

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 8 on page 11.

Japanese Encephalitis – Patna, India

The state capital Patna, in India, has reported seven cases of Japanese encephalitis (JE) and one death. The state has reported 419 cases in the last five years and 78 deaths. JE is a mosquito-borne disease, and is the most important cause of viral encephalitis in Asia. There are an estimated 68 000 JE cases that occur in Asia annually.

JE virus is a flavivirus that belongs to the same genus as dengue, yellow fever, and West Nile viruses. The virus is transmitted to humans through bites from infected mosquitoes belonging to the *Culex* genus. Unlike in yellow fever, humans, once infected, do not develop sufficient viraemia to infect feeding mosquitoes. JE causes symptomatic disease more commonly in children; most adults in endemic countries have lifelong immunity after childhood infection. The incubation period is 4 to 14 days. Most

childhood cases are asymptomatic; however, symptomatic disease presents with symptoms that include high fever, headache, and neck stiffness. In severe cases symptoms may progress to confusion, coma, seizures, spastic paralysis, and death. The case fatality rate in symptomatic disease has been noted to be as high as 30%. Of those who do survive, 30% to 50% may develop neurologic and psychiatric sequelae.

Diagnosis of JE is confirmed through CSF sampling for JE virus-specific IgM antibodies, which remains the gold standard. This test may also be done on serum. There is no cure for JE, and management is completely supportive. JE is, however, a vaccine-preventable disease, and vaccination in endemic areas is recommended by the WHO. Mosquito control is another public health intervention in the prevention and control of JE.

Meningococcal meningitis – DRC

On Wednesday 8 September, the Democratic Republic of the Congo declared an outbreak of meningitis in Banalia, a town in the north-eastern Tshopo Province. The region reported 261 suspected cases and a total of 129 deaths. Banalia lies in the African meningitis belt, which runs across the continent from Senegal to Ethiopia and is made up of 26 countries. The African meningitis belt is composed of countries that are most vulnerable to recurrent meningitis outbreaks, most commonly during the dry season that runs from December to June. Meningococcal meningitis is associated with a high fatality ratio (50% when untreated) and high frequency (10-20%) of severe long-term sequelae.

Meningococcal meningitis is caused by the bacterium *Neisseria meningitidis*. There are twelve serogroups of *N. meningitidis* that have been identified, six of which (A, B, C, W, X and Y) are responsible for disease and epidemics worldwide. Meningococci can also cause septicaemia, pneumonia, and focal infections such as myocarditis and arthritis. Meningococcal meningitis

can affect persons of any age, but most commonly affects neonates, infants, and children. The incubation period ranges from 2 to 10 days. There is no animal reservoir. Transmission occurs via person to person through respiratory droplets from infected individuals or carriers. It is estimated that up to 10% of the population carries *N. meningitidis* in their throats. The symptoms are commonly neck stiffness, high fever, headaches, photophobia, nausea, and vomiting. In severe disease symptoms may include seizures and coma.

Diagnosis is made by clinical examination and CSF analysis and culture, or by using polymerase chain reaction. Antibiotics remain the mainstay of treatment. Under epidemic conditions in resource-poor settings, ceftriaxone is the drug of choice. The disease is vaccine preventable; however, only serogroup-specific vaccines exist, conferring varying degrees of duration of protection. To date, no universal vaccine against meningococcal disease exists.

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Chikungunya – Vadodara, India

The Vadodara Municipal Corporation (VMC) in India, has reported a total of 251 chikungunya cases for this year. Until 5 August this year, the VMC recorded 60 chikungunya cases, and by August 25, 251 cases had been reported.

Chikungunya is a mosquito-borne viral disease caused by an RNA virus which belongs to the *alphavirus* genus of the family *Togaviridae*. Chikungunya virus is transmitted between humans via mosquitoes (*Aedes aegypti* and *Aedes albopictus*). The incubation period is 4 to 8 days. The characteristic symptoms of chikungunya include an abrupt onset of fever and associated painful joint swelling which is often severe and may last from a few days to several months after infection. Other symptoms

include headaches, nausea, and fatigue. In some cases, the disease may be mild and can even go unrecognised. Serious complications are uncommon.

Chikungunya is diagnosed using serological tests such as enzyme-linked immunosorbent assays, and reverse transcriptase-polymerase chain reaction, to confirm the presence of IgM antibodies. Management of chikungunya is mostly supportive and non-specific, directed at symptomatic relief. At present, the main method of transmission control and prevention is mosquito vector control by reducing the number of water habitats which support breeding of these vectors, and education of vulnerable populations.



Figure 8. Current outbreaks/events that may have implications for travellers. Numbers correspond to text above. The red dot is the approximate location of the outbreak or event.