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 5 on page 12.

Hantavirus – Panama

In Panama, 11 cases of hantavirus infections have been reported in 2021. These cases span four provinces in the central region of the country and one in the eastern region. One case has demised. Around the same period last year, Panama had reported seven cases, all concentrated in central provinces, and no deaths.

Hantavirus represents a group of numerous species of viruses found in rodents, causing chronic infection but with little clinical significance to the rodents. Transmission of hantavirus to humans is through contact with the urine, saliva or faeces from infected rodents, mainly via the aerosol route during activities such as sweeping. Limited human-to-human transmission has been described in very rare cases. Viruses are endemic to rodents across the Americas, Europe and Asia and are found mainly in rural areas.

There are two main clinical presentations of hantavirus disease in humans that are both initially non-specific acute febrile illnesses with a headache – haemorrhagic fever with renal syndrome (HFRS) and hantavirus pulmonary syndrome (HPS). The clinical presentation and severity varies across different viral species. HFRS presents around a week after exposure with back and abdominal pain, nausea, blurred vision and a characteristic flushing of the face, neck and chest. Signs of bleeding tendencies may be present and the disease process may lead to hypovolaemic shock. HPS usually presents two weeks after exposure with myalgia, a cough and sometimes gastrointestinal symptoms. This is followed by acute respiratory distress due to pulmonary oedema. Treatment of both forms of hantavirus disease is supportive, preferably at an intensive-care level, and cases of HFRS have been shown to have better outcomes when administered early antiviral therapy of ribavirin. Mortality rates are up to 35% for HFRS and over 40% for HPS.

The mainstay of hantavirus control is through the primary prevention measures of rodent control, and limiting spread via airborne transmission. This includes home cleanliness to prevent attraction of rodents, appropriate storage of food and other household consumables, adequate ventilation and wet cleaning. Secondary prevention includes early detection and treatment of cases that is possible only with a high index of suspicion on the part of the assessing clinician, with particular attention to travel history, a history of exposure to rodents and a review of recent infectious diseases found in colleagues who shared similar spaces with the case. Active and passive surveillance strategies are used in areas where hantavirus are endemic.

In South Africa, hantavirus was first identified in a human this year; a case report is described in the May 2021 edition of the Communicable Disease Communiqué. This case of a 37-year-old male travelling to South Africa had been infected in his place of residence and work, Croatia, a country known to be endemic for hantavirus.

Monkeypox – DRC

The Democratic Republic of Congo (DRC) has reported 1 515 human cases of monkeypox since the start of 2021 and 49 deaths. Monkeypox is indigenous to the central and western African regions with surveillance activity in the DRC reporting 5 288 cases in 2019 and 6 257 in 2020.

Monkeypox is an acute viral illness with zoonotic potential. It is found mainly in wild rodents (squirrels, mice, rats) and non-human primates. In humans, following an incubation period of up to 3 weeks, monkeypox typically presents with two clinical phases. The invasive phase lasts up to five days and is characterised by a fever, intense headache and lack of energy, lymphadenopathy, back pain and myalgia. Within three days of the invasive phase beginning, skin lesions begin to appear, going through macular, papular, vesicular and pustular stages before scabbing and crusting off over a period of 2-4 weeks. Skin lesions are disseminated but more concentrated on the face and extremities, including the palms and soles. The disease is self-limiting but may be complicated by secondary infections of the skin and cornea, pneumonia, encephalitis and sepsis. Treatment is supportive. Approximately 11% of cases demise.

Monkeypox was given its name due to the virus being first detected in monkeys. The monkeypox virus belongs to the same genus as the smallpox and cowpox viruses (Orthopoxvirus). Despite the name, it is not closely related to chickenpox, but presents with skin lesions that have some similarities.

Clinically, monkeypox may be differentiated from smallpox by the presence of lymphadenopathy; from cowpox by the more disseminated rash and longer incubation period; and from chickenpox by the presence and higher severity of the prodromal/invasive phase and the depth and distribution of the skin lesions that include the palms and soles. Definitive diagnosis may be confirmed through PCR of tissue from the skin lesions – fluid, scab or a biopsy – or during the prodromal phase from tonsillar or nasopharyngeal swabs.

Transmission of the monkeypox virus is most commonly from contact with an infected animal or animal products. Human-

BEYOND OUR BORDERS

to-human transmission occurs through contact with the skin lesions of an infected person, respiratory droplets or items that the case has come in contact with such as bedding, clothes and eating utensils. Prevention strategies include avoiding contact with potential animal sources of infection; and robust surveillance systems to detect human cases early and implement infection prevention and control measures, including isolation and contact tracing activities.

Vaccination against smallpox, performed prior to the disease being declared eradicated in 1980, afforded some protection against monkeypox. However, as the vaccinia-based vaccine is no longer available to the public, new vaccine development is under way to develop an effective vaccine against monkeypox.

Crimean-Congo haemorrhagic fever – Turkey

Turkey has reported 243 cases of Crimean-Congo haemorrhagic fever (CCHF) since the beginning of 2021; 13 of these cases have demised. This is lower than the same period in 2020 when 480 cases were reported. Of interest, Turkey has also reported the first case of infection with both CCHF and COVID-19 at the same time. This 60-year-old woman was admitted to hospital with severe disease but has since recovered.

CCHF is a viral haemorrhagic fever caused by the Nairovirus, found in Africa, Europe and Asia. The virus may infect a variety of animals including cattle, sheep, large wildlife, hares and ostriches, causing no clinical disease. However, this infection remains in the animal for a week during which time the virus will be transmitted to ticks that bite it. This perpetuates a tick-animal-tick cycle. Transmission to humans occurs through tick-bites (or from squashing infected ticks through incorrect removal techniques), contact with infected animals or animal products during the slaughtering period, or contact with body fluids of an infected human.

In humans, following an incubation period of around three days after a tick-bite, or up to nine days after contact with an infected animal, CCHF presents with fever, myalgia, dizziness, neck pain and stiffness, backache, headache, sore eyes and photophobia. There may be gastrointestinal, upper respiratory or psychiatric symptoms (sharp mood swings and confusion). The disease progresses towards bleeding tendencies and multi-organ failure and has a mortality rate up to 40%. Treatment is mainly supportive and the antiviral ribavirin may provide some benefit.

Prevention of CCHF is aimed mainly at preventing tick-bites and reducing the risk of animal-to-human transmission. Preventing ticks from biting humans includes using repellents and long clothing in high-risk areas, and looking for and removing ticks from clothing and the body after being involved in high-risk activities. The occupational risk of animal handlers and of healthcare workers may be mitigated through general infection prevention and control protocols for blood-borne disease, including the use of personal protective equipment. Tick-to-animal transmission through the use of acaracides may be beneficial in well-managed livestock facilities. A practical control method for this was used following a South African outbreak at an ostrich abattoir. For 14 days prior to slaughter, ostriches were quarantined with strict tick control to ensure that they would not be infected at the time of slaughter, thus reducing the risk of tick-to-ostrich and subsequently ostrich-to-human transmission. Further preventive measures include heightened surveillance to detect and treat cases early, and contact tracing.

Figure 5. 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), Centers 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); Division of Public Health Surveillance and Response, NICD-NHLS; outbreak@nicd.ac.za