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CONTENTS

Rotavirus

During late April 2013, a dramatic increase in the number of diarrhoea cases was noted at a hospital in Upington (Siyanda district, Northern Cape Province); in early June, two hospitals in Ethekwini Metro, KwaZulu-Natal Province also reported dramatic increases in patients presenting with diarrhoea.

Upington, Siyanda District, Northern Cape Province

From 30 April 2013 to 20 May 2013, over 100 diarrhoea cases with at least four deaths were reported from Upington Hospital. The Northern Cape Provincial Department of Health and the National Outbreak Unit (NICD-NHLS and National Department of Health) assisted the District Outbreak Response Team in conducting an outbreak investigation. Active case finding at healthcare facilities was initiated and a recommendation was made for stool samples to be collected from all further cases presenting with acute diarrheoa, in order to test for epidemic-prone bacterial, parasitic and viral pathogens. Health promotion activities were strengthened, and potable water samples were collected at strategic sites within the municipality and submitted for laboratory testing.

As at 6 June 2013, over 800 cases including six deaths had been reported from 31 healthcare facilities in the district. Diarrhoea and vomiting were the most common symptoms reported. Children aged <5 years accounted for a higher proportion of cases (59.5%, 488/820), the majority of whom were those <1 year of age. 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).

As at 19 June 2013, stool samples for 81 cases had been tested at the Centre for Enteric Diseases (CED) virology laboratory at the NICD-NHLS. Rotavirus was detected in 36/81 (44%) samples; a few cases of other enteric viruses (including adenovirus, astrovirus, sapovirus and bocavirus) were also detected, but in many cases as co-infections with rotavirus.

Of the laboratory-confirmed rotavirus cases where age was recorded (n=31), 81% (25/31) were children aged ≤ 5 years, while those aged ≤ 9 months accounted for 55% (17/31) of all cases. Routine MCS and parasitological investigations excluded common epidemic-prone bacteria and parasites as cause/s of the outbreak. Potable water samples were tested for the presence of viruses at the University of Pretoria, and no outbreak-prone viruses were detected.

Ethwekini Metro, KZN

Towards the end of May 2013, an increase in the number of paediatric cases presenting with diarrhoea was reported from three public hospitals in the Ethekwini Metro; at least two diarrhoea-related deaths had also been reported. In response, an outbreak investigation was initiated and included a visit to the implicated health facilities by the District Outbreak Response Team, recommendation to collect stool samples from all cases presenting with acute diarrhoea in order to test for bacterial, parasitic and viral pathogens in an endeavor to identify the causative agent.

Routine stool MCS and microscopy for common enteric parasites excluded common outbreak-prone bacterial and parasitic causes.

Potable water samples were referred to the Enteric Virus and Environmental Research Group, Department of Medical Virology, Faculty of Health Sciences, University of Pretoria / NHLS TAD where they were tested for microbial indicators of faecal contamination, namely thermotolerant (faecal)

coliforms and *E. Coli,* and enteric viruses. Results indicated that the potable water supplies complied with the South African National Standard for drinking water (SANS 241-1: 2011 Edition 1 : ISBN 978-0-626-26115-3).

As at 19 June 2013, a total of 155 stool samples had been tested at the CED, NICD-NHLS. Rotavirus was detected in 83/155 (54%), along with a few detections of other enteric viruses (including adenovirus, norovirus GI and GII, astrovirus, sapovirus and bocavirus) – in many cases occurring as co-infections with rotavirus, as found with the Siyanda District cases.

Of the laboratory-confirmed rotavirus cases where age was recorded (n=63), 97% (61/63) were children aged ≤ 5 years, while 49% (15/23) of cases were children ≤ 9 months of age.

According to data from the South African rotavirus surveillance programme, the annual rotavirus season began in epidemiologic week 19 (week ending 12 May 2013). The apparent increase in rotavirus cases reported in Siyanda District and Ethekwini Metro is currently under investigation.

Source: Division of Public Health Surveillance and Response, Centre for Enteric Diseases and SA-FELTP, NICD-NHLS; Department of Health, Northern Cape and KwaZulu-Natal provinces; Enteric Virus and Environmental Research Group, Department of Medical Virology, Faculty of Health Sciences, University of Pretoria / NHLS TAD

Influenza

Since the start of the 2013 influenza season in South Africa, the number of specimens submitted for respiratory virus testing through the Viral Watch programme (VW) has continued to increase, with >100 specimens per week being submitted since the last week of May. As at 6 June 2013, influenza has been detected in 240 patients i.e. A(H1N1) pdm09 in 229 patients, in all nine provinces; A (H1N1)pdm09 and A(H3N2) from a patient in Gauteng Province (GP); A(H3N2) in four patients in GP; and influenza B from seven patients in KwaZulu-Natal and Western Cape provinces. The influenza season is considered to have started when the detection rate rises above 10% and stays there for two weeks or more. The detection rate from the VW programme rose to 17.2% in week 17 (week starting 22 April) and continued to increase to >50% by week 21 (starting 20 May) – Figure. In addition other respiratory viruses were detected in 170 patients negative for influenza. The majority (91/170, 53%) of these were rhinovirus, followed by adenovirus (39/170, 23%).

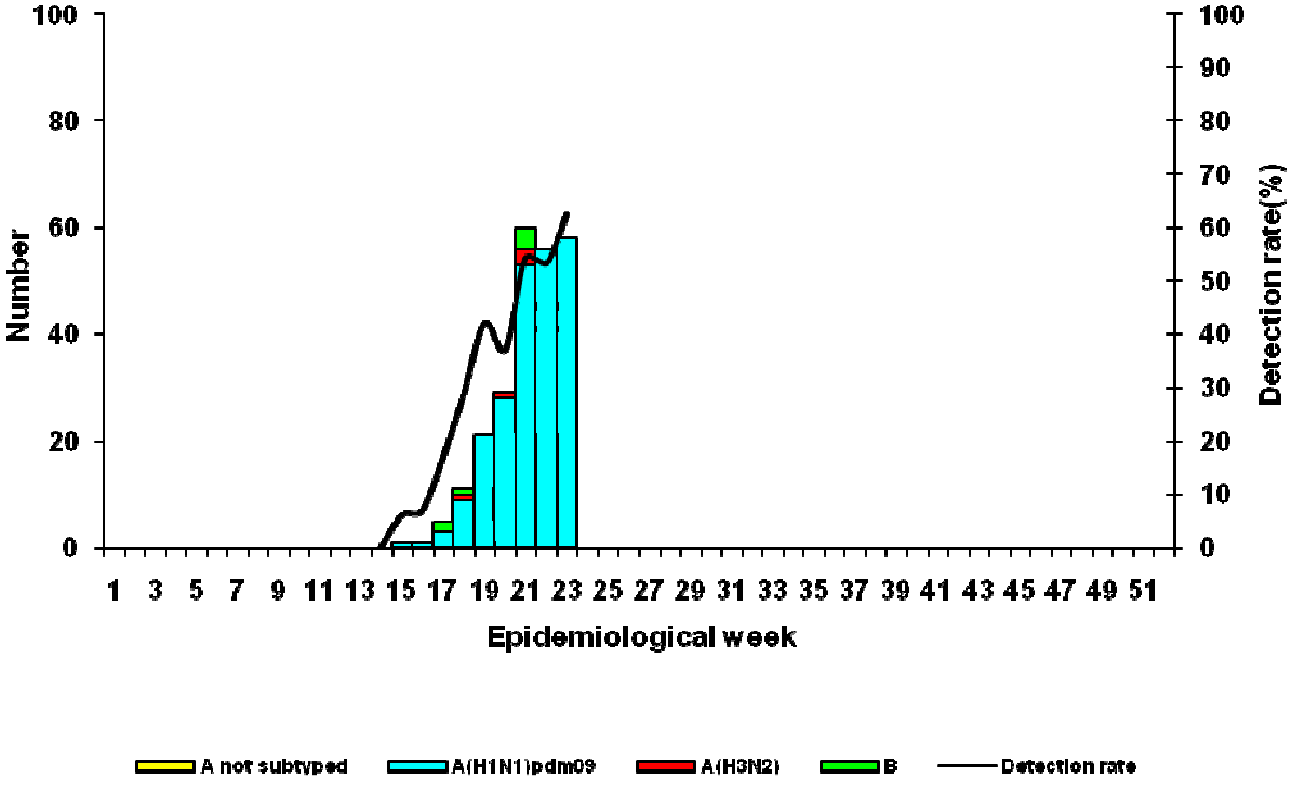

Figure. Number of positive samples by influenza types and subtypes and influenza detection rate by week, Viral Watch Programme, 2013

During this time period 1 358 specimens from patients admitted with severe acute respiratory illness (SARI) at the five SARI surveillance sites have been tested for influenza. Of these, 3% (36/1 358) were positive for influenza; influenza cases have been reported in 3 of the 5 sentinel sites to date. Influenza A not subtyped was detected in one patient, influenza A(H1N1)pdm09 in 32 patients, influenza A(H1N1)pdm09 and A(H3N3) in one, and influenza B in two patients. In addition, 1 201 other respiratory viruses were detected in the specimens of 878 patients; rhinovirus accounted for the majority (443/1 201, 44%) followed by RSV (307/1 021, 30%).

Clinicians should have a high index of suspicion for influenza in patients admitted with pneumonia. Influenza antiviral treatment (oseltamivir) should be considered for all patients with pneumonia, especially patients at increased risk of severe disease. 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

The NICD-NHLS provides the only diagnostic testing facility for investigation of human rabies cases in South Africa. For 2013 to the end of May, a total of five cases of human rabies has been confirmed. These cases originated from KwaZulu-Natal (n=1), Limpopo (n=1), Mpumalanga (n=1) and Free State (n=2) provinces. A clinical case of probable rabies was reported in a two-year-old child from Polokwane, Limpopo Province. The patient died of a meningitis-like illness on 20 April 2013, after being bitten by a dog earlier the same month and having received only one dose of rabies vaccine as post-exposure prophylaxis (PEP). During the short stay in hospital the child was observed to exhibit inappropriate behavior e.g. biting the infusion line, and he also refused to eat. During the night prior to hospitalisation the child was seen talking to himself, was weak and unable to walk, was aggressive towards his mother. Unfortunately, no specimens were submitted to confirm the suspicion of rabies in this child. During the investigation, it became clear that the father of the child had also been bitten by the same dog, and was provided with appropriate PEP.

The two cases for 2013 from Free State Province (FSP) were laboratory confirmed in April and May. A 21-year-old man was bitten on his right toe by a stray dog in Thaba Nchu on 6 March, and sought medical treatment from a local pharmacy where a nurse cleaned his wounds and provided an ointment to apply at home. The patient was not referred to a healthcare facility for rabies PEP. He died at Pelonomi Hospital on 14 April after exhibiting signs and symptoms compatible with a diagnosis of rabies for a week (including hydrophobia, confusion, agitation and fever). Rabies was confirmed by testing a post-mortem brain specimen using the direct fluorescent antibody test for rabies. This result was confirmed by RT-PCR on 18 April. Public health investigation of the case revealed additional contacts/exposures to the suspected animal, who were provided with appropriate rabies PEP.

The second rabies case from FSP was a five-year-old boy from Botshabelo, a large township settlement 45 km east of Bloemfontein – which is ±18 km from the site of exposure for the first reported case. The child was exposed to a dog in April 2013 and reportedly suffered only superficial wounds (or scratches). Apparently no medical intervention was sought due to the benign nature of the injuries. The dog was known to the neighbourhood, but disappeared on the same day of the incident. The child was admitted to Pelonomi Hospital after a three-day history of confusion and hypersalivation, and died on 16 May. Rabies was confirmed on a post-mortem brain specimen using the direct fluorescent antibody test and the result was verified by RT-PCR on 27 May. Once again, an investigation traced additional contacts/human exposures to the dog, and rabies PEP was administered to them.

The case reported in December 2012 and these two recent cases described here are the first reported cases from Free State Province in seven years. Only four cases of human rabies have been confirmed from the province to date with two cases in 1988, and one case each in 1993 and 2005.

Though no confirmatory figures are available, the number of dog bites in South Africa is substantial. Members of the South African public are often not aware of the potentially fatal consequences of dog bites that are left untreated. Availability of PEP biologicals is another important factor in determining whether a patient receives treatment

as indicated by the guidelines. The cost of full rabies PEP with vaccine and immunoglobulin is over R 1 500.00 per individual. Limited availability of rabies immunoglobulin is always a challenge; the overuse of PEP in settings with low rabies exposure risk (e.g. Gauteng Province) that exhausts limited supplies is a growing problem. Healthcare workers are urged to conduct thorough risk assessment of animal exposures prior to administering rabies PEP, taking into account not only the nature of the injury but also the particulars of the animal concerned and the geographical location of the exposure.

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

Meningococcal disease update

Sporadic cases of meningococcal disease continued to be reported across the country, with no noticeable seasonal increase of laboratory-confirmed cases reported to the Centre for Respiratory Diseases and Meningitis (CRDM), NICD-NHLS as yet. Numbers are expected to increase during June and July, and to peak during the months of August to October. There are inherent delays in laboratory-based reporting, which lags behind clinical reports of meningococcal disease.

By the end of epidemiological week 19 (week ending 12 May), a total of 46 laboratory-confirmed cases was reported to the CRDM, NICD-NHLS (Table). Eleven cases have been reported in the <1 year age group this year so far. This is slightly lower than the number of cases for the equivalent time period and age group in 2012 (n=16).

The reported cases were caused by diverse serogroups, which is in keeping with sporadic endemic disease in the country. Serogroup data were available for 25/46 (54%) of cases. Serogroup B and W135 have been identified most commonly this year (6/25, 24% serogroup B and 12/25, 48% serogroup W135). There were also four cases of serogroup Y and two 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 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. Number of laboratory-confirmed meningococcal disease cases reported until end of week 19, 2012 and 2013, by province

	Year	
Province	**2012**	**2013**
Eastern Cape	8	9
Free State	0	3
Gauteng	22	10
KwaZulu-Natal	8	8
Limpopo	1	1
Mpumalanga	1	1
Northern Cape	0	1
North West	2	1
Western Cape	13	12
	55	46

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

Dengue fever, Angola

Since March 2013, Angola has been experiencing a dengue outbreak in Luanda Province. The capital city and Angola's biggest seaport, Luanda has also been affected and numerous travellers have acquired dengue fever whilst visiting the city. On 1 April 2013, local health authorities in Luanda reported six cases of dengue fever acquired in the city, with subsequent reports of travel-related dengue acquired in Angola. As of 7 June, the US Centers for Disease Control and Prevention (CDC) report the situation as an epidemic with over 300 dengue cases having been confirmed, of which 90 have been travellers.

Previously, dengue has been reported sporadically from Angola, with the last outbreak of dengue reported in Luanda in 1980.

The Centre for Emerging and Zoonotic Diseases (NICD-NHLS) has confirmed four cases of dengue in South Africans returning from travel to Angola since the start of the outbreak to date. In addition,

an Angolan man and a foreign national working in Angola were diagnosed and treated for dengue in South Africa.

A 43-year-old male from Western Cape Province but working in Angola was confirmed dengue positive by IgM ELISA on 17 April 2013, as was reported in the April 2013 issue of the NICD Communicable Diseases Communiqué.

A 57-year-old male from Gauteng Province who works in Luanda was diagnosed with dengue type 1 virus by RT-PCR and molecular sequencing on 7 May 2013. The case was described in the May 2013 issue of the NICD Communicable Diseases Communiqué.

A 33-year-old South African male visited his brother in Angola for three weeks and returned to South Africa on 28 April 2013. He had onset of flu-like symptoms a day after his return to his farm in Eastern Cape Province. He presented on 1 May to a Bloemfontein hospital with pyrexia and inflamed throat. His brother had been diagnosed with dengue and presented with similar symptoms. A malaria screen was done on the patient and results were negative. The NICD-NHLS confirmed the diagnosis of dengue by RT-PCR on 2 May.

A 29-year-old male from Gauteng Province presented to a Pretoria hospital with complaints of headache, nausea, vomiting, fever, and swollen lymph nodes. Skin rash was absent. He reported recent travel to Angola. The NICD confirmed the diagnosis of dengue by IgM ELISA on 6 May. No PCR testing was performed on this patient.

A 65-year-old Angolan patient was admitted on 13 May 2013 with a history of febrile illness for about a week and was treated in a Johannesburg hospital. He presented with fever and petechial rash on his legs. Laboratory findings showed a low platelet count, which increased progressively on corticosteroid treatment. The patient recovered well. The sample submitted for the patient was found positive by IgM ELISA and negative by RT-PCR at the NICD.

Dengue should be suspected in Febrile travellers from Angola. Two of the patients described above were still viraemic after returning to SA as shown by PCR testing, and although mosquito activity in winter is low in SA, there should be awareness of possible transmission from dengue patients through the bite of mosquitoes for the duration of viraemia.

The CDC, the World Health Organization, the Angolan Ministry of Health, and the European Union are working together to respond to the outbreak. The NICD-NHLS continues to investigate any laboratory submissions for travellers from Angola.

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

Middle East Respiratory Syndrome Coronavirus (MERS-CoV)

As of 7 June 2013, the Middle East Respiratory Syndrome Coronavirus (MERS-CoV) infection, formerly known as novel coronavirus (nCoV), has been laboratory confirmed in 55 patients, including 31 deaths (case fatality rate 56%). The MERS-CoV infection has been associated with severe respiratory illness, with most patients presenting with fever, cough, and breathing difficulties; 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 connection with the Middle East. 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 was an 83-year-old man, who became ill on 27 May 2013 and died on 31 May 2013. He was from Al-Ahsa in Saudi Arabia, where an outbreak began in a healthcare facility in April 2013. For more information on cases see the World Health Organization (WHO) link below: http://www.who.int/csr/don/archive/disease/coronavirus_infections/en/index.html.

Healthcare providers are advised to be vigilant for 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. Healthcare 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, healthcare workers and visitors.

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 prevention and control in specimen collection as well as patient management, see the 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
Avian Influenza H7N9 China (Shanghai, Jiangsu, Anhui, Zhejiang, Beijing, Henan)	To date, WHO has been informed of a total of 132 laboratory-confirmed cases, including 39 deaths.	H7N9 is a type of influenza usually seen in animals; it is the first time this virus has been noted to cause disease in humans. Symptoms include high fever, cough, and shortness of breath. There is currently no vaccine available against avian influenza H7N9. Travellers to China are advised to seek healthcare should they become ill whilst in China or shortly after their return.
Dengue fever Angola (Luanda; Malanje)	As of 17 May 2013, 301 cases of dengue including one death have been recorded in Angola since the outbreak was announced on 12 March 2013. 10 cases have been identified in Portugal, South Africa, Israel, and Canada among travellers who recently returned from Angola.	Dengue viruses are transmitted by *Aedes* species mosquitoes, which usually bite during daytime. Symptoms of dengue fever include fever, headache, joint and muscle pain, rash, nausea and vomiting and can take two weeks to develop after being bitten. Uncommon fatal complications include dengue haemorrhagic fever and dengue shock syndrome. There are no available vaccines. When travelling to a dengue-risk area, use mosquito repellents containing DEET to avoid being bitten. Wear long-sleeved pants and shirts during the day and stay in well-ventilated (fan/air-conditioned) rooms where possible. Burning mosquito coils at night and sleeping under a mosquito net in a well-ventilated room is also helpful.

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Disease & countries	Comments	Advice to travellers
Chikungunya India (Hukkeri Taluk)	As of 1 June 2013, 8 suspected cases of chikungunya were reported from 4 villages of Hukkeri Taluk. District health officials have taken all precautionary measures to control the disease.	Chikungunya is a viral disease that is spread by mosquito species that can also transmit other mosquito-borne viruses, including dengue. 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. There are no available vaccines. Travellers to chikungunya-risk areas are advised to avoid being bitten by mosquitoes.
Polio (wild-type) Kenya (Dadaab complex, the world's largest refugee camp) Somalia (Mogadishu)	As of 5 June 2013, nine cases of polio have been recorded in Kenya and Somalia. Intensive vaccination campaigns to contain the polio outbreak are continuing in both countries.	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. Symptoms include fever, fatigue, headache, vomiting, neck stiffness and pain in the limbs. 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; a third dose should be administered 6–12 months after the second.

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Yellow fever Chad, Cote d'Ivoire, Democratic Republic of Congo, Nigeria, Republic of Congo, Sudan, Togo, Niger and Ethiopia	In February 2013, NaTHNaC [National Travel Health Network and Centre] reported on confirmed cases of yellow fever in Chad, Cote d'Ivoire, Democratic Republic of Congo (DRC), Nigeria, Republic of Congo, Sudan, and Togo. On 5 April 2013, a case of yellow fever was reported from Niger. On 7 May 2013, 6 cases of yellow fever were reported in Ethiopia. In the DRC, a total of 6 cases dating back to March 2013 has been confirmed in 3 health zones in Kasai-Oriental province. Following extended epidemiological investigations into the cases, an additional 51 suspected cases with 19 deaths were identified, signaling the presence of a huge yellow fever outbreak in the province. Yellow fever occurs sporadically in rural areas of the DRC. Cases occurred in 2008, 2010, and 2012. The Ministry of Health of the Democratic Republic of Congo is launching an emergency mass vaccination campaign against yellow fever from 20 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 treatment will die from yellow fever. There is no specific treatment for yellow fever. Treatment is symptomatic. 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).

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: 18 June 2013.

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