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EDITORIAL

This month we report on a number of significant national and provincial communicable disease events. Following the two imported cholera cases reported in the October 2018 Communiqué, we report a third case of cholera in a migrant worker returning from Zimbabwe to Limpopo Province. The fifteenth human rabies case this year was reported to health authorities. This is the highest number of rabies cases reported per annum since 2010, and is directly related to the outbreak of canine rabies in the Eastern Cape and KwaZulu-Natal provinces. A cluster of schistosomiasis cases (bilharzia) was reported from a school in KwaZulu-Natal Province – reflecting increasing awareness of the condition since the WHO-led national survey in 2017. A case of immunodeficiency-associated vaccine-derived poliovirus serotype 3 (iVDPV) was detected in a 10-month old child in Gauteng Province. As required by the WHO, district and local health authorities together with the NICD completed a co-ordinated public health response to strengthen surveillance for acute flaccid paralysis.

Regarding seasonal disease, the Centre for Respiratory Disease and Meningitis reports back on influenza, on the increased number of pertussis cases detected and notified this year, and on meningococcal meningitis, all of which peaked during winter months. The Centre for Emerging Zoonotic and Parasitic Diseases provides a malaria update in anticipation of increased travel to

malaria-endemic areas. To date, over 16 000 cases of malaria have been notified this year, reflecting an ongoing, increased risk of malaria. The updated malaria risk map is provided as a reference.

Beyond our borders, the Ebola virus disease (EVD) outbreak continues in the Democratic Republic of the Congo (DRC). Our preparedness activities, including screening of all returning air-travellers for fever, remain supported at land-crossings, international airports, and appropriate stakeholders. We include as usual the WHO-AFRO infographic on current humanitarian and outbreak events in the region.

Finally, South Africa and the NICD continue to support national and international outbreak investigation capacity development through participation in training of field epidemiologists through the Field Epidemiology Training Programme (FETP) and the Global Outbreak Alert and Response Network (GOARN) of the WHO. South African FETP residents and graduates (alumni), attended the 7th African Field Epidemiology Network (AFENET) Conference. A GOARN training programme was held where an NICD doctor was deployed to the DRC for six weeks to support EVD outbreak containment activities.



Poncho Bapela, a South African Field Epidemiology Training Programme (FETP) resident, receiving an award for 2nd place for best oral presentation in the scientific innovation category at the 7th African Field Epidemiology Network (AFENET) Conference held in Mozambique from 12–16 November 2018.

1 ZOOBOTIC AND VECTOR-BORNE DISEASES

a An update on rabies in South Africa, 2018

A case of rabies was confirmed in a 68-year-old male from Ntunda, Nkomazi Sub-district (about 50 kilometers southwest of Komatipoort), Mpumalanga Province. The patient was bitten by a stray dog on his right foot (big toe) on 18 October 2018. The stray animal entered his house, and the patient was bitten when he tried to chase the dog away. The patient accessed rabies post-exposure prophylaxis (PEP), but more than two weeks after the exposure event. At this time, the patient already displayed signs and symptoms of rabies. The diagnosis of rabies was confirmed on postmortem-collected brain samples. This case presented with a shorter incubation period than expected. Typically, an incubation period of 4-6 weeks is expected. Shorter incubation periods are typically reported when patients suffer severe wounds, particularly to the head and neck, but also when wounds involve highly innervated areas.

A total of 15 human rabies cases (including the case reported here) has been laboratory confirmed in South Africa for 2018 to date. These cases were reported from KwaZulu-Natal (n=8), Eastern Cape (n=6) and Mpumalanga (n=1) provinces. Two additional probable cases were reported from the Eastern Cape Province. These cases could not be confirmed through laboratory testing, but presented

with a rabies-compatible clinical history and history of exposure to potentially rabid dogs. This is the greatest number of human rabies cases reported in South Africa since 2010. During 2017, a total of seven cases was reported, and only two cases in 2016. The increase in the number of human rabies cases is directly related to the current outbreak of dog rabies in KwaZulu-Natal and Eastern Cape provinces.

Two dogs have tested positive for rabies in Ga-Rankuwa (about 40 kilometres north of Pretoria), Gauteng Province, in November 2018. Ring vaccination of dogs in the area has commenced, and a follow-up has been done regarding the availability of rabies PEP in local healthcare facilities.

Rabies is an incurable disease upon onset of clinical symptoms but it may be prevented through vaccination of animals and correct administration of rabies post-exposure prophylaxis following possible exposure events. For more information on the disease and its prevention, visit www.nicd.ac.za

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

2 VACCINE PREVENTABLE DISEASES

a A case of immunodeficiency-associated vaccine-derived poliovirus serotype 3 (iVDPV) infection in Gauteng Province, South Africa

A 10-month old boy presented with acute flaccid paralysis (AFP) in Johannesburg on 4 October 2018. He had a medical history of a previous intensive-care admission at six months of age. An enterovirus was isolated from the patient's stool and further testing revealed the virus to be a poliovirus type 3 with 15 nucleotide changes from the Sabin reference strain, making it a vaccine-derived poliovirus (VDPV). Further investigations revealed that the patient has MHC class II deficiency, known as bare lymphocyte syndrome, based on complete absence of HLA-DR expression on the child's lymphocytes. Thus, the VDPV in this case is classified as immunodeficiency-associated (iVDPV).

There are three types of VDPV: circulating (cVDPV), immunodeficiency-associated (iVDPV) or ambiguous (aVDPV). cVDPV occurs when VDPV becomes transmissible and circulates in the community for years, due to low vaccination coverage and poor herd immunity. iVDPV occurs in an individual patient when there is a genetic immunodeficiency, allowing uncontrolled growth and reversion to virulent virus. aVDPV is diagnosed when both iVDPV and cVDPV have been excluded. While both cVDPV and iVDPV can be transmitted and cause disease, transmission is exceedingly rare for iVDPV, especially if vaccine coverage in the community is high.

As part of a multi-stakeholder response, stool samples from close contacts of the case and the local community were tested and a vaccine coverage survey was conducted. In addition, active search for AFP cases in healthcare facilities (public and private sectors) within the metropolitan municipality where the case was detected was conducted. The child is under specialist treatment and is receiving intravenous immunoglobulin. Stool samples from the case will be tested monthly to monitor viral shedding.

Primary immune deficiency predisposes individuals to severe infection from organisms that would otherwise not cause disease. Bare lymphocyte syndrome (BLS) is a rare disorder with approximately 200 cases reported in the global literature. Infection with unusual organisms can be a first indicator of an undiagnosed primary immune deficiency.

Two cases of iVDPV3 were previously reported in South Africa, in 2011 and early 2018. These cases highlight the need for continued diligence in acute flaccid paralysis surveillance to achieve global polio eradication.

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

b Update on increase in pertussis cases in South Africa, November 2018

During 2018 there has been an increase of pertussis cases in South Africa, especially among children who are too young to be fully vaccinated and thus protected by the vaccine. Between October 2017 and February 2018, an increase in pertussis cases was observed, mostly limited to sentinel surveillance sites in the Western Cape Province. From May 2018, an increase in laboratory-confirmed pertussis cases has been detected from all sentinel surveillance sites (Western Cape, Gauteng, Mpumalanga, North West and KwaZulu-Natal provinces) which form part of the syndromic pneumonia surveillance programme (Figure 1). Pertussis cases have also been reported to the Notifiable Medical Conditions (NMC) surveillance system from all provinces of South Africa. This increase is ongoing.

From January to November 2018, 100 of the 5 071 (2%) patients tested for *Bordetella pertussis* as part of sentinel site pneumonia surveillance, tested positive. The detection rate for pertussis was 3% (20/732) for North West, 2% (46/2 130) for Western Cape, 2% (21/1 090) for Gauteng, 2% (5/197) for Mpumalanga and 1% (8/817) for KwaZulu-Natal provinces. The highest number of pertussis cases was observed in July (30) and the lowest was in August (8). The highest detection rate was in children aged <3 months (5%, 53/1 088), with a second peak observed in patients aged from 5-14 (2%, 3/134) and 15-24 (2%, 3/172) years. Of the 100 *B. pertussis* positive patients, half (53%, 53/100) were infants aged <3 months. Among the 95 pertussis-positive cases with data available on outcome, mortality was 3% (3/95), and 4% (2/49) among pertussis-positive infants aged <3 months. Besides the increase in pertussis cases observed from the surveillance sites, outbreaks of pertussis in a school in Mpumalanga Province (October Com-

muniqué Vol.17 (9)), and in the general community in Eastern Cape Province, and a cluster of cases in a family from KwaZulu-Natal Province has been reported to NICD since August 2018.

From January to November 2018, 800 cases of pertussis were reported to the NMC surveillance system, of which 481 (60%) have been reported since August 2018. The highest numbers of cases were reported from Gauteng (223/800, 28%), Western Cape (161/800, 20%) and KwaZulu-Natal (120/800, 15%) provinces. The majority of cases occurred in children <1 year of age (505/800, 63%).

Pertussis, commonly known as 'whooping cough', is a vaccine-preventable disease caused by *Bordetella pertussis* and is a category 1 notifiable medical condition. Clinicians are advised to be vigilant for cases, especially in very young children who may not present with typical symptoms of pertussis (cough and whoop). Clinicians are to conduct diagnostic testing where appropriate, to notify cases and prescribe post-exposure prophylaxis to close and high-risk contacts of suspected or confirmed cases. NICD recommendations for pertussis diagnosis, management and public health response may be found on the NICD web page (<http://www.nicd.ac.za/index.php/pertussis/>). Notification forms can be accessed at <http://www.nicd.ac.za/index.php/nmc/>.

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

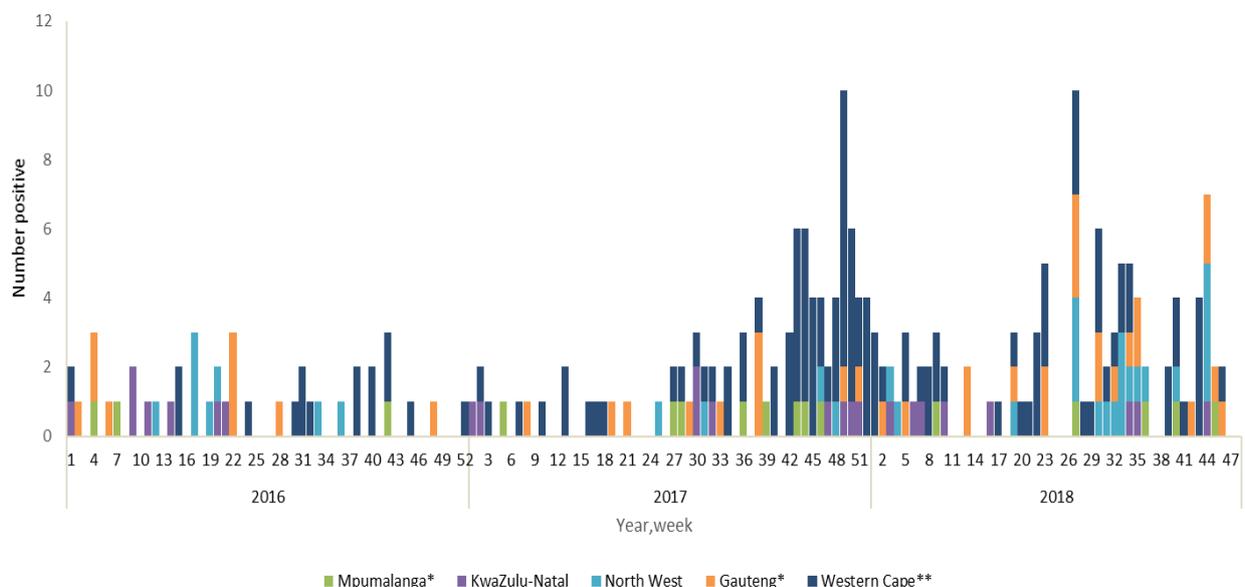


Figure 1. Number of laboratory-confirmed pertussis cases from NICD sentinel site pneumonia surveillance programme by year, week and province, 2016-2018

3 ENTERIC DISEASES

a An update on cholera

There is an ongoing cholera outbreak in Zimbabwe, with 10 175 cases and 55 deaths reported as of 8 November 2018. While the outbreak is still concentrated in the densely populated suburbs of Harare (Glen View and Budiro), cases have also been reported from eight other provinces. However, the number of new cases reported per week continues to decline.

South Africa has reported three cases of cholera imported from Zimbabwe since the outbreak began in September 2018. The first two cases were identified in October, and the isolates confirmed to be toxin-producing *V. cholerae* O1 serotype Ogawa at the National Institute for Communicable Diseases (NICD). Both isolates were resistant to most first-line antibiotics (including tetracycline, cotrimoxazole, doxycycline, ceftriaxone and ciprofloxacin) but susceptible to azithromycin (October Communiqué Vol.17 (9)).

A third case was recently reported from Limpopo Province. A 38-year-old male migrant worker from Zimbabwe, working and living in Alldays (Limpopo Province), had travelled to Zimbabwe on 15 October 2018 and returned to South Africa on 4 November 2018. His symptoms began on 8 November and was admitted to a hospital in Limpopo Province the following day.

V. cholerae was isolated from the patient's stool specimen. Further testing at the NICD confirmed the isolate to be toxin-producing *V. cholerae* O1 serotype Inaba. This was unexpected, as the previous imported cases were both *V. cholerae* O1 serotype Ogawa. Additionally, the antimicrobial susceptibility pattern for the isolate from the third case differs from the first two, so this appears to be a different cholera strain. All three isolates are susceptible to azithromycin, so this remains the recommended therapy at present.

The most likely explanation for the isolation of

these different cholera strains is that there are multiple cholera strains co-circulating in the current outbreak in Zimbabwe (as has been noted in some of their previous outbreaks). Less likely, the third case may not be linked to the outbreak in Zimbabwe, and the patient could have been infected elsewhere. Whole genome sequencing of the cholera isolates and further epidemiological investigation is ongoing.

Mild-to-moderate cholera cases may be treated with oral rehydration fluid. Severe cases require admission and intravenous fluid administration. Antibiotic treatment is recommended for patients with moderate to severe dehydration, as it reduces disease severity and the risk of further transmission. Azithromycin is recommended for cases linked to the current Zimbabwean outbreak. In South Africa, heightened awareness for possible cholera cases must be maintained whilst the outbreak continues in Zimbabwe. Any patient who develops acute watery diarrhoea with or without vomiting should be investigated for suspected cholera.

All suspected cases should be notified immediately to the relevant stakeholders and be investigated. Healthcare workers should ensure that stools or rectal swab specimens are collected, and specimens should be sent to the testing laboratory with a specific request for cholera testing. If a delay in testing or transport of specimens is anticipated, specimens should be submitted in Cary-Blair transport media (Figure 2). Additional information on cholera, including guidance on specimen collection and case management, can be accessed on the NICD website: <http://www.nicd.ac.za>

Source: Centre for Enteric Diseases, and Provincial Epidemiology Team, NICD-NHLS; Limpopo Provincial Health Department; (junot@nicd.ac.za)

Placing stool in Cary-Blair transport medium – THIS SHOULD BE DONE IF SPECIMEN CANNOT BE PROCESSED WITHIN 2 HOURS

1. A small amount of stool can be collected by inserting a sterile, cotton tipped swab into the stool in the green topped container and rotating it.
2. If mucous and shreds of intestinal epithelium are present, these should be sampled with the swab.
3. Immediately insert the swab into the transport medium. (The transport medium should have been chilled for 1 to 2 hours, if possible.)
4. The swab should be pushed completely to the bottom of the tube of transport medium
5. The top portion of the stick touching the fingers should be broken off and discarded.
6. Replace the screw cap and tighten firmly. Place labels on the bottle of transport medium AND the initial container in which the stool was collected and send BOTH to the lab. Place the Cary-Blair and the container in a refrigerator or cold box until collected. **CHOLERA CULTURE SHOULD BE SPECIFICALLY REQUESTED ON THE SPECIMEN REQUEST FORMS.**

Method of collection FOR RECTAL SWAB:

- Moisten the swab in sterile transport medium (Cary-Blair)
- Insert swab gently into the rectal sphincter 2-3cm. and rotate to sample anal crypts. Remove swab and check for **visible faeces.**
- Immediately insert the swab into the transport medium (SEE PICTURES) and deliver to laboratory promptly. If delays are anticipated, the swab in transport medium can be refrigerated. DO NOT FREEZE.

Figure 2. Guidelines for specimen collection for a suspected cholera case

b Focus on foodborne diseases

Foodborne diseases (FBD) are of major public health importance worldwide. They are a common cause of diarrhoeal illness and have the potential to cause widespread outbreaks. FBD can be due to a range of bacteria, viruses, parasites, toxins and chemical agents. A FBD outbreak is defined as two or more cases of a similar gastro-intestinal (or neurological in the case of botulism) illness following consumption of a common food/beverage item(s). FBD outbreaks are notifiable in South Africa as a Category 1 notifiable medical condition and require reporting within 24 hours to facilitate prompt investigation. Rapid investigation of FBD outbreaks is paramount in identifying the cause and instituting control measures. Historically, FBD outbreaks are under-recognised and under-reported in SA, and even when recognised and reported, are often challenging to investigate.

It is critical that clinical and food/environmental specimens are obtained for microbiological analysis and the appropriate testing requested. The clinical specimen type is guided by the presenting clinical features, and may include stool, vomitus, and blood. In instances where stool specimens can not be readily obtained, rectal swabs should be collected. For some infections, specimens collected several days after illness onset may still be positive, as organisms can be excreted for prolonged periods. Specialised testing of clinical, food and environmental specimens for certain foodborne pathogens (e.g. enteric viruses) or bacterial toxins (such as those produced by *Clostridium perfringens*, *Staphylococcus aureus*, *Bacillus cereus*, *Clostridium botulinum* and Shiga toxin-producing *E. coli* (STEC)) can be indicated, but is not offered by all laboratories. Routine and specialised testing should be guided by the predominant symptoms and incubation period of illness, which give important clues as to likely infectious causes (Table 1). Healthcare professionals should liaise with the laboratory to ensure that specimens are referred to relevant clinical or public health laboratories.

Prevention and control of foodborne diseases

FBD outbreaks are often associated with food prepared in households or at community events, and often occur as a result of breaches in personal and food hygiene. According to the World Health Organization (WHO), a significant reduction in FBD in the African Region could be achieved by focusing on safe food preparation. FBD caused by viruses, *C. perfringens*, *S. aureus* and *B. cereus* can only be controlled by practicing safe food preparation. While control in food production processes can contribute to a decline in *Campylobacter* spp, *Salmonella* spp, *Listeria monocytogenes* and STEC infections, a substantial decrease could also be achieved through actions in the formal and informal

catering sectors and in households.

Health education for the public should focus on the WHO five keys to safer food, namely:

1. Keep hands, surfaces and utensils/ implements clean
2. Separate raw and cooked foods
3. Cook food thoroughly
4. Keep food at safe temperatures
5. Use safe water and raw materials

Available at : http://www.who.int/topics/food_safety/flyer_keys_en.pdf

What to do when a foodborne disease outbreak is suspected

1. The cases must be notified immediately to relevant stakeholders and to the NICD through the notifiable medical conditions (NMC) platform;
2. Case investigation forms (CIF) must be completed and emailed to relevant stakeholders and to the NICD. These may be obtained at: http://www.nicd.ac.za/assets/files/NICD_Foodborne_Outbreak_CIF.pdf;
3. Following notification, the relevant Outbreak Response Team/s (ORT) will be activated. The ORTs co-ordinate outbreak response activities;
4. Clinical (stools/rectal swabs/vomitus/blood/ etc. as indicated) and food/water/ environmental specimens must be collected as soon as possible and sent to the relevant laboratory for testing.

For further information contact the Centre for Enteric Diseases at ced@nicd.ac.za

Source: Centre for Enteric Diseases, NICD-NHLS; ced@nicd.ac.za

Table 1. Syndromes of foodborne disease and likely aetiologic agents

Predominant symptoms	Incubation period	Likely aetiologic agents	Comments
Nausea, vomiting and abdominal cramps	<1 hour	Heavy metals (copper, zinc, tin, cadmium)	Specialised toxicology analysis is required
Parasthesias	Up to 6 hours	Fish and shellfish poisoning syndromes	Vomiting, abdominal cramps and diarrhoea commonly occur with several types of fish/shellfish poisoning syndromes
Nausea and vomiting	1-6 hours	<i>Staphylococcus aureus</i> preformed enterotoxin <i>Bacillus cereus</i> preformed enterotoxin (short-incubation emetic syndrome)	Diarrhoea may also be present Illness usually lasts <12 hours
Abdominal cramps and diarrhoea	8-16 hours	<i>Clostridium perfringens</i> preformed enterotoxin <i>Bacillus cereus</i> preformed enterotoxin (long-incubation diarrhoeal syndrome)	Vomiting may also be present Illness usually lasts <24 hours
Fever, abdominal cramps and diarrhoea	6-48 hours	<i>Campylobacter jejuni</i> , <i>E. coli</i> (STEC), <i>Salmonella</i> spp., <i>Shigella</i> spp., <i>Vibrio parahaemolyticus</i>	Bloody diarrhoea and vomiting may also occur Illness usually lasts 2-7 days
Abdominal cramps and watery diarrhoea	16-72 hours	<i>E. coli</i> (ETEC), <i>Vibrio parahaemolyticus</i> , <i>Vibrio cholerae</i> .	
Vomiting and non-bloody diarrhoea	24-48 hours	Noroviruses	Vomiting usually predominates in children, and diarrhoea in adults. Low-grade fever may be present. Illness usually lasts 1-3 days.
Fever and abdominal cramps without diarrhoea	16-48 hours	<i>Yersinia enterocolitica</i>	Diarrhoea may occur in young children. Prolonged illness in older children and adults may mimic acute appendicitis. Illness usually lasts 24 hours – 4 weeks.
Bloody diarrhoea without fever	72-120 hours	<i>E. coli</i> (STEC)	Severe abdominal cramps common Uncomplicated illness usually lasts 1-12 days. Haemolytic-uraemic syndrome is an important complication – often preceded by development of fever and leucocytosis.
Nausea, vomiting, diarrhoea and paralysis	18-36 hours	<i>Clostridium botulinum</i> preformed toxins (botulism)	Acute gastrointestinal symptoms may occur just before or with the onset of descending weakness/paralysis. Illness may last from weeks to months.
Persistent diarrhoea	1-3 weeks	<i>Cyclospora</i> spp., <i>Cryptosporidium</i> spp., giardiasis	
Systemic illness (foodborne diseases that manifest mainly as invasive infections in immunocompromised persons)	Depends on aetiologic agent	<i>*Listeria monocytogenes</i> : - pregnant women, neonates, the elderly, and cell-mediated immunosuppressed persons at highest risk. - May present as a self-limiting febrile gastroenteritis - Presents as febrile illness or miscarriage in pregnancy, and as a flu-like illness/bacteraemia/meningitis in other risk groups <i>*Vibrio vulnificus</i> can cause bacteraemia after ingestion of raw seafood, particularly in patients with underlying liver disease.	
Other infections that may be foodborne and cause disease with primary symptoms outside the gastrointestinal tract include: typhoid fever, brucellosis (unpasteurised milk/cheese), anthrax (meat), Q fever (unpasteurised milk), hepatitis A and E (shellfish, fresh produce), and toxoplasmosis (meat).			

4 INTERNATIONAL OUTBREAKS OF IMPORTANCE

a Ebola virus disease outbreak, Democratic Republic of Congo (DRC)

The Ebola virus disease (EVD) outbreak in North Kivu and Ituri provinces, Democratic Republic of the Congo is on-going. As of 19 November 2018, a total of 373 EVD cases, including 326 confirmed and 47 probable cases, has been reported. The number of deaths reported to date is 217 with a case fatality rate of 52% among all confirmed cases. Seventy-two cases are suspected and still under investigation.

Vaccination campaigns with approved experimental vaccines began on 8 August 2018. Since then, 32 626 people have been vaccinated, including 16 210 in Beni. However, the country has faced setbacks in its fight to contain the outbreak when a MONUSCO base in the Boikene district of Beni was attacked by an armed group on the evening of Friday, 16 November 2018. The clash lasted several hours and took place a few meters away from the Ebola emergency operations centre and hotels housing several response teams. Vaccination was suspended and the operations centre was closed. The WHO has indicated that the treatment centre has re-opened on Sunday 18 November 2018 and remains operational. Contact-tracing is still of concern due to insecurity and persistent community resistance.

WHO risk assessment

Given the volatile security situation, sporadic incidents of community reluctance, refusal or resistance, continued reporting of confirmed cases, and the risk of spread to neighbouring countries, an International Health Regulations (IHR) Emergency Committee (EC) on the EVD outbreak in North Kivu was convened. The EC advised that the EVD outbreak does not constitute a public health emergency of international concern. The EC did, however, express their deep concern emphasising the need to intensify response activities and strengthen vigilance whilst noting the challenging security situation and providing a series of public health recommendations to further strengthen the response.

Situation in South Africa

As at 28 November 2018, there have been no EVD cases in South Africa associated with the current outbreak in the DRC. In addition, there are no suspected cases of EVD in South Africa at present.

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

5 SEASONAL DISEASES

a Influenza

The 2018 influenza season, started in week 18 (first week of May), peaked in mid-July and ended in week 41 (week ending 14 October), although sporadic detections of influenza B continue to be made. Over the previous 13 years the season on average, has started in mid-May (range mid-April to end June), peaked in mid-July (range early June – end August), ended at the end of September (range, end July to mid-October) and lasted an average of 19 weeks (range 12-25).

Since the start of the season, 679 influenza detections have been made from specimens of patients attending Viral Watch sites. Of these, 383 (56.4%) have been identified as influenza A(H1N1)pdm09, 20 (3.0%) as A(H3N2), and 273 (40.2%) as influenza B. Three influenza A detections were untyped due to low viral load. The season was dominated by influenza A(H1N1)pdm09 until mid-July, after which influenza B accounted for the majority of detections.

In the other two NICD influenza surveillance programmes (influenza-like illness at primary healthcare clinics and national syndromic surveillance for pneumonia), influenza was detected in 367/3 135 (12%) specimens received since the on-

set of the season. The majority were influenza A (H1N1)pdm09 (202/367, 55%), and 166/367 (45%) were identified as influenza B. Similar to the Viral Watch, the proportion of specimens positive for influenza B increased markedly from mid-July.

Although the season has ended, it is not unusual to find cases of influenza at this time of the year. Persons with influenza-like symptoms (fever, cough and generalised body pains) are encouraged to practice good cough etiquette, hand hygiene and stay away from school or work until they are no longer symptomatic.

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

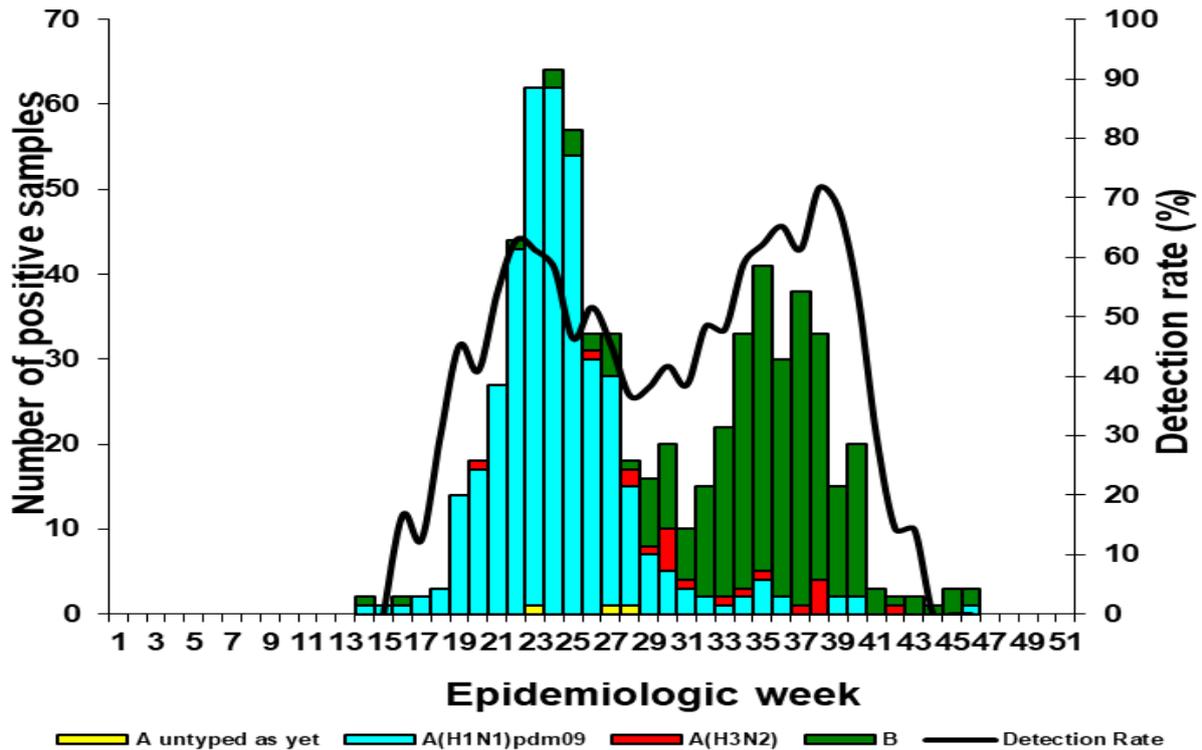


Figure 3. Viral Watch 2018: Number of positive samples by influenza types and subtypes and detection rate*
 * Only reported for weeks with >10 specimens submitted. Patients known to have acquired influenza abroad or from contact with travellers are not included in the epidemiological curve.

b Invasive meningococcal disease surveillance: January to November 2018

Up until the end of week 45 in 2018, 100 cases of invasive meningococcal disease (IMD) have been reported through the GERMS-SA surveillance programme. Half of the patients were male, and 46/91 (51%) with known age were less than ten years old. Sixty-seven percent of IMD cases were diagnosed from cerebrospinal fluid, whilst the remainder were confirmed from blood specimens (33/100). Of those with isolates or specimens available for serogrouping (75/100), disease was caused by a diversity of serogroups (B (n=36, 48%), C (n=9, 12%), W (n=16, 21%) and Y (n=14, 19%)).

As seen previously, the majority of disease occurred in the Western Cape (31 cases), Gauteng (30) and Eastern Cape (22) provinces. Most cases occurred from May to September with slightly lower numbers reported during October 2018. This pattern is consistent with previous years (Figure 4).

Although the meningococcal peak season has passed, cases continue to occur throughout the year. Clinicians should remain vigilant and consider a diagnosis of meningococcaemia or meningococcal meningitis when patients present with acute onset of severe illness, fever and/or a non-blanching pete-

chial rash. Appropriate antibiotic treatment targeting meningococcal disease should be initiated promptly, even while awaiting laboratory confirmation of the aetiology. As meningococcal disease is a category 1 notifiable medical condition (NMC), all **clinically suspected** cases of meningococcal disease should be notified immediately to the provincial Communicable Disease Control Coordinators to ensure appropriate contact tracing, responsible prescribing of chemoprophylaxis, and case counting.

As part of ongoing surveillance, Centre for Respiratory Diseases and Meningitis (CRDM) at the NICD offers free meningococcal isolate confirmation and serogrouping, and *Neisseria meningitidis* detection by PCR of culture-negative/autopsy cases. 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

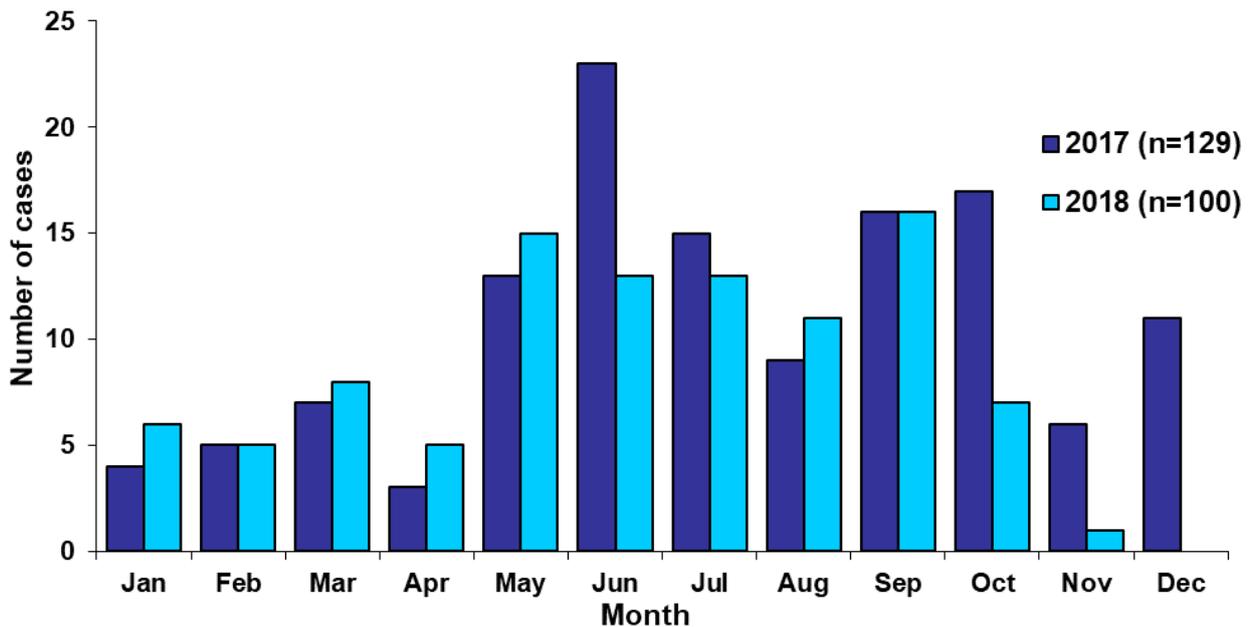


Figure 4. Number of invasive *Neisseria meningitidis* cases reported to GERMS-SA by month, South Africa, 2017 and 2018 (until end week 45)

c Malaria: seasonal increase in progress

Malaria cases in South Africa are increasing as expected during the summer months. As at the end of October 2018, more than 16 000 cases with 110 deaths have been reported. This is fewer than during the large upsurge in malaria seen in the 2017-2018 season, but still more than the average over the 10-year period 2007-2016, which was around 7 600 cases per year. During the holiday season, many people will be exposed because of their travel to higher transmission areas, both internally and outside the country borders, particularly in Mozambique (see updated malaria risk map, Figure 5).

There has been some recent expansion of low or very low malaria transmission to some districts previously regarded as non-malaria areas in South Africa, such as parts of the Waterberg District. People who are planning to travel are urged to take adequate measures to protect themselves from malaria. All people in malaria risk areas should reduce contact with mosquitoes by limiting outdoor activity after dark, covering up bare skin (not forgetting feet and ankles), using mosquito repellents, ensuring mosquito screens on windows are closed, and using bednets, fans or airconditioning, if available. Consid-

er antimalarial prophylaxis in higher risk areas – doxycycline and atovaquone-proguanil are available without prescription from pharmacies. Public sector travel clinics will also supply prophylaxis to travellers. It is important to understand that while these precautions will substantially reduce the chance of acquiring malaria, the risk is never completely abolished.

All travellers returning from malaria transmission areas, including very low risk ones, should get medical advice about 'flu-like' illness (headache, fever, chills, muscle and joint pain) that occurs up to four to six weeks after first possible exposure, in case it is malaria. Malaria risk map, FAQs and further information on prevention are available on the NICD website: www.nicd.ac.za

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

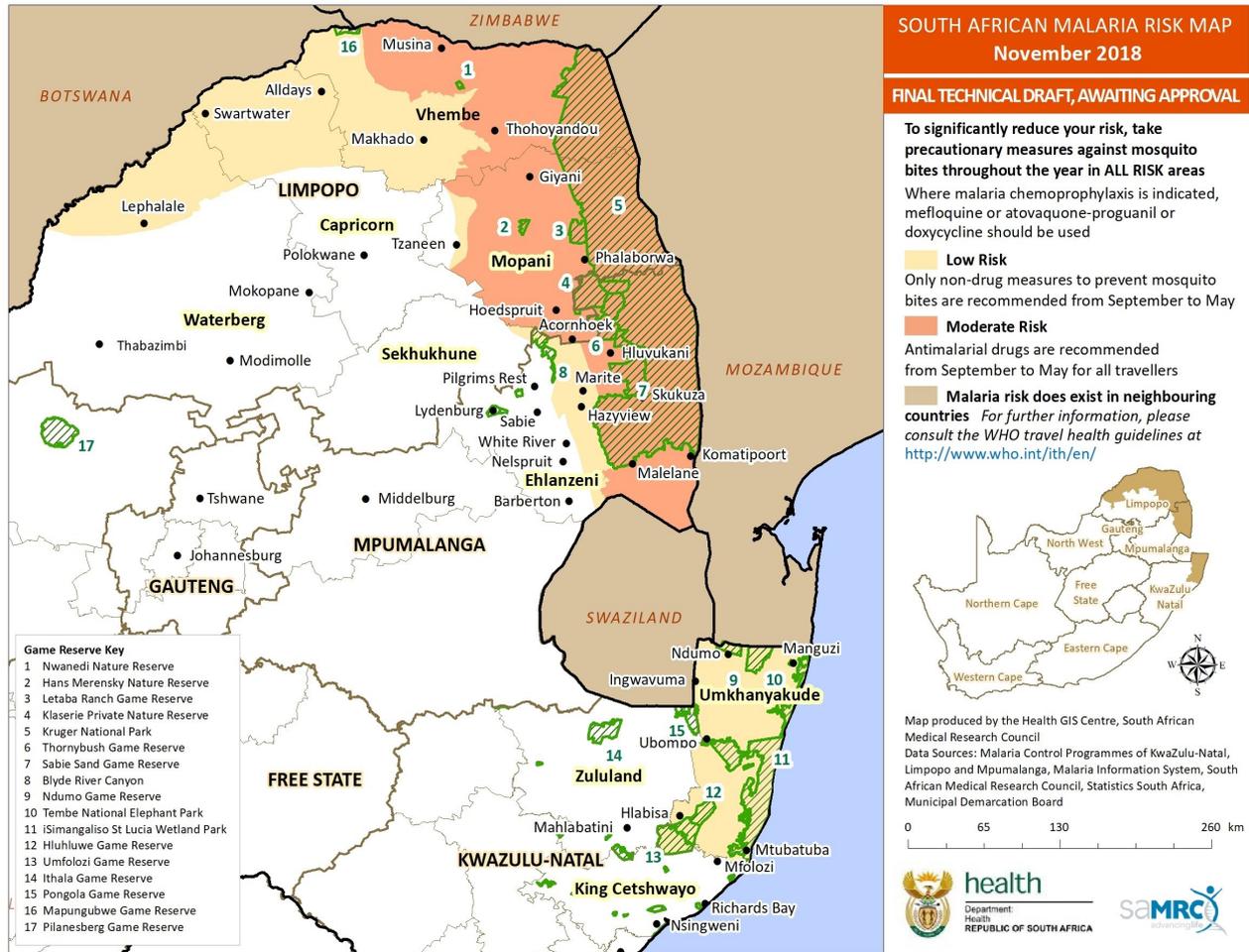


Figure 5. South African malaria risk map, November 2018

6 PARASITIC DISEASES

a A cluster of schistosomiasis cases at a school in KwaZulu-Natal Province

In early October, a primary school in the Zululand District reported a suspected outbreak of schistosomiasis (bilharzia) to the local clinic. On 15 October, the clinic sent a team to the school and collected urine specimens from some children. From 104 children that were tested, 66 (63.5%) had *Schistosoma haematobium* eggs present in their urine specimens. The affected children were treated at the clinic with praziquantel. The environmental health report is pending. As part of the response, pamphlets about bilharzia were distributed to the school. The cases were notified on 23 October 2018 through the NMC app.

Attempts to estimate the prevalence of schistosomiasis in South Africa have produced widely variable results. In 2016, the National Department of Health performed a survey of five schools from every district in KwaZulu-Natal and reported a prevalence of 17.8% for *S. haematobium* in Zululand District. A

survey in KwaZulu-Natal Province in 2006 found prevalences of over 90% in two schools.

The high proportion of positive tests in this school is a concern. An investigation was deemed unfeasible because the school is closing. The district Communicable Disease Control (CDC) provided health information about bilharzia at the school on 26 November.

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

7 CAPACITY BUILDING

a The 7th African Field Epidemiology Network Scientific Conference

The 7th African Field Epidemiology Network (AFENET) Scientific Conference, was held from 12 - 16 November 2018 in Maputo, Mozambique. The Mozambique Field Epidemiology and Laboratory Training Program (MZ-FELTP) together with the National Institute of Health (INS) under the Mozambique Ministry of Health jointly organised this year's conference. The theme of the conference was 'Building resilient and sustainable public health systems in Africa through Field Epidemiology Training'. It provided FE(L)TP residents and graduates from all over the continent an opportunity to network and advance public health through sharing their field experiences and research.

The South African Field Epidemiology Training Programme (SAFETP) is one of 31 member programmes affiliated to AFENET, which received a total of 699 abstracts for review, of which 413 were accepted for either oral, oral/ipooster or poster presentation. SAFETP had seven oral presentations (Table 2), and staff moderated and evaluated a number of sessions

at the conference. At the closing ceremony of the conference, SAFETP second year resident Poncho Bapela was awarded the 2nd best oral presenter for her presentation titled 'Investigation of clusters of malaria cases in Gauteng Province, South Africa – September to October 2017'. At the same ceremony, AFENET officially inaugurated the AFENET Corps of Disease Detectives (ACoDD) for Southern Africa. This initiative aims to strengthen public health emergency response and other public health emergencies in Mozambique, Namibia, South Africa, Zambia, and Zimbabwe. Fhatuwani Gavhi (2018 Cohort), Emelda Ramutshila (2017 Cohort), Khuliso Ravhuhali and Jackie Kleynhans (2016 Cohort), and Dr. Lazarus Kuonza (SAFETP) Senior Medical Epidemiologist were 'decorated' (conferred membership of the ACoDD) during the inauguration.

Source: South African Field Epidemiology Training Programme, NICD-NHLS; carlr@nicd.ac.za

Table 2. Oral presentations by SAFETP residents and graduates at the 7th AFENET Conference, Maputo, Mozambique, November 2018

Name of resident	Cohort	Presentation Title
Andronica M. Shonhiwa	2012	An outbreak of necrotising enterocolitis of unknown aetiology in newborns admitted to a neonatal unit in Gauteng Province, South Africa, March–August 2018
Emelda Ramutshila	2017	Group A streptococcus outbreak in a long-term care facility, Johannesburg, South Africa, 1 September 2017 to 31 October 2017
Mpho Sikhosana	2017	Epidemiology of laboratory-confirmed mumps infections in South Africa, 2012-2017
Poncho Bapela	2017	Investigation of clusters of malaria cases in Gauteng Province, South Africa, September to October 2017
		Food history interviews to identify the source of a large food-borne listeriosis outbreak in South Africa, 2017-2018
Tracy Arendse	2017	Gastrointestinal illness outbreak investigation at a training facility in Johannesburg, South Africa, July 2017
Tebogo Matjokotja	2018	High risk of HIV infection among youth: who are their sexual partners?

b Global Outbreak Alert and Response Network

The Global Outbreak Alert and Response Network (GOARN) is a multidisciplinary network of technical and operational resources from over 200 global, regional and national public health institutions, specialist public health networks in epidemiology, infection control and biomedical sciences, networks of laboratories, many United Nations organizations and international non-governmental organizations. GOARN harnesses international resources at the request of affected WHO Member States to augment their re-

sponse to ongoing or potential public health emergencies. This is achieved by the use of the Guiding Principles of International Outbreak Alert and Response, which aims to improve the coordination of international assistance in support of local efforts.

Since its inception in 2000, GOARN has conducted over 120 deployments in 85 countries and deployed more than 2 300 experts in the field to assist Member States to characterise and control disease out-

breaks and respond to natural disasters and humanitarian emergencies. South Africa was a beneficiary of GOARN when experts were deployed, at the request of the National Department of Health, to assist with the listeriosis outbreak.

The NICD has a strong partnership with GOARN. NICD staff were deployed to West Africa in response to the 2014-2015 Ebola outbreak. Drs Villyen Motaze (Centre for Vaccines and Immunology, CVI) and Nicole Wolter (Centre for Respiratory Diseases and Meningitis, CRDM) were selected to undergo GOARN training for response to outbreaks early this year. Dr Motaze was deployed in June 2018 for six weeks to assist with the ongoing Ebola outbreak in the Demo-

cratic Republic of Congo.

The NICD participates in the weekly GOARN operational conference call where all participating countries present updates on ongoing global emergencies or outbreaks.

Supporting and strengthening such networks is key to rapid, coordinated and well-resourced outbreak responses.

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

8 FREQUENTLY-ASKED QUESTIONS TO THE NICD 24-HOUR HOTLINE

a How do I request testing for CCHF at the NICD?

Crimean-Congo haemorrhagic fever (CCHF) is an endemic, tick-borne cause of haemorrhagic fever in South Africa. Most cases of CCHF in South Africa is reported from the Northern Cape, Free State and North West provinces. Cases have however been reported from all the other provinces. In South Africa, most cases of CCHF reported tick bites (*Hyalomma* spp., specifically 'bontpoot' ticks) 1-3 days before developing illness. Cases mostly involve farmers, farm workers and people living in rural communities, and others who undertake activities (for example camping or hiking) that may predispose them to tick exposures. CCHF virus may also be transmitted through contact with infected blood, tissues and in the nosocomial setting, but this is rarely reported.

When a case of CCHF is suspected, the attending clinician should consult with the NICD doctor-on-call by phoning 082 883 9920. If CCHF is suspected, the case must be notified using the Notifiable Medical Conditions (NMC) application (or alternative measures) available on the NICD website (www.nicd.ac.za) within 24 hours. Laboratory

investigation will be directed by the doctor-on-call based on the clinical history of the patient and may include molecular testing, serological testing and virus isolation.

Blood (1-2 tubes of serum or clotted blood, and whole blood) should be submitted with a completed case investigation form. Transport of samples should be in accordance with national and international guidelines for the transport of dangerous biological goods. Case investigation forms and instructions for the submission of samples for viral haemorrhagic fever (VHF) investigation are available from the NICD website (<http://www.nicd.ac.za/index.php/crimean-congo-haemorrhagic-fever-cCHF/>). The guidelines for management of cases of VHF in South Africa are also available from this webpage.

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

9 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 14.

1. Anthrax: Namibia

Thirteen human anthrax cases were recorded at Sesfontein in the Kunene Region after 35 residents consumed the meat of livestock which died of unknown disease. No deaths have been reported, and the disease has since been contained. A total of 92 small stock died from the outbreak in Sesfontein, while 23 buffalo died in the Bwabwata National Park. Post-exposure prophylactic medicines have been administered to 44 people in the areas of Omiriu and Okamba yOzongombo in Kunene. Symptoms and signs in humans include swollen and painful lymph glands, vomiting, abdominal pain,

headaches, loss of appetite, fever, and sore throat.

2. Yellow fever: Ethiopia

An outbreak of yellow fever has been confirmed in the Wolaita Zone of the Southern Nations, Nationalities, and Peoples' (SNNP) Region of Ethiopia. Since the index case in late August 2018, 35 suspected yellow fever cases have been reported. The International Coordinating Group (ICG) has approved 1.45 million doses of yellow fever vaccine from the global emergency vaccine stockpile for a mass reactive vaccination campaign, targeting 1.34 million people in nine districts of two

zones (Gamo Gofa and Wolaita). On-going population and livestock movements due to conflicts in the region constitute a risk for continued spread.

3. Poliomyelitis: Pakistan

Four new cases of poliovirus were reported on Tuesday 6 November 2018 in Mastung, Balochistan province, despite the employment of several measures to counter the disease, bringing the total number of polio cases in the country to 10 this year. All cases were among children aged between 5 and 8 years. A National Task Force on Polio Eradication meeting was held on Friday 9 November 2018 in the federal capital with the aim of making key high level decisions regarding elimination strategies.

4. Meningococcal meningitis: New Zealand

There has been a significant increase in *Neisseria meningitidis* serogroup W (MenW) in New Zealand since mid-2017. Between 1 January 2017 and 31 December 2017, there were 12 cases of MenW reported, including three deaths. This number has doubled to date for 2018, with 24 cases reported as of 5 November 2018, including six deaths. Prior to 2017, 0 to 6 MenW cases were reported each year. The Northland region has been the most affected in 2018, with seven of 24 cases reported in this region, including four cases in

September and October 2018. This particular strain of MenW (sequence type ST11) affects all age groups and is associated with a high case-fatality rate.

5. Dengue fever: Angola

According to press sources, Angola's Ministry of Health reported more than 1 300 cases of dengue fever (a significant increase over average incidence) from January through mid-October 2018, mainly in Luanda Province (>95% of cases). Several cases have been reported in travellers returning from Angola since May 2018. Current incidence is unknown because local surveillance, diagnostics, and reporting by health authorities are limited in this country. The last large outbreak of dengue fever occurred in 2013 in Luanda Province. Travellers should observe daytime insect precautions, such as using insect repellents on exposed skin and long-sleeved clothing when outdoors.

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



Figure 6. 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

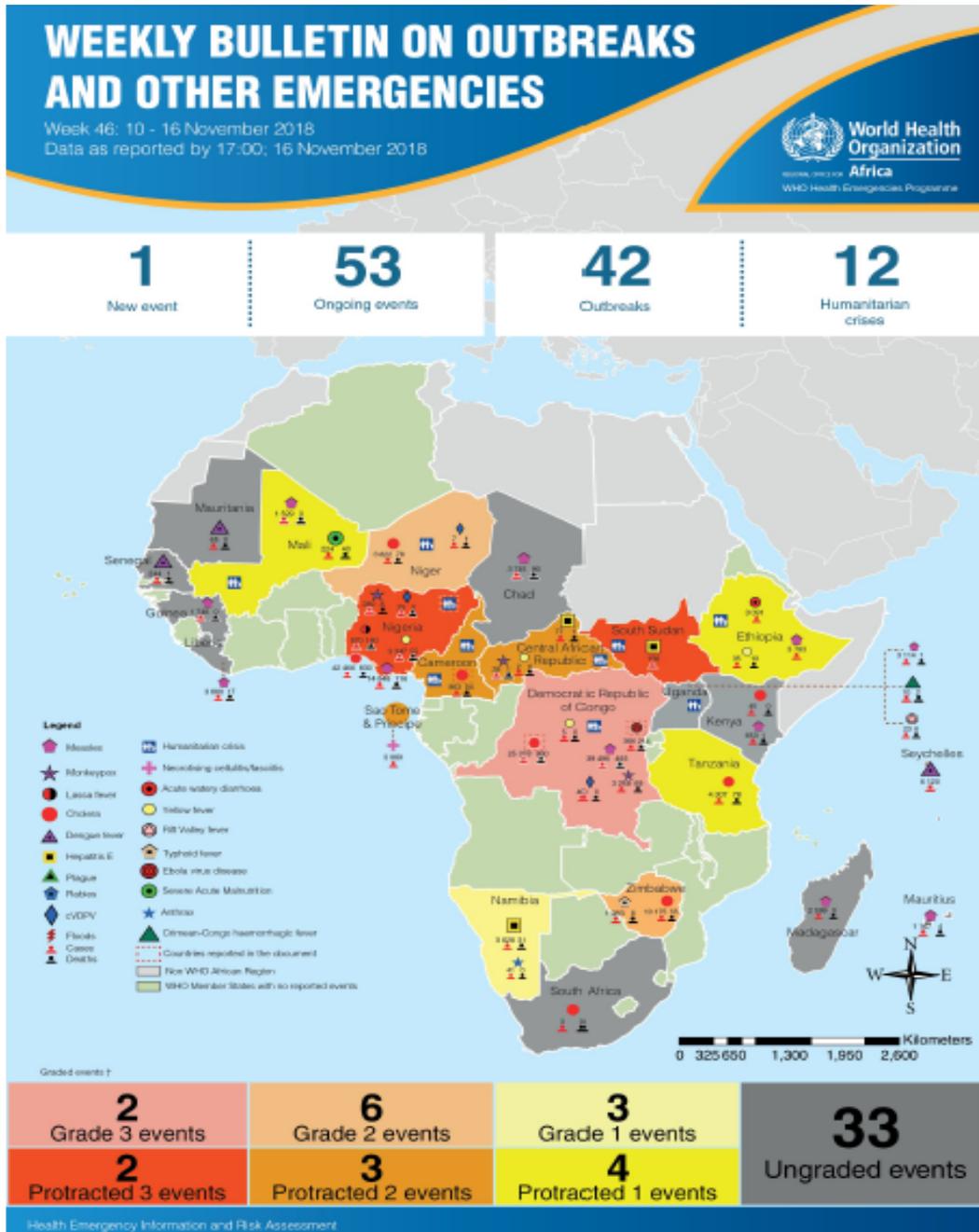


Figure 7. The Weekly WHO Outbreak and Emergencies Bulletin focuses on selected public health emergencies occurring in the WHO African Region. The African Region WHO Health Emergencies Programme is currently monitoring 53 events. For more information see link below: <http://apps.who.int/iris/bitstream/handle/10665/275935/OEW46-1016112018.pdf>