



**Disaster and Terrorism Response:
Emergency Preparedness Tools for Pharmacists and
Health-System Pharmacy Departments
FACT SHEET**

HEMORRHAGIC FEVERS

BACKGROUND: Hemorrhagic fever (HF) syndromes are caused by viruses and are characterized as acute febrile illnesses with blood vessel disruption and ensuing hemorrhage. Examples include those caused by: Arenaviridae (Lassa fever), Bunyaviridae (Hantavirus), Filoviridae (Marburg virus and Ebola virus) and Flaviviridae (Yellow fever). Some infections are endemic to certain regions of the world. Weaponization of HF organisms, while difficult to achieve, is a bioterrorism threat.

MECHANISM OF ACTION: Some HF syndromes occur from direct contact with infected animals or humans, and other viruses are transmitted via insect vectors. The pathogenesis is poorly understood and varies with the particular virus. In some cases direct damage to blood vessels occurs, while in others indirect mechanisms may play a role.

CLINICAL EFFECTS: Based on the route of exposure and particular organism involved.

● **Exposure:**

Variable

Airborne droplets or insect vector depending on endemic area

● **Incubation Period:** Usually abrupt onset, within a few days

● **Symptoms:**

Myalgias

Fever

Headache

Nausea

Vomiting

Abdominal pain

Dizziness with progression to shock and multifocal bleeding

Clinical findings may include:

Conjunctival suffusion

Petechiae

Jaundice

Orthostatic hypotension

Hemoconcentration

TREATMENT: Direct person- to-person transmission of HF viruses is unlikely but should be guarded against by use of personal protective equipment. Early recognition, limitation of spread, and supportive care are the cornerstones of initial patient management. Vaccination in some cases (e.g. Dengue fever) may prevent infection. Ribavirin is recommended for prophylaxis and treatment of some HF viruses (i.e. Hantavirus) but is not effective in the treatment of other hemorrhagic fevers. Since identification of HF viruses may be delayed, empirical treatment with ribavirin may be warranted. **Antibiotics are NOT helpful.**

Duration of therapy: Total duration is 10 days.

- Empirical treatment with ribavirin before identification may be appropriate.

● **Arena- or Bunyaviridae:**

Adults:

Ribavirin IV: 30 mg/kg (max. 2 g) load, then 16 mg/kg (max. 1 g/dose) q6h x 4 days, then 8 mg/kg (max. 500 mg/dose) q8h x 6

Ribavirin p.o.: 2000 mg load, then

if \leq 75 kg: 1000 mg daily (400 mg in a.m. and 600 mg in p.m.)

if $>$ 75 kg: 600 mg twice daily

Children:

Ribavirin IV: Same weight based dosing as adults

Ribavirin p.o.: 30 mg/kg load, then 7.5 mg/kg twice daily

● **Filo- and Flaviviridae:**

Adults:

Ribavirin IV: 30 mg/kg (max. 2 g) load, then 16 mg/kg (max. 1 g/dose) q6h x 4 days, then 8 mg/kg (max. 500 mg/dose) q8h x 6

Ribavirin p.o.: 2000 mg load, then

if \leq 75 kg: 1000 mg daily (400 mg in a.m. and 600 mg in p.m.)

if $>$ 75 kg: 600 mg twice daily

Children:

Ribavirin IV: Same weight based dosing as adults

Ribavirin p.o.: 30 mg/kg load, then 7.5 mg/kg twice daily

Supportive care: fluids (monitor for pulmonary edema), vasopressors, acetaminophen (for fever.)

Contraindications: IM injections, NSAIDs/ASA and anticoagulants; Ribavirin: pregnancy category X.

POST-EXPOSURE PROPHYLAXIS:

Observe/monitor for signs and symptoms of illness for 21 days after exposure; if fever $>$ 38.8°C (101°F) treat with ribavirin

For 24/7 assistance in the emergency management of an actual or suspected chemical terrorism exposure, contact a Certified Regional Poison Information Center at 1-800-222-1222.

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