

## Clinicians' Biosecurity Network Report

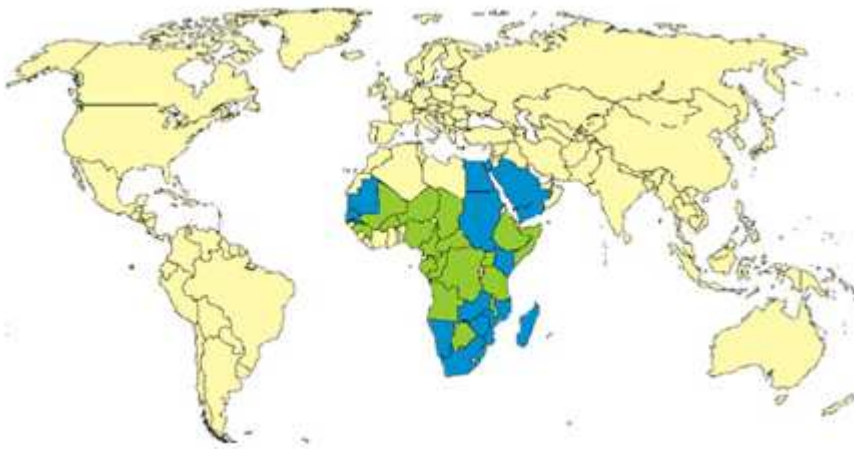
Presenting analysis of recent events in biosecurity for healthcare providers.

### Is Rift Valley Fever Virus a Real Risk for the United States?

Amesh A. Adalja, MD, July 30, 2010

Fears that Rift Valley fever virus (RVFV) could spread to North America were recently renewed during the FIFA World Cup soccer tournament. RVFV is caused by a hemorrhagic fever virus spread by mosquitoes, and the virus is endemic in South Africa, where the World Cup was hosted. With extensive travel occurring between this RVFV-affected area and the U.S., a reappraisal of the risk of this disease in the U.S. is warranted.

#### Rift Valley Fever Distribution Map



**Countries with endemic disease and substantial outbreaks of RVF:**

Gambia, Senegal, Mauritania, Namibia, South Africa, Mozambique, Zimbabwe, Zambia, Kenya, Sudan, Egypt, Madagascar, Saudi Arabia, Yemen

**Countries known to have some cases, periodic isolation of virus, or serologic evidence of RVF:**

Botswana, Angola, Democratic Republic of the Congo, Congo, Gabon, Cameroon, Nigeria, Central African Republic, Chad, Niger, Burkina Faso, Mali, Guinea, Tanzania, Malawi, Uganda, Ethiopia, Somalia

Source: CDC Special Pathogens Branch website: <http://www.cdc.gov/ncidod/dvrd/spb/mnpages/dispages/rvf/rvfmap.htm>

## Clinical Manifestations Vary

RVFV is a phlebovirus that is concentrated in Africa. It is spread by contact with infected blood from sick livestock (usually affecting veterinarians, farmers, etc.) or through the bite of an *Aedes* mosquito that is carrying the virus.

In most patients, infection usually causes a nonspecific febrile illness after a 2- to 6-day incubation. However, in 10% of patients, the virus can cause retinitis and vasculitis that may result in permanent blindness, and in 1% it can cause fulminant disease, with hepatitis, encephalitis, and hemorrhagic manifestations, which may be fatal. Because of the varied presentation, differential diagnosis is broad and includes any febrile viral illness, especially those that cause hepatitis, meningitis, or encephalitis. A definitive diagnosis can be made from blood specimens using antigen-based assays or PCR. Retrospective diagnosis can be made through serological testing.

## A Vaccine Exists, and Ribavirin May Be Effective

Although not FDA approved, investigational vaccines exist for RVFV, and in vitro/animal studies of the antiviral ribavirin have shown some promise for severe RVFV. Animal vaccines are also available. Most important, though, is avoidance of the mosquito vector.

## Risk of Spread in U.S. Is Small

While it is true that mosquitoes in North America are able to transmit the virus that causes RVFV, there is a small (but not negligible) risk that an outbreak could emerge in the U.S. In the context of the World Cup, for instance, a traveler would have to be infected in South Africa, travel to the U.S., and be bitten by the appropriate mosquito. That mosquito then would have to bite other susceptible hosts in the U.S. Because this is possible, and it may be what occurred with West Nile virus, veterinarians, farm workers, and physicians will have to be vigilant to detect the unexpected arrival of the RVFV virus.

## References

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2. Wilson J. South Africa: Rift Valley Fever risk associated with upcoming World Cup event. Biosurveillance Website. May 8, 2010. <http://biosurveillance.typepad.com/biosurveillance/2010/05/south-africa-rift-valley-fever-risk-associated-with-upcoming-world-cup-event.html>. Accessed July 20, 2010.
3. Rift Valley Fever. World Health Organization Website. May 2010. <http://www.who.int/mediacentre/factsheets/fs207/en/>. Accessed July 25, 2010.

*A note to our readers: The CBN Report will be on hiatus for the month of August. The next report will be published Friday, September 7.*

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