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

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CONTENTS

Meningococcal disease

Cases of meningococcal disease continue to be reported countrywide and the meningococcal season appears to be ongoing. There are, however, inherent delays in laboratory-based reporting which lags behind clinical reports.

By the end of epidemiological week 39 (week ending 29 September 2013), a total of 155 laboratory-confirmed cases was reported to the Centre for Respiratory Diseases and Meningitis (CRDM), NICD-NHLS (Table 1). The highest burden of disease is among the <1 year age group, where thirty-seven (24%) cases have been reported so far. A similar number of cases for the equivalent time period and age group in 2012 (n=42, 24%) were reported.

The reported cases were caused by diverse serogroups, which is in keeping with sporadic endemic disease in the country. Serogroup data were available for 97/155 (63%) of cases. Serogroups B and W* have been identified most commonly this year (28/97, 29% serogroup B and 43/97, 44% serogroup W*). There were also seventeen cases of serogroup Y and seven cases of serogroup C disease. Two isolates were non-groupable.

*Previously known as serogroup W135. For a comprehensive description of all current *N. meningitidis* serogroups and nomenclature, please refer to the following article: Harrison OB, Claus H, Jiang Y et al. Description and nomenclature of *Neisseria meningitidis* capsule locus. Emerg Infect Dis (Internet). 2013 April. Free online access at: http://wwwnc.cdc.gov/eid/article/19/4/11-1799_article.htm

Meningococcal disease occurs throughout the year, but the incidence is highest in the late winter and early spring. Clinicians 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 meningococcal disease (meningitis and sepsis) should be notified telephonically to the Department of Health.

Table 1: Number of laboratory-confirmed meningococcal disease cases reported until end of epidemiological week 39, 2012 and 2013, by province

	Year	
Province	**2012**	**2013**
Eastern Cape	30	30
Free State	9	9
Gauteng	65	40
KwaZulu-Natal	20	29
Limpopo	2	2
Mpumalanga	3	3
Northern Cape	0	2
North West	7	4
Western Cape	36	36
	172	155

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

Influenza

In 2013, active influenza virus transmission was first noted in mid-April and peaked in early June. The influenza season started in epidemiological week 17 (week ending 28 April) when the influenza detection rate rose above 10% and it peaked in epidemiological week 24 (week ending 16 June) with a detection rate of 64.4%. Influenza A(H1N1) pdm09 predominated at the start of the season, with an increase in both influenza A(H3N2) and influenza B cases later in the season. The number of positive detections for influenza A(H3N2) and B increased from epidemiological week 31 (week ending 4 August) and peaked in week 35 (week ending 1 September). Since week 39 (week ending 29 September), fewer than 5 detections have been made per week in patients presenting with influenza-like illness (ILI) (Figure 1).

For the period 1 January 2013 to 13 October 2013, a total of 852 influenza detections has been made from 844 patients presenting with ILI. Of the 847 influenza-positive samples that have been subtyped, 591 (70%) have been identified as influenza A(H1N1)pdm09, 135 (16%) as influenza A (H3N2), and 122 (14%) as influenza B (Figure1). Influenza has been detected in all nine provinces of South Africa.

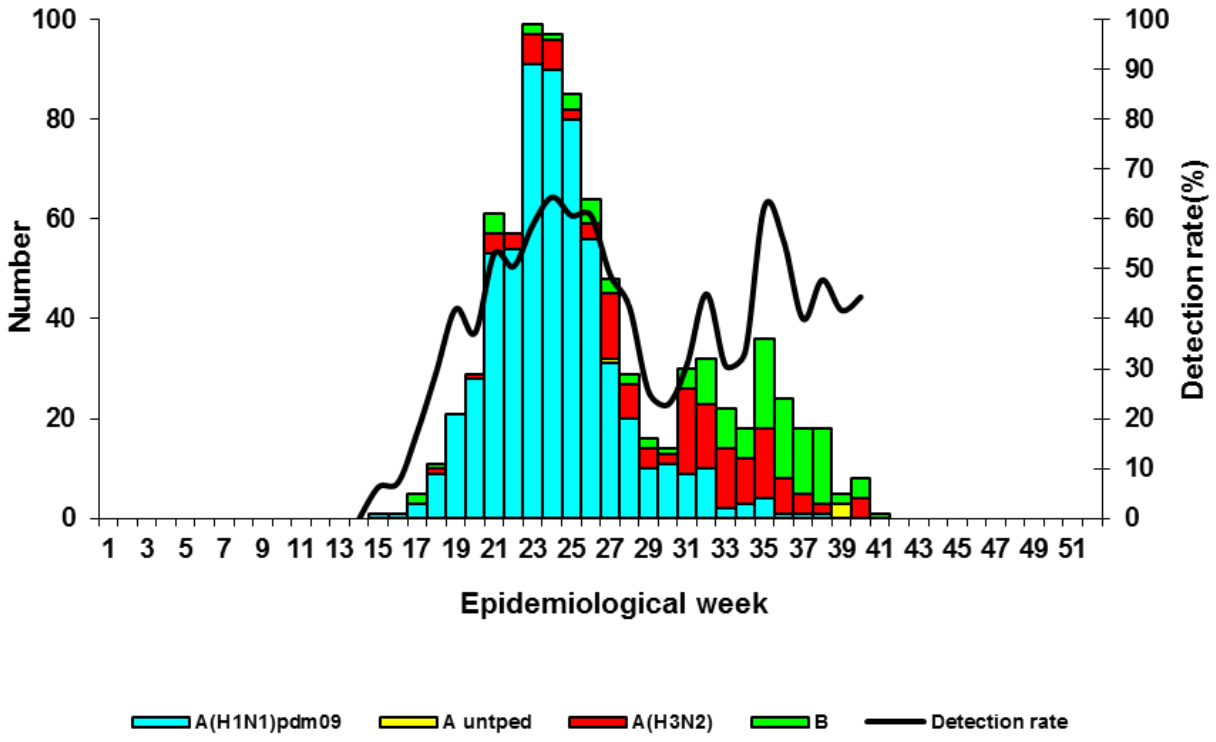

Figure 1. Number of positive samples by influenza types and subtypes, and detection rate by week. Viral watch surveillance programme, 2013

For the period 1 January 2013 to 6 October 2013, 2 566 patients admitted with severe respiratory illness (SARI) were enrolled at the five sentinel sites. Of these, 2 505 (98%) have been tested and 155 (6%) were positive for influenza virus. Of the 155 influenza-positive samples, 99 (64%) were influenza A(H1N1)pdm09, 41 (26%) were influenza A(H3N2), 11 (7%) were influenza B and four (2%) were influenza A unsubtyped. There was one mixed infection of influenza A(H1N1)pdm09 and A(H3N2) (Figure2).

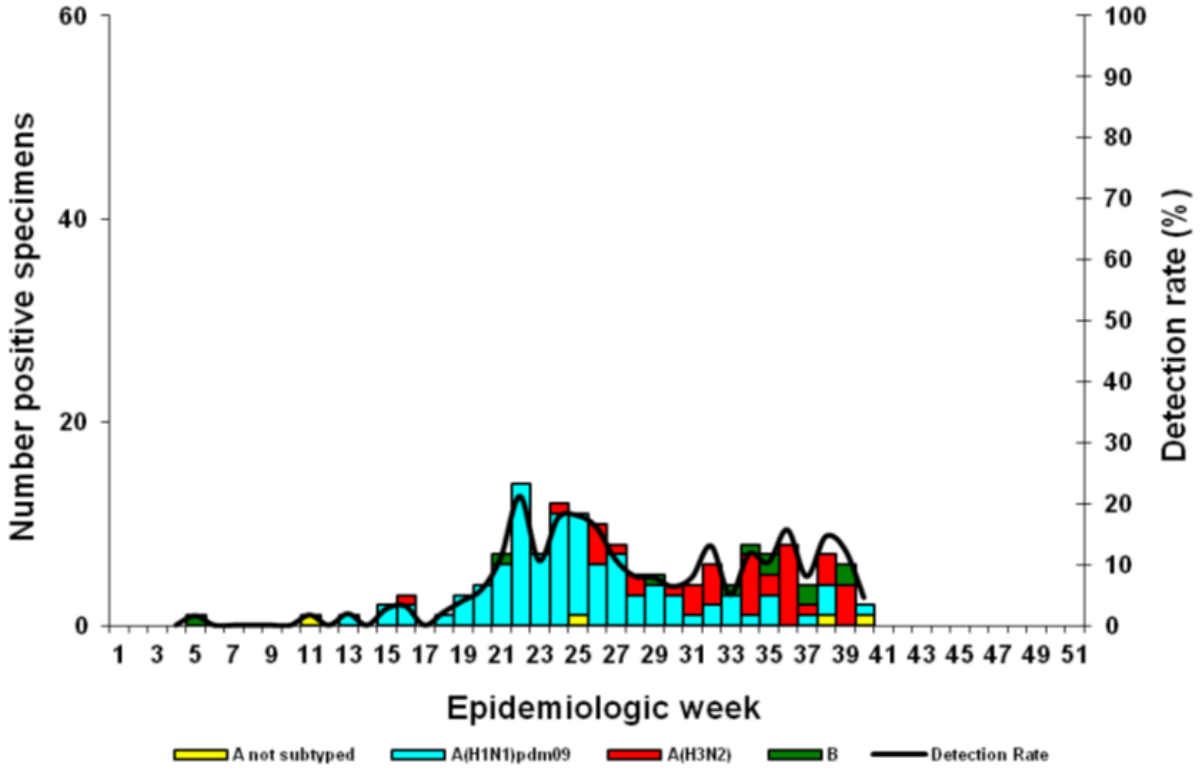

Figure 2. Number of positive samples by influenza types and subtypes and influenza detection rate by week, SARI surveillance, 2013

Antiviral testing and genetic drift of 2013 influenza viruses

The influenza A(H1N1)pdm09 strains dominated the season and the majority of viruses were in genetic lineage 6. All viruses showed good antigenic reactivity to antisera raised against the A/California/7/2009 vaccine strain. Genetic drift has occurred in influenza A and B strains from the vaccine strains. In contrast to 2012 when both influenza B lineages co-circulated, the influenza B/Yamagata-like viruses circulated in 2013. All the B/Yamagata-like virus isolates showed normal reactivity with antisera raised against the B/Wisconsin/1/2010 vaccine strain. Circulating influenza A(H3N2) viruses mainly belonged to lineage 3C. Three A(H3N2) isolates typed showed low reactivity to antisera raised against the A/Victoria/361/2011 vaccine strain. One isolate from a participant with influenza-like illness showed phenotypic resistance to the neuraminidase inhibitors oseltamivir and zanamivir.

Recommended composition of influenza virus vaccine for use in the 2014 southern hemisphere influenza season

The WHO has recommended that trivalent vaccines for use in the 2014 southern hemisphere influenza season contain the following:

- an A/California/7/2009 (H1N1)pdm09-like virus*
- an A/Texas/50/2012 (H3N2)-like virus**
- a B/Massachusetts/2/2012-like virus

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

Rabies

No additional cases of human rabies have been reported since the last Communiqué. For 2013 to date, seven cases of laboratory-confirmed and two cases of clinical rabies have been reported in South Africa (Table 2).

Table 2. Laboratory-confirmed human rabies cases by province in South Africa, 2000 to mid-October 2013

	Eastern Cape	Free State	Gauteng	KwaZulu-Natal	Limpopo	Mpuma-langa	Northern Cape	North West	Western Cape	Total
2000	2			6				1		**9**
2001	1			5		1				**7**
2002				7			1	1		**9**
2003	2			8				1		**11**
2004				8						**8**
2005	4	1		2						**7**
2006	3			6	21			1		**31**
2007	4			9	1					**14**
2008	8			5	3	1				**17**
2009	7			4	2	2				**15**
2010	2		1	3	3	1	1			**11**
2011	1			2	3					**6**
2012	1	1		4	3	1				**10**
2013*		2		1	3	1				**7**
Total	**35**	**4**	**1**	**70**	**39**	**7**	**2**	**4**	**0**	**162**

*As at 17 October 2013

Rabies post-exposure prophylaxis (PEP) is a life-saving intervention for an otherwise untreatable and fatal disease. So-called PEP failures have only been reported in patients that did not receive prophylaxis as per recognised guidelines. Frequent mistakes include not providing rabies immunoglobulin (RIG) in addition to vaccine when indicated, and administration of the vaccine into the gluteal muscle. PEP should be administered without delay, and must be managed as a medical emergency. Patients that present late and provide a history of exposure to a potentially rabid animal should still receive PEP, regardless of the length of delay to presentation. All animal-bite cases should receive prompt and thorough wound treatment which includes copious washing with water and soap, and disinfection with iodine or a similar disinfectant. There may be a need to provide antibiotics and tetanus vaccination in animal-bite cases. Suturing of wounds should be avoided or delayed as far as possible, since suturing of wounds may decrease the infiltration of RIG, which should be applied directly into wound sites in order to provide optimal local passive immunity against rabies virus infection. Three risk categories of rabies exposure are recognised. Risk category I includes patients that have no actual rabies virus exposure (this may include petting, touching or feeding of animals, or licking of intact skin) and requires only wound washing. Category II exposures include patients that suffer mild exposures such as nicking or scratching (i.e. injuries that do not draw blood). Such patients require prompt wound treatment followed by a full course of rabies vaccination. In patients with no history of prior vaccination against rabies, rabies vaccine is given intramuscularly on day 0 (the day of presentation) and again on days 3, 7 and 14*. The use of RIG is not indicated in these patients. For patients with more severe wounds (penetrating wounds that draw blood, licking of mucous membranes or broken skin, bat exposures), rabies PEP is three-fold. Prompt and thorough wound treatment is essential, followed by infiltration of RIG into the wound/s and a full course

of rabies vaccination (days 0, 3, 7 and 14). When RIG is not readily available, it should be sourced and provided to the patient within 7 days after receiving the first dose of rabies vaccine.

*Please note that rabies prevention guidelines previously advocated a five-dose regime of PEP rabies vaccination (days 0. 3, 7, 14 and 28) for category II and III exposures. The World Health Organization now advises that for healthy, fully immunocompetent exposed people a PEP regime consisting of four doses (days 0, 3, 7 and 14) instead of five is acceptable. Known or clinically apparent immunocompromised persons should still receive the five-dose regime.

Health professionals and members of the public can find more information on rabies available on the NICD website: www.nicd.ac.za. The national rabies guideline document may also be downloaded from the NICD website: http://www.nicd.ac.za/?page=guidelines&id=73.

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

Update on carbapenemase-producing Enterobacteriaceae (CPE)

The Johannesburg and Cape Town Antimicrobial Resistance Reference Laboratories (AMRRL) of the Centre for Opportunistic, Tropical and Hospital Infections (COTHI) at NICD/NHLS have been testing referred isolates of suspected carbapenemase-producing Enterobacteriaceae (CPE) for the presence of selected carbapenemase genes. For the months of August and September 2013, a total of 89 isolates was screened, the most common referral isolates being *Klebsiella pneumoniae* (57/89, 64%) and *Enterobacter cloacae* (22/89, 25%). Of these, a total of 58 isolates (65%) tested positive for selected carbapenemase genes (Figure 3).

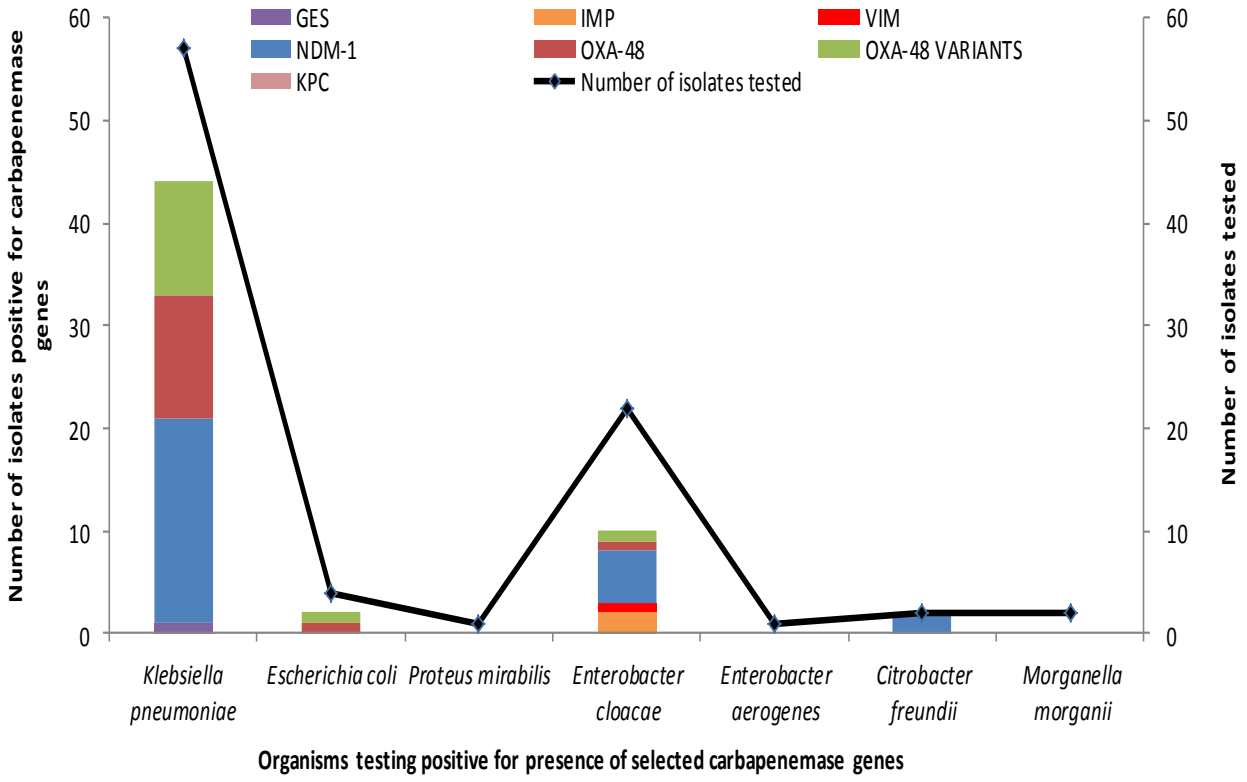

Figure 3. Enterobacteriaceae tested for presence of selected carbapenemase genes (n=89) showing distribution of isolates testing positive (n=58), August and September 2013, AMRRL (NICD-NHLS)

Twenty-seven NDM-positive isolates were identified (9 from private sector laboratories and 18 from public sector laboratories). Nine OXA-positive isolates were identified (7 from private and 2 from public laboratories respectively); the number and distribution of OXA-48 variant isolates was similar. Two IMP-positive isolates, one GES-positive isolate and one VIM-positive isolate were also identified. The majority of carbapenemase-positive isolates were from patients hospitalised in Gauteng (42/58, 72%) and Western Cape (9/58, 15%) provinces (Figure 4).

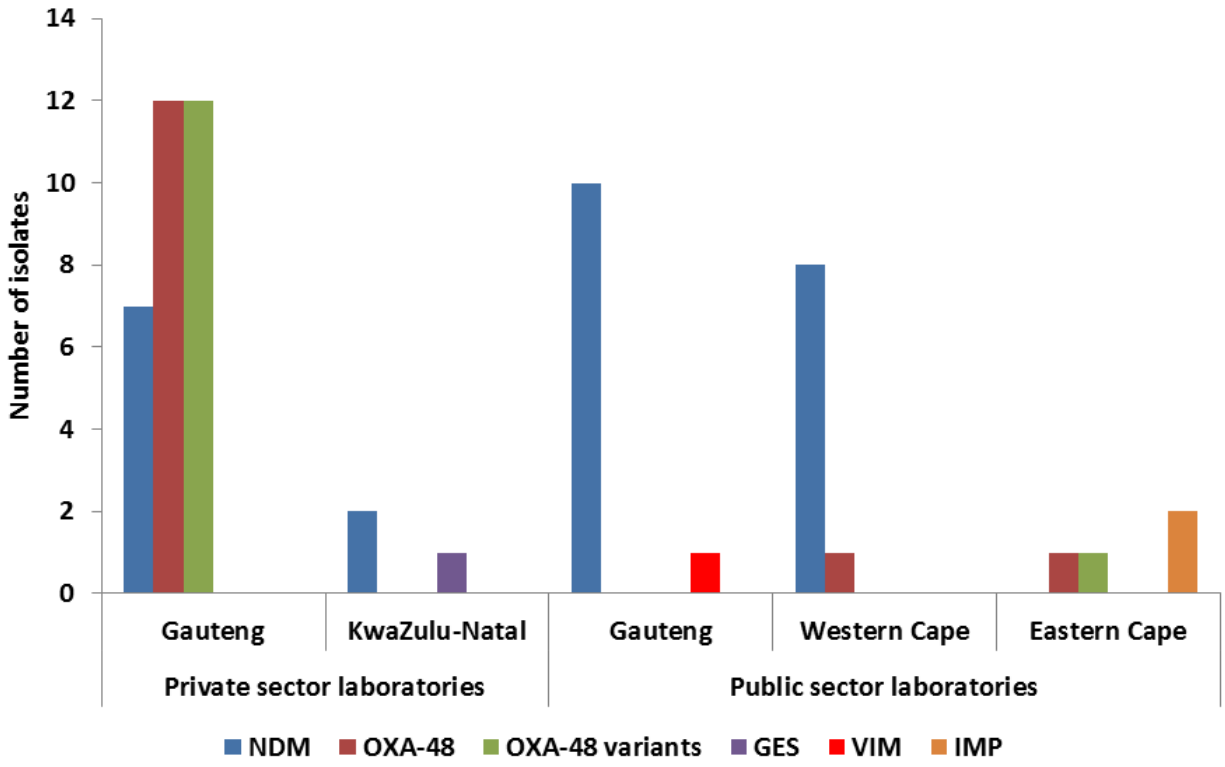

Figure 4. Provincial and healthcare sector distribution of isolates positive for selected carbapenemase genes (n=58)

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 by 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. Information and case report form (CRF) can be obtained from NICD/NHLS web sites.

Please telephone (011) 555 0342/44 or email ashikas@nicd.ac.za and olgap@nicd.ac.za for queries or further information. In Western Cape Province, please email: clintonmoodley@yahoo.com and colleen.bamford@nhls.ac.za.

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

BEYOND OUR BORDERS: INFECTIOUS DISEASE RISKS FOR TRAVELLERS

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
MERS-CoV Middle East: Jordan, Qatar, Saudi Arabia, and the United Arab Emirates (UAE). France, Germany, Tunisia and the United Kingdom	As of 17 October 2013, the total number of cases of Middle East respiratory syndrome coronavirus (MERS-CoV) reported globally by the World Health Organization (WHO) is 139, including 60 deaths. The most recent laboratory-confirmed cases were reported from Qatar and Hafar Al-Batin, Medina and Riyadh regions in Saudi Arabia. No cases of MERS-CoV have been reported outside of the Middle East since May 2013.	Infection prevention and control measures include good cough etiquette, avoiding contact with sick people, and frequent hand washing with soap and water or the use of an alcohol-based hand rub. Travellers should contact a medical practitioner if they develop acute respiratory symptoms upon return from a known risk area.
Dengue fever Africa: Kenya (Mombasa) Angola (Luanda Province)	Dengue fever is considered to be endemic to many countries in all regions of Africa, but surveillance is poor and the disease under diagnosed. In 2013, dengue fever has been reported in Mombasa (Kenya) and in Angola. As of 04 October 2013, 1 200 confirmed cases have been reported in Angola with 11 deaths. The majority of cases were reported in the capital city, Luanda. At least 90 dengue cases have also been associated with travel to Angola.	Dengue fever is a mosquito-borne viral infection transmitted by the *Aedes* mosquito species. Dengue fever symptoms can take up to two weeks to develop from being bitten, and the symptoms include: sudden onset of fever, headache, pain behind the eyes, joint and muscle pain, rash, nausea and vomiting. Severe or complicated dengue fever is uncommon but can occur in the form of dengue haemorrhagic fever and dengue shock syndrome. This is more common in the young and elderly. Travellers should wear long-sleeved shirts and long pants during the day and stay in well-ventilated (fan/air-conditioned) rooms where possible; use mosquito repellents containing DEET to avoid being bitten. The burning of mosquito coils at night and sleeping under a mosquito net in a well-ventilated room are also helpful at preventing other infections transmitted through mosquito bites.

Disease & countries	Comments	Advice to travellers
Cholera Mexico (Mexico City, Mexico State and Hidalgo State) Cuba (Camaguey, Granma, Guantanamo, Havana, Santiago de Cuba)	As of 04 October 2013, a total of 81 cases has been reported: 77 cases with 1 death in Hidalgo state, 2 cases in Mexico City and 2 cases in Mexico State. As of 01 October 2013, 678 confirmed cases have been reported, including 3 deaths. Among the confirmed cases are 12 persons who had travelled to Cuba from other countries. The outbreak has been ongoing in Cuba since July 2012.	Drink and use safe water (bottled with unbroken seal, boiled or treated with chlorine tablet). Wash hands with soap and safe water often. Eat hot well-cooked food, peel fruits and vegetables. Use latrines or bury faeces. Vaccines offer delayed and incomplete protection and should therefore not be used as a substitute for infection prevention and control measures.
Rubella Poland Japan	As of 01 October 2013, 36 751 cases of rubella have been reported. The entire country is affected. As of 01 October 2013, 14 033 cases of rubella have been reported, with the highest numbers in Osaka and Tokyo Metropolis Prefectures.	Travellers are advised to protect themselves from rubella by being up-to-date on their rubella vaccine. Pregnant women who are not protected against rubella either through vaccination or previous rubella infection should avoid traveling to countries during an outbreak. This is especially important during the first 20 weeks of pregnancy.
Chikungunya Philippines (Bataan Province)	As of 02 October 2013, 100 cases have been reported. Officials have declared an outbreak in the town of Mariveles, Bataan Province.	Chikungunya is a mosquito-borne viral infection transmitted by *Aedes* mosquito species, which bite mostly during the day. The disease shares some clinical signs with dengue; however, the joint pain is often debilitating. Complications are uncommon but the disease can cause death in the elderly. Onset of illness occurs usually between 4 and 8 days, but can range from 2 to 12 days. Travellers should wear long-sleeved shirts and long pants during the day and stay in well-ventilated (fan/air-conditioned) rooms where possible; use mosquito repellents containing DEET to avoid being bitten. The burning of mosquito coils at night and sleeping under a mosquito net in a well-ventilated room are also helpful at preventing other infections transmitted through mosquito bites.

Disease & countries	Comments	Advice to travellers
Polio (wild-type)		
South Sudan (Aweil South County, Iktotos County	On 30 September 2013, a polio outbreak was declared. As of 09 October 2013, there have been 3 confirmed cases of wild poliovirus type 1 (WPV1) in children who experienced onset of paralysis in August 2013. Two were from Aweil South County, near the border with Sudan, and the other was from Iktotos County, close to the border with Kenya and Uganda.	Travellers are advised to ensure that they have completed the recommended age-appropriate polio vaccine series. It is recommended for the unvaccinated, incompletely vaccinated, or those whose vaccination status is unknown that they receive 2 doses of IPV administered at an interval of 4–8 weeks, and a third dose should be administered 6–12 months after the second. Vaccinated travellers to the area should receive a booster (ideally the inactivated polio vaccine (IPV) or alternatively oral polio vaccine (OPV) booster).
Kenya, Somalia (Mogadishu)	As of 09 October 2013, 175 cases were reported in Somalia, and 14 cases in Dadaab (Kenya) which hosts a major refugee camp home to Somalian nationals.	
Ethiopia	As of 09 October 2013, 4 cases were reported.	
Nigeria	As of 09 October 2013, 49 cases were reported.	
Afghanistan (Eastern Region)	As of 09 October 2013, 6 cases were reported.	
Pakistan (Federally Administered Tribal Area)	As of 09 October 2013, 39 cases were reported.	
Israel, West Bank and Gaza	As of 09 October 2013, no case of paralytic polio has been reported in either Israel or West Bank and Gaza. However, environmental surveillance has detected WPV1 in 27 sites in Israel, 2 sites in West Bank and 1 site in the Gaza Strip. This suggests that the virus is circulating in the environment and anyone who has not been vaccinated is at risk of contracting the disease.	

References and additional reading:

ProMED-Mail (www.promedmail.org)

World Health Organization (www.who.int)

Centers for Disease Control and Prevention (www.cdc.gov)

Global Polio Eradication Initiative (http://www.polioeradication.org/Dataandmonitoring/Poliothisweek.aspx)

Last accessed: 21 October 2013.

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