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

Communicable Diseases Communiqué

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CONTENTS

1 SEASONAL DISEASES

Influenza

Data from two influenza surveillance programmes, influenza-like illness (ILI) at primary healthcare clinics and Viral Watch sites, and severe respiratory illness (SARI), which monitors severe disease in hospitalised patients, show that during 2014 the predominant circulating influenza subtype was influenza A(H3N2). The 2014 influenza season started in epidemiological week 21 (week ending 25 May), when the influenza detection rate rose above 10%, and peaked in epidemiological week 27 (week ending 06 July) with a detection rate of 80.4%. The season ended in epidemiological week 37 (week ending 14 September).

In the first nine weeks of 2015, 28 specimens were received from Viral Watch sites. Influenza A(H3N2) was detected in three patients who had recently returned from Europe. In addition, 14 specimens were collected at the time of entry into South Africa from abroad; influenza A(H1N1)pdm09 was detected in one, A(H3N2) in five, and influenza B in two of these travellers.

During the same period 126 patients with ILI were tested at two sentinel sites, but influenza was not detected. Other respiratory viruses were detected in patients with ILI, the majority being rhinovirus (41/78, 53%) followed by respiratory syncytial virus (15/78, 9%).

Between 01 January and 11 February 2015, 380 patients with SARI were tested at the four SARI sentinel hospital sites. Influenza B was detected in two patients admitted at Klerksdorp-Tshepong Hospital Complex, neither reporting recent travel. Other respiratory viruses were detected in 143 patients, the majority being rhinovirus (96/152, 63%) followed by parainfluenza (13/152, 9%) and RSV (10/152, 7%).

For the 2014 influenza season, influenza A(H3N2) was the dominant strain. Estimates of overall vaccine effectiveness (from the viral watch surveillance programme) adjusted for age and underlying conditions, found that the vaccine

effectiveness was 43.1% (95% CI: -26.8% to 74.5%). The circulating strain of influenza A(H3N2) was substantially drifted from the vaccine strain. Similarly, influenza viral characterisation data from the United States of America 2014/2015 season indicated that 52% of the influenza A(H3N2) viruses were antigenically different (drifted) from the A(H3N2) vaccine virus component.[1] Influenza A(H3N2) viruses were associated with outbreaks in several countries (especially in the northern hemisphere) and the majority of A(H3N2) viruses were antigenically related to A/Switzerland/9715293/2013[2]. As a result of the drift, the influenza vaccine recommendations for both the southern and northern hemisphere have changed for the 2015/2016 seasons.

Influenza vaccination

Recommended composition of influenza virus vaccine for use in the 2015 southern hemisphere influenza season

The following strains have been recommended by the World Health Organization (WHO) for the 2015 southern hemisphere influenza season:

- an A/California/7/2009 (H1N1)pdm09-like virus
- an A/Switzerland/9715293/2013(H3N2)-like virus[a]
- a B/Phuket/3073/2013-like virus

[a] A/South Australia/55/2014, A/Norway/466/2014 and A/Stockholm/6/2014 are A/Switzerland/9715293/2013-like viruses

Timing of influenza vaccination

Since it takes about two weeks after vaccination for protective antibodies to develop, it is recommended that people be vaccinated as soon as vaccine becomes available, to ensure that they are protected before the influenza season starts. Healthcare workers are encouraged to discuss influenza vaccination with their patients, in particular those who are at increased risk for severe influenza-associated complications.

Detailed recommendations on target groups, dosages and contraindications for the 2015 influenza vaccine can be accessed in the February issue of the South African Medical Journal, available at: http://www.samj.org.za/index.php/samj/article/viewFile/9367/6535.

Owing to the antigenic drift in influenza A(H3N2) and influenza B viruses noted in the 2014 northern hemisphere influenza season, new influenza strains had to be incorporated in the 2015 southern hemisphere influenza vaccine. There has subsequently been a delay in influenza vaccine production and the 2015 influenza vaccine will only be available towards the end of April 2015.

References

1. CDC. HAN 374: CDC Health Advisory Regarding the Potential for Circulation of Drifted Influenza A(H3N2) Viruses. 2014
2. http://www.who.int/influenza/vaccines/virus/recommendations/201502_recommendation.pdf

Source: Centre for Respiratory Diseases and Meningitis, NICD-NHLS

2 VACCINE-PREVENTABLE DISEASES

Measles update

In 2014, a total of 63 laboratory-confirmed measles cases was reported from Northern Cape and Gauteng Provinces, where outbreaks were declared in September 2014. As at 11 March 2015, there have been only two outbreak-related laboratory-confirmed measles cases with onset of illness in 2015. Both cases were reported in ZF Mgacwu District in Northern Cape Province. The last outbreak-related laboratory-confirmed case in this district was recorded on 13 January 2015; the measles outbreak can be declared over, since there have been no additional cases for 42 consecutive days (two maximal incubation periods of 21 days). Successful control of the outbreak was likely due to interventions vaccinating target populations in the affected areas. The outbreak in Gauteng Province has also been declared over. A single sporadic laboratory-confirmed measles case was reported from Bojanala District of North West Province in February 2015, not linked to the previous outbreaks.

A high index of suspicion should be maintained for new measles cases countrywide. Any suspected measles case should have a serum sample collected and sent to the NICD for confirmatory testing, together with a completed case investigation form (available from NICD website under Measles FAQs: www.nicd.ac.za/assets/files/Measles%20Rubella%20case%20investigation%20form%20Mar%202014.pdf). The measles vaccine history should be indicated on the case investigation form and all clinically suspected measles cases should be notified

to the nearest Department of Health Communicable Diseases Surveillance unit.

Source: Centre for Vaccines and Immunology, NICD-NHLS; Department of Health - EPI and Communicable Diseases Directorates (National, Northern Cape Province and ZF Mgcawu District)

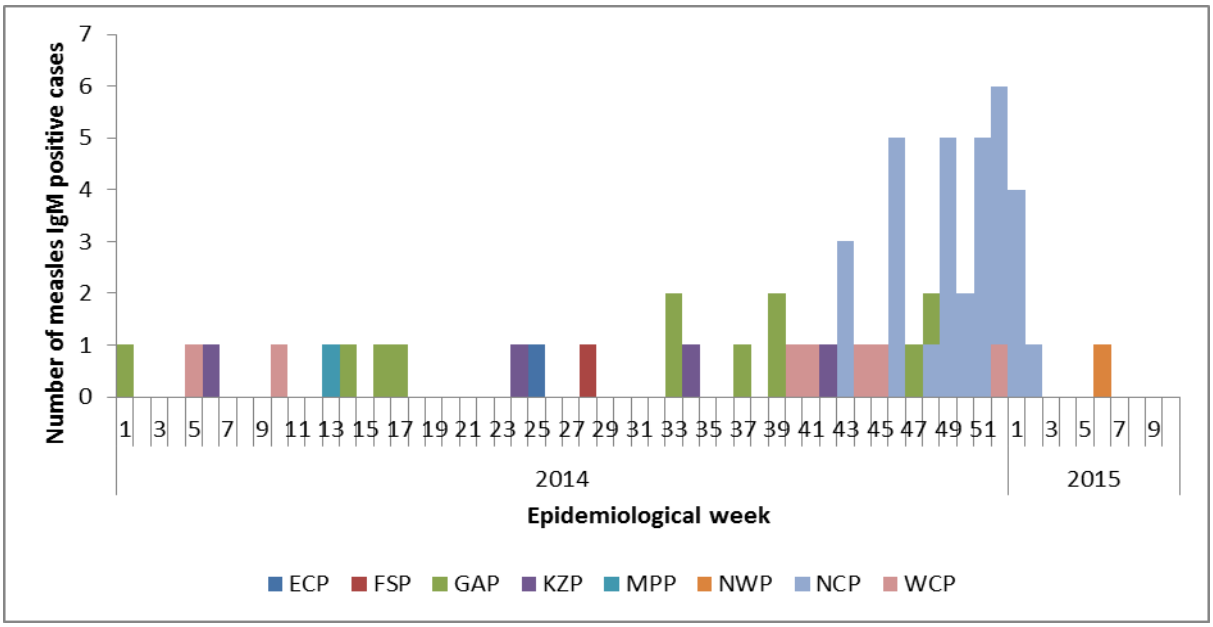

Figure 1. Measles IgM positive cases in South Africa, 2014/2015

3 ZOONOTIC AND VECTOR-BORNE DISEASES

Malaria

Alert: malaria season

The malaria season in southern Africa is from September to May each year, and an increase in both local (from malaria-endemic areas in South Africa) and imported (from other malaria-endemic countries) cases can be expected over the upcoming Easter holiday period. Malaria is endemic in three South African provinces: Limpopo, Mpumalanga, and north-eastern KwaZulu-Natal (KZN). Travellers to malaria-endemic areas within South Africa or other malaria-endemic countries (notably Mozambique) need to ensure personal protection against mosquito bites. Where chemoprophylaxis is indicated, three similarly effective chemoprophylactic agents are recommended for Southern Africa: Mefloquine (Lariam®, Mefliam®), doxycycline, and atovaquone-proguanil (Malanil®, Numal®); the choice of agent must be individualised. For advice on preventive measures, access the following link: http://www.doh.gov.za/docs/policy/2011/malaria_prevention.pdf.

Odyssean malaria, Gauteng Province

Odyssean malaria refers to the acquisition of malaria outside an endemic area, from the bite of an infective mosquito inadvertently translocated from an endemic area. Vector mosquitoes can be transported out of their normal habitats by a variety of means (including aircraft, motor vehicles, and ships).

Two unlinked odyssean malaria cases in Gauteng Province were reported in the December 2014 and January 2015 NICD communiques respectively. During March 2015, two clusters of odyssean malaria were identified, one with four epidemiologically-linked cases and another with six epidemiologically-linked cases. Investigations into the two clusters are currently underway; however, preliminary investigation findings indicate that none of the case-patients in either cluster had travelled outside Gauteng Province in the preceding months. Malaria must be considered in the differential diagnosis of acute febrile illness in returning travellers. In addition, healthcare workers need to

maintain a high index of suspicion for malaria in all patients presenting with fever >38^{0}C and headache with flu-like illness, or fever >38^{0}C with impaired consciousness, where no obvious cause is evident and in whom no recent history of travel to a malaria risk area is forthcoming.

Diagnostic tests for malaria should be done urgently, since prompt and appropriate management is critical to improving patient outcomes. Delays in diagnosis, misdiagnosis (most commonly as influenza), and delayed treatment are the most common factors associated with adverse outcomes. Healthcare workers, especially those in non-endemic areas, must ensure that any case of malaria is notified.

The South African national guidelines recommend the use of artemether–lumefantrine (Coartem®) or quinine plus doxycycline/clindamycin for uncomplicated falciparum malaria. Severe falciparum malaria is treated using quinine plus doxycycline/clindamycin or intravenous artesunate where available. An initial loading dose of 20 mg/kg of quinine is required for all cases of severe malaria to rapidly reach a therapeutic level. Chloroquine and sulphadoxine-pyrimethamine are not to be used in the treatment of falciparum malaria due to high-level resistance. Non-falciparum malarial infections are less common in sub-Saharan Africa; artemether-lumefantrine or quinine as above can be used for treatment of acute non-falciparum malarial illness. Chloroquine should only be used if there is reliable laboratory confirmation of non-falciparum species. The addition of primaquine to the above initial treatment is indicated for *Plasmodium ovale* or *P. vivax* infections to prevent relapse.

Residents should minimise potential mosquito breeding sites by ensuring that no temporary bodies of water remain in their vicinity.

An update on recommendations for the treatment and prevention of malaria for the 2015 season in South Africa was published in the March 2015 issue of the South African Medical Journal, and is available at: www.samj.org.za/index.php/samj/article/download/9407/6579.

Source: Division of Public Health Surveillance and Response, NICD-NHLS

4 CASE REPORTS

a Botulism

On 30 January 2015, a 44-year-old male was admitted to a private hospital in Johannesburg complaining of abdominal pain, difficulty in swallowing and breathing, constipation, and nausea. The following day his condition deteriorated rapidly; he developed respiratory failure and required intubation and ventilation. His condition continued to worsen and he developed acute flaccid paralysis. Due to the nature of the presentation (bulbar palsy and gastrointestinal symptoms), the disease progression (respiratory failure and acute flaccid paralysis), the patient's clinician considered botulism as a differential diagnosis.

Detailed history of food consumption in the two days prior to illness onset was obtained from the patient's wife, in order to identify possible foodborne sources of *Clostridium botulinum*. In summary:

- On 28 January 2015: the patient consumed food items purchased from a reputable commercial food store for lunch and supper, and also ate home-made pickled cucumbers (bought from an 'artisanal' producer).
- On 29 January 2015: the patient consumed food items purchased from a reputable commercial food store for lunch, and in the evening ate chicken curry with vegetables (potatoes, peas and carrots) at a restaurant in a shopping mall.

Laboratory investigation for botulism was performed at the NICD-NHLS using the mouse bioassay, which is the gold standard method for detection of botulinum neurotoxin (BoNT). This method entails an initial mouse toxicity assay where the mice are injected with untreated patient serum. In this case, a blood sample collected on day 2 of illness was used for the assay, and the mice died within 24 hrs post-inoculation. Subsequently, a BoNT mouse neutralisation assay was performed during which mice were injected with patient serum treated with anti-toxin A, B and E, respectively. Preliminary results indicate that the cause of illness is BoNT type E.

Although the patient required intensive care and mechanical ventilation, he is recovering. Unfortunately, it was not possible to identify the food item/s responsible for the disease.

Focus on botulism

Botulism is a paralytic illness caused in humans by neurotoxins produced by *Clostridium botulinum* (toxin types A, B, E, F, and H), and rarely, by botulinum-producing strains of *Clostridium butyricum* (type E toxin), *Clostridium baratii* (type F toxin) and *Clostridium argentinense* (type G toxin). There are five forms of botulism, characterised by the mode of acquisition: infant botulism, wound botulism, foodborne botulism, adult enteric infectious botulism, and inhalational botulism.

Although *C. botulinum* spores are ubiquitous in the environment, the growth and production of botulinum toxin in foods only occurs under particular conditions (anaerobic, low-salt, low-acid conditions). Canning and fermentation of foods both create anaerobic conditions that facilitate the germination of *C. botulinum* spores, and contaminated home- or commercially-canned foods (including a range of vegetables, meat, fish, and condiments) have been linked to outbreaks of botulism since the 19th century. However, a wide range of food items have been responsible for outbreaks, including: meat products (smoked ribs, sausages, ham); fish products (smoked, fermented, or salted); vacuum-packed ready-to-eat products (bean soup, meat-containing 'ready meals'); fermented vegetable products (tofu and other fermented bean products); and beverages (commercial carrot juice, illicit alcoholic beverages).

The onset of symptoms in foodborne botulism usually begins after an incubation period of 12-36 hours (range four hours to eight days) after ingestion of the preformed toxin. Prodromal symptoms are predominantly gastrointestinal (including nausea, vomiting, abdominal pain, diarrhoea) accompanied by dry mouth and sore throat. Clinical disease is characterised by cranial nerve palsies (symptoms may include blurred vision, diplopia, nystagmus, ptosis, dysphagia, dysarthria and facial weakness) followed by descending acute flaccid paralysis. Respiratory compromise requiring intubation and mechanical ventilation is common, caused by diaphragmatic paralysis and/or upper airway compromise. The disease course is variable, ranging from mild illness to rapidly progressive disease with death within 24 hours of symptom onset.

Management of foodborne botulism includes intensive care support with mechanical ventilation if needed, and administration of equine antitoxin. Although the efficacy of antitoxin has only been evaluated in animal studies, observational studies suggest that antitoxin therapy is likely to benefit humans with botulism. Antitoxin should be administered as soon as possible if the clinical suspicion for botulism is high, and not be delayed pending the outcome of laboratory testing for botulism. Although the efficacy is likely to be greatest if administered early after onset of symptoms, given the protracted course of illness in severe cases and potentially fatal nature of the disease it is recommended to source and administer antitoxin regardless of delays in clinical diagnosis or antitoxin procurement. However, since equine antitoxin can cause sensitisation and anaphylaxis, it should only be given if the history and clinical presentation are highly suggestive of the disease. Antitoxin is not available in South Africa, but may be procured from international producers if warranted.

A clinical diagnosis of botulism is supported by detection of botulinum neurotoxin (BoNT) or *C. botulinum* in the stool or suspected food. It is important that clinical samples are collected as soon as possible after onset of illness (ideally within 3 days) to increase the likelihood of meaningful results.

Source: Division of Public Health Surveillance and Response and Centre of Emerging and Zoonotic Diseases, NICD-NHLS; Clinicians at Sunninghill Hospital

b Diphtheria

An 8-year-old boy was referred from a secondary hospital to Inkosi Albert Luthuli Central Hospital in Durban (KwaZulu-Natal Province) on 15 March 2015 for urgent assessment. There was a three-day history of fever and sore throat with progressive difficulty in swallowing and breathing, and a one-day history of swelling of the neck. Clinically, the child was severely ill; he had a massively swollen anterior neck ('bull neck') with marked drooling and respiratory distress. On oropharyngeal examination, massive swelling of the tonsils and a whitish membrane covering the uvula was noted. An emergency tracheostomy was performed, following which the child was transferred to the intensive care unit for further management. A sample of the pseudomembrane and a tonsillar swab were collected and submitted to the bacteriology laboratory for routine microscopy and culture, as well as culture on selective media for *Corynebacterium diphtheriae*.

Penicillin, gentamycin, and metronidazole were administered to the patient.

Given the highly suggestive clinical presentation, the case was notified to provincial and city health authorities as a suspected diphtheria, and specific patient management and appropriate public health response were initiated.

The child's mother confirmed that he had received diphtheria-containing vaccine at 6, 10 and 14 weeks of age and a booster at 18 months of age, but he had not received a booster dose at 6 years of age; through the EPI programme, diphtheria immunisation is offered at 6, 10 and 14 weeks of age with boosters at 18 months as well as 6 and 12 years of age

The NHLS bacteriology laboratory at Inkosi Albert Luthuli Central Hospital isolated *C. diphtheriae* from the clinical samples. The *C. diphtheriae* isolate was then sent to NHLS Green Point Complex media laboratory for toxigenicity testing using the Elek test. A positive Elek test result showed that the isolate produced toxin, and confirmed the clinical diagnosis of diphtheria.

Diphtheria antitoxin (DAT) therapy was not warranted in this case, given the duration and stage of illness. Despite an initial improvement and subsequent step-down from the intensive care unit, the child developed unexpected complications and died on 22 March 2015.

Focus on respiratory diphtheria

Respiratory diphtheria is caused by toxin-producing strains of *C. diphtheriae*, and rarely by toxigenic strains of other *Corynebacterium* species (*C. ulcerans*, *C. hemolyticum* or *C. pseudotuberculosis*). It is infrequently reported in South Africa; a case of suspected respiratory diphtheria was reported in the September 2013 Communique, and the last laboratory-confirmed case of respiratory diphtheria in South Africa occurred in February 2010 (reported in the February 2010 Communiqué). Although uncommon in South Africa, there is concern that this potentially lethal disease may resurge, as it has in other regions of the world over the past decade - most notably Eastern Europe, Southeast Asia, South America and the Indian subcontinent.

It is important that clinicians are aware of the range of clinical presentations and appropriate diagnostic investigations in order to detect cases timeously and limit mortality. A presumptive diagnosis of respiratory diphtheria may be based on a number of clinical clues, including: mildly painful tonsillitis/ pharyngitis associated with an exudate/membrane; adenopathy and cervical swelling; hoarseness and stridor; palatal paralysis; serosanguinous nasal discharge with associated mucosal membrane ('pseudomembrane'), and low-grade fever. The pseudomembrane is typically grey, thick, fibrinous and firmly adherent. Mild cases of disease mimic streptococcal pharyngitis, and the pharyngeal pseudomembrane may not develop, particularly in vaccinated people. The classic presentation of toxic diphtheria is associated with extensive pseudomembranous pharyngitis, massive swelling of the tonsils, uvula, cervical lymph nodes, submandibular region, and anterior neck ('bull neck'). Laryngeal diphtheria presents as gradually worsening hoarseness and stridor, usually as an extension of pharyngeal involvement in children. Nasal diphtheria is characteristically a mild, chronic illness with serous/serosanguinous nasal discharge.

Absorption of diphtheria toxin from the site of infection can cause systemic complications, including cardiac toxicity (myocarditis, acute congestive failure), neurotoxicity (paralysis of soft palate, cranial neuropathies and peripheral neuritis) and renal toxicity (renal failure). Confirmation of the diagnosis relies on the isolation of toxigenic *C. diphtheriae* from appropriate specimens; specimens should be taken from the nose and throat, and from beneath the membrane, if present. Multiple site sampling should always be considered in a suspected case as this may increase the organism recovery rate. The specimens must be sent to the laboratory immediately since rapid inoculation of selective culture media is extremely important for organism recovery; if the transportation is likely to be delayed, the specimens must be submitted in a suitable transport medium (e.g. Amies). The laboratory must be contacted beforehand to ensure that the selective media is available and that the specimen is processed immediately on arrival. Following isolation of *C. diphtheriae,* the isolate/s is subjected to testing for toxigenicity since non-toxigenic *C. diphtheriae* may be isolated, but do not cause clinical diphtheria.

The mainstay of treatment of a suspected diphtheria case is prompt administration of DAT; this should be given without waiting for laboratory confirmation of a diagnosis. DAT only neutralises toxin before its entry into cells so it is critical that DAT be administered as a matter of urgency. The recommended dosage and route of administration depend on the extent and duration of disease.

Antibiotics should also be given, in order to eradicate carriage of the organism, limit transmission, and stop further production of diphtheria toxin. The current recommendations for antibiotic therapy of diphtheria include erythromycin or penicillin.

Unfortunately, there are currently few manufacturers of DAT globally and supplies are limited to few facilities/institutions worldwide. South Africa does not stock any supplies of DAT, and it must be sourced from overseas suppliers on a case-by-case basis through an emergency MCC Section 21 application.

Diphtheria is a notifiable disease in South Africa and all suspected cases must be reported to the Department of Health authorities. Management of contacts should include screening for possible respiratory diphtheria, obtaining nasopharyngeal cultures for *C. diphtheriae,* administering chemoprophylaxis, and assessing diphtheria vaccination status.

Source: Division of Public Health Surveillance and Response, NICD-NHLS; Microbiology Laboratory, NHLS KwaZulu-Natal Academic Complex; Diagnostic Media Production Laboratory, NHLS Green Point Complex; Clinicians at Inkosi Albert Luthuli Central Hospital, KwaZulu-Natal Province; KwaZulu-Natal Province Department of Health

5 INTERNATIONAL OUTBREAKS OF IMPORTANCE TO SOUTH AFRICAN TRAVELLERS AND HEALTHCARE WORKERS

Ebola virus disease (EVD) outbreak: update

Ebola virus disease (EVD) outbreak: situation update

The outbreak continues in the three affected countries (Guinea, Liberia and Sierra Leone). New cases have been reported in all these countries in the past week.

1. Countries with widespread and intense transmission

As at 22 March 2015, a cumulative total of 24 872 EVD cases (laboratory-confirmed, probable and suspected) including 10 311 deaths (case fatality rate of 41%) has been reported in Guinea, Liberia and Sierra Leone. A summary of case numbers and deaths reported is shown in Table 1.

Table 1: Number of Ebola virus disease cases and deaths in Liberia, Guinea and Sierra Leone as at 15 March 2015

Country	Total cases (laboratory-confirmed, probable and suspected)	Total deaths	Case fatality rate	Number of cases among healthcare workers (number of deaths)
Guinea	3 429	2 263	66%	179 (93)
Liberia	9 602	4 301	45%	372 (180)
Sierra Leone	11 841	3 747	32%	302 (221)
Total	**24 872**	**10 311**	**41%**	**853 (494)**

Source: World Health Organization Global Alert and Response: Ebola situation report of 25 March 2015 (www.who.int)

2. Countries with an initial case or cases, or with localised transmission

To date six countries (Nigeria, Senegal, Spain, United States of America, Mali and United Kingdom) have reported localised transmission or imported a case or cases from Guinea/Liberia/Sierra Leone. Nonetheless the EVD outbreaks in these countries have been declared over.

Situation in South Africa

As at 24 March 2015 there have been no EVD cases in South Africa associated with the current outbreaks in West Africa. In addition, there are no suspected cases of EVD in South Africa at present. However, healthcare workers must maintain vigilance for cases of all viral haemorrhagic fevers including imported cases of EVD. The risk of Ebola being introduced into South Africa remains low but

a high index of suspicion is necessary given ongoing EVD transmission in West Africa. Testing for viral haemorrhagic fever viruses (including Ebola virus) in South Africa is only available at the NICD. EVD testing is neither warranted nor useful for persons that are not suffering from a clinical illness compatible with EVD, even in the event of compatible travel histories. The tests cannot be used to determine if the patient has been exposed to the virus and may develop the disease later.

Requests for testing (with a detailed clinical, travel and exposure history) should be directed to the NICD Hotline at 082 883 9920 (a 24-hour service, for healthcare professionals only).

Source: Division of Public Health Surveillance and Response , NICD-NHLS

6 ANTIMICROBIAL RESISTANCE

Update on carbapenemase-producing Enterobacteriaceae

The Johannesburg and Cape Town Antimicrobial Resistance Laboratories of the Centre for Opportunistic, Tropical and Hospital Infections (COTHI) at the NICD/NHLS perform testing on referred isolates of suspected carbapenemase-producing Enterobacteriaceae (CPE) for the presence of selected carbapenemase genes. For February 2015, a total of 43 Enterobacteriaceae isolates was received. Forty-two isolates were screened, 33 of which were confirmed to be carbapenemase-producing Enterobacteriaceae (CPE). One isolate was not processed due to technical issues. The majority of the isolates tested were *Klebsiella pneumoniae* (20/42, 48%) followed by equal numbers (6/42, 14%) of *Enterobacter cloacae* and *Providencia rettgeri* (Figure 2).

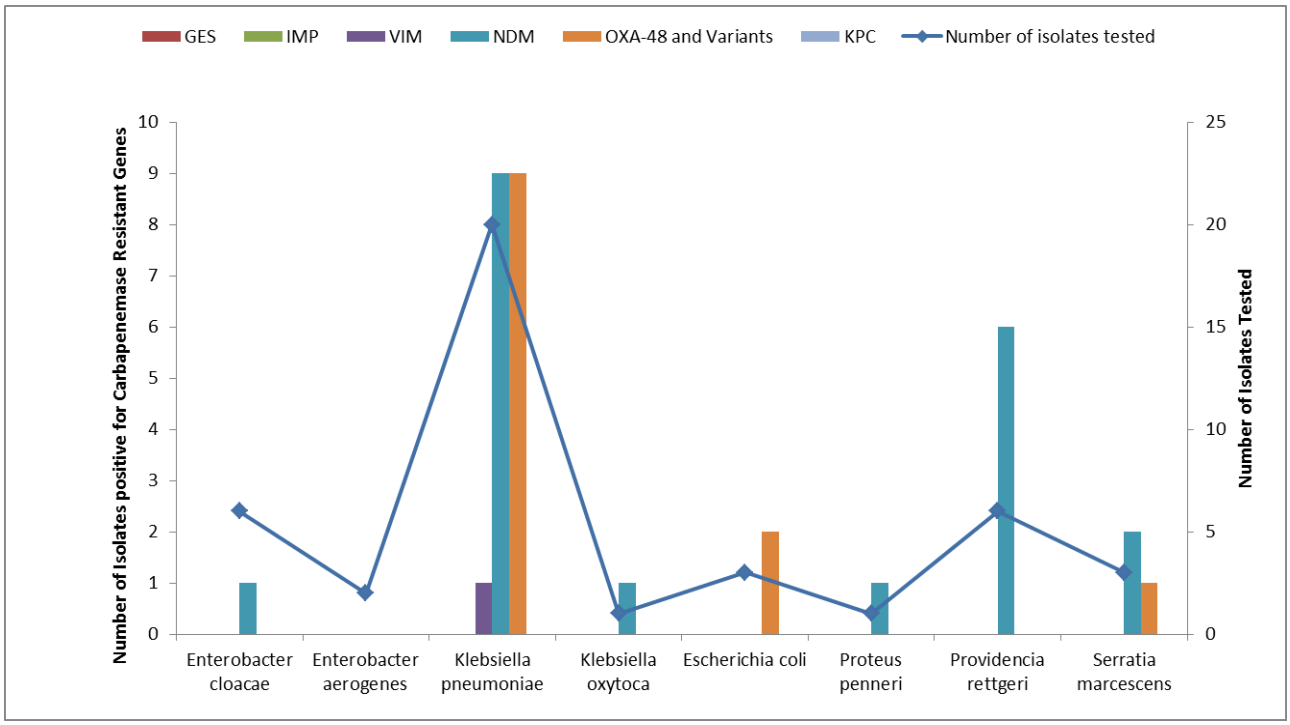

Figure 2. Suspected CPE Enterobacteriaceae isolates screened (n=42) and confirmed CPE (n=33) during February 2015, Antimicrobial Resistance Laboratories, COTHI (NICD-NHLS)

Twenty *bla*$_{NDM}$-positive isolates were identified: five from private sector hospitals (four from KwaZulu-Natal Province (KZN) and one from Gauteng Province (GP)) and 15 from public sector hospitals (12 from GP, one from KZN and two from Western Cape Province (WCP) hospitals). Twelve *bla*$_{OXA-48}$-positive isolates were identified: eight from private sector hospitals (six from GP and two from KZN) and four from public sector hospitals (three from GP and one from Eastern Cape Province). One *bla*$_{VIM}$-positive isolate was identified, from the public sector in GP (Figure 3). It is important to note that these figures do not represent the current prevalence of CPEs in South Africa. Given that CPE infections are currently not reportable or notifiable in South Africa, there is no platform for appropriate

surveillance reports and consequently no locally representative data is available. This is of major concern, since meaningful data can inform public health policy and highlight priorities for action. Controlling the spread and limiting the impact of CPEs in South Africa will require 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 the AMRRL, NICD/NHLS. Please telephone (011) 555 0342/44 or email olgap@nicd.ac.za for queries or further information. In the Western Cape area, please email cothi.wc@nhls.ac.za.

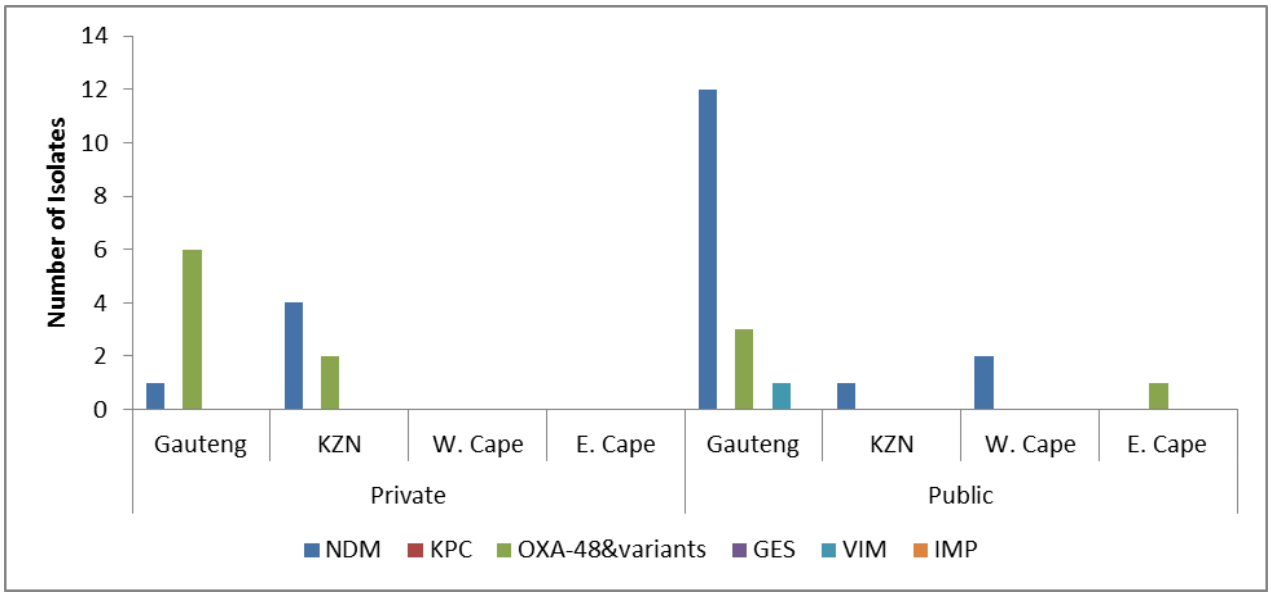

Figure 3. Distribution by province of confirmed CPEs (n=33), February 2015

Source: Centre for Opportunistic, Tropical and Hospital Infection, NICD-NHLS

7 BEYOND OUR BORDERS

The 'Beyond our Borders' column focuses on selected and current international diseases that may affect South Africans travelling abroad.

Disease & countries	Comments	Advice to travellers
1. Water- and food-borne diseases		
Cholera Mozambique Malawi Zimbabwe Congo DR Kenya	 Mozambique has reported 5 118 cases and 43 deaths as of 05 March 2015. Malawi has reported a total of 60 cases and 2 deaths as of 05 March 2015. Zimbabwe has reported a total of 11 cases and no deaths as of 05 March 2015. In the first 7 weeks of 2015, Congo DR reported 1 520 cases and 35 deaths. Kenya has reported about 1 500 cases and 30 deaths as of 14 March 2015.	 The cholera outbreak in Mozambique, Zimbabwe and Malawi is of particular concern given the number of persons travelling between South Africa and these countries. Cholera is an acute diarrhoea illness that causes severe dehydration. Drink lots of safe water (bottled water with an unbroken seal, boiled water or water treated with chlorine tablets). Strict washing of hands with soap and safe water must be practiced. Food must be well-cooked before eating. Peel fruit and vegetables before eating.
2. Vector-borne diseases		
Dengue fever **Africa** Mozambique **Asia** Thailand Malaysia	 On 16 March 2015, the Health Ministry confirmed an outbreak of dengue fever in the northern province of Nampula. A total of 110 cases was reported, with no deaths. As of 08 March, more than 3 700 cases and 3 deaths have been recorded since 01 January 2015. A higher number of dengue fever cases (58% increase) has been reported for the year-to-date compared to the same period last year.	 Dengue fever (like chikungunya) is a mosquito-borne viral infection transmitted by *Aedes* spp. mosquitoes, which bite mostly during the day. Travellers should take care to prevent mosquito bites; preventive measures include the use of insect repellent , wearing long-sleeved clothing and long trousers, using mosquito bed nets and sleeping in an air-conditioned room.

Disease & countries	Comments	Advice to travellers
2. Vector-borne diseases (continued)		
Philippines Borneo (Sarawak)	Cases continue to be reported in the Philippines and Sarawak in Borneo, indicating ongoing transmission.	Dengue fever (like chikungunya) is a mosquito-borne viral infection transmitted by *Aedes* spp. mosquitoes, which bite mostly during the day. Travellers should take care to prevent mosquito bites; preventive measures include the use of insect repellent , wearing long-sleeved clothing and long trousers, using mosquito bed nets and sleeping in an air-conditioned room.
Pacific		
Australia	As of 10 March 2015, 50 cases have been reported, mostly from the municipalities of Cairns, Tully, Innisfall and El Arish.	
Fiji	As of 17 March 2015, 382 cases have been reported.	
3. Respiratory diseases		
Avian influenza		
China (H7N9)	As of 09 March 2015, China has reported 59 new cases since 19 January 2015. This brings the cumulative total of cases to 677 cases and 61 fatalities to date.	Travellers need to avoid contact with birds including poultry. They must avoid touching surfaces contaminated with bird droppings and they must only eat meat that is thoroughly cooked.
MERS-CoV		
Saudi Arabia	Between 03 and 10 March 2015 an additional 15 cases including 5 deaths were notified to the World Health Organization (WHO).	Good hygiene and basic infection prevention measures should be practiced. Travellers with diabetes, chronic lung disease and immune-compromised states are at risk of infection and should avoid contact with animals if possible. Strict hand washing must be followed after touching animals. Avoid raw camel milk or undercooked camel meat at all times. Travellers should avoid contact with animals and eat food that is fully cooked.
Qatar	On 09 March 2015, Qatar reported one new case to WHO.	
Germany	On 07 March 2015, Germany notified WHO of an imported case ex-United Arab Emirates.	

References and additional reading:

ProMED-Mail (www.promedmail.org)
World Health Organization (www.who.int)
Centers for Disease Control and Prevention (www.cdc.gov)
Last Accessed: 24 March 2015

Source: Division of Public Health Surveillance and Response, NICD-NHLS