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1 ZOOBOTIC AND VECTOR-BORNE DISEASES

a An update on rabies in South Africa

From 14 November to 9 December 2016 one additional case of animal rabies has been confirmed from Gauteng Province. This case involved a dog from Hekpoort, located on the north-western outskirts of the province (data source: ARC-OVI). Since April of this year, a total of 50 animals including 28 jackals has been confirmed rabid in the western part of Johannesburg and northern Tshwane including Mogale City, Randfontein, Merafong City, Tshwane, Muldersdrift, Lanseria, Krugersdorp and Kromdraai surrounds (data source: ARC-OVI). No human cases of rabies have been associated with the outbreak in Gauteng yet, but many cases of possible exposure have been reported.

During the same period, animal rabies cases have also been reported from Mpumalanga (Orpen, Nkomazi and Nelspruit surrounds) (n=6); North West (Lichtenburg, Madibeng, Vryburg, Ditsobotla) (n=6); Limpopo (Tzaneen, Maruleng) (n=2) and Free State (Qwa-Qwa, Bethlehem) (n=2) provinces (data source: ARC-OVI, APVL). During this same time, at least 5 animal rabies cases were reported from KwaZulu-Natal (Underberg, Greytown, Vryheid and Kokstad) (data source: APVL).

Animal cases have been reported from the Eastern Cape Province, although numbers have not yet been confirmed.

Appropriate management of persons following exposure to animals potentially infected with rabies is crucial to prevent rabies in humans. Each dog bite case, but also exposure to rabid livestock and wildlife (e.g. cattle, jackal, mongoose etc.), should be considered as possible risk. Any exposure that results in a break in skin (e.g. nicks, scratches) with contact with infected or potentially infected animal saliva is a risk for rabies transmission. Post-exposure prophylaxis for rabies is safe and effective and provides the only intervention for preventing human rabies. For more information on post-exposure prophylaxis for rabies in humans, please visit www.nicd.ac.za. Rabies post-exposure guidelines can be found on the 'Diseases A-Z tab'.

Source: Centre for Emerging and Zoonotic Diseases, NICD-NHLS; (januszp@nicd.ac.za), Onderstepoort Veterinary Institute; Veterinary Services, Department of Agriculture, KZN

2 SEASONAL DISEASES

a Updated malaria treatment guidelines for South Africa, 2016

The National Department of Health and the South African Malaria Elimination Committee (SAMEC) have completed the updating and revision of the South African Malaria Treatment Guidelines. These are available on the NICD website at www.nicd.ac.za under the 'Diseases A-Z' tab. These guidelines are based on the 2015 World Health Organization's Guidelines for the treatment of malaria. Additional literature surveys have been undertaken. Factors that were considered in the choice of therapeutic options included effectiveness, safety, and impact on malaria transmission and on the emergence and spread of antimalarial drug resistance.

While malaria is endemic to three of South Africa's nine provinces, local transmission is restricted to the low-altitude border regions of Limpopo, Mpumalanga and KwaZulu-Natal provinces. Presently the majority of malaria cases are imported. Figure 1 shows the reported cases and deaths from July 2015 to November 2016.

South Africa committed itself to halt local malaria transmission within its borders by 2018. Elimination

strategy objectives are to strengthen passive and active surveillance, improve capacity to coordinate and implement malaria interventions, appropriately educate the population about malaria, and reduce the human malaria parasite reservoir. The mainstay of malaria control continues to be indoor residual insecticide spraying to substantially reduce the density of mosquito vectors in transmission areas, while limited larviciding is done in selected places. In the current malaria season there will be increased scrutiny of identified foci of transmission in endemic provinces, characterised by active case finding using sensitive molecular methods to detect submicroscopic parasite carriers, and intensified vector surveillance and control.

Source: Centre for Opportunistic, Tropical and Hospital Infections, NICD-NHLS; (johnf@nicd.ac.za); Malaria Directorate, National Department of Health (basilb@nicd.ac.za)

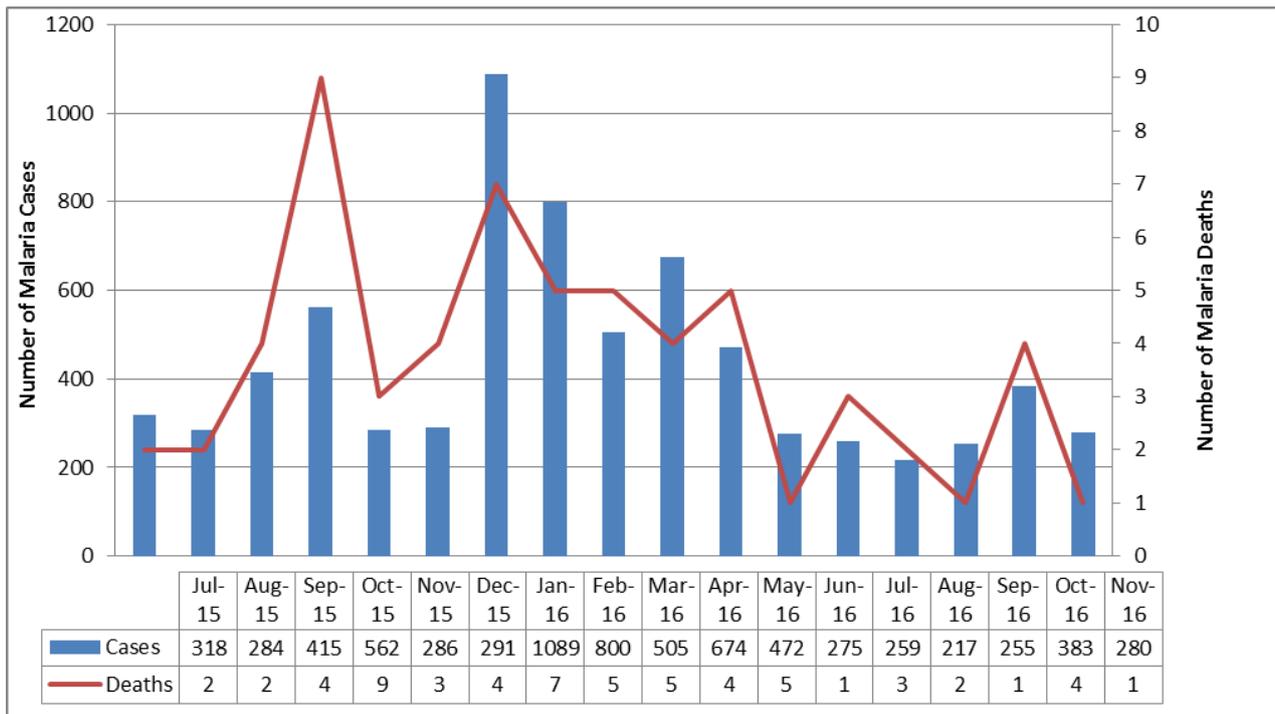


Figure 1. Malaria cases and deaths, all provinces, South Africa, July 2015–November 2016

3 ENTERIC DISEASES

a Cholera awareness over December 2016 to January 2017

In the third week of November 2016, there were unconfirmed reports of cholera in Masvingo Province, southern Zimbabwe. In addition, ongoing outbreaks of cholera have been reported from DRC, Mozambique, Kenya, Somalia and other sub-Saharan African countries. To date, no confirmed or suspected cases of cholera have been reported in South Africa. However there is a risk of importation by travellers from affected countries during the festive season. The mode of cholera transmission is faecal-oral. Importation of cases followed by contamination of local water supplies will put populations that lack access to safe drinking water and adequate sanitation at risk.

Therefore, all health facilities should be on alert, particularly those in Limpopo and Mpumalanga provinces. Adequate supplies for specimen collection (rectal swabs, specimen jars and Cary-Blair transport medium), case management (oral-rehydration solution and intravenous Ringer’s lactate), and copies of most recent cholera guidelines should be made available.

Symptoms of cholera include sudden onset of profuse, painless, watery diarrhoea with flecks of mucus in the stool (hence the name ‘rice water stool’) with or without vomiting. Patients may present with

severe dehydration requiring rapid intravenous rehydration. When health personnel suspect cholera, they should:

- Verify that the patient meets case definition for a suspected cholera case
- Examine the patient for dehydration and manage fluid loss appropriately (See RSA cholera guidelines at www.nicd.ac.za)
- Collect a stool specimen and send it to the nearest NHLS laboratory, clearly labelling the specimen ‘suspected cholera’ (See specimen collection guidelines at www.nicd.ac.za)
- Notify the NICD hotline (082-883-9920) and the local and provincial communicable disease control co-ordinator (CDCC) telephonically.
- Complete a case investigation form (CIF) obtainable on the NICD website under the ‘Diseases A-Z tab’ and submit it to the provincial CDCC.
- Observe precautionary infection control procedures.
- NHLS laboratories should submit all *Vibrio cholerae* isolates to the NICD Centre for Enteric Diseases (011 386 6269) for further confirmation.

Source: Centre for Enteric Diseases, NICD-NHLS; Division of Public Health Surveillance and Response, NICD-NHLS; outbreak@nicd.ac.za

4 SURVEILLANCE FOR ANTIMICROBIAL RESISTANCE

a Update on carbapenemase-producing Enterobacteriaceae

The Antimicrobial Resistance Laboratory and Culture Collection (AMRL-CC) of the Centre for Opportunistic, Tropical and Hospital Infections (COTHI) at the NICD has been testing referred isolates of suspected carbapenemase-producing Enterobacteriaceae (CPE) for the presence of selected carbapenemases. CPE have 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 November 2016, a total of 115 Enterobacteriaceae isolates were received. Forty-seven isolates were screened, 36 of which expressed carbapenemases that were screened for. One isolate expressed two carbapenemases (Table 1). The majority of the screened isolates were *Klebsiella pneumoniae* (35) followed by *Enterobacter cloacae* (5).

It is important to note that these figures do not represent the current burden of CPEs in South Africa. However our data reveal the presence of car-

bapenemases in Enterobacteriaceae isolates from all specimen types, nationally.

As a first step CPE surveillance is required to determine the extent of the problem in order to restrain the emergence and spread of resistance. The AMRL-CC is currently running a surveillance programme at national sentinel sites for CPE infections in patients with bacteraemia which provides representative data. This significant data will inform public health policy and highlight priorities for action. Controlling the spread and limiting the impact of CPEs in South Africa requires intensive efforts in both the public and private healthcare sectors going forward. NHLS and private laboratories are encouraged to submit suspected CPE isolates based on antimicrobial susceptibility testing (AST) criteria to AMRL-CC, NICD/NHLS. Please telephone (011) 555 0342/44 or email: olgap@nicd.ac.za; for queries or further information.

Source: Centre for Opportunistic, Tropical and Hospital Infections, NICD-NHLS; olgap@nicd.ac.za

Table 1. Enterobacteriaceae by CPE enzyme type, AMRL-CC, COTHI, NICD, November 2016 and January-October 2016

Organism	NDM		OXA-48 & Variants		VIM	
	Jan-Oct 2016	Nov 2016	Jan-Oct 2016	Nov 2016	Jan-Oct 2016	Nov 2016
<i>Citrobacter braakii</i>	1			1		
<i>Citrobacter sedlakii</i>		1				
<i>Enterobacter cloacae</i>	27	1	40	1	2	
<i>Escherichia coli</i>	10	1	74			
<i>Klebsiella pneumoniae</i>	252	6	406	22	12	1
<i>Providencia rettgeri</i>	14	2	1			
<i>Serratia marcescens</i>	27	1	24	1		
Total	331	12	545	24	14	1

NDM: New Delhi metallo-beta-lactamase; **OXA:** oxacillinase; **VIM:** Verona integron-encoded metallo-beta-lactamase.

5 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 6.

1. Yellow Fever update—Angola and DRC

As of 7 December, after 4 months without cases, seven new laboratory-confirmed cases of yellow fever were reported in the Democratic Republic of Congo's Lualaba Province in the health zones of: Sandoa (n = 6) and Kasaji (n=1). These cases were reported by the United Nations Office for the Coordination of Humanitarian Affairs (OCHA). No cases have been reported from Angola for the last four months.

2. Ebola update—Liberia and Guinea

No new cases of Ebola virus disease have been reported from Liberia and Republic of Guinea.

3. Lassa Fever update—Nigeria

As of 25 November 2016 (46th epidemiological week) the Nigeria Centre for Disease Control reported that all six suspected cases identified during the previous month tested negative for Lassa fever.

4. Cholera in Yemen, Kenya, Somalia

In Yemen, according to the Ministry of Public Health and Population, the number of cholera cases has increased by more than 1 200 cases as at 10 December 2016, bringing the cumulative number of total suspected cases of cholera to 8 975, including 89 deaths. The number of laboratory-confirmed cases of *Vibrio cholerae* 01 is 138.

In Kenya, a drought situation in parts of Lamu and Tana River counties has exacerbated food and water-borne disease. As of 15 December 2016, two deaths due to cholera have been reported from Lamu county and four from Tana River County, with at least 25 people receiving treatment at various private hospitals.

In Somalia, more than 30 cholera-related deaths have been reported from Meh dai governorate in Central Shabeellaha region of Somalia. The authorities have started anti-cholera campaigns in the area and are appealing for more aid.

5. MERS-CoV update

As of 6 December 2016, the Saudi Arabia Ministry of Health reported a total of five newly-confirmed cases, three newly-reported fatalities, and three newly-reported recoveries. Cumulatively as of 10

December 2016, there has been a total of 1 506 laboratory-confirmed cases of MERS-CoV infection, including 624 deaths [case fatality rate 41.4%], 866 recoveries and 16 currently active cases.

6. Plague in Madagascar

An unconfirmed report claims that bubonic plague is responsible for the death of at least 31 people in Madagascar's southern district of Befotaka Atsimo. Persistent droughts, with resultant bushfires are thought to be responsible for rodent migration into villages. Plague is endemic on the island and outbreaks have occurred nearly every year since 1980 with seasonal peaks September – March.

7. Measles in Somalia

According to UNICEF and since September 2016, 419 measles cases have been officially recorded, 302 of which are children under five. However, anecdotal reports are that measles is rife. Resource constraints and concomitant malnutrition have contributed to a high measles case-fatality rate. The regional and national Ministry of Health, UNICEF, the International Red Cross, the World Health Organization and other partners are collaborating to conduct a mass vaccination campaign. Some 54,000 children aged between nine months and 10 years old will be vaccinated against measles and receive vitamin A supplementation.

8. Mumps in the USA

The state of Arkansas, USA, is experiencing an outbreak of mumps, with 1 898 cases confirmed since 8 December 2016. This number exceeds the USA national total for 2015. The outbreak has affected 11 of the 75 counties in the state. The main concern for authorities responding to this outbreak is that 90% to 95% of school-aged children and 30% to 40% of adults involved in the outbreak have been fully immunised.

Source: Division of Public Health Surveillance and Response, NICD-NHLS, from Promed (www.promed.org)



Figure 2. Current outbreaks that may have implications for travellers. Number correspond to text above. The red dot is the approximate location of the outbreak or event

6 PHOTOQUIZ

December photoquiz

(above, right). A 32-year-old sheep farmer in Northern Cape Province presented with fever, lower back pain, epistaxis and bruising. His white cell count was $2 \times 10^3/\mu\text{l}$ and platelets were $15,000/\mu\text{l}$. What is your differential diagnosis? How would you manage this scenario? Please send an email to kerriganm@nicd.ac.za with the words 'December Photoquiz' in the subject line.



November Photoquiz (below, left). A 25-year-old male presented with a history of acute onset of profuse, watery diarrhoea with flecks of mucous and no blood (as seen in the figure, left). Diarrhoea of this description is typical of cholera and is known as 'rice-water stools'. Not all cholera cases present with rice-water stools. Cholera should be suspected when in an area where the disease is not known to be present and a patient develops severe dehydration or dies from acute watery diarrhoea. After managing the patient's dehydration according to the South African Guidelines for the Management of Cholera (see www.nicd.ac.za, Diseases A-Z tab), a stool specimen should be collected and sent to the laboratory labelled 'suspected cholera'. Photo courtesy <http://www.crudem.org/wp-content/uploads/2011/12/rice-water-stool.jpg>