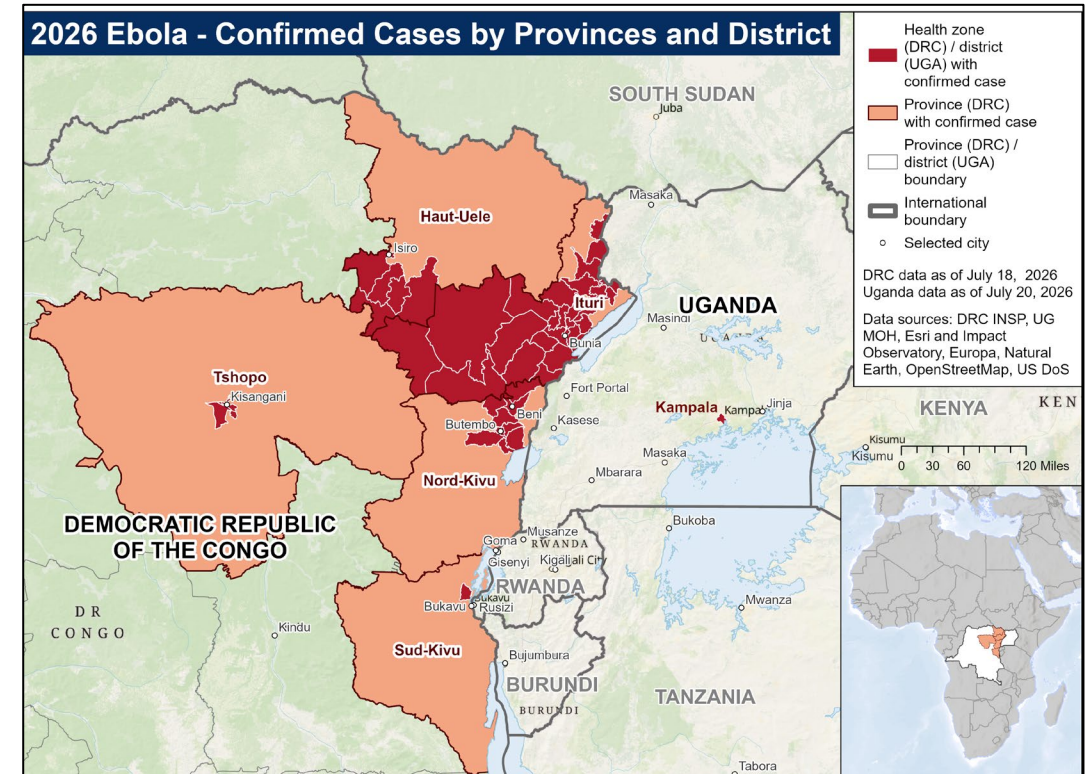
- Risk of undetected transmission outside Africa is **low**
- Only 28 Ebola cases have been documented outside Africa over 50 years (25 imported cases and 3 secondary cases)
- Most imported cases were identified and managed through planned medical evacuation
- Cases primarily occurred in individuals with an occupational exposure:
 - Healthcare and/or laboratory workers (75%)
 - Other outbreak responders, humanitarian workers, peacekeepers, and journalists (21%)



Source: Colzani E, et al. Low risk of Ebola global spread: analysis of laboratory-confirmed Ebola disease cases outside Africa, 1976–May 2026. Euro Surveill. 2026;31(24):2600508. Available at: <https://doi.org/10.2807/1560-7917.ES.2026.31.24.2600508>

Current Ebola Disease Outbreak Status (as of July 20, 2026)

- Outbreak identified in the DRC in May 2026
- Declared a Public Health Emergency of International Concern on May 17, 2026
- **DRC:** Fastest-growing Ebola outbreak in Africa history, with the epicentre in Ituri province and ongoing transmission reported across five provinces
- **Uganda:** Outbreak was limited and epidemiologically linked to DRC; entered 42-day countdown to end outbreak on July 16, 2026
- **Other countries:** Three cases reported outside Africa, all among humanitarian or health care workers who had worked in DRC outbreak areas



Source: Centers for Disease Control and Prevention (CDC). Ebola outbreak: current situation [Internet]. Atlanta, GA: CDC; 2026 [cited 2026 Jul 17]. Available from: <https://www.cdc.gov/ebola/situation-summary/index.html>

Border Measures for Travellers Entering Canada

- Temporary border measures are in place from May 30 to August 29, 2026, to reduce the risk of Ebola disease entering and spreading in Canada
- Travellers who have been in the DRC, Uganda, or South Sudan within the previous 21 days are assessed on arrival by a Quarantine Officer
- Travellers may be required to follow specific public health measures, including:
 - Quarantine for 21 days after arrival
 - Monitor for symptoms of Ebola disease
 - Contact their local public health authority if symptoms develop



Source: Public Health Agency of Canada. Ebola disease: border measures for travellers entering Canada [Internet]. Ottawa, ON: Government of Canada; 2026 [cited 2026 Jul 3]. Available from: <https://www.canada.ca/en/public-health/services/diseases/ebola/border-measures.html>

Roles and Responsibilities in the Assessment of a Suspected Ebola Case

- **Hospital:** Triage, isolates, and provides initial care using appropriate IPAC precautions, co-ordinates patient care with relevant partners, and implements measures to reduce the risk of further exposures
- **Most Responsible Clinician:** Completes the VHF clinical risk assessment tool, consults local Infectious Diseases (ID) and IPAC supports as appropriate, and reports suspected Ebola cases through established pathways
- **Ministry of Health:** Leads and co-ordinates the provincial health-system response, including testing, patient transfer, case and contact management, and communications
- **Public Health Ontario:** Provides scientific and technical expertise, and develops evidence-informed guidance and resources to support risk assessment, IPAC, and laboratory testing
- **Local Public Health Unit:** Supports case and contact management and follow-up of returning travellers requiring public health monitoring

Source: Ontario. Ministry of Health. Viral hemorrhagic fevers: case and contact management reference document [Internet]. Toronto, ON: King's Printer for Ontario; 2026 [cited 2026 Jul 16]. Available from: <https://www.ontario.ca/files/2026-06/moh-ohps-ref-viral-hemorrhagic-fevers-en-2026-06-23.pdf>



PHO's VHF Risk Assessment Tool

Purpose

- It supports a comprehensive risk assessment by evaluating a patient's clinical presentation, travel history, and potential exposures
- This tool is not intended for screening
- Designed to inform clinical decision-making, with suspicion for VHF based on the overall assessment rather than any single response
- Supports, but does not replace, clinical judgement or local consultation processes, including consultation with IPAC and ID specialists

Viral Hemorrhagic Fever (VHF)
Clinical Risk Assessment Tool

Public Health Ontario | Santé publique Ontario

Updated: June 10, 2026

Background on VHF

- Viral Hemorrhagic Fever (VHF) is a serious disease caused by viruses (e.g., orthobolaviruses, Marburg virus, and Lassa virus) that can damage blood vessels, leading to unexplained bruising and bleeding and, in some instances, severe life-threatening illness due to internal hemorrhage, organ failure, and death.
- Orthobolaviruses, Marburg virus, and Lassa virus are endemic to defined regions in West and Central Africa.
- Viruses that cause VHF are primarily transmitted through direct contact with blood, body fluids, or waste (e.g., saliva, vomit, urine, or feces) of an infected person. They can also spread through contact with contaminated objects (e.g., medical equipment) or direct or indirect exposure to infected animals (e.g., rodents, primates).

Purpose of This Tool

This tool is not intended for screening.

The purpose of this tool is to support clinicians in conducting a **comprehensive clinical risk assessment** for VHF including evaluation of the patient's clinical presentation, travel to areas with endemic VHF or suspected / confirmed outbreaks, and relevant exposures within 21 days of symptom onset. A positive response in a single section should not be used on its own to indicate VHF suspicion. Clinicians should base decisions regarding VHF suspicion on the overall clinical risk assessment.

Immediate Actions if You Suspect Your Patient May Have a VHF

The following is a summary of immediate actions to take if a clinician suspects a patient may have a VHF. More detailed instructions on these immediate actions are available on [pages 6-8](#).

- Immediately implement Public Health Ontario's [Infection Prevention and Control \(IPAC\) Recommendations for Preventing VHF Transmission in Acute Care](#). These measures include Routine Practices plus Droplet and Contact Precautions with additional personal protective equipment (PPE) (as outlined on [page 6](#)), dedicated patient placement, dedicated care equipment, essential/dedicated staffing considerations, environmental cleaning, and Category A waste management.
- Consult with your hospital's IPAC team for further advice.
- Bloodwork for VHF and other laboratory testing should be carefully considered, and where appropriate, deferred until consultation has occurred.
 - Additional measures are required for specimen collection, laboratory processing, and transport.
- If blood work for routine diagnostic testing has already been collected or sent prior to VHF being considered, notify the laboratory that provides routine diagnostic services to your institution **immediately** that VHF is on the differential diagnosis so that appropriate biosafety precautions can be implemented without delay.
- Complete a comprehensive clinical risk assessment for VHF using this tool and gather as much information as possible from the patient and/or their family, friend(s), or caregiver(s) where appropriate.
- Consult an Infectious Diseases (ID) physician for a secondary assessment, if required and where available.
- **If suspicion for VHF remains after completion of the comprehensive clinical risk assessment and following consultation with an ID physician (if available), proceed with the following next steps:**
 - Notify, by telephone the Ministry of Health's Health Systems Emergency Management Branch (HSEMB) via the 24/7 Health Care Provider Hotline (1-866-212-2272 ext. 1). HSEMB will review the completed risk assessment and support decision-making regarding testing
 - Notify, by telephone your local public health unit (PHU) using the [PHU locations website](#).
 - Review the Ministry of Health's [Notification Pathway for Special Pathogens \(SPs\)](#) for more information.

Source: Ontario Agency for Health Protection and Promotion (Public Health Ontario). Viral hemorrhagic fever (VHF) clinical risk assessment tool [Internet]. Toronto, ON: King's Printer for Ontario; 2026 [cited 2026 Jul 3]. Available from: <https://www.publichealthontario.ca/-/media/Documents/V/25/vhf-risk-assessment-checklist.pdf>

Clinical Presentation Assessment

- Assess for signs and symptoms compatible with a viral hemorrhagic fever (VHF)
- Evaluate the patient's current clinical condition and disease course
- Consider whether an alternative diagnosis is more likely
- Review laboratory findings (if available)

VHF Clinical Presentation Assessment			
Date of first symptom onset (yyyy-mm-dd):			
Does the patient currently have, or have they had at any time since their symptoms began at least one sign or symptom consistent with a VHF? (check all that apply)			
☐ Fever: Temperature $\geq 38.0^{\circ}\text{C}$ / $\geq 100.4^{\circ}\text{F}$	☐ Any hemorrhagic manifestation		
☐ Documented in a clinical setting	☐ Petechial or purpuric rash	☐ Conjunctival injection or bleeding (eye redness)	
☐ Measured by patient	☐ Ecchymoses (easy bruising)	☐ Epistaxis (nosebleeds)	
☐ Subjective fever or chills (patient reported)	☐ Gingival bleeding (bleeding gums)	☐ Hemoptysis (coughing up blood)	
	☐ Hematemesis (vomiting blood)	☐ Melena or hematochezia (dark, tarry, or bloody stools)	
	☐ Other unexplained hemorrhage / bleeding	Specify:	
☐ Chest pain	☐ Headache	☐ Conjunctivitis	☐ Nausea
☐ Cough	☐ Fatigue, Malaise, Lethargy	☐ Abdominal pain	☐ Vomiting
☐ Sore throat	☐ Myalgia (body aches)	☐ Weakness	☐ Diarrhea
What is the patient's current clinical condition? ☐ Stable ☐ Unstable ☐ Deceased			
What is the patient's current clinical course? ☐ Improving ☐ No change ☐ Deteriorating			
Has an alternative diagnosis been confirmed to explain the patient's clinical presentation? ☐ Yes ☐ No ☐ Unsure			
If yes, specify:			
Has routine bloodwork already been performed? ☐ Yes ☐ No			
If yes, specify: ☐ Abnormal ☐ Normal			

Source: Ontario Agency for Health Protection and Promotion (Public Health Ontario). Viral hemorrhagic fever (VHF) clinical risk assessment tool [Internet]. Toronto, ON: King's Printer for Ontario; 2026 [cited 2026 Jul 3]. Available from: <https://www.publichealthontario.ca/-/media/Documents/V/25/vhf-risk-assessment-checklist.pdf>

Travel History Assessment

- Obtain a detailed travel history, including specific locations visited
- The risk assessment tool includes outbreak-specific information for the 2026 Ebola outbreak:
 - Canada's quarantine requirements for returning travellers
 - Map and list of Ebola-affected areas
- Confirm whether travel was to the Democratic Republic of the Congo (DRC) or the Republic of the Congo, as these are different countries

In the 21 days prior to symptom onset, did the patient travel to an area of a country:

Known to be endemic for a VHF agent ☐ Yes ☐ No ☐ Unsure
or
With a suspected or confirmed VHF outbreak ☐ Yes ☐ No ☐ Unsure

If Yes or Unsure:

Type of travel (select all that apply) ☐ Worked ☐ Visited ☐ Other Specify:

Setting (select all that apply) ☐ Urban ☐ Rural ☐ Remote

2026 Ebola outbreak in the Democratic Republic of Congo (DRC) and Uganda

In May 2026, an Ebola disease outbreak caused by Bundibugyo ebolavirus was declared in the DRC and Uganda.

Refer to the **Appendix** of this tool (see [page 11](#)) for a list of outbreak affected areas/regions in the DRC and Uganda. Consider using the map in the Appendix to improve accuracy of the travel history assessment by having the patient identify exact locations visited.

Note: Effective May 31 to August 29, 2026, the [Government of Canada](#) requires all asymptomatic individuals who have been in the DRC, Uganda, or South Sudan within the previous 21 days to quarantine for 21 days upon arrival in Canada. While this applies to travellers from South Sudan, no suspected or confirmed Ebola disease cases have been reported there as of the date of publication (see page 1).

Did the patient report that they are currently under a federal quarantine requirement due to recent travel to the Democratic Republic of the Congo (DRC), Uganda, or South Sudan? ☐ Yes ☐ No ☐ Unsure

If yes, country of travel in the past 21 days (check all that apply): ☐ DRC ☐ Uganda ☐ South Sudan

Sources: Ontario Agency for Health Protection and Promotion (Public Health Ontario). Viral hemorrhagic fever (VHF) clinical risk assessment tool [Internet]. Toronto, ON: King's Printer for Ontario; 2026 [cited 2026 Jul 3]. Available from: <https://www.publichealthontario.ca/-/media/Documents/V/25/vhf-risk-assessment-checklist.pdf>
Ontario Agency for Health Protection and Promotion (Public Health Ontario). Viral hemorrhagic fevers [Internet]. Toronto, ON: King's Printer for Ontario; 2026 [cited 2026 Jul 3]. Available from: <https://www.publichealthontario.ca/en/diseases-and-conditions/infectious-diseases/vector-borne-zoonotic-diseases/ebola>

Exposure Risk Assessment

- Review all potential VHF exposures in the 21 days before symptom onset
- Assess for general exposure risks (e.g., contact with a suspected/confirmed case, healthcare work in an outbreak setting, funeral or burial attendance)
- Assess for animal-associated exposures (e.g., bushmeat consumption, bat cave exposure, contact with non-human primates)

VHF Exposure Risk Assessment	
In the 21 days prior to symptom onset, did the patient have any of the following potential VHF exposures? (Check all that apply in Sections 1 and 2)	
Section 1 - General VHF exposure risks:	
☐	Patient had close, direct contact with the blood or other body fluids of a person confirmed or suspected to have a VHF including: • Household contacts (including breastfed infants) • Sexual contacts • Healthcare or laboratory workers • Persons handling the bodies of the deceased such as funeral director / attendees and morgue workers
☐	Patient had close, direct contact with a person who has signs or symptoms of a VHF
☐	Patient was a patient, healthcare provider or volunteer in a hospital or medical clinic in an area known to be endemic for a VHF agent or with a suspected or confirmed VHF outbreak
☐	Patient had another relevant exposure
	Specify risk: (e.g., attended funeral / burial, attended large / mass gatherings)
AND/OR	
Section 2 - Animal associated VHF exposure risks in endemic areas	
☐	Patient had contact with an animal during a slaughtering practice
☐	Patient consumed and/or handled bushmeat [Orthobolaviruses, Marburg virus]
☐	Patient had contact with a non-human primate (e.g., monkeys and apes) [Orthobolaviruses, Marburg]
☐	Patient had contact with a bat or visited a cave / mine where cave-dwelling bats reside [Orthobolaviruses, Marburg]
☐	Patient had contact with a rodent or rodent excrement (e.g., inhaled particles while cleaning rodent excrement, consumption of potentially contaminated food and water) [Lassa virus]
☐	Patient had another direct or indirect animal exposure
	Specify risk:

Source: Ontario Agency for Health Protection and Promotion (Public Health Ontario). Viral hemorrhagic fever (VHF) clinical risk assessment tool [Internet]. Toronto, ON: King's Printer for Ontario; 2026 [cited 2026 Jul 3]. Available from: <https://www.publichealthontario.ca/-/media/Documents/V/25/vhf-risk-assessment-checklist.pdf>

Overall Clinical Risk Assessment

- Allows clinicians to document their overall assessment and clinical rationale
- Directs clinicians to the appropriate next actions based on their overall assessment
- Reinforces that the tool supports, but does not replace, clinical judgement

Overall Clinical Risk Assessment

After completing the clinical risk assessment, including evaluation of the patient's clinical presentation, travel history, and potential exposures within 21 days of symptom onset, what is your overall assessment?

☐ Patient is suspected of having a VHF

- Follow 'Actions: Patient is suspected of having a VHF'

☐ Patient is not suspected of having a VHF

- Follow 'Actions: Patient is not suspected of having a VHF'

Rationale for assessment:

Clinical reminders:

- This tool is intended to support, not replace, clinical judgement.
- A positive response in a single section of this tool should not be used in isolation to assess VHF suspicion.
- Decisions regarding VHF suspicion, patient management, and patient disposition remain the responsibility of the treating clinician and care team.

Source: Ontario Agency for Health Protection and Promotion (Public Health Ontario). Viral hemorrhagic fever (VHF) clinical risk assessment tool [Internet]. Toronto, ON: King's Printer for Ontario; 2026 [cited 2026 Jul 3]. Available from: <https://www.publichealthontario.ca/-/media/Documents/V/25/vhf-risk-assessment-checklist.pdf>

Other Considerations in Completing a VHF Risk Assessment

- **Obtain information from multiple sources:** Patient, family members, friends, or caregivers, where appropriate
- **Use clear, simple language:** Ask questions in a way that is easily understood
- **Address language barriers:** Use interpretation services when needed
- **Be mindful of cultural context:** Cultural norms and expectations may influence responses
- **Clarify responses as needed:** Rephrase or revisit questions to improve accuracy

Source: Ontario Agency for Health Protection and Promotion (Public Health Ontario). Viral hemorrhagic fever (VHF) clinical risk assessment tool [Internet]. Toronto, ON: King's Printer for Ontario; 2026 [cited 2026 Jul 3]. Available from: <https://www.publichealthontario.ca/-/media/Documents/V/25/vhf-risk-assessment-checklist.pdf>

Immediate Actions if Patient is Suspected of Having a VHF

- Immediately implement PHO's IPAC Management of VHF in Acute Care recommended measures
- Consult with your hospital or institution's IPAC team, where available
- Consult with an Infectious Diseases physician, where available
- Bloodwork for VHF and other laboratory testing should be carefully considered, and where appropriate, deferred until consultation has occurred
- Review the Ministry of Health's Notification Pathway for Special Pathogens (SPs) for additional information

Sources: Ontario Agency for Health Protection and Promotion (Public Health Ontario). Viral hemorrhagic fever (VHF) clinical risk assessment tool [Internet]. Toronto, ON: King's Printer for Ontario; 2026 [cited 2026 Jul 3]. Available from: <https://www.publichealthontario.ca/-/media/Documents/V/25/vhf-risk-assessment-checklist.pdf>
Ontario Agency for Health Protection and Promotion (Public Health Ontario). Infection prevention and control management of viral hemorrhagic fever in acute care [Internet]. Toronto, ON: King's Printer for Ontario; 2025 [cited 2026 Jul 3]. Available from: <https://www.publichealthontario.ca/-/media/Documents/V/26/vhf-ipac-acute-care.pdf>

Notification Requirements

	VHF Suspected	VHF Not Suspected
Your Local Public Health Unit (PHU)	Notify by telephone (use PHU locator website for contact information)	- Notification <u>not required</u> unless another reportable disease suspected - Local PHU approval is <u>not required</u> for patient discharge/disposition planning
Ministry of Health's Health Systems Emergency Management Branch (HSEMB)	Notify using the 24/7 Health Care Provider Hotline (1-866-212-2272 ext. 1)	Notification <u>not required</u>

Sources: Ontario. Ministry of Health. Ministry of Health emergency management plans and strategies [Internet]. Toronto, ON: Queen's Printer for Ontario; [cited 2026 Jul 16]. Available from: <https://www.ontario.ca/page/ministry-health-emergency-management-plans-and-strategies>
 Ontario. Ministry of Health. Public health unit locations [Internet]. Toronto, ON: Queen's Printer for Ontario; [cited 2026 Jul 16]. Available from: <https://www.ontario.ca/page/public-health-unit-locations>



Key IPAC Measures for VHF in Acute Care Settings

Transmissibility

- **Primary Route:**
 - Direct contact with infected blood, body fluids, or contaminated equipment and surfaces
- **Factors that increase transmission risk:**
 - Delayed recognition and isolation
 - Advanced illness with high viral load
 - Large volume body fluid exposure (vomiting, diarrhea and hemorrhage)
 - Inadequate PPE or breaches during PPE removal
 - Invasive procedures
 - Sharps injuries

Screening

VHF Triage Assessment Algorithm

Published: June 2, 2026

Has the patient developed symptoms consistent with VHF?

(e.g., fever, chills, unexplained hemorrhagic bleeding, chest pain, headache, cough, sore throat, conjunctivitis, fatigue, weakness, muscle and joint pain, abdominal pain, nausea, vomiting, or diarrhea)

Yes

In the past 21 days has the patient:

- Travelled/ been to a VHF affected area?
(refer to PHOs [VHF Landing Page](#))?

OR

- Had close contact with person(s) known or suspected to have VHF?

OR

- Had direct contact with blood or other body fluids of a person
(alive or deceased) or animal with VHF?

OR

- Worked in a laboratory that handles VHF agents or in animal facility
that handles animals known to be natural hosts of VHF agents?

Compatible Symptoms:

- Fever, vomiting, diarrhea, unexplained bleeding, etc.

AND

Epidemiological Risk:

- Travel to affected area(s)
- Contact with a known or suspected VHF case, exposure to blood/body fluids, or contact with infected animals

Source: Ontario Agency for Health Protection and Promotion (Public Health Ontario). VHF triage assessment algorithm [Internet]. Toronto, ON: King's Printer for Ontario; 2026 [cited 2026 Jul 2]. Available from: <https://www.publichealthontario.ca/-/media/Documents/V/26/vhf-triage-assessment-algorithm.pdf>

IPAC Management

- **Identify:**
 - Recognize signs, symptoms and epidemiological risk (i.e., travel or exposure history)
- **Isolate:**
 - Single room, closed door, dedicated washroom, AIIR if available
 - Assess clinical category – Stable, Unstable
 - Institute appropriate PPE
 - No specimen collection until IPAC and lab pathways are confirmed
 - Implement waste management process
- **Inform:**
 - Timely
 - Education and easy access to communication cascade

Suspect VHF Case Categories – Stable vs. Unstable

Stable ('Dry')

- Hemodynamically stable, early in disease
- Minimal body fluid losses
- Ability to contain fluids
- Co-operative, capable of self care and hygiene
- No invasive procedures (e.g., AGMPs) anticipated

Unstable ('Wet')

- Hemodynamically unstable/shock
 - Profuse vomiting/diarrhea
 - Inability to contain fluids
 - Altered mental status
 - Invasive procedures/resuscitation anticipated
- * Confirmed case of VHF

Why does this matter?

PPE selection, staffing, location of care, equipment needs, environmental controls

PPE Recommendations

Stable

- Well-fitting medical mask
- Disposable full-face shield
- Fluid-resistant cuffed gown that covers to mid-calf
- Gloves with extended cuffs to pull over gown cuffs

Unstable or Confirmed VHF

- Fit-tested, seal-checked N95 respirator or powered air purifying respirator
- Disposable full-face shield
- Fluid resistant/impermeable hair/head/neck covering (may be part of coverall)
- Impermeable long-sleeved, cuffed gown that covers to mid-calf or impermeable coverall
- Consider double gloves (outer gloves with extended cuffs to pull over gown cuffs)
- Fluid resistant/impermeable shoe covers and gaiters (may be part of coverall)

Source: Ontario Agency for Health Protection and Promotion (Public Health Ontario). Infection prevention and control management of viral hemorrhagic fever in acute care. 2nd ed. Toronto, ON: King's Printer for Ontario; 2026. Available from: <https://www.publichealthontario.ca/-/media/Documents/V/26/vhf-ipac-acute-care.pdf>

PPE Considerations

- PPE Kits:
 - Stable
 - Unstable/confirmed
 - PPE observer
 - Patient escort
- Standardized donning and doffing
- Donning and doffing spaces
 - Separate areas with one-way flow clean to contaminated
 - Visual cues, standardized instructions, signage
 - Establish doffing area first and build the rest of the workflow around it

Health Care Worker

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Putting On / Taking Off PPE with N95 Respirators for Unstable or Confirmed Cases of Viral Hemorrhagic Fever (VHF)

Published: June 19, 2026

Putting On PPE with an N95 Respirator



Key considerations:

- The specific putting on and taking off instructions will vary depending on the Personal Protective Equipment (PPE) used. Organizations are to develop and adapt protocols that are suitable for the PPE they have selected (similar or higher level of protection than what is recommended in this document).
- Organizations ensure that health care workers (HCWs) are trained and have practiced safely and correctly putting on, using, and taking off PPE.
- Organizations ensure that HCWs demonstrate competency in PPE use before caring for a patient with suspect or confirmed VHF.
- PPE is stored and put on in a designated clean area outside of contaminated zone (patient care area).
- A mirror in the designated area can be useful for the HCW while putting on PPE.

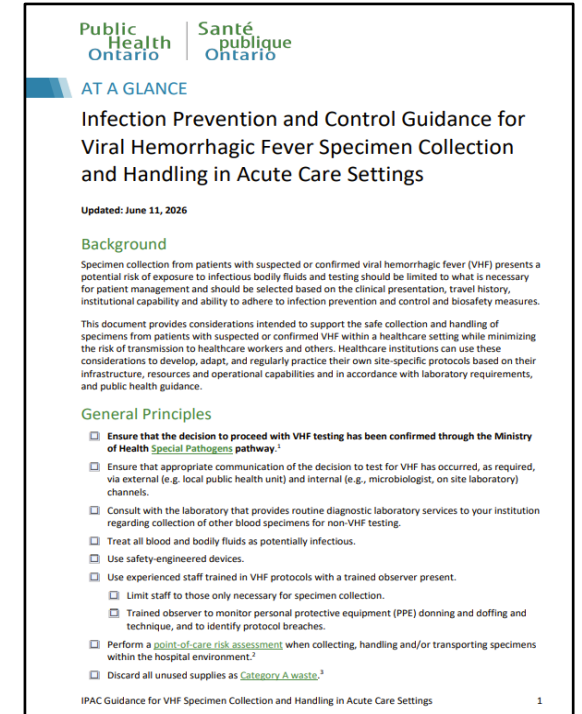
Selecting VHF PPE for Your Hospital

Consideration	Key Questions
Risk of Exposure	Anticipated care/testing/treatment of patients
Coveralls vs. Gowns	Coveralls can be all in one, provide greater body coverage, but more difficult to don and doff. Gowns may be easier for removal and repeat assessments.
Head and Neck Protection	Does your ensemble provide complete coverage? Does it come off easily? One-piece/multiple pieces/integrated into coverall.
Gloves and Shoe Covers	Double gloving protocols. Coveralls with/without integrated shoe covers. Shoe covers and gaiters for gowns. Washable shoes.
Impermeability	Review standards of impermeability.
Ease of Doffing	Standardized process with minimal risk of self-contamination. Align doffing space with the complexity of the PPE. Simple = safety.
Comfort and Ergonomics	Heat stress, reduced mobility, visibility, hearing affects performance during prolonged care
Training Requirements	Can staff achieve competency through regular training?
Supply Chain	Are products consistently available? Do you need multiple vendor contracts? Can you maintain adequate stock?

Specimen Collection and Handling

- Confirm testing through the Ministry of Health Special Pathogens pathway first
- Consult laboratory and IPAC ahead of time
- Only trained staff collect specimens; an observer monitors PPE and protocol
- Designate and stock the specimen handling areas within the patient room, in the transition area(s), outside the patient room
- Use safety-engineered devices and plastic tubes, never glass
- Tube racks, specimen bags, Leak-proof containers, packaging
- Avoid pneumatic tubes; transport manually in secure, contained form
- Have a process to discard waste

Source: Ontario Agency for Health Protection and Promotion (Public Health Ontario). Infection prevention and control guidance for viral hemorrhagic fever specimen collection and handling in acute care settings. Toronto, ON: King's Printer for Ontario; 2026. Available from: <https://www.publichealthontario.ca/-/media/Documents/I/26/ipac-vhf-specimen-collection.pdf>



Environmental Cleaning and Waste Management

- Dedicated equipment
- Clean high-risk areas frequently (e.g., high touch, doffing areas)
- Secure containment of waste
- Confirm municipal guidelines for the use of toilets and municipal sanitary sewers for human waste (urine, feces, vomit) or develop alternate waste strategy (pre-treatment, solidification)
- Plan for handling of linens, patient items, terminal cleaning
- Cleaning staff should wear the same PPE recommended for patient category and anticipated exposure risk
- Use PPE observers
- Greatest occupational risk is generally associated with handling contaminated body fluids and improper removal of PPE

Source: Ontario Agency for Health Protection and Promotion (Public Health Ontario). Infection prevention and control management of viral hemorrhagic fever in acute care. 2nd ed. Toronto, ON: King's Printer for Ontario; 2026. Available from: https://www.publichealthontario.ca/-/media/Documents/V/25/vhf-risk-assessment-checklist.pdf?rev=&sc_lang=en



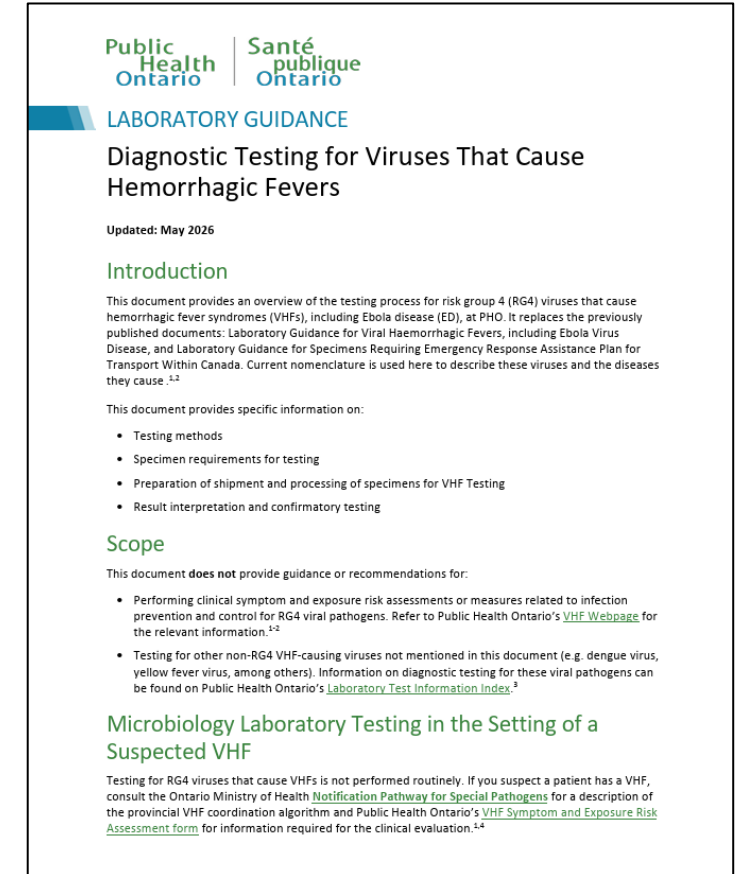
PHO's VHF Testing Algorithm

Critical Aspects of VHF Diagnostic Testing

- Testing for VHF-causing viruses requires a careful balance between **pre-test probabilities, biosafety measures** and the **efficient use of laboratory and health system resources**
- Specimen shipping and transportation requirements for VHF are unique
 - Federal Transportation of Dangerous Goods (TDG) regulations indicate an Emergency Response Assistance Plan (ERAP) must be activated prior to shipping and transporting these specimens
- Coordination and communication among health system partners is essential (clinical, laboratory, and public health)

PHO Guidance on Diagnostic Testing for VHF-Causing Viruses

- This document provides detailed information on the VHF testing process at PHO and guidance on:
 - Available testing methods
 - Specimen requirements
 - VHF RT-PCR result interpretation
- Companion to PHO's Test Information Index
- Recent updates (as of July 2026) include:
 - Implementation of a new testing method
 - Updates to testing process



Source: Ontario Agency for Health Protection and Promotion (Public Health Ontario). Diagnostic testing for viruses that cause hemorrhagic fevers [Internet]. Toronto, ON: King's Ontario for Ontario; [cited 2026 Ju; 20]. Available from: <https://www.publichealthontario.ca/-/media/Documents/Lab/vhf-diagnostic-testing.pdf>

Laboratory Tests Available at PHO for VHF-Causing Viruses

Two independent molecular tests are used at PHO to detect viral nucleic acid in blood:

1. FilmArray Global Fever RUO Panel (Multiplex RT-PCR) – **NEW ASSAY**

- Performed at PHO Toronto and London sites **in VHF investigations only**
- Qualitative detection of 19 pathogen targets, including: Orthoebolaviruses, Marburg, Lassa, and Crimean-Congo hemorrhagic fever (CCHF) viruses and other causes of febrile illness in VHF investigations (e.g., malaria, dengue)
- All targets will be reported ('Detected' or 'Not Detected'), with additional testing performed

2. Laboratory-developed RT-PCR tests (Singleplex LDTs)

- Performed at PHO Toronto
- Qualitative detection of Orthoebolaviruses (Ebola, Sudan, Bundibugyo), Marburg, Lassa, or CCHF viruses ordered based on clinical suspicion and risk assessment

Source: Ontario Agency for Health Protection and Promotion (Public Health Ontario). VHF diagnostic serology [Internet]. Toronto, ON: King's Printer for Ontario; [cited 2026 Jul 20]. Available from: <https://www.publichealthontario.ca/en/Laboratory-Services/Test-Information-Index/VHF-Diagnostic-Serology>

Specimen Requirements for VHF Testing at PHO

- Health system partners must be consulted **before submitting specimens to PHO for VHF testing**
- Timing of specimen collection may indicate if additional VHF testing is required

Pathogens of Interest	Tests Performed at PHO	Specimen Information
RG4 viruses causing VHF: • Bundibugyo virus • Crimean-Congo Hemorrhagic Fever virus • Ebola (Zaire) virus • Lassa virus • Marburg virus • Sudan virus	• RT-PCR (FilmArray Global Fever RUO Panel and LDTs)	Requirements: • 2 x EDTA-blood tubes for VHF testing • One tube will be tested by RT-PCR at PHO • One tube will be forwarded to the NML For ADULTs: • 2 to 4 mL of blood is required per tube For PEDIATRIC patients <u>or</u> if collection is difficult: • 0.5 to 1 mL of blood is required per tube
Malaria	• RT-PCR (FilmArray Global Fever RUO Panel) • Other routine malaria tests if positive by FilmArray Global Fever RUO Panel	Requirements: • 1 x EDTA-blood tube for malaria testing • 2 to 4 mL blood is required in the tube

Source: Ontario Agency for Health Protection and Promotion (Public Health Ontario). Diagnostic testing for viruses that cause hemorrhagic fevers [Internet]. Toronto, ON: King's Printer for Ontario; [cited 2026 Jul 20]. Available from: <https://www.publichealthontario.ca/-/media/Documents/Lab/vhf-diagnostic-testing.pdf>

Shipping Specimens to PHO for VHF Testing

- Technical guidance is available on PHO's website
 - Sites sending specimens for VHF testing should contact PHO's laboratory for support in packaging/transportation
- Specimens shipped for VHF testing require Category A packaging (P620) with ERAP in accordance with federal guidelines:
 - Staff handling specimens must be certified in the Transportation of Dangerous Goods (TDG)
 - Sites shipping to PHO should ensure they have a reliable courier service provider that is TDG certified, before sending specimens
 - Documentation and packaging requirements are stringent

Source: Ontario Agency for Health Protection and Promotion (Public Health Ontario). Ground shipment of clinical specimens to PHO for viral hemorrhagic fever investigations [Internet]. Toronto, ON: King's Printer for Ontario; <https://www.publichealthontario.ca/-/media/Documents/Lab/vhf-investigations-clinical-specimen-shipment.pdf>

Public Health Ontario

Santé publique Ontario

LABORATORY GUIDANCE

Ground Shipment of Clinical Specimens to PHO for Viral Hemorrhagic Fever Investigations

Published: July 2026

Note: References to courier companies, contact information, sample documentation, and shipping examples are provided for informational purposes only. Public Health Ontario does not endorse, recommend, certify, or express a preference for any particular courier service provider.

Introduction

This document outlines the steps for safely shipping clinical specimens to Public Health Ontario (PHO) by ground for Viral Hemorrhagic Fever (VHF) investigations. It is intended to be a technical guidance document for healthcare and laboratory staff trained in the Transportation of Dangerous Goods (TDG) requirements and should be used as a step-by-step guide to ensure all coordination, documentation, packaging, and handover requirements are met.

Step 1: Pre-Shipment Coordination (Before Packaging)

- VHF testing requires consultation with the Ministry of Health's Health System Emergency Management Branch (HSEMB), PHO and provincial health system partners through the Notification Pathway for Special Pathogens, with approval before specimen collection.
- Confirm that your staff preparing the specimens for shipping outside of your organization (e.g., to PHO) are TDG trained.
- Contact PHO's laboratory by phone (416-235-6556, or after-hours 416-605-3113) AND email PHO's Incident and Outbreak Response Team (IORT) (IORT@oahpp.ca) to request ERAP activation; use subject line "[ACTION] ERAP activation required". Refer to email 1 template in Appendix A for details to include.
- Contact your pre-arranged TDG-certified ground courier to request shipping and ask for a tracking number/job ID and estimated pick up time. Sites shipping to PHO should ensure they have a reliable service provider in advance. This may include setting up contracts or accounts as necessary depending on the service used. Potential service providers include but are not limited to the following:
 - World Courier is available at: YYZ-Toronto@worldcourier.ca or 905-362-9462; A contract is not required but you must create an account before shipping.
 - Purolator is available at www.purolator.com/en or 1-888-744-7123; A contract is required and pick-up is available during usual business hours only.
 - Mission Critical is available at: missioncritical@purolator.com or 1-844-787-6264; requires a contract.

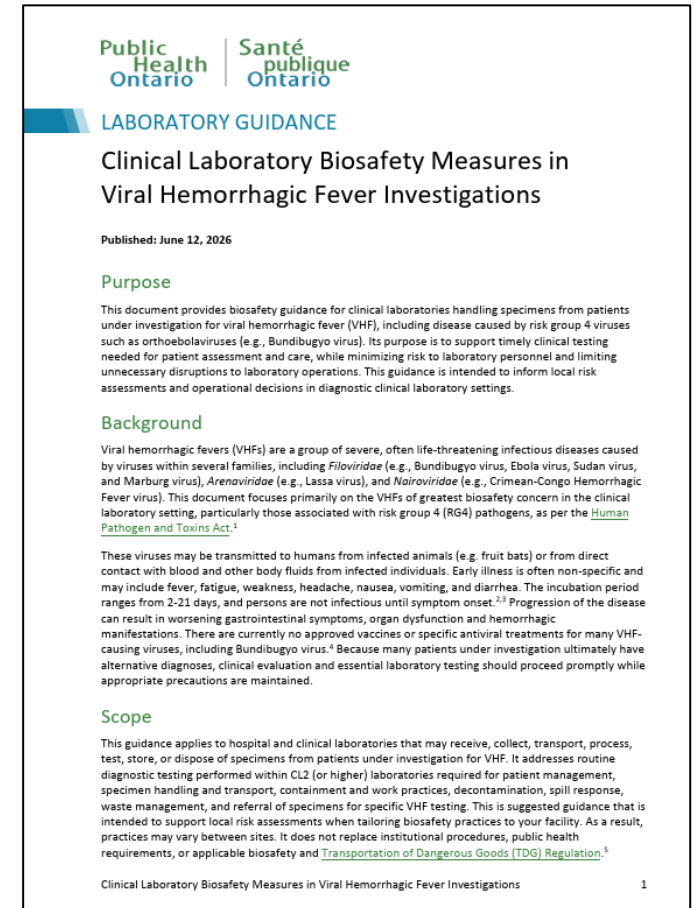
Ground Shipment of Clinical Specimens to PHO for Viral Hemorrhagic Fever Investigations

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Practical Considerations for Other Non-VHF Laboratory Testing

- Testing not performed at PHO that is essential for patient care should proceed to avoid potential delays
 - Limited chemistry (e.g., electrolytes), hematology (e.g., CBC), microbiology (e.g., blood cultures) tests
 - Risk assessment and approach must be conducted/decided upon to determine capability to do so safely
- Local laboratory biosafety risk assessment is required
 - Hazards associated with the suspected pathogen
 - Likelihood of staff exposure and potential consequences to personnel or equipment
 - Adequate risk mitigation strategies exist (e.g., engineering and administrative controls, PPE)

Source: Ontario Agency for Health Protection and Promotion (Public Health Ontario). Clinical laboratory biosafety measures in viral hemorrhagic fever investigations [Internet]. Toronto, ON: King's Printer for Ontario; [cited 2026 Jul 20]. Available from: <https://www.publichealthontario.ca/-/media/Documents/Lab/vhf-investigations-clinical-laboratory-biosafety-measures.pdf>

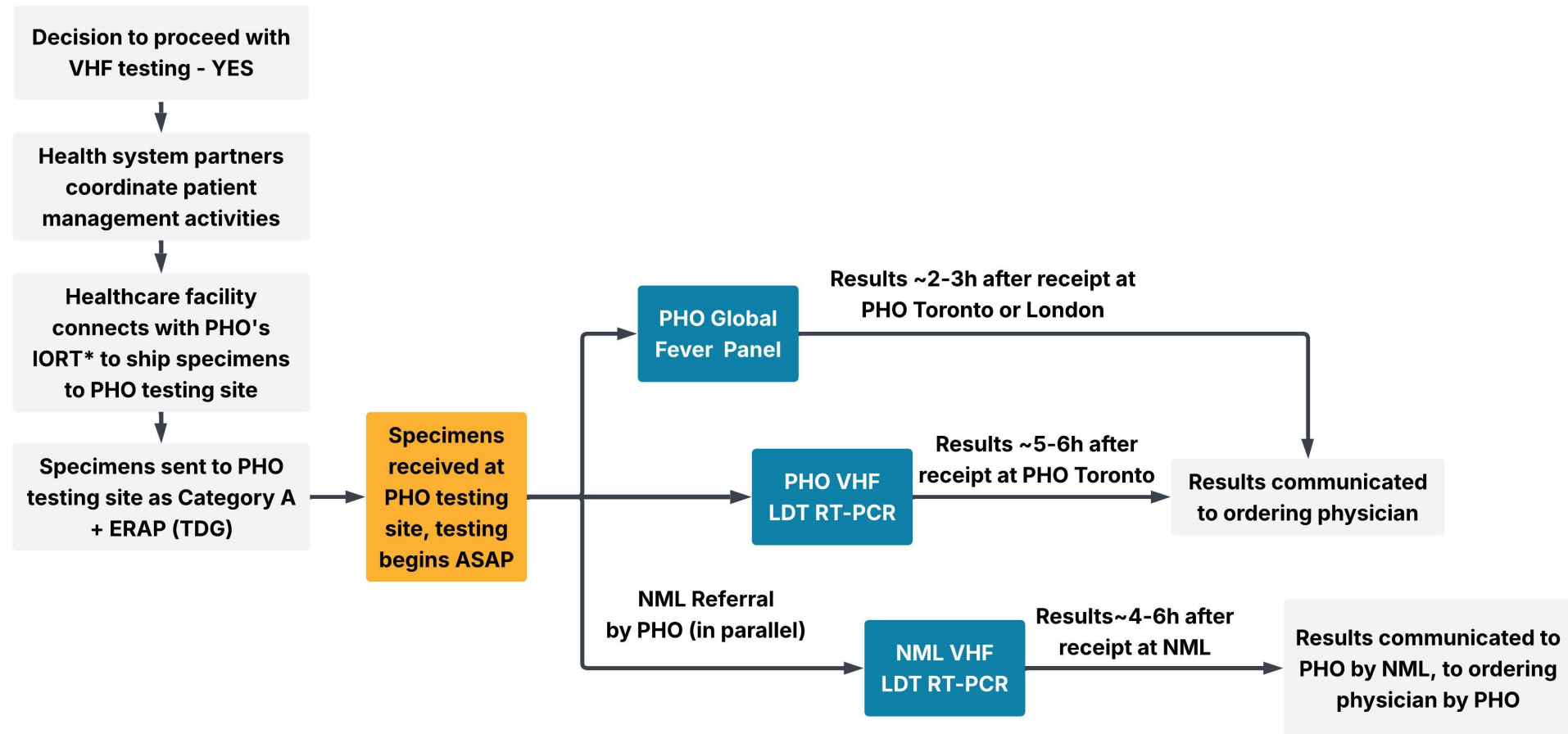


Interpretation of VHF Diagnostic Testing Results

- All VHF RT-PCR test results require interpretation within the context of the clinical and epidemiologic information available from the risk assessment
- The FilmArray Global Fever Panel RUO and PHO VHF LDTs provide qualitative results that are considered preliminary
 - A **‘Detected’** result for a VHF-causing virus indicates nucleic acids were detected
 - Global Fever Panel: Cannot speciate among Orthoebolaviruses (single Orthoebolavirus spp. result)
 - PHO LDTs: Can detect different orthoebolavirus species (e.g., Bundibugyo virus)
 - A **‘Not Detected’** result for a VHF-causing virus indicates nucleic acids were not detected
- Additional RT-PCR testing at NML needed to satisfy testing requirements outlined in the WHO International Health Regulations

Source: Ontario Agency for Health Protection and Promotion (Public Health Ontario). Diagnostic testing for viruses that cause hemorrhagic fevers [Internet]. Toronto, ON: King's Printer for Ontario; [cited 2026 Jul 20]. Available from: <https://www.publichealthontario.ca/-/media/Documents/Lab/vhf-diagnostic-testing.pdf>

Summary of VHF Testing Process at PHO



*IORT is the Incident and Outbreak Response Team at PHO (Contact: IORT@oahpp.ca)

**Estimated timelines, case-by-case assessment required

*** Times for shipping to NML can vary due to factors beyond PHO's control

**** Additional malaria testing will be performed if PHO Global Fever Panel result is positive



PHO's VHF Tools and Resources

PHO Risk Assessment and Case Management Tools

- VHF Clinical Risk Assessment for Clinician Use: checklist to assess a patient for VHF when they present with a compatible clinical presentation, relevant travel history, and potential exposure(s). The tool identifies immediate next steps including Infection Prevention and Control (IPAC), consulting Infectious Diseases and IPAC experts, and notifying the Ministry of Health if there is a clinical suspicion for a VHF
- Ebola Disease: How to Self-isolate if Symptoms Develop: fact sheet that provides guidance for individuals who have travelled from areas with a high risk of Ebola or who may have been exposed, on what to do if they develop symptoms consistent with Ebola disease
- VHF Ontario Investigation Tool: provincially developed questionnaire to standardize information collected by public health investigators for cases of VHF in Ontario

PHO IPAC Tools and Resources

- IPAC Management of VHF in Acute Care: guidance for risk factor-based screening and IPAC management of cases of human-to-human transmissible VHF
- Summary of IPAC Recommendations for Preventing VHF Transmission in Acute Care: reformatted excerpt from infection prevention and control (IPAC) Management of Viral Hemorrhagic Fever in Acute Care Best Practice
- VHF Triage Assessment Algorithm: reformatted excerpt from IPAC Management of Viral Hemorrhagic Fever in Acute Care Best Practice
- IPAC Management of VHF in Pre-Hospital Care and Ground Transport: summarizes key IPAC elements for EMS staff managing suspected or confirmed Viral Hemorrhagic Fever cases during pre-hospital care and transport
- IPAC Guidance for VHF Specimen Collection and Handling in Acute Care Settings: summarizes key IPAC principles and instructions for drawing, handling, packaging, and transporting blood specimens from patients with suspected or confirmed VHF within a healthcare setting

PHO IPAC Tools and Resources (Continued)

- Putting On/Taking Off PPE with N95 Respirators for Unstable or Confirmed Cases of VHF
- Putting On/Taking Off PPE with Powered Air Purifying Respirators for Unstable or Confirmed Cases of VHF
- Putting On/Taking Off PPE when Observing Health Care Workers
- Coming Next: VHF Preparedness Checklist For publishing week of July 20, 2026

PHO Microbiology, Laboratory Testing and Diagnostics Tools & Resources

- Clinical Laboratory Biosafety Measures in VHF Investigations: guidance on biosafety practices for clinical laboratories handling specimens from patients under investigation for VHF supports internal risk assessments and operational decisions to help ensure specimens are handled safely
- Diagnostic Testing for Viruses That Cause Hemorrhagic Fevers: laboratory testing recommendations for VHF including Ebola disease
- VHF Viruses (e.g. Ebola, Marburg, Lassa, Crimean-Congo) – PCR: comprehensive instructions for specimen collection, special requirements, specimen handling, testing methods and turnaround times
- VHF Testing Information: PHO web page that provides information on the testing available at PHO for biosafety Risk Group 4 (RG4) viruses that cause VHF
- Genomic Epidemiology and Molecular Characteristics of Bundibugyo Virus: summarizes current knowledge of the genomic epidemiology and molecular characteristics of Bundibugyo virus genomes from the 2026 Democratic Republic of Congo and Uganda outbreak

For More Information About This Presentation, Contact:

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IPAC VHF Inquires: IPAC@oahpp.ca

Laboratory VHF Inquires: customerservicecentre@oahpp.ca

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