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

# Communicable Diseases Communiqué

JULY 2013, Vol. 12(7)

## CONTENTS



## Rotavirus disease update

An increase in the number of diarrhoeal cases seen in health care facilities in the eThekweni Metropolitan, KwaZulu-Natal Province and Upington, Northern Cape Province, was reported in the June Communicable Diseases Communiqué (http://www.nicd.ac.za/assets/files/NICD-NHLS%20Communicable%20Disease%20Communiqu%C3%A9_June%202013_%281%29.pdf).

As of 09 July 2013 more than 1000 cases, including 26 deaths, have been reported from health care facilities in the eThekwini Metropolitan, and more than 900 cases, including 6 deaths, from 32 health care facilities in Upington, Siyanda District.

**Upington, Siyanda District, Northern Cape Province**

Initial investigations revealed that an increase in the number of diarrhoea cases was documented from epidemiologic week 18 (week starting 29 April) with a peak occurring during epidemiologic week 22 (week starting 27 May 2013) before declining to low levels (<10 cases per day) as at epidemiologic week 24 (week starting 10 July 2013) (Figure 1).

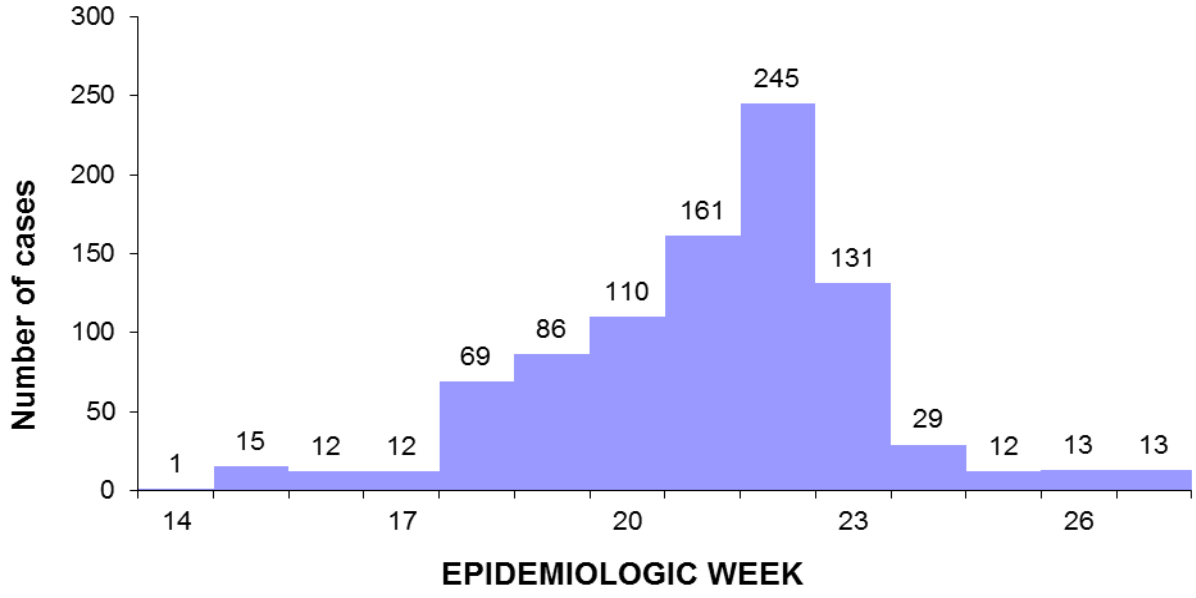


**Figure 1. Number of cases of diarrhoeal illness by epidemiologic week, Upington, Siyanda District, Northern Cape Province, 9 April to 7 July, 2013**

Diarrhoea, vomiting and abdominal cramps were the most common symptoms reported. Children aged <5 years accounted for a higher proportion of cases (58%, 554/953). Of those aged <5 years (n=554), the majority were <1 year of age (44%, 245/554). Of the laboratory-confirmed rotavirus cases where age was recorded (n=37), 86% (32/37) were children aged <5 years, while those aged <1 year accounted for 57% (21/37).

As of 04 July 2013, stool samples for 88 cases had been tested at the Centre for Enteric Diseases (CEDv) virology laboratory at the NICD-NHLS. Rotavirus was detected in 38/88 (43%) samples; other enteric viruses (including adenovirus, norovirus GI and GII, astrovirus, sapovirus and bocavirus) were also detected (22%, 19/88) in most cases as co-infections with rotavirus (58%, 11/19). The predominant circulating strains were G3P[8] (45%, 17/38), and G9P[8] (42%,16/38) respectively. The phylogenetic analysis of the VP4 gene showed that the circulating P[8] strains clustered with non-vaccine P[8] strains in lineage-III and were not markedly different to South African P[8] strains that were circulating in 2011 and 2012.

Interviews were conducted with caregivers of rotavirus-positive patients to determine vaccination history, diet, housing, level of overcrowding, water and sanitation. The number of cases has declined dramatically since week 25 (week starting 17 June). Health promotion is ongoing and a review is underway.

**eThekwini Metropolitan, KwaZulu-Natal Province**

As of 3 July 2013, 242 stool samples had been tested at the CEDv at the NICD-NHLS.

Rotavirus was detected in 55% (134/242) of the samples, with strains G2P[4] and G9P[8] detected in 54% (72/134) and 39% (52/134) of cases respectively. Other enteric viruses including adenovirus, norovirus GI and GII, astrovirus, sapovirus and bocavirus were also detected in 30% (73/242) of the samples, with at least half (51%, 37/73) of the cases co-infected with rotavirus. Of the laboratory-confirmed rotavirus cases where age was reported, 94% (171/181) were children <5 years of age and of these, 58% (100/171) were less than one year of age.

The rotavirus strains currently circulating in eThekwini should be covered by the monovalent rotavirus vaccine administered in the national immunization program. Similarly to the rotavirus strains detected in Upington, the P[8] strains from eThekwini clustered with lineage III P[8] strains and were not markedly different from P[8] strains circulating in South Africa in 2011 and 2012. Of concern is that a large proportion of cases were children in age groups that should have received two doses of rotavirus vaccine and thus developed protective immunity against rotavirus diarrhoea.

An investigation of this upsurge in diarrhoeal illness with predominance of rotavirus is currently underway. Aspects being investigated include a case-control study, vaccine status of rotavirus-positive cases, and EPI-related issues.

**Source:** Division of Public Health Surveillance and Response, Centre for Enteric Diseases and SA-FELTP, NICD-NHLS; Departments of Paediatrics and Public Health, University of KwaZulu-Natal; Department of Health: EPI and Outbreak Response Teams - National, Northern Cape provincial and district, KwaZulu-Natal provincial and district teams.

## Influenza surveillance

The 2013 influenza season which started in week 17 (week ending 28 April) is continuing but the number of submissions positive for influenza is starting to decrease. Over six weeks (20 May – 30 June) the average number of specimens for influenza testing submitted by the Viral Watch influenza surveillance programme has been 130 (range 100-167), with an average influenza detection rate of 58%. To date influenza has been detected in the specimens of 561 patients i.e. A (H1N1)pdm09 in 506 patients in all nine provinces; A(H1N1)pdm09 and A(H3N2) from three patients; A(H3N2) in 33 patients in five

provinces; influenza A(H3N2) and influenza B from one patient; and influenza B from 18 patients in Gauteng, KwaZulu-Natal and the Western Cape. Sixty-one patients positive for influenza were also positive for another respiratory virus, the majority (43) for adenovirus. In addition other respiratory viruses were detected in 251 patients negative for influenza. The majority (121) of these were rhinovirus, followed by adenovirus (64).

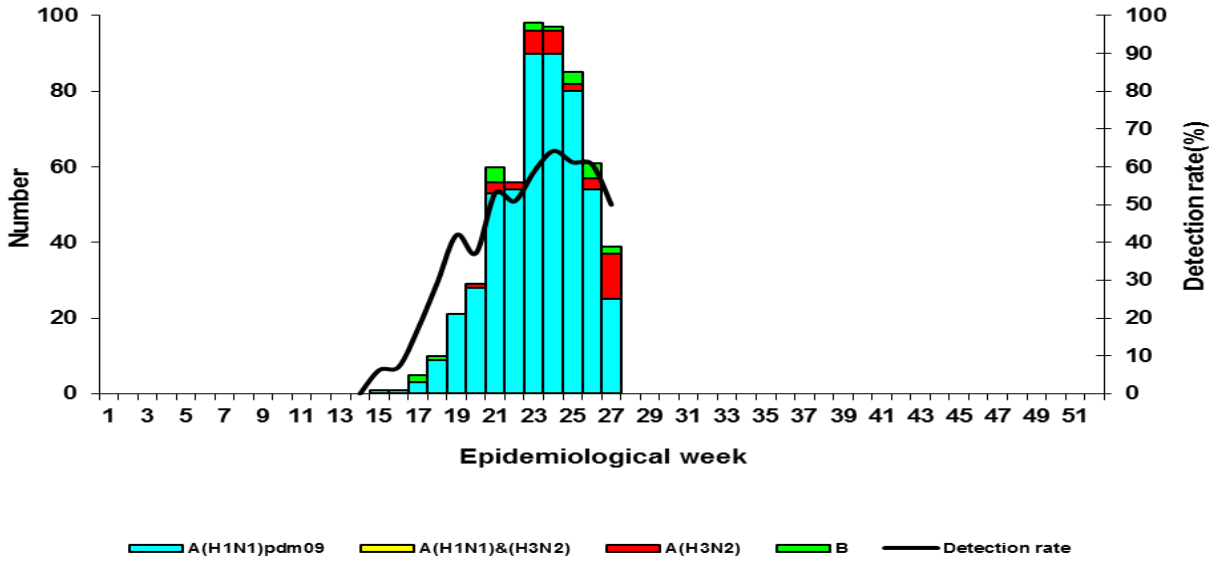


**Figure 2. Number of positive samples by influenza types and subtypes, and influenza detection rate by week, 2013**

During this time period 1588 specimens from patients admitted with severe acute respiratory illness (SARI) at the five SARI surveillance sites have been tested for influenza. Of these, 75 were positive for influenza, with all five SARI sites reporting influenza positives. Influenza A (not subtyped) was detected in two patients, influenza A (H1N1)pdm09 in 63 patients, influenza A(H1N1) pdm09 and A(H3N2) in one, and influenza B in four patients (Figure 3). In addition 1330 other respiratory viruses were detected in the specimens of 961 patients, rhinovirus (480) accounting for the majority, followed by RSV (352) and adenovirus (296).

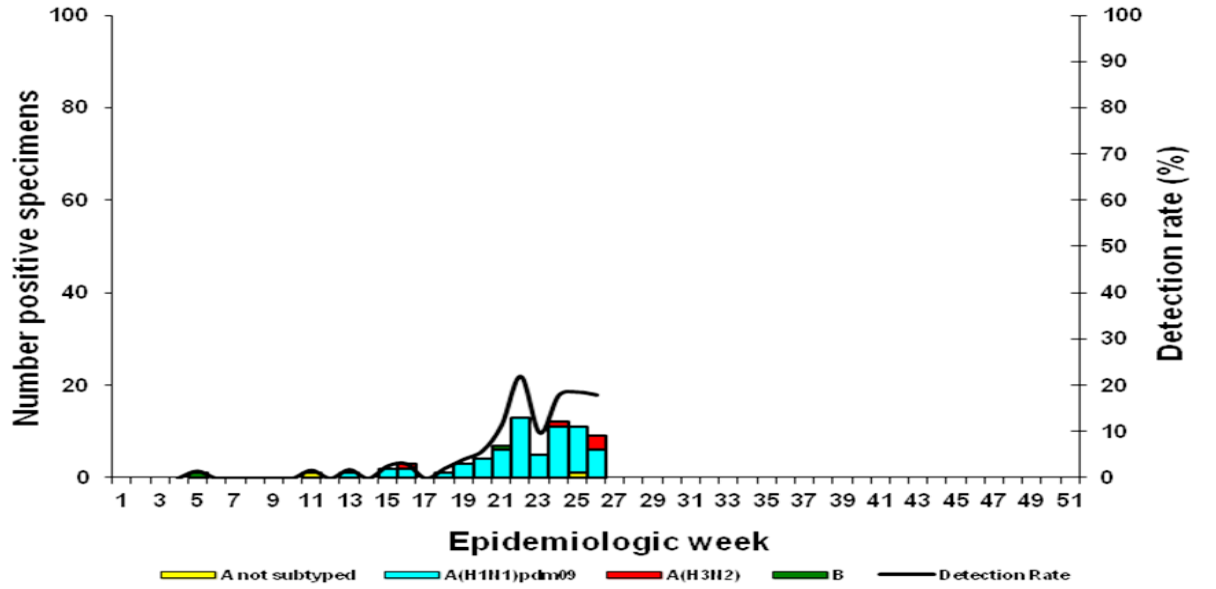


**Figure 3. Number of positive samples by influenza types and subtypes, and influenza detection rate by week, SARI surveillance, 2013**

As in 2012 influenza season, influenza A(H1N1) pdm09 is the predominant seasonal strain circulating so far. Detailed guidelines for the prevention and treatment of influenza are available at:

http://www.nicd.ac.za/assets/files/Healthcare%20Workers%20Handbook%20on%20Influenza%20in%20SA%20-10%20April%202013final%20_2.pdf

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

## Rabies update

There have been no new reports of laboratory-confirmed cases of human rabies in South Africa since June 2013. In the first half of year 2013, the National Institute for Communicable Diseases (NICD) has confirmed five cases of human rabies. These cases originated from Mpumalanga (n=1), KwaZulu-Natal (n=1), Limpopo (n=1) and Free State (n=2) provinces.

One case of clinical rabies was reported to the NICD in the past month. The patient, a seven-year-old boy from Ncwasa Location in Mqanduli about 20 kilometres from Mthatha, Eastern Cape Province, is suspected to have died of rabies on 18 May 2013 in Zithulele Provincial Hospital. His health had deteriorated rapidly over three days. The patient presented with itching on the ventral aspect of the knee joint on 16 May. The child refused to eat despite having an appetite. On the same day the child was taken to the nearest clinic. He was given antihelmintic drug to treat a possible infection with parasitic worms. On the next day, the child was admitted to Zithulele Hospital. He acted in a strange manner, looked confused, was restless and hypersalivating. His condition worsened and he died on the day of admission after failed attempts of resuscitation. Investigation yielded no evidence of dog bite exposure. No post-mortem examination on the deceased child was done to determine the exact cause of death. Based on the clinical presentation and fatal outcome, this is a likely case of rabies.

Besides bites, rabies virus transmission is also possible through superficial wounds such as scratches that breach the epidermis. These may heal quickly and be inapparent when signs and symptoms of rabies appear. Young children are less likely to report these seemingly benign injuries to their caregivers. Transmission may also occur through contamination of mucous membranes such as licking of the face (i.e. eyes, nose and mouth). Although these exposures are considered of less risk than invasive bite wounds, rabies post-exposure prophylaxis is still required. This would include wound treatment (i.e. washing) and rabies vaccination as per national guidelines.

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

## Crimean-Congo haemorrhagic fever

Crimean-Congo haemorrhagic fever (CCHF) was confirmed on Friday 5th July in a 42-year-old cattle farmer from Belfast, Mpumalanga Province. The patient presented with a history of fever of seven days duration followed by haematemesis and bleeding from the gums. A history of tick exposure prompted a course of doxycycline for suspected tick bite fever, with no clinical response. This together with the bleeding, in a farmer, raised the possibility of the diagnosis of CCHF. The key laboratory findings to support the CCHF diagnosis were thrombocytopenia (platelets 29 x $10^9$/L), raised

transaminases (AST 443 IU/L and ALT 137 IU/L) and leucopenia (WCC 2.98 x $10^9$/L). The patient was treated in isolation in a Middelburg hospital and then transferred to a Pretoria hospital for further care. The diagnosis was confirmed by CCHF RT-PCR which was positive on repeat specimens, and detection of CCHF IgG and IgM antibodies in the patient's serum. The patient responded well to supportive management and ribavirin and has since been discharged from hospital. No secondary cases have been reported to date.

In addition to this case, three other CCHF cases have been confirmed to date in 2013 . Two of these were reported from the Free State Province and one from the North West Province. All three patients recovered from the infection.

CCHF or 'Congo fever' is well-described in South Africa. Cases have been diagnosed almost every year since 1981, with a case fatality rate of approximately 30% over time. In the past ten years (2003 to date) a total of 37 cases has been laboratory confirmed in South Africa. These cases originated from the Free State (n=12), Northern Cape (n=14), North West (n=4), Gauteng (n=2), Mpumalanga (n=2), Western (n=2) and Eastern Cape (n=1) provinces. For Mpumalanga Province a total of eight cases has been reported since 1985 (including the case reported here).

Although CCHF cases has been recorded from all of the provinces of South Africa, it is more often reported from the Free State and Northern Cape provinces predominantly related to sheep farming. In South Africa, about a third of confirmed CCHF cases reported a tick exposure (most commonly, the so called "Bontpoot" ticks are implicated).

Less common routes of transmission include contact with infected blood or tissues, for example during slaughtering. Livestock and certain wildlife species are infected with CCHF virus through tick bites. The infected animals do not become ill and will be immune to subsequent infection. Ingestion of cooked meat is not considered a risk for CCHF virus exposure.

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

## Meningococcal disease update

Cases of meningococcal disease continue to be reported from across the country. A slow increase in case numbers is being seen. This increase may indicate the start of the meningococcal season. Numbers are expected to increase during July and peak during the months of August to October. There are inherent delays in laboratory-based reporting, which lags behind clinical reports.

By the end of epidemiological week 23, a total of 66 laboratory-confirmed cases was reported to the Centre for Respiratory Diseases and Meningitis (CRDM), NICD (Table 1). Eighteen cases have been reported in the <1-year-old age group this year so far. This is similar to the number of cases for the equivalent time period and age group in 2012 (n=20).

The reported cases were caused by diverse serogroups, which is in keeping with sporadic endemic disease in the country. Serogroup data were available for 28/66 (42%) of cases. Serogroup B and W135 have been identified most commonly this year (6/28, 21% serogroup B and 14/28, 50% serogroup W135). There were also four cases of serogroup Y and three cases of serogroup C disease. One isolate was non-groupable.

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 acute febrile illness. Disease typically has a rapid progression and should be managed as a medical emergency, requiring urgent antibiotics 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.

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

**Table 1. Number of laboratory-confirmed meningococcal disease cases reported until end of week 23, 2012 and 2013, by province**

| | Year | |
|---|---|---|
| **Province** | **2012** | **2013** |
| Eastern Cape | 11 | 15 |
| Free State | 0 | 5 |
| Gauteng | 30 | 15 |
| KwaZulu-Natal | 10 | 13 |
| Limpopo | 1 | 1 |
| Mpumalanga | 1 | 1 |
| Northern Cape | 0 | 1 |
| North West | 2 | 2 |
| Western Cape | 19 | 13 |
| | 74 | 66 |

## Middle East respiratory syndrome coronavirus (MERS-CoV)

As of 7 July 2013, the Middle East respiratory syndrome coronavirus (MERS-CoV) infection, formerly known as novel coronavirus (nCoV), has been laboratory confirmed in 81 patients, including 45 deaths (case fatality rate 56%). Fortynine of 75 cases (65%) for which the sex is known were male and the median age of the cases with known age is 51 years (range, 14 months to 94 years). The MERS-CoV infection has been associated with severe respiratory illness, with most patients presenting with fever, cough, and breathing difficulties, while atypical symptoms such as diarrhoea have also been reported, especially in patients who are immunocompromised.

To date, all cases identified have had either a direct or indirect link to four countries in or near the Arabian Peninsula (see table below for countries that reported cases). However, some cases identified in recent travellers from the Middle East have resulted in local, non-sustained transmission to close contacts.

The latest case reported is a 56-year-old female from Hafr Al-Batin city, in the north-eastern region of Saudi Arabia. She is a health care worker with history of contact with a previously reported laboratory-confirmed MERS-CoV case, who subsequently recovered and was discharged. For more information on cases see WHO link below: http://www.who.int/csr/don/archive/disease/coronavirus_infections/en/index.html.

The original source(s), route(s) of transmission to humans, and the mode(s) of human-to-human transmission have not been determined.

Health care providers are advised to be vigilant among recent travellers returning from areas affected by the virus, who develop severe acute respiratory illness (SARI) or pneumonia. Lower respiratory tract specimens should be obtained for diagnosis where possible. Clinicians are reminded that MERS-CoV infection should be considered even with atypical signs and symptoms in patients who are significantly immunocompromised. Health care facilities that provide care for patients with suspected or confirmed MERS-CoV infection should take appropriate measures to decrease the risk of transmission of the virus to other patients, health care workers and visitors.

Travellers to the Middle East that develop symptoms either during travel or after their return are encouraged to seek medical attention and to share their history of travel. WHO does not advise

special screening at points of entry with regard to this event nor does it currently recommend the application of any travel or trade restrictions.

**Table 2. MERS-CoV cases and deaths, April 2012 to 7 July 2013**

| Countries | Cases (Deaths) |
|---|---|
| Saudi Arabia | 66 (38) |
| Italy | 3 (0) |
| Jordan | 2 (2) |
| Qatar | 2 (0) |
| France | 2 (1) |
| Tunisia | 2 (1) |
| United Kingdom (UK) | 3 (2) |
| United Arab Emirates (UAE) | 1 (1) |
| **Total** | **81 (45)** |

For guidance on case definitions and testing for MERS-CoV, clinicians can access information at: http://nicd.ac.za/assets/files/Guidelines%20for%20case%20finding%20and%20laboratory%20testing%20for%20novel%20coronavirus%2027%20Nov2012.pdf.

For guidance on infection control in specimen collection and patient management, see WHO link below:
http://www.who.int/csr/disease/coronavirus_infections/IPCnCoVguidance_06May13.pdf

**Additional information**

WHO website: http://www.who.int/csr/disease/coronavirus_infections/en/index.html

NICD webpage: http://www.nicd.ac.za/

**Source:** Centre for Respiratory Diseases and Meningitis, 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 |
|---|---|---|
| **Dengue fever**<br><br>Angola (Luanda; Malanje Provinces)<br><br>Tanzania (Dar es Salaam)<br><br>South East Asia: Laos, Thailand (Chiang Rai, Lampang Provinces) Cambodia, Malaysia, Singapore, Vietnam, Phillipines (Iloilo; Eastern Visayas Region)<br><br>South America Mexico, Bolivia, Columbia, Ecuador, Paraguay and Peru | As of 24 June 2013, 657 confirmed cases including 10 fatalities have been reported.<br><br>As of 1 July 2013, an increase in number of cases and deaths has been reported in Tanzania.<br><br>An increase in number of cases has been noted in South East Asia, with some countries reporting up to a 10 and 16 times increase in infection rates as well as significant increases in deaths as compared to 2012.<br><br>Dengue fever is endemic in many South American countries and pockets of outbreaks have been reported in 2013. | 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.<br><br>Travellers should wear long-sleeved pants and shirts 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. |
| **Chikungunya**<br><br>Philippines (South Cotabato; Cotabato) | As of 1 July 2013, 215 cases were diagnosed in South Cotabato. Officials want to declare a state of emergency to access extra funds for treatment and control measures. | Chikungunya is a mosquito-borne viral infection transmitted by *Aedes* mosquito species, which bite mostly during the day.<br><br>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.<br><br>Travellers should wear long-sleeved pants and shirts 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**<br>(WPV1)<br>Somalia (Banadir, Lower Shabelle Province)<br><br>Kenya (Dadaab) | As of 1 July 2013, 41 cases have been reported in Somalia, and 7 cases in Dadaab, Kenya, which hosts a major refugee camp which includes people from Somalia. | Polio is an infectious disease caused by a virus that invades the nervous system and can cause total paralysis in a matter of hours. The disease affects mainly children <5 years of age.<br><br>Symptoms include fever, fatigue, headache, vomiting, neck stiffness and pain in the limbs.<br><br>Travellers are advised to ensure that they have completed the recommended age-appropriate polio vaccine series.<br><br>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; a third dose should be administered 6–12 months after the second.<br><br>Vaccinated travellers to the area should receive a booster (ideally, inactivated polio vaccine, IPV) or alternatively oral polio vaccine (OPV) booster. |
| **Yellow Fever**<br><br>Chad, Cote d'Ivoire, Democratic Republic of Congo, Nigeria, Republic of Congo, Sudan, Togo, Niger and Ethiopia | As of 1 July 2013, 62 cases including 19 deaths were reported in the Democratic Republic of Congo (DRC). An emergency mass vaccination campaign has been launched with the aim of reaching more than 500 000 people.<br><br>In Ethiopia, 130 cases have been reported in the following regions: South Omo, and the Southern Nations Nationalities and Peoples' region (SNNPR). An emergency mass vaccination campaign was also launched in 10 June 2013. | Yellow fever is an acute viral haemorrhagic disease transmitted by infected mosquitoes. The first, acute, phase usually causes fever, muscle pain with prominent backache, headache, shivers, loss of appetite, and nausea or vomiting. Most patients improve and their symptoms disappear after 3 to 4 days. However, 15% of patients enter a second, more toxic phase within 24 hours of the initial remission. High fever returns and several body systems are affected including liver failure and jaundice. Up to 50% of severely affected persons without supportive treatment will die from yellow fever.<br><br>There is no specific treatment for yellow fever. Treatment is symptomatic.<br>For travellers to yellow fever risk areas, it is recommended for the unvaccinated or those whose vaccination status is unknown that they receive yellow fever vaccination 10 days prior to departure. Vaccine is contraindicated in pregnant women, infants <9 months, individuals with egg allergies, and certain immunosuppressed individuals (including HIV infected persons with CD4<200/$mm^3$). |

| Disease & countries | Comments | Advice to travellers |
|---|---|---|
| **Avian influenza A [H7N9]**<br><br>China | As of 5 July 2013, a total of 133 cases of H7N9 has been reported to the WHO from China (132 from China's National Health Family and Commission, and 1 from Taipei Centers for Disease Control) including 43 deaths. | The World Health Organization (WHO) does not advise special screening at points of entry with regard to this event, nor does it currently recommend any travel or trade restrictions. There is currently no evidence of sustained human to human transmission. More information on H7N9 can be accessed at: http://who.int/influenza/human_animal_interface/influenza_h7n9/en/index.html. |

**References and additional reading:**

ProMED-Mail (www.promedmail.org)

World Health Organization (www.who.int)

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

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