



## VIRAL HEMORRHAGIC FEVERS

- Agent Information:** Viral Hemorrhagic Fevers (VHFs) refer to a group of illnesses caused by several distinct families of ribonucleic acid (RNA) viruses. The term “Viral Hemorrhagic Fever” describes a severe multi-system syndrome. Several VHFs have similar effects but vary in severity: Ebola, Lassa, Marburg, Crimean-Congo, Rift Valley, and others.
- Transmission:** Ebola, Marburg, Lassa, and Crimean-Congo hemorrhagic fever viruses are transmitted to humans following exposure to infected animal hosts or vectors. Person-to-person transmission occurs once an initial person becomes infected. This type of secondary transmission can occur through direct contact with infected people or their body fluids, or through contact with contaminated objects. Aerosol spread is also possible. Overall incubation period is 2-35 days.
- Signs and Symptoms:** Specific symptomology varies by the type of VHF, but initial signs and symptoms include marked fever, fatigue, vertigo, and myalgia. Patients with severe cases show signs of bleeding subcutaneously, internally, and from body orifices. Severely ill cases show signs of hemodynamic instability, central nervous system malfunction, coma, delirium, and seizures. Some VHFs are associated with renal failure. VHFs are initially transmitted to humans from direct contact with infected vectors or reservoir hosts, usually from contact with urine, fecal matter, saliva, other body excretions, or a bite from the infected host.
- Protective Measures:** Follow appropriate Body Substance Isolation (BSI) precautions, with use of Personal Protective Equipment (PPE).
- Standard Precautions: Hand washing before and after all patient contacts and contact with patient care equipment.
- Contact Precautions: Use of gloves, gown and eye protection.
- Airborne Precautions: Initiate droplet precautions for persons with flu-like illness or confirmed infection, including wearing masks (fit-tested, NIOSH-approved N-95 respirator) when in contact with patient. Protective measures include double gloving, use of impermeable gowns, leg and shoe coverings, face shields or goggles, dedicated medical equipment, proper disinfection measures, and restricted access of nonessential staff. A surgical mask should be placed on the patient during EMS contact. Needle sticks pose the greatest risk to health care workers. If equipment is visibly soiled or significant contact has been made with the patient, REMOVE the protective clothing BEFORE entering areas that are NOT contaminated to prevent transmission of material.



- Decontamination of PPE and Equipment:** Equipment can be decontaminated using soap and water. Also, 0.5 percent hypochlorite solution (one part household bleach to 10 parts water) can be used as appropriate or if gear was visibly contaminated. Bleach may damage some types of firefighter turnout gear (one reason why it should not be used for biological agent response actions). After taking off gear, response workers should shower using copious quantities of soap and water.
- Prophylaxis:** No available prophylaxis exists. Place persons considered potentially exposed and all known high-risk and close contacts under medical surveillance. (An experimental vaccine for Ebola proved effective in a trial study. Vaccines are available for Yellow and Argentine fevers).
- Treatment:** Possible use of Ribavirin under Investigational New Drug (IND) protocol. No established treatment or cure. Supportive care is the mainstay of treatment with intense hemodynamic support.
- Reporting:** Immediately report any suspect cases to the Division of Public Health, Office of Infectious Disease Epidemiology: 1-888-295-5156. For additional information, visit the Centers for Disease Control and Prevention (CDC) website: [www.cdc.gov/vhf/](http://www.cdc.gov/vhf/).