

Viral haemorrhagic fever

Frequently Asked Questions

1. What is viral haemorrhagic fever?

Viral haemorrhagic fevers (VHFs) refer to a number of different diseases characterised by the presence of fever, rash and bleeding. Viral haemorrhagic fevers are caused by viruses belonging to four families of RNA viruses: the [Arenaviridae](#), [Filoviridae](#), [Bunyaviridae](#), and [Flaviviridae](#). Crimean-Congo haemorrhagic fever (CCHF) is endemic South Africa. [Ebola](#), Marburg haemorrhagic fevers and Lassa fever occur in central and West Africa. Human cases of hanta virus do not occur. Typically, VHF is associated with high fatality rates in humans. Haemorrhagic fever (HF) viruses cause increases permeability of blood vessels and bleeding. This may present as a petechial rash, bleeding of internal organs, or bleeding from bodily orifices.

2. Who can get viral haemorrhagic fever?

People who live in or travel to an area where a particular VHF is endemic and are exposed to vectors of VHF or persons infected with VHF have an increased risk of acquiring VHF. Human cases or outbreaks of VHF occur sporadically and irregularly, and are hard to predict.

3. Where does viral haemorrhagic fever occur in South Africa?

VHFs are rare disease; fewer than ten cases of Crimean-Congo haemorrhagic fever (CCHF) per year are reported in South Africa. CCHF is endemic South Africa. CCHF cases occur in drier areas of South Africa such as the Northern Cape and Free State Provinces, in the areas where the vectors are found. Importation of Marburg and [Ebola haemorrhagic fever](#) occurred in 1986 and 1996, respectively. Lujo virus, a new VHF virus was identified during a nosocomial outbreak, imported into Johannesburg, South Africa in 2008. Five people were infected. A patient with confirmed Lassa fever was treated at a Pretoria hospital in 2007. Serological evidence (presence of specific antibodies in the blood) of Hantavirus infection in patients has been reported in single studies across Africa.

4. How is viral haemorrhagic fever transmitted?

VHFs are zoonotic diseases (spread from animal hosts to humans). Bats are suspected as the natural reservoirs of Marburg and possibly Ebola viruses and rodents are reservoirs for Lassa and hanta fever. The hosts of the CCHF virus include a wide range of wild and domestic animals such as cattle, sheep and goats. Birds are resistant to infection, but ostriches are susceptible and may show a high prevalence of infection in endemic areas. Humans may acquire infection when they come into close contact with live animal host, animal carcasses during slaughtering or animal droppings. Tick of the genus *Hyalomma* are the principal vector of CCHF. Lassa, Ebola, Marburg and Crimean-Congo viruses can spread from person-to-person through close contact with symptomatic patients or contaminated body fluids.

5. How does viral haemorrhagic fever affect animals?

Ebola and Marburg infection in non-human primates cause severe, often fatal haemorrhagic fever. Cattles are asymptomatic. Clinical signs of infection in animals may include fever, anorexia, vomiting, diarrhoea, splenomegaly, weight loss, hair loss, emaciation, dyspnoea, a skin rash and bleeding from the nostrils. Haemorrhages can occur from any organ which may include petechiae, bleeding into the gastrointestinal tract or bleeding from puncture wounds and mucous membranes.

6. What are the signs and symptoms of viral haemorrhagic fever in humans?

Initially, patients with VHF reports fever, fatigue, dizziness, muscle aches, loss of strength and exhaustion. A petechial rash (blood spots under the skin) may develop. Bleeding of the internal organs or from mouth, eyes and ears may occur. Patients may bleed from venepuncture sites (during blood collection, drips insertion, etc.). Patients with severe disease may show signs of shock, kidney failure, and nervous system malfunction including coma, delirium, and seizures.

7. How is viral haemorrhagic fever diagnosed?

Typical findings in HF patients include thrombocytopenia, a low or normal white cell counts and raised liver enzyme. Specific laboratory tests include serological screening for IgG and IgM antibodies. PCR detection of viral genomic material (RNA) or virus isolation can be done on blood. Antigen detection is particularly useful in the early acute stage of illness. These tests are performed under biosafety level 4 conditions (i.e. maximum bio-containment).

8. How is viral haemorrhagic fever treated?

Treatment of VHF is supportive only as specific treatment is not available. Ribavirin may be used for treatment of CCHF, Lassa and hanta fever. Treatment with convalescent-phase plasma has been used to treat Ebola virus patients. VHF patients are managed under strict infection prevention and control protocols that include isolation.

9. How is viral haemorrhagic fever prevented?

No licensed vaccines are available for prevention of VHF, although a vaccine against Ebola is under trial. Outbreaks of VHF are associated with transmission via contact with blood, bodily fluids and tissues of infected persons and are often associated with hospital setting, where healthcare workers are particular at risk. Strict infection control procedures in health care settings are paramount for containment of VHF outbreaks. Prevention measure includes avoiding contact with animal reservoirs, vectors for the diseases, infected animal and human blood or tissues, tick bites, contact with rodent urine and faeces.

10. Where can I find more information?

Medical/clinical related queries: NICD Hotline +27 82 883 9920 (for use by healthcare professionals only)

Laboratory related queries: Dr Jacqueline Weyer: (Tel) +27 11 386 6376, jacquelinew@nicd.ac.za

Results inquiries: NICD Specimen Receiving Laboratory: +27 11 386 6404.

- Center for Emerging and Zoonotic Diseases Laboratory: +27 11 386 6339

Surveillance and Response

Suspected VHF is a notifiable disease (ICD-10 A96). All laboratory confirmation in South Africa is performed by the centre for Emerging and Zoonotic Diseases, NICD-NHLS under appropriate biosafety conditions.