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

COMMUNICABLE DISEASES COMMUNIQUÉ

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CONTENTS

Editor's Note

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In this month's edition we describe the clinical presentation, diagnosis and management of the first laboratory-confirmed imported case of a Hantavirus infection in South Africa. A South African businessman, living and working in Croatia, returned home for a visit and was hospitalised in Johannesburg with an acute febrile illness and renal dysfunction.

Foodborne diseases are an important cause of morbidity and mortality worldwide, affecting individuals of all ages but particularly those in low-middle income countries and young children. We provide a comprehensive overview of the epidemiology, aetiology, clinical presentation, diagnosis, management and prevention of common foodborne diseases.

Since the start of the COVID-19, circulation of the influenza virus has been lower than previous years. However, with relaxation of some of the restrictions this season, we may observe more cases than last year. It is possible that the influenza season may coincide with an increase in the number of COVID-19 cases, making it important for health providers to encourage their high-risk patients to get vaccinated for influenza. The predicted increase in vector breeding due to higher rainfall and temperatures has not translated into higher reported malaria cases, with numbers in the 2020-2021 season considerably reduced compared with the same period for the 2019-2020 season.

Beyond our borders, the Ebola Virus Disease outbreak in the Democratic Republic of Congo was declared over on 3 May 2021. However, 15 cases of bubonic plague were reported in the north-eastern province of Ituri since April 2021, 10 of which died. In Uganda's eastern district of Kween, 15 people have been infected with anthrax since mid-April 2021, and one has died. The Dominican Republic has reported 12 cases of diphtheria with nine deaths.

ZOONOTIC AND VECTOR-BORNE DISEASES

An update on rabies in South Africa

For 2021 to date, two human cases have been laboratory confirmed in South Africa. These cases were reported from KwaZulu-Natal and Limpopo provinces. Nearly all human rabies cases in South Africa are associated with exposures to rabid domestic dogs. As such, rabies is most effectively managed through control in domestic dog populations. This is achieved through parenteral rabies vaccination. The latter is mandated by law as the responsibility of pet owners. However, in many communities, stray and free-roaming dog populations confound rabies management efforts. Rabies infection in humans can also be prevented through rabies post-exposure prophylaxis. When an exposure occurs, it is imperative that all wounds, however small, are washed copiously with water and soap. This is followed by administration of rabies vaccine and immunoglobulin therapy. For more information on rabies and disease prevention, please visit the NICD website: https://www.nicd.ac.za/diseases-a-z-index/rabies/.

An imported case of hantavirus haemorrhagic fever with renal syndrome

The first laboratory-confirmed imported case of a hantavirus infection in South Africa was recorded in May 2021. The case involved a 37-year-old South African businessman, living and working in Crikvenica, Croatia. He had been ill prior to a return visit to South Africa, and was hospitalised in Johannesburg with acute febrile illness and renal dysfunction. He presented with moderate thrombocytopenia, a normal white cell count and marginally raised liver enzyme levels. Other symptoms included pulmonary oedema, cardiomegaly and blurred vision. Before developing illness, the patient visited horse stables located in a rural area in Croatia. The presence of rodents in such an area can be anticipated. Hantavirus haemorrhagic fever with renal syndrome (HFRS) was suspected given his clinical presentation and epidemiological history; another visitor to the stables was confirmed with hantavirus infection, which contributed to the suspicion of the disease in this patient. A serum sample (taken day 10 post-onset of symptoms) was submitted to the NICD for investigation. The hantavirus RT-PCR tested negative, but serological screening using an Old World hantavirus panel indicated reactivity for anti-IgG and anti-IgM. An earlier-collected sample was sourced and a positive hantavirus RT-PCR result was obtained. Subsequent sequencing analysis indicated Puumala virus (PUUV) as the causative agent of the patient's disease.

Croatia is endemic for HFRS associated with two different hantaviruses, namely PUUV and Dobrava virus (DOBV). Humans are exposed to hantavirus through contact with aerosolised urine, droppings, saliva or nesting materials of infected rodents, which are the natural reservoir hosts. Transmission occurs through contact with mucous membranes (eyes, nose, mouth) or broken skin. Human behaviour plays a role in infection, with activities related to forestry, farming or outdoor activities considered risk factors. Hantaviruses are not readily transmissible from human-to-human, but infection prevention control measures are appropriate to avoid possible nosocomial transmission. There is no specific prophylaxis or therapy for HFRS, and symptomatic treatment is provided. Increases in HFRS diagnosis in Europe in the last decade, warrant its consideration as a differential diagnosis, especially in travellers with suggestive clinical symptoms.

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

ENTERIC DISEASES

Focus on foodborne diseases

Burden of Disease: Foodborne diseases result in significant morbidity and mortality worldwide, affecting persons of all ages, but in particular individuals living in low- and middle-income regions of the world and children younger than five years of age. The full extent and economic cost of unsafe food remains unknown. A report prepared by the World Health Organization Foodborne Disease Burden Epidemiology Group estimates that 31 foodborne hazards resulted in an estimated 600 (95% uncertainty interval (UI) 420-960) million foodborne illnesses and 420 000 (95% UI 310 000- 600 000) deaths globally in 2010.

Epidemiology: Foodborne diseases result from ingestion of a wide variety of foods contaminated with pathogenic microorganisms (viruses, bacteria, parasites, marine organisms, fungi), microbial toxins (bacterial, marine organisms, fungal) or chemicals (e.g. organophosphates, carbamates). Foodborne diseases can result from contamination of food at any stage of the food production, delivery and consumption chain as well as through unsafe food storage and processing, or environmental contamination. Most foodborne agents can also be transmitted through routes other than food, such as ingestion of contaminated water or contact with infected farm animals, pets or humans. Over two hundred foodborne diseases have been described.

Norovirus is responsible for almost 20% of the total foodborne diseases burden worldwide; common food vehicles include fresh and ready-to-eat produce, fresh and frozen berries, raw/undercooked bivalve mollusks. *Salmonella, Campylobacter,* and enterohaemorrhagic *Escherichia* coli are among the most common bacterial foodborne pathogens. Foods implicated in outbreaks of salmonellosis include eggs, meat (particularly poultry), fresh produce, dairy products, and nuts; campylobacteriosis is mainly associated with meat (particularly poultry), and raw dairy products; and enterohaemorrhagic *Escherichia coli* is associated with meat (particularly beef), and fresh produce. *Listeria* is found in a range of food commodities, including unpasteurised dairy products, meat and seafood, fresh produce, and various ready-to-eat foods; while hepatitis A virus spreads typically through raw or undercooked seafood or contaminated raw produce. Infected food handlers can also be the source of food contamination for several pathogens, particularly norovirus, hepatitis A, and salmonellosis.

The landscape of foodborne diseases is ever expanding. Noroviruses are now recognised as the commonest cause of foodborne disease in the United States, known agents are newly identified as aetiological agents of foodborne illness (including enteroaggregative *E. coli*), novel diarrhoeagenic *E. coli* strains that produce Shiga toxin have emerged, and many pathogens have developed drug resistance. Previously unrecognised food vehicles have been identified as important sources of infection, for example fresh produce, nuts, and frozen foods.

Foodborne diseases are often recognised by the typical clinical features that they produce and putative incubation period. Features of the more common infectious foodborne diseases are summarised in Table 1.

Table 1: Common infectious causes of foodborne disease

Aetiologic Agent	Incubation Period	Clinical Syndrome
Bacillus cereus – vomiting toxin	1-6 hours	Vomiting; some patients with diarrhoea; fever uncommon
Bacillus cereus –diarrhoeal toxin	6-24 hours	Diarrhoea, abdominal cramps, and vomiting in some patients; fever uncommon
Campylobacter jejuni/coli	2-10 days	Diarrhoea (often bloody), abdominal pain, fever
Clostridium perfringens	6-24 hours	Diarrhoea, abdominal cramps; vomiting and fever uncommon
Escherichia coli-enterohemorrhagic/Shiga toxin-producing (*E.coli* O157:H7 and others)	1-10 days; usually 3-4 days	Diarrhoea (often bloody), abdominal cramps (often severe), little or no fever
Escherichia coli-enterotoxigenic (ETEC)	6-48 hours	Diarrhoea, abdominal cramps, nausea; vomiting and fever less common
Escherichia coli-enteropathogenic (EPEC)	Variable	Diarrhoea, fever, abdominal cramps
Escherichia coli-enteroinvasive (EIEC)	Variable	Diarrhoea (might be bloody), fever, abdominal cramps

ENTERIC DISEASES

Aetiologic Agent	Incubation Period	Clinical Syndrome
Listeria monocytogenes- invasive disease	2-6 weeks	Meningitis, neonatal sepsis, fever
Listeria monocytogenes- diarrhoeal disease	Unknown	Diarrhoea, abdominal cramps, fever
Nontyphoidal *Salmonella*	6 hours – 10 days; usually 6-48 hours	Diarrhoea, often with fever and abdominal cramps
Salmonella Typhi	3-60 days; usually 7-14 days	Fever, anorexia, malaise, headache, and myalgia; sometimes diarrhoea or constipation
Shigella spp.	12 hours-6 days; usually 2-4 days	Diarrhoea (sometimes bloody), often accompanied by fever and abdominal cramps
Staphylococcus aureus	30 minutes- 8 hours; usually 2-4 hours	Vomiting, diarrhoea
Norovirus	18-72 hours; usually 24-48 hours	Abdominal cramps, vomiting, diarrhoea; fever in about 50% of cases
Hepatitis A	15-48 days; usually about 30 days	Systemic illness (typically jaundice)

Modified from: Centers for Disease Control and Prevention; Guide to Confirming an Etiology in Foodborne Disease Outbreak

Individuals at extremes of age, young children, pregnant women and immunocompromised persons are at higher risk of acquiring foodborne disease or experiencing more severe illness. Some foodborne illnesses can result in long-term sequelae such as impaired renal function following haemolytic uraemic syndrome (induced by Shiga toxin-producing *Escherichia coli*), reactive arthritis following campylobacteriosis, shigellosis or nontyphoidal salmonellosis, and Guillain-Barré syndrome following campylobacteriosis.

Sporadic foodborne disease: Most foodborne illnesses are sporadic and many people with foodborne illness do not seek medical care. The healthcare practitioner should always consider a foodborne (or waterborne) origin of a gastrointestinal illness and the potential that more people are affected.

Foodborne disease outbreaks: A foodborne disease outbreak should be considered when an acute illness, especially with gastrointestinal or neurologic manifestations, affects two or more people who shared a meal. Outbreaks may be localised to a few people who ate a common meal or product or geographically widespread, for example if food is contaminated prior to distribution and is widely consumed by many people in many areas. In South Africa, a foodborne disease outbreak is a category 1 notifiable medical condition, defined as 'an incident in which two or more persons experience a similar illness (gastrointestinal) and are epidemiologically linked'. Reporting of potential outbreaks is essential to trigger timely investigation.

Laboratory diagnosis: The majority of acute diarrhoeal episodes are mild, self-resolving and uncomplicated and do not require diagnostic testing. However, in the context of a possible outbreak, laboratory diagnosis is important to identify additional cases and investigate possible sources of infection. Specimens from multiple patients, as well as samples from food, food preparation environments and food handlers may be tested to identify the aetiological agent. Bacterial pathogens are typically isolated by culture, which also allows for antimicrobial susceptibility testing and subtyping. Parasites require microscopic visualisation, and antigens or toxins of infectious agents may be detected in stool or food samples. Not all laboratories are able to offer testing for the relevant pathogens; some bacteria have specific growth requirements, and testing for the preformed enteric toxins of *S. aureus, B. cereus* and *C. perfringens* is only available at public health laboratories or at food microbiological laboratories. Molecular diagnostic tests are required to detect enteric viruses.

Management: Supportive treatment, particularly fluid and electrolyte replacement (over-the-counter oral rehydration fluids or intravenous solutions) is the cornerstone of management of foodborne illnesses. Antiemetics and antimotility agents are usually not recommended for children and are contraindicated in adult patients with high fever, bloody diarrhoea or faecal leucocytes indicating invasive diarrhoea. Most bacterial diarrhoeal diseases are self-limiting and do not require antibiotic treatment in otherwise healthy hosts not at the extremes of age. Antibiotic therapy is indicated only in selected bacterial infections (See Table 2).

ENTERIC DISEASES

Table 2: Antibiotic therapy for common bacterial pathogens causing foodborne disease

Usefulness of Antibiotics	Example organisms
Antibiotics are indicated for patients with moderate- to- severe disease only	*Shigella* spp; enteroinvasive *Escherichia coli*, enterotoxigenic *E. coli*
Antibiotics are only indicated for patients with severe or prolonged illness, or in immunocompromised hosts	*Campylobacter jejuni*
Antibiotics may prolong excretion of organisms. Antibiotics should only be used in persons at high risk of developing invasive disease (adults >50 years with atherosclerosis, infants <12 months, persons with cardiac or joint prostheses, immunocompromised persons)	Nontyphoidal *Salmonella* spp.
Antibiotics have demonstrated no clear benefit and in some studies, particularly in children, may increase risk for complications (such as haemolytic-uraemic syndrome).	Shiga toxin-producing *E. coli*

Modified from Mandell, Douglas, and Bennett's Principles and Practice of Infectious Diseases, 8th Ed.

Prevention: Contamination of food may occur at any stage in the process from 'farm-to-table'. While the primary responsibility for food safety lies with food producers, a large proportion of foodborne disease incidents are caused by foods improperly prepared or mishandled at home, in food service establishments or at markets. Food handlers, consumers and travelers should practice the WHO's 'Five Keys to Safer Food'; the core messages of which are: (1) keep clean; (2) separate raw and cooked; (3) cook thoroughly; (4) keep food at safe temperatures; and (5) use safe water and raw materials. Travelers should also make use of available vaccines to prevent foodborne diseases.

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

INTERNATIONAL OUTBREAKS OF IMPORTANCE

An update on Ebola virus disease outbreak, DRC and Guinea

The Democratic Republic of Congo (DRC) declared its 12th Ebola Virus Disease (EVD) outbreak on 7 February 2021 in North Kivu Province, in the northeast part of the country. After three months, and 42 days after the last patient returned a negative test, the outbreak was declared over on 3 May 2021. This outbreak involved a total of 12 cases, 11 of which were confirmed, and included six deaths. No new cases were reported after 1 March 2021, and the last patient was discharged from the treatment facility on 21 March 2021.

Meanwhile, in Guinea, no new confirmed EVD cases have been reported in Nzerekore prefecture, the site of the current EVD outbreak, since 8 April 2021. This is 43 consecutive days with no new confirmed cases. However, 26 new suspected cases were notified, one of whom was transferred to an isolation centre. Four cases were sampled and 21 refused sampling.

As of 16 May 2021, a total of 23 EVD cases has been reported in Guinea, including 16 confirmed and seven probable cases, with 12 deaths (case fatality ratio 52.2%). The number of infected health workers remains five. Females and persons over 40 years are most affected. On 16 May 2021, 66 new alerts were reported in Nzerekore, 32 of which were investigated and 26 were validated, including 5 deaths. 17 new alerts in neighbouring prefectures were also reported, including 9 community deaths. All alerts were investigated, none of which were validated.

A 42-day countdown in anticipation of the end of the outbreak (19 June 2021) began on 8 May 2021. Enhanced surveillance and continued support is ongoing during this period. A total of 10 081 people has been vaccinated, including 622 high-risk contacts, 8 925 contacts-of-contacts and 534 probable contacts. Among those vaccinated, 2 714 are frontline workers.

Infection prevention and control (IPC) activities, including health worker training on swab collection and biosafety is ongoing.

As the 42-day countdown to the end of the outbreak progresses, now at day 34, the situation remains unstable as Guinea continues to experience challenges around locating contacts lost to follow-up, sampling and isolating suspected patients and the continuing presence of a confirmed case within the community. Community surveillance remains poor, with most alerts reported through active case finding and poor 24-hour follow-up which is challenged by resistance to testing from suspected cases. An established funding gap for response activities will seriously impact continued surveillance and the required strengthening in contact follow-up and alert reporting if not urgently addressed.

As of 26 May 2021, there are no EVD cases reported in South Africa associated with the current outbreak in Guinea. In addition, there are no suspected cases of EVD in South Africa at present.

Source:MSF Ebola Outbreak report: https://www.msf.org/drc-ebola-outbreak-crisis-update; WHO: www.who.int; WHO-AFRO, Division of Public Health Surveillance and Response, NICD-NHLS; (outbreak@nicd.ac.za)

SEASONAL DISEASES

Influenza, 2021

Since mid-April 2021, 11 detections of influenza have been made in the two NICD syndromic surveillance for respiratory illness programmes, namely one influenza A(H3N2) and 10 influenza Bs. To date, six of the influenza Bs have been further identified as B/Victoria (Figure 1). Eight of the influenza cases were admitted with severe respiratory illness and three presented with mild illness as outpatients. Six of the patients were from KwaZulu-Natal Province, three from Gauteng Province and one each from the North West and Western Cape provinces.

Since the Viral Watch influenza sentinel surveillance programme started in 1984, the influenza season has rarely started with influenza B, which more commonly occurs at the end of the season. In the first decade of the Viral Watch, influenza B started the season in 1986 and 1994, though far fewer specimens were received and the programme was only active in Gauteng Province. The last time the influenza season started with influenza B, was in 2016.

Since the COVID-19 pandemic started, the influenza circulation has been much lower than we are accustomed to seeing at this time of the year. However, it is important not to lose sight of the fact that we may still experience an influenza season and that there is the chance that the influenza season may coincide with an increase in the number of COVID-19 cases. It is important for health-providers to encourage their patients to get vaccinated for influenza, especially those who are at increased risk of severe influenza illness or complications. Information of individuals at increased risk of severe influenza illness or complications can be accessed on: https://www.nicd.ac.za/wp-content/uploads/2021/04/Influenza-guidelines_-April-2021-final.pdf

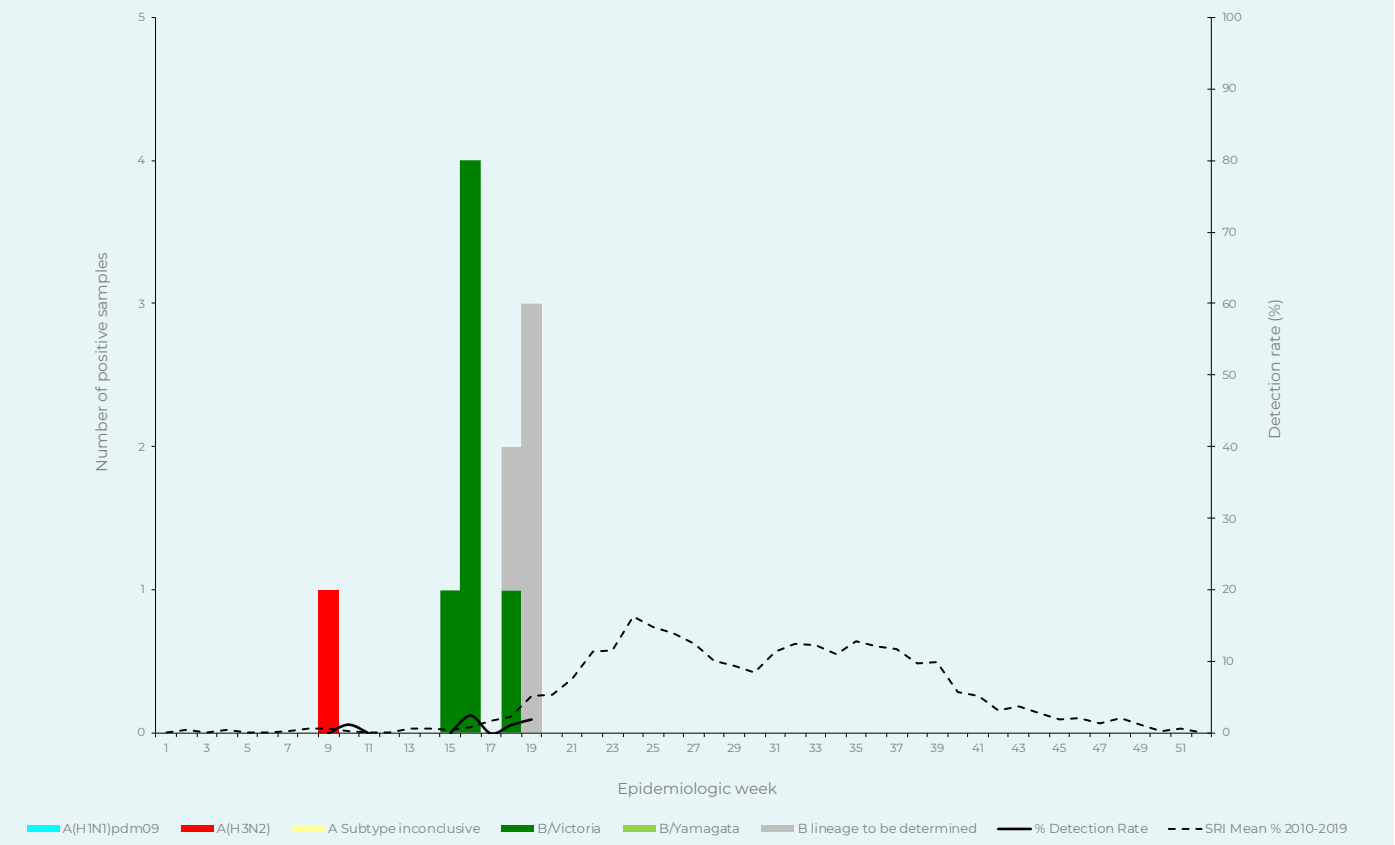

Figure 1. Influenza detection by type and subtype and detection rate by epidemiologic week, influenza-like illness (ILI) and pneumonia surveillance, 2021

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

SEASONAL DISEASES

Malaria
Malaria transmission season 2020-2021

Even though the month of May is generally regarded as the end of the high malaria risk season in South Africa, no month of the year is without reports of malaria, as importation and local transmission continue during winter. While the currently available malaria case data are preliminary and may change as they are updated and verified, it is clear that reported malaria case numbers in the 2020-2021 season have reduced by about 60%, compared with the same period (September- April) for the 2019-2020 season. Despite imported cases comprising similar proportions of the totals in both 2019-2020 and 2020-2021 seasons, the overall case numbers have reduced considerably. Although the COVID-19 pandemic is known to have had negative effects on some individual patients with malaria, such as illness or mortality due to delayed and/or missed infections, border closures and travel restrictions, both internal and external, appear to have contributed to the reductions in the reported numbers of malaria cases. Anticipation of the potential negative effects of the pandemic on malaria, and efforts to adapt to circumstances and to mitigate these, have probably helped maintain the provincial malaria control programmes' functions. The predicted increase in vector breeding due to higher rainfall and summer temperatures in some areas apparently did not translate into higher reported malaria cases. However, the caveat is that reporting efficiency may have diminished due to reduced health services capacity and resources.

Source: Centre for Emerging Zoonotic and Parasitic Diseases, NICD-NHLS; johnf@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 10.

Plague: Democratic Republic of Congo

The Democratic Republic of Congo (DRC) has reported 15 cases of bubonic plague in the north-eastern province of Ituri since April 2021. Of these, 10 cases have demised. While Ituri is considered endemic for the disease, 2020 saw a total of 420 cases compared to the 48 cases reported in the DRC in 2019 and 133 in 2018. The recent outbreak was detected following investigations of the death of five family members who all had similar clinical presentations.

Historically, plague is known to have caused three major pandemics across Asia, Europe and Africa over the past 1 500 years. Prior to the discovery of antibiotics and an understanding of infection prevention, transmission of the disease was rapid and had a high mortality rate, killing over 150 million people. While plague is now detected in many parts of the world, the most endemic countries are the DRC, Madagascar and Peru.

Yersinia pestis, the causative agent of plague, is found most commonly in rodents. Transmission to mammals, including humans, are primarily vector-borne through fleas, but may also occur through direct contact or airborne routes of transmission.

The three most common clinical manifestations of plague are, in order of increasing severity: bubonic, septicaemic and pneumonic. While one form of plague may complicate into the next, each manifestation may also be the primary presentation of the different modes of transmission. General symptoms common to all manifestations include a fever, headache and generalised weakness. Bubonic plague, contracted through flea bites, present with swollen, painful lymph nodes that may become suppurating open sores. Septicaemic plague may also be acquired through flea bites or through contact with infected animals. This form of plague presents with signs of haemorrhage, which may lead to shock. Pneumonic plague is contracted through inhalation of respiratory droplets or aerosolised bacteria. Patients present with pneumonia – with cough, shortness of breath and chest pain – and may complicate to develop respiratory failure. Pneumonic plague can spread from person to person through respiratory droplets. All forms of plague are treatable with supportive care and prompt antibiotic therapy.

Prevention strategies to reduce transmission, morbidity and mortality among humans include flea control, rodent control, early detection, isolation and medical management of cases, quarantine of contacts and chemoprophylaxis, and surveillance with a multi-sectoral outbreak response.

In South Africa, plague has not been seen in humans since 1982. Prevention strategies are guided by the National Plague Control Guidelines. Surveillance activities to detect and guide our response to plague include the rodent surveillance programmes in the Nelson Mandela Bay, eThekwini and Johannesburg municipalities, and the notifiable medical conditions system.

Anthrax: Uganda

Human cases of anthrax have been reported in Uganda. Since mid-April 2021, 15 people have been infected and one has died in Uganda's eastern district of Kween. Transmission is thought to have occurred after people had eaten the meat of an infected cow.

Anthrax is an acute infectious disease caused by the spore-producing bacterium *Bacillus anthracis*. Anthrax spores may last for decades in soil and infect animals – particularly cows, sheep, goats and buck – through inhalation or ingestion. Transmission to humans from infected animals occurs through direct contact with the living or dead animal or animal products (including wool, skin, etc.) where spores enter broken skin; ingestion of the meat of an infected animal; or inhalation of anthrax spores. Human to human transmission has not been identified.

Clinically, four major manifestations are seen. These are related to the body system that makes contact with the spores during infection. Cutaneous anthrax presents with typical skin lesions – small, itchy, raised lesions that swell, then turn black; gastrointestinal anthrax causes nausea, vomiting, abdominal pain and eventually bloody diarrhoea; inhalation anthrax can have an incubation up to two months and presents with a cough, shortness of breath and chest discomfort; and injection anthrax, described recently in injection-drug users, causes lesions beneath the skin that may manifest as an abscess. All manifestations may be fatal if not treated. Inhalation anthrax is the most dangerous, with only around a 50% chance of survival even once treated with antibiotics.

In 2001, anthrax was used in a case of bioterrorism in the United States of America where 17 people were infected and five died following exposure to the agent through intentionally contaminated letters. While South Africa has had no real threat of anthrax through bioterrorism, several 'white powder threats' have been investigated in the country.

The most effective strategy to prevent human morbidity and mortality from anthrax is through animal vaccination. In addition, surveillance to detect animal and human cases to guide an appropriate outbreak response are of utmost importance.

BEYOND OUR BORDERS

Diphtheria: Dominican Republic

The Dominican Republic has reported 12 cases of diphtheria with nine deaths. This follows three cases reported in 2020 and no cases in 2019 and 2018. Diphtheria cases are rare and occur sporadically as a result of poor vaccination coverage. Vaccination campaigns and coverage have been negatively affected in the country due to the COVID-19 outbreak; however, full diphtheria coverage in 2019 was 83%.

Diphtheria is caused by *Corynebacterium diphtheriae,* a toxin-producing bacterium that results in primarily respiratory and skin diseases. Less commonly, the disease may also be attributed to *C. ulcerans* or *C. pseudotuberculosis*. Transmission of the agent is through respiratory droplets and through direct contact with infected skin lesions. Clinical disease is most often due to the toxin produced by the bacteria.

The most common clinical manifestations of diphtheria are an upper respiratory and a cutaneous disease. Respiratory symptoms are initially mild – sore throat, cervical lymphadenopathy and a fever and malaise – but may also include swelling of the pharyngeal area that obstructs breathing. A characteristic adherent pseudomembrane – a white, grey or even green or black thin mass – over the tonsils, pharynx, soft palate or nose is also often present and should trigger further investigation. Cutaneous lesions are initially vesicular, then develop ulcers covered by an eschar, usually over the hands, lower legs and feet. Systemic complications include myocarditis and local neuropathies. Treatment must include supportive, antibiotic and antitoxin therapy.

Primary prevention of diphtheria is through the diphtheria toxoid vaccine. Four doses are required for optimum protection against infection and severe disease. Infection prevention and control strategies at healthcare facilities prevent spread from an index patient, and should be complemented by contact tracing for chemoprophylaxis as part of an outbreak response. In South Africa, vaccination against diphtheria is part of the expanded programme on immunisation (EPI) and diphtheria is a notifiable medical condition.

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.

Source: Promed (www.promed.org), World Health Organization (www.who.int), Centres for Disease Control and Prevention (www.cdc.gov), Journal of Military and Veterans' Health (jmvh.org), World Organisation for Animal Health (oie.int), Federal Bureau of Investigation (fbi.gov), National Institute for Communicable Diseases (nicd.ac.za); Division of Public Health Surveillance and Response, NICD-NHLS; outbreak@nicd.ac.za

WHO AFRO UPDATE

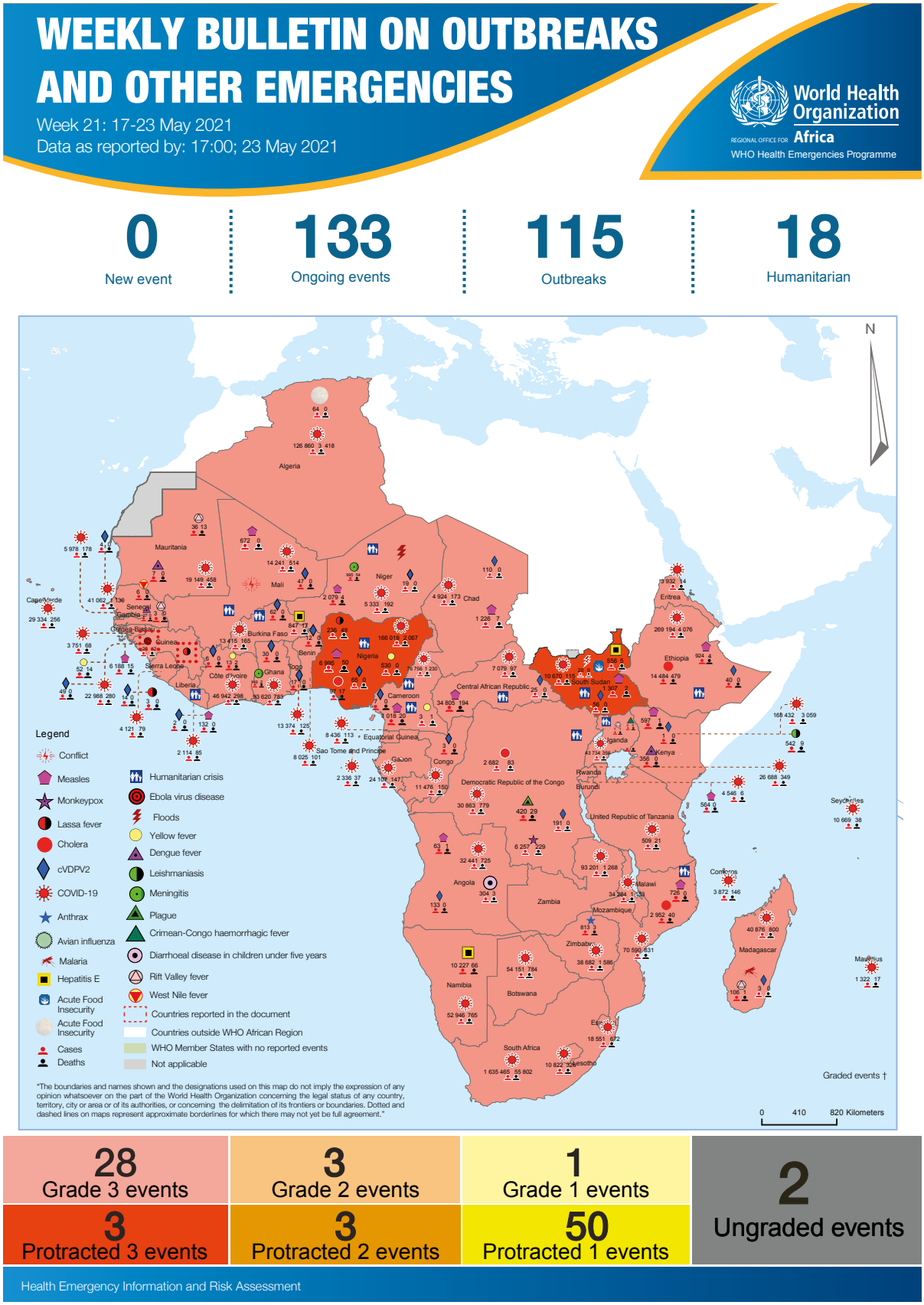

Figure 3. The Weekly WHO Outbreak and Emergencies Bulletin focuses on selected public health emergencies occurring in the WHO African Region. The African Region WHO Health Emergencies Programme is currently monitoring 133 events. For more information see link below:
https://apps.who.int/iris/bitstream/handle/10665/341457/OEW21-1723052021.pdf

The Communicable Diseases Communiqué offers up-to-date information regarding communicable diseases in South Africa and abroad. It forms part of the NICD's key mandate of disease surveillance, outbreak response and research on communicable diseases. The publication is released on a monthly basis and can be accessed via the NICD website on http://www.nicd.ac.za/publications/internal-publications/

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