

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 6 on page 12.

Respiratory Syncytial Virus: Australia

The state of Queensland in Australia has reported 378 confirmed cases of respiratory syncytial virus (RSV) since the beginning of 2021 in its Far North region. This is a sharp increase in case numbers since only 88 cases were reported throughout 2019 and 70 throughout 2020. One hundred and eighty-two cases have required medical attention at hospital level so far, but no deaths have been reported. Early childhood education and care services have been identified as the main places of transmission with 70% of cases being found in children under the age of 10.

RSV is a major cause of mild and severe respiratory illness which accounts for a large portion of the global burden of disease. Estimates in the United States of America show that RSV accounts for 2.1 million outpatient visits and 58 000 hospitalisations among children under 5; and a further 177 000 hospitalisations and 14 000 deaths among adults over 65 annually in the country. In South Africa, over the past 12 months, 11% of outpatients with influenza-like-illness and 14% with syndromic pneumonia tested positive for RSV. RSV seasons are seen annually, usually during the winter and spring months, and are often spread rapidly through childcare centres.

The clinical course of the RSV infection is usually a mild upper respiratory illness with rhinorrhoea, coughing, sneezing and/or fever that is self-limiting and resolves over one to two weeks.

Severe disease of bronchiolitis or pneumonia is seen most often in infants and younger children, but may also be seen in immunocompromised people and the elderly. RSV is spread through droplet transmission from a symptomatic case through direct physical contact, contact with contaminated surfaces, and being in close proximity to an ill case.

Non-pharmaceutical interventions of cough- and hand-hygiene, and separation of cases from other people, are effective methods to limit the spread of RSV. While vaccine development is ongoing, the monoclonal antibody, palivizumab, may be used in certain high-risk children to prevent severe disease during an RSV season.

Strong surveillance of respiratory pathogens is important to guide health systems respond to respiratory illness; and RSV infection patterns and disease trends is important to guide RSV vaccine policy should a vaccine become available. In South Africa, the NICD manages the sentinel surveillance programmes of influenza-like illness (public primary healthcare clinics), viral watch (private general practitioners) and pneumonia (public hospitals). From these programmes, RSV epidemiology and RSV-associated cost burden data are analysed, and data are contributed towards the RSV global online mortality database.

Yellow fever: Brazil

The Brazilian state of Santa Catarina has confirmed three cases of yellow fever this year. One of the cases has demised. The cases were aged 40, 46 and 62 and none of them were registered on the national vaccination information system as having received a vaccine for yellow fever.

Yellow fever is an acute viral haemorrhagic disease. Following infection and a three to six day incubation period, the disease may be asymptomatic or present with mild symptoms of fever, muscle pain and prominent backache, headache, loss of appetite, and nausea or vomiting. These symptoms resolve within four days, however, after symptoms have resolved, a subset of cases go on to develop a more severe disease course. This toxic phase has a 50% mortality rate and affects the kidneys and liver, presenting with fever, jaundice, abdominal pain, vomiting and haemorrhage. Treatment is supportive.

Yellow fever is transmitted to humans through mosquitoes. The primary reservoir for the virus is monkeys. Major transmission cycles include the sylvatic ("jungle") cycle where the virus is transmitted between monkeys and mosquitoes and may pass it on to humans through mosquito bites; and an urban cycle

where an infected human returns to an area densely populated with non-immune people and a vector species of mosquitoes (*Aedes or Haemogogus*) and perpetuates epidemic human-mosquito-human transmission.

Earlier versions of the International Health Regulations (IHR) included yellow fever as one of the six diseases to monitor and prevent the spread across territories. Current strategies to prevent yellow fever include vaccination, vector control, and epidemic preparedness and response.

Routine vaccination of infants and mass catchup vaccination campaigns in endemic areas assists to increase human immunity to yellow fever. The most recent edition of the IHR requires proof of vaccination against yellow fever to be produced by travellers when travelling through or from countries in the northern, central and eastern parts of sub-Saharan Africa and northern South America where the disease is endemic. While not endemic in South Africa, we subscribe to these regulations and therefore require proof of yellow fever vaccination on entry back into South Africa.

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Vector-surveillance assists to direct vector-control initiatives of community-based methods to prevent mosquito breeding, kill mosquitoes and prevent mosquito bites. Personal protection may be gained through the use of long clothing, mosquito repellent and mosquito bed-nets.

Detection of yellow fever in human cases in endemic areas

must be followed by an active vaccination campaign and vector-control to prevent further cases in the area. Reporting of sick or dead monkey aids in detection of the yellow fever virus in these reservoir animals and helps to prioritise certain areas for intervention – Santa Catarina has reported 111 confirmed cases of yellow fever in monkeys.

Avian influenza: Laos

A human case of avian influenza A(H5N6), colloquially known as “bird flu,” has been reported in a child in Laos. Like the more common human influenzas, the disease course of avian influenza ranges from mild respiratory and gastrointestinal symptoms to severe disease and death. The Laotian was hospitalised for his symptoms but has since recovered.

There are four known influenza virus types, of which A is found in both animals and humans and have the potential for sustained human-to-human transmission that can result in an influenza pandemic; B is found primarily in humans and is the cause of seasonal epidemics; C and D cause mild disease with C found in humans and pigs and D only in animals. Avian influenza is of subtype A and while it is found mostly in birds, it may spread to mammals including humans, and its potential to spread from human to human makes it a subtype of influenza of public health significance. Influenza virus subtypes are found in influenza A and denoted by an H and N number. Avian influenza are commonly of subtype H5, H7 and H9. Major outbreaks in humans have occurred in 1997 due to avian influenza A(H5N1) and in 2013 from A(H7N9) and the most recently implicated subtype detected in humans has been A(H5N8) causing asymptomatic diseases in 2020.

Generally, infected wild aquatic birds may develop asymptomatic disease rendering them contagious but well enough to maintain mobility. Along migration paths, these birds nest among domestic/farm birds causing infections which could spread across the flock through contact between birds, or between healthy birds and contaminated objects. Infection of humans most commonly occurs through direct or indirect contact with infected poultry while alive or dead, including preparation of poultry to eat. Eating well-cooked poultry or eggs are unlikely to transmit the virus.

Eradication of avian influenza seems unlikely due to the wild bird reservoir and its endemicity in poultry in Africa, Asia and Europe. Surveillance and management of animal cases is the mainstay for prevention of avian influenza in humans. It is mandatory to report to the World Organisation for Animal Health all H5 and H7 subtypes in animals due to the risk of them infecting humans and causing severe disease; and avian influenza of all subtypes if the infection causes severe disease in the animal. South Africa has reported the presence of H5 avian influenza in poultry farms in Gauteng in 2021. However, no human cases have been reported.



Figure 6. 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.

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