

BEYOND OUR BORDERS

The 'Beyond our Borders' column focuses on selected and current international diseases that may affect South Africans travelling abroad. Numbers correspond to Figure 3 on page 7.

Ross River fever – Queensland, Australia

A total of 753 Ross River fever cases has been reported from Queensland, Australia, in 2021. This represents a 75% decrease from the previous year. Ross River virus is the most common mosquito-borne pathogen in Australia, and there can be up to 5 000 human cases seen annually. The disease is not fatal but is associated with considerable morbidity from a debilitating polyarthritis.

Ross River fever is a mosquito-borne disease caused by infection with the Ross River virus, a small encapsulated single-stranded RNA alphavirus. The virus can be found in over 40 different species of mosquitoes across Australia and infections commonly increase during the rainy season, from January to April. Ross River virus is endemic in Australia and Papua New Guinea.

Ross River virus is transmitted to humans from an infected mosquito and the incubation period ranges between 3 to 21 days. Most people usually experience symptoms within the first week of infection. The illness is characterised by flu-like symptoms, a polyarthritis, and a maculopapular rash. The arthritis is symmetrical and mostly involves peripheral joints. Most of the symptoms resolve after a few weeks; however, the arthritis may persist for more than six months. No fatalities have ever been reported from Ross River fever.

Treatment for Ross River fever is mainly supportive. Personal protection from mosquito bites and the environmental management of mosquitoes remain the most important measures that can be taken to prevent illness.

Onchocerciasis – Uganda

Uganda has reported a re-emergence of Onchocerciasis, also known as river blindness, in the region. Ten years ago, Uganda had successfully instituted mechanisms to interrupt transmission of river blindness by spraying chemicals that killed blackflies, which resulted in a dramatic decrease in the number of infections over the last few years. However, it has been noted that following a decrease in deployment of the airplanes that spray the chemicals, the number of black flies is increasing.

Onchocerciasis is a neglected tropical disease caused by the nematode *Onchocerca volvulus*. The disease is transmitted to humans through bites from blackflies, which are mostly found near fast-flowing streams and rivers (hence the name river blindness). Humans become infected when a blackfly deposits infective larvae into the skin. These larvae then mature into adults within 12-18 months. Nodules form around the mature worms, and inside the nodules, the worms are protected from the human immune response. The adult worms can live for 10 to 15 years inside the human body, and they produce larvae daily that have a lifespan of 12 to 15 months.

Some people may not experience any symptoms once infected as the larvae can migrate through the body without provoking a response from the immune system. Those who do experience symptomatic disease may complain of skin rashes, nodules under the skin and vision changes. The inflammation caused by larvae that die in the eye initially results in reversible injury on the cornea, that without treatment, can progress to permanent clouding of the cornea, causing permanent blindness. There can also be associated inflammation of the optic nerve also causing the blindness.

The recommended treatment for onchocerciasis is ivermectin, which must be given every six months for the entire life span of the adult worms (10–15 years) or for as long as the infected person has evidence of infection. Ivermectin kills the larvae and prevents them from causing injury to the eyes, but it does not kill the adults. Doxycycline has been used as a promising treatment that kills the adult worms by eliminating the *Wolbachia* symbiotic bacteria on which the adult worms depend.

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Rift Valley fever – Senegal

An outbreak of Rift Valley fever (RVF) is ongoing in Senegal. The outbreak was declared by health authorities after confirmation of the first case on 10 November 2021 by the Pasteur Institute of Dakar.

RVF is an acute viral disease that usually causes illness in domestic animals but can also infect humans. The disease is caused by RVF virus, a member of the genus *Phlebovirus*. Most people with RVF recover within one week, and only about 1% of people who get RVF die.

The virus can be transmitted to humans through the bite of infected mosquitoes or by coming into direct contact with infected animals (commonly livestock such as cattle, sheep and goats) or their tissues or bodily fluids. Human to human transmission has not been reported.

RVF has an incubation period of 2 to 6 days following exposure to the virus. For most people, the disease is mild and self-limiting. Mild symptoms include fever, weakness, back pain and dizziness. A small percentage of patients (8 – 10%) may experience severe disease manifestations such as ocular disease, encephalitis, and haemorrhagic fever. Haemorrhagic fever occurs in less than 1% of all RVF patients. The case fatality for patients who do develop haemorrhagic fever is however high, at 50%.

There is a vaccine available for animals but not for humans. The only measures available to prevent RVF virus infection are to avoid mosquito bites or contact with infected animals and their products. Treatment for more serious disease manifestations may require hospitalisation and supportive care.



Source: Promed (www.promedmail.org), World Health Organization (www.who.int), Centres for Disease Control and Prevention (www.cdc.gov), World Organisation for Animal Health (www.oie.int), National Institute for Communicable Diseases (www.nicd.ac.za); Outbreak News Today (www.outbreaknewstoday.com)