

# PUBLIC HEALTH REFERENCE SHEET

## Rift Valley Fever



<b>Name</b>	Rift Valley fever (RVF) virus
<b>Reservoir &amp; Transmission</b>	<i>Aedes sp.</i> mosquitos Bite of infected mosquito, contact with body fluids of infected animals
<b>Incubation Period</b>	2–7 days on average
<b>Common Symptoms</b>	Fever (may be biphasic), chills, headache, myalgia, or arthralgia. May include retinitis, encephalitis, and hemorrhage
<b>Gold standard Diagnostic Test</b>	Whole blood or serum can be used for virologic testing by reverse transcription PCR (RT-PCR), antigen detection, or virus isolation, and to test for immunologic (IgM, IgG) evidence of infection. Skin biopsies fixed in formalin can be tested by immunohistochemistry, RT-PCR, and virus isolation.
<b>Risk Groups</b>	Farmers, herders, owners of livestock, abattoir workers, and veterinary personnel
<b>Geographic Significance</b>	East Africa, sub-Saharan Africa, Egypt, Madagascar, Yemen, Saudi Arabia

### What is Rift Valley fever?

Rift Valley fever (RVF) is an acute viral hemorrhagic fever disease caused by the RVF virus (RVFV). RVF causes illness not only in humans but is most commonly seen in domesticated animals (such as cattle, buffalo, sheep, goats, and camels).

### What is the occurrence of Rift Valley fever?

- RVF was first reported in livestock by veterinary officers in Kenya's Rift Valley in the early 1910s. It is generally found in regions of eastern and southern Africa where sheep and cattle are raised, but exists in most of sub-Saharan Africa, including West Africa and Madagascar. In September 2000, an outbreak of RVF was reported in Saudi Arabia. It was then found in Yemen. These were the first cases of RVF identified outside of Africa.
- Outbreaks of RVF can have major societal impacts, including significant economic losses and trade reductions. The disease most commonly affects livestock, causing severe illness and abortion in domesticated animals, which is an important income source for many. Outbreaks of disease in animal populations are called "epizootics."
- Epizootic outbreaks of RVF also increase the likelihood of contact between diseased animals and humans, which can lead to outbreaks of RVF in people.

### How is Rift Valley fever transmitted?

- People usually get RVF through contact with blood, body fluids, or tissues of infected animals, mainly livestock such as cattle, sheep, goats, buffalo, and camels. This direct contact can occur during slaughter or butchering, while caring for sick animals, during veterinary procedures such as assisting an animal with giving birth, and when consuming raw or undercooked animal products.
- People can also get RVF through bites from infected mosquitoes and, rarely, from other biting insects. Several mosquito species can spread RVFV, most commonly the *Aedes* and *Culex* mosquitoes, which vary by region. Environmental conditions, particularly rainfall, are an important risk factor for outbreaks in both animals and people. Since mosquitoes spread RVF, outbreaks are most often linked to years of unusually heavy rainfall and flooding, which allows more mosquito eggs to hatch.
- Infection with the RVFV has occurred in laboratories when someone has inhaled the virus that was in the air (known as aerosol transmission).

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- RVFV spreading from person-to-person has not been documented, and no transmission of RVF to healthcare workers has been reported when standard infection control precautions have been put in place.

### Who is at risk for Rift Valley fever?

Spending time in rural areas and sleeping outdoors at night in regions where outbreaks of RVF occur could be risk factors for exposure to mosquitoes and other insect vectors. People who work with or butcher/handle raw meat from potentially infected animals in RVF endemic areas have an increased risk for infection. This could include animal herdsman and farmers, slaughterhouse workers, veterinarians, and other people who work with animals and animal products. Laboratory workers who may be exposed to the RVFV may also be at risk.

### What are the signs and symptoms of Rift Valley fever?

- RVFV has an incubation period of 2 to 7 days following exposure to the virus and can cause several different disease syndromes if symptoms do appear. Most commonly, people with RVF have either no symptoms or a mild illness that includes fever, weakness, back pain, and dizziness at the onset of illness. Typically, patients recover within 2 days to 1 week after symptoms start.
- Per CDC, a small percentage (8–10%) of people infected with RVFV develop much more severe symptoms, including ocular disease, encephalitis, and hemorrhagic fever.
- RVF causes severe disease in animals that is characterized by fever, weakness, abortions (loss of pregnancy), and a high rate of severe illness and death, particularly among young animals.

### What are potential complications of Rift Valley Fever?

Retinitis, encephalitis, and hemorrhagic fever. Approximately 1% of humans infected with RVF die of the disease. RVFV infection causes abortion in nearly 100% of livestock pregnancies and most young animals that are infected will die, whereas fatality among adult animals is significantly lower.

### How is Rift Valley fever diagnosed?

RVF symptoms can be mild and non-specific, making a clinical diagnosis difficult, especially early in the course of the disease. Definitive diagnosis of RVF requires laboratory testing of blood or other tissue samples. The virus can be detected in the blood (during illness) and in postmortem tissue by virus isolation in cell culture and by molecular techniques (reverse transcriptase polymerase chain reaction, or RT-PCR). Antibody testing using enzyme-linked immunoassay (ELISA) can also be used to confirm infection with RVFV by showing the presence of IgM antibodies, which appear briefly as an early response to a recent infection, and IgG antibodies, which persist for several years. Both IgM and IgG antibodies are specific to RVFV.

### How is Rift Valley fever treated?

There are no FDA-approved treatments for RVF. Since most cases of RVF are mild and self-limiting, a specific treatment for RVF has not been established. Symptoms of mild illness, such as fever and body aches, can be managed with standard over-the-counter medications. Typically, people will get better within 2 days to 1 week after their illness starts. Treatment for more serious cases may require hospitalization and are generally limited to supportive care.

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### How can Rift Valley fever be prevented?

- People living in or visiting areas with RVF can prevent infection with these steps:
  - Avoid contact with blood, body fluids, or tissues of infected animals. People working with animals in RVF-endemic areas should wear appropriate protective equipment (such as gloves, boots, long sleeves, and a face shield) to avoid any exposure to blood or tissue of animals that may potentially be infected.
  - Use only safe animal products. All animal products (including meat, milk, and blood) should be thoroughly cooked before eating or drinking.
  - Protection against mosquitoes and other bloodsucking insects by using insect repellents and bed nets and wearing long-sleeved shirts and long pants to cover exposed skin.
- No vaccines are currently available for vaccination in people.

### What are some public health considerations?

- When reporting cases of RVF in the Disease Reporting System Internet (DRSI)—
  - Document relevant travel and deployment history occurring within the incubation period (2–7 days).
  - Document the circumstances under which the case patient was exposed including duty exposure, occupational activities, environmental exposures, or other high-risk activities.
- Healthcare personnel should notify local health authorities immediately of any suspected cases of RVF or other viral hemorrhagic fevers occurring in people residing in the United States.

### References:

Defense Health Agency. 2022. *Armed Forces Reportable Medical Events: Guidelines and Case Definitions*.

<https://www.health.mil/Reference-Center/Publications/2022/11/01/Armed-Forces-Reportable-Medical-Events-Guidelines>

Heymann, David L. ed. 2022. *Control of Communicable Diseases Manual*. 21st Edition. Washington, DC: APHA Press.

“Rift Valley Fever,” Centers for Disease Control and Prevention (CDC), last reviewed June 8, 2023.

<https://www.cdc.gov/vhf/rvf/index.html>

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