

Viral Hemorrhagic Fever (non-Ebola)

BASIC EPIDEMIOLOGY

Infectious Agent

There are multiple types of viral hemorrhagic fever (VHF), including Ebola, Crimean-Congo, Lassa, Lujo, Marburg, and New World Arenaviruses: Chapare, Guanarito, Junin, Machupo, and Sabia. 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 four families of viruses that cause VHFs: arenaviruses, bunyaviruses, filoviruses, and flaviviruses. 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: Chapare virus, Guanarito virus, Junin virus, Machupo virus, and Sabia virus.

Clinical Case Definition

An illness with acute onset with the following clinical findings:

- A fever **AND**
- 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 from blood or tissues, **OR**
- Detection of VHF specific genetic sequence by Reverse Transcription Polymerase Chain Reaction (RT-PCR) from blood or tissues, **OR**
- Detection of VHF viral antigen in tissues by IHC

*Viral hemorrhagic fever (VHF) agents include:

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

Case Classifications

- **Confirmed:** A person that meets laboratory criteria
- **Suspect:** A person that meets clinical criteria **AND** 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 - a VHF endemic area or area with active transmission, **OR**
 - Work in a laboratory that handles VHF specimens, **OR**
 - Work in a laboratory that handles, or contact with primates, bats, or rodents infected with VHF or from an endemic area or area of active transmission, **OR**
 - Sexual exposure to semen of a confirmed acute or clinically recovered case of VHF, or breast-milk of an individual who had VHF.

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. Initial investigation of a VHF can be conducted in alignment with the recommendations for investigating a suspected case of Ebola (see Ebola Virus Disease guidelines).”

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 are rare.

Case Investigation Checklist

- Isolate patient in a single patient room containing a private bathroom with the door closed.
- Implement standard, contact, and droplet precautions.
- Assess exposure history (see bullets in Suspect under Case Classification).
- Contact EAIDU for consultation on symptoms, epidemiologic risk factors, and preliminary lab findings to consider lab testing for VHF viruses. EAIDU will coordinate the required consultation with CDC for testing approval.
- Identify contacts for monitoring

Exclusion

Patients with VHF will not be released from isolation until they are no longer considered infectious. A PUI may be released from isolation, in certain circumstances, after consultation with public health.

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 (EAIDU) at **(800) 252-8239** or **(512) 776-7676**.

Local and Regional Reporting and Follow-up Responsibilities

Local and regional health departments should:

- Call DSHS EAIDU 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 who are laboratory tested for VHF.
 - 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 EAIDU to arrange for testing.

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

REVISION HISTORY

December 2021

- Edits to Basic Epidemiology and Definitions

March 2021

- Minor edits throughout