



CONTENTS	Page
1 ZOO NOTIC AND VECTOR-BORNE DISEASES	
a An update on rabies in South Africa	2
b An update on human cases of Rift Valley fever on a farm in the Jacobsdal area, Free State Province	2
c A cluster of leptospirosis cases in Bushbuckridge, Mpumalanga Province	3
2 FOOD-AND WATER-BORNE DISEASES	
a An update on the outbreak of <i>Listeria monocytogenes</i> , South Africa	3
b Foodborne outbreak amongst staff at a hospital in Gauteng Province	5
c A case of hepatitis E in the Western Cape Province	6
3 INTERNATIONAL OUTBREAKS OF IMPORTANCE	
a Ebola virus disease outbreak, Democratic Republic of Congo	7
4 SEASONAL DISEASES	
a Influenza	7
5 AN OUTBREAK OF NECROTISING ENTEROCOLITIS AT A HOSPITAL IN GAUTENG PROVINCE	
a An update on the outbreak of necrotising enterocolitis of unknown aetiology in babies admitted to a neonatal unit in Gauteng Province, March—July 2018	8
6 SURVEILLANCE FOR ANTIMICROBIAL RESISTANCE	
a Carbapenemase-resistant Enterobacteriaceae—an update	9
7 BEYOND OUR BORDERS	10
8 WHO-AFRO: OUTBREAKS AND EMERGENCIES	11

1 ZOOTIC AND VECTOR-BORNE DISEASES

a An update on rabies in South Africa

A case of rabies was confirmed in an eight-year-old boy from Canzibe, Eastern Cape Province. A history of possible contact with a rabid dog, six weeks before onset of illness, was reported but the details could not be verified. The child presented to an Eastern Cape hospital with "strange violent" movements, vomiting, hiccups, spasms and hydrophobia. A single saliva was collected for testing before the patient demised. The sample tested positive for rabies by PCR and sequencing.

A total of ten human rabies cases has been confirmed in South Africa for 2018 to date. This includes five cases from KwaZulu-Natal and five cases from the Eastern Cape (including the case reported here) provinces. In addition, two probable cases of rabies were reported from the Eastern Cape Province. These cases could not be confirmed through laboratory testing, but fulfilled the clinical

case definition of rabies and both cases had a history of exposure to a likely rabid animal.

The rise in the number of human cases reported from the Eastern Cape and KwaZulu-Natal coincides with the outbreak of rabies in dogs (and cats) experienced in the two provinces. Rabies can be prevented by ensuring vaccination of dogs and cats, and through prompt post-exposure prophylaxis following a possible exposure to a rabid animal. For more information regarding rabies post-exposure prophylaxis, visit the NICD website: www.nicd.ac.za

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

b An update on human cases of Rift Valley fever on a farm in the Jacobsdal area, Free State Province

Cases of Rift Valley fever (RVF) were reported on 16 May 2018 in 250 sheep on a farm in the Jacobsdal area of Free State Province by the Department of Agriculture, Forestry and Fisheries (DAFF). The disease causes a flu-like illness in most humans, but could progress in a minority to either retinitis with permanent blindness, or severe forms like encephalitis or bleeding manifestations that may lead to death. Initial epidemiological investigation and testing of humans living on the affected farm, who were involved in handling of potentially infected animals, revealed four confirmed cases of RVF, and four probable cases, as reported in the June 2018 Communiqué. Further laboratory testing led to the confirmation of RVF in the four probable cases. Retrospective testing of whole blood revealed the presence of RVF viral nucleic acid in three of the initial four cases. Sequencing studies have been concluded and further phylogenetic analyses are underway to determine the viral lineage responsible for the 2018 outbreak. Six of the eight individuals confirmed to have been infected with RVF virus report-

ed a history of a mild flu-like illness. All confirmed cases underwent an ophthalmic examination but had no signs of eye complications. The outbreak remained limited to one farm, unlike the widespread epidemic which occurred in southern Africa during 2008-2011. There is neither treatment nor vaccine for people. The farmers in the area have been advised by DAFF to vaccinate animals to prevent further outbreaks in the coming 2018/19 summer period. Individuals can prevent exposure by wearing protective clothing and equipment (aprons, gloves, masks, goggles) while working with infected animals, or avoid handling of animals all together during outbreaks. Healthcare worker guidelines and RVF case investigation forms are available from the NICD website, www.nicd.ac.za

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

c A cluster of leptospirosis cases in Bushbuckridge, Mpumalanga Province

In 2012, a study to identify zoonotic aetiologies for acute adult febrile illness in the Mnisi community of Bushbuckridge, Mpumalanga Province, was initiated within NICD. Adults over the age of 18 years presenting to three local community clinics with fever were enrolled and tested for a number of zoonotic diseases, including leptospirosis. This surveillance recently identified three cases of leptospirosis. The first was identified in late April 2018, subsequently, two more cases were identified in the month of June 2018. They presented with fever and malaise. The diagnosis was confirmed on serology on all

three cases. All three responded well to antibiotics and there were no complications. All the cases live in the same village in moderately close proximity to each other. The sudden spike of positive cases and the geographical proximity caused concern, thus prompting an investigation.

Leptospirosis is a zoonotic disease spread through the infected urine of animals such as rodents, cattle, dogs and pigs (Figure 1). In areas where people and animals live in close proximity, the possibility for transmission of zoonotic diseases such as

leptospirosis is high. A 2015 systematic review of leptospirosis in Africa found that the prevalence in humans ranged from 2.3% to 19.8% in hospital patients with febrile illness. In South Africa, cases are sporadic, with the most recent outbreak occurring in a prison in 2015.

Given the rarity of leptospirosis outbreaks as well as the animal origin of disease, a One Health approach to the investigation was undertaken. The approach integrates human, animal and environmental role players in a coordinated, collaborative, multidisciplinary and cross-sectoral approach to address potential or existing risks that originate at the animal-human-ecosystems interface (Figure 2). The 'One Health' investigative team travelled to the households of the cases in Bushbuckridge, with the aim of collecting risk factor and environmental exposure data.

A review of the households revealed opportunities for human exposure to leptospirosis through animal contact, in particular rodents and domestic animals such as cattle and dogs. Blood samples taken from household members of cases, and animals in their immediate environment as well as water samples from their yards were, however, negative for leptospires. Regardless of these results, awareness among community members and healthcare workers on the prevention and recognition of zoonoses, including leptospirosis continues, to be provided.

Source: Centre for Emerging Zoonotic and Parasitic Diseases, Division of Public Health Surveillance and Response, Mpumalanga Provincial Epidemiology, NICD -NHLS; University of Pretoria Faculty of Veterinary Science, and Mpumalanga Provincial CDC (johnf@nicd.ac.za)

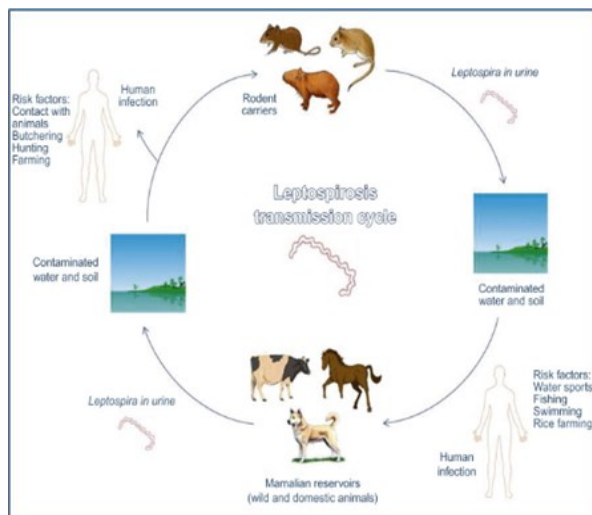


Figure 1. Leptospirosis transmission cycle



Figure 2. The 'One Health' triad

2 FOOD-AND WATER-BORNE DISEASES

a An update on the outbreak of *Listeria monocytogenes*, South Africa

The number of laboratory-confirmed listeriosis cases reported per week has decreased since the outbreak source was identified and the implicated ready-to-eat processed meat products recalled on 04 March 2018 (Figure 3). Since the recall, a total of 87 cases has been reported.

As of 20 July 2018, a total of 1 060 laboratory-confirmed listeriosis cases has been reported to NICD since 01 January 2017. Most cases have been reported from Gauteng Province (58%, 614/1 060) followed by Western Cape (13%, 136/1 060) and KwaZulu-Natal (8%, 83/1 060) provinces. Cases have been diagnosed in both public (64%, 680/1 060) and private (36%, 380/1 060) healthcare sectors. Outcome is known for 808/1 060 (76%) patients of whom 217 (27%) have died (Figure 4).

Females account for 56% (577/1 035) of cases where gender is reported. Where age was reported ($n=1\ 039$), ages range from birth to 93 years (median 18 years) – Figure 5. Neonates aged ≤ 28 days account for 43% (443/1 039) of cases. Of neonatal cases, 95% (423/443) had early-onset disease (birth to ≤ 6 days).

Although outbreak-related cases have declined sharply, sporadic cases (i.e. not epidemiologically linked) continue to be reported, as expected. Therefore, healthcare workers are encouraged to continue providing risk reduction guidance to persons at high risk for developing listeriosis (pregnant women, neonates ≤ 28 days of age, persons > 65 years of age, and persons with immunosuppression (due to HIV infection, cancer, diabetes, chronic renal disease, chronic liver disease, transplantation and immunosuppressive therapy)). Such guidance

includes advice on food hygiene (the World Health Organization's five keys to safer food is a useful resource for generic food hygiene advice) and avoidance of at-risk foods. Additionally, the WHO advises that pregnant women protect themselves against *L. monocytogenes* infection by:

- Avoiding high-risk foods, which are not cooked prior to eating. This includes smoked and lightly preserved fish or seafood, unpasteurised milk and its products (e.g. soft cheeses), pâté, and prepared salads from stores;
- Cooking meat and poultry products, including raw, processed (e.g. ham, viennas, polony and cold meats) and leftovers thoroughly; and
- Avoiding perishable foods that are past their 'consume before' dates.

The joint WHO/RSA listeria incident management team continues to co-ordinate activities to control and end the listeriosis outbreak, and to strengthen systems to prevent further outbreaks. To date, just under 900 environmental health practitioners (EHPs) have been trained in factory inspection procedures, including specimen collection. A total of 146 of 158 facilities across the country that produce ready-to-eat processed meat products has

been inspected. Environmental swabs were collected at 132 facilities and are being tested. Following the publication of three important pieces of legislation pertaining to food safety, planning for the following activities is underway including; a) publication of terms of reference for a food scientist and legal expert; b) a stakeholder workshop to agree on listeria levels; c) training of EHPs in the hazard analysis and critical control points (HACCP) and revised legislation; and d) a survey of *L. monocytogenes* levels in ready-to-eat foods to support proposed legislation. Risk communication activities continue to take place. Phase 3 of the Emergency Response Plan has commenced with reporting and consolidation of health system strengthening activities.

Further resources on listeriosis can be found on the NICD website at www.nicd.ac.za, Diseases A-Z, under 'listeriosis'

Source: Centre for Enteric Diseases, and Division of Public Health Surveillance and Response, NICD Provincial Epidemiology Teams; NICD-NHLS; Provincial CDCs; (junot@nicd.ac.za; outbreak@nicd.ac.za)

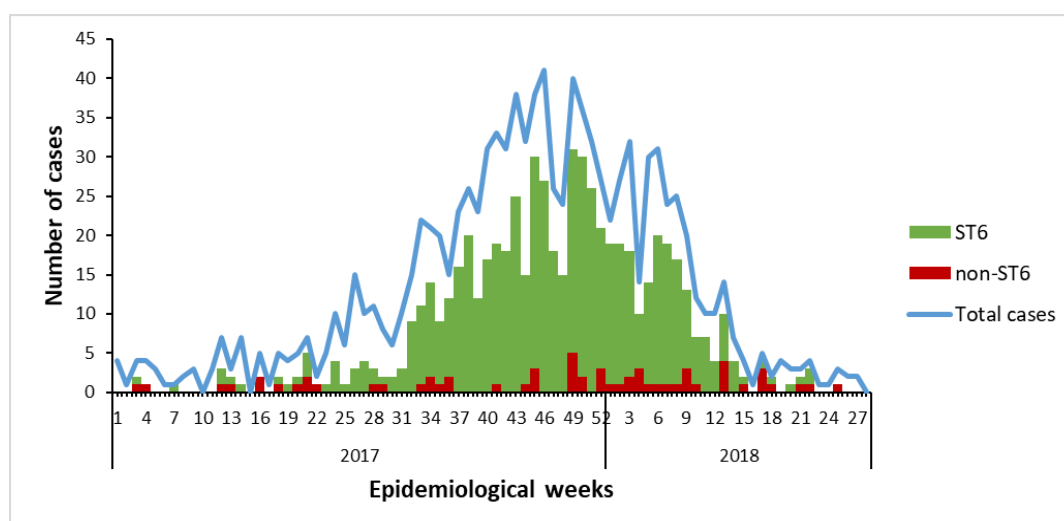


Figure 3.

Epidemic curve of laboratory-confirmed listeriosis cases by date of clinical specimen collection (n = 1 060) and sequence type (ST) (n = 637) South Africa, 01 January 2017 to 20 July 2018.

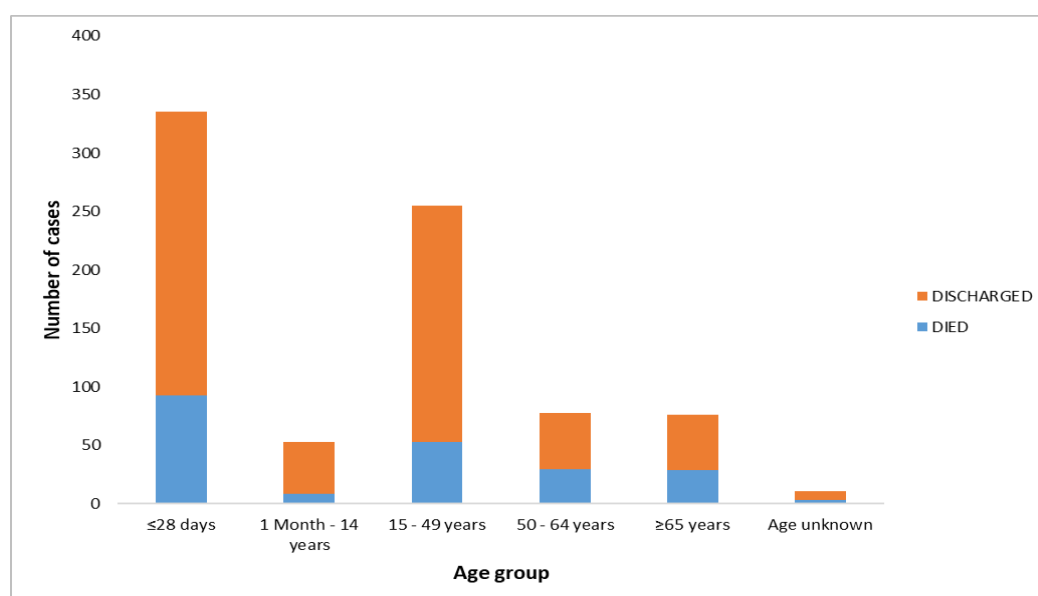


Figure 4.

Outcome of laboratory-confirmed listeriosis cases by age group South Africa, 01 January 2017 to 20 July 2018 (n = 808, where outcome is known).

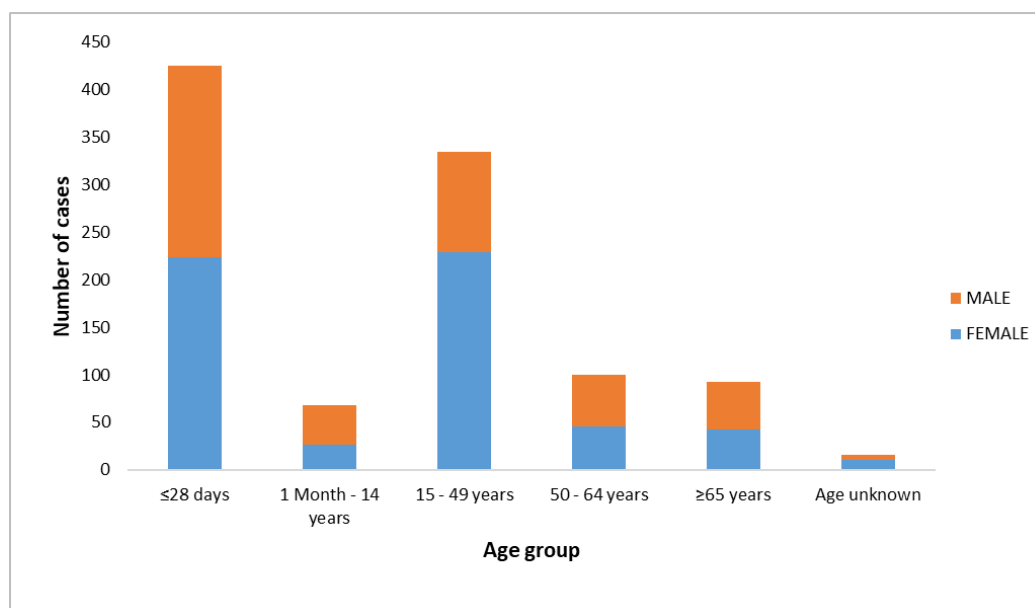


Figure 5. Age distribution of laboratory-confirmed listeriosis cases by gender, South Africa, 01 January 2017 to 20 July 2018 (n = 1 035, where gender is known).

b Foodborne outbreak amongst staff at a hospital in Gauteng Province

On 30 May 2018, the NICD received an alert of a suspected foodborne outbreak amongst staff at a hospital in Johannesburg, Gauteng Province. NICD carried out investigations between 31 May - 04 June 2018. It was established that the reported illness may have occurred as a result of either a staff lunch on 29 May or a water-cut at the hospital from 28-29 May 2018.

A case-control study was conducted to determine the cause and source of the outbreak. Staff members completed a case investigation form to establish demographics, any previous illness, access to drinking water, bathroom usage and a detailed history of foods consumed at the staff lunch. Leftover food items and self-administered rectal swabs from cases were sent for microbiological testing. The City of Johannesburg environmental health practitioners conducted an environmental investigation.

Of the 62 staff members who completed a questionnaire, 33 (53%) were identified as cases and 29 (47%) staff members met the inclusion criteria as controls. The average age of the cases was 38.4 years (range: 22.4 – 58.7). The majority of cases (n= 26, 79%) were females.

From the epidemiological curve (Figure 6), the average incubation period was 12.5 hours (range: 4-21). The most commonly reported symptoms amongst cases were diarrhoea (n=32, 96%) and abdominal cramps (n=29, 90%) with illness self-resolving within 24-48 hours. Logistic regression analysis indicated that staff who consumed beef lasagne were approximately 15 times more likely to develop symptoms compared to those that did not

consume beef lasagne [aOR:14.8 (CI:3.4–63.3)]. Microbiological testing of the food specimens indicated the presence of *Clostridium perfringens* in roasted vegetables, enterotoxin-producing *Bacillus cereus* and *Pseudomonas putida* in a three-dish composite vegetable sample, *C. perfringens* and a non-diarrhoeagenic *Escherichia coli* in beef stew and *C. perfringens* and *Cronobacter sakazakii* in the beef lasagne. However, toxin screening was not conducted on the *C. perfringens*. Microbiological investigations on the self-administered rectal swabs revealed no significant findings, while environmental investigations were limited to only an inspection of the food preparation facility, which was compliant with all regulations.

Based on the epidemiological information (incubation period, symptoms, duration of illness), logistic regression analysis and food microbiology results, the source of the outbreak was most likely inadequately reheated beef lasagne served at the lunch, with the causative pathogen the *C. perfringens*. Control measures implemented included education of both the food handlers and hospital management on the World Health Organization's five keys to safer food with a particular focus on reheating food to appropriate temperatures before consumption.

Source: South African Field Epidemiology Training Programme and Division of Public Health Surveillance and Response; NICD-NHLS (outbreak@nicd.ac.za)

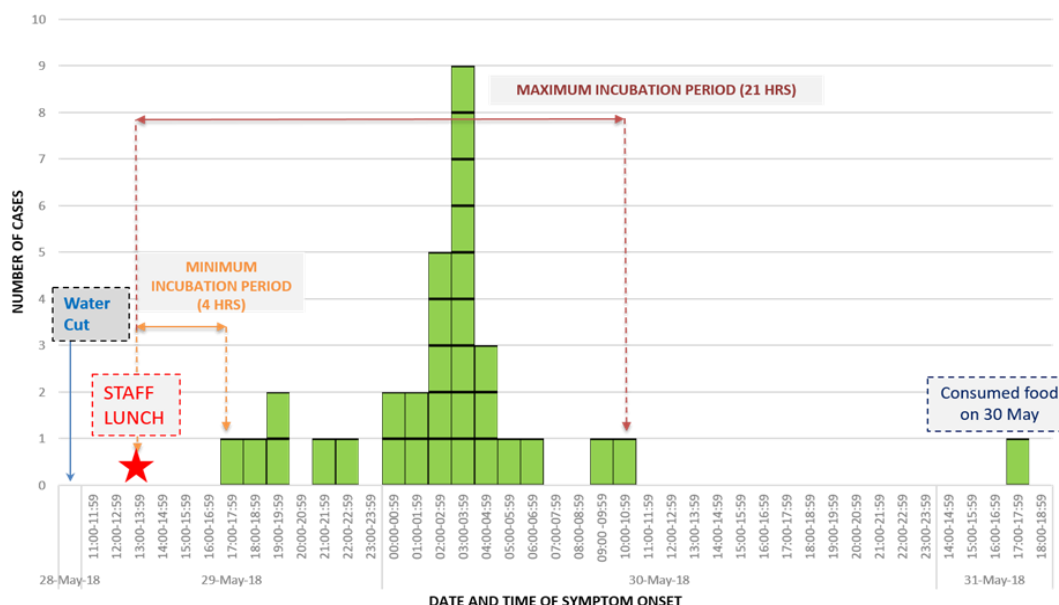


Figure 6. Epidemic curve of a foodborne outbreak amongst staff at a hospital in Johannesburg, Gauteng, Province, May 2018 (n=33)

c A case of hepatitis E in the Western Cape Province

In July 2018, a case of hepatitis E was reported in the Western Cape Province in a 56-year-old female healthcare worker. She first presented on 07 June 2018 with vomiting and abdominal pain. The diagnosis of hepatitis E virus (HEV) was confirmed with serology. The patient was treated conservatively and has since recovered fully from the episode.

HEV Epidemiology and transmission

Hepatitis E virus (HEV) causes an acute hepatitis syndrome. It is spread by the faeco-oral route, typically through contaminated water, but increasingly also through contaminated food, and in particular pork and shellfish. Uncommon routes of transmission include bloodborne and vertical transmission. Unlike hepatitis A, person-to-person transmission is uncommon. People at risk include those whose work activities include handling food, working in adult or child care centres, as well as healthcare workers.

Although HEV infections have been reported worldwide, the highest incidence is in Asia, Africa, Middle East and Central America. In South Africa, two studies conducted in the 1990s described seroprevalence rates of 10.7% and 1.8%-2.6% of hepatitis E, respectively. More recently, a 2016 study done in the Western Cape Province showed a hepatitis E seroprevalence of 27.9%, which is considerably higher than previously thought.

In a recent outbreak in Namibia, which started in December 2017, 1 569 cases were confirmed in the capital Windhoek. Subsequently 15 people have died, six of which were pregnant women. An outbreak response review by the country's National Health Emergency National Committee is scheduled for mid-July 2018.

Clinical features of HEV

The incubation period of HEV infection ranges from 15 – 60 days, with an average of 5 – 6 weeks.

Asymptomatic infection can occur. Symptoms of acute HEV infection include fever, fatigue, jaundice, nausea, diarrhoea, vomiting, abdominal pain and hepatomegaly. HEV infection is clinically indistinguishable from disease caused by hepatitis A virus. Usually the disease is self-limiting, but fulminant hepatitis in pregnant women and patients with chronic liver disease can occur.

Diagnosis and clinical management

Diagnosis is based on detecting antibodies to hepatitis E virus in serum through immunoassays. In South Africa the National Health Laboratory Service (Braamfontein laboratory and the Tygerberg laboratory), as well as a few private sector laboratories (including Lancet and Pathcare) offer serological testing for hepatitis E antibodies (IgG and IgM). The reverse transcription polymerase chain reaction (RT-PCR) test that detects viral RNA can be done at the Tygerberg virology laboratory, but it is generally not routinely performed in the country.

There is no specific treatment available for acute hepatitis E, and the infection usually resolves on its own. In severe cases, hospitalisation will be required. Specific antiviral therapy may be considered in high risk patients.

Notification

According to the National Health Act, 2003 (Act No. 61 of 2003), hepatitis E is a category 2 notifiable medical condition and should be notified through a written or electronic notification to the Department of Health within 7 days of diagnosis by health care providers as well as private and public health laboratories.

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

3 INTERNATIONAL OUTBREAKS OF IMPORTANCE

a Ebola virus disease outbreak, Democratic Republic of Congo

The Ebola virus disease (EVD) outbreak that was notified on 08 May 2018 in the Democratic Republic of Congo (DRC), has been declared over. On 24 July 2018, the Ministry of Health of the DRC declared the end of the ninth outbreak of EVD in the country. The announcement comes 42 days (two incubation periods) after blood samples from the last confirmed Ebola patient twice tested negative for the disease. No new laboratory-confirmed EVD cases have been detected since the last case developed symptoms on 02 June 2018.

As of 24 July 2018, there has been a total of 54 EVD cases (38 confirmed and 16 probable), with illness onset between 05 April and 02 June 2018. Of these cases, 33 died (overall case fatality ratio: 61%), including 17 deaths among confirmed cases. Cases were reported from three health zones: Bikoro (n=21; 10 confirmed, 11 probable), Iboko (n=29; 24 confirmed, 5 probable) and Wangata (n=4; all confirmed). Seven cases were healthcare workers, of which two died.

The WHO recommends the implementation of proven strategies for the prevention and control of EVD outbreaks. These include (i) strengthening the multi-sectoral coordination of the response, (ii) enhanced surveillance, including active case finding, case investigation, contact tracing and surveillance at points of entry (PoE), (iii) strengthening diagnostic capabilities, (iv) case management, (v) infection prevention and control in health facilities and communities, including safe and dignified burials, (vi) risk communication, social mobilization and community engagement, (vii) psychosocial care (viii) immunization of risk groups and research response, and (ix) operational support and logistics.

Current Risk assessment

The latest WHO assessment concluded that the current Ebola virus disease outbreak has been contained. Under the Consolidation and Stabilisation Strategic Plan adopted by the Ministry for Health, enhanced surveillance, a program for long-term Ebola survivor care and other response mechanisms remain in place following the end of the outbreak declaration, to maintain increased vigilance and contribute to the strengthening and resilience of the health system. WHO considers the public health risk associated with the recent Ebola virus disease outbreak to be low at national, regional and global levels. Ebola virus disease is, however, endemic in the DRC, and may re-emerge at any time.

Situation in South Africa

As at 24 July 2018, there have been no EVD cases in South Africa associated with the outbreak in the DRC. In addition, there are no suspected cases of EVD in South Africa at present.

More information about the outbreak and the associated containment efforts is available at <http://www.who.int/news-room/detail/24-07-2018-ebola-outbreak-in-drc-ends-who-calls-for-international-efforts-to-stop-other-deadly-outbreaks-in-the-country>

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

4 SEASONAL DISEASES

a Influenza

The 2018 influenza season, which started in week 18 (first week of May) continues, although the number of specimens per week submitted by Viral Watch sites has started to decline.

Since the beginning of April, a total of 373 influenza detections has been made, the majority of which have been influenza A(H1N1)pdm09 which was detected in 353 (95%) of patients. This was the strain that emerged globally in 2009, and which for the past eight years has circulated seasonally. Patients infected with this strain should be treated like any other seasonal influenza case. There is no requirement to report or notify individual cases of this strain of influenza. In addition, influenza A(H3N2) has been detected in four and influenza B in 13 patients, and three influenza A detections are untyped, due to low viral load.

Although the season has started to decline, it is never too late to vaccinate as long as influenza is still circulating in the community, and individuals who have not received influenza vaccine for 2018, especially those who are at risk of developing severe influenza illness or complications, are encouraged to get vaccinated. Recommendations on target groups, dosages and contraindications for the 2018 influenza vaccine, and influenza antiviral treatment are available in the 2018 influenza guidelines, available 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; (cheryl@nicd.ac.za)

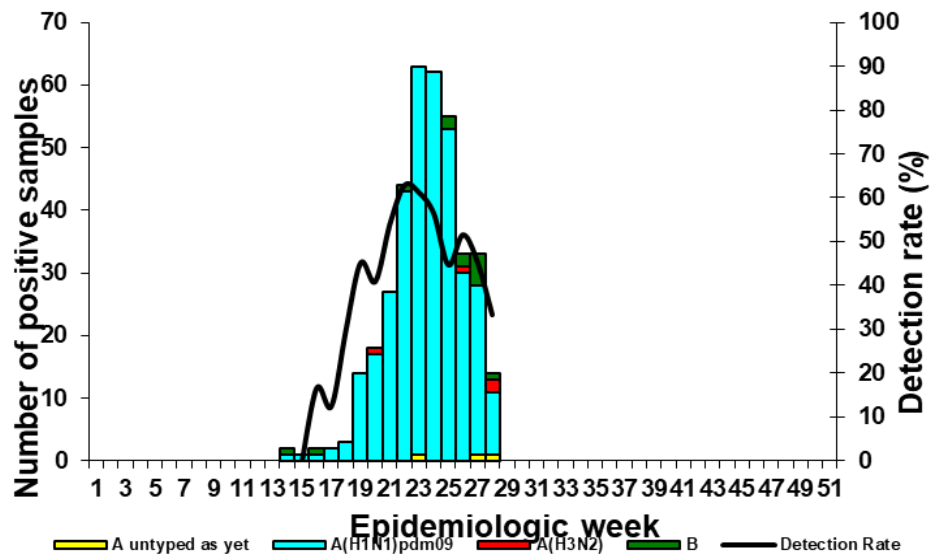


Figure 7.
Viral Watch 2018:
Number of positive
samples by influen-
za types and sub-
types and detection
rate*

*Only reported for weeks with >10 specimens submitted.

Patients known to have acquired influenza abroad or from contact with travellers are not included in the epidemiological curve.

6 AN OUTBREAK OF NECROTISING ENTEROCOLITIS AT A HOSPITAL IN GAUTENG PROVINCE

^a An update on the outbreak of necrotising enterocolitis of unknown aetiology in babies admitted to a neonatal unit in Gauteng Province, March–July 2018

An outbreak of necrotising enterocolitis (NEC) in a Gauteng hospital was reported to the NICD in April 2018 [NICD Communiqué May and June 2018]. The number of cases has declined since June 2018. Four new cases including one death have been reported between 20 June to 20 July 2018 (Figure 8). The decline could be attributed to the intervention measures put in place in mid-May following the infection prevention and control (IPC) audits and environmental health assessment recommendations. The measures implemented includes the isolation of NEC cases in one isolation room, education on hand hygiene and emphasis on strict adherence to IPC practices by health professionals, cleaners and the mothers, reduction of staff movement and overcrowding in the ward by reducing the number of rotating students, providing necessary resources needed for IPC adherence (e.g. hand scrubs).

As of 20 July 2018, a cumulative total of 41 NEC cases, including 37 (90%) premature and four

(10%) full-term babies has been reported, of which nine died (22%). The gestational age (GA) at birth ranged from 26 to 40 weeks (median: 32; IQR: 29 - 35). The age of the cases at the date of disease onset ranged from 2 to 59 days (median: 12; IQR: 7-21). Children under 1-month old (n=37) accounted for 90% of the cases.

Despite testing blood and stool samples, the aetiology of the outbreak has not been identified. Milk formula testing revealed the presence of *Bacillus* and *Streptococcus* species in mixed and dry powder milk; however, toxin production tests were not done. Investigations are ongoing to identify the source and the aetiology of this outbreak.

Source: Division of Public Health Surveillance and Response and Centre for Healthcare-associated infections, Antimicrobial Resistance and Mycoses, NICD-NHLS; Clinicians at a hospital in Gauteng Province; outbreak@nicd.ac.za

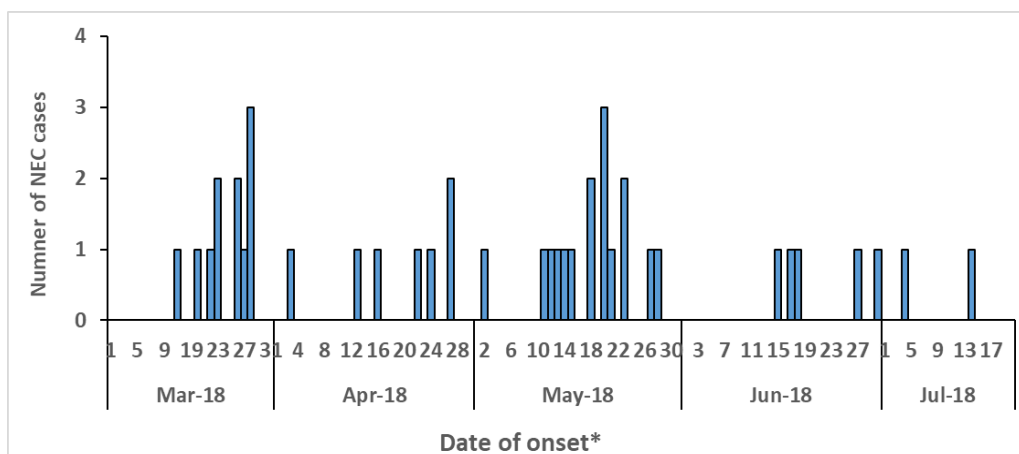


Figure 8. Epidemiological curve showing the number of NEC cases by date of disease onset, 1 March – 20 July 2018. (*Where date of onset was not known, date of diagnosis was used as a proxy (n=1)).

6 SURVEILLANCE FOR ANTIMICROBIAL RESISTANCE

a Carbapenemase-resistant Enterobacteriaceae—an update

The Antimicrobial Resistance Laboratory and Culture Collection (AMRL-CC) of the Centre for Healthcare-associated infections, Antimicrobial Resistance and Mycoses (CHARM) at the NICD has been testing referred isolates of suspected carbapenemase-producing Enterobacteriaceae (CPE) for the presence of selected carbapenemases. CPE has become a threat to healthcare and patient safety worldwide by compromising empiric antibiotic therapeutic choices and increasing morbidity, hospital costs and the risk of death. We are receiving clinically significant isolates from all specimen types based on antimicrobial susceptibility testing criteria for molecular confirmation. For the period January-June 2018, a total of 839 Enterobacteriaceae isolates was processed. Table 1 shows a breakdown per organism type and genotype. The majority of the isolates

were *Klebsiella pneumoniae* (n=553, 66%) followed by *Enterobacter cloacae* (n=131, 16%). Carbapenemases were expressed in 723 (86%) isolates and the predominating carbapenemase was OXA-48 and its variants (n=537, 64%). One hundred and twenty-six isolates (15%) expressed a combination of carbapenemases as follows: OXA-48 and its variants and NDM, n=113; OXA-48 and its variants and VIM, n=3; OXA-48 and its variants and GES, n=3; OXA-48 and its variants and KPC, n=1; NDM and VIM, n=4 and NDM and GES, n=2.

Source: Centre for Healthcare-associated infections, Antimicrobial Resistance and Mycoses, NICD-NHLS; olgap@nicd.ac.za

Table 1. Enterobacteriaceae by organism and carbapenemase type, January-June 2018

Organism Type	Number of isolates per organism type	OXA-48 & Variants	NDM	VIM	GES	KPC
<i>Citrobacter amalonaticus</i>	2	-	1	-	-	-
<i>Citrobacter freundii</i>	11	7	5	2	-	-
<i>Enterobacter aerogenes</i>	10	4	3	-	-	-
<i>Enterobacter asburiae</i>	7	1	3	-	-	-
<i>Enterobacter cancerogenus</i>	1	-	-	-	-	-
<i>Enterobacter cloacae</i>	131	72	28	4	-	-
<i>Enterobacter kobei</i>	4	2	-	-	-	-
<i>Enterobacter ludwigii</i>	1	1	-	-	-	-
<i>Escherichia coli</i>	21	7	9	-	-	-
<i>Klebsiella oxytoca</i>	3	1	2	-	-	-
<i>Klebsiella planticola</i>	2	1	1	-	-	-
<i>Klebsiella pneumoniae</i>	553	402	194	11	4	1
<i>Klebsiella variicola</i>	4	1	1	1	1	-
<i>Leclercia adecarboxylata</i>	1	-	-	1	-	-
<i>Morganella morganii</i>	2	1	2	-	-	-
<i>Proteus mirabilis</i>	6	1	3	-	-	-
<i>Proteus vulgaris</i>	1	-	1	-	-	-
<i>Providencia rettgeri</i>	21	3	19	-	-	-
<i>Raoultella ornithinolytica</i>	1	-	1	-	-	-
<i>Serratia marcescens</i>	57	33	12	1	-	-
Total	839	537	285	20	5	1

GES: Guiana extended-spectrum beta-lactamase; KPC: *Klebsiella pneumoniae* carbapenemase; NDM: New Delhi metallo-beta-lactamase; VIM: Verona integron-encoded metallo-beta-lactamase; OXA: oxacillinase-type carbapenemase. The metallo-beta-lactamase, imipenemase (IMP) was not expressed in any of the isolates.

7 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 9 on page 10.

1. Rift Valley fever: Uganda

An outbreak of Rift Valley fever (RVF) has been reported in the month of July in Uganda. As of 17 July 2018, there has been eight cases (six confirmed and two suspected), including three deaths (CFR: 42%). The six confirmed cases were reported from five different districts: one from Kasese, two from Isingiro, one from Ibanda, one from Mbarara and one from Sembabule district. The disease ranges from a mild 'flu-like' illness to a severe haemorrhagic fever that can be lethal among humans. The outbreak may be related to recent flooding and standing water enabling a higher number of mosquito eggs than usual to hatch and thus increased the potential for RVF to spread among people and animals.

2. Typhoid fever: Pakistan

In the past six months, more than 2 000 people in Pakistan have been infected with extensively drug-resistant (XDR) *Salmonella enterica* serotype Typhi. The first report of cases occurred early in 2018. Only one oral antibacterial, azithromycin, works against the XDR strain, and the other options, expensive intravenous (IV) drugs, are impractical for widespread use in Pakistan and other low-income nations. There is concern regarding spill-over into neighbouring countries. A vaccination campaign was initiated in February 2018 using a recently approved formulation that works in young children and triggers longer-lasting immunity than older versions.

3. Cholera: Nigeria, Cameroon, Congo DR, Republic of the Congo

The Central and West African regions are facing a cholera outbreak that has infected over 1 000 people in Nigeria, Cameroon, the Democratic Republic of Congo (DRC), and Congo-Brazzaville (Republic of the

Congo). Six people have died in Cameroon from the outbreak that has infected 43 people since May 2018. In Nigeria, 20 persons have died in about 181 cases recorded since a cholera outbreak hit some parts of Katsina state in the last two weeks of July 2018.

4. Measles: EU/EEA

According to the latest Communicable Diseases Threats Report (CDTR), the outbreak of the measles virus continues across EU/EEA countries. Countries that have reported the highest number of measles virus cases in 2018 include: Romania, 4 317; France, 2 588; Greece, 2 238; and Italy, 1 716. Since the start of the year (2018), there have been 31 reported deaths across the region due to measles. There are only four EU/EEA countries that have managed to reach the 95% target for both the 1st and 2nd doses, which has shown that more action is needed to combat this growing issue of risk perception.

5. Influenza: Namibia

There has been an increase in cases reported in Namibia of the influenza A(H1N1) virus. The first case was reported in June 2018. Subsequently, 70 cases have been laboratory-confirmed, 35 of which are from Windhoek; 24 from Okahandja; six from Rehoboth; two from Gobabis, and one each from Aranos, Ondangwa, and Katima Mulilo. Of the 70 cases, 28 are children aged 5 years and younger; 10 are children aged between 5 and 9 years, and 32 cases range between the ages of 10 and 80. The best protection against H1N1 is the seasonal flu vaccination.

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



Figure 9. Current outbreaks that may have implications for travellers. Numbers correspond to text above. The red dot is the approximate location of the outbreak or event.

8 WHO-AFRO: OUTBREAKS AND EMERGENCIES

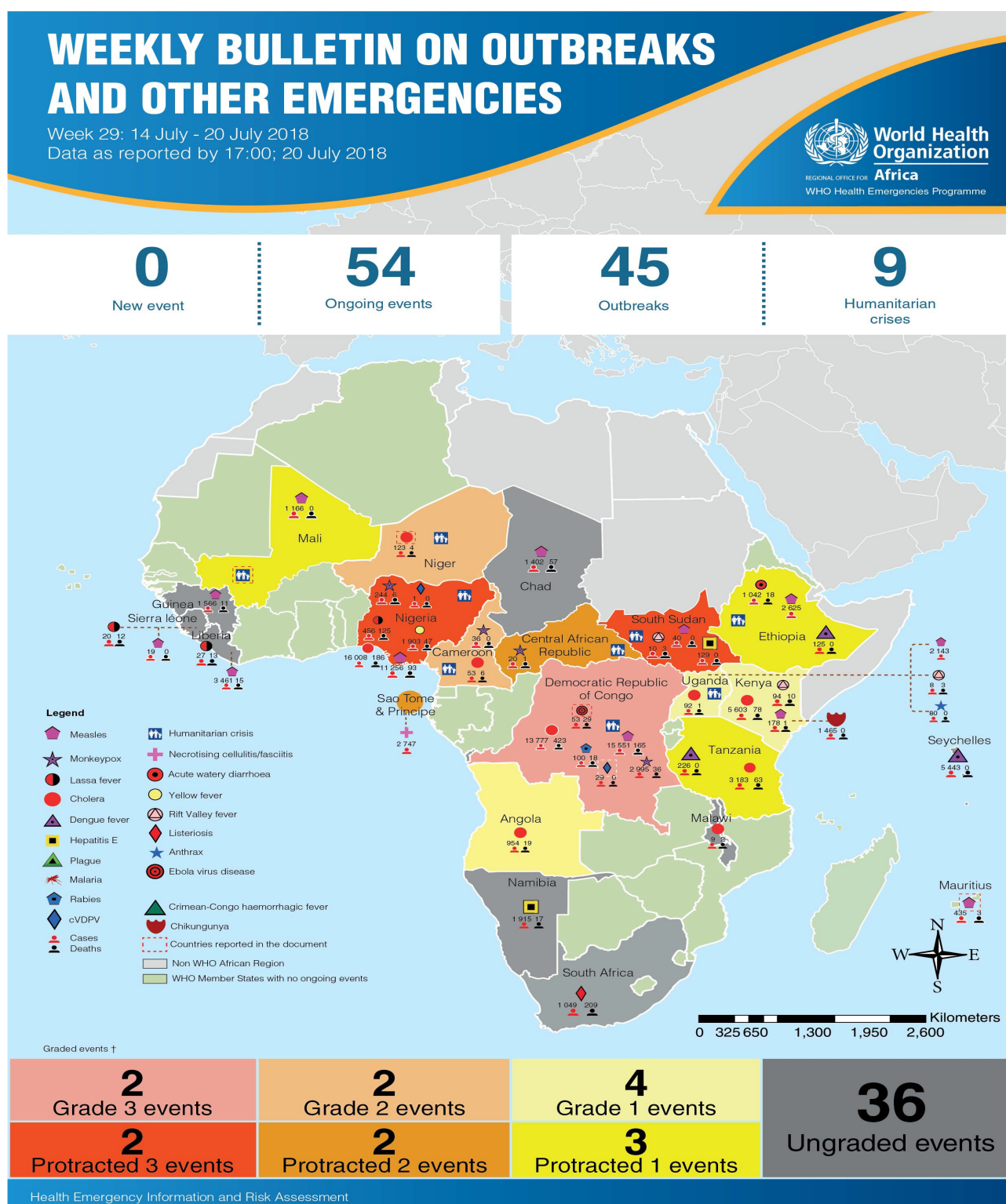


Figure 10. The Weekly WHO Outbreak and Emergencies Bulletin focuses on selected public health emergencies occurring in the WHO African Region. The African Region WHO Health Emergencies Programme is currently monitoring 54 events, of which 45 are outbreaks and 9 humanitarian crises. For more information see link: <http://apps.who.int/iris/bitstream/handle/10665/273214/OEW29-1420072018.pdf>