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## Editor's Note



**Dr Ann Matthews**

In this month's edition, the update on the ongoing COVID-19 outbreak in South Africa covers a cross-sectional descriptive study of a cluster of cases in repatriated citizens. An update on the Ebola viral disease outbreak in the Équateur Province of the Democratic Republic of Congo is provided, as the country continues to see rising numbers of confirmed cases and geographical spread.

As noted in other countries in the southern hemisphere, there has been very little influenza activity this year in South Africa. A slight rise in the number of respiratory syncytial virus (RSV) cases has been noted since July 2020, though numbers remain low. A reduction in the number of laboratory-confirmed invasive pneumococcal disease (IPD) has been noted, compared to the same period last year.

The annual rotavirus season, expected between April and mid-August, has not been observed this year, a likely consequence of the non-pharmaceutical interventions imposed to reduce the spread of COVID-19. Reduced lockdown restrictions may see a later occurrence of cases this year.

A reduction in the number of cryptococcal antigen (CrAg) screening tests performed has been noted, thought to be a consequence of the strict lockdown measures. Despite the easing of lockdown regulations, the number of screening tests has remained low through July 2020. These tests are done to reduce mortality from cryptococcal meningitis, the second leading cause of AIDS-related deaths in South Africa.

Two new cases of rabies have been recorded since last month's report and these are discussed further below.

Other international outbreaks of significance include Crimean Congo haemorrhagic fever (CCHF) in Iran and Senegal, West Nile virus (WNV) in Spain, enterohaemorrhagic *Escherichia coli* (EHEC) in England and scrub typhus in India, all further detailed in our 'Beyond our Borders' articles.

## ZOONOTIC AND VECTOR-BORNE DISEASES

### An update on rabies in South Africa

Since the last report, two new cases of human rabies in South Africa have been identified. This includes one laboratory confirmed case and one probable case. To date, two human rabies cases have been laboratory confirmed in South Africa (including the case reported here). These cases were reported from Limpopo and KwaZulu-Natal provinces. In addition, three probable cases were reported (including one case reported here) from KwaZulu-Natal, Limpopo and Eastern Cape provinces.

Rabies was confirmed in a 9-year-old boy from Umbumbulu area, eThekweni, KwaZulu-Natal Province. The child fell ill during the first week of August, reportedly with flu-like symptoms including high fever and fatigue. The child later presented with anorexia, refusal of fluids and sleepiness. The child was also irritable, complaining of itchy feet, which he scratched profusely. He was subsequently admitted to a hospital. During hospitalisation, it was noted that the patient was confused and experiencing hallucinations. Saliva samples were submitted to the NICD for rabies RT-PCR and tested positive, confirming the diagnosis of rabies. The child died on 18 August. The exposure history of

the child is not confirmed, but a neighbour's dog may have bitten the child two months before onset of illness. Reportedly, the animal died shortly thereafter but was disposed of and not submitted for investigation.

A probable rabies case was reported as a 12-year-old girl from Thohoyandou, Vhembe District, Limpopo Province. The patient had behavioural changes at school, was vomiting and had abdominal pain. She later became restless and had a reduced level of consciousness. She died on 22 July 2020, a day after hospital admission. Allegedly, a neighbour's dog scratched her but the circumstances were vague and the child never received rabies post-exposure prophylaxis. A blood sample submitted for the patient was not adequate for testing. Given the patient's clinical presentation and possible history of rabies exposure, the case was classified as a probable case of rabies as laboratory confirmation was not possible.

Information regarding rabies, vaccination and collection of specimens for laboratory testing is available on the NICD website: [www.nicd.ac.za](http://www.nicd.ac.za)

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

## INTERNATIONAL OUTBREAKS OF IMPORTANCE

### A description of a COVID-19 cluster in repatriated South African citizens linked to a religious gathering in Pakistan

In March 2020, the South African government joined other world governments by repatriating their citizens stranded abroad due to travel restrictions enforced globally. On 21 April 2020, a group of 85 individuals, the majority of whom had travelled for Jamaat (an Islamic missionary movement) prior to the holy month of Ramadan, were repatriated from Pakistan to South Africa after completing a quarantine period and testing negative for SARS-CoV-2 in Pakistan. On arrival in South Africa, they were quarantined at one of the many designated quarantine sites across Gauteng Province. Eleven of the 85 (13%)

repatriates tested positive for SARS-CoV-2 after being in quarantine for eight days in South Africa.

A cross-sectional study with supporting descriptive analysis was performed to identify and verify the existence of a cluster of SARS-CoV-2 amongst the repatriates at the quarantine site. Additional objectives were to describe the characteristics of positive COVID-19 cases identified, identify common exposures of the cluster and to institute control measures for prevention of transmission.

## INTERNATIONAL OUTBREAKS OF IMPORTANCE

Data were collated from various data sources, which included person-under-investigation forms, contact line lists and laboratory reports. A questionnaire was developed and telephonic interviews were conducted to obtain basic demographics and possible exposure information for the period dating back 14 days prior to returning to South Africa. An inclusion criteria of being repatriated from Pakistan, over the age of 18 years and reachable for a telephonic interview was applied to the study participant list.

All eleven of the repatriates who tested positive for SARS-CoV-2 were asymptomatic at the time of specimen collection and remained asymptomatic at the time of interview, i.e. 14 days after repatriation. Of the 85 repatriates, 83 (98%) had demographic information available. For these 83 repatriates the median age in years was 25 (IQR, 19-32); 96% (n=80) were male; 89% (n=74) were of Indian descent and 81% (n=67) followed the Islamic religious faith. Of the 65 repatriates who met the inclusion criteria, ten who tested positive for SARS-CoV-2 were 18 to 24-year-olds and were all male. Six of these ten cases reported sharing a living space with 5-10 other

people while attending the Jamaat in Pakistan. Although knowledge of the ongoing pandemic and preventative measures were widespread, social distancing and hand sanitisation was not common practice whilst in Pakistan, and less so in religious gatherings. In addition, five of the ten cases had a history of smoking or were active smokers.

As illustrated by the South Korean church outbreak and the cluster linked to a church gathering in the Free State Province, religious gatherings continue to provide opportunities for ongoing transmission of the SARS-CoV-2 virus. The South African government's regulations stating that no gatherings, religious or otherwise should comprise more than 50 participants is an attempt to limit such transmission events, through social distancing. Although all cases reported being asymptomatic in South Africa, a lack of information for the quarantine conditions and period in Pakistan for all the repatriates makes drawing conclusions difficult. However, the fact that half of the cases eligible for interview reported a history of smoking or were active smokers, suggests that smoking may be an important yet contentious risk factor.

Source: National Institute for Communicable Diseases COVID-19 response team; NICD-NHLS; [nevashang@nicd.ac.za](mailto:nevashang@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 11<sup>th</sup> Ebola virus disease (EVD) outbreak in the Democratic Republic of Congo (DRC) was declared.

The EVD outbreak in Équateur Province continues to see rising numbers of confirmed cases and geographical spread. From 10 to 16 August 2020, another nine additional confirmed EVD cases had been reported, including three new deaths. The health areas of Lyembe Moke in Bikoro Health Zone, Bosomondomba in Bolomba Health Zone and Butela in Iboko Health Zone have not reported new confirmed cases for 42 days, with the last confirmed case reported on 4 July 2020.

As of 15 August 2020, there is a total of 88 cases (84 confirmed and four probable) including 36 deaths

(case fatality ratio 41.8%). The case fatality ratio among confirmed cases is 38.1% (32 deaths/84 confirmed cases). The number of health workers affected remains at three, making up 3.4% of all cases. The number of health areas that have reported at least one confirmed or probable case of EVD since the start of this outbreak has risen to 30, in 10 of the 18 health zones in the province. In the past 21 days (26 July to 15 August 2020), 21 confirmed cases have been reported in 14 health areas across eight health zones.

Of the four out of eight health zones reporting contacts, no new contacts were listed on 15 August 2020. Of 3 327 active contacts listed, 3 160 (95%) were followed-up. Of the 60 unseen contacts for whom information was available, eight (13.3%) had never been seen, five (8.3%) were lost to follow-up and the remaining 47 (78.4%) had not been seen in the previous 24 hours. To date, no

## INTERNATIONAL OUTBREAKS OF IMPORTANCE

contacts have completed their follow-up period, while 24 have become symptomatic, including 19 in Bikoro, three in Ingende and two in Lotumbe.

From 5 June 2020 to 16 August 2020, a total of 22 468 people has been vaccinated. An additional 170 people were vaccinated with rVSV-ZEBOV-GP on 15 August 2020, including 22 high risk contacts, 143 contacts of contacts and five probable contacts.

The EVD outbreak in Équateur Province is of grave concern, given the continuing increase in incident cases and further geographical spread. The outbreak is further complicated by the COVID-19 outbreak, a long-standing measles outbreak and a complex humanitarian crisis in the country. Challenges continue around known confirmed cases still living in the community and contacts lost to follow-up. Additionally, there is a lack of funding

for the response, particularly that required to prevent further spread, and inadequate human resources for risk communication and engagement in affected health zones and hotspots.

WHO reports that the ongoing EVD outbreak requires robust response activities in order to control this outbreak and break chains of transmission and engage the community in these activities. It is vital that the outbreak does not spread to new geographical areas. 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 24 August 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.

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

## SEASONAL DISEASES

### Influenza and respiratory syncytial virus (RSV) seasons, 2020

As in other southern hemisphere countries, there has been little influenza activity so far this year during the usual influenza season (May to September). This is most likely due to the various hygiene and physical distancing measures implemented to reduce SARS-CoV2 virus transmission.

Respiratory syncytial virus (RSV) usually precedes the influenza season, starting between the beginning of February and mid-March, with the mean peak of the season in mid-April. Although the detection rate of RSV briefly crossed the seasonal threshold during April [using

the Moving Epidemic Method (MEM), a sequential analysis using the R language, to calculate the duration, start and end of the annual epidemic], it remained lower than the 10-year mean. Since mid-July, there has been an increase in detection of RSV, mainly in the Western Cape Province, possibly due to relaxation of restrictions. This increase has been mainly in hospitalised children under the age of five where detections have crossed the seasonal threshold, but have remained at a low level. As COVID-19 restrictions are progressively relaxed, NICD will continue to monitor trends in influenza and RSV through our inpatient and outpatient surveillance programmes.

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

## SEASONAL DISEASES

## Pneumococcal disease

### Reduction in invasive pneumococcal disease in South Africa, January through July 2020

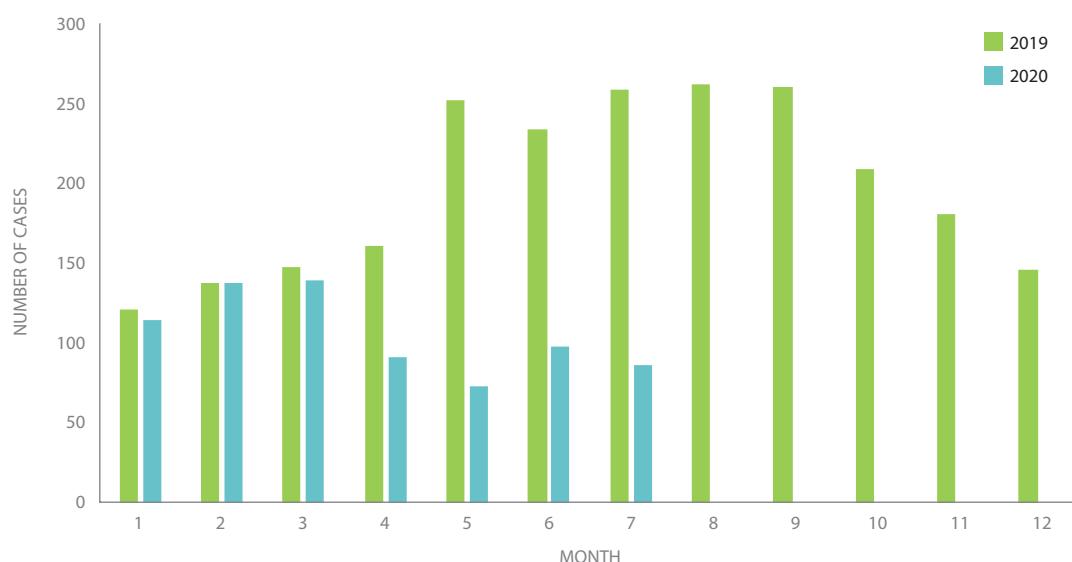
Seven hundred and thirty-five cases of laboratory-confirmed invasive pneumococcal disease (IPD) have been reported to the NICD surveillance programme from January to July 2020. This is a 44% reduction in IPD from the same time period in 2019 (1 309 cases reported January to July 2019), Figure 1.

In 2020, 64% (471/735) of isolates were cultured from blood specimens, 29% (214/735) from cerebrospinal fluid and 7% (50/735) from other invasive specimen types. Of those cases with known age, 18% (125/699) occurred amongst children <5 years.

There were 436 *Streptococcus pneumoniae* isolates available for serotyping and with known patient age; 17% (74/436) were in those aged <5 years, and 83% (362/436) in those ≥5 years. Twenty-five percent (108/436) were serotypes in the 13-valent pneumococcal conjugate vaccine (PCV13). Of the 74 isolates in the <5 year-old age category, 22% (16/74) were PCV13. For the age category ≥5 years, PCV13 accounted for 25% (92/362) of the

isolates. The most common disease causing serotypes in both age categories were serotypes 8 (n=68), 3 (n=34) and 19F (n=33).

The decrease in IPD episodes was seen in both the <5 years and ≥5 years age categories, and coincided with the implementation of the lockdown period beginning 28 March 2020. This reduction in IPD occurred at a time when pneumococcal disease incidence usually increases over the autumn to winter months. It may be related to reduced transmission of both bacterial and non-SARS-CoV-2 viral respiratory pathogens through various measures implemented to reduce respiratory droplet spread, such as mask wearing, physical distancing, and school/university/work-place closures. Reduced health-seeking behaviour during the national lockdown may also have impacted on this reduction in IPD. As lockdown measures ease we may begin to see an increase in IPD. IPD surveillance is ongoing and all clinical microbiology laboratories are encouraged to submit their isolates to the NICD for surveillance purposes.



**Figure 1.** Number of laboratory-confirmed invasive pneumococcal disease episodes in South Africa, reported to NICD January 2019 through July 2020 (n=2044)

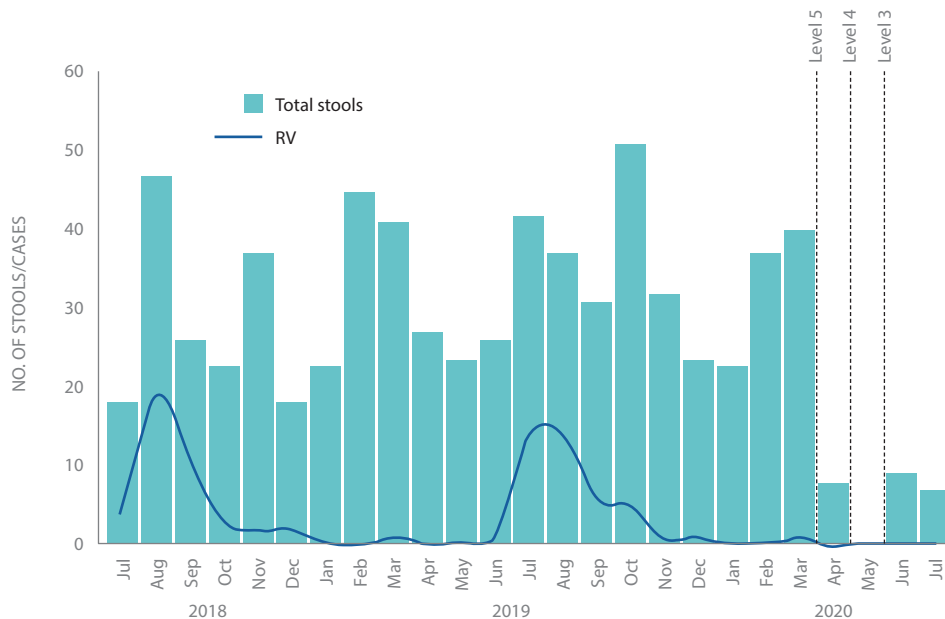
**SEASONAL DISEASES**

## Rotavirus season in the time of SARS-CoV-2

Rotavirus is a common childhood infection with a seasonal pattern, peaking during the cooler, drier months of the year. Since the rotavirus vaccine was introduced into the expanded programme of immunisation in August 2009, the annual rotavirus season in South Africa typically occurs from late June to mid-August. However, data from surveillance programmes shows that the 2020 rotavirus season has not yet started (Figure 2); only one stool specimen, collected in March, has tested positive for rotavirus this year to date.

There were concerns that the apparent delay or absence of the 2020 rotavirus season as suggested by the surveillance data, could be due to surveillance programme interruptions as a result of SARS-CoV-2. We engaged with colleagues at the major private pathology laboratories across South Africa, enquiring as to whether there had been an increase in the number of stools submitted for rotavirus testing and/or an increase in rotavirus detection in recent months. All colleagues reported the

same trends: reduced numbers of stools submitted for screening compared to last year and very few rotavirus-positive cases detected this year to date. The current hypothesis is that the non-pharmaceutical interventions implemented to reduce transmission of SARS-CoV-2, including social distancing, closing of universities, schools, crèches and workplaces, and constant messaging around hand hygiene, has contributed to decreased rotavirus transmission and an absence of the usual winter rotavirus season this year. The transition to level 2 lockdown regulations (with increased social interactions, and the opening of schools and crèches) as well as hand hygiene fatigue, may result in a delayed rotavirus season in 2020, or perhaps a higher-incidence rotavirus season in 2021. We will continue to monitor the situation closely, and take this opportunity to remind healthcare workers that children should receive rotavirus vaccine at 6 and 10 weeks of age, and that children who have missed rotavirus vaccination can be vaccinated until 8 months of age.



**Figure 2.** Rotavirus detection in diarrhoea cases recruited at three hospitals in South Africa between July 2018 and July 2020. Abbreviations: RV – Rotavirus detection

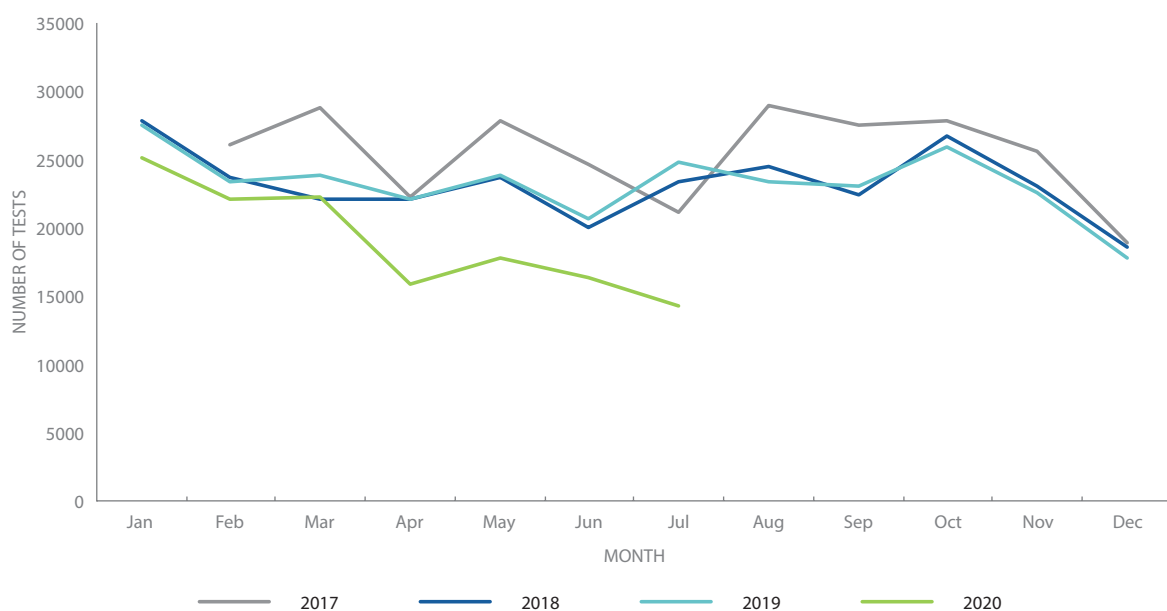
## CRYPTOCOCCAL DISEASE

## Reduced cryptococcal antigen screening among people living with advanced HIV disease during the national lockdown period for COVID-19

Since late 2016, South Africa has implemented a national cryptococcal antigen (CrAg) screening programme to reduce mortality from cryptococcal meningitis, the second leading cause of AIDS-related deaths. Screening aims to identify cryptococcal blood infection, a precursor to meningitis, in people living with HIV with a CD4 count below 100 cells/ $\mu$ L. Patients with a new positive blood screening test should have a lumbar puncture to exclude cryptococcal meningitis. In the absence of meningitis, pre-emptive antifungal treatment is required to prevent progression to meningitis.

Since February 2017, NHLS CD4 laboratories have automatically performed over 950 000 CrAg screening tests on patient blood samples with CD4 counts below 100 cells/ $\mu$ L, achieving a screening coverage of 99.0%. Screening has identified 48 060 individuals with a positive blood CrAg test, indicating a national prevalence of 6.2% among individuals with a CD4 count <100 cells/ $\mu$ L.

Historical trends in testing from 2017-2019 have been fairly consistent, with an average of 24 010 CrAg tests performed per month (Standard deviation=2 869). However, following the implementation of national lockdown measures in response to the global COVID-19 pandemic in late March 2020, CrAg screening has fallen sharply by nearly 33%, with a monthly testing average of 16 182 (Standard deviation= 1 214.5) from April through to July 2020 (Figure 3). Though a rebound was expected with a transition to lower lockdown levels, screening numbers have remained lower than average throughout the lockdown period, with the lowest levels of CrAg screening recorded in July 2020 thus far at 14 444, 38.6% lower than the historical average of 23 238 (Standard deviation=1 494).



**Figure 3.** Number of cryptococcal antigen screening tests on blood specimens with a CD4 count <100 cells/ $\mu$ L by month, January 2017 through to July 2020

## 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 4 on page 9.

### Crimean-Congo haemorrhagic fever (CCHF): Iran and Senegal

Up to 23 August 2020, Crimean-Congo haemorrhagic fever (CCHF) has claimed five lives in Iran since 21 March 2020. Over the past five months, 38 people have been diagnosed with the disease; all have recovered. In the previous reporting period, 21 March 2019 to 20 March 2020, a total of 119 people was diagnosed with CCHF in the country from, of whom 11 died.

On the basis of various studies conducted in Iran since 1972, virus circulation has been demonstrated in different regions of country. The first human clinical cases were confirmed in 1999 in western Iran after a nosocomial infection. Since then, a surveillance system has been put in place with cases reported from almost all provinces in the country.

Disease outbreaks in humans continue to be a threat because livestock hosts, tick vectors, and the virus are found nationwide. Because of common borders with disease-endemic countries and the high frequency of travel and livestock transport, control of the disease

in border areas should be more thorough, and border quarantines should be improved along with strengthened animal and human surveillance.

Meanwhile in Senegal, on 12 August 2020, health officials reported a CCHF case. The case was detected as part of the epidemiological surveillance system in the country. Previous sero-prevalence studies have highlighted that CCHF is focally endemic throughout Senegal and neighbouring countries.

To prevent outbreaks of CCHF, public awareness campaigns aimed at the populations most at risk, namely livestock farmers, butchers, and health personnel, must be conducted, and the epidemiologic alert systems need to be strengthened. In addition, conditions that enhance maintenance of the virus in nature and its transmission to humans need to be better understood so adequate control measures can be developed.

### West Nile virus (WNV): Spain

Since the beginning of the 2020 transmission season (June to November) and as of 20 August 2020, European Union (EU) Member States have reported 66 human cases of West Nile virus (WNV) infection, and six deaths through The European Surveillance System (TESSy): Greece (n=39, including six deaths), Italy (n=19), Spain (n=6), and Romania (n=2). One case was reported from the province of Verbano-Cusio-Ossola, Italy, which had not been affected in previous transmission seasons. All other cases were reported from areas that have been affected during previous transmission seasons. No cases have been reported from EU neighbouring countries.

Spain is currently experiencing an outbreak of WNV infection in its Andalusia region. A total of 38 people has so far been infected during the biggest West Nile outbreak ever detected in Andalusia. This has affected the areas of Coria del Rio and La Puebla del Rio, both located

on the banks of the Guadalquivir River. Of the 38 infected people, 23 people have been hospitalised, with seven of the patients in intensive care, according to the regional health department. The average age of those infected in the outbreak is 60 years, and 71% are men.

The virus is spread by mosquitoes, which are common in the area, given the proximity to the river. The insect numbers have grown by 30% in 2020 compared to 2019 due to the intense rainfall registered in spring, according to data from the Donana Biological Station.

In response to the outbreak, the Andalusian health department last week recommended that the 42 000 residents of the areas in question take measures to avoid mosquitoes, such as the use of repellents and nets, and activated a special protocol, which includes fumigations.



## BEYOND OUR BORDERS

## Enterohaemorrhagic *Escherichia coli* (EHEC): England

Public Health England (PHE) is investigating a spike in reports of enterohaemorrhagic *Escherichia coli* (EHEC) infections in August 2020. Potential sources of the increase in EHEC cases are not yet clear as of 23 August 2020, but recent warm weather may have played a role.

In the latest available data for the week ending 16 August 2020, there were 27 EHEC notifications. The past four weeks had seen 11, 13, six and seven cases, respectively. Based on 2019 statistics, for the week ending 18 August 2019, there were 13 EHEC notifications.

Some services at the Gastrointestinal Bacteria Reference Unit (GBRU), which is part of PHE, have been suspended due to the coronavirus pandemic. However, detection of EHEC from stool specimens and isolates using PCR and confirmation of identity and typing of *Salmonella*, *Shigella*, EHEC and *Listeria* using whole genome sequencing are continuing.

## Scrub typhus: West Bengal, India

On 21 August 2020, as many as seven people, including children, from various parts of Murshidabad, West Bengal, India, had been affected by scrub typhus in the prior 48 hours. In total, around nine people from the districts have so far been admitted to the Murshidabad Medical College and Hospital, out of which five are children. This has become a concern for the health department.

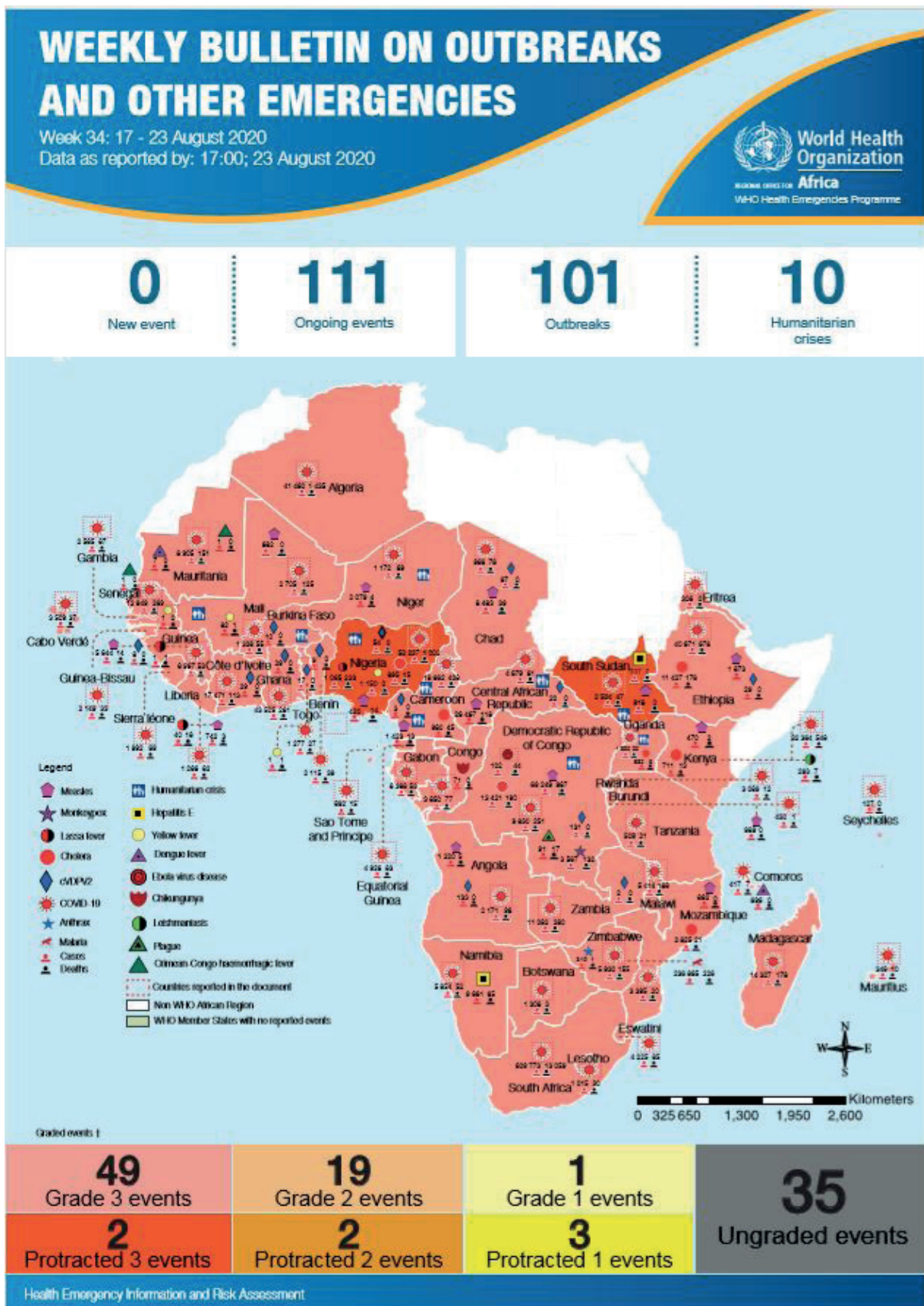
The state health department has directed the district health officials to be alert and vigilant. They have directed the hospital to be on alert if fever continues for a period of five days in a patient.

Scrub typhus, also known as bush typhus, is a disease caused by the bacterium *Orientia tsutsugamushi*, and it commonly occurs in rural areas. The disease is spread among people through the bites of infected chiggers (larval mites). The most common symptoms of scrub typhus include fever, headache, body aches and sometimes rash. Scrub typhus can be treated with antibiotics, if it is detected early. So, early detection is of the utmost importance. Globally, most cases of scrub typhus have so far been reported in rural areas of Southeast Asia, Indonesia, China, Japan, India and Northern Australia.



**Figure 4.** 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.

**WHO AFRO UPDATE**



**Figure 5.** 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 111 events. For more information see link below:

<https://apps.who.int/iris/bitstream/handle/10665/333969/OEW34-1723082020.pdf>

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**Responsible Authority**

National Institute for Communicable Diseases

**Editing and Publishing**

NICD Division of Public Health Surveillance and Response

NICD Communications Unit

Tel: 011 386 6400

Email: outbreak@nicd.ac.za

**COMMUNICABLE DISEASES****COMMUNIQUÉ**