Viral Hemorrhagic Fevers

New Jersey Department of Health

Frequently Asked Questions

What are viral hemorrhagic fevers?

The term viral hemorrhagic fevers (VHFs) refers to a group of severe illnesses, sometimes associated with bleeding, that may be caused by a number of viruses. These viruses are made up of four distinct families: arenaviruses, filoviruses, bunyaviruses, and flaviviruses. VHFs include Ebola, Lassa fever, Marburg, Crimean-Congo hemorrhagic fever, Rift Valley Fever, yellow fever, and dengue, among other illnesses.

VHFs damage the body's system that circulates blood and weakens the body's ability to regulate itself. These symptoms are often accompanied by hemorrhage (bleeding). However, the bleeding itself is rarely life-threatening. While some types of hemorrhagic fever viruses can cause relatively mild illnesses, many of these viruses cause severe, life-threatening disease.

What are the symptoms of viral hemorrhagic fever illnesses?

Specific signs and symptoms vary by the type of VHF, but initial signs and symptoms often include:

- Sudden onset of fever
- Fatigue
- Dizziness
- Muscle aches
- Loss of strength
- Exhaustion

Patients with severe cases of VHF often show signs of bleeding under the skin, in internal organs, or from body openings like the mouth, eyes or ears. However, although they may bleed from many sites around the body, patients rarely die because of blood loss. Severely ill patient cases may also show shock, nervous system malfunction, coma, delirium and seizures. Some types of VHF are associated with renal (kidney) failure.

What are the typical characteristics of viral hemorrhagic fevers?

- Their origin is an animal or insect host, called the natural reservoir.
- Humans are not the natural reservoir for any of these viruses. Humans can become infected when they come into contact with infected hosts.
- Human cases or outbreaks of hemorrhagic fevers caused by these viruses occur sporadically and irregularly. It is not easy to predict when an outbreak may occur.
- There is no cure or established drug treatment for most VHFs.

Which animals or insects carry viruses that cause viral hemorrhagic fevers?

Viruses associated with most VHFs are zoonotic. This means that these viruses naturally live inside an animal reservoir host. Rodents are usually the main reservoirs for viruses causing VHFs. Examples of reservoir hosts include the multimammate rat, cotton rat, deer mouse, house mouse and other field rodents. Certain types of ticks and mosquitoes can also serve as carriers for some VHFs.

Where are cases of viral hemorrhagic fever found?

The viruses that cause VHFs are found in many places around the world. However, because each virus is associated with one or more particular host species, the virus and the disease it causes are usually seen only where the host species live(s).

How are hemorrhagic fever viruses transmitted?

Hemorrhagic fever viruses can spread from animals to people in several ways:

- Livestock via slaughter or consumption of raw meat from infected animals or unpasteurized milk.
- Rodents or insectivores via direct contact with the animal, or inhalation of or contact with materials contaminated with rodent droppings.
- Vectorborne transmission via mosquito or tick bites or by crushing infected ticks.

Some VHFs are spread person-to-person through direct contact with a symptomatic patient's body fluids or through inadequate infection control in a hospital setting.

Can viral hemorrhagic fever illnesses be transmitted from person to person?

Some viruses that cause hemorrhagic fever can spread from one person to another, once an initial person has become infected. Ebola, Marburg, Lassa and Crimean-Congo hemorrhagic fever viruses are examples.

This type of secondary transmission of the virus can occur directly, through close contact with infected people or their body fluids. It can also occur indirectly, through contact with objects contaminated with infected body fluids.

How are patients with viral hemorrhagic fever treated?

Patients receive supportive therapy, but there is no other treatment or established cure for VHFs. Ribavirin, an anti-viral drug, has been effective in treating some individuals with Lassa fever.

How can cases of viral hemorrhagic fever be prevented and controlled?

Currently, only vaccines for yellow fever and Argentine hemorrhagic fever are available. Therefore, prevention efforts must concentrate on avoiding contact with host species.

Because many of the hosts that carry hemorrhagic fever viruses are rodents, disease prevention efforts include:

- controlling rodent populations
- discouraging rodents from entering or living in homes or workplaces
- encouraging safe cleanup of rodent nests and droppings

For hemorrhagic fever viruses spread by ticks or mosquitoes, prevention efforts often focus on community-wide insect control. In addition, people are encouraged to use insect repellent, proper clothing, bed nets, window screens and other insect barriers to avoid being bitten.

For those hemorrhagic fever viruses that can be transmitted from one person to another, avoiding close physical contact with infected people and their body fluids is the most important way of controlling the spread of disease. Barrier nursing or infection control techniques include isolating infected individuals and wearing protective clothing. Other infection control recommendations include proper use, disinfection, and disposal of instruments and equipment used in treating or caring for patients with VHF, such as needles and thermometers.

What needs to be done to address the threat of viral hemorrhagic fevers?

Scientists and researchers are working to develop containment, treatment and vaccine strategies for VHFs. Strategies include creating tools for more rapid disease diagnosis, to study how the viruses are transmitted and exactly how the disease affects the body, and to better understand how the environment interacts with these viruses and their hosts in order to offer preventive public health advice for avoiding infection.

Can viral hemorrhagic fevers be used in bioterrorism?

The CDC identifies hemorrhagic fever viruses as agents that could be used as biological weapons because some are highly infectious, can be easily spread through the air and have the potential to cause great numbers of illnesses and deaths.

Where can I get more information?

- Your healthcare provider
- Your local health department
- New Jersey Department of Health Website: http://www.nj.gov/health/cd/topics/vhf.shtml
- CDC Website: https://www.cdc.gov/vhf/index.html

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