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Editor's Note



Dr Michelle Groomé

December has thus far proven to be a COVID-19 rollercoaster ride, with laboratory-confirmed cases increasing at an unprecedented rate, initially in Gauteng and soon spreading to the other provinces. There is, however, some light at the end of the tunnel as case numbers have started to decrease in Gauteng and early data are showing that hospitalisations and deaths are not increasing at the same rate as cases. Among hospitalised individuals testing positive for COVID-19, there

seems to be decreased need for oxygen, ventilation and ICU, as well as a shorter hospital stay. Both prior infection and increasing vaccine coverage seem to be protecting us against severe COVID-19 disease. Thankfully we have managed to avoid tighter local restrictions although the travel bans have had dire consequences especially on our tourism sector. Public health interventions are still important – we need to increase our vaccine coverage, continue with the wearing of masks, social distancing, and limiting the number of people gathering indoors.

DATCOV-Gen is a prospective surveillance network linking real-time SARS-CoV-2 genome data to detailed epidemiologic and clinical data on hospitalised cases to allow rapid assessment of severity and clinical presentation of emerging SARS-CoV-2 variants. Read about the study which assessed the severity of Omicron infections compared to Delta variant using S-Gene target failure as a proxy at <https://www.nicd.ac.za/early-assessment-of-the-clinical-severity-of-the-sars-cov-2-omicron-variant-in-south-africa/>. You can keep up to date with information regarding the 4th wave through our daily and weekly reports on the NICD website (<https://www.nicd.ac.za/diseases-a-z-index/disease-index-covid-19/surveillance-reports/>).

In this month's Communiqué, we provide updates on rabies, malaria and influenza in South Africa, Ebola virus disease in the DRC, and international diseases of concern.

Have a blessed festive season and best wishes for 2022 from all of us at the NICD.

ZOONOTIC AND VECTOR-BORNE DISEASES

An update on rabies in South Africa, 2021

As of 14 December 2021, a total of 19 laboratory-confirmed human rabies cases has been reported in South Africa for 2021 (Figure 1). The cases are from Eastern Cape (n=9), KwaZulu-Natal (n=6) and Limpopo (n=4) provinces. In addition, four probable rabies cases were reported from KwaZulu-Natal (n=3) and the Eastern Cape (n=1) provinces. A probable case of rabies is defined as a person who has had a history of contact with a suspected or confirmed rabid animal and has developed an acute encephalitis with hyperactivity and paralytic signs and symptoms that progressed and resulted in death, usually by cardiac or respiratory failure, typically within ten days.

Since the previous NICD Communiqué report, three cases of human rabies were reported (these cases are included in the total provided above). Two cases were laboratory confirmed whilst a third is reported as probable. The confirmed cases were reported from KwaZulu-Natal Province (n=2). The first case involved a 10-year-old boy from eThekweni, reporting a dog bite on the leg in August 2021. The second case involved an 11-year-old boy, also from eThekweni. No dog bites or other animal exposures were reported in this case, but the area is amidst a marked outbreak of rabies in dogs. Both cases were confirmed by RT-PCR on ante-mortem collected saliva samples. The third case, categorized as a probable rabies case, involved a four-year-old child from Mapuzi, Mqanduli, OR Tambo District, Eastern Cape Province. The child was exposed to a dog at his grandparent's home. It is reported that no post-exposure management was sought, and only wound cleaning was done at home. The child died in November 2021 following clinical diagnosis of rabies. No samples were available for laboratory investigation.

Rabies is preventable in humans with prompt rabies post-exposure prophylaxis (PEP).¹ For the 23 rabies cases (19 laboratory-confirmed and 4 probable) reported in 2021 to date, several issues in the delivery of rabies PEP were noted. For 14 cases (60.9%) apparently, no post-exposure intervention was sought. For nine cases, about a third of cases, post-exposure intervention was noted, but with deviation from recommendations:¹⁻³ no rabies immunoglobulin (RIG) provided and series of four vaccinations not completed (n=3, 33.3%); no RIG but full course of vaccination (n=1, 11.1%); or received RIG but not full course of vaccination (n=2, 22.2%). For three cases (33.3%) both RIG and full course of vaccination was provided; for two of these cases, facial wounds were reported. For most cases, the course on wound treatment was not available for analysis. Rabies PEP is considered a lifesaving intervention when provided appropriately and according to international guidelines.¹⁻³ Wound treatment, including copious washing of all wounds with soap and water, is important to physically and chemically remove virus

from the wound site.¹⁻³ This can be performed at home and then repeated at the health care facility. Rabies vaccination should be provided intramuscularly with one dose administered each on days 0, 3, 7 and 14.^{1,3} Follow-up strategies are important to ensure that patients do not default the full course of vaccination. The administration of RIG is crucial in providing neutralization of virus present in and around the wound site whilst the immune response is activated following vaccination. The RIG should be infiltrated, up to the maximum calculated dosage, in and around the wound site/s, ensuring that all wound sites receive RIG.^{1,3} In some cases, sedation/general anaesthesia may be required in order to facilitate proper infiltration.

The NICD website, www.nicd.ac.za/rabies, has more information on rabies and rabies PEP.



Figure 1. Human rabies cases in South Africa for 2021 as of 14 December (created from NICD data)

¹World Health Organization. Rabies vaccines: WHO position paper – April 2018. Available from: http://www.who.int/entity/rabies/resources/who_wer9316/en/index.html (as accessed 15 August 2020).

²Standard Treatment Guidelines and Essential Medicines List for South Africa. Primary Healthcare Level, 2020 Edition, National Department of Health, South Africa. Accessed from:

<https://www.knowledgehub.org.za/elibrary/primary-healthcare-phc-standard-treatment-guidelines-and-essential-medicines-list-south>.

³Draft National Guidelines for the Prevention of Rabies in Humans in South Africa, September 2021. Accessed from: www.nicd.ac.za/rabies

INTERNATIONAL OUTBREAKS OF IMPORTANCE**An update on the Ebola virus disease, DRC**

As of 11 December, no new cases of Ebola virus disease (EVD) have been reported in the preceding 39 days, with the total number of cases remaining 11, eight of which were confirmed (including three community deaths) and three probable cases in Beni Health Zone. This brings the case fatality rate to 81.8% (9/11) with two EVD survivors who have been registered. Thus far, three of the 18 health areas in Beni Health Zone have reported confirmed cases, six of which were reported in Butsili and one each in Bundji and Ngilinga respectively. Children under five years of age accounted for 50.0% (4/8) of the confirmed cases.

On 10 December, In Beni Health Zone, 295 new alerts including nine deaths were notified. A total of 378 alerts was notified from six health zones, out of which 376 (99.5%) were investigated, 31 were validated as suspected cases of EVD and all were sampled for laboratory testing.

A total of 1 508 persons has been vaccinated since the onset of the campaign including 98 high risk contacts, 300 contacts of contacts and 258 probable contacts, with either rVSV-ZEBOV-GP or ERVEBO vaccines.

Alert monitoring is ongoing through both active case finding and passive surveillance. Radio stations and newsletters in three different languages have been utilized to spread awareness on the risks of EVD. The bodies of all nine of the reported community deaths were secured and two dignified and safe burials were carried out.

With six days remaining until the end of the EVD outbreak in Beni Health Zone can be declared, the country is on course to have successfully controlled its 13th EVD outbreak. While there are currently no contacts under active follow-up, those seven lost to follow-up remain a concern. Resource limitations continue to hamper activities against EVD in Beni. There is an ongoing need to strengthen community engagement to improve uptake of EVD preventive measures, especially vaccination. Challenges around community surveillance, contact follow-up and other response measures need urgent action.

SEASONAL DISEASES

Influenza, 2021 – Influenza activity continues

In recent weeks, the influenza-like illness (ILI) (outpatients in primary health clinics) and pneumonia (hospital) surveillance sentinel sites have seen a continued increase in influenza cases. As of week 48 of 2021 (week ending 5 December 2021), the total number of influenza cases detected by the NICD's syndromic sentinel surveillance programs had increased from 246 in week 45 (date of last communiqué) to 367.

As of week 48 2021, 193 influenza detections at pneumonia surveillance sentinel sites have been reported with the predominant subtype and lineage being influenza A (H1N1) pdm09 (65/193, 33.7%) followed by B Victoria (53/193, 27.4%) and A (H3N2) (29/193, 15.0%) (Figure 2). For the ILI sentinel sites, 174 influenza cases have been reported, with the predominant subtype and lineage being A (H1N1)pdm09 (58/174, 33.3%) followed by B Victoria (51/174, 29.3%) and A (H3N2) (19/174, 10.9%) (Figure 2). The detection rate in the past few weeks has been higher than the mean detection rate for 2010-2019 and 2013-2019 for pneumonia surveillance and ILI respectively.

During this time of co-circulation of influenza and SARS-CoV-2, when treating patients who present with respiratory illness, clinicians should also consider influenza as a differential diagnosis. Because of recent changes in respiratory virus epidemiology as a result of non-pharmaceutical interventions (NPI) to control COVID-19, it is possible that influenza detections will continue to rise even during the summer months, especially if NPI compliance is relaxed. Individuals at increased risk of severe influenza illness or complications are encouraged to seek medical attention early. Individuals who are at risk of severe influenza illness include the elderly ≥ 65 years, children < 2 years, individuals with underlying conditions (diabetes, chronic pulmonary and cardiac conditions) and those who are immunocompromised. Updated guidelines on influenza diagnosis and management are available at:

https://www.nicd.ac.za/wp-content/uploads/2021/07/Influenza-guidelines_-April-2021-final.pdf

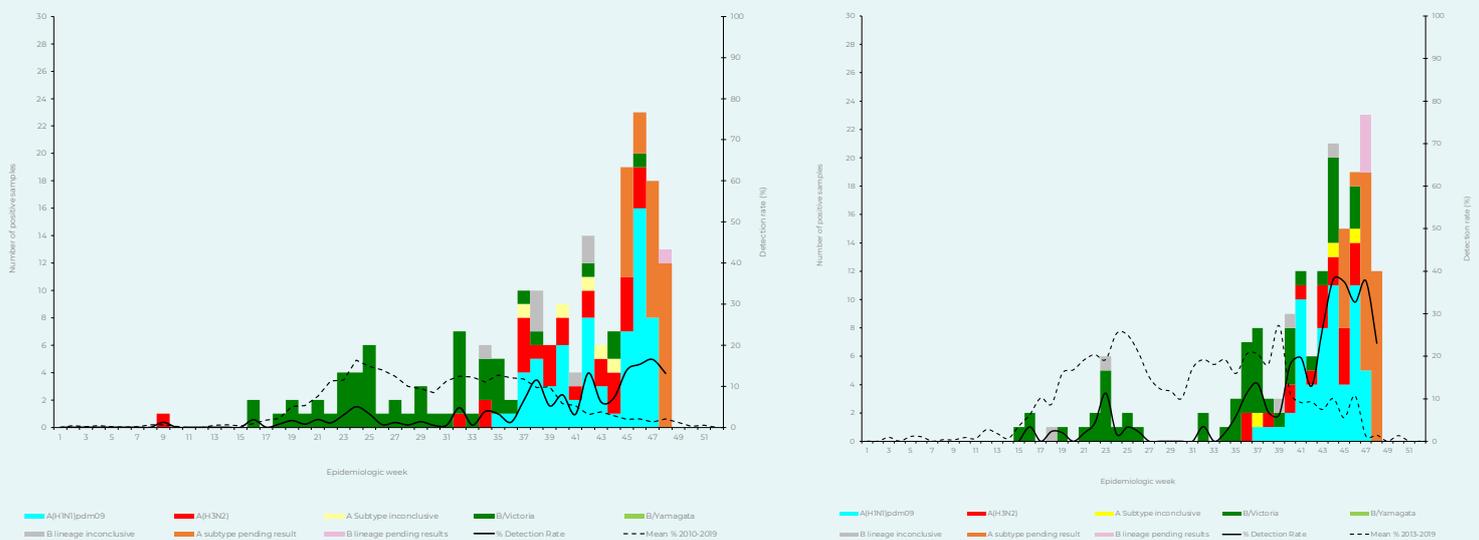


Figure 2. Number of positive cases by influenza subtype and lineage and detection rate, pneumonia surveillance (left) and ILI surveillance (right), 1 January – 5 December 2021

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

SEASONAL DISEASES

Malaria - Highlights from the WHO World Malaria Report, 2021

As 2021 draws to a close, the latest World Malaria Report from the WHO contains interesting information about one of the world's major public health problems, mainly reflecting 2020 data. The global burden of malaria increased to 241 million in 2020 from 227 million in 2019. Most of the increase was in countries in the WHO African Region, which bears 95% of the world's burden of malaria cases. Six countries (Nigeria, DRC, Uganda, Mozambique, Angola, and Burkina Faso) currently account for over half of all malaria cases and deaths. While the malaria mortality rate reduced by 63% between 2000 and 2019 from 150 to 56/100 000, it rose in 2020 to 62/100 000 population at risk.

Despite worst-case scenario fears about the effects of the COVID-19 pandemic on malaria, in most cases disruptions were moderate, and most malaria-endemic countries maintained essential malaria services.

The emergence of partial resistance to artemisinin drugs in the WHO African Region is a major concern, although artemisinin-based combinations are presently still effective. A priority is to improve surveillance of treatment efficacy and genotypical markers of resistance; the NICD's Antimalarial Resistance

Monitoring and Malaria Operational Research Lab is providing this service in South Africa.

After several years of evaluation studies of the RTS,S/AS01 malaria vaccine, including large-scale introduction in Ghana, Kenya and Malawi, the WHO recommended that the vaccine be used in children living in regions with moderate to high malaria transmission. This does not apply to South Africa and other low-transmission southern African countries.

From the diagnostic aspect, deletions in the *Plasmodium falciparum* parasite's *pfhrp2/3* genes makes them undetectable by the usual rapid diagnostic tests, which are based on detecting histidine-rich protein 2 (HRP2). There are limited alternatives, and therefore the WHO has called for urgent action to address increasing prevalence of *pfhrp2* deletions in endemic countries, particularly in the Horn of Africa. They have been confirmed in DRC, Djibouti, Ethiopia, Ghana, Sudan, Uganda, and Tanzania. To date, the NICD's surveillance has not detected any *pfhrp2* deletions in South African malaria parasites.

The full report is available online: <https://www.who.int/teams/global-malaria-programme>

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 3 on page 7.

Ross River fever – Queensland, Australia

A total of 753 Ross River fever cases has been reported from Queensland, Australia, in 2021. This represents a 75% decrease from the previous year. Ross River virus is the most common mosquito-borne pathogen in Australia, and there can be up to 5 000 human cases seen annually. The disease is not fatal but is associated with considerable morbidity from a debilitating polyarthritis.

Ross River fever is a mosquito-borne disease caused by infection with the Ross River virus, a small encapsulated single-stranded RNA alphavirus. The virus can be found in over 40 different species of mosquitoes across Australia and infections commonly increase during the rainy season, from January to April. Ross River virus is endemic in Australia and Papua New Guinea.

Ross River virus is transmitted to humans from an infected mosquito and the incubation period ranges between 3 to 21 days. Most people usually experience symptoms within the first week of infection. The illness is characterised by flu-like symptoms, a polyarthritis, and a maculopapular rash. The arthritis is symmetrical and mostly involves peripheral joints. Most of the symptoms resolve after a few weeks; however, the arthritis may persist for more than six months. No fatalities have ever been reported from Ross River fever.

Treatment for Ross River fever is mainly supportive. Personal protection from mosquito bites and the environmental management of mosquitoes remain the most important measures that can be taken to prevent illness.

Onchocerciasis – Uganda

Uganda has reported a re-emergence of Onchocerciasis, also known as river blindness, in the region. Ten years ago, Uganda had successfully instituted mechanisms to interrupt transmission of river blindness by spraying chemicals that killed blackflies, which resulted in a dramatic decrease in the number of infections over the last few years. However, it has been noted that following a decrease in deployment of the airplanes that spray the chemicals, the number of black flies is increasing.

Onchocerciasis is a neglected tropical disease caused by the nematode *Onchocerca volvulus*. The disease is transmitted to humans through bites from blackflies, which are mostly found near fast-flowing streams and rivers (hence the name river blindness). Humans become infected when a blackfly deposits infective larvae into the skin. These larvae then mature into adults within 12-18 months. Nodules form around the mature worms, and inside the nodules, the worms are protected from the human immune response. The adult worms can live for 10 to 15 years inside the human body, and they produce larvae daily that have a lifespan of 12 to 15 months.

Some people may not experience any symptoms once infected as the larvae can migrate through the body without provoking a response from the immune system. Those who do experience symptomatic disease may complain of skin rashes, nodules under the skin and vision changes. The inflammation caused by larvae that die in the eye initially results in reversible injury on the cornea, that without treatment, can progress to permanent clouding of the cornea, causing permanent blindness. There can also be associated inflammation of the optic nerve also causing the blindness.

The recommended treatment for onchocerciasis is ivermectin, which must be given every six months for the entire life span of the adult worms (10–15 years) or for as long as the infected person has evidence of infection. Ivermectin kills the larvae and prevents them from causing injury to the eyes, but it does not kill the adults. Doxycycline has been used as a promising treatment that kills the adult worms by eliminating the *Wolbachia* symbiotic bacteria on which the adult worms depend.

BEYOND OUR BORDERS

Rift Valley fever – Senegal

An outbreak of Rift Valley fever (RVF) is ongoing in Senegal. The outbreak was declared by health authorities after confirmation of the first case on 10 November 2021 by the Pasteur Institute of Dakar.

RVF is an acute viral disease that usually causes illness in domestic animals but can also infect humans. The disease is caused by RVF virus, a member of the genus *Phlebovirus*. Most people with RVF recover within one week, and only about 1% of people who get RVF die.

The virus can be transmitted to humans through the bite of infected mosquitoes or by coming into direct contact with infected animals (commonly livestock such as cattle, sheep and goats) or their tissues or bodily fluids. Human to human transmission has not been reported.

RVF has an incubation period of 2 to 6 days following exposure to the virus. For most people, the disease is mild and self-limiting. Mild symptoms include fever, weakness, back pain and dizziness. A small percentage of patients (8 – 10%) may experience severe disease manifestations such as ocular disease, encephalitis, and haemorrhagic fever. Haemorrhagic fever occurs in less than 1% of all RVF patients. The case fatality for patients who do develop haemorrhagic fever is however high, at 50%.

There is a vaccine available for animals but not for humans. The only measures available to prevent RVF virus infection are to avoid mosquito bites or contact with infected animals and their products. Treatment for more serious disease manifestations may require hospitalisation and supportive care.



Source: Promed (www.promedmail.org), World Health Organization (www.who.int), Centres for Disease Control and Prevention (www.cdc.gov), World Organisation for Animal Health (www.oie.int), National Institute for Communicable Diseases (www.nicd.ac.za); Outbreak News Today (www.outbreaknewstoday.com)

WHO AFRO UPDATE

WEEKLY BULLETIN ON OUTBREAKS AND OTHER EMERGENCIES

Week 50: 6 – 12 December 2021
Data as reported by: 17:00; 12 December 2021

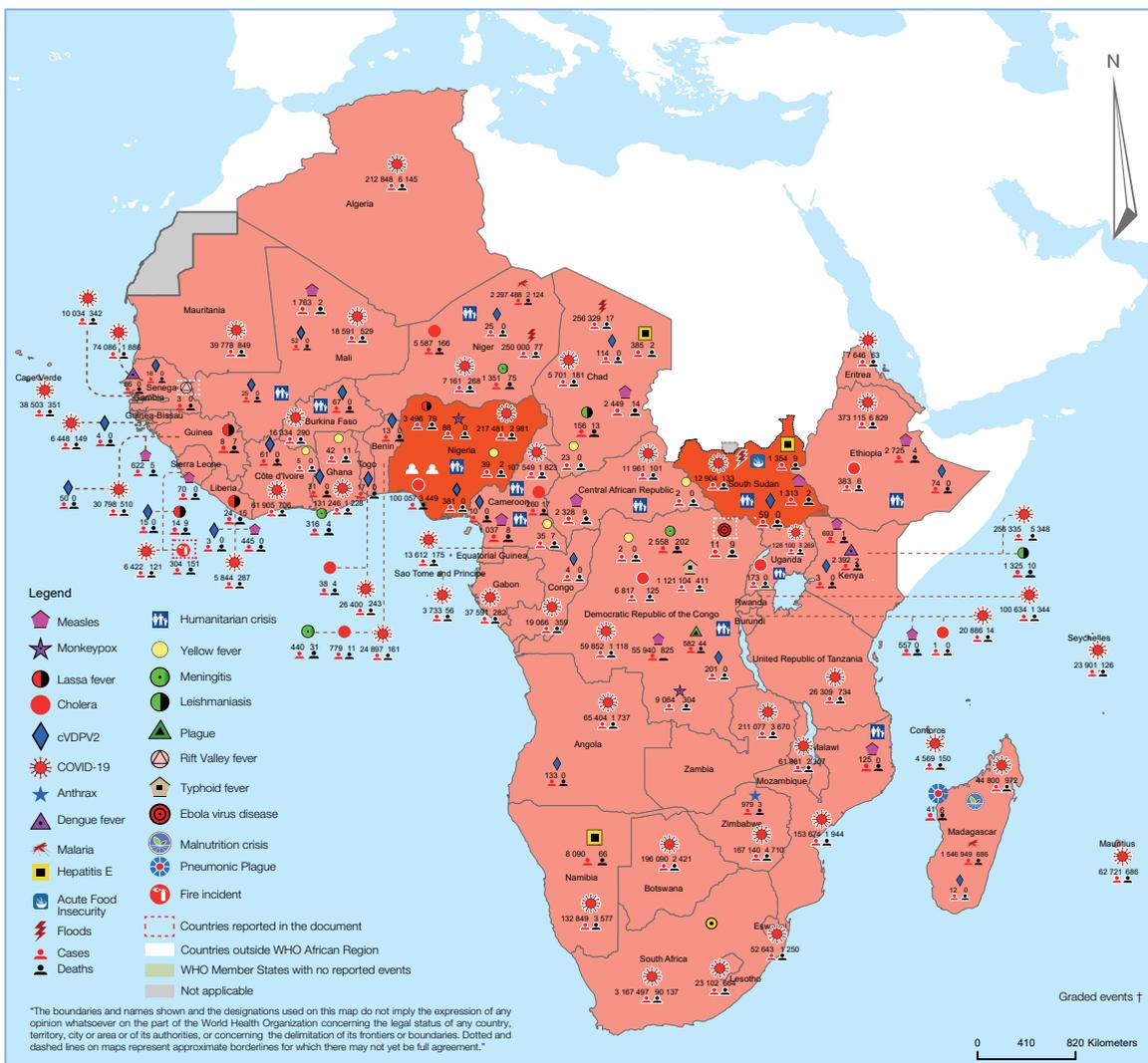


0 New event

140 Ongoing events

123 Outbreaks

17 Humanitarian crises



3 Grade 3 events	38 Grade 2 events	2 Grade 1 events	41 Ungraded events
3 Protracted 3 events	4 Protracted 2 events	3 Protracted 1 events	

Health Emergency Information and Risk Assessment

Figure 4. 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 140 events. For more information, see link below:
<https://apps.who.int/iris/bitstream/handle/10665/350534/OEW50-0612122021.pdf>

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