

Viral Hemorrhagic Fever (non-Ebola) rev Jan

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BASIC EPIDEMIOLOGY

Infectious Agent

There are multiple types of viral hemorrhagic fever (VHF) including Ebola, Crimean-Congo, Lassa, Lujo, Marburg, Nipah Valley and many more. This chapter will cover VHFs in general but will NOT cover VHFs caused by Ebola (see Ebola chapter), Yellow Fever, Dengue or Hantavirus. There are five families of viruses that cause VHFs: arenaviruses, bunyaviruses, filoviruses, flaviviruses, paramyxoviruses. Even though most viruses in these families cause different VHFs, they also cause other diseases that are not hemorrhagic in nature.

Transmission

Transmission of VHFs are specific to each disease. Most are zoonotic illnesses, spread by contact with infected animals (e.g., rats) or animal vectors (e.g., mosquitos). Human to human transmission is possible, however, usually through direct contact (through a mucous membrane or non-intact skin) with the body fluids of an infected individual.

Incubation Period

Variable. See <http://www.cdc.gov/ncezid/dhcpp/vspb/diseases.html> for more specific information.

Communicability

Variable. Unknown for some diseases. See <http://www.cdc.gov/ncezid/dhcpp/vspb/diseases.html> for more specific information.

Clinical Illness

Variable. See <http://www.cdc.gov/ncezid/dhcpp/vspb/diseases.html> for more specific information.

DEFINITIONS

The following case definition applies to Crimean-Congo Hemorrhagic Fever virus, Lassa virus, Lujo virus, Marburg virus, and New World Arenaviruses: Guanarito virus, Junin virus, Machupo virus, and Sabia virus.

Clinical Case Definition

An illness with acute onset with ALL of the following clinical findings:

- A fever $>40^{\circ}\text{C}$
- One or more of the following clinical findings:
 - Severe headache
 - Muscle pain
 - Erythematous maculopapular rash on the trunk with fine desquamation 3–4 days after rash onset
 - Vomiting

- Diarrhea
- Abdominal pain
- Bleeding not related to injury
- Thrombocytopenia
- Pharyngitis (arenavirus only)
- Retrosternal chest pain (arenavirus only)
- Proteinuria (arenavirus only)

Laboratory Confirmation

- Detection of VHF* viral antigens in blood by enzyme-linked immunosorbent assay (ELISA) antigen detection, OR
- Isolation of VHF virus in cell culture for blood or tissues, OR
- Detection of VHF viral genes using reverse transcriptase with polymerase chain reaction amplification (RT-PCR) from blood or tissues, OR
- Detection of VHF viral antigens in tissues by IHC

*Viral hemorrhagic fever (VHF) agents include:

- Crimean-Congo hemorrhagic fever viruses
- Ebola virus (see Ebola case definition)
- Lassa virus
- Lujo virus
- Marburg virus
- New world arenaviruses (Guanarito, Machupo, Junin, Sabia viruses)

Case Classifications

- **Confirmed:** A clinically compatible illness that is laboratory confirmed
- **Suspect:** A clinically compatible illness that meets one or more of the following exposures within 21-days before onset of symptoms:
 - Contact with blood or other body fluids of a patient with VHF, OR
 - Residence in—or travel to—an VHF endemic area, OR
 - Work in a laboratory that handles VHF specimens, OR
 - Work in a laboratory that handles primates, bats, or rodents from endemic areas, OR
 - Exposure to semen or breast-milk of an individual who had VHF within the last 9 months.

SURVEILLANCE AND CASE INVESTIGATION

Case Investigation

Local and regional health departments should IMMEDIATELY investigate all reports of viral hemorrhagic fever. Investigations should include an interview of the case or a surrogate to get a detailed exposure history.

The likelihood of a VHF diagnosis depends on the epidemiology of that disease. Cases of VHF will most likely be imported from a country with endemic VHFs or outbreaks of VHFs. Exposures in laboratories may also occur in the US, but should be rare.

Case Investigation Checklist

- Isolate patient.
- Implement standard, contact, and droplet precautions until a diagnosis is confirmed.
- Assess exposure history.
- Contact EAIDB to arrange for testing.
- Identify contacts for monitoring (may or may not be necessary, depending on type of VHF).
- All confirmed and suspect case investigations must be entered and submitted for notification in the NEDSS Base System (NBS). Please refer to the *NBS Data Entry Guidelines* for disease specific entry rules.

Exclusion

People with fever should be directed to stay home until fever free for 24 hours without use of anti-fever medications. This is required for children attending school and childcare institutions in Texas.

REPORTING AND DATA ENTRY REQUIREMENTS

Provider, School, Child-Care Facility, and General Public Reporting Requirements

Confirmed or clinically suspected cases of viral hemorrhagic fever are required to be reported **immediately** to the local or regional health department or the Texas Department of State Health Services (DSHS), Emerging and Acute Infectious Disease Branch (EAIDB) at **(800) 252-8239** or **(512) 776-7676**.

Local and Regional Reporting and Follow-up Responsibilities

Local and regional health departments should:

- Call DSHS EAIDB immediately when a VHF investigation is being conducted or considered.
- Enter the case into NBS and submit an NBS notification on all **confirmed** and **suspect** cases.
 - Please refer to the *NBS Data Entry Guidelines* for disease-specific entry rules.
 - A notification can be sent as soon as the case criteria have been met. Additional information from the investigation may be entered upon completing the investigation.

LABORATORY PROCEDURES

Testing for VHF will most likely need to be done at the CDC. Approval from CDC is required **BEFORE** submitting specimens for testing. Contact EAIDB to arrange for testing.

Specimen collection and submission information will be provided based on the individual case presentation.

UPDATES

- Added list of Viral Hemorrhagic Fever agents in Laboratory Confirmation
- Removed Probable from Case Classification
- Updated time period on last exposure bullet under Suspect case classification