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## **EDITORIAL**

This edition of the NICD Communiqué includes a feature on *Candida auris*, an emerging *Candida* species that is of great concern globally because of its antifungal resistance profile. The Centre for Healthcare-Associated Infections, Antimicrobial Resistance and Mycoses (CHARM) provides findings of an active national laboratory-based surveillance for candidaemia, in which they describe the burden of disease and mortality due to this infection.

Also of interest in this edition is the distribution of meningococcal serogroups in reported cases over 2019. Interestingly, children under five years of age tend to be infected more frequently with serogroup B than with other serogroups.

This edition also includes an update on the Ebola outbreak in the DRC, yellow fever in Côte d'Ivoire, hepatitis E in Namibia, Mers-CoV in Saudi Arabia, and Lassa fever in Nigeria.

On the home front, this edition reports on rabies and influenza. The tally of human rabies cases year-to-date is now eight. The influenza season appears to be tapering off, and as yet, there is no indication of an increase in influenza B cases, as we have seen at the tail end of seasons in previous years.

**1 ZOO NOTIC AND VECTOR-BORNE DISEASES**

**a An update on rabies in South Africa**

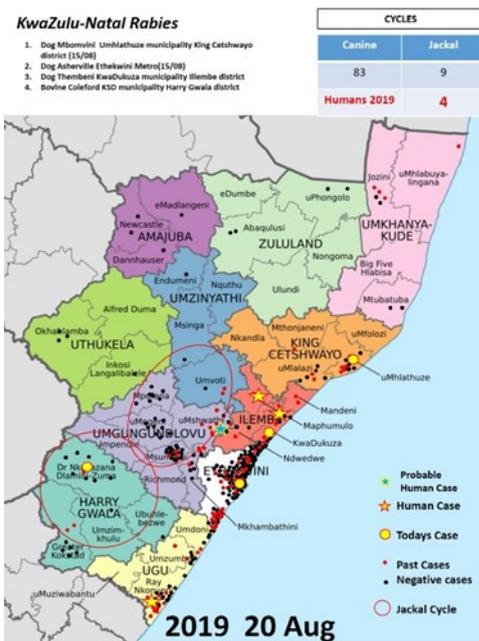
Eight cases of human rabies were confirmed for South Africa for 2019 to date. These cases were from three different provinces: KwaZulu-Natal (n=3), Eastern Cape (n=3) and Limpopo (n=2). In addition, two deaths were classified as probable rabies cases, one case from KwaZulu-Natal Province and another from the Eastern Cape Province.

As dog bites cause almost all human rabies cases in South Africa and globally, dog vaccination programmes are the most effective way to reduce the risk of this disease. The Department of Agriculture and Rural Development holds regular vaccination clinics in hotspot areas gripped by rabies outbreaks, predominantly in the eastern part of South Africa (Figures 1 and 2). It however remains the responsi-

bility of the pet owner to have domestic dogs (and cats) vaccinated against the disease.

Even after exposure to a rabid dog, the development of clinical rabies disease can be prevented through timely administration of prophylactic vaccine and rabies immunoglobulin. The guidelines for prophylaxis and further information on rabies are accessible at [www.nicd.ac.za](http://www.nicd.ac.za)

**Source:** Centre for Emerging Zoonotic and Parasitic Diseases, NICD-NHLS; januszp@nicd.ac.za



**Figure 1 & 2.** Canine and human rabies detection in KwaZulu-Natal and Eastern Cape provinces  
 Source: Kevin le Roux, Department of Agriculture, Environment and Rural Development, KwaZulu-Natal

**2 HOSPITAL ASSOCIATED INFECTIONS**

**a Candida auris update**

Globally, *Candida auris*, the multidrug-resistant fungus, causes invasive disease and healthcare-associated outbreaks (1). NICD conducted active national laboratory-based surveillance for candidaemia (a type of fungal bloodstream infection) at 269 hospitals in 2016 and 2017. This was supplemented by enhanced surveillance at 27 acute-care hospitals in the public and private sectors (2). Compared to a national survey conducted in 2009 and 2010 (3),

there was a major shift in the fungal species causing bloodstream infection over five years. In 2016-2017, *C. auris* accounted for 14% (794/5 876) of cases of candidaemia (versus only two cases in the prior survey) (4). The number of new *C. auris* cases, adjusted for hospital admissions, was almost twice as high in the private than the public sector. Patients with *C. auris* candidaemia spent an average of four weeks in hospital before they developed

this infection. Prior systemic antifungal use, and invasive medical devices increased the risk of a *C. auris* infection compared with an infection with other *Candida* species. NICD collected information on in-hospital outcome for 102 patients – 46 died (45% crude mortality). However, it is important to note that most cases occurred in critically ill patients, and we are not certain that *C. auris* infection was directly related to these deaths. NICD has led development of a national consensus guideline for diagnosis, prevention and management of *C. auris* infections (available at [www.nicd.ac.za](http://www.nicd.ac.za)) and has continued laboratory surveillance in 2019 to monitor the emergence of antifungal resistance in this fungus.

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2. van Schalkwyk E, Mzembe RS, Thomas J, Shuping L, Ismail H, Lowman W, et al. Epidemiologic shift in candidemia by *Candida auris*, South Africa, 2016-2017. *Emerg Infect Dis*. 2019;25(9).
3. Govender NP, Patel J, Magobo RE, Naicker S, Wadula J, Whitelaw A, et al. Emergence of azole-resistant *Candida parapsilosis* causing bloodstream infection: results from laboratory-based sentinel surveillance in South Africa. *J Antimicrob Chemother*. 71(7):1994-2004.
4. Magobo RE, Corcoran C, Seetharam S, Govender NP. *Candida auris*-associated candidemia, South Africa. *Emerg Infect Dis*. 2014;20(7):1250-1.

**Source:** Centre for Healthcare-Associated Infections, Antimicrobial Resistance and Mycoses, NICD-NHLS; [neleshg@nicd.ac.za](mailto:neleshg@nicd.ac.za)

### 3 INTERNATIONAL OUTBREAKS OF IMPORTANCE

#### a An update on Ebola virus disease outbreak, Democratic Republic of Congo

On 19 August 2019, a 'ville morte' (civil strike) protest took place in Beni, Butembo and Oicha in response to recent attacks by armed groups on civilians in the Democratic Republic of the Congo (DRC). The protest resulted in temporary suspension of Ebola response activities, but operations continued the next day with extra caution. Further demonstrations are anticipated amidst persistent insecurity and unrest, which hampers response in areas like Beni. Suspension of response activities has a negative impact on the outbreak as the number of cases can increase and spread to new areas in the following weeks. The overall Ebola response activities in the DRC remain challenged by continued insecurity, unrest, funding shortfalls, and pockets of community resistance.

Although there is a slight declining trend in the overall number of new confirmed cases being reported, the disease continues to spread to new health zones. Cases were detected in two new health zones this past week: Mwenga Health Zone in South Kivu, and Pinga Health Zone in North Kivu. As of 18 August 2019, in Mwenga, four confirmed cases were reported after two individuals (mother and child) had contact with a confirmed case in Beni before travelling south. The father of the child was subsequently confirmed positive, as was a co-patient in a community health facility where the first case initially sought care. In Pinga, one confirmed case has been reported with no apparent epidemiological link to other cases, and no recent travel or visitors from outbreak affected areas. Surveillance and response teams have been scaled up rapidly in these two areas.

As of 24 August 2019, 2 968 EVD cases (2 863 confirmed and 105 probable) were reported. A total of 1 986 deaths was reported with an overall case fatality ratio of 67%. Of the confirmed and probable cases with reported sex and age, females accounted for 58% (1 721), and children aged less than 18 years accounted for 29% (863). Health worker cases continue to be reported, with a cumulative number of infected rising to 153. This accounts for 5% of all confirmed and probable cases.

During the week ending 18 August 2019, 2 280 358 screenings were performed at official points-of-entry, bringing the cumulative number of screenings to close to 77 million. As of 17 August 2019, 197 172 people at risk have consented to and received the rVSV-ZEBOVGP Ebola vaccine. Of those, 49 451 are primary contacts, and 134 934 secondary contacts (contacts-of-contacts). The total number of people who have received vaccines includes 40 256 healthcare and fieldworkers, and 62 004 children 1-17 years of age.

There are currently no confirmed EVD cases in Uganda. The focus on preparedness activities continues across the 30 high-risk districts and other districts. There is active surveillance in all communities, health facilities and all formal and informal border crossings. Since August 2018, Uganda has reported and investigated over 6 000 alerts. A total of 4 915 health workers in 150 health facilities were vaccinated as a preventative measure in Uganda. This was followed by a second round of vaccination that commenced on 15 June 2019 for contacts of the two confirmed cases in Uganda's Kasese district.

The World Health Organization (WHO) conducted a 2-day meeting on 14 and 15 August 2019 to enhance preparedness, and step up measures against EVD in DRC, and Priority 1 neighbouring countries (South Sudan, Uganda, Rwanda and Burundi). The meeting was attended by government and WHO staff from the DRC, Burundi, Rwanda, South Sudan and Uganda, as well as WHO staff from the Regional Office for Africa. Overview of the International Health Regulations (2005), and improving cross-border collaboration in the context of the EVD outbreak in the DRC, were among a number of issues discussed. WHO advises against any restriction of travel to, and trade with, the DRC based on the currently available information.

The implications for South Africa are that the risk of spread of Ebola to South Africa remains low according to risk assessments conducted by the Department of Health, National Institute for Communicable Diseases (NICD) and WHO. Currently, there are no EVD cases in South Africa.

**Source:** WHO: [www.who.int](http://www.who.int); WHO-AFRO, Division of Public Health Surveillance and Response, NICD-NHLS ([outbreak@nicd.ac.za](mailto:outbreak@nicd.ac.za))

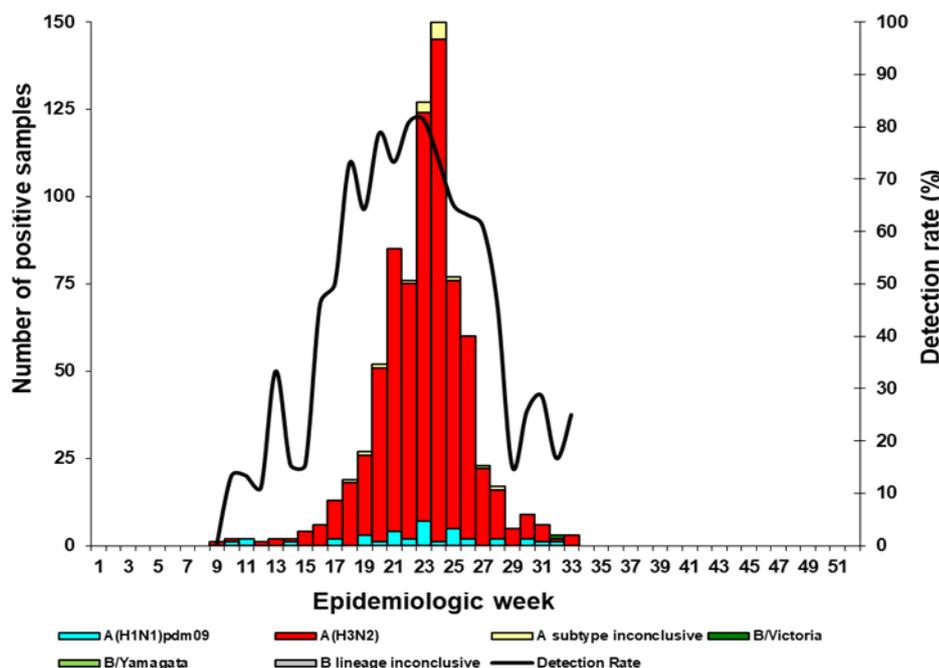
## 4 SEASONAL DISEASES

### a Influenza

The 2019 influenza season that started in week 16 (week ending 21 April) when influenza detections in the Viral Watch programme rose above the seasonal threshold, continues to decline. The number of specimens received per week from Viral Watch sites dropped from an average of 135 during June, 35 during July, to 17 during August to date. Influenza transmission (measured using Viral Watch programme data) has been at low levels, or below threshold, since the middle of July, whereas impact (measured using pneumonia surveillance programme data), is currently at moderate levels. Thresholds are determined by the Moving Epidemic Method (a sequential analysis using the R Language, available from: <http://CRAN.R-project.org/web/package=mem>) by comparing observed levels of influenza to those seen in previous years.

Since April, influenza A has been detected in 757/1 175 (64%) specimens received from Viral Watch sites. The majority (707; 93%) has been further identified as influenza A(H3N2). In addition, 32 (4%) have been identified as A(H1N1)pdm09, and in 14, subtyping was inconclusive due to low viral load. Two specimens were dual positive for both influenza A(H1N1)pdm09 and A(H3N2), and one for A(H3N2) and influenza B/Yamagata (Figure 3). In previous years, there has often been a second wave of influenza B virus after the peak of the dominant circulating strain, prolonging the season into September/early October.

**Source:** Centre for Respiratory Diseases and Meningitis, NICD-NHLS; [cherylc@nicd.ac.za](mailto:cherylc@nicd.ac.za)



**Figure 3.** Viral watch 2019: Number of positive samples by influenza types and subtypes and detection rate\*

\* Only reported for weeks with >10 specimens submitted.

Inconclusive: insufficient viral load in sample and unable to characterise further.

Patients known to have acquired influenza abroad or from contact with travellers are not included in the epidemiological curve.

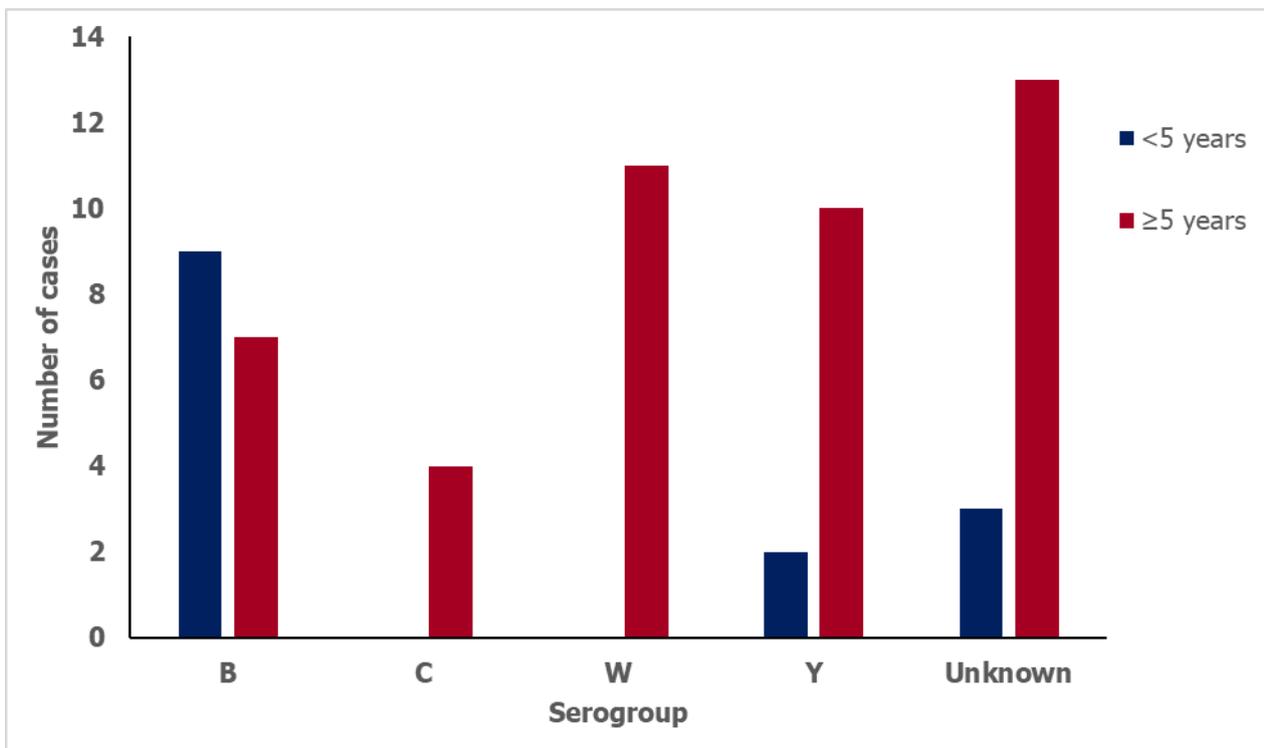
## b A wide range of serogroups cause invasive meningococcal disease in South Africa

Up until the end of July 2019, 59 cases of invasive meningococcal disease (IMD) have been reported to the GERMS-SA national surveillance programme. IMD occurs throughout the year with an increase in episodes during the winter and spring seasons. The Western Cape (n=20) and Gauteng (n=17) provinces reported the most cases, followed by KwaZulu-Natal (n=9) and the Eastern Cape (n=8) provinces. Most cases were laboratory-confirmed meningitis, with *Neisseria meningitidis* isolated from cerebrospinal fluid (39/59, 66%), whilst the remainder were isolated from blood cultures (20/59, 34%). There were 14 (24%) cases in children <5 years of age, and 45 cases in children and adults five years and older. *Neisseria meningitidis* serogroup data was determined for 73% (43/59) of cases. In children <5 years with known IMD serogroup data (n=11), serogroup B (9/11, 82%) predominated, followed by serogroup Y (2/11, 18%). In persons ≥5 years with known IMD serogroup data (n=32), serogroup W (11/32, 34%), serogroup Y (10/32, 31%), serogroup B (7/32, 22%) and serogroup C 4/32, 13%) were present (Figure 4).

All patients presenting with symptoms suggestive of meningitis or bacteraemia should urgently receive appropriate antibiotic treatment targeting meningococcal disease, whilst awaiting laboratory confirmation of aetiology. Meningococcal disease is a Category 1 notifiable medical condition (NMC). Clinicians should communicate telephonically with their provincial communicable disease control coordinators to report suspected cases, and ensure rapid mobilisation of contact tracing and responsible provision of chemoprophylaxis to close contacts.

As part of ongoing surveillance, Centre for Respiratory Diseases and Meningitis (CRDM) at the NICD offers meningococcal isolate confirmation and *N. meningitidis* detection by PCR of culture-negative/autopsy cases, free of charge. For more information, please contact the CRDM laboratory at the NICD, 011 555 0327.

**Source:** Centre for Respiratory Diseases and Meningitis, NICD-NHLS; annev@nicd.ac.za



**Figure 4.** Number of invasive meningococcal disease cases reported by age category and serogroup, South Africa, January to July 2019 (n=59)

## 5 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 7.

### 1. Yellow fever: Côte d'Ivoire

Yellow fever (YF) is an acute viral haemorrhagic disease transmitted by infected mosquitoes of the *Aedes* and *Haemogogus* species. The virus is endemic in tropical areas in Africa, as well as in Central and South America. The YF virus has a three-to six-day incubation period, after which infected individuals present with fever, headache, jaundice, muscle pain, nausea, vomiting and fatigue, which usually resolve after three to four days. A small percentage then develop toxic symptoms which include jaundice, dark urine, abdominal pain with vomiting, and bleeding. Half of the patients who enter the toxic phase die within 7-10 days.

On 30 July 2019, Côte d'Ivoire ministry of health reported that 89 people have contracted yellow fever in the country's capital of Abidjan in recent weeks. One person is reported to have died of the disease. There is no cure for YF disease; however, a safe, affordable and single-dose vaccination provides effective, lifelong protection against yellow fever disease. The proportion of the population that has been vaccinated against YF (vaccine coverage) has not been reported to date. YF can rapidly spread in an unvaccinated population. The YF outbreak in Côte d'Ivoire occurs in the context of a recent dengue outbreak, a disease also transmitted by the *Aedes* mosquito. Notably, Côte d'Ivoire is at the end of its rainy season, which facilitates mosquito breeding. The vector control measures that have been implemented to deal with the dengue outbreak will also assist in controlling the yellow fever outbreak.

### 2. Hepatitis E: Namibia

A total of 5 423 cases of hepatitis E virus (HEV) has been reported in Namibia since September 2017, with 45 deaths, including 20 maternal deaths. In June 2019, 113 cases were reported, which was an increase from 56 cases reported in May 2019. Most cases have been reported in the Khomas, Hardap, Erongo, Omusati and Omaheke areas. Though there is a vaccine that has been developed and registered in China, the vaccine has not yet been approved in other countries. The Namibian ministry of health and social services continue to engage public and private stakeholders regarding improved water, sanitation and hygiene in affected areas.

### 3. MERS Co-V: Saudi Arabia

Middle East respiratory syndrome (MERS) is a respiratory disease caused by a novel zoonotic coronavirus (MERS Co-V) that was first identified in Saudi Arabia in 2012. Though 80% of MERS Co-V cases have been reported in Saudi Arabia, cases have also been reported in 27 other countries. Since 2012 to date, 2 449 cases MERS Co-V have been reported

globally, with 845 deaths (CFR of 34.5%). In the past year, 219 cases were reported in four countries, namely, Saudi Arabia, Oman, South Korea, and the United Kingdom. Of these 219 reported cases, 49 had asymptomatic or mild disease, and 145 had an underlying medical condition such as chronic renal failure, heart disease, diabetes, and hypertension. With the Hajj (annual Islamic pilgrimage to Mecca) taking place in Saudi Arabia, there is a risk of Hajj attendees contracting and transmitting the virus. Although there is no active surveillance of the virus in South Africa, there is a need for awareness in both the travellers and in health facilities, as 4 000 South Africans are expected to be travelling to Saudi Arabia for the Hajj from July to August 2019.

MERS Co-V has been shown to be transmitted by direct or indirect contact with infected dromedary camels. Infection through human-to-human transmission is rare; however, such cases have been reported in hospitals (healthcare workers) and in within families. Symptoms usually occur in the elderly and in people with immunocompromised systems, and typically include cough, fever and shortness of breath. There is no vaccination available for MERS Co-V; however, maintaining good hygiene practices such as handwashing, avoiding contact with animals, especially animals that are sick, eating properly cooked meat and avoiding drinking raw camel milk, may prevent people from contracting the disease.

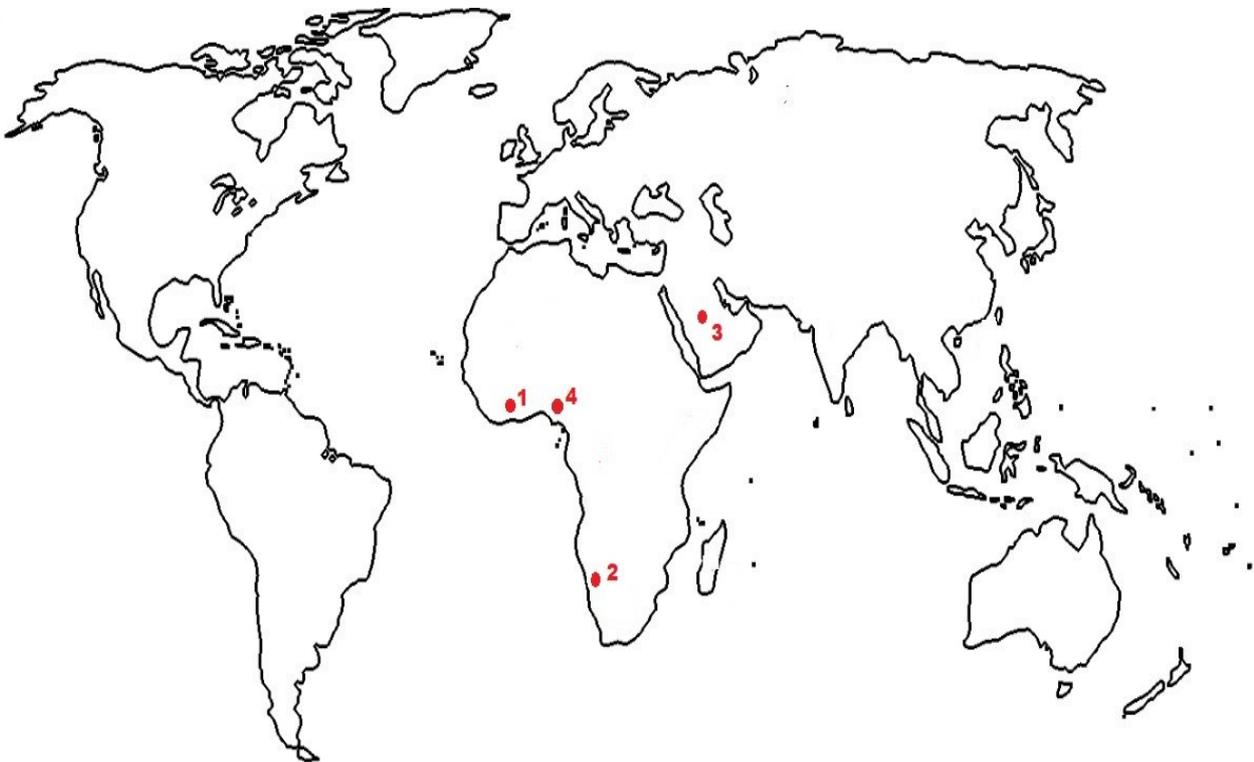
### 4. Lassa Fever: Nigeria

Since January 2019, 3 043 suspected Lassa fever cases have been reported from 22 states in Nigeria; 622 of these were confirmed positive. There have been 140 deaths in confirmed cases (23% case fatality ratio). The outbreak is reported to be affecting both men and women aged between 21 and 40 years. A national Lassa fever multi-partner, multi-sectoral technical working group continues to coordinate response activities at all levels in Nigeria.

Lassa fever is an acute viral haemorrhagic illness that is transmitted to humans via contact with food or household items contaminated with rodent urine or faeces. Person-to-person infections and laboratory transmission can also occur, especially in hospitals lacking adequate infection prevention and control measures. The Lassa fever virus can also be transmitted during burial preparations of infected people. The disease is known to be endemic in some countries in West Africa. Lassa fever has an incubation period of six to 21 days, and 80% of patients are asymptomatic. The 20% of symptomatic patients present with a gradual onset of variable symptoms including fever, general weakness, and malaise. After a few days, headache, sore throat,

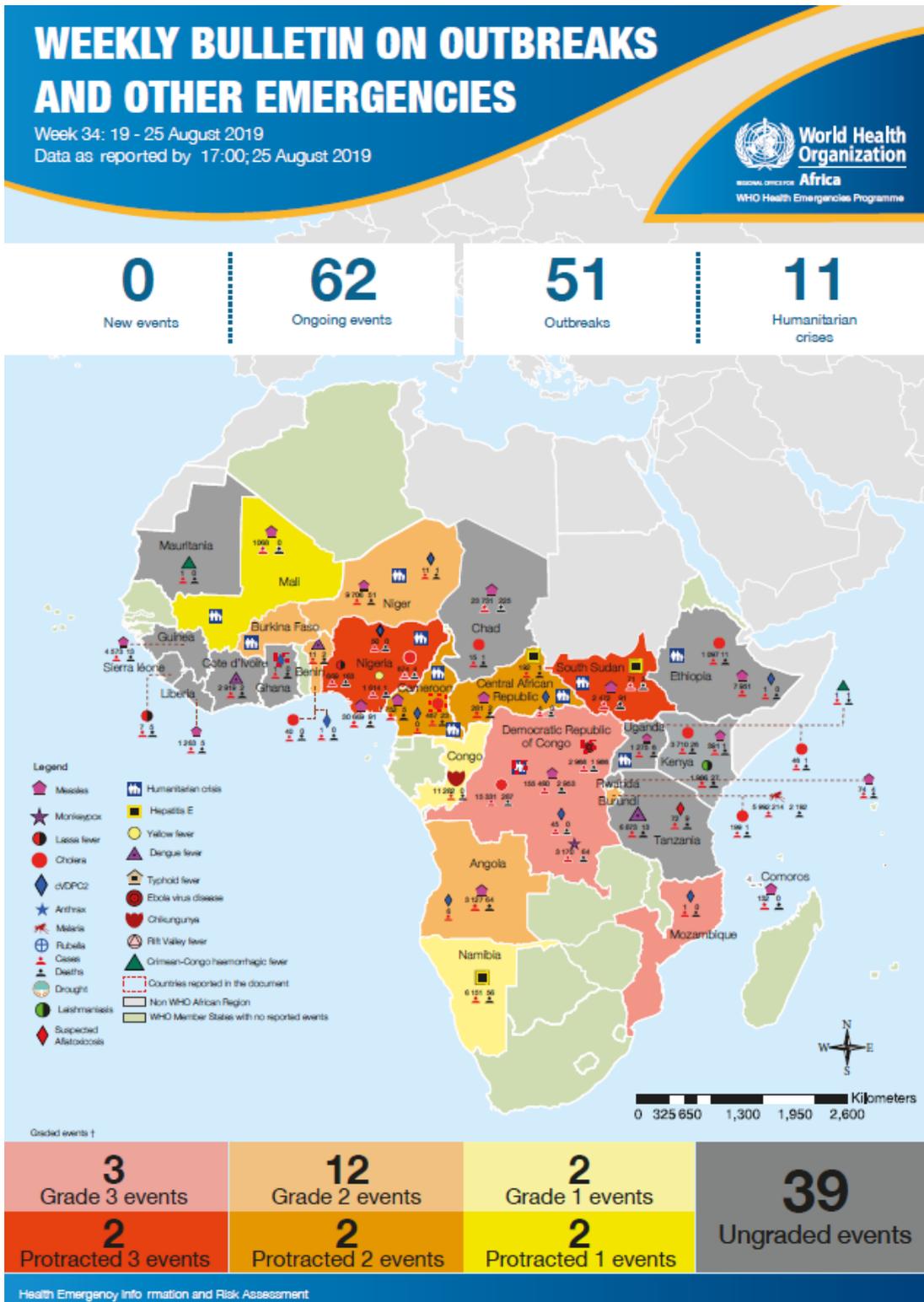
muscle pain, chest pain, nausea, vomiting, diarrhoea, cough, and abdominal pain may occur, and can lead to organ damage, including hearing loss. In severe cases, death can occur within 14 days. Severe cases are common in pregnant women and can lead to both maternal and foetal death. There is presently no vaccination for the prevention of Lassa fever and the disease is controlled by improving community hygiene, and strengthening infection prevention control within healthcare settings.

**Source:** Promed ([www.promed.org](http://www.promed.org)), World Health Organization ([www.who.int](http://www.who.int))



**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.

**6 WHO-AFRO: OUTBREAKS AND EMERGENCIES**



**Figure 6.** The Weekly WHO Outbreak and Emergencies Bulletin focuses on selected public health emergencies occurring in the WHO African Region. The African Region WHO Health Emergencies Programme is currently monitoring 62 events. For more information see link below: <https://apps.who.int/iris/bitstream/handle/10665/326596/OEW34-1925082019.pdf>