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Division in the National Health Laboratory Service

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Seasonal influenza

The 2013 influenza season has started in South Africa. The influenza season is considered to have started when the detection rate is sustained above 10% for at least two weeks. The detection rate from the Viral Watch (VW) programme (influenza-like illness) rose to 17.2% in week 17 (week starting 22 April) and to 32.3% and 36% in the subsequent two weeks.

The number of specimens submitted for respiratory virus testing to the VW programme has increased from an average of three specimens per week in the first three months of the year to an average of 25 specimens per week. During April 2013, influenza A(H1N1)pdm09 was detected in nine patients (from Eastern Cape, Gauteng, KwaZulu-Natal and Western Cape provinces); influenza A (H1N1)pdm09 and A(H3N2) co-infection was detected in a patient from Gauteng Province; influenza B from two patients in KwaZulu-Natal Province and one in Western Cape Province. During May 2013 to date, influenza A(H1N1)pdm09 has been detected in 13 patients from seven provinces. This brings the total number of influenza detections in the VW programme this year to 26 i.e. 22 influenza A(H1N1)pdm09, 1 influenza A(H1N1) pdm09 & A(H3N2) co-infection, and 3 influenza B virus.

For 2013 to date, 1 151 specimens from patients admitted with Severe Acute Respiratory Illness (SARI) at the five SARI surveillance sites have been tested for influenza. Of these, ten were positive i.e. one influenza A(H1N1)pdm09 & A(H3N2) co-infection, one influenza B, two influenza A unsubtyped and 6 influenza A(H1N1)pdm09 (Table).

Although the influenza season has started, healthcare workers are reminded that it is not too late to be vaccinated for influenza, and they should continue to encourage patients (in particular those at risk for severe disease) to take up influenza vaccine.

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

Table. Cumulative number of identified influenza types and subtypes and total number of samples collected by hospital, 2013, Severe Acute Respiratory Illness surveillance programme

Hospital	Influenza A unsubtyped	Influenza A (H1N1)pdm09	Influenza A (H3N2)	Influenza B	Total samples
Chris Hani Baragwanath (GP)	1	3	0	0	343
Edendale (KZN)	1	2	0	0	325
Klerksdorp-Tshepong (NWP)	1	1	0	1	333
Mapulaneng (MP)	0	0	0	0	71
Matikwane (MP)	0	0	0	0	79
Total:	3	6	0	1	1 151

Novel coronavirus

As of 21 May 2013, there have been 44 laboratory-confirmed cases of infection with novel coronavirus (nCov) worldwide, including 22 deaths. All cases had respiratory disease as part of the illness, with most having severe respiratory illness requiring hospitalisation. The probable places of infection were Jordan, Qatar, Saudi Arabia, and United Arab Emirates; there have been cases in the United Kingdom and France who had not travelled but were in contact with travellers recently returned from the Middle East.

A single case of nCov has been reported in Africa to date. A 66-year-old Tunisian patient with confirmed nCoV infection died after returning from travel to Saudi Arabia and Qatar. Tests showed that two of his children were also infected and they are under medical observation.

Since 6 April 2013, a total of 21 patients (including nine deaths) has been reported to the World Health Organization from an outbreak primarily linked to a healthcare facility in the Eastern Province of Saudi Arabia.

The latest cases reported include confirmation of transmission to healthcare workers who were exposed to patients with confirmed nCoV. For more information on cases, see the WHO link below: http://www.who.int/csr/don/2013_05_15_ncov/en/index.html

Healthcare workers are advised to be vigilant regarding recent travellers returning from areas affected by the virus who develop severe acute respiratory illness. Specimens from patients' lower respiratory tracts should be obtained for diagnosis where possible. Clinicians are reminded that nCoV infection should be considered even with atypical signs and symptoms in patients who are significantly immunocompromised.

For guidance on case definitions and testing for nCoV, healthcare workers can access information at: http://nicd.ac.za/assets/files/Guidelines%20for%20case%20finding%20and%20laboratory%20testing%20for%20novel%20coronavirus%2027%20Nov2012.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

Human infection with avian influenza A(H7N9) virus

The weekly numbers of new cases of human infection with avian influenza A(H7N9) virus has started to decrease, with only two laboratory-confirmed cases reported since the start of May 2013. As of 16 May 2013, China has reported a total of 131 laboratory-confirmed cases, including 32 deaths. For the latest update on cases, see the following WHO link: http://www.who.int/csr/don/2013_05_08/en/index.html.

Although it is too soon to speculate, the World Health Organization reports suggest that the decrease may have resulted from control measures that were put in place, including the closing of live-bird markets. Another possible explanation is seasonal changes, as past avian influenza virus outbreaks have often tended to show seasonal patterns of occurrence, with most outbreaks occurring during the colder months of the years and fewer in the warmer months.

Much remains unknown about this virus, including the animal reservoir/s in which it is circulating, the main exposures, and routes of transmission. Human infection appears to be related to live poultry or contaminated environment exposure. There is no evidence of sustained human-to-human transmission.

Healthcare workers should consider the possibility of infection with avian influenza A (H7N9) virus in persons hospitalised with severe respiratory illness and an appropriate travel or exposure history. Guidance on case definitions and testing for avian influenza A(H7N9) virus can be accessed at the NICD website: http://www.nicd.ac.za/.

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

Rabies

A new case of laboratory-confirmed human rabies from Limpopo Province has been reported, bringing the total number of laboratory-confirmed human rabies cases for 2013 in South Africa to four (with KwaZulu-Natal, Mpumalanga and Free State provinces each having reported one case to date).

A nine-year-old child from Elim, Makhado subdistrict, was admitted to hospital in the last week of April. The child presented with symptoms typical of furious rabies, which progressed to coma requiring intensive care with mechanical ventilation. Despite the lack of dog exposure history, rabies was considered as a possible diagnosis due to the clinical presentation and the recent history of rabies in the province. A single ante-mortem saliva specimen was collected and tested positive for the presence of rabies viral RNA by RT-PCR. The patient passed away on 9 May 2013 and a request was made for post-mortem brain specimens to be submitted for confirmation of the diagnosis. Testing of a full repertoire of specimens (i.e. saliva, CSF, nuchal biopsy, ante-mortem brain biopsy, blood/ serum) is recommended to investigate rabies infection ante-mortem. Confirmation by direct fluorescent antibody test on post-mortem brain specimens remains the most reliable test for confirmation or exclusion of infection.

In addition, a clinically suspected case was reported from Limpopo Province during May 2013. The patient, a two-year-old child, died following an acute neurological infection. Keeping in mind that the differential diagnosis of fatal encephalitis is broad, even though the patient's clinical illness was compatible with rabies, in the absence of a history of animal exposure history and specimens for laboratory confirmation of the clinical diagnosis it is not possible to confirm rabies in this case.

An outbreak of rabies affecting dogs is ongoing in Makhado, Limpopo Province. Five confirmed rabid domestic dogs have been reported in the past month. Over the past two months there have been eight incidents involving human exposures to rabid dogs. A dog rabies vaccination campaign is underway in the area.

Source: Centre for Emerging and Zoonotic Diseases and Division of Public Health Surveillance and Response, NICD-NHLS; Limpopo Province Department of Health; Limpopo Province Department of Agriculture, Forestry and Fisheries

Meningococcal disease

Sporadic cases of meningococcal disease continued to be reported across the country, with no noticeable seasonal increase of laboratory-confirmed cases. Numbers are expected to increase during June and July, and to peak during the months of August to October.

By the end of week 17 (week ending 28 April 2013), a total of 33 laboratory-confirmed cases were reported to the Centre for Respiratory Diseases and Meningitis (CRDM), NICD-NHLS (Table). Ten cases have been reported in the <1 year old 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 16/33 (48%) of cases: serogroups B and W135 have been identified most commonly this year (6/16, 38% serogroup B and 7/16, 44% serogroup W135). There were also two cases of serogroup Y and one case of serogroup C disease. One isolate was non-groupable.

Table: Number of laboratory-confirmed meningococcal disease cases reported until end of week 17, 2012 and 2013, by province

	Year	
Province	**2012**	**2013**
Eastern Cape	8	7
Free State	0	3
Gauteng	20	4
KwaZulu-Natal	8	5
Limpopo	1	1
Mpumalanga	1	1
Northern Cape	0	1
North West	2	1
Western Cape	11	10
	51	33

Meningococcal disease occurs throughout the year, but the incidence is highest in late winter and early spring. Healthcare workers 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.

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

Dengue fever, South Africa ex Angola

Dengue fever was confirmed in a South African male working in Luanda (Angola) who presented with an acute febrile illness to a Johannesburg Hospital in May 2013. His symptoms included fever, headache and myalgia; laboratory tests showed neutropenia, lymphopenia, thrombocytopenia, elevated hepatic transaminases and a negative malaria test; on examination, no rash was noted. These findings together with the recent reports of a dengue outbreak in Luanda prompted testing for dengue (albeit in the absence of a typical dengue rash). Dengue fever was confirmed by reverse transcription PCR, and molecular sequencing of the partial dengue virus NS5 gene revealed that the infection was caused by a dengue type 1 virus. The patient made an uneventful recovery.

Dengue fever has become a major, international public health concern with an estimated annual incidence of 50 million infections. Of concern to South Africa are travellers returning from tropical and sub-tropical countries where the disease is endemic. Dengue has been described as the most common cause of fever in travellers returning from the Caribbean, Central America and south-central Asia. Areas affected extend to most tropical and subtropical countries of Oceania, Asia, the Caribbean, the Americas, and parts of Africa. Dengue virus is transmitted to humans through the bites of infected *Aedes* mosquitoes, principally *Aedes aegypti*, which commonly breed within households and are most active during the day. Refer to the April 2013 communiqué for details regarding the clinical presentation of dengue fever.

The differential diagnosis of fever, myalgia and rash in returning travellers should include dengue fever. Laboratory investigations in suspected dengue fever cases should include the collection of clotted blood during the acute phase (first 5 days of illness), and both acute and convalescent serum samples. Conducting a full repertoire of serological and virological tests is strongly recommended as tests are highly dependent on timing of specimen collection. Appropriate infection prevention and control protocols should be observed when collecting and handling specimens and these should be packaged as biohazardous material. Store and transport at 4°C (or on ice packs) to the NICD-NHLS, 1 Modderfontein Rd., Sandringham, Gauteng, 2192.

Source: Centre for Emerging and Zoonotic Diseases and South African Travel Health Network, 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		
Angola (Luanda and Malanje)	**Angola:** On 13 May 2013, Angola Health Minister stated that of 275 suspected cases reported between 12 March and 9 April 2013, 197 have now been confirmed. 273 cases were reported from Luanda and 2 cases in the northern Malanje province. The WHO country representative for Angola stated that whilst dengue is endemic to the region, this the first time an epidemic of the disease has been recorded in Angola.	Dengue viruses are transmitted by *Aedes* species mosquitoes, which usually bite during daytime. There are no available vaccines. Symptoms of dengue fever can 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. 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.
Kenya (Mombasa)	**Kenya**: As of 26 April there have been 83 confirmed cases in Mombasa since January 2013 The last outbreak of dengue fever in Mombasa occurred in 1982.	
Typhoid fever		
Zambia (Central Province)	**Zambia:** As of 9 May 2013, there have been 144 cases of suspected typhoid fever at the Chindwin barracks in Central Zambia. The outbreak is centred on newly built housing units, and the underground water source is being tested as a potential source for the disease.	Typhoid is a bacterial disease transmitted via the faecal-oral route. It is a severe disease characterised by fever and abdominal pain. Typhoid is controlled through sanitation and hygiene measures. Travellers should ensure personal and food hygiene practices are followed and drinking water is properly treated. Vaccination against typhoid is available but not routinely indicated for travellers.
Malawi (Blantyre)	**Malawi:** As of 29 April 2013, thousands of typhoid fever cases have been diagnosed each month since January 2013 at Queen Elizabeth Central Hospital in Blantyre, in the Southern Region of the country.	
DR Congo (Kasai -Occidental Province)	**DR Congo:** As of 3 May 2013, 1 092 cases of typhoid have been reported from the Kasai-Occidental Province with 48 deaths and 29 cases of intestinal perforation.	

Disease & countries	Comments	Advice to travellers
Cholera		
Angola (Cabinda)	**Angola:** As of 8 May 2013, 89 cases with 6 deaths are reported from the cholera outbreak in Cabinda. Since January 2013 there had been a total of 1 050 reported cholera cases, with 18 deaths in Angola as at 7 April 2013. Provinces most affected include Cunene (339), Uije (286), Luanda (170), and Benguela (149).	Cholera is a bacterial disease that can cause profuse diarrhoea and severe dehydration, and is most often spread through eating contaminated food or drinking contaminated water. Travellers are urged to take precautions when consuming food and water, to utilise water purification tablets where needed, and practice good hand hygiene. Cholera vaccine is not routinely recommended for travellers.
Burundi (Bujumbura and Cibitoke)	**Burundi:** As of 28 April 2013 there were 40 reported cases in the capital Bujumbura, and a further 12 cases reported in the north-west province of Cibitoke, on the border with Democratic Republic of Congo.	
DR Congo	**DR Congo:** There are currently cholera outbreaks in the east (South Kivu - 22 cases), and northeast (Ituri -7 cases) areas of the country. Media reports suggest that overall Katanga is the most effected province, with over 10 000 cases since the start of 2013, with 250 deaths.	
Uganda (Homia)	**Uganda:** As of 28 April 2013 there have been 56 cases and 3 deaths. The outbreak started mid-April at Runga Landing Site on Lake Albert, and has spread to Kababwa, Waki, and Kapaapi villages in Kigorobya Sub-county.	
Poliomyelitis		
Somalia	A 32-month-old child with flaccid paralysis was found to have wild type polio virus (WPV). This is the first identification of WPV in Somalia since 2007.	Polio is a vaccine-preventable virus spread by the faecal-oral route. Many infections will be asymptomatic but a small proportion may develop acute flaccid paralysis, which can lead to permanent paralysis of the limbs or death if respiratory muscles are involved. The infection can be prevented by administration of polio vaccine, either a live oral (OPV) vaccine or injected inactivated vaccine (IPV). WHO recommends that all travellers to and from polio infected areas, which also include Afghanistan, Nigeria and Pakistan, be fully vaccinated against polio.

Disease & countries	Comments	Advice to travellers
Hepatitis A Ex-Egypt	Between November 2012 and 24 April 2013 a total of 80 cases of hepatitis A have been reported from several European countries, including: Denmark, Germany, the Netherlands, Norway, Sweden and United Kingdom. All had travelled to Egypt. Almost no cases had been vaccinated. Four Norway cases, six cases from the Netherlands and five cases from the UK have identical hepatitis A RNA sequences. An international investigation is underway to identify possible sources.	Hepatitis A is a vaccine-preventable viral disease that causes inflammation of the liver. It is often asymptomatic in children, but is more serious in adults. Malaise, nausea and fever can occur before developing jaundice. Recovery takes around 1 month. It is found all over the world, and is usually transmitted through contaminated food or water; undercooked shellfish or raw salads can also be a risk. Person-to-person transmission can occur in the setting of poor faecal hygiene practices. When visiting hepatitis A endemic areas travellers should observe careful food, water and personal hygiene precautions. Travellers to Egypt, and other highly endemic countries should receive the hepatitis A vaccination before travel.

References and additional reading

- ProMED-Mail (www.promedmail.org)
- World Health Organization (www.who.int)
- Centers for Disease Control and Prevention (www.cdc.gov)
- Public Health England (https://www.gov.uk/government/organisations/public-health-england
- National Travel Health Network and Centre (http://www.nathnac.org)

Last accessed: 20 May 2013.

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