1 ZOONOTIC AND VECTOR-BORNE DISEASES

a An update on rabies in South Africa, 2017

A total of three human cases of rabies has been laboratory-confirmed in South Africa for 2017 to date. Two of these cases were reported from the Eastern Cape Province, whilst the most recent case was reported from KwaZulu-Natal Province. A fourth human case was confirmed in a child hospitalized in Johannesburg, but the patient acquired rabies in Zimbabwe.

Reports of dog rabies along the coastline of KwaZulu-Natal remain a concern (Figure 1). Whilst dog vaccination campaigns are being conducted to bring the outbreak under control, healthcare workers need to be aware of the increased risk of rabies in dog bite cases and provide rabies post-exposure prophylaxis in accordance with national guidelines. Continued reporting of animal rabies cases is also noted from the eastern districts of the Eastern Cape (Figure 2).

For additional information regarding rabies post-exposure prophylaxis please visit the NICD website: www.nicd.ac.za

Source: Centre for Emerging, Zoonotic and Parasitic Diseases, NICD/NHLS; (januszp@nicd.ac.za)

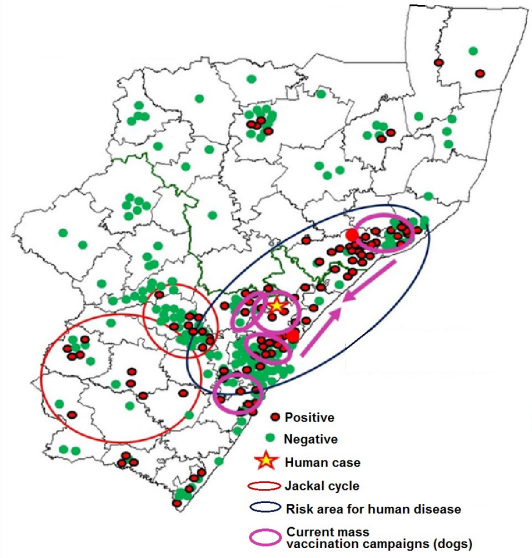


Figure 1 (above left). Map indicating the animal rabies cases (red dots) in the KwaZulu-Natal Province, year-to-date (source: Allerton Provincial Veterinary Laboratory)

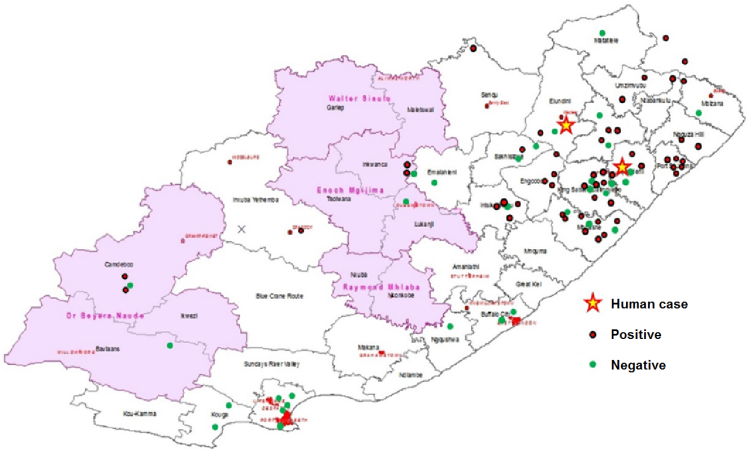


Figure 2 (above right). Map indicating the animal rabies cases (red dots) in the Eastern Cape Province, year to date. (source: Allerton Provincial Veterinary Laboratory)

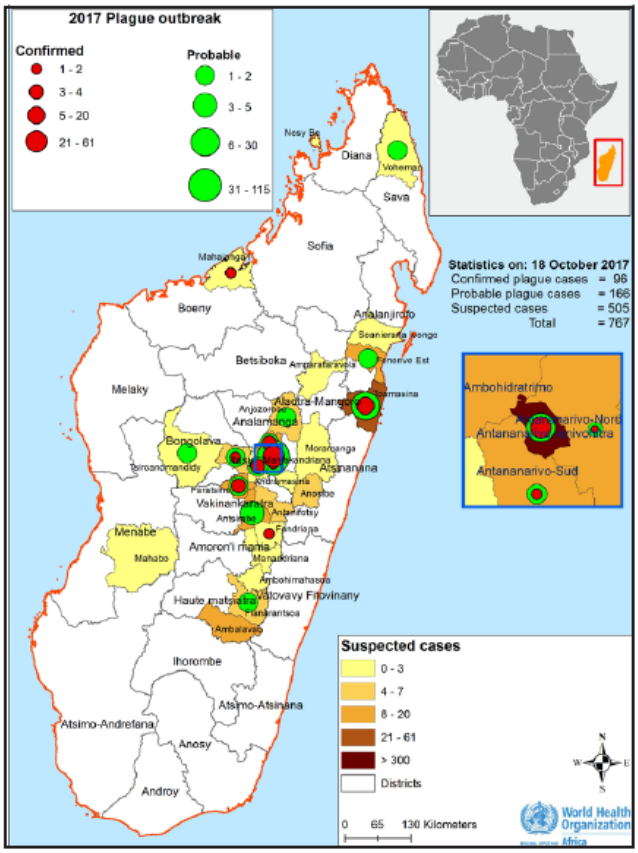
b Plague outbreak in Madagascar

Plague is an endemic disease in Madagascar, where plague cases account for over 80% of the world's cases. Since 1991, 300 to 600 cases of predominately bubonic plague have been reported every year from September to April. The unexpected feature in this year's epidemic season is a high number of cases of primary pneumonic plague, which is transmissible by humans through respiratory droplets produced during coughing. Pneumonic plague can also be secondary to untreated bubonic or septicaemic plague. Usually, the majority of plague cases in Madagascar are bubonic, and occur following bites from *Yersinia pestis*-infected fleas or contact with carcasses of small mammals, especially black rats, in the rural highlands in central and northern Madagascar.

This year's epidemic season took a different turn following the death of an infected patient on 28 August during an 8-hour journey in a shared public taxi from plague-endemic Central Highlands via the capital Antananarivo to the east coast port city, Toamasina. Within 24 hours of infection, two more people who had travelled in the same taxi died of pneumonic plague. The outbreak was only detected on 11 September, following another death caused by pneumonic plague in Antananarivo. Subsequently cases were detected in areas not previously

known to have endemic disease.

As of 20 October 2017, the WHO indicates that 1 297 suspected, probable, and confirmed cases of pneumonic (n=846; 65%) and bubonic (n=270; 21%) plague, including 102 deaths (case fatality rate 7.9%), have been reported in Madagascar. The three most affected districts include the outskirts of Antananarivo (with 64% of pneumonic plague cases), Toamasina, and Faratshio (Figure 3). The WHO has indicated that nine countries, namely South Africa, Mozambique, Tanzania, Ethiopia, Mauritius, Comoros, Seychelles and La Reunion, are at risk for plague importation on account of trade and travel between Madagascar and these countries. A single suspected cases in a traveller from Madagascar, and which later tested negative, was identified in the Seychelles. To date there have been no imported cases to any of these 'at-risk' countries.



Source: Centre for Emerging, Zoonotic and Parasitic Diseases, NICD-NHLS; (johnf@nicd.ac.za)

Figure 3 (left). Geographical distribution of cases of plague in Madagascar as of 20 October 2017 (Plague Outbreak Madagascar 05 External Report World Health Organization Regional Office for Africa.)

Historically, plague was endemic to South Africa. However, presently it is rarely detected in rodent surveillance specimens. The last human case was identified in 1982. The South African National Department of Health together with the WHO regional office has put in place measures to ensure public safety including entry screening of travellers for fever, public awareness messaging, alerting of provincial and district outbreak response teams, and SOPs on specimen collection and diagnosis.

South African travellers to Madagascar are advised to avoid crowded areas, avoid close contact with ill persons, rodents and dead animals, and to apply DEET-containing insect repellent to prevent flea bites. **Clinicians are advised to be vigilant to consider a diagnosis of plague in persons who have returned from Madagascar within the previous 10 days and who present with sudden onset of fever, chills, painful and inflamed lymph nodes, or shortness of breath with coughing, chest pain and bloody sputum.** More information is available at http://www.nicd.ac.za/index.php/plague/

c A severe case of tick bite fever in the Eastern Cape Province

In September 2017, a 28-year-old farm worker from Bathurst was admitted to a regional hospital in the Eastern Cape Province following a week-long history of a flu-like illness, fever and a widespread petechial rash. On admission, he reported having had a seizure, and was bleeding from the mouth after having bitten his tongue. He had no travel history, but reported multiple tick bites and an eschar on his left ankle. The time from development of the eschar to systemic symptoms was approximately four days. Laboratory investigations revealed thrombocytopenia, hepatitis and elevated bilirubin levels.

A clinical diagnosis of severe tick bite fever was made, and as the patient was critically ill, he was started on intravenous ciprofloxacin and a cephalosporin antibiotic. However, in view of his dramatic clinical presentation and uncertain exposure history, Crimean-Congo haemorrhagic fever (CCHF) was considered as a differential diagnosis. The patient was isolated as a precautionary measure until two sets of serology and reverse transcriptase PCR tests for CCHF were confirmed negative by NICD.

The patient subsequently developed multi-organ dysfunction requiring ventilation and dialysis, and was admitted to ICU for care and management. Rickettsial infection was confirmed by PCR from a dry swab taken from the eschar.