# VIRAL HEMORRHAGIC FEVER (VHF) JOB AID: HEALTHCARE FACILITY EVALUATION OF ILL TRAVELERS

## Summary and Action Items

- All healthcare facilities should be prepared to perform routine laboratory and diagnostic tests to evaluate causes of non-VHF illness in symptomatic returning travelers, including those from VHF affected areas.
- Providers and healthcare facilities should be prepared and familiar with risk assessment, reporting, testing and public health coordination steps outlined below for ill travelers suspected to have a VHF, such as Ebola.
- All healthcare facilities should be prepared to stabilize and care for any ill person suspected of VHF until patient transfer to appropriate facility, following infection prevention and PPE requirements.

## VHF Background and Risks While Traveling

VHFs are a group of diseases caused by several distinct families of viruses, including filoviruses (which cause Ebola and Marburg virus disease), Arenaviruses (which cause Lassa Fever), Rift Valley fever virus, and Crimean-Congo hemorrhagic virus.

The vast majority of returning international travelers with acute illness do not have a VHF. However, a thorough history is critical to determine if any exposure did occur during travel. Any patient who had contact with a VHF patient or recent travel to an outbreak-affected country in the past 21 days and who presents with any of the below symptoms below should be isolated and immediately reported to the local health department.

| **Dry Symptoms** (usually develop 4–17 days after exposure) | **Wet Symptoms** (usually begin ~4 days after onset of dry symptoms) |
|---|---|
| • Fever ≥ 100.4 ºF or 38.0 ºC<br>• Body aches / muscle pain<br>• Headache<br>• Abdominal pain<br>• Weakness | • Diarrhea<br>• Vomiting<br>• Unusual bleeding (e.g., gums, eyes, or nose) |

Other VHF symptoms may include: hearing loss, red eyes, bruising, sore throat, rash, hiccups

## Special Pathogen Treatment Centers (SPTC)

SPTCs are nationally designated acute care hospitals with enhanced capabilities designed to support the assessment, testing, and treatment of patients with VHFs. Currently, Rush University Medical Center and Lurie Children's Hospital are the state designated SPTCs in Illinois. SPTCs in neighboring states are also prepared to accept IL VHF patients should the need occur. A patient transfer to any SPTC hospital within or outside state lines should **ONLY** occur after consultation with public health authorities, who will help determine the risk category of the patient and whether VHF testing is indicated.

## Local Health Department & IDPH Contact Information

As soon as VHF is suspected, or if you have questions about the risk of VHF in a patient at any time during the patient's arrival, triage, or assessment, contact the local health department of the patient's residence. If the local health department is unavailable IDPH can be reached Monday through Friday 8:00am – 5:00pm by the Communicable Disease line at 217-782-2016 or after hours, on weekends, and on holidays at 217-782-7860.

# HEALTH FACILITY SCREENING TOOL: HOW TO IDENTIFY PATIENTS AT RISK FOR VHF

## Part 1: EXPOSURE ASSESSMENT

1. **Did you have any of the following high-risk exposures to a VHF within the last 21 days?**
   a. Direct contact with a symptomatic person with suspected or confirmed VHF (alive or dead), or with any objects contaminated by their body fluids
   b. A breach in infection prevention and control precautions that resulted in the potential for contact with body fluids of a patient with suspected or confirmed VHF
2. **Did you visit an affected country within the last 21 days?** See CDC Travel Health Notices for affected countries.
   a. **If yes, did you have any of the following potential exposures while in the affected country?**
      - Contact with someone who was sick or died, or with any objects contaminated by their body fluids
      - Attended or participated in funeral rituals, including preparing bodies for funeral or burial
      - Visited or worked in a healthcare facility or laboratory
      - Contact with bats or wild animals
      - Spent time in a mine/cave

## Part 2: SYMPTOM ASSESSMENT

3. **Do you have ANY of the following symptoms?**
   a. "Dry" symptoms: fever, abdominal pain, muscle pain/body aches, weakness, headache
   b. "Wet" symptoms: diarrhea, vomiting, unusual bleeding

## If a patient has a positive travel or exposure history AND compatible symptoms:

- **Isolate** the patient (see Appendix A).
- **Inform** your health department immediately for next steps (see Appendix B)

## Part 3: ADDITIONAL QUESTIONS

**When contacting the local health department, please be ready to provide the following information:**

1. **Demographics** including patient's name, date of birth, sex, address, and phone number
2. **Travel history** including specific itinerary during visit to affected country
3. **Summary of symptoms** including presenting symptoms and onset date(s)
4. **Prophylaxis**
   a. Did patient take malaria prophylaxis prior to, during, or after travel? If YES, which medication?
   b. Is the patient up-to-date on COVID-19, influenza, MMR, and other pre-travel vaccination?
5. **Any other infectious disease testing?** If yes, which results have you obtained and which are still pending? (e.g. malaria, COVID-19, influenza, RSV, typhoid, other. See Appendix C for details)
6. **Have you consulted with Infectious Diseases at your facility?**
7. **Have you notified your facility Infection Prevention and Control personnel?**

# APPENDIX A

## INFECTION PREVENTION AND CONTROL GUIDANCE FOR SUSPECTED VHF PATIENTS

- ☐ Place patient in private room, preferably an airborne infection isolation room (AIIR). If a private room is not available, place in another private area with a closed door (limit contact with other patients, visitors, and HCP).
    - This area should have a private bathroom or a covered bedside commode.
- ☐ Adhere to infection prevention and control procedures and wear appropriate personal protective equipment (PPE). For clinically stable patients suspected to have VHF:
    - Full face shield
    - Surgical face mask (use an N95 respirator if available)
    - Fluid-resistance gown (AAMI level 3 or higher)
    - Two pairs of gloves with outer gloves having extended cuffs
- ☐ For clinically unstable patients suspected to have VHF and patients confirmed to have VHF, additional PPE is required.
- ☐ Notify your facility's infection prevention and control program immediately
- ☐ Use only essential healthcare workers trained in their designated roles for patient care and keep a log of everyone who enters and leaves the patient's room.
    - If possible, pre-identify a core group of responders who have received recent training on proper precautions.
    - See NETEC just-in-time trainings
- ☐ Consider alternative diagnoses and evaluate appropriately.
- ☐ Perform only necessary tests and procedures. However, patient care and well-being should not be compromised. Do not delay critical and life-saving treatment when necessary.
    - See NETEC just-in-time trainings for intubation, and IV and CVC insertion training
- ☐ Notify and coordinate with the laboratory in advance when specimens are being collected and sent. Do not use pneumatic tube transport systems.
- ☐ Follow CDC guidelines for cleaning, disinfecting, and managing waste.

# APPENDIX B

## NEXT STEPS AFTER VHF IS SUSPECTED

### *Health Department Consultation*

- Upon suspicion of VHF, **immediately** contact the local health department (LHD) of the patient's residence and ask for the Communicable Disease person of contact.
  - A list of LHD contacts can be found here, including after-hours contact information.
  - If you are unable to reach the appropriate LHD, contact IDPH:
    - Monday through Friday 8:00am – 5:00pm: 217-782-2016
    - After hours, on weekends, and on holidays: 217-782-7860
  - Clinicians should NOT directly contact the IL Special Pathogen Treatment Center (SPTC) hospitals (Rush University Hospital and Lurie Children's Hospital) prior to LHD notification.
- LHD consultation may trigger the following steps depending on the level of clinical suspicion for VHF:
  - Consultation with public health authorities at IDPH
  - A coordinated call between CDC experts, IDPH, the LHD, and the treatment team
  - Provider-to-provider guidance from IL SPTC subject matter experts.
- **Final determinations regarding VHF testing and patient transportation should ONLY be made via consultation with public health authorities.**

### *Clinical Management*

- Consideration of VHF should not delay diagnostic assessments, laboratory testing, and appropriate care for other more likely medical conditions.
  - The likelihood of VHF is low even among symptomatic travelers from affected countries.
  - Laboratory testing should be limited to those tests essential to patient care. But patient care and well-being should not be compromised.
- **If VHF testing is NOT indicated** after consultation with public health authorities, communicate this determination *and how it was made* among relevant healthcare facility staff.
- **If VHF testing IS indicated** after consultation with public health authorities, IDPH and LHD will advise upon the need for transfer to a SPTC or other facility.
  - Patient transfer will be coordinated and approved by sending and receiving facilities.
  - SPTCs typically require 4–6 hours to prepare for the arrival of a suspect VHF patient.
  - IDPH can assist in patient transfer to out-of-state facilities as necessary.
  - Healthcare facilities should be prepared to provide at least several hours and up to 24 hours of routine necessary care for suspect VHF patients until transportation is available.

### *Laboratory and Testing Considerations*

- Routine laboratory testing to monitor the patient's clinical status and diagnostic testing (see Appendix C) for other potential causes illness should be pursued even if VHF testing is underway or planned.
  - Healthcare providers and laboratory professionals can **safely and effectively** perform other diagnostic testing on clinical specimens from suspect VHF patients by following Standard Precautions for All Patient Care and the Bloodborne Pathogen Standard (29 CFR 1910.1030).
  - Comprehensive information about how to safely perform routine testing on suspect VHF patients at your laboratory can be found here.
- Laboratory staff should perform site and activity specific risk assessments before beginning testing

of specimens from suspected VHF patients.

- For testing that requires transport of samples to the hospital laboratory, specimens should be double-bagged, placed in a biohazard transportation container, and hand-carried to the laboratory.
  - **DO NOT use a pneumatic tube system.**
- For routine laboratory testing:
  - In general, the risk of transmission of VHFs in a clinical laboratory is similar to the risk or transmission of other bloodborne pathogens, including HIV, Hepatitis B, and Hepatitis C.
  - Clinical personnel should wear appropriate PPE during specimen collection and storage.
  - Laboratory staff should use a combination of engineering controls, work practices, and PPE to protect their mouth, nose, eyes, and bare skin from coming into contact with patient specimens.
  - A Class II Biosafety cabinet (BSC) should be used, whenever possible, for specimen manipulation (e.g., opening a tube, preparing an aliquot).
  - Labs should consider using equipment with closed tube systems in which the specimen container stays capped during testing.
- For VHF testing:
  - VHF testing must be arranged and approved by IDPH and will be limited to persons with potential exposures and symptoms of concern. Detailed instructions can be found here.
  - Collect n=2 whole blood samples in EDTA blood collection tubes
  - Each blood sample *must* be labeled with: name, DOB, date/time of collection
  - Samples must be packaged and shipped/couriered using Category A shipping requirements
  - Temperature requirements:
    - Specimens must be collected in EDTA blood collection tubes and stored at 2-8°C. Do not freeze specimens.

## *EMS and Transportation Considerations*

- **Contact Resource Hospitals and EMS System leadership for questions about local policies and protocols, transport capabilities, operational planning, and resource considerations.**
- EMS providers may require additional lead time to prepare vehicles, equipment, and personnel for transport. Personnel may require just-in-time training or refresher training prior to transport.
- Transport personnel should be provided with contact information for sending and receiving facilities, as well as clear instructions regarding PPE donning and doffing locations and procedures.
- The sending facility is responsible for obtaining acceptance from the receiving facility and ensuring compliance with all applicable patient transfer requirements and regulations.
- If EMS Personnel are found to have transported a patient without appropriate PPE who was later confirmed to have BVD and were likely exposed to body fluids during transport, they should notify their local health department immediately.
- The National Emerging Special Pathogens Training and Education Center (NETEC) outlines an "identify, isolate, and inform" strategy, as well as provides a hierarchy of controls for EMS.
- IDPH strongly encourages that EMS System specific education and refresher training be provided to prepare local EMS Personnel who may encounter a confirmed or suspected case of BVD.

# APPENDIX C
## COMMON INFECTIOUS DISEASES IN RETURNING TRAVELERS

| DISEASE | INCUBATION PERIOD | SYMPTOMS/SIGNS | EXPOSURE RISKS |
|---|---|---|---|
| **Malaria**<br>*P. falciparum* (80%)<br>*P. ovale* (20%) | 7-30 days<br>Symptoms may present >6 weeks after travel | High fever; cold, shaking chills; nausea and vomiting; seizures; headache; sweats; body aches; malaise; altered mental status (symptoms often every other day) | *Anopheles* mosquitoes |
| **COVID-19** | 4-6 days<br>(range: 2-14) | Fever; chills; sore throat; cough; congestion; shortness of breath; myalgia; fatigue; headache; vomiting; diarrhea; anosmia; dysgeusia | Close congregate gatherings; sick contacts |
| **Influenza** | 2 days (range: 2-4 days) | Fever; chills; cough; sore throat; congestion; muscle or body aches; fatigue; headaches; some people may have vomiting and diarrhea (more common in ped than adult) | Close congregate gatherings; sick contact |
| **Dengue** | 4-10 days | Fever; arthralgia; rash; nausea/vomiting; eye pain | *Aedes* mosquitoes; standing water; day/night |
| **Chikungunya** | 3-7 days | Fever; arthralgia; rash; myalgia; headache | *Aedes* mosquitoes; standing water; day/night |
| **Zika** | 3-14 days | Fever; arthralgia; rash; headache; myalgia; conjunctivitis | *Aedes* mosquitoes; standing water; day/night |
| **Typhoid (enteric) fever** | 6-30 days | Sustained high fever; abdominal pain; weakness; cough; headache; anorexia; diarrhea or constipation | Fecal-oral transmission from contaminated water or food |
| **Viral and bacterial acute gastroenteritis (e.g., norovirus, STEC, E. coli)** | Varies based on pathogen: 1-14 days | Vomiting; diarrhea +/- bloody stool; abdominal pain | Fecal-oral transmission from contaminated water or food |
| **African tick bite fever** | 7-14 days | Fever; headache; myalgia; rash; eschar | Travel/walking in bush |
| **Measles** | 7-21 days | Prodromal fever; coryza; conjunctivitis; cough; Koplik spots; blotchy maculopapular rash 3-7 days after fever that begins on face | Unvaccinated; sick contact |
| **Meningococcal disease** | 3-4 days (range: 2-10 days) | Fever; chills; meningismus; nausea; vomiting; petechial or purpuric rash | Unvaccinated; close congregate living; sick contact |
| **Leptospirosis** | 5-24 days (mean 10 days) | High fever; rigors; myalgia; severe headache; vomiting diarrhea; jaundice; conjunctival suffusion | Contact with water, food, or soil contaminated by rodent and small mammal urine |
| **Yellow fever** | 3-6 days | Fever; chills; headache; backache; myalgia; nausea; vomiting; prostration | Unvaccinated; beginning of dry season (July-October); *Aedes* mosquitoes |
| **Crimean-Congo hemorrhagic fever** | 2-5 days | Fever; headache; myalgia; dizziness; vomiting followed by hemorrhagic disease | *Hyalomma* tick bite; bloodborne |

Adapted by NYCDOHMH from Approach to Fever in the Returning Traveler; Thwaites et al.; NEJM; Feb 2017: 2017nejmra1508435.pdf

See also CDC's Post-Travel Evaluation of the Ill Traveler for region-specific considerations.

# Malaria Diagnostics

Because malaria is one of the most common alternative diagnoses in returning travelers suspected of having VHF, it is important to have access to timely malaria diagnostics. Facilities should identify their access to microscopy and rapid diagnostic tests (RDT) for malaria diagnosis. Rather than relying on out-of-state or otherwise distant reference labs, **facilities should identify regional hospital/clinical labs that can support more rapid malaria testing for ill returning travelers.** Considering working with your regional hospital coordination center (RHCC) to identify regional laboratory resources in order to establish necessary agreements for testing in advance of identifying suspect cases.

## *Microscopy*

Microscopic examination, also commonly referred to as "thick and thin blood smears," remains the gold standard for laboratory confirmation of malaria. Microscopy is widely available and does not require specialized equipment. However, it does require a proficient microscopist. Because malaria is uncommon in the U.S., not all laboratories have capacity, or capacity at all times depending on staffing. Sensitivity is also affected by the level of parasitemia, or number of parasites in the blood. Individuals, especially those without prior immunity, may be symptomatic at low levels of parasites; low levels of parasites are more difficult to detect. A single blood smear set does not rule out malaria. Blood smears should be repeated every 12-24 hours for a total of three sets.

## *Rapid Diagnostic Tests (RDT)*

Although RDTs for malaria are more common globally, they are not widely available in the U.S. BinaxNOW™ Malaria Test is the only RDT for malaria approved in the U.S. Results of RDT are not technician-dependent, but the test may not detect all infections. It is less sensitive at lower levels of parasitemia and it cannot discriminate between all Plasmodium species.

**Microscopy and RDT should be performed in parallel.** Treatment for malaria should not be delayed if malaria is suspected.

See also:

1. Malaria Diagnostic Tests | Malaria | CDC
2. Microscopic Procedures for Diagnosing Malaria

# ADDITIONAL INFORMATION & RESOURCES

## Communication of Traveler Monitoring with Local Care Providers

Local health departments (LHDs) may notify local healthcare facilities and EMS personnel regarding the number of people being monitored in their jurisdiction and the date when all monitoring will be complete. Monitored travelers in the high-risk exposure category, or for those in other risk exposure categories who develop symptoms, should be made aware that local healthcare facilities may be pre-notified regarding their risk so that they can be triaged rapidly and appropriately on arrival. For all other persons being monitored, it is up to the discretion of the LHD to determine if pre-emptive disclosure to local health care providers, of any additional identifying information beyond total number being monitored, is warranted per CD code 690.200 d) 6). They may consult their local state's attorney's office to assist with that decision to share any additional identifying information regarding asymptomatic, low risk travelers.

## Healthcare Facility Role per National Special Pathogen System Standards

Per national Systems of Care standards established by the National Emerging Special Pathogens Training and Education Center, most healthcare facilities (i.e. Level 4 facilities) should have a basic ability to identify, isolate, inform, and initiate stabilizing medical care; protect staff; and arrange timely patient transport to minimize impact to normal facility operations. https://netec.org/wp-content/uploads/2024/02/NETEC_NSPS-Refreshed-Strategy-Summary_20240201.pdf

## CDC Clinical Guidance for Viral Hemorrhagic Fevers

https://www.cdc.gov/viral-hemorrhagic-fevers/hcp/index.html

https://www.cdc.gov/viral-hemorrhagic-fevers/hcp/diagnosis-testing/index.html

https://www.cdc.gov/viral-hemorrhagic-fevers/media/pdfs/2024/07/336717-F_IG_SpecialPathogensTestingDecisionTree_022324_v2.pdf

## CDC PPE Guidance

https://www.cdc.gov/viral-hemorrhagic-fevers/hcp/guidance/index.html

## CDC Infection Prevention and Control Guidance

https://www.cdc.gov/viral-hemorrhagic-fevers/hcp/infection-control/index.html

https://www.cdc.gov/viral-hemorrhagic-fevers/hcp/infection-control/environmental-infection-control-hospitals.html

## CDC Guidance on Routine Testing for Patients with Suspected VHF

https://www.cdc.gov/viral-hemorrhagic-fevers/php/laboratories/guidance-on-performing-routine-diagnostic-testing-for-patients-with-suspected-vhfs-or-other.html

## IDPH Instructions for Ebola Virus Specimen Submission

https://dph.illinois.gov/content/dam/soi/en/web/idph/resources/topics-services/lab-testing-and-services/clinical-testing/ebola-virus-collection-instuctions-05292026.pdf

## CDC Travelers' Health

https://wwwnc.cdc.gov/travel/destinations/list

https://wwwnc.cdc.gov/travel/notices

## EMS Guidance and Resources

https://netec.org/2022/10/19/ems-strategies-for-ebola/

https://files.asprtracie.hhs.gov/documents/aspr-tracie-transport-playbook-508.pdf