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Division of the National Health Laboratory Service

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EDITORIAL

This month, we report on a foodborne disease outbreak involving 'black ice-cream' in Mangaung Metropolitan Municipality in the Free State Province; and a suspected waterborne diarrhoeal disease outbreak in KwaZulu-Natal Province. The waterborne diarrhoeal disease outbreak highlight the importance of providing communities with safe municipal potable water.

We also report on two cases of tetanus diagnosed in 2019; and a case of Crimean-Congo haemorrhagic fever diagnosed in a 58-year-old man from Kimberley, Northern Cape Province.

Regarding seasonal disease, the Centre for Respiratory Disease and Meningitis reports back on influenza, and the Centre for Emerging Zoonotic and Parasitic Diseases provides a malaria update in anticipation of increased travel to malaria-endemic areas for the Easter holidays.

In this edition we provide an update on rabies in South Africa, laboratory update of a case of brucellosis diagnosed in Limpopo Province, and a confirmed case of scarlet fever, also from Limpopo Province, following an outbreak of clinically suspected scarlet fever cases in the province in March 2019.

Beyond our borders, the Ebola virus disease (EVD) outbreak continues in the Democratic Republic of the Congo (DRC) with recent security concerns affecting health response efforts. We report on the effects Tropical Cyclone Idai has had on Mozambique, and neighbouring Zimbabwe and Malawi. We provide recommendations for travellers to cholera-affected areas following the devastation of Cyclone Idai. As usual, we include the WHO-AFRO infographic on current humanitarian and outbreak events in the region.

1 ZOONOTIC AND VECTOR-BORNE DISEASES

a An update on rabies in South Africa

Since the last report on 28 February 2019, there have been no new confirmed cases of human rabies for South Africa (updated 15 April). A total of three human rabies cases was confirmed for South Africa for 2019 to date. These cases were reported from the Eastern Cape (n=2) and Limpopo (n=1) provinces.

Any person who has been exposed to a possibly rabid animal must go to a clinic/hospital for health care so that they can undergo a risk assessment as soon as possible. Post-exposure prophylaxis (PEP) regimen is given based on exposure history and not on confirmed rabies diagnosis in dog or cat or wild animal. Based on the risk assessment, PEP must be given immediately. This includes washing the wound, anti-rabies vaccinations and anti-rabies immunoglobulins if necessary. If given correctly, according to the national guidelines, PEP is 100% effective in preventing this fatal disease. Details of the guidelines can be found on the NICD website. The Global Alliance for Rabies control also made a Rabies Health Care Certificate course available online (https://education.rabiesalliance.org/) to update health care professionals on effective delivery of rabies PEP.

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

b Crimean-Congo haemorrhagic fever

A case of Crimean-Congo haemorrhagic fever (CCHF) was confirmed in a 58-year-old man from Kimberley, Northern Cape Province, in March 2019. The man was bitten by a number of ticks, presumably around the Koopmansfontein area, a day before falling ill. The patient was admitted to a hospital in Kimberley where he was isolated and managed. The diagnosis was confirmed by laboratory testing at the National Institute for Communicable Diseases. The patient was discharged from hospital in April 2019. No secondary CCHF cases were reported.

This is the second case of CCHF reported in South Africa for 2019 to date. The previous case was reported in a veterinarian from the Free State Province.

The disease has been known in South Africa since 1981, but is rare in humans and typically only a handful of cases are reported per year. CCHF is caused by a virus that is mostly transmitted to humans through bites of the *Hyalomma rufipes* tick (or 'bontpoot' tick), although exposures related to contact with infected animal tissues and blood have also been reported. CCHF is mostly reported in farmers, veterinarians, abattoir workers, hunters and other individuals who are at higher risk of exposure to the *Hyalomma* ticks. It is recommended that insect repellents containing DEET are used to reduce tick bites. For more information on CCHF in South Africa, visit the NICD website (www.nicd.ac.za).

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

c Laboratory update on a brucellosis case, Limpopo Province

A case of human brucellosis in Limpopo Province was previously reported in the Communicable Disease Communiqué 2019:18(2). An investigation revealed that the deceased owned cattle and that he consumed unpasteurised milk. Herdsmen reported abortions in the herd and *Brucella abortus* antibodies were subsequently detected in 2/5 cows tested.

The *Brucella* species isolated from the deceased's blood culture was subjected to whole-genome sequencing on the Illumina MiSeq system. Multi-locus sequence typing (MLST) showed that the isolate was ST72 and was similar to a *B. abortus* isolated from bovine in Mozambique (www.pubMLST.org). Ribosomal-MLST also identified the isolate as *B. abortus*. The consumption of unpasteurised milk was therefore the most likely source of the infection. No further cases were reported.

Source: Centre for Emerging Zoonotic and Parasitic Diseases and Core Sequencing Facility, NICD-NHLS; jennyr@nicd.ac.za

2 ENTERIC DISEASES

a Foodborne *Salmonella* Enteritidis outbreak in Mangaung Metropolitan Municipality, Free State Province, February 2019

On 19 February 2019, an astute infection prevention and control (IPC) practitioner at a private hospital in Bloemfontein notified the Department of Health about a suspected foodborne disease outbreak. Six patients presented to the hospital's emergency department between 13 and 18 February 2019, five of whom were hospitalised. Case-patients complained of diarrhoea, vomiting, pyrexia, myalgia and abdominal cramps. In addition, the hospital IPC practitioner discovered that case-patients reported having eaten 'black ice cream' at the same restaurant shortly before their onset of illness.

Cases were interviewed using the NICD standardised foodborne disease outbreak case investigation form. Stool specimens were collected from hospitalised case-patients. Environmental health practitioners visited the implicated restaurant and ice cream manufacturer. Ice cream samples were collected from both places, including ice cream ingredients from the manufacturer such as raw eggs and activated charcoal. Water and environmental swabs were also collected. Samples were sent to the NHLS Infection Control Service Laboratory (ICSL) for testing.

An additional three cases were identified during the outbreak investigation. Of the nine cases in total, seven were hospitalised. All case-patients were interviewed, and 9/9 (100%) cases reported consuming black ice cream at the implicated restaurant prior to illness. Stool samples were collected from seven of the hospitalised cases. *Salmonella* spp. was isolated from 5/7 (71%) stool samples. Two isolates were available for further typing and referred to the Centre for Enteric Diseases (CED), NICD, where they were identified as *Salmonella* Enteritidis. Core genome multilocus sequencing typing (cgMLST) confirmed that the isolates were genetically identical. No enteric pathogens were isolated from the ice cream, environmental swabs or individual ingredients. Water samples tested were compliant with SANS 241:2015 standards for drinking water.

Given the epidemiological evidence, black ice cream was most likely the outbreak vehicle, but the source of *Salmonella* Enteritidis contamination was not identified.

Healthcare practitioners are reminded that a suspected foodborne outbreak is a Category 1 notifiable medical condition and requires immediate reporting. Rapid reporting allows for prompt investigation and collection of clinical, food and environmental specimens to enable identification of the outbreak vehicle and source of contamination.

Source: Provincial Epidemiology Team, Division of Public Health Surveillance and Response, and Centre for Enteric Diseases, NICD-NHLS; Free State Provincial Department of Health, Municipal Health Services—Mangaung Metropolitan Municipal

b Suspected waterborne diarrhoeal disease outbreak in KwaZulu-Natal Province

On 28 March 2019, the KwaZulu-Natal (KZN) provincial Communicable Disease Control (CDC) directorate notified the National Institute for Communicable Diseases (NICD) of a suspected waterborne diarrhoeal outbreak in the Vryheid area. Vryheid is located within the Abaqulusi Local Municipality, Zululand District, in KZN. Fifty-four patients (including adults and children) were seen at Vryheid Hospital between 22 and 28 March 2019, with symptoms of gastrointestinal disease, including diarrhoea, vomiting and abdominal pain. Majority of cases presented with mild to moderate self-limiting symptoms. Few patients required hospitalisation.

Abaqulusi Municipality Environmental Health Practitioners (EHPs) interviewed patients at the hospital and visited their homes. Stool specimens and rectal swabs were collected from 41 patients and sent to the NHLS laboratory for conventional stool culture. The specimens were then referred to the Centre for Enteric Diseases (CED), NICD for additional molecular testing.

All cases reported using potable water provided by the municipality as their main source of drinking water. No other possible epidemiological links between the cases was found. Of the 41 stool/ rectal swab specimens tested, conventional stool culture yielded no pathogens. On multiplex PCR, pathogens were detected in 93% (38/41) of cases. Of the 38 PCR-positive cases, multiple (≥2) enteric pathogens were detected in 53% (20/38) and single enteric pathogens detected in 47% (18/38) of specimens. A range of viral, bacterial and parasitic pathogens were detected, but the predominant pathogens were norovirus (39%, 16/41), *Shigella* spp. (34%, 14/41), rotavirus (32%, 13/41), adenovirus (15%, 6/41) and astrovirus (12%, 5/41).

The findings are in keeping with a multi-pathogen outbreak, and the range and nature of pathogens detected supported the hypothesis that contaminated water was the source of the outbreak.

The outbreak ended following the rapid institution of water safety interventions, including hyperchlorination of the municipal water supply and health communication.

This outbreak, among others, highlight an alarming trend of localised waterborne diarrhoeal outbreaks identified and reported to the Department of Health and NICD, with evidence of contaminated municipal potable water. Aging and poorly maintained water treatment and water supply infrastructure and erratic water quality monitoring culminate in diarrhoeal disease outbreaks, straining resource capacity and placing additional financial pressure on health budgets. Additional water safety challenges are associated with the improper treatment of sewage resulting from aging infrastructure, poor maintenance, and increasing volumes of sewage due to population expansion without adequate sanitation planning. Healthcare workers should be alert for any unusual increase in diarrhoeal disease, which in the case of waterborne outbreaks, typically affects people of all ages who share a common source of drinking water.

Source: Centre for Enteric Diseases, NICD-NHLS; KwaZulu-Natal Provincial Department of Health; junot@nicd.ac.za

3 VACCINE-PREVENTABLE DISEASES

a An update on tetanus in South Africa

A case of tetanus was reported in a hospital in Soweto, Gauteng Province, on 3 April 2019. A 10-year-old male presented with seizures, trismus and back and neck muscle spasms. There was no prior history of injury. His vaccination history could not be confirmed as the Road to Health Card was unavailable. Radiological imaging and serological testing did not show any abnormalities. A diagnosis of tetanus was made based on the clinical presentation. Due to poor stock availability, 1 500 IU of tetanus immunoglobulin was administered as opposed to the recommended dose of 3 000 IU. Tetanus vaccination and muscle relaxants were also administered. At the time of this report, the patient remained in critical condition at the intensive care unit of the hospital.

Another case of tetanus was reported in March 2019 from Mpumalanga Province. A 47-year-old male presented with trismus, opisthotonus and generalised muscle rigidity. A previous history of injury to the right leg was noted to be septic on admission. Tetanus was diagnosed based on the clinical presentation. Antibiotics were administered. Neither tetanus immunoglobulin or tetanus vaccine were administered. This patient demised.

From January 2017 to date, 16 cases of tetanus have been reported from the Western Cape (n=1), KwaZulu-Natal (n=3), Free State (n=1), Gauteng (n=6), Eastern Cape (n=3), Mpumalanga (n=1) and Limpopo (n=1) provinces. Majority of cases were males (56%, 9/16). Most of the cases had an un-

known vaccination history with only one case confirmed to be vaccinated against tetanus. Five of the 16 cases received tetanus immunoglobulin as part of treatment. Of the 16 cases of tetanus reported, two demised. There have been no cases of maternal or neonatal tetanus reported since 2017.

Tetanus, commonly known as 'lockjaw', is a potentially fatal infection caused by the toxin produced by the bacterium *Clostridium tetani*. The bacterium enters through broken skin, usually through injuries from contaminated objects. The incubation period is usually between 3 and 21 days with an average of 10 days. Clinical signs and symptoms include jaw cramping or the inability to open the mouth (trismus), muscle spasms often in the back, abdomen and extremities, trouble swallowing, seizures, headache, fever, sweating, elevated blood pressure and/or rapid heart rate. Tetanus is diagnosed clinically. Laboratory bacteriological confirmation is usually not possible as the disease is toxin-mediated.

Human tetanus immunoglobulin (TIG) should be administered to all cases. TIG can only help remove unbound tetanus toxin but cannot neutralise toxin that is already bound to nerve endings. The recommended dose of TIG is 3 000 IU and is part of the Standard Treatment Guidelines and Essential Medicine List (Hospital level) for South Africa. All wounds should be cleaned and foreign or necrotic tissue removed. Supportive therapy may include ventilatory support and drugs that treat rigidity, reflex muscle spasms and tetanic seizures. Prevention of tetanus can be done through immunisation with tetanus-toxoid-containing vaccines (TTCV), which are included in routine immunisation programmes in South Africa as well as during antenatal care. For further information regarding tetanus, the following websites can be accessed: www.nicd.ac.za, www.cdc.gov and www.who.int.com

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

4 SCARLET FEVER

a An update on scarlet fever, Waterberg District, Limpopo Province, April 2019

A confirmed case of scarlet fever was reported at a private healthcare facility in Waterberg District, Limpopo Province, on 1 April 2019. This case follows three weeks after a cluster of 16 clinically-diagnosed scarlet fever cases were reported at a primary school and a crèche adjacent to the school in Vaalwater, Limpopo Province [NICD Communiqué March 2019, Vol 18(3)]. The current case is a 3-year-old boy who presented with fever (on 29/03/2019), skin rash, sore oral mucosa and strawberry tongue (on 30/03/2019). In light of the clinical presentation, a throat swab was collected and culture was positive for group A beta-haemolytic streptococcus. The isolate was submitted to NICD (Centre for Respiratory Diseases and Meningitis) for confirmatory tests and it tested positive for group A streptococcus on PCR and culture. This case is a sibling to a grade R learner who attends a primary school that had a cluster of clinically diagnosed scarlet fever cases in March 2019. However, the learner was never diagnosed with scarlet fever. Local health facilities have been sensitised to be on high alert for cases to ensure early diagnosis and treatment with antibiotics. This will prevent the development of acute rheumatic fever and other complications such as rheumatic heart disease, abscesses and cellulitis.

Source: Limpopo Department of Health; Provincial Epidemiology Team, Division of Public Health Surveillance and Response and Centre for Respiratory Diseases and Meningitis, NICD-NHLS; sibongilew@nicd.ac.za

5 INTERNATIONAL OUTBREAKS OF IMPORTANCE

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

On 19 April 2019, an attack on a hospital in Katwa by armed militia resulted in the tragic death of a WHO epidemiologist, and the injury of two other healthcare workers (HCWs). Although the Ministry of Health (MoH), WHO and partners continue to respond to the ongoing Ebola virus disease (EVD) outbreak in the Democratic Republic of the Congo (DRC), to ensure the safety of all outbreak responders, Ebola response activities have been temporarily halted in some high-risk health areas until security measures can be reinforced. As of 22 April 2019, 1 353 EVD cases (1 287 confirmed and 66 probable) were reported. A total of 880 deaths was reported, of which 814 were confirmed cases (case fatality rate among confirmed cases is 63% (814/1 287)). The number of HCWs affected is 90, with 33 deaths.

This past week saw a slight decline in the number of new EVD cases reported in the North Kivu and Ituri provinces of the DRC, with a total of 80 new confirmed cases reported. However, this reduction should be interpreted with caution following the disruption of surveillance and case investigation activities. Documented transmission, however, remains geographically confined, with the majority of recent cases being reported from hotspot areas within Katwa, Vuhovi, Butembo, Mandima and Beni health zones. During the last 21 days (2-22 April 2019), a total of 253 confirmed and no probable cases was reported: Katwa (130), Vuhovi (31), Butembo (29), Mandima (21), Beni (17), Mabalako (8), Kalunguta (6), Masereka (5), Musienene (3), Oicha (2), and Kyondo (1).

As of 22 April 2019, over 77 800 contacts have been registered to date, and 12 425 are currently under surveillance. Follow-up rates remained very high (>90%) in health zones with continued operations. However, reduced surveillance activities in 11 health zones in the wake of security incidents resulted in no reporting from these areas, thus overall follow-up rates dropped to 38% in the past three days.

As of 20 April 2019, 104 342 contacts and contacts of contacts have been vaccinated. The vaccinated people at risk included 29 688 HCWs and frontline workers (FLWs), and 26 361 children aged 1-6 years old.

Public health response
The MoH of the DRC continues to strengthen response measures, with support from WHO and partners. In addition to revising security measures, efforts in community outreach through direct dialogue with various community leaders are also being intensified. Surveillance activities continue in certain health zones, and this includes case investigations, active case finding in health facilities and communities, and identification and listing of contacts around the latest confirmed cases. Laboratory capacity, infection prevention and control, clinical management of patients, vaccination, risk communication and community engagement, psychosocial support, safe and dignified burials, cross-border surveillance, and preparedness activities in neighbouring provinces and countries remain priorities.

WHO risk assessment
WHO continuously monitors changes to the epidemiological situation and context of the outbreak to ensure that support to the response is adapted to the evolving circumstances. The last assessment concluded that the national and regional risk levels remain very high, while global risk levels remain low. WHO advises against any restriction of travel to, and trade with, the DRC based on the currently available information.

Situation in South Africa
As at 26 April 2019, there have been no EVD cases in South Africa associated with the current outbreak in the DRC. In addition, there are no suspected cases of EVD in South Africa at present.

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

6 SEASONAL DISEASES

a Update on malaria

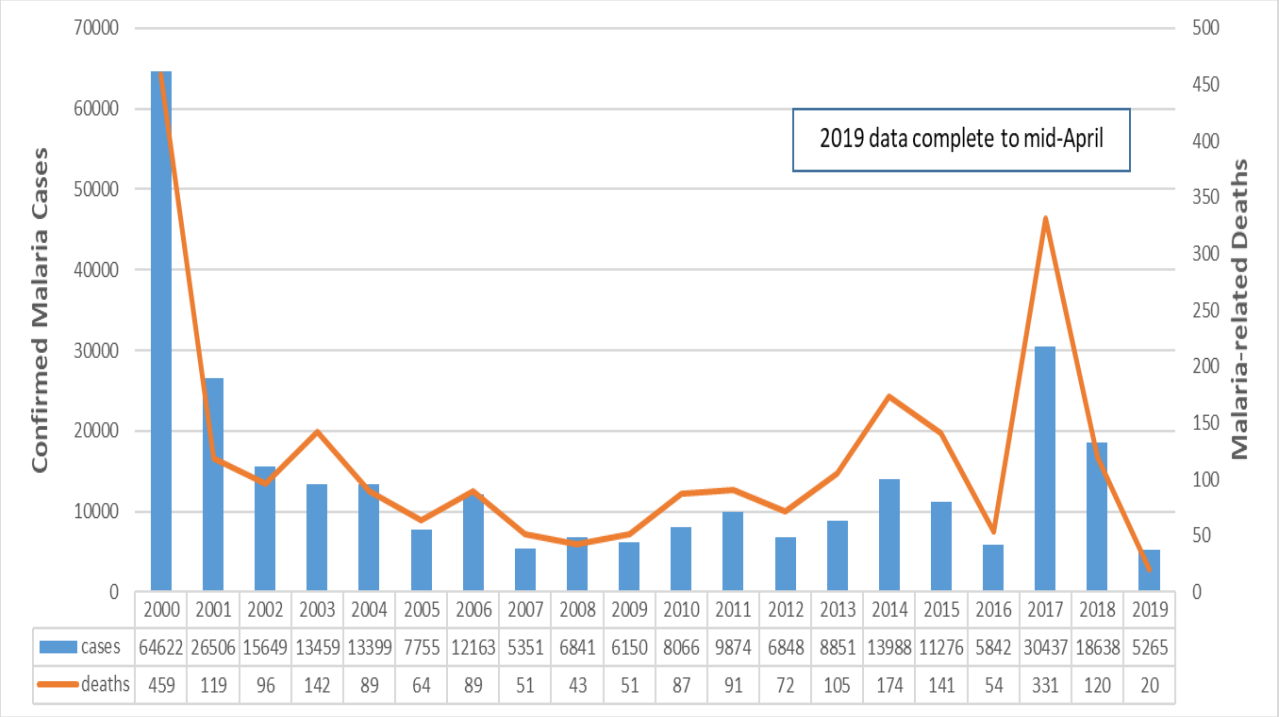
Figure 1 shows updated malaria case numbers for 2018 and 2019 to date. Compared with the same period (January to mid-April) in 2018, the number of reported cases has declined by approximately 46%. However, there may be a regional increase in malaria following Cyclone Idai, and it must be remembered that the annual incidence will include the first part of the summer season (September-December) later in the year; therefore the final number of malaria cases for 2019 may increase substantially.

As Easter holidays have begun, many will be travelling to malaria-endemic areas within South Africa and to neighbouring malaria-endemic countries, and there are often increases in malaria at this time of year. Travelers to malaria-endemic areas must use anti-mosquito measures such as bednets and repellents, and prophylactic medicine when appropriate. Travelers can also consult their doctors, clinics or pharmacists for anti-malarial chemoprophylaxis. Current recommended prophylactic medications include doxycycline or atovaquone-proguanil, which are available without prescription, but the healthcare worker needs to advise the best option for each individual. Mefloquine, the only recommended malaria prophylaxis for pregnant women and young children (<11 kg weight) is currently not available and therefore, these risk groups are encouraged to postpone travelling to endemic areas during this period.

Mosquitoes bite after sunset until sunrise the next day; therefore covering arms, legs, ankles and wrists is important to prevent mosquito bites. Preventive measures are not 100% effective. Early diagnosis and treatment reduces severity of the disease. Consequently, if you have travelled to a malaria endemic area in the past 10 days to six weeks and become ill with 'flu-like symptoms (headache, muscle and joint pains, chills, fever and sweating; vomiting and loss of appetite in young children), seek medical attention. This should include a malaria blood test, which may be repeated if necessary. Furthermore, inform the healthcare worker about your travel and possible exposure,

even if they do not ask. Children who acquire malaria infection may present with non-specific symptoms and disease progression is quicker. It is important for them to access medical care as soon as possible.

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



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
cases	64622	26506	15649	13459	13399	7755	12163	5351	6841	6150	8066	9874	6848	8851	13988	11276	5842	30437	18638	5265
deaths	459	119	96	142	89	64	89	51	43	51	87	91	72	105	174	141	54	331	120	20

Figure 1. Malaria cases and deaths, South Africa, 2000-2019. Source: National Department of Health. Data subject to updating.

b Update on influenza in the northern hemisphere

Influenza activity has decreased overall in the temperate zone of the northern hemisphere with influenza A(H3N2) being the most frequently identified subtype.

In South Africa, the 2019 influenza season has not yet started although the number of specimens submitted from Viral Watch sites increased from <10 per week to 26 for the week starting 8 April. Sporadic detections of both influenza A(H1N1)pdm09 and influenza A(H3N2) have been made from patients presenting at Viral Watch sites, some of whom had a history of travel to the northern hemisphere.

The average onset of the influenza season over the past 13 years has been week 20 (mid-May) ranging from end April to mid-June.

Influenza is a preventable infectious disease. Influenza vaccine is available at public health facilities and private pharmacies. Public health facilities prioritise individuals at risk for developing influenza and severe influenza illness or complications. Individuals at risk of influenza and severe influenza disease include, among others, pregnant women, and those vulnerable due to pre-existing illnesses or risk factors (diabetes, chronic lung conditions, immunosuppression). Detailed recommendations on target groups, dosages and contraindications for influenza vaccine can be accessed at http://www.nicd.ac.za/wp-content/uploads/2017/03/Influenza-guidelines-rev -23-April-2018.pdf

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

c Update on enterovirus aseptic meningitis cases in the Western Cape and Eastern Cape provinces

Enterovirus (EV) infections are associated with clinical syndromes ranging from hand, foot and mouth disease, aseptic meningitis, meningo-encephalitis, acute flaccid paralysis, myocarditis, sepsis in neonates and severe or chronic disease in persons with B cell immunodeficiencies or on rituximab. Lack of envelope and survival at low pH facilitate faeco-oral and droplet transmission. Outbreaks and clusters of EV aseptic meningitis are frequently described. In South Africa, enteroviruses display typical seasonality during the summer months.

During the 2018-2019 EV season, an increased number of EV aseptic meningitis cases from the Western and Eastern Cape provinces was observed (Figure 2). Cases were confirmed at Tygerberg and Groote Schuur Hospital NHLS Virology laboratories by a screening assay targeting the 5'UTR. Partial amplification of the VP1 gene using a combination of pan- and species-specific primers revealed Echovirus 4 as the predominant serotype in 71/91 (78%) of samples. The following serotypes were also detected - echovirus 9 (9%), echovirus 32 (3%), echovirus 18 (3%), echovirus 30 (2%), echovirus 74 (1%), coxsackie B5 (2%), coxsackie B3 (1%) and enterovirus A71 (1%) (Figure 3).

No circulation of echovirus 4 has been detected locally since description in Tshwane 2010-2011. Absent population immunity towards this serotype most likely resulted in the large numbers of cases. Males were predominantly affected. No complications or fatalities were reported.

Source: Tygerberg and Groote Schuur Hospital NHLS Virology laboratories; Nokwazi.Nkosi@nhls.ac.za

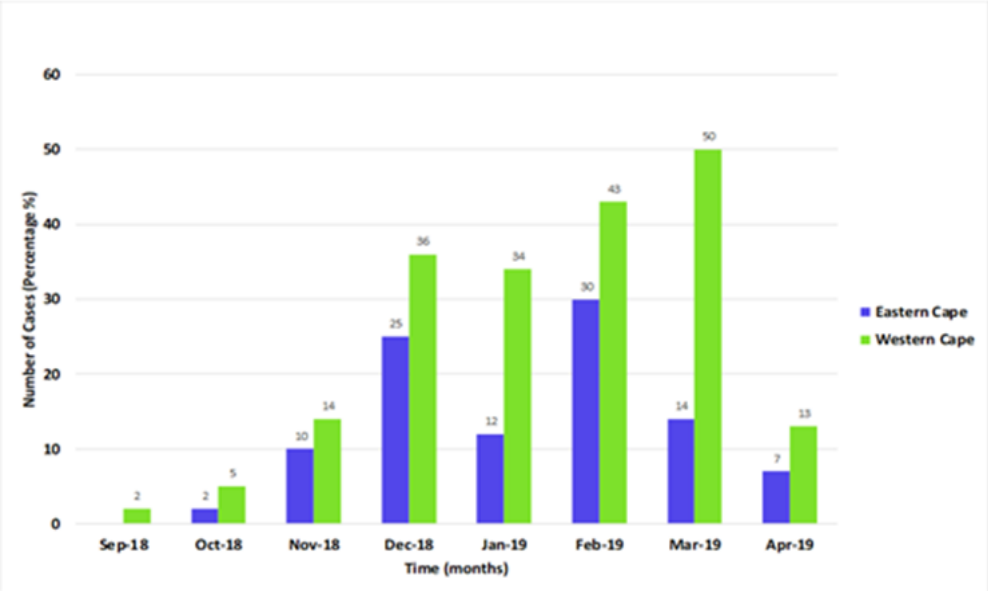


Figure 2. Monthly percentage of enterovirus positive samples in the Western Cape and Eastern Cape Province, September 2018-April 2019.

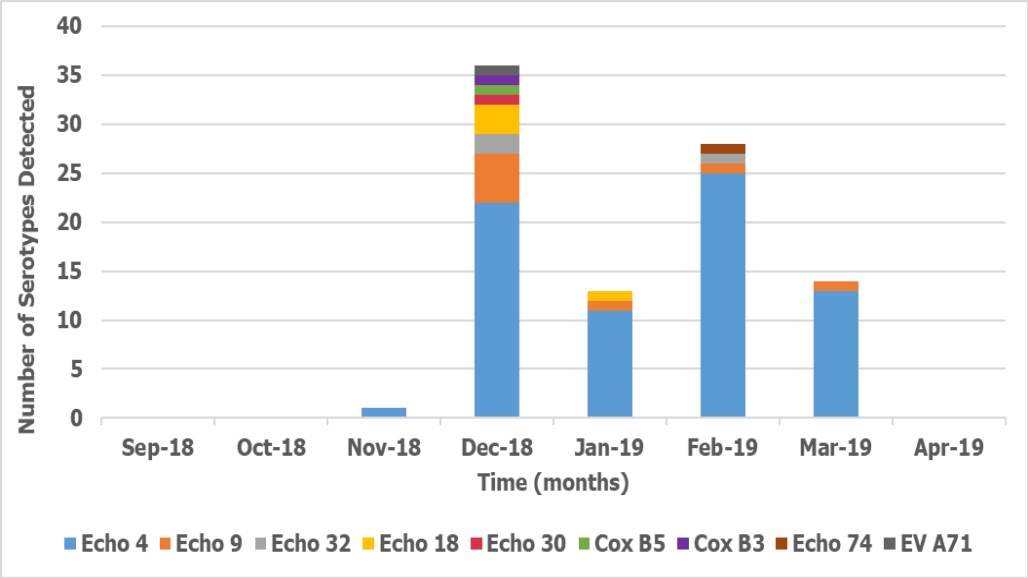


Figure 3. Distribution of enterovirus serotypes detected in the Western Cape and Eastern Cape provinces, September 2018-April 2019.

7 HEALTH CONSEQUENCES OF TROPICAL CYCLONE IDAI

a An update on Tropical Cyclone Idai

On 14 March 2019, Tropical Cyclone Idai made landfall in Mozambique, bringing devastation to the port city of Beira and surrounding areas. Over the following days, torrential rains and strong winds swept through the central region of the country, causing massive flooding and leaving entire communities submerged. In the immediate aftermath of the storm, there was an inspiring and instant outpouring of international support and solidarity. More than 14 countries, including South Africa, deployed over 100 military or rescue planes, helicopters, ships and boats to support aid efforts. Medical and relief supplies were flown in from around the world, with South Africa donating just under four tons of medical supplies for primary health care. This was delivered by the South African Military Health Service to support health response, as 80% of the healthcare facilities in the region were affected, including those providing much needed antiretroviral therapy. In addition, the National Institute for Communicable Diseases assisted the Mozambican National Public Health Institute to obtain much needed laboratory consumables for diagnostic purposes.

As commendable as the response from the international community has been, the heavy rains and strong winds experienced in the week of 14 April have damaged roads and shelters in several locations, making humanitarian access more difficult, and impacting communities that were only just beginning to recover from the floods. As of 18 April, there were 68 974 internally displaced people living in accommodation across 67 sites. This has decreased from the initial almost 150 000 people. Just over 1.3 million people have been reached with aid; however, the entire 1.85 million population in the affected areas is still in need of assistance as recovery efforts continue.

Many schools were being used as temporary accommodation centres for internally displaced people. However, tented accommodation centres have being erected across the affected areas so that schools can get back to providing education. Education partners are assisting the Government to clear schools of internally displaced people in order to support the resumption of regular classes. However, students have reported challenges, including the lack of books, school bags and uniform, as well as concerns over the dilapidated state of the school structures.

From a communicable disease perspective, the flooding and displacement of people has increased the risk of malaria, typhoid and cholera, among others. A large-scale oral cholera vaccine campaign delivered vaccine to over 800 000 people in just six days. The result has been a decrease in the daily reporting of cholera cases. The current communicable disease challenge is the increasing number of malaria cases with the last reported official case numbers as 12 297. As malaria is endemic in Mozambique, control efforts are now hampered in the affected regions. The effects of Tropical Cyclone Idai have been far-reaching with Malawi and Zimbabwe also being affected. Both countries are in the process of recovery. In response to effects of the cyclone, the South African National Department of Health's Malaria Directorate has implemented an Epidemic Preparedness and Response plan for vector-borne diseases with emphasis being placed in the provinces that border both Zimbabwe and Mozambique.

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

8 CHOLERA ALERT FOR TRAVELLERS

Since Cyclone Idai struck Mozambique on 14 March 2019, hundreds of thousands of people have been living in temporary settlements without access to safe water and sanitation [NICD Communiqué April 2019, Vol 18(4)]. The Ministry of Health of Mozambique declared a cholera outbreak on 27 March, and as of 8 April 2019, had reported more than 3 577 cases and six deaths. The cyclone also stormed through parts of Zimbabwe and Malawi, increasing the risk of cholera outbreaks in these cholera endemic countries. As of 29 April 2019, there are no confirmed or suspected cases of cholera in South Africa. However, there is a risk that travellers from the outbreak-affected areas may present with cholera in South Africa.

Travellers should be aware of the risk of cholera. Cholera is usually transmitted through contaminated drinking water or food. However, cholera can also be transmitted following direct contact with infective material (e.g. stool or vomitus), so transmission within households is not uncommon. All people visiting areas where there are known cholera cases should be aware of the basic cholera facts that can be found on the NICD website at this link, http://www.nicd.ac.za/index.php/cholera/. Importantly travellers should follow these basic prevention steps to protect themselves and their families: drink and use safe water, wash hands often with soap and safe water, eat well-cooked food (especially seafood), keep food covered, eat it whilst hot, and wash or peel fruits and vegetables.

Following an incubation period of a few hours to five days (usually 2 - 3 days), cholera typically presents with sudden onset of profuse, painless and watery diarrhoea, with flecks of mucus in the stool, with the appearance of 'rice water'. Vomiting may occur, usually early in the illness. Majority of patients (95%) do not have a fever although children are more often febrile than adults. Profuse diarrhoea can quickly lead to life-threatening dehydration within a matter of hours. Travellers of any age from outbreak-affected areas, who develop symptoms of acute onset of watery diarrhoea with or without dehydration, must report to a healthcare facility immediately. The healthcare worker should be informed of the travel history.

Healthcare workers countrywide, especially those in Limpopo and Mpumalanga provinces, bordering Mozambique and Zimbabwe, should be on high alert for suspected cholera cases. National guidelines for cholera are available on NICD website, www.nicd.ac.za

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

9 BEYOND OUR BORDERS

The 'Beyond our Borders' column focuses on selected and current international diseases that may affect South Africans travelling abroad. Numbers correspond to Figure 4 on page 11.

1. Lassa fever: Nigeria

From 1 January to 14 April 2019, a total of 2 217 suspected cases of Lassa fever has been reported from 21 states. Of these, 540 were confirmed positive, 15 probable and 1 662 negative. Since the onset of the 2019 outbreak, there have been 122 deaths in confirmed cases. Case fatality ratio in confirmed cases is 23%. A total of 17 healthcare workers in eight states has been infected since the onset of the outbreak.

Lassa fever is a viral haemorrhagic fever that is transmitted to humans via contact with food or household items contaminated with rodent urine or faeces. Person-to-person infections can occur, particularly in the hospital environment (nosocomial transmission) through direct contact with infected secretions (blood, saliva, urine, semen or vomitus) and mucous membranes or non-intact skin. There is currently no approved vaccine. Prevention of Lassa fever relies on community engagement and promoting hygienic conditions to discourage rodents from entering homes. Currently, a multisectoral team comprising the One Health National Rapid Response Teams, the Federal Ministry of Agriculture, and Federal Ministry of Environment have been deployed to Taraba and Bauchi states to assist with public health control and response.

2. Leishmaniasis: Kenya

Twenty-seven people have been admitted at a Kenyan hospital following an outbreak of visceral leishmaniasis (kala-azar) in Marsabit. Leishmaniasis is caused by the protozoan *Leishmania* species parasites that are transmitted by the bite of infected female phlebotomine sandflies. There are three main forms of leishmaniases, visceral (also known as kala-azar and the most serious form of the disease), cutaneous (the most common), and mucocutaneous. Kala-azar has an incubation period of between two weeks to six months with symptoms being fever, weight loss, anaemia, and swelling of the spleen and liver. The World Health Organization recommends early diagnosis and effective prompt treatment, vector control of sandflies, control of animal reservoir hosts, effective disease surveillance and social mobilisation.

3. Measles: New York, USA

In the month of April 2019, 23 new cases of measles have been reported in the state of New York, USA. Eighty-five percent of these cases have been in children. As of 18 April 2019, New York City reported 359 cases in Brooklyn and Queens since October 2018. Anti-vaccine groups in Orthodox Jewish communities are said to be at the crux of the measles outbreak.

Measles is an acute, highly contagious viral disease that has potential to lead to major epidemics. It usually presents in people with fever and maculopapular rash, cough, runny nose and/or red eyes. Measles vaccinations confer immunity from the disease. New York City has declared a public health emergency over the measles outbreak and ordered mandatory vaccinations in one Brooklyn neighbourhood for people who may have been exposed to the virus.

4. Influenza A(H1N1)pdm09: India

The state of Maharashtra, India, has recorded 1 320 influenza A(H1N1)pdm09 (swine flu) cases and 110 deaths between 1 January and 20 April 2019, compared to 10 cases and four deaths during the same period in 2018. Approximately 815 000 people were screened for influenza in the state, of which 247 patients are currently admitted to various hospitals, and eight patients are receiving ventilator support. According to the state's health department officials, there has been a higher number of cases of influenza A(H1/N1)pdm09 in 2019 due to climatic changes in the region.

Symptoms include fever, cough, body ache, nasal secretions, headache, fatigue, diarrhoea, and weakness. The public health department has responded by having active awareness in all districts, improving public health surveillance and improving stock of medicines in all state hospitals and public health post centres.

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

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.

10 WHO-AFRO: OUTBREAKS AND EMERGENCIES

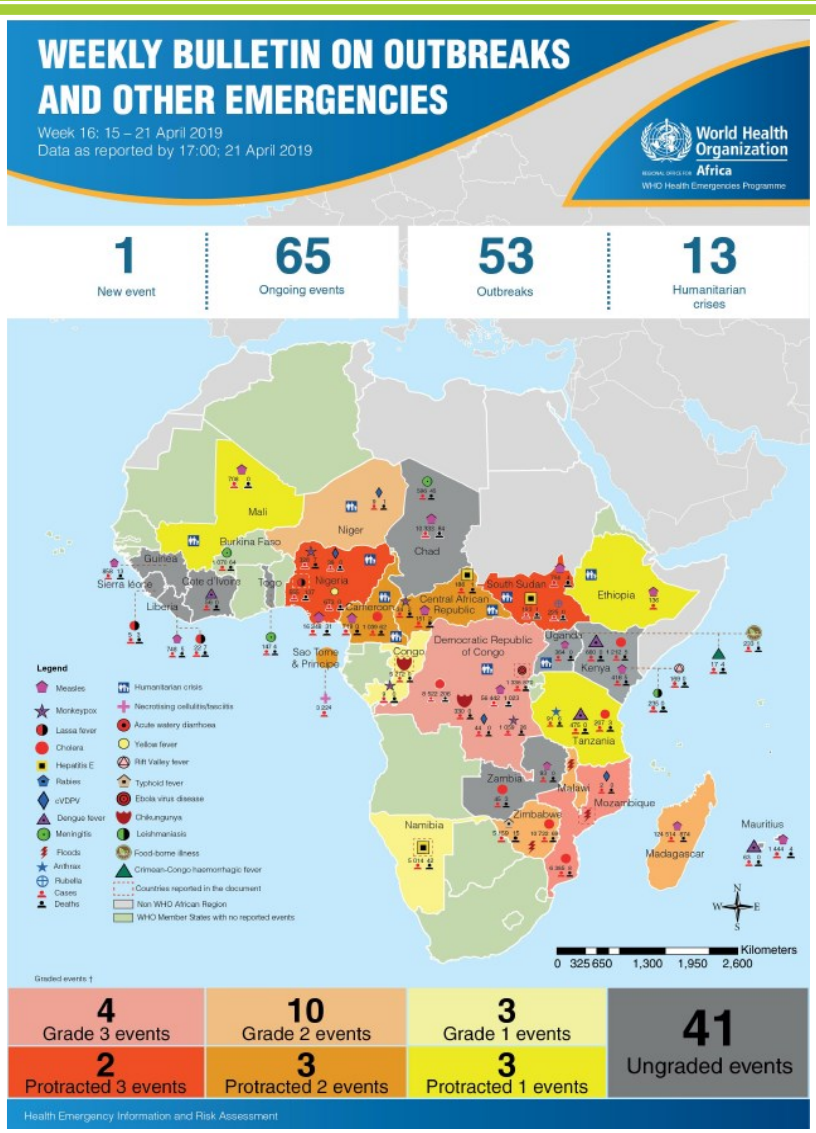


Figure 5. The Weekly WHO Outbreak and Emergencies Bulletin focuses on selected public health emergencies occurring in the WHO African Region. The African Region WHO Health Emergencies Programme is currently monitoring 66 events. For more information see link below: https://apps.who.int/iris/bitstream/handle/10665/312048/OEW16-1521042019.pdf