

Crimean-Congo Hemorrhagic Fever Personal Protective Equipment

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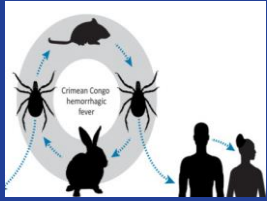


Crimean-Congo Hemorrhagic Fever (CCHF)

Outbreak Distribution Map



Crimean-Congo Hemorrhagic Fever (CCHF)



Transmission: Transmission to humans occurs through contact with infected ticks (mainly of the *Hyalomma* genus) or animal blood. CCHF can be transmitted from one infected human to another by contact with infectious blood or body fluids.



Signs and Symptoms: headache, high fever, back pain, joint pain, stomach pain, and vomiting. Red eyes, a flushed face, a red throat, and petechiae (red spots) on the palate are common.



Incubation period: The incubation period of CCHF is 3-7 days (range: 1–14 days), although longer periods have been reported.

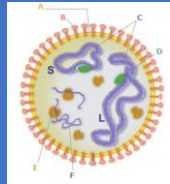


Arenaviridae

Host = Rodents

Lassa

Junin, Machupo, Guanarito,
Sabia



Filoviridae

Host = Bats (?)

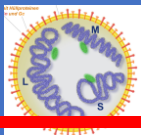
Ebola, Marburg



VHFs

Zoonotic

Lipid enveloped RNA



Bunyaviridae

Hosts = Ticks, rodents, mosquitos

CCHF (Crimean Congo Hemorrhagic Fever),
Hantaviruses (Sin Nombre, **Andes**), Rift
Valley Fever



Flaviviridae

Hosts = Ticks, mosquitos

Yellow Fever, Dengue

Kyasanur, Omsk



Symptoms

Fever
Headache
Nausea/vomiting
Diarrhea
Muscle/joint pain
Fatigue/malaise

Disinfection

Their lipid envelope makes these viruses susceptible to many cleaning agents.

Treatment

Supportive care
May try some antivirals
Some vaccines but limited

Diagnosis








Rapid testing available for some, many require specimens to be sent to the CDC

Prognosis

Ranges from asymptomatic to severe illness, organ failure, and death

Transmission

Not all are known to be transmissible person-to-person. PPE differs

Virus Family	Illness Caused	Common Geography	Vector or Source	Person-to-person spread	Precautions	PPE	Comments
Filoviridae	Ebola Virus Disease	Central, sub-Saharan Africa	? Presumed bat	YES	Contact, Droplet/Airborne, Eye		Dry phase = impermeable gown to mid-calf
	Marburg virus		Fruit bat				Wet phase = Full body coverage
Arenaviridae	Lassa fever	West Africa	Rodents	YES	Contact, Droplet/Airborne, Eye		Dry phase = impermeable gown to mid-calf
	Junín Machupo (Bolivian HF) Guanarito (Venezuelan HF) Sabia (Brazilian HF)	South America					Wet phase = full body coverage
	CCHF – Crimean Congo Hemorrhagic Fever	Europe, Mediterranean, Middle East, Africa, India, China	Tick, infected livestock	YES	Contact, Droplet/Airborne, Eye		Dry phase = impermeable gown to mid-calf Wet phase = Full body coverage
Bunyaviridae	Hantaviruses (HPS/HFRS*) (Sin Nombre, Andes virus)	Worldwide	Rodent	Possible	Standard Precautions unless Andes virus suspected		Contact, Droplet/Airborne, Eye for potential Andes virus or contact/clean-up of rodent droppings
	Rift Valley Fever	All of sub-Saharan Africa	Mosquito	No	Standard Precautions		
Flaviviridae	Yellow Fever	Tropics	Mosquito	Blood ¹	Standard Precautions		¹ Potential risk of Yellow Fever transmission in blood transfusion, or immediately post vaccination 
	Dengue	Tropics	Mosquito	No			
	Kyasanur	India	Tick	No			
	Omsk	Siberia					

HPS* Hantavirus Pulmonary Syndrome

HFRS* Hantavirus Fever with Kidney Syndrome

A patient is considered “wet” when they have fever, vomiting, and/or diarrhea.

Because the infectious dose for some VHF is very small and because most body fluids of infected patients may harbor the virus, full body coverage is required for Ebola Virus Disease, Lassa Fever, and Marburg Virus Disease, and should be considered with CCHF and Andes Virus (Hantavirus)



Full body coverage = Coverall or Gown
Shoe or boot covers
Head cover, hood, or shroud

Blood and viral penetration resistance:
Gown – ANSI/AAMI PB70 Level 4
Coverall – ASTM F1671 or EN14126



Eye protection = full face shield
or goggles with circumferential
protection



Respiratory protection by N95 or
higher
Filtering face piece respirator or
PAPR (powered air purifying
respirator)



Isolation gown = choose level of
gown based on risk.
AAMI PB70 Level 1 – 3 have
increasing levels of resistance to
fluids



Medical or surgical mask for droplet
or source protection only. Does not
provide respiratory protection.



Gloves = non-sterile medical
exam gloves. Double gloving and
the use of extended cuff gloves
may be advised.



Recommended PPE

Place the patient in an Airborne Infection Isolation Room (AIIR), when available.

Suspect Case (DRY: **WITHOUT** vomiting/diarrhea)

- Impermeable gown
- Gloves (single or double)
- Respirator (PAPR, N95 or equivalent)
- Eye protection

Suspect Case (WET: **WITH** vomiting/diarrhea)

- Full body coverall
- Extended cuff gloves (single or double)
- Respirator (PAPR, N95 or equivalent)
- Eye protection
- Shoe or boot covers
- Apron





Complex PPE ensembles require practice and training to use and remove correctly.

Remember:

Dirtiest First!

And protect your mucous membranes (eyes, nose, mouth) until you are outside the danger zone.





Identify – symptoms may be vague and common, so early identification of travel history or exposure risk is key.



Isolate – protect yourself and others by placing suspect patients into private rooms when available and using the appropriate PPE for the tasks at hand.

- Place patients in a private room with door closed
- Clean hands, use PPE (gloves, gown, N95, eye protection)

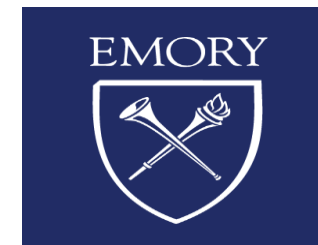


Inform – know your internal stakeholders and public health partners; involve them early for PPE, IPC, testing, treatment, and transfer options.

- Notify Infection Prevention/ Infectious Diseases for PPE guidance and/or indication for biocontainment unit.
- Notify any clinical team providing patient care including laboratory personnel

“We can either let our actions be guided by misunderstandings, fear and self-interest, or we can lead by knowledge, science and compassion. We can fear, or we can care.”

Susan Grant, former
Emory Chief Nursing
Officer



Prevention: Crimean Congo Hemorrhagic Fever

Utilization of appropriate PPE

Blood and body fluid specimens managed within a biocontainment unit with samples sent to CDC.

Medical waste is handled under Category A regulations



Resources

Emory PPE Resources: <https://med.emory.edu/departments/medicine/divisions/infectious-diseases/serious-communicable-diseases-program/ebola-resources/index.html>

NETEC Viral Hemorrhagic Fevers Matrix: <https://repository.netecweb.org/items/show/1693>

WHO Course on CCHF: <https://openwho.org/courses/crimean-congo-haemorrhagic-fever-introduction>

NETEC Course on Special Pathogens: <https://courses.netec.org/courses/special-pathogens-of-concern>

CDC information about CCHF: <https://www.cdc.gov/vhf/crimean-congo/index.html>

