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Editor's Note



Dr Ann Mathews

In this month's issue, we bring you an update on the ongoing COVID-19 outbreak in South Africa, including information on the Phase 3 vaccine trial that commenced at the end of June 2020.

An update on the 11th Ebola virus disease outbreak in the Democratic Republic of Congo (DRC) is provided. Genetic sequence analysis has confirmed that this strain is different from the strain responsible for the previous outbreak in the DRC that has recently concluded.

The first laboratory confirmed case of human rabies in South Africa for the year 2020 is presented in the rabies update. Details follow in the article.

The influenza season, expected to occur between May and August, has still not started. This is likely to be as a consequence of various social distancing and hygiene efforts undertaken following the COVID-19 global pandemic. A summary of meningococcal disease in the first six months of 2020 shows a decreased incidence of cases; again, this is likely due to increased efforts of hygiene in responding to the COVID-19 pandemic.

Other international outbreaks of significance include *Haemophilus influenzae* in Alaska and the USA, Japanese encephalitis in Taiwan, foodborne *Escherichia coli* and foodborne copper poisoning both in Japan. These are further detailed in the 'Beyond our Borders' article.

ZOONOTIC AND VECTOR-BORNE DISEASES**An update on rabies in South Africa**

The first laboratory-confirmed rabies case for 2020 was diagnosed in July. The case involved a five-year-old boy who was bitten by a dog in May 2020. He was visiting a relative in Thohoyandou, Limpopo Province. The dog in question died a day after the incident. Following the bite, the child was taken to a healthcare facility where tetanus vaccine and other prescription medication were given. On 29 June, he presented with hallucinations, had trouble swallowing, became weak and was unable to walk normally. His mother took him to a healthcare facility on 4 July and was given some medication. The following day, the child was admitted with hypersalivation and worsening of symptoms. He died that same day. A single ante-mortem collected saliva specimen tested negative for rabies by RT-PCR; however, a post-mortem-collected brain sample tested positive by the direct immunofluorescence test for rabies virus antigen, therefore confirming the diagnosis of rabies.

In addition to the confirmed case, two probable cases of rabies have been reported in 2020 to date. One each was reported from the Eastern Cape [NICD Communiqué May 2020, Vol 19(5)] and KwaZulu-Natal provinces. These cases were not laboratory-confirmed,

but presented with clinical and epidemiological histories compatible with a diagnosis of rabies. The second probable case for 2020 involved a three-year-old boy who was bitten by a stray dog on 28 June in Umlazi, KwaZulu-Natal Province. The details of the dog could not be corroborated. The child suffered several deep facial wounds and was given rabies immunoglobulin and one dose of rabies vaccine on the day of the dog attack. The child missed the next three follow-up vaccine appointments. Two weeks later, he was admitted to a Durban hospital on 12 July with fever, headache, malaise and neurological symptoms, including confusion, agitation, depression, insomnia, anxiety, dysphasia, ataxia, seizures and delirium. He died on 13 July. Two cerebrospinal fluid samples and a saliva sample were collected after death, but rabies could not be confirmed or ruled out through laboratory testing on these samples.

Rabies is inevitably fatal once clinical symptoms show, but can be prevented with post-exposure prophylaxis (PEP). In order to avoid rabies disease in humans, animal exposures must be managed appropriately as per the national guidelines. More information on the appropriate delivery of rabies PEP is available from the NICD website (www.nicd.ac.za).

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

INTERNATIONAL OUTBREAKS OF IMPORTANCE

An update on the novel coronavirus disease 2019 outbreak, South Africa

As of 26 July 2020, global cases have surpassed 15.7 million with more than 600 000 deaths reported from 213 countries and territories. Weekly case numbers are currently highest in North America and Latin America, representing approximately 57% of the total cases reported over the past seven days. Cumulative case numbers are highest in the USA, Brazil, India, Russia and South Africa. Recent increases in daily cases have been reported in countries with previously controlled outbreaks including Australia, Hong Kong, Israel and Japan.

In Africa, 850 641 cases have been reported to date, with the highest numbers of confirmed cases reported from South Africa, Egypt, Nigeria, Ghana and Algeria. This is likely related to testing availability and testing strategies. As of 26 July 2020, 445 433 laboratory-confirmed cases, including 6 769 deaths, have been reported in South Africa.

In the past weeks there has been a surge of cases in Gauteng Province, and more recently in KwaZulu-Natal Province. The Eastern Cape Province continues to experience high caseloads, challenges with hospital capacity and mortalities in the community related to COVID-19. Trends in case numbers reported may be affected by changing testing practices in different provinces.

The sentinel hospital surveillance system (DATCOV) reports on 314 hospitals, 93 public facilities and 221 private hospitals in South Africa. For the period March to date, DATCOV reports on 33 266 patients. This programme is being rolled out to incorporate all private and public hospitals and will also capture facility-based capacity data. Of note is the importance of careful monitoring of patients with diabetes and COVID-19 for any deterioration, this to ensure rapid access to oxygen therapy.

The period of isolation of persons who test positive for the SARS-COV-2 has been amended:

- Asymptomatic: de-isolate 10 days post-positive test result
- Mild COVID-19 symptoms: de-isolate 10 days post-onset of symptoms
- Severe COVID-19 symptoms: de-isolate 10 days post-stabilisation (i.e. no longer requiring oxygen therapy)

NO LABORATORY TESTING IS REQUIRED FOR DE-ISOLATION

These de-isolation periods correlate with studies demonstrating failure to culture virus in respiratory secretions and lack of infectiousness. The PCR may remain positive in some persons, but does not indicate infectious virus. Fitness for return to work should always be assessed.

NO LABORATORY TESTING OF ASYMPTOMATIC CONTACTS IS REQUIRED

Post-mortem testing is recommended in persons where COVID-19 was not confirmed ante-mortem and is considered on clinical grounds. The guidelines can be accessed on the NICD website, www.nicd.ac.za

There are more than 200 vaccines in development with at least 6-8 undergoing clinical studies. A phase 3 vaccine trial of AZD1222 (previously AChAdOx1) commenced recruitment in South Africa at the end of June 2020 and plans to recruit 2 000 healthy volunteers between 18 and 65 years of age as part of a multinational placebo-controlled study to further assess safety, immunogenicity and efficacy. The vaccine is a replication-deficient live adenovirus vectored recombinant vaccine expressing the SARS-COV-2 spike protein. In a phase 1/2 clinical trial published in The Lancet ([https://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736\(20\)31604-4.pdf](https://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736(20)31604-4.pdf)), immunogenicity data show excellent responses.

Article source: National Institute for Communicable Diseases COVID-19 response team; NICD-NHLS; lucilleb@nicd.ac.za

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

On 1 June 2020, seven cases of Ebola were reported in Mbandaka city and neighbouring Bikoro Health Zone in Équateur Province, and an 11th Ebola virus disease (EVD) outbreak in the Democratic Republic of Congo (DRC) was declared.

Genetic sequence analysis by the DRC's National Institute of Biomedical Research (INRB) found that the new virus circulating in the Équateur Province in western DRC is different from the 10th EVD outbreak, which infected more than 3 400 people in the eastern part of the country. The genetic sequencing analysis also found that the virus in this outbreak is distinct from the previous one that hit the same region in 2018. An investigation is ongoing to determine the source of the new outbreak, but it is likely that it originated from an animal source.

The outbreak in Équateur Province continues to evolve, with 19 health areas in six health zones affected. As of 16 July 2020, there is a total of 58 cases (54 confirmed and four probable), including 22 deaths (case fatality ratio 37.9%). The case fatality ratio among confirmed cases is 33% (18 deaths/54 confirmed cases). Three health workers are among the confirmed cases, making up 5.2% of all cases. One of the new cases confirmed on 16 July 2020 in the Bolomba Health Zone was not listed as a contact or vaccinated, although there were two suspicious deaths in his close family, including his wife. Further investigations are underway to confirm if this is part of the current transmission chain or a new outbreak.

Five out of the six health zones reported contacts on 16 July 2020. Of the 476 new contacts reported, 255 (53.6%) were reported from Bikoro and 192 (40.3%) from Bolomba. Out of 5 929 active contacts, 5 259 (88.7%) had been seen in the previous 24 hours. Of the 179 contacts who were not seen in this 24-hour period, 66 (36.9%)

have never been seen, 63 (35.2%) were not seen in the past 24 hours, 27 (15.1%) were away from home and 23 (12.8%) are lost to follow-up. In addition, 36 contacts have become symptomatic, including 21 in Bikoro, nine in Bolombo, four in Mbandaka and two in Iboko. Two contacts completed their follow-up period in Bolomba.

From 5 June 2020 to 16 July 2020, a total of 12 640 people has been vaccinated. An additional 430 people were vaccinated with rVSV-ZEBOV-GP on 16 July 2020, including 175 high risk contacts, 241 contacts of contacts and 14 probable contacts.

The EVD outbreak in Équateur Province is escalating, with increasing new confirmed cases along with geographical spread to new health areas. The continued presence of confirmed cases in the community is of particular concern, with the risk of further transmission arising as a result, along with contacts completely lost to follow-up. The COVID-19 outbreak in the country is also showing rising case incidence – as of 16 July 2020 the DRC was in ninth position in the WHO-African Region, which means that the country's response mechanisms are likely to be particularly burdened by these simultaneous outbreaks of major infectious diseases.

The WHO reports that the ongoing EVD outbreak requires robust response activities in order to control it rapidly, breaking the chains of transmission and engaging the community in these activities. The response to EVD should be linked to existing COVID-19 activities in order to use resources efficiently. These efforts should be encouraged and supported nationally and by partners.

As of 27 July 2020, there are no EVD cases reported 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.

Article source: WHO: www.who.int; WHO-AFRO, Division of Public Health Surveillance and Response, NICD-NHLS; outbreak@nicd.ac.za

SEASONAL DISEASES

Influenza

Influenza has not been detected in any of the three sentinel surveillance programmes during this past month. Since the localised outbreak of influenza A(H1N1)pdm09 and influenza B Victoria in the Western Cape Province in the beginning of the year, there has only been one detection of influenza A(H1N1)pdm09 in Gauteng Province from a Viral Watch surveillance site in the week ending 14 June. Over the past 36 years, the influenza season has started in week

28 (week ending 12 July). This year, the various hygiene and physical distancing measures being implemented to reduce SARS-CoV2 virus transmission has likely played a role in interrupting influenza virus transmission. Globally, influenza activity has been at lower levels than expected and to date, none of the southern hemisphere countries have reported any influenza activity.

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

Meningococcal disease: Invasive meningococcal disease surveillance update – January to June 2020

Twenty-three laboratory-confirmed episodes of invasive meningococcal disease (IMD) have been reported through the GERMS-SA surveillance network from 1 January to 30 June 2020. This is less than half the reported episodes from equivalent time periods in 2018 and 2019 (n=55 in each year). There has been an unusual drop in IMD since the lockdown movement restrictions were implemented in South Africa in March 2020, with an absence of the usual autumn increase in cases seen in previous years (Figure 1). This reduction may be related to reduced transmission of *Neisseria meningitidis* through respiratory droplets due to mask-wearing, physical distancing, and school/university/workplace closures. Due to the severity of meningococcal presentation, it is unlikely that reduced health-seeking behaviour during this time has impacted much on the reduction of IMD.

The IMD cases are sporadic and have been detected from four provinces, namely, Western Cape Province (n=11), Gauteng Province (n=6), Eastern Cape Province (n=4) and KwaZulu-Natal Province (n=2). Of the 16 isolates available

for serogrouping, serogroup B (n=6) and W (n=6) were the most predominant, followed by serogroup Y (n=3) and serogroup C (n=1). Thirty-nine per cent (9/23) of IMD episodes occurred in children <5 years of age, with the highest proportion occurring in infants (5/23, 22%).

Meningococcal disease onset is swift and even with appropriate treatment, patients can deteriorate rapidly. Clinicians are urged to consider IMD in patients presenting with acute onset of severe illness and to look specifically for the characteristic non-blanching petechial rash associated with meningococcaemia. Appropriate antibiotic treatment should be started in suspected cases whilst awaiting laboratory confirmation of disease.

Meningococcal disease is a category 1 notifiable medical condition (NMC) and any clinically suspected or laboratory-confirmed case should be reported immediately to the provincial Communicable Disease Control Coordinators to ensure appropriate contact tracing, responsible prescribing of chemoprophylaxis and case counting.

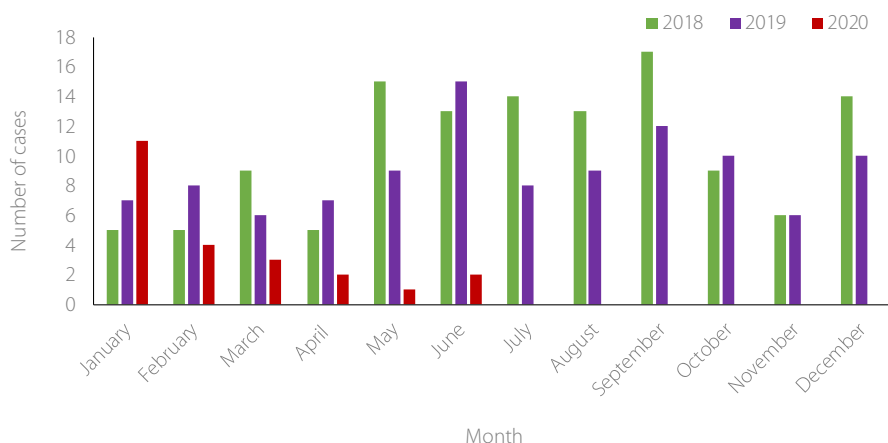


Figure 1. Number of invasive meningococcal disease cases reported to GERMS-SA surveillance programme by month and year, January 2018 through June 2020, N=255

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

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 2 on page 7.

1. *Haemophilus influenzae* disease: Alaska, USA

Invasive *Haemophilus influenzae*, serotype a, is increasing in the United States overall, with the greatest burden occurring in American Indian and Alaska Native children, according to findings published in Clinical Infectious Diseases.

A study in 2018 found that *H. influenzae*, serotype a (Hia), incidence has increased by an average of 13% annually from 2002 to 2015.

From 2008 to 2017, an estimated average of 306 invasive Hia disease cases occurred annually in the USA, with the incidence increasing by an average of 11.1% each year. Overall, 42.7% of cases occurred in children aged less than 5 years (incidence 0.64/100 000), with the greatest incidence among children aged less than one year (incidence, 1.60/100 000). The researchers also found that 7.8% of all patients with Hia infection died; 15.1% of adults aged 65 years and older died, representing the highest case fatality rate.

American Indian and Alaska Native children aged younger than 5 years experienced the highest Hia disease burden. These children experienced 8 times more disease than children of all other races combined.

In Alaska, people of all ages experienced an Hia disease incidence nearly 6 times higher than in the rest of the USA overall, and children aged younger than one year experienced a disease incidence nearly 14 times higher than children in the USA overall. The case fatality rate in Alaska was 10.2%, with the vast majority of cases (93.9%) occurring among American Indians and Alaska Natives. In the context of increasing Hia incidence and clinical severity similar to *H. influenzae*, serotype b, new prevention strategies, including the development of an Hia vaccine, could prevent morbidity and mortality among these vulnerable populations.

2. Japanese encephalitis: Taiwan

The Taiwan Centers for Disease Control (CDC) reported on 14 July 2020 that four new cases of Japanese encephalitis had been confirmed last week, including in a three-month-old baby, the youngest case ever reported in Taiwan. The total number of cases on 7 July 2020 was 9, bringing the national total for 2020 to 13. The cases all lived or worked near rice paddy fields, ponds, pig pens or pigeon farms, which are ideal breeding sites for mosquitoes.

Of the four new reported cases, in addition to the three-month-old baby in Taiwan’s Changhua County, the other

three cases were men in their 40s to 60s. The infant is the youngest case of Japanese encephalitis reported since it was designated a notifiable communicable disease in 1999.

Japanese encephalitis vaccination is recommended for children older than 15 months. Other preventative measures include personal protective measures against mosquito bites when going outdoors, such as insect repellents containing the active ingredient diethyltoluamide (DEET). DEET is recommended only for children above two months old. Parents should choose products with DEET content of no more than 30%. Insect repellents containing picaridin are recommended for children above six months old.

3. Foodborne illness – *Escherichia coli*: Japan

On 13 July 2020, the cause of a foodborne outbreak that affected a total of 3 453 students and others at 15 public schools in the city of Yashio, Saitama Prefecture, eastern Japan, was pinpointed as a seaweed salad harbouring *Escherichia coli* bacteria.

Students had developed symptoms such as stomach pains and diarrhoea after eating the school-lunch, which included the seaweed salad. Stool tests, along with other investigations elsewhere, showed the offending dish to have been the seafood salad served on 26 June 2020. The cause of the food poisoning was wakame seaweed and seaweed salad mix ingredients that were not heated up to kill bacteria after being soaked in water. School lunches remain suspended at the city’s schools,

and students are expected to bring their own packed lunches until 4 August 2020. It is unclear whether the *E. coli* here is an enterohaemorrhagic strain such as O157:H7, or one of the other enteropathic strains.

4. Copper poisoning: Japan

On 8 July 2020, a total of 13 elderly people in southwestern Japan suffered symptoms of food poisoning, apparently after traces of copper from an old kettle contaminated a sports drink they consumed.

The incident occurred at a care facility in the city of Usuki, Oita Prefecture on the morning of 6 July 2020. The facility boiled water with the kettle then cooled it and added powder to make a sports drink.

The 13 men and women, aged from their 70s to 90s, each drank about half a cup of the sports drink at around 10:20 a.m. on 6 July 2020, and then complained of ill health, such as vomiting and nausea.

Copper, having built up on the inside of the stainless-steel kettle, is believed to have dissolved in the sports drink, which was acidic. Upon investigation, the division detected 200 milligrams of copper per litre in the sports drink. People usually show symptoms of poisoning if they consume 10 milligrams of copper. The victims at the facility are thought to have taken in 30 milligrams of copper each.

The care facility has reportedly used the kettle for about 10 years and part of the inside had turned black.



Figure 2. 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

Article source: Promed (www.promed.org), World Health Organization (www.who.int)

WHO-AFRO: OUTBREAKS AND EMERGENCIES

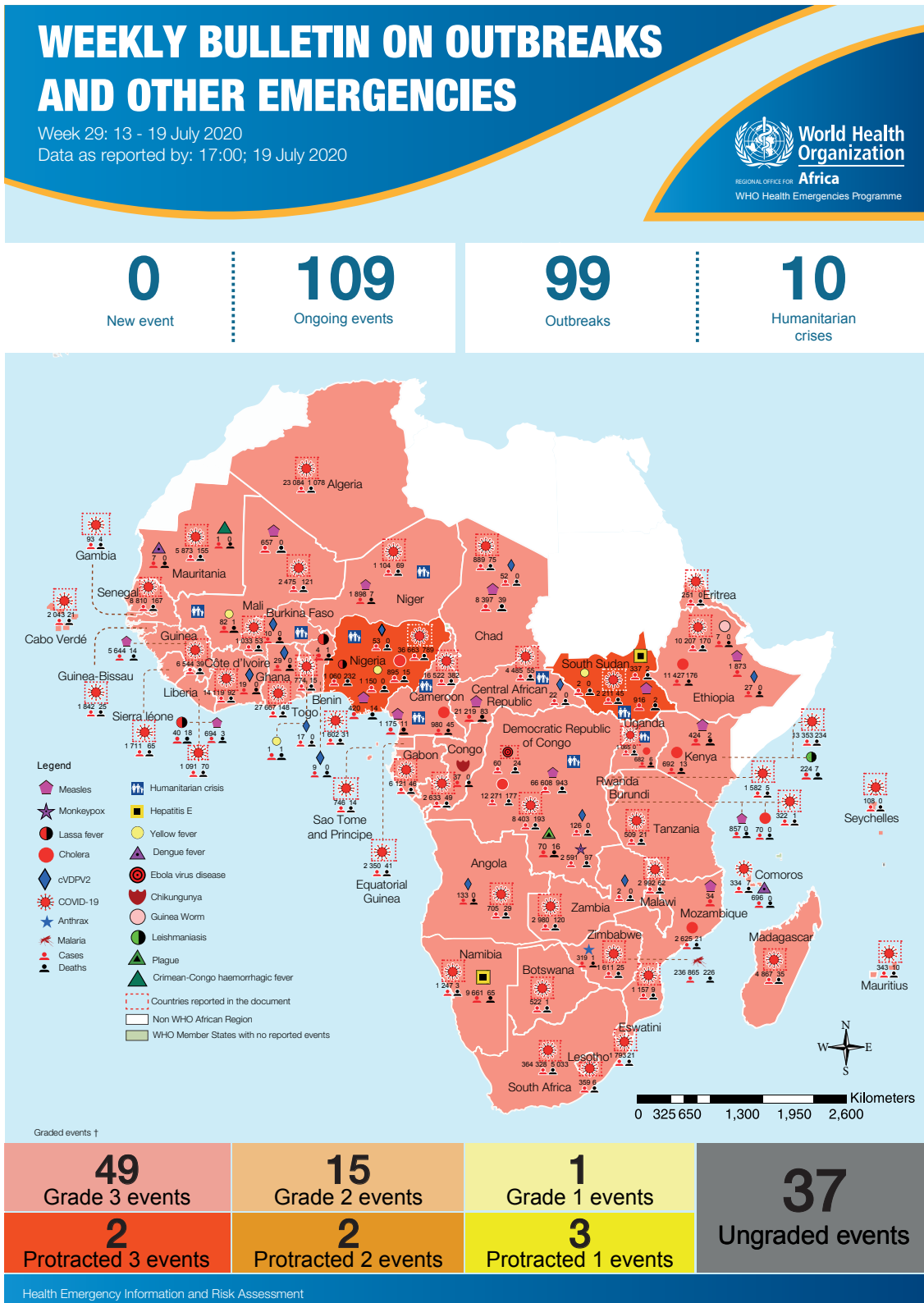


Figure 3. The Weekly WHO Outbreak and Emergencies Bulletin focuses on selected public health emergencies occurring in the WHO African Region. The African Region WHO Health Emergencies Programme is currently monitoring 109 events. For more information click the link <https://apps.who.int/iris/bitstream/handle/10665/333349/OEW29-1319072020.pdf>

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