FACT SHEET: Hemorrhagic Fevers (Marburg, Ebola)

"*Viral Hemorrhagic Fever*" (VHF) refers to a group of highly infectious severe viral illnesses caused by over 20 different small particle pathogenic RNA viruses in four different viral families. Examples include Yellow fever, Lassa fever, Ebola, Marburg and others listed in the Table at end. These highly infectious viruses lead to a potentially lethal disease syndrome characterized by fever, malaise, vomiting, mucosal and gastrointestinal (GI) bleeding, edema, and hypotension. Clinical and epidemiological data are very limited because outbreaks have been sporadic, few cases, and typically limited primarily to Africa or Asia.

Public Health Threats and Transmission: The hemorrhagic fevers of most serious concern, particularly Marburg and Ebola, are spread through person-to-person contact, including respiratory droplets from people who are *actively sick* (viremia phase) and are coughing or sneezing. Infected people *with symptoms* (viremia phase) can spread the virus to *uninfected people* when the infected person's secretions (saliva, respiratory droplets, blood, vomit, stool, vaginal secretions, and/or semen) contact mucous membranes (mouth, nose, eyes, rectum, vagina, or breaks in the skin) of someone who is not infected. There is no well-documented evidence of spread during the *asymptomatic prodromal phase,* as discussed in the article cited below. Family members can be infected as they care for sick relatives. Healthcare personnel can be infected if not using proper protective equipment that covers them from head to toe. Hospitals also use the decontamination strategies described below.

For more detailed information on the potential public health threats and spread of these illnesses, see the important 2002 consensus review article *"Hemorrhagic Fever Viruses as Biological Weapons: Medical and Public Health Management"* from Johns Hopkins School of Public Health Working Group on Civilian Biodefense: https://www.truthforhealth.org/2022/07/hemorrhagic-fever-viruses-as-biological-weapons/

Symptoms and Progression of Illness:

Onset: Symptoms may begin abruptly within five to 10 days but may take up to 30 days following exposure/infection with the various viruses that cause Viral Hemorrhagic Fevers. In addition to these symptoms, these viruses cause added damage by suppressing the immune system.

Early signs and symptoms of Viral Hemorrhagic Fever include:

- Fever, chills, fatigue, weakness, severe headache, joint and muscle aches

As the HF viral illness worsens, symptoms become increasingly severe, including:

- Cholera-like diarrhea, watery progressing to bloody; mucus-membrane bleeding

- Chest pain, sore throat, cough, difficulty breathing
- Abdominal cramping, jaundice, and upper GI pain, severe weight loss
- Red eyes, nausea and vomiting, skin rash
- Mucus-membrane bleeding, usually from the eyes, and when close to death, bleeding from the ears, nose and rectum

As the VHF illnesses progress, symptoms and signs become more severe:

- Bleeding, leading to hypovolemic shock leading to damage to critical organs
- Delirium, seizures, coma, and death

Complications in Survivors: Recovery can be long and slow since the viruses remain in the body for weeks. ***Ebola and Marburg viruses have been identified in semen for 82-101 days after illness onset***, which shows how long the virus potentially remains in the body. It may take months to regain weight and strength. People may experience:

- *diffuse muscle weakness, severe fatigue, sensory changes/nerve damage, headaches, hair loss, inflammation of eyes (particularly the anterior chamber), damage to the heart, lung, kidney, liver (hepatitis), ovaries and testicles.*

Rx TREATMENT OPTIONS: (see references at end for more information)

1. ***Triple monoclonal antibody therapy,*** *Inmazeb,* is the most effective treatment available we have at this time for Ebola. It is available in the US national stockpile of medicines under control of the Federal government to be used in national emergencies. *Inmazeb* is a combination of 3 monoclonal recombinant human IgG1-kappa monoclonal antibodies: *atoltivimab, maftivimab, and odesivimab-ebgn*. The antibodies bind to the glycoprotein on the Ebola virus surface and block attachment and entry of the virus on host cell membranes. For more information: https://emedicine.medscape.com/article/830594-medication AND https://www.nature.com/articles/s41467-021-22132-0

2. **From the US Army Field Manual for medical treatment used by our Special Forces:** These additional medicines have been listed as potential Rx options for VHF illnesses, in emergencies if other medicines are not available. Since there have not been many outbreaks of either Ebola or Marburg, we don't have clinical studies to provide more data, but we list these options that have been used by the US Military:

- ***Albendazole*** (FDA-approved "de-wormer"): 400 mg once when using for parasites; available in the USA by prescription, dosing not established for Marburg virus
- ***Mebendazole*** (FDA-approved "de-wormer"): 100 mg BID for 3 days when using for parasites; available in the USA by prescription; dosing not established for Marburg virus

- ***Fenbendzole*** (same class of medicines as above, but it is an approved *Veterinary* product, not approved for human use. Veterinary products available on-line.

3. ***Ribavirin*** is both an oral and IV agent that has some in vitro and in vivo activity against two of the four VHF families, but not the Filoviridae (Ebola and Marburg) or Flaviviridae families. Small trials have shown that ribavirin may reduce mortality after infection with Lassa fever and select New World arenaviruses. Oral ribavirin has been licensed for treatment of chronic hepatitis C and because of ease of oral use and availability, it was recommended by the Johns Hopkins Working Group on Civilian Biodefense in 2002 as an off-label treatment option in a mass casualty event from outbreak of HVF when IV resources would be limited due to large numbers of patients needing help at the same time.

4. **In the absence of access to the above options,** practitioners in other countries have reported some clinical effectiveness using ***Hydroxychloroquine*** *and* ***Ivermectin*** for viral hemorrhagic fevers, with dosing similar to therapy for COVID. If there are no other options, health professionals may elect to use these existing medicines off label, rather than do nothing. But again, with limited outbreaks, and small numbers of cases, we don't have clinical studies to provide more data.

For Hospitalized Patients:

The mainstay of treatment for Viral Hemorrhagic Fever is rapid implementation of supportive medical care with meticulous attention to fluid and electrolyte balance and maintaining circulatory volume and maintaining blood pressure in the face of fluid and blood loss. Oxygen therapy, controlling abnormal clotting or bleeding, treating secondary bacterial and/or fungal infections and complications are also critical supportive medical care strategies. **Prescription medications** have to be individually tailored to the specific patient and what is happening clinically. These can include pressor agents, antibiotics, anti-virals, anti-inflammatory medicines, anti-coagulants (only if abnormal clotting is present, obviously not used if uncontrolled *bleeding* is occurring), and other medications in the clinical judgement of the physicians. Some studies show possible benefit of hydroxychloroquine, ivermectin, fenbendazole but there is not much data on this since there have been so few outbreaks and so few cases, especially in the United States.

To improve Health and Resilience and reduce risk of infections:

Supplements and Nutraceuticals: These have research-based evidence for anti-viral, anti-inflammatory, immune-boosting, and neuro-protective benefits in the spectrum of viral illnesses, COVID vaccine injury, EMF radiation damage, and other inflammatory conditions. We do not have sufficient clinical research data to *document* benefits of these supplements and nutraceuticals in the hemorrhagic fever spectrum of illnesses that includes Ebola, Marburg, Lassa fever and others. But since these supplements have such significant benefits to reduce inflammation, improve

immune response and improve cellular oxygenation, we include them here as part of an overall plan to improve health and resilience and reduce risk of infectious disease.

*We recommend having your individual physician or other trusted health professional check blood levels of vitamins and supplements that may be detrimental if used in excessive amounts, such as Vit D, zinc, B6, B12, magnesium. Then an **individual dose tailored to your needs** can be decided based on objective lab data.*

Basic List of Nutraceuticals with documented anti-viral, anti-inflammatory, antioxidant, and immune boosting benefits:

- Vitamin D (in oil): 5000 IU AM and PM
- N-acetyl cysteine (NAC) 600-1200 mg daily
- Glutathione, Co-Q-10 and resveratrol
- Vitamin C with bioflavonoids 2000 mg (increase if symptoms times a day
- Magnesium 400 mg once or twice a day
- B complex
- Zinc sulfate 220 mg daily (50 mg elemental zinc)
- Quercetin
- Green Tea
- Monolaurin (derived from coconuts)
- Immune-boost Mushroom complex powder (Lion's Mane, Turkey Tail, Reishi, Maitake, Chaga etc.)
- Aspirin 81 mg prevention dose, 325 mg full-strength anti-platelet dose (to reduce risk of blood clotting. If abnormal bleeding is happening, do NOT use aspirin, or supplements that have anticoagulant effects such as Vitamin E and fish oils).
- Blackseed oil (N-sativa seed)

Hygiene practices and environmental management:

Personal Hygiene: Use the basic principles of 1) wash your hands 2) Avoid touching the “T zone of your face, and 3) Refer to our TFH FACT SHEETS on oral and nasal antiviral/antibacterial oral and nasal flushes to reduce viral and bacterial illnesses. Good hygiene practices and the decontamination strategies below can significantly reduce the spread of infectious disease.

AVOID TOUCHING THESE AREAS IN THE T-ZONE. Always wash your hands before touching your eyes, nose, and mouth, especially when you are exposed to sick people!

Environmental Management: Decontamination Strategies Adaptable for Home Use

At this time Chlorine dioxide solution (CDS) is the leading agent used for environmental decontamination to control the spread of Ebola outbreaks in West Africa by the US Miliary. Chlorine dioxide solution has been used safely and effectively in cleaning and sterilization efforts in the medical, agricultural, and industrial communities for decades. You can learn more about use of chlorine dioxide in Ebola decontamination (similar to Marburg illness) by visiting the "Health and Resilience" page on our website, and also read this article: https://www.frontiersin.org/articles/10.3389/fmicb.2015.00663/full

There are many patents related to the safe use of CDS for purifying water, treating wounds, sterilizing of medical equipment and much, more. The two solutions used to make the activated CDC are easy to purchase, inexpensive and stable to store. Read more about it on our website under Health and Resilience section. There are many references and resources described in the video and resource guidebook.

THE BOTTOM LINE:

PREVENTION and *rapid* early treatment are keys to survival, especially for the viruses with high mortality such as Ebola and Marburg

Selected References (in addition to those cited in links above)

Marburg virus disease: A summary for clinicians. *International Journal of Infectious Diseases*. 2020;99:233-242. doi:10.1016/j.ijid.2020.07.042

Mangat R, Louie T. Viral Hemorrhagic Fevers. PubMed. Published 2021. https://www.ncbi nlm.nih.gov/ books/NBK560717/

Consensus review article from 2002: *"Hemorrhagic Fever Viruses as Biological Weapons: Medical and Public Health Management"* from Johns Hopkins School of Public Health Working Group on Civilian Biodefense: https://www.truthforhealth.org/2022/07/hemorrhagic-fever-viruses-as-biological-weapons/

Ebola: Care, Recommendations, and Protecting Practitioners, a Critical Images slideshow, to review treatment, recommendations, and safeguards for healthcare personnel.

Patient education resources: First Aid and Injuries Center, as well as Biological Warfare and Personal Protective Equipment.

https://www.sciencedirect.com/science/article/pii/S1201971220305865

Ebola virus and Marburg virus - Symptoms and causes - Mayo Clinic

Radiation Sickness Symptoms and Causes – Mayo Clinic

References and resources to be added regularly to our website: www.TruthForHealth.org **Check back for new information.**

TABLE: VIRAL FAMILIES CAUSING VIRAL HEMORRHAGIC FEVERS

Virus Family & Disease	Natural Distribution	Source of Human Infection	Spreads Person-to Person	Incubation Period in days	Mortality (Death Rate)	Virus Persisting in Semen
Filoviridae (Filovirus) • Ebola • Marburg	Africa	Fruit Bat	 Yes Yes	 2-21	 50-90% 23-70%	 101 days 82 days
Arenaviridae (Arenavirus) • Lassa	Africa	Rodent	Yes	5-16	15-20%	
New World Arenaviruses • Argentine (Junin) • Bolivia (Machupo) • Brazilian (Sabia) • Venezuelan (Guanarito)	 S. America S. America S. America S. America		 Yes Yes Yes Yes	 7-14 9-15 7-14 7-14	 15-30% 15-30% 15-30% 15-30%	
Bunyaviridae						
Phlebovirus • Rift Valley Fever	Africa,Yemen Saudi Arabia	Mosquito	No	2-5	<1%	
Nairovirus • Crimean-Congo HF	Africa Asia Europe	Tick	Yes	3-12	High but % not available	
Hantavirus • HF w/ Renal or Pulmonary Syndrome	Asia Africa Europe Americas	Rodent	No	9-35	Not available	
Flaviviridae (Flavivirus) • Yellow Fever • Dengue Fever • Omsk HF	Tropical Africa & Americas, Asia	Mosquito Mosquito Tick	No No No	3-6 5-7 2-9	20% High 0.5-10%	

Sources: https://emedicine.medscape.com/article/830594-overview#a1
https://www.truthforhealth.org/2022/07/hemorrhagic-fever-viruses-as-biological-weapons/