Rift Valley Fever (RVF)

General Disease Information Sheets

What is Rift Valley Fever (RVF)?

Rift Valley fever (RVF) is an acute viral disease that can cause severe disease in domestic animals (such as buffalo, camels, cattle, goats and sheep) and humans. Disease in these species is characterized by fever, severe illness, abortions, and a high morbidity and mortality rate.

The virus which causes RVF belongs to the genus *Phlebovirus* in the family *Bunyaviridae*. Many of the related *Bunyaviridae* viruses can cause fever and encephalitis. Another commonly known *Bunyaviridae* virus is the *Hantavirus*.

RVF is a disease listed under the World Organization for Animal Health (OIE) *Terrestrial Animal Health Code* and must be reported to the OIE (OIE *Terrestrial Animal Health Code*).

Where is the disease found?

RVF is mainly found in countries of sub-Saharan Africa and in Madagascar. An outbreak reported in Saudi Arabia and Yemen in 2000, were the first Rift Valley fever cases identified outside of Africa.

In the past, outbreaks of the disease occurred in Africa at 5–15 year intervals. These outbreaks occur when areas that are typically dry experience a period of heavy rainfall and/or flooding. The 2007 outbreak in Kenya has been linked to flooding in the affected area. Significant numbers of outbreaks occurring in Africa in 1998/99 coincided with heavy rains associated with El Niño.

How is the disease transmitted and spread?

Many different species of mosquitoes are vectors for the RVF virus and RVF is most commonly encountered during years of unusually heavy rainfall and subsequent flourishing of mosquito populations.

Mosquitoes will feed on viraemic (virus circulating in the bloodstream) animals and then transmit the virus to other animals on which they subsequently feed.

Some species of mosquitoes (Aedes, for example) are capable of transmitting the virus from infected female mosquitoes to offspring via its eggs.

This contributes to the survival of the virus in the environment. Mosquito eggs may survive during prolonged periods (up to several years) in dry conditions. During periods of high rainfall and/or flooding the eggs hatch and there is an increase in the infection of animals on which these mosquitoes feed.

What is the public health risk associated with this disease?

RVF is a zoonosis (a disease which primarily affects animals, but causes disease in humans). Humans are highly susceptible to the RVF virus and may become infected with RVF by being bitten by infected mosquitoes, through contact with blood, other body fluids or tissues during killing, skinning and cutting of infected animals, or by consumption of raw milk or uncooked meat from infected animals. Humans working in slaughter facilities, laboratories or hospitals are at risk of acquiring infections.

What are the clinical signs of the disease?

Animals: Clinical signs depend on the species of animal affected and conditions such as age and pregnancy. During epidemics the occurrence of numerous abortions and mortalities among young animals, together with disease in humans, is characteristic. Pregnant sheep and cattle affected by this disease will almost always abort (80-100%).

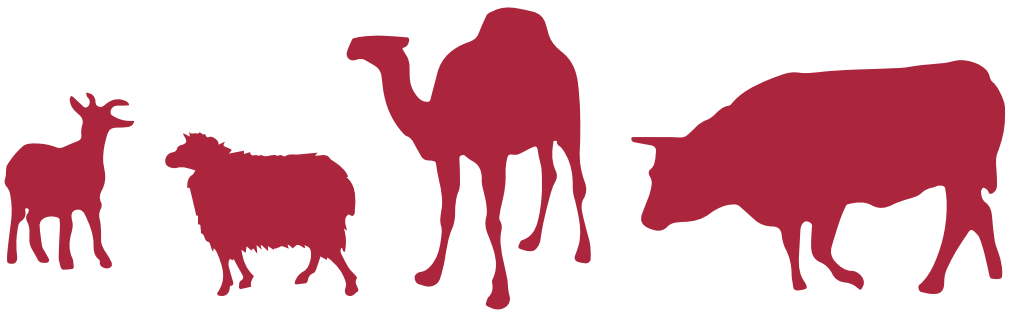
Young lambs and calves develop a fever, become weak and die very suddenly. The mortality rate in young animals is very high whereas mortality in adult sheep is about 20 per cent and about 10 per cent in adult cattle. Adult sheep and cattle may have nasal discharge, excess salivation, and loss of appetite, weakness, or diarrhea.

Humans: People with RVF will either show no symptoms or develop a mild illness. Signs of illness include fever, weakness, myalgia (muscle pain), back ache, dizziness, liver abnormalities, and weight loss. In some patients, the illness can progress to haemorrhagic fever, encephalitis (inflammation of the brain), or ocular disease (inflammation of the eye, blindness). Severe complications develop in 1-4% of cases though most people recover within four to seven days. Approximately one per cent (1%) of humans infected with Rift Valley fever dies of the disease.

More detailed information is available in the OIE Rift Valley Fever Technical Disease Card (www.oie.int/en/animal-health-in-the-world/technical-disease-cards/).

How is the disease diagnosed?

In areas where the disease is known to occur, RVF may be suspected based on clinical signs, insect activity, concurrent disease in animals and humans, rapid spread of the disease and concurrent contributing environmental factors. Laboratory tests are required to confirm the diagnosis (OIE *Terrestrial Animal Health Code* and OIE *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals*).



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What is being done to prevent or control this disease?

Prevention and control measures

Surveillance to monitor for RVF infection in animal populations and immediate notification upon detection are essential elements for the prevention and control of RVF.

Controlling the vector (mosquito) population through spraying and management of mosquito breeding grounds has also been an effective mechanism.

Systems used to monitor variations in climatic conditions can provide advance warning of impending conditions that favour the flourishing of mosquito populations and signal the need to implement enhanced control measures.

Vaccination can be used for prevention of RVF in animals in areas where the disease is endemic. A modified live vaccine is available that requires only one dose and produces long-lived immunity, but is not recommended for use in pregnant animals due to the risk of abortion. The inactivated RVF vaccines, also widely and successfully used do not cause unwanted effects, but these are more expensive to produce and require multiple doses to produce protective immunity.

An inactivated vaccine has been developed for human use. This vaccine is not licensed or available commercially, but has been used experimentally to protect veterinary and laboratory personnel at high risk of exposure to RVF. Natural immunity will develop in humans who have contracted RVF and recovered from the disease.

Personal protective clothing, such as long shirts and trousers, use bed nets and insect repellent, and avoid outdoor activity at peak biting times of the vector species is an effective measure. Care must be taken when handling sick animals or human patients, their tissues and samples.

More Information?

References:

1. OIE *Terrestrial Animal Health Code:*
   www.oie.int/en/international-standard-setting/terrestrial-code/access-online/

2. OIE *Manual of Diagnostic Tests and Vaccines for Terrestrial Animal:*
   www.oie.int/en/international-standard-setting/terrestrial-manual/access-online/

3. OIE Technical Disease Card:
   www.oie.int/en/animal-health-in-the-world/technical-disease-cards/

4. The Center for Food Security and Public Health, Iowa State University
   www.cfsph.iastate.edu/

5. Merck Veterinary Manual:
   www.merckvetmanual.com/mvm/index.jsp?cfile=htm/bc/toc_50000.htm

6. *Atlas of Transboundary Animal Diseases Animales Transfronterizas*
   P. Fernandez, W. White; Ed.: 2011

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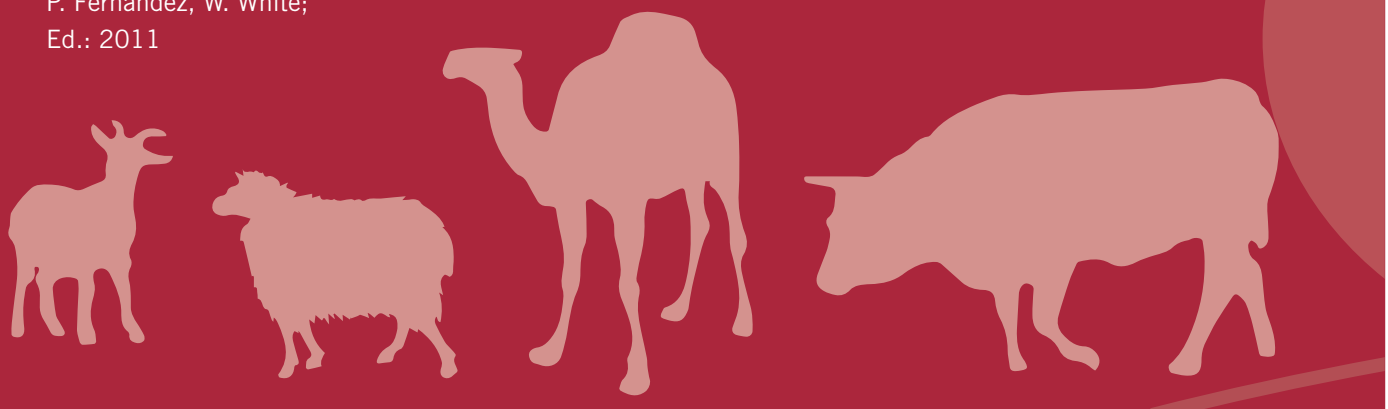
List of Reference Laboratories:
www.oie.int/en/our-scientific-expertise/reference-laboratories/list-of-laboratories/

List of Collaborating Centres:
www.oie.int/en/our-scientific-expertise/collaborating-centres/list-of-centres/



Key Facts

- Kenya reports outbreak December 2006 and launches a national vaccination program in January, 2007. Previous outbreaks in Kenya occurred in 2002 and 1998-99.In 2002, 52000 animals were vaccinated.
- Saudi Arabia suspected RVF in 2004 and vaccinated 760000 susceptible animals as part of prevention and control efforts.
- Senegal reported occurrences of RVF every year during the period between 2001 and 2004.
- Egypt has an ongoing vaccination program, vaccinating over 7 million animals per year. Egypt last reported an outbreak in 1993. Egypt Veterinary Services currently includes over 50000 veterinarians and technical personnel (including over 19000 government veterinarians).
- Madagascar had outbreaks of RVF in 1991.

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