NATIONAL INSTITUTE FOR COMMUNICABLE DISEASES
Division of the National Health Laboratory Service

Communicable Diseases Communiqué

NOVEMBER 2017, Vol. 16(11)

CONTENTS *Page*

1 ZOONOTIC AND VECTOR-BORNE DISEASES

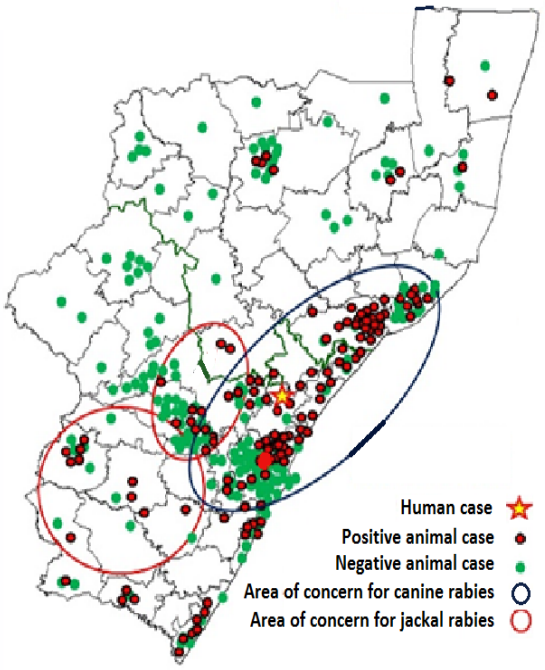
a An update on rabies in South Africa, 2017

There have been no additional reports of human rabies in South Africa since October 2017. Three human rabies cases have been confirmed for 2017 to date, including cases from KwaZulu-Natal (n=1) and the Eastern Cape (n=2) provinces.

The high number of dog rabies cases identified along the coastline of KwaZulu-Natal Province (n=110 cases to date, 2017), and in the northern areas of the Eastern Cape Province remain a concern (Figures 1 and 2). 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 1).

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)



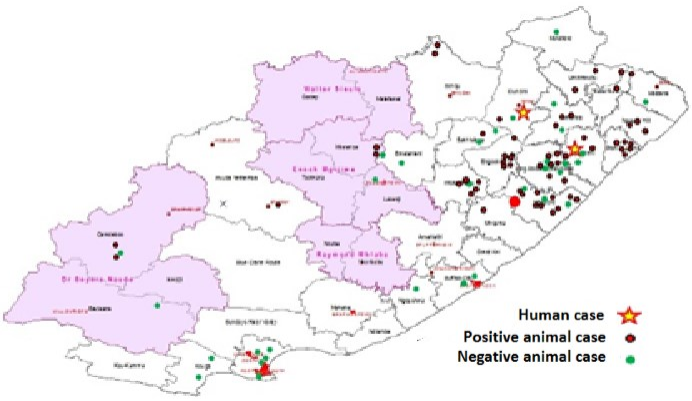


Figure 1 (above). Map indicating the animal rabies situation in the Eastern Cape Province, 2017. (source: Allerton Provincial Veterinary Laboratory)

Figure 2 (left). Map indicating the animal rabies situation in the KwaZulu-Natal Province, 2017. (source: Allerton Provincial Veterinary Laboratory)

b Plague outbreak in Madagascar

The WHO External Situational Report 11 issued on 17 November 2017 indicates that over 2 203 cases of plague have been reported to authorities, with 182 deaths (case fatality rate 9%). During the week of 6-15 November 149 cases (12 probable and 137 suspected) were reported. The last confirmed cases of bubonic and pneumonic plague were reported on 29 October and 6 November respectively. To date the majority of cases (n=1 705, 77%) are pneumonic plague, with 372 of these confirmed by laboratory testing. The epidemiological curve is shown in Figure 3. The number of new cases is declining and WHO suggests that the epidemic phase of the outbreak is ending.

Plague is caused by infection with the bacterium *Yersinia pestis.* The incubation period after infection ranges from 2-8 days. Travellers to Madagascar are advised to be aware of symptoms of plague (enlarged lymph nodes, fever, cough, malaise) and to seek medical care immediately should these symptoms appear whilst travelling or on return.

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

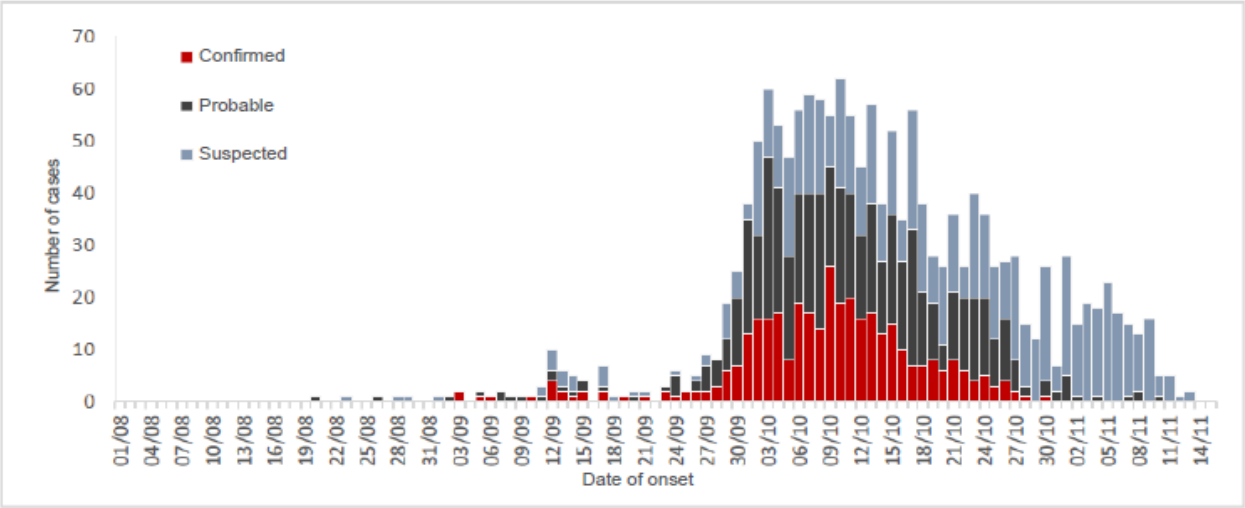


Figure 3. Epidemiological curve showing the number of confirmed, probable and suspected cases of all forms of plague from 1 August until 15 November 2017. (WHO-AFRO Plague Sitrep 11)

c Crimean-Congo haemorrhagic fever in South Africa, 2017

In late November 2017 the NICD confirmed the diagnosis of CCHF in three patients, one of whom died. This brings to eight the total number of CCHF cases in 2017, with two deaths. The three recent cases all originate from the Northern Cape Province. However, they are not epidemiologically linked. All patients had occupational risk factors for CCHF.

The first patient, a 49-year-old sheep farmer from Upington, developed an acute febrile illness five days after being bitten by a tick. He presented to his GP and was started on antibiotics. No eschar, rash, bleeding stigmata or lymphadenopathy was noted on clinical examination. The patient was transferred to Kimberley Hospital where laboratory investigations revealed an evolving leucopenia (lowest white cell count=2.1x10^9/L), thrombocytopenia (lowest platelet count=111x10^9/L) and elevated transaminases (3.5 times upper limit of normal). CCHF and tick bite fever were considered the most likely diagnoses. CCHF was confirmed on RT-PCR by the NICD. The patient is currently stable, in isolation and no secondary cases have been reported to date.

The second patient was a 20-year-old farmworker from Postmasburg who presented with a 5-day history of malaise, nausea, vomiting and haematemesis, initially thought to originate from the upper gastrointestinal tract. Laboratory investigations indicated a thrombocytopenia (lowest platelet count= 11x10^9/L) and elevated transaminases (AST=1 120 IU/L and ALT=298 IU/L). The patient died. A blood sample sent to the NICD was positive for CCHF by RT-PCR. No secondary cases have been reported to date.

The third patient presented initially to his local clinic in Kimberley with an abrupt history of malaise and headache. He had slaughtered a cow at a funeral four days prior and noticed a black tick with red markings on his left lower leg. He was discharged home with analgesia and re-presented four days later with a febrile illness, epistaxis and bleeding from his gums. Preliminary laboratory investigations revealed a leucopenia (white cell count=3.31x10^9/L), severe thrombocytopenia (platelets=4 x10^9/L) and elevated transaminases (AST=1 280 IU/L and ALT=397 IU/L). He is being managed at Kimberley Hospital and no secondary cases have been reported to date.

These cases highlight the need for increased awareness and suspicion of CCHF in patients who present with an acute febrile illness, headache, back pain and bleeding 3-5 days after a tick bite. Typically farmers, farm workers, abattoir workers, animal health workers and veterinarians are at greater risk of contracting CCHF, but any person that is exposed to ticks (specifically *Hyalomma* or 'bontpoot' species) or infected animal blood and tissues, is at risk. Infected animals have an asymptomatic viraemia. Human-to-human transmission occurs and immediate isolation and other infection prevention and control measures are key when managing a case, to prevent secondary transmission. Management is supportive.

CCHF is widely distributed in Africa, Eastern Europe

and the Middle East. The risk of contracting the disease is greater during the late summer months, but prevailing weather and environmental conditions that support tick activity may extend this risk year long. Since 1981, when CCHF was first recognized in South Africa, 5 to 6 (range 1-15) sporadic cases have been confirmed each year.

Preventive measures include avoiding tick bites, direct contact with animal carcasses, and immediate isolation of suspected CCHF patients to avoid secondary transmission. Health facilities, particularly emergency units, should have a high index of suspicion for CCHF in cases of haematemesis and bleeding in patients with risk of exposure to ticks or animal tissue, as these patients are often misdiagnosed. An important differential diagnosis in our setting is tick bite fever, which presents with symptoms of headache, fever and rash, and is treated with doxycycline.

For more information on CCHF in South Africa visit www.nicd.ac.za

Source: Centre for Emerging, Zoonotic and Parasitic Diseases, NICD-NHLS; (januszp@nicd.ac.za); Division of Public Health, Surveillance and Response, NICD-NHLS

2 VACCINE-PREVENTABLE DISEASES

a Update on measles surveillance and outbreaks in South Africa, 2017

A measles outbreak was declared in KwaZulu-Natal Province (KZN) in August 2017. To date, there have been 56 laboratory-confirmed cases with age range 8 months to 51 years, (tested at NICD and private laboratories), two epidemiologically-linked and 40 compatible measles cases.

Reports from five health districts in KZN show that mass measles vaccination activities were carried out in 52 schools and two health facilities. Community mobilisation is being actively carried out via a number of communication channels (face-to-face meetings and radio interviews) to encourage participation in vaccination campaigns.

Health care workers all over South Africa should look out for suspected measles cases that present with fever and rash, and any one of cough, conjunctivitis or coryza. Blood samples should be collected from all suspected measles cases for free laboratory testing at the National Institute for Communicable Diseases (NICD).

Between 1 January and 24 November 2017, 203 laboratory-confirmed measles cases have been detected from eight provinces; five in Eastern Cape, one in Free State, 95 in Gauteng, 52 in KwaZulu-Natal, three in Limpopo, two in Mpumalanga, 11 in North West and 34 in Western Cape (Figure 4).

Source: Centre for Vaccines and Immunology, NICD-NHLS; Division of Public Health Surveillance and Response, NICD-NHLS; (melindas@nicd.ac.za)

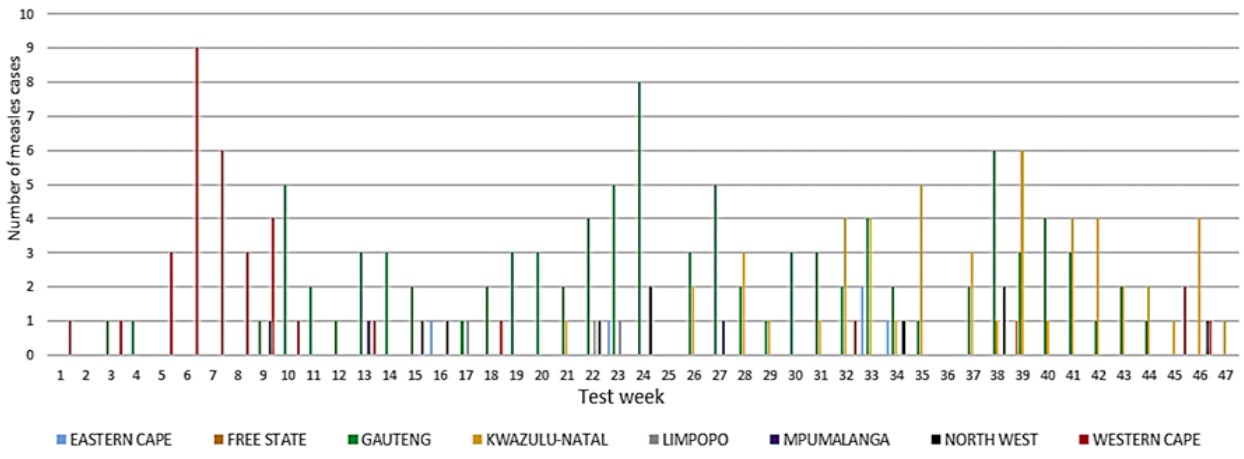


Figure 4. Number of laboratory-confirmed measles cases by province in South Africa (1 January to 24 November 2017).

3 SEASONAL DISEASES

a The influenza season, 2017

The 2017 influenza season started in week 21 (week ending 4 June), peaked in week 26 (week ending 2 July) and ended in week 41 (week ending 15 October), lasting 15 weeks, although influenza continues to circulate at low levels. On average the season over the past 13 years has started in mid-May (range mid-April to end-June), peaked in mid-July (range early June to end August) and ended in end September (range end July to mid-October) and lasted 12-25 weeks.

In the Viral Watch programme during the season this year, 659 positive specimens were identified amongst 1 162 submitted to the NICD (57%). Most cases were influenza A(H3N2) which was detected in 480 (73%) patients. Influenza A(H1N1)pdm09 was detected in 41 (6%), and influenza B in 135 (20%) patients. Dual infections of influenza A (H1N1)pdm09 and A(H3N2) were detected in two, and influenza A(H3N2) and B in one patient. The proportion of specimens positive for influenza B increased noticeably towards the end of the season.

In two other influenza surveillance programmes (influenza-like illness (ILI) at primary health care clinics and national syndromic surveillance for pneumonia) carried out by the NICD, influenza was detected in 451/3 036 (15%) specimens received during the season. Influenza A(H3N2) (293/451, 65%) accounted for the majority of detections, followed by influenza B 135/451 (30%), with only 23/451 (5%) being influenza A(H1N1)pdm09. As with the Viral Watch, the proportion of specimens positive for influenza B increased noticeably from September.

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

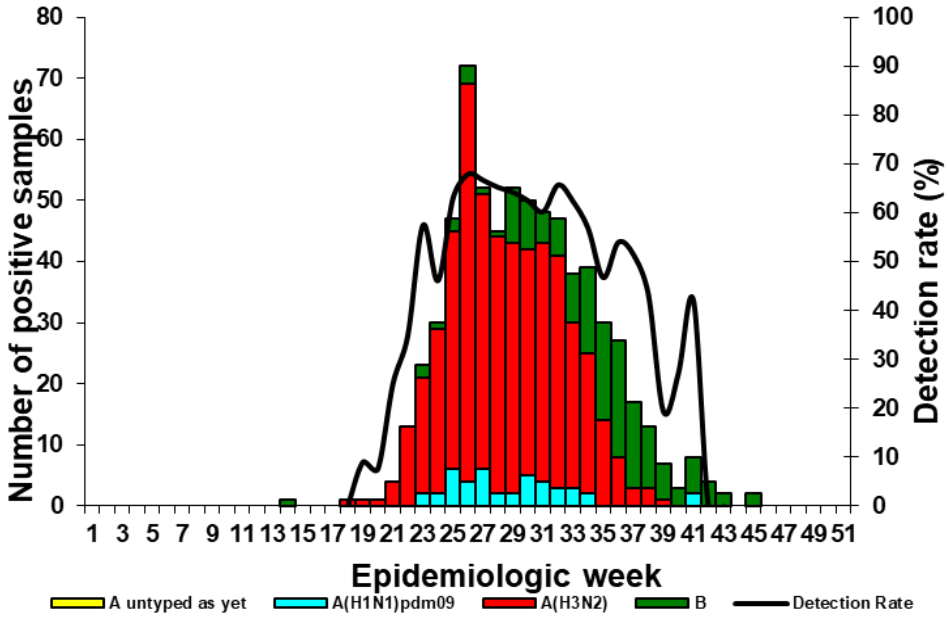


Figure 5. Viral Watch 2017: Number of positive samples by influenza types and subtypes and detection rate*

*Only reported for weeks with >10 specimens submitted.

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

b An update on avian influenza in South Africa: no human cases identified

From 19 June 2017 until 14 November 2017, H5N8 influenza has been identified in 100 locations in South Africa (Figure 6). All affected sites have been reported to the World Organisation for Animal Health. Only two provinces have not been affected—namely, Limpopo and the Northern Cape provinces. The affected birds are divided into five categories: wild birds, ostrich, commercial poultry farms, backyard and hobbyists. Active and passive surveillance for human cases amongst occupationally exposed persons at the commercial farms early in July and August failed to identify human infec-

Source: Directorate, Animal Health, Department of Agriculture, Forestry and Fisheries (sunelles@daff.gov.za)

Figure 6. Geographical location of sites where highly pathogenic avian influenza (HPAI) has been identified—focussing on ostriches (blue), commercial poultry (red) and backyard farmers (green). Source: Department of Agriculture, Forestry and Fisheries.

c Update on malaria in South Africa, 2017

The past 2016/2017-malaria season in southern Africa was particularly busy and made local and international news. Although it is early in the 2017 summer season, an unusually high number of malaria cases have been reported.

Travelers and holidaymakers are advised to take precautions when traveling to areas of malaria risk. High-risk areas include Vembe and Mopane districts in Limpopo, Bushbuckridge and other lowveld areas in Mpumalanga, northern KwaZulu-Natal, and Mozambique. Malaria chemoprophylaxis is highly recommended when visiting these areas. The Kruger National Park and surrounding private parks have had a moderate risk and malaria chemoprophylaxis is advised, although the number of malaria cases contracted there has decreased. The Waterberg has reported some local transmission during this season, and malaria chemoprophylaxis should be considered.

Malaria preventive measures include chemoprophylaxis with mefloquine, doxycycline, or atovaquone-proguanil, which should be taken strictly according to pharmacist instructions. Mosquito bites may be prevented by washing clothes in pyrethroid insecticides, covering exposed areas especially at dawn and dusk by wearing long sleeves and pants, using mosquito nets and mosquito repellent, and staying indoors between dusk and dawn.

Chemoprophylaxis is not 100% effective and travelers to malaria areas must be alert for the development of symptoms on return. Symptoms of malaria include fever, malaise, headaches and extreme tiredness. Danger signs are drowsiness, deep heavy breathing, yellow eyes, inability to eat or drink, and vomiting. Returned travelers, and residents in malaria-endemic areas that experience these symptoms should be investigated for malaria urgently. For more information on malaria in South Africa please visit www.nicd.ac.za

Source: Division of Public Health, Surveillance and Response, NICD-NHLS (outbreak@nicd.ac.za)

d Rubella in South Africa, 2017

Rubella surveillance in South Africa, 2017

Rubella is usually a disease of childhood, and presents as a mild febrile illness with a maculopapular rash. However, it can cause severe foetal complications in pregnant women. Rubella infection is endemic and it circulates widely in South Africa each year. Although rubella is vaccine-preventable, rubella vaccination is not part of the expanded programme of immunization in South Africa.

As part of 'rash surveillance', clinicians across the country are requested to send blood samples from persons meeting the measles case definition (fever, rash plus one of conjunctivities, cough or coryza) to the NICD for measles serology testing. The NICD also tests these samples for rubella antibodies.

From 1 January to 24 November 2017, a total of 1 752 (36.5%) samples tested positive for rubella IgM from all nine provinces; 78 in the Eastern Cape, 25 in Free State, 408 in Gauteng, 492 in KwaZulu-Natal, 112 in Limpopo, 194 in Mpumalanga, 103 in North West, 132 in Northern Cape and 208 in the Western Cape provinces (Figure 7). This represents more than double the number of rubella cases detected in 2016, when 817 (28.8%) samples were rubella IgM positive. However, many more specimens were submitted to the NICD in 2017 on account of measles outbreaks across the country.

Rubella outbreak at a school in Tshwane, Gauteng Province

On 30 October 2017, a member of the public alerted the NICD to an outbreak of fever and rash at a school for children with special needs in Tshwane. Thirty-six cases were identified, of which 29 were learners and seven were facilitators. No patients reported cough, coryza or conjunctivitis, and the rash was not itchy. In all, the disease process was mild with no hospital admissions. A presumptive diagnosis of measles was made, and the school health team commenced measles vaccination of contacts. Initial serology tests on three cases were IgM negative for measles and rubella. However, subsequent blood tests on these patients were IgM positive for rubella. An additional seven cases also tested IgM positive for rubella.

Rubella outbreak at a rural school in the Overberg District, Western Cape Province

On 31 October 2017 the Overberg District alerted the Provincial Communicable Disease Control (CDC) Unit of a suspected measles outbreak at a primary school in Theewaterskloof sub-district. Learners presented with mainly rash and fever. Some learners had cough and red eyes (conjunctivitis). The SMCs were predominantly from two classes. The age range of cases was five to 12 years. The learners were reported to be up-to-date with vaccinations according to EPI schedule. A total of 22 suspected measles cases (SMCs) were identified upon investigation. Rubella was confirmed in 14 of the 22 suspected cases (64%): 9 measles IgM negative and rubella IgM positive and 1 measles IgM equivocal and rubella IgM positive, two cases that were dual positive, and two equivocal for rubella.

Over the course of the outbreak, 49% (75 of 152) of learners attending the school were affected. As this is a rural farming community, children with symptoms still came back to the school for their daily food, which aided in spreading the infection.

Source: Centre for Vaccines and Immunology, Division of Public Health Surveillance and Response, Western Cape Provincial Health Department (melindas@nicd.ac.za; charlene.jacobs@westerncape.gov.za

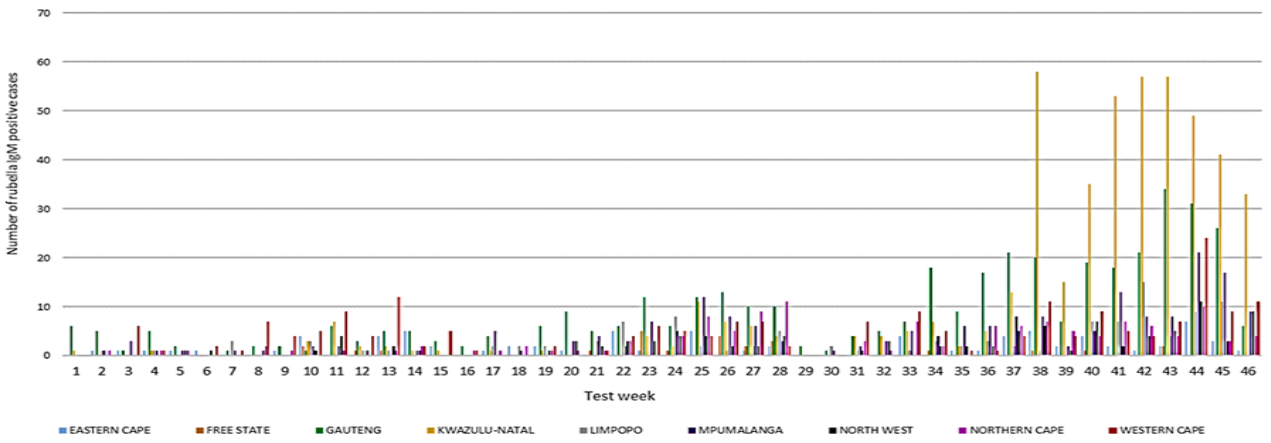


Figure 7. Number of laboratory-confirmed rubella cases by province in South Africa (1 January to 24 November 2017) obtained from specimens submitted to the NICD for measles surveillance.

4 ENTERIC DISEASES

a Gastrointestinal illness outbreak at a learning institution, Gauteng Province, 2017

On 6 November, the NICD was notified of a suspected gastroenteritis outbreak in students residences of a learning institution in Gauteng Province.

The initial case was a student who presented to the institution's health clinic in the early hours of 1 November, with a history of rapid-onset diarrhoea and vomiting. The student was referred to the nearest primary healthcare clinic for further management. From 08h00 the same morning, additional cases presented to the institution's health clinic with similar symptoms. A total of 40 students was seen and treated at the institution's clinic with a few referred to nearby healthcare facilities for further management. An outbreak investigation was initiated, in collaboration with the institution's management, environmental health authorities and the NICD.

Case data were gathered from the institution's health clinic line list and medical record reviews. To collect detailed food consumption history (for a three-day period prior to the peak of the outbreak), an online case investigation form was created and all students in the affected residences were sent the link via sms. Environmental health assessments were performed, including audit of the dining hall kitchen, sampling of available food items, and sampling of water in the dining hall and affected residences. Food-handlers were interviewed and clinical samples (rectal swabs) were collected from food handlers.

Investigations are ongoing; based on preliminary findings, a total of 94 cases (defined as any student with symptoms of gastrointestinal illness since 1 October 2017) was identified. One of 11 (9%) stool samples from ill students, one of 41 (2%) rectal swab samples collected from food-handlers, as well as one of the food samples from the dining hall kitchen tested positive for *Salmonella enterica* ser. Enteritidis.

The outbreak investigation team together with the Centre for Enteric Diseases of the NICD is completing their investigations including calculation of attack rates, and molecular typing of *Salmonella* strains. In the interim, the NICD has recommended ongoing education of food handlers and monitoring of their sick leave patterns, in keeping with basic food safety practice.

Source: Centre for Enteric Diseases, and Division of Public Health Surveillance and Response, NICD/NHLS; (outbreak@nicd.ac.za)

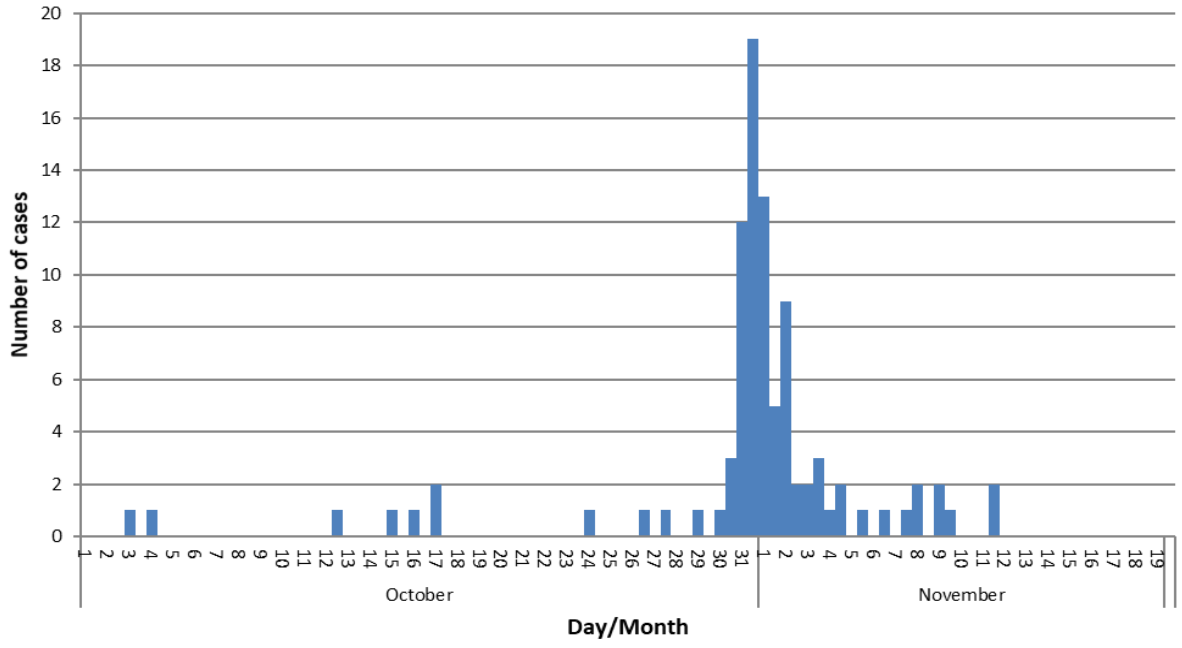


Figure 8. Number of cases of gastro-enteritis reported between 1 October and 19 November 2017 amongst students having meals at a learning institution's dining hall.

5 BACTERIAL OUTBREAKS

a An outbreak of *Streptococcus pyogenes* at a long-term residential care facility: an update

Following the notification on 9 October 2017 of three group A *Streptococcus* (GAS)-associated deaths among residents living in a long-term care facility in Johannesburg, NICD conducted an investigation. All three cases presented with a similar clinical picture: sudden onset of cellulitis, which rapidly progressed to extensive necrotising fasciitis and death. A fourth case presented more than a week after the other cases with a clinical picture suggestive of cellulitis. However, GAS was not confirmed in this case.

During the investigation residents and staff connected to the unit were screened for GAS carriage and disease by culturing oropharyngeal swabs and swabs from the skin lesions. Isolates from the cases who died were requested from the laboratories that did the initial investigations.

Among residents, 15% (4/28) presented with invasive disease (1 clinically suspected) with 75% mortality and 11% (3/28) were asymptomatic GAS carriers. Among staff, 6% (7/115) presented with non-invasive GAS and 14% (16/115) were asymptomatic carriers. There have been no further cases since 11 October 2017 and all individuals that had initially tested positive for GAS, tested negative on repeat sampling following antibiotic prophylaxis.

Genotypes were determined by multi-locus sequence typing and *emm* typing on viable isolates (two from invasive GAS cases, five from non-invasive GAS cases and 15 from asymptomatic residents and staff). The two invasive GAS case-patients harbored related *emm1* or *emm227* types and are related (single-locus variants) to sequence type (ST)-28. Among non-invasive GAS cases, 4/5 (80%) were ST-28 (*emm1*) and one was unrelated ST-15 (*emm3*). Amongst asymptomatic carriers, 6/15 (40%) GAS isolates were ST-28 (*emm1*), whereas two isolates were novel single-locus variants of ST-28 (with *emm1* or *emm227*). The remainder (7/15, 47%) were unrelated lineages.

The facility has been advised to 1) continue with active screening of staff and residents for symptoms suggestive of GAS in order to identify cases early; 2) ensure strict adherence to infection control procedures; and 3) ensure that unwell staff do

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

b An update on the outbreak of *Listeria monocytogenes* outbreak, South Africa, 2017

As of 22 November 2017, a total of 536 laboratory-confirmed listeriosis cases has been reported from all provinces across the country since 01 January 2017 (Figure 9). Most cases have been reported from Gauteng Province (65%, 348/536) followed by Western Cape (12%, 67/536) and KwaZulu-Natal (6%, 35/536) provinces. In the majority of cases, diagnosis was based on the isolation of *Listeria monocytogenes* in blood culture (69%, 371/536), or CSF (26%, 141/536). Where age was reported (n=517), ages ranged from birth to 93 years (median 26 years) and 37% (193/517) were neonates aged ≤28 days. Females accounted for 53% (273/517) of cases where gender was reported.

As of 22 November 2017, 180 case investigation forms (CIFs) of variable completeness have been received. Apart from neonates (≤28 days) and the elderly (>65 years), other risk factors, reported in adults with listeriosis were pregnancy (10/35 females aged 15-49 years) and HIV infection (38/93 (41%) cases where HIV status was known). Final outcome data is available for 12% (65/536) of cases, of which 52% (34/65) died.

To date, whole genome sequencing has been performed on 189 *L. monocytogenes* isolates. Fifteen sequence types (STs) have been identified; however, 71% (134/189) belong to a single ST (ST6). Isolates in this ST6 cluster are very closely related, showing <20 single nucleotide polymorphism (SNP) differences. This suggests that most cases in this outbreak have been exposed to a widely available, common food type/source.

Actions to date to assist with identification of the source include in-depth interviews of persons who have have been diagnosed with listeriosis, engagement with food control industry to identify potential sources and ongoing data collection.

Source: Centre for Enteric Diseases, and Division of Public Health Surveillance and Response, NICD-NHLS (junot@nicd.ac.za; outbreak@nicd.ac.za)

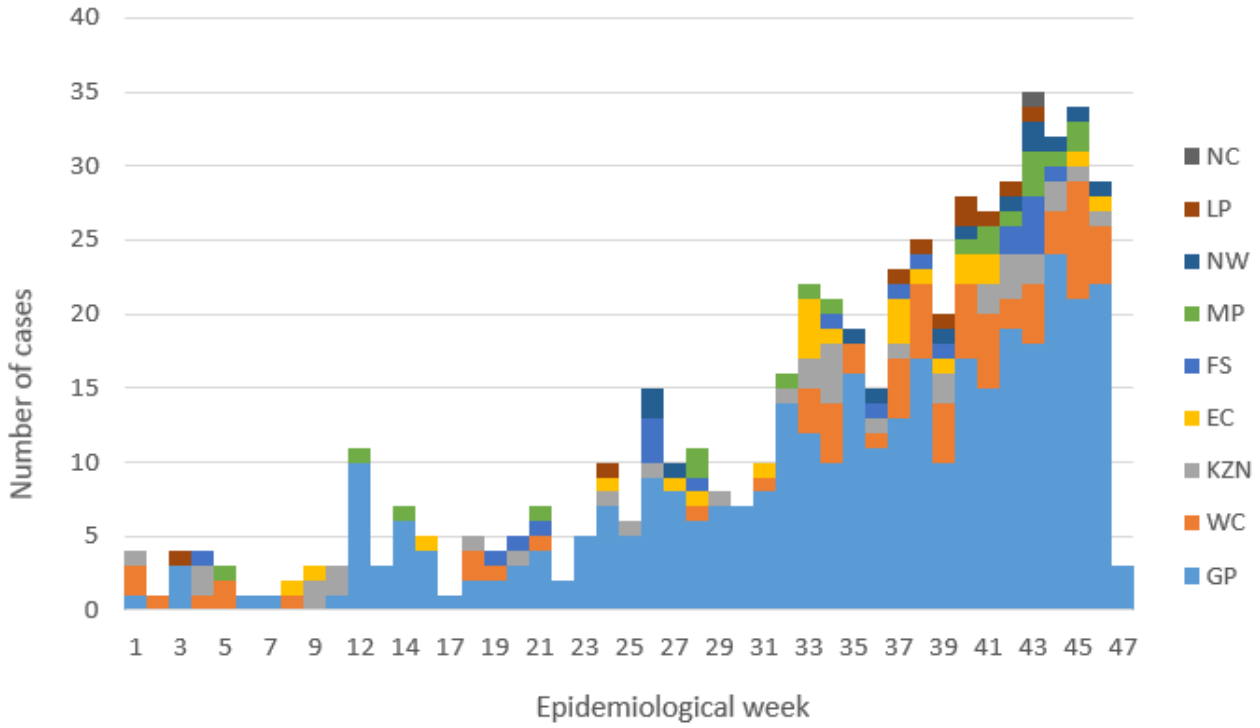


Figure 9. Number of cases of laboratory-confirmed listeriosis by epidemiological week of 2017, indicating the province of diagnosis.

6 SURVEILLANCE FOR ANTIMICROBIAL RESISTANCE

a Carbapenemase-resistant Enterobacteriaceae—a monthly update

The Antimicrobial Resistance Laboratory and Culture Collection (AMRL-CC) of the Centre for Healthcare-associated infections, Antimicrobial Resistance and Mycoses (CHARM) at the NICD has been testing referred isolates of suspected carbapenemase-producing Enterobacteriaceae (CPE) for the presence of selected carbapenemases. CPE have become a threat to healthcare and patient safety worldwide by compromising empiric antibiotic therapeutic choices and increasing morbidity, hospital costs and the risk of death.

The NICD receives clinically significant isolates from all specimen types, based on antimicrobial susceptibility testing criteria, for molecular confirmation. For October 2017, 86 Enterobacteriaceae isolates were received and screened, 72 of which expressed carbapenemase enzymes that were screened for. One isolate expressed a combination of two carbapenemases (OXA-48 and variants and NDM) (Table 1). Majority of the isolates were *Klebsiella pneumoniae* (67) followed by *Enterobacter cloacae* (14). It is important to note that these figures do not represent the current burden of CPEs in South Africa. However, our data reveal the presence of carbapenemases in Enterobacteriaceae isolates from various specimen types, nationally.

As a first step, CPE surveillance is required to determine the extent of the problem in order to restrain the emergence and spread of resistance. The AMRL-CC is currently running a surveillance programme at national sentinel sites for CPE infections in patients with bacteraemia, which provides representative data. These significant data will inform public health policy and highlight priorities for action. Controlling the spread and limiting the impact of CPEs in South Africa requires intensive efforts in both the public and private healthcare sectors going forward. NHLS and private laboratories are encouraged to submit suspected CPE isolates based on antimicrobial susceptibility testing (AST) criteria to AMRL-CC, NICD/NHLS.

Source: Centre for Healthcare-associated infections, Antimicrobial Resistance and Mycoses, NICD-NHLS; (olgap@nicd.ac.za)

Table 1. Enterobacteriaceae by CPE enzyme type for January-September 2017 and October 2017 at the AMRL-CC, CHARM, NICD.

Organism	OXA-48 & Variants		NDM	
	Jan-Sept 2017	Oct 2017	Jan-Sept 2017	Oct 2017
Citrobacter freundii	10		7	1
Enterobacter cloacae	64	7	17	2
Escherichia coli	24		8	
Klebsiella pneumoniae	583	59	138	4
Serratia marcescens	11	1	2	1
Total	**692**	**67**	**165**	**8**

OXA: oxacillinase; **NDM**: New Delhi metallo-beta-lactamase.

7 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 10 on page 12.

1. Yellow fever: Nigeria

The first Nigerian case of yellow fever was reported in mid-September 2017. Yellow fever is currently active in three states and as at 7 November 2017, a total of 179 suspected yellow fever cases has been reported. Of these cases, 54% had samples tested and 38.7% of these samples have tested positive. The total number of deaths (suspected, probable and confirmed) is 24, and two amongst them are confirmed. Vaccination campaigns are planned to prevent rapid spread. The Nigerian Centre for Disease Control deployed a national rapid response team to conduct extensive outbreak investigations and surveillance for acute jaundice syndrome in the country.

2. Marburg virus diseases: Uganda

The Ugandan Ministry of Health confirmed the index case of the current Marburg virus outbreak in a rural mountainous area near the border of Kenya, on 19 October 2017. As of 14 November 2017, three cases had been reported, including two confirmed cases and one probable case. All three cases have died, resulting in a CFR of 100%. The cases were epidemiologically linked and belonged to the same family. There has been proactive surveillance of possible contacts by the health authorities with the assistance of the WHO. A new suspect case, with no epidemiological link to the previous cases, was reported on 15 November 2017. Post-mortem blood samples are undergoing testing to ascertain the cause of bleeding and death.

3. Plague: Madagascar

See update on page 2.

4. Cholera: Yemen, DRC, Kenya, Nigeria, Sudan

The cholera epidemic in war-torn Yemen is ongoing. As of 15 November 2017, the WHO has recorded at least 2 200 cholera-related deaths and 926 187 suspected cases since 27 April 2017.

In the DRC, as of 7 November 2017, there have been 40 100 suspected cases and 770 deaths from the cholera epidemic, which began in July 2017. Due to poor hygiene in most communities in the country, the disease is a major public health problem, with many cases seen every year. According to a report on 6 November 2017, health officials in Mombasa County, Kenya have isolated two people with cholera-like symptoms, while awaiting laboratory confirmation.

As of 31 October 2017, there were 5 281 suspected cases of cholera and 61 deaths in Nigeria. At

present, the affected local governments are Jere, Mafa, Dikwa, Monguno, Guzamala and Maiduguri. Oral cholera vaccination campaigns are being planned.

In Sudan, two women died and two other people were infected with cholera at Aroma locality of Kassala State in the week ending 29 October 2017. The outbreak began in August 2016.

5. Typhoid: Zimbabwe and Zambia

A localized outbreak of typhoid was reported on 23 October 2017 from Mbare's Matapi flats, a densely-populated housing establishment in Harare. The outbreak has been blamed on water shortages, raw sewage spillages and uncollected garbage. In Zambia, as of 1 November 2017, Monze District had recorded two suspected typhoid cases with one death, and Mazabuka 55 suspected cases (nine confirmed).

6. Avian influenza A viruses (HPAI H5N6): China and South Korea

Highly pathogenic avian influenza H5N6, a zoonotic avian influenza strain, has been reported since May 2014 in wild birds and domestic poultry in several countries in East and South East Asia, causing financial losses and cases in humans. Even though H5N6 has caused severe infection in humans, most human infections with the virus seem to be sporadic with no ongoing human-to-human transmission. As of 20 November 2017, the WHO has confirmed a total of 17 human infections with A (H5N6) viruses. The South Korean government has imposed a nationwide movement ban on poultry, vehicles and farm workers starting 20 November 2017 to contain further outbreaks. Travellers to mainland China or other affected areas must avoid visiting live poultry markets and farms.

7. Chikungunya: Nepal and Pakistan

Chikungunya virus was first reported in 2013 in Nepal. There has been a total of five cases this year, of which three patients died. This is the first reported death due to chikungunya virus in Nepal. It is likely that the number of cases is underreported. The disease occurs mostly in Africa, Asia and the Indian subcontinent. The risk of death is around 1 in 1 000. The very young, old, and those with other health problems are at risk of severe disease, possibly including encephalitis. The best means of prevention is mosquito vector control and avoidance of bites. There is no vaccine or specific treatment.

8. Malaria: Cape Verde and Kenya

254 locally-transmitted indigenous cases of malaria (CFR 0.4%) were reported from Cape Verde on 24 September 2017. Of these cases, seven were severe malaria and two occurred in pregnancy. To date, the disease has been localized to the city of Praia on Santiago Island, without any further spread. Due to the present outbreak, the CDC is now recommending malaria chemoprophylaxis for travellers visiting the city of Praia on Santiago Island. As of 29 September 2017, 136 tested positive for malaria in Marsabit, Kenya. Marsabit County is considered a low-risk malaria zone, but has been experiencing heavy rains from July 2017, providing a fertile ground for mosquito breeding.

Source: (www.promed.org) and the World Health Organization (www.who.int)

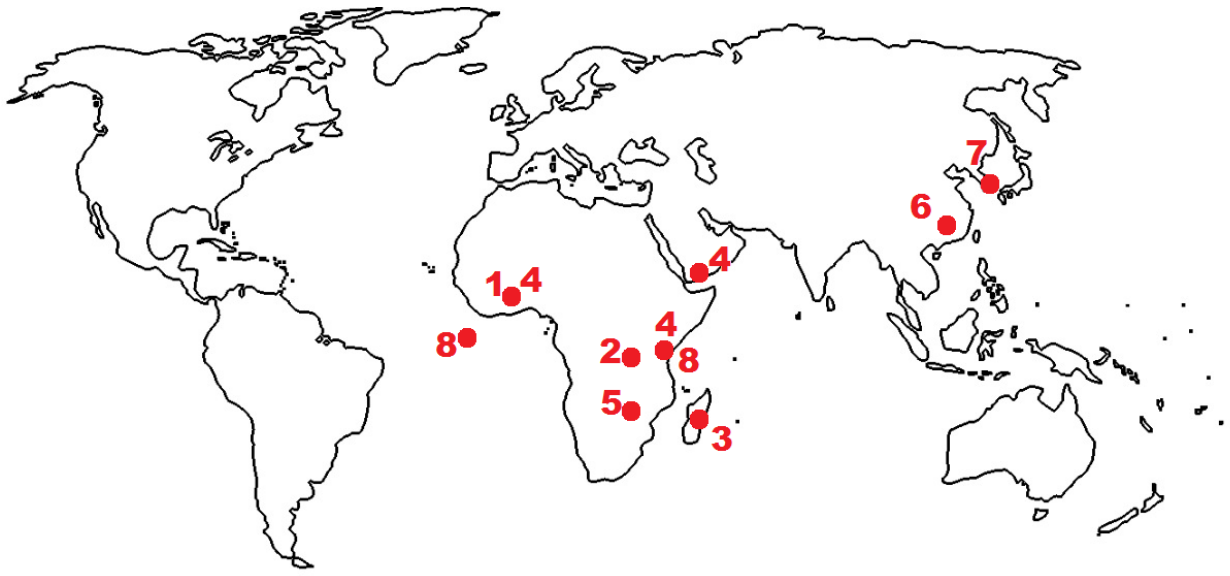


Figure 10. Current outbreaks that may have implications for travellers. Numbers correspond to text above. The red dot is the approximate location of the outbreak or event

8 WHO-AFRO: OUTBREAKS AND EMERGENCIES

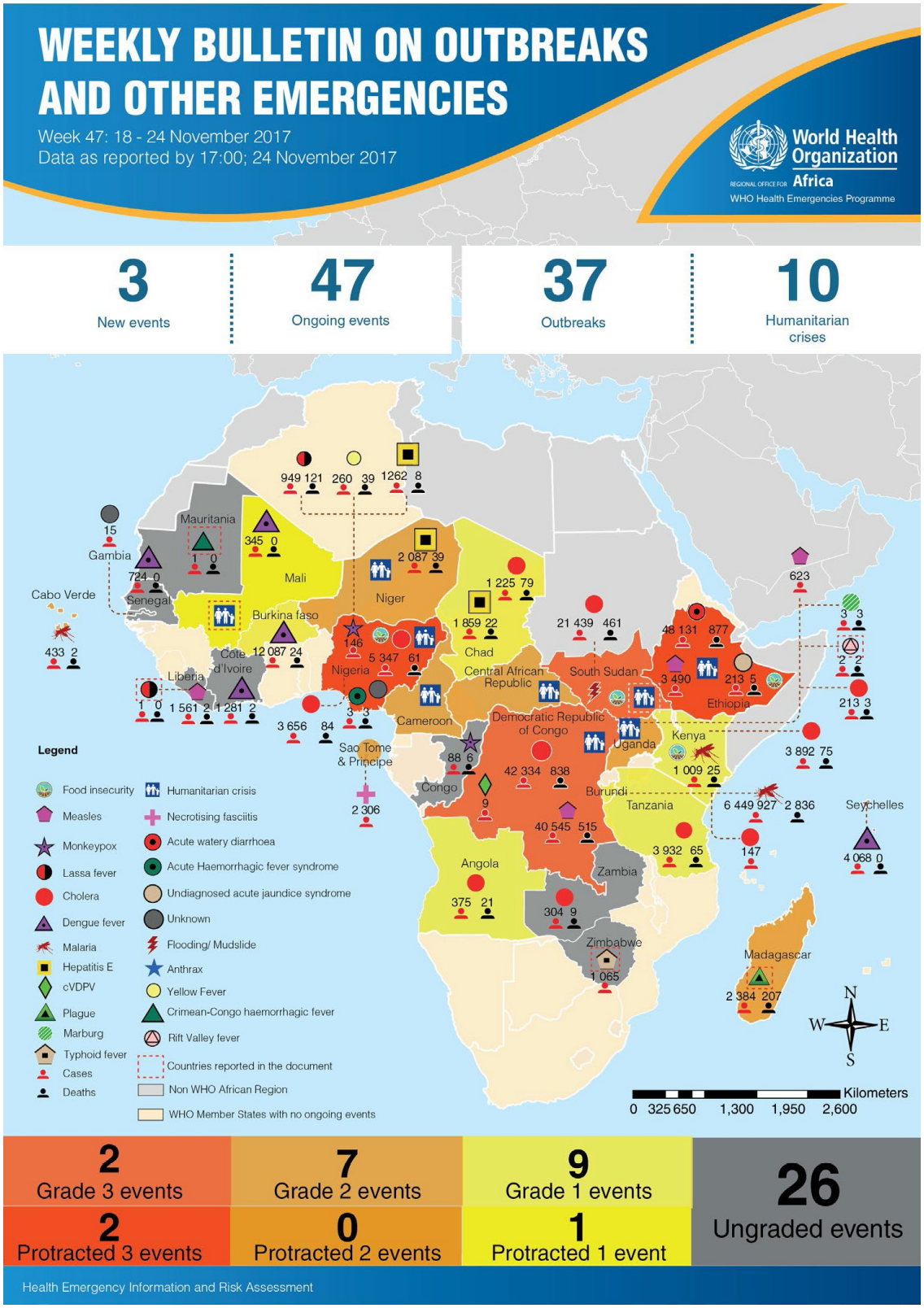


Figure 11. The Weekly WHO Outbreak and Emergencies Bulletin focuses on selected public health emergencies occurring in the WHO African region. The African Region WHO Health Emergencies Programme is currently monitoring 47 events, of which 37 are outbreaks and 10 humanitarian crises. For more information see link: https://reliefweb.int/sites/reliefweb.int/files/resources/OEW47-1824112017.pdf