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

Communicable Diseases Communiqué

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1 *INTERNATIONAL OUTBREAKS OF IMPORTANCE TO SOUTH AFRICAN TRAVELLERS AND HEALTHCARE WORKERS*

Ebola virus disease outbreak

Situation update in West Africa

Since the last update (access updates on www.nicd.ac.za), additional new cases and deaths continue to be reported in all three affected countries in West Africa (Guinea, Liberia and Sierra Leone). In addition, an imported probable Ebola virus disease (EVD) case has been reported in Nigeria, which resulted in subsequent local transmission (including cases in healthcare workers). The case-patient was a Liberian national who is reported to have travelled by air from Liberia to Lagos on 20 July 2014. He was admitted to a Lagos hospital immediately on arrival, and died five days later. On 08 August 2014, the World Health Organization declared the current Ebola outbreak in West Africa an international public health emergency, signifying that this is the largest EVD outbreak to date and will require international support to the affected countries and a coordinated response to control the outbreak and stop further spread. As at 18 August 2014, a cumulative total of 2 473 EVD cases (laboratory-confirmed, probable and suspected) including 1 350 deaths with a case fatality rate of 55% has been reported in the current EVD outbreak in West Africa (Table 1).

Table 1: Number of Ebola virus disease cases and deaths in West Africa as at 18 August 2014

Country	Total cases (laboratory-confirmed, probable and suspected)	Total deaths	Case fatality rate
Guinea	579	396	68%
Liberia	972	576	59%
Sierra Leone	907	374	41%
Nigeria	15	4	27%
Totals	**2 473**	**1 350**	**55%**

Situation in South Africa

The risk of EVD being introduced into South Africa (SA) remains low. In response to the current outbreak, SA has put several measures in place at ports of entry and healthcare facilities in order to identify at-risk persons with fever who have travelled from the affected countries. In addition, useful documents regarding EVD have been developed to inform and guide healthcare workers and the general public; these are available on the NICD website (www.nicd.ac.za). On 06 August 2014, an extra-ordinary meeting was held by the SADC Ministers of Health, with the aim of joining forces and developing strategic actions to prevent the introduction and/or spread of EVD in the SADC region.

As at 18 August 2014 there have been no cases of EVD in South Africa associated with the current outbreak. There are no suspected cases of EVD in South Africa at present. Four patients have been tested for ebolavirus infection in the past few weeks. In three of the cases, history of travel to countries with community transmission of Ebola prompted the concern of possible infection; even though their respective illnesses were not suggestive of EVD, testing was undertaken as a precautionary measure. All have tested negative for EVD.

Case definition for suspected EVD

Any person* presenting with an acute onset of fever (≥38°C) with any of the following additional symptoms: severe headache, muscle pain, vomiting, diarrhoea, abdominal pain or unexplained haemorrhage, who has:

Visited or been resident in Guinea, Liberia, Sierra Leone, Nigeria or another country reporting imported cases with local transmission, in the 21 days prior to onset of illness

AND

- Had direct contact or cared for suspected/confirmed EVD cases in the 21 days prior to onset of illness, or been hospitalised in Guinea, Liberia, Sierra Leone, Nigeria or another country reporting imported cases with local transmission

OR

- Has unexplained multisystem illness that is malaria-negative

*Healthcare workers in particular are at high risk

Risk assessment for a suspected EVD case

No-risk patients

This category of patient does not meet the case definition for suspected EVD. Such a patient may have a febrile illness with features suggestive of EVD (e.g. thrombocytopenia), but is not necessarily severely ill and lacks a history of contact with known EVD patients or any other risk exposures, and has not travelled to any countries either affected by the EVD outbreak or reporting imported EVD cases for at least 3 weeks prior to onset of illness.

At-risk patients

This category of patient has febrile illness with features suggestive of EVD, and is not necessarily severely ill, but has travelled to a country/ies either affected by the EVD outbreak or reporting imported EVD cases during the 3 weeks preceding onset of illness. Such a patient has not had direct contact with known EVD patients or fomites but may have an indirect association with such patients, e.g. the patient may have worked, resided in or visited the same places as EVD patients. Although there may be no haemorrhage, it is assessed that infection with ebolavirus is possible.

High-risk patients

This category of patient is severely ill with fever and haemorrhagic manifestations, and has travelled to a country/ies either affected by the EVD outbreak or reporting imported EVD cases during the 3 weeks preceding onset of illness. Alternatively, the patient may not necessarily be severely ill, but has had definite exposure to ebolavirus, such as:

- Hospital and laboratory staff who have developed illness within 3 weeks of last known contact with a confirmed EVD patient or fomites associated with such patients
- Relatives and close associates of known EVD patients.

Laboratory testing

Testing for viral haemorrhagic fever viruses

(including ebolavirus) 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).

Recommendations for travellers

The World Health Organization regularly reviews the EVD outbreak public health situation and recommends travel or trade restrictions if necessary. Refer to DoH website for SA travel advisory www.doh.gov.za.

Source: Division of Public Health Surveillance and Response and Centre for Emerging and Zoonotic Diseases, NICD-NHLS

Figure: Geographical distribution of Ebola virus disease in West Africa (Guinea, Liberia, Sierra Leone, Nigeria) as at 18 August 2014

2 SEASONAL DISEASES

a Influenza

The influenza season, which started in week 21 (week ending 25 May), continues. The influenza season is considered to have started when the detection rate of Viral Watch specimens tested at the NICD has risen above 10% and remains there for ≥2 weeks. The influenza detection rate rose to 15.8% in week 21 and peaked at 80.4% in week 27 (week ending 06 July). Over the past 30 years, the mean duration of the influenza season has been 12 weeks (range 7 to 25 weeks).

As at 03 August 2014, of the 399 influenza-positive cases detected through the Viral Watch surveillance programme, 78% (311/399) have been influenza A (H3N2). Influenza A(H1N1)pdm09 has been detected in 53 patients, influenza B in 32 patients, and unsubtyped influenza A in three patients.

In addition, 33 specimens collected from ill passengers at a point of entry into South Africa were submitted for testing. Influenza A(H1N1) pdm09 was detected in two patients, influenza A (H3N2) in six patients, and influenza B in eight of these patients.

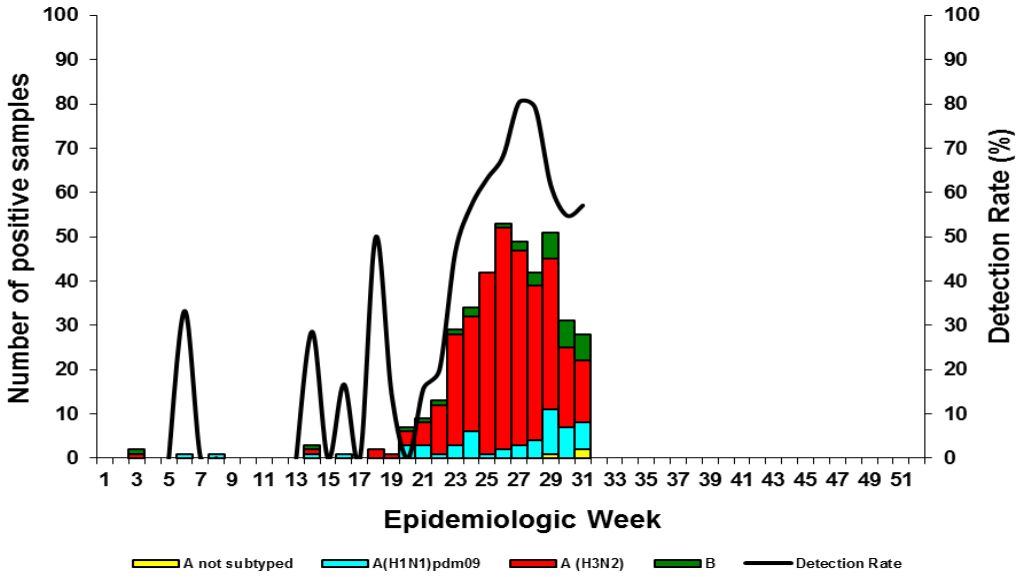

Figure 1. Influenza detections by type and subtype: Viral Watch surveillance programme 2014

For the same time period, 989 patients hospitalised with severe acute respiratory illness were tested for respiratory viruses at the five sentinel sites. Of these, 24 patients tested positive for influenza. Influenza A(H3N2) was detected in 20, influenza A (H1N1)pdm09 and influenza A (unsubtyped) in one patient each, and influenza B in two patients. In addition, 26% (258/989), 20% (197/989) and 9% (85/989) of patients were positive for rhinovirus, respiratory syncytial virus and adenovirus, respectively.

Unlike the 2013 influenza season, where influenza A (H1N1)pdm09 predominated, the predominant circulating virus this season so far has been influenza A(H3N2). Throughout the 2013-2014 northern hemisphere season, the majority of viruses that were characterised antigenically matched the recommended candidate viruses for the 2013–2014 vaccine. However, there was limited antigenic drift detected for the circulating viruses, compared to the vaccine viruses (http://www.who.int/wer/2014/wer8923.pdf. http://www.who.int/influenza/vaccines/virus/recommendations/2014_15_north/en/). Given the close antigenic similarity of viruses tested compared to those contained in the trivalent vaccine, the vaccine viruses recommended by the World Health Organization (WHO) for the 2014-15 northern hemisphere influenza season are the same as those for the northern hemisphere 2013-14 influenza season and 2014 southern hemisphere season (http://www.who.int/influenza/vaccines/virus/recommendations/2014_15_north/en/).

It remains to be seen how well our circulating 2014 season viruses match the current recommended vaccine.

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

b Meningococcal disease

In South Africa, meningococcal disease is endemic and cases occur year-round, but with seasonal peaks in winter and early spring. In addition, there is a natural cyclical pattern of meningococcal disease with peaks of disease occurring every 5 to 10 years. Current rates of meningococcal disease in South Africa are at a nadir and we are expecting an increase in rates, based on known periodicity.

A small increase in reported numbers of meningococcal disease cases was noted over the last few weeks. Overall reported numbers, however, remain lower than in 2013. There are inherent delays in laboratory-based reporting, which lags behind clinical reports; in addition, because our laboratory-based surveillance system excludes disease diagnosed clinically without laboratory confirmation, reported rates represent a minimum estimate of the true burden of disease.

By the end of epidemiological week 31 (week ending 31 July 2014), a total of 80 laboratory-confirmed cases was reported to the Centre for Respiratory Diseases and Meningitis (CRDM), NICD-NHLS (Table 2). The highest burden of disease is among the <1 year age group, where 12 (15%) cases have been reported so far. This is lower than the number of cases reported for the equivalent time period and age group in 2013 (n=26, 21%).

The reported cases were caused by diverse serogroups, which is in keeping with sporadic endemic disease in the country. Serogroup data were available for 38/80 (48%) cases. Serogroups B, C and W* have been identified most commonly this year (11/38, 29% serogroup B; 9/38, 24% serogroup C and 11/38, 29% serogroup W*). There were also 6 cases of serogroup Y and 1 case of serogroup X disease.

Healthcare workers should have a high index of suspicion for meningococcal disease in patients who present with an acute febrile illness and nonspecific early signs and symptoms. Disease typically has a rapid progression and should be managed as a medical emergency in order to reduce morbidity and mortality. All cases of suspected and/or confirmed meningococcal disease (meningitis and sepsis) should be notified telephonically to the Department of Health.

Table 2: Number of laboratory-confirmed meningococcal disease cases reported until end of week 31, 2013 and 2014, by province

	Year	
Province	**2013**	**2014**
Eastern Cape	25	18
Free State	10	3
Gauteng	28	22
KwaZulu-Natal	22	5
Limpopo	0	0
Mpumalanga	2	1
Northern Cape	1	0
North West	4	0
Western Cape	29	31
	121	80

*Previously known as serogroup W135. Harrison OB, EID 2013: 19(4) 566-573

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

3 ZOONOTIC DISEASES

Rabies

No further cases of human rabies have been confirmed since the last report. The NICD has confirmed a total of five human rabies cases in South Africa to date; these cases were reported from Eastern Cape (n=2), Limpopo (n=1) and North West (n=1) provinces, and one imported case (a South African national who acquired the disease in Angola). All of these patients contracted disease from exposure to rabid dogs. It is noteworthy that four of the cases sustained only scratches, which reiterates the importance of appropriate post-exposure prophylaxis (PEP) for seemingly superficial wounds following exposure to a potentially rabid animal. None of these cases sought medical care following the exposure event, which underlines the general public's lack of awareness regarding the risk of rabies following exposure to dogs and other potentially rabid animals.

An increase in the number of dog rabies cases has been reported in North West Province. Historically this province has reported relatively few animal rabies cases compared to most other provinces, with yellow mongoose and black-backed jackals

being most commonly affected. In the June 2014 edition of the Communiqué we reported the death of a child from the Rustenburg surrounds who was denied rabies PEP after being scratched by a dog. This is only the sixth case of confirmed human rabies in this province since 1986, and the first reported since 2006. This is also the first human case acquired in the province following exposure to a rabid dog – all previous cases were linked to wildlife exposures. The North West Province Communicable Disease Coordinator reported that during the month of July 2014 a total of nine animal bite incidents was reported from healthcare facilities throughout the province. These involved jackal (n=2), domestic dog (n=2) and cattle (n=5) exposures and were reported from Zeerust, Rooiplaas, Mokgala, Opfontein and Jaarsfontein areas. Community awareness campaigns and health education has been ongoing since the recent human rabies case was reported. Healthcare workers have been sensitised to the risk of rabies when assessing patients with animal bites/ exposures, and have also been reminded to consider rabies disease in acutely ill patients with a suggestive clinical presentation and compatible exposure history. Animal vaccination campaigns have been conducted within the province in response to the increase in dog rabies cases.

Source: Centre for Emerging and Zoonotic Diseases and Division of Public Health Surveillance and Response, NICD-NHLS

4 FOOD- AND WATER-BORNE DISEASES

Imported cholera

Cholera was confirmed in an adult female traveller returning from Accra, Ghana. She spent ten days in Accra and returned to South Africa (SA) on 26 July 2014. She presented with severe watery diarrhoea (typical rice-water stools), vomiting, headache and marked dehydration requiring hospital admission two days after returning home to Soshanguve, Gauteng Province. She had begun feeling ill two days before arriving in SA. *Vibrio cholerae* O1 serotype Ogawa was confirmed by conventional culture, followed by confirmation of the presence of the cholera enterotoxin and characterisation of the isolate as the El Tor biotype by molecular techniques. Molecular epidemiology (using PFGE analysis) showed that the strain originated in Western Africa.

The patient responded well to intensive fluid therapy and made an uneventful recovery after a week of inpatient treatment. The District Communicable Diseases Directorate responded promptly, and no further cases were identified. The patient lives in a formal house with municipal water and water-borne sewerage.

Ghana is currently experiencing a cholera outbreak, with 878 cases and 15 deaths reported to date. There needs to be vigilance for further imported cases, since there is always a possibility that infected persons could introduce *Vibrio cholerae* into informal water supplies. Rehydration therapy remains the mainstay of treatment. The last outbreak of cholera in South Africa was in November 2008 to June 2009, and affected all nine provinces; the total number of laboratory-confirmed cases was >1 000, and clinical cases >12 000.

Source: Division of Public Health Surveillance and Response; Centre for Enteric Diseases (Bacteriology) NICD-NHLS; Vermaak en Vennote Pathologists; Disease Surveillance and Outbreak Response, City of Tshwane

5 ANTIMICROBIAL RESISTANCE

Update on carbapenemase-producing Enterobacteriaceae

The Johannesburg and Cape Town Antimicrobial Resistance Reference Laboratories (AMRRL) of the Centre for Opportunistic, Tropical and Hospital Infections (COTHI) at NICD/NHLS test referred isolates of suspected carbapenemase-producing Enterobacteriaceae (CPE) for the presence of selected carbapenemase genes. For July 2014, a total of 30 Enterobacteriaceae isolates was screened, 47% (14/30) of which were carbapenemase-producing Enterobacteriaceae. *Klebsiella pneumoniae* (53%, 16/30) and *Citrobacter freundii* (10%, 3/30) were the most common isolates referred for testing (Figure 2).

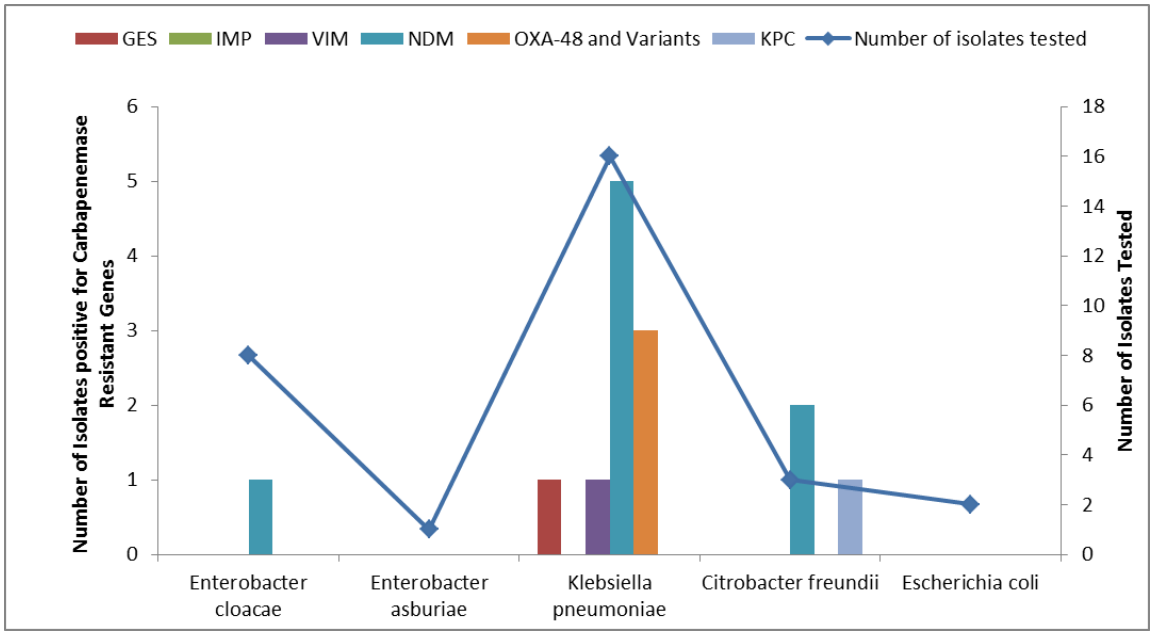

Figure 2. Enterobacteriaceae isolates screened (n=30) and confirmed CPE (n=14) during July 2014 at AMRRL (NICD-NHLS)

Eight NDM-positive isolates were identified (six from private hospitals in KwaZulu-Natal Province (KZN) and 2 from public hospitals in Gauteng Province (GP)). Three OXA-48 positive isolates were identified (2 from private hospitals in GP and KZN) and one from the public sector in Eastern Cape Province). One KPC-positive isolate and one VIM-positive isolate were identified from the public sector in GP, while one GES-positive isolate was identified from a private hospital in KZN (Figure 3).

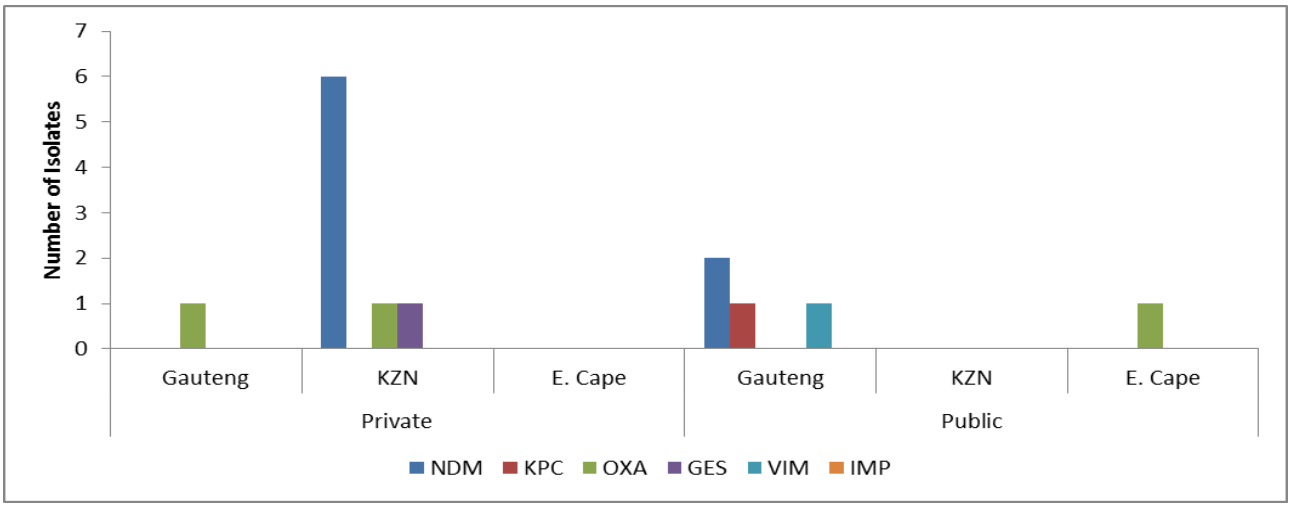

Figure 3. Distribution by province of CPEs (n=14), July 2014

It is important to note that these figures do not represent the current burden 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 ashikas@nicd.ac.za and olgap@nicd.ac.za for queries or further information. In the Western Cape area, please email colleen.bamford@nhls.ac.za.

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

6 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. Vector-borne diseases		
Malaria India (Karnataka)	As of 07 August 2014: 4 000 laboratory-confirmed cases between January and July 2014.	Prevention of mosquito bites is the best method to prevent malaria. Travellers should wear long-sleeved shirts and long pants during the dusk and evening, and stay in well-ventilated (fan/air-conditioned) rooms where possible; use mosquito repellents containing DEET to reduce the risk of being bitten.
Crimean-Congo haemorrhagic fever Pakistan (Kazakhstan) Georgia (Shida Karlive region)	As of 7 August 2014: 28 suspected cases since the beginning of 2014 and 2 confirmed deaths. As of 18 August 2014: 13 confirmed cases and 2 deaths.	Crimean-Congo haemorrhagic fever is transmitted to people from ticks and livestock animals. Human-to-human transmission can occur from contact with blood and body fluids of infected persons. Avoid tick bites by wearing long-sleeved shirts, long pants, and light-coloured clothing to deter ticks.
Chikungunya <u>North America</u> Canada United States of America <u>Caribbean</u> On-going transmission <u>Central America</u> Costa Rica El Salvador Nicaragua Panama <u>Andean</u> Bolivia Colombia Peru Venezuela Philippines Samoa	As of 15 August 2014: 8 confirmed cases, no death. As of 15 August 2014: 482 confirmed cases, no death. As of 08 August 2014: 5 421 cases across 8 Latin and 11 non-Latin Caribbean countries, 32 deaths across the 8 Latin Caribbean countries. As of 8 August 2014: 1 case, no death 8 cases, no death 2 cases, no death 13 cases, no death As of 15 August 2014: 3 cases, no death 1 case, no death 2 cases, no death 94 cases, no death As of 17 August 2014: >100 cases As of 11 August 2014: 8 confirmed cases, 96 suspected cases.	Chikungunya and dengue fever are mosquito-borne viral infections transmitted by *Aedes* spp. mosquitoes, which bite mostly during the day. Travellers should wear long-sleeved shirts and long pants during the day and stay in well-ventilated (fan/air-conditioned) rooms.

Disease & countries	Comments	Advice to travellers
1. Vector-borne diseases (continued)		
Dengue fever Cuba (National)	As of 12 August 2014: >1 800, 1 death.	Chikungunya and dengue fever are mosquito-borne viral infections transmitted by *Aedes* spp. mosquitoes, which bite mostly during the day. Travellers should wear long-sleeved shirts and long pants during the day and stay in well-ventilated (fan/air-conditioned) rooms.
<u>South America</u> Brazil (Espirito Santo)	As of 7 August 2014: 20 205 cases, 11 deaths.	
Peru (National)	As of 21 June 2014: 11 139 cases , 19 confirmed deaths, 3 suspected deaths.	
Venezuela (National)	As of 3 August 2014: 1 573 probable cases, 3 serious cases.	
<u>Asia</u> Philippines (Caraga region Mindanao)	As of 10 August 2014: >3 000 cases, >12 deaths.	
Malaysia (Penang State)	As of 7 August 2014:1 116 cases, 5 deaths.	
Myanmar (Yongon)	As of 12 August 2014: >1 200 cases, between January to July 2014, mostly children 12 deaths.	
India (Pune Maharashtra State)	As of 6 August 2014: 3 deaths, with more virulent types 2,3.	
Pakistan (Swat district)	10 August 2014 : 62 cases reported.	
2. Food- and water-borne diseases		
Cholera <u>Africa</u>: Cameroon (Far North Region)	As of 6 August 2014: 1 400 cases, 75 deaths.	Drink safe water (bottled water with an unbroken seal, boiled water or water treated with chlorine tablets). Always wash hands with soap and safe water before preparing food and eating. Food must be well-cooked before eating. Peel fruit and vegetables before eating.
Nigeria (Plateau State)	As of 6 August 2014: 40 suspected cases, 2 deaths.	
Ghana (Accra)	As of 5 August 2014: 121 cases across 6 districts.	
<u>Central America</u> <u>Mexico</u> (Hidalgo state)	As of 4 August 2014: 3 confirmed cases since June 2014, no deaths.	

Disease & countries	Comments	Advice to travellers
3. Respiratory diseases		
MERS-CoV Global	As of 23 July 2014: 837 laboratory-confirmed cases, 291 deaths. To date, all reported cases have been linked to countries in the Middle East region, with the majority of cases reported from Saudi Arabia. Other countries in the region with laboratory-confirmed cases include Jordan, Yemen, United Arab Emirates (UAE), Qatar, Oman, Kuwait, Lebanon and Iran. Countries with travel-associated cases include United Kingdom (UK), Tunisia, Egypt, Greece, Germany, Italy, Malaysia, Philippines, Algeria, and the United States of America (USA).	Good hygiene and basic infection prevention practices can minimise risk of respiratory infections in travellers: • cough etiquette • avoiding contact with sick people • avoid handling of animals • frequent hand washing with soap and water or the use of an alcohol-based hand rub. Travellers with diabetes, chronic lung disease and immunocompromised 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 contact a medical practitioner if they develop acute respiratory symptoms upon return from a known risk area.

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: 19 August 2014

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