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Division in the National Health Laboratory Service

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CONTENTS

Rabies

Two cases of human rabies were laboratory confirmed during the month of March 2013, one each from Mpumalanga and KwaZulu-Natal provinces. These are the first reports of human rabies cases in South Africa for 2013 to date. The first case was a 65-year-old man from Mvangatini, Kwabokeni (located 20 km from Nelspruit in Mpumalanga Province). He was bitten by a stray dog on his right index finger on 18 March 2013, but did not seek treatment after the incident. He presented to a healthcare facility ten days after complaining of headache and pain in the right hand, and received rabies vaccination at Themba Hospital on 28 March 2013. He returned two days later with worsening symptoms and was admitted. He was noted to have aero- and hydrophobia, hypersalivation, confusion, and anxiety. On admission, saliva and cerebrospinal fluid samples were collected for rabies testing, but were negative by rabies RT-PCR. The patient died the following day (31 March 2013). A post-mortem brain specimen tested positive for the presence of rabies virus antigen with the fluorescent antibody test.

The second case was a 6-year-old female patient from Malukazi, a settlement located on the southern border of Umlazi, 25 km south-west of Durban on the east coast of KwaZulu-Natal Province. The patient was bitten by a stray dog on 3 March 2013 and sustained multiple category 3 bites to her right hand, buttocks and left wrist. She was taken to Prince Mshiyeni Memorial Hospital (PMMH) in Umlazi for treatment the same day. Post-exposure prophylaxis in the form of rabies vaccine was administered to the patient at the hospital, and she was referred to a local clinic to complete the vaccination schedule. Rabies vaccine doses were administered on days 3, 7 and 14 as per the national guidelines. However, there is no record that rabies immunoglobulin was given at the initial visit to the hospital, despite the presence of category 3 wounds. On 22 March 2013 (19 days after the attack), the child presented to a local clinic with fever, cough and vomiting, and then developed pain in her left arm and leg. On 27 March, she was admitted to PMMH, where she was noted to be confused and anxious. The child died 9 days later. Ante-mortem saliva samples tested negative by RT-PCR, but a post-mortem brain specimen tested positive for rabies virus antigen.

The fluorescent antibody test performed on post-mortem brain specimens remains the gold standard for confirming or excluding rabies virus infection - the test is robust, with high sensitivity and specificity for detecting rabies virus infection in animals and humans. Ante-mortem diagnosis of human rabies cases is problematic, and submission of multiple specimens is usually required to confirm or exclude a case. For comprehensive ante-mortem investigation, submission of at least three repeat saliva specimens (note: saliva, not sputum; specimens collected at different times, preferably on different days) cerebrospinal fluid and nuchal biopsies are required. The value of serologic testing for rabies confirmation is limited in most cases taking into account that seroconversion is usually delayed and often suppressed in rabies cases. In addition, patients have commonly received incomplete rabies post-exposure prophylaxis, or have received rabies vaccine and/or immunoglobulin on admission to a healthcare facility, which complicates the interpretation of serology. The administration of rabies vaccine and/or immunoglobulin when the patient is already presenting with clinical disease has been shown to

have no effect on the course of disease or outcome.

The fatal consequences of delayed or incorrect administration of rabies post-exposure prophylaxis in line with national guidelines are evident in both these cases. Rabies is entirely preventable with timely and appropriate application of rabies vaccine and immunoglobulin. Further information regarding rabies in South Africa is available in the national guidelines document (http://nicd.ac.za/assets/files/Rabies-Guide-2010-small.pdf).

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

Update: cholera outbreak, Limpopo Province

On 10 March 2013, cholera was confirmed in an adult patient admitted in Musina Hospital (Limpopo Province) with acute watery diarrhea and dehydration. Conventional culture detected *Vibrio cholerae* 01 serotype Inaba and the presence of cholera enterotoxin gene was demonstrated by molecular techniques. The patient received intensive fluid therapy and made an uneventful recovery (see March 2013 Communiqué).

Following the confirmation of cholera in this patient, numerous public health actions were undertaken to control the disease and prevent further spread. Clinicians were alerted to the need for a high index of suspicion in any patient presenting with sudden onset of profuse watery diarrhea and dehydration, and guidelines for the clinical management of cholera were reviewed and circulated to healthcare workers (www.nicd.ac.za). Local and reference laboratories were prepared for an influx of clinical specimens for cholera testing. Further public health actions that were undertaken included a health promotion campaign aimed at educating the community regarding the symptoms of cholera, the need for presenting promptly to a health facility for treatment, the need for observing proper hygiene practices, and on purification of water from informal sources. Formal water testing and inspections of sanitary facilities in refugee camps and farms were undertaken by the environmental health practitioners in the area. To date, no further cases of cholera have been reported in the province. The public health authorities remain on high alert for any new cases of imported cholera and the introduction of *V. cholerae* into informal water sources by infected persons. Clinicians in all provinces of South Africa need to remain on high alert to ensure early detection of cases and prevention of transmission. All suspected cases should be immediately notified to the local public health officials and investigated.

Cholera is an acute intestinal infection caused by the bacterium *V. cholerae.* The two serogroups responsible for epidemics are toxin-producing serogroups O1 and O139. Transmission occurs when a person ingests water or food that has been contaminated with the bacterium, and the incubation period is 2 hours to 5 days (usually 2 to 3 days).

The treatment of cholera includes immediate assessment and appropriate treatment based on the degree of dehydration. Aggressive rehydration therapy in moderate/severely dehydrated patients with IV Ringer's lactate according to standard protocols remains the mainstay of treatment and is life saving. Antibiotic treatment should be used in those patients who have signs of moderate or severe dehydration. Stool or rectal swab samples should be collected and transported in Cary-Blair medium to the laboratory for cholera testing. Do not wait for laboratory confirmation before starting treatment of notifying the case.

Once a cholera patient has been identified, it is essential to inform local populations of hygienic measures they can take to protect themselves and reduce the likelihood of a local outbreak. Such messages should include the following:

- Always use clean/disinfected water for drinking, food preparation and washing of utensils.
- Wash hands with clean/disinfected water before and after handling food, and after using the bathroom.
- Where safety of water is not known, water can be made safe for use by boiling vigorously for 3 minutes and then allowing it to cool. Water should then be stored in a suitable, clean container with a lid. Alternatively, mix 1 teaspoon or capful of household bleach with 20 -25 litres of water and let it stand for at least 2 hours (preferably overnight). Bottled water may not always be safe. Only use bottled water from a reliable source and only if the bottles are properly sealed.
- Human waste should be disposed of in a manner that does not contaminate water sources.
- Store food under hygienic conditions.

Source: Communicable Diseases Directorate, Limpopo Department of Health; NHLS Polokwane; Centre for Enteric Diseases and Division of Public Health Surveillance and Response, NICD-NHLS.

Influenza

In the first 14 weeks of 2013, 78 specimens were received from Viral Watch sites: 39 were taken at the time of entry into South Africa from abroad, 26 submitted from sites in Gauteng Province, six from Eastern Cape Province, three each from Mpumalanga and Western Cape provinces and one from Limpopo Province. No influenza isolates were detected from patients without a history of recent travel abroad. In this same time period (January to 7 April 2013), 848 patients with severe acute respiratory illness (SARI) were tested at the five sentinel SARI sites. Influenza A unsubtyped and influenza A(H1N1)pdm09 were detected in one patient each from KwaZulu-Natal Province, and influenza B in one patient from North West Province (Table).

Table. Cumulative number of identified influenza types and subtypes and total number of samples collected at SARI sentinel site hospitals

Hospital	A unsubtyped	A(H1N1)pdm09	A(H3N2)	B	Total samples
Chris Hani Baragwanath (GP)	0	0	0	0	**238**
Edendale (KZN)	1	1	0	0	**254**
Klerksdorp-Tshepong (NWP)	0	0	0	1	**241**
Mapulaneng (MP)	0	0	0	0	**54**
Matikwane (MP)	0	0	0	0	**61**
Total:	**1**	**1**	**0**	**1**	**848**

The average onset of the season over the past 8 years has been the last week of May.
As the influenza season approaches, the public is encouraged to go for influenza vaccination. Influenza vaccination is currently available at public clinics and private pharmacies. Clinicians are reminded to vaccinate individuals that are in the risk groups targeted for influenza vaccination. Recommendations on target groups, dosages and contraindications for the 2013 influenza vaccine were published in the March issue of the NICD Communiqué_Vol 11 (12), available at (http://www.nicd.ac.za/?page=communique&id=56)__and the February 2013 edition of the South African Medical Journal, available at: (http://www.samj.org.za/index.php/samj/article/view/6435/4855).

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

Outbreak of avian influenza A(H7N1) in ostriches, Oudtshoorn area (Western Cape Province)

The State Veterinary Services of the Department of Agriculture, Western Cape Government reported actively circulating influenza A virus in ostriches on 7 April 2013, detected through the routine avian influenza surveillance programme. Specimens submitted to Onderstepoort Veterinary Institute (OVI) underwent further testing, and the virus was characterised as avian influenza A(H7N1) of low pathogenicity. To date, gastrointestinal symptoms and deaths have been reported in a few ostrich chicks on infected farms, but no symptoms in older birds have been observed.

The outbreak is currently confined to 2 farms, around which a 3 km radius buffer zone of movement control and quarantine has been instituted. Intensified surveillance is ongoing within a 5 km radius. Decisions on culling of ostriches are still pending.

Avian influenza strains are characterized as low pathogenicity avian influenza (LPAI) or high pathogenicity avian influenza (HPAI). Most avian influenza strains, including HPAI, do not usually kill wild birds. However, HPAI strains may be highly infectious and pathogenic for poultry and therefore the OIE (World Organisation for Animal Health) regulations require mass culling of birds if HPAI viruses are detected. LPAI strains may, however, spread unnoticed through bird populations and do have the potential to revert to highly pathogenic phenotypes. Although LPAI strains do not kill poultry, outbreaks may be difficult to control because they spread undetected through wild and domestic bird populations.

Several avian influenza outbreaks have been reported in ostriches over the last decade in South Africa, the most recent being HPAI (H5N2) in 2011 in the Uniondale and Oudtshoorn areas (Western Cape Province), and LPAI (H7N1) in Heidelberg (Western Cape Province) in 2012. In neither of these outbreaks were increased numbers of ostrich deaths reported. Movement control and large-scale

culling of ostriches occurred during the H5N2 outbreak, whilst movement control without culling was implemented in response to the H7N1 outbreak. Both outbreaks resulted in a ban on the export of ostrich meat to the European Union, and were devastating to the ostrich industry.

Avian influenza A subtypes H5, H7 and H9 have the ability to infect humans, although human-to-human transmission is usually limited. Following the H5N2 and H7N1 outbreaks in ostriches in 2011 and 2012 respectively, the Centre for Respiratory Diseases and Meningitis and the Outbreak Response Unit, NICD-NHLS conducted serosurveys amongst high-risk persons exposed/potentially exposed to infected ostriches. Screening of sera from 207 persons following the 2011 H5N2 outbreak, and 66 persons following the 2012 H7N1 outbreak identified 4 cases with significant antibody titres (>1:40) to H5N2 or H7N1 viruses: a veterinarian who did post-mortems of culled ostriches, an ostrich farm worker, and two ostrich abattoir workers. This suggests that a low risk of infection exists for humans exposed to ostriches with H5N2 (1.4%) and H7N1 (1.6%) viruses. Although the seropositive cases did recall non-specific symptoms including conjunctivitis and flu-like illness at some stage during the course of the outbreak, the occurrence of these symptoms could not be directly linked to infection with H5N2 or H7N1 viruses.
Before the occurrence of the newly described H7N9 strains in China, H7 strains were previously thought to be of low risk to humans. Human infections have been reported in previous outbreaks of HPAI H7 strains; an H7N3 outbreak in the Netherlands resulted in a high seroconversion rate in humans as well as cases of conjunctivitis and one death (a veterinarian who participated in culling birds). However, the emergence of the recent HPAI (H7N9) strain in China that causes no disease in birds but is associated with severe, sometimes fatal pneumonia in humans serves as a reminder that LPAI strains can be unpredictable in terms of their potential for human disease.

Although the serosurvey conducted in South Africa after the H7N1 outbreak in ostriches in 2012 showed that this strain likely poses a low risk for human infection and disease, healthcare workers are encouraged to submit specimens from patients presenting with conjunctivitis, influenza-like illness or severe respiratory infections, and who have a history of exposure to ostriches with avian influenza (or sick birds), to the NICD for testing.

Source: Centre for Respiratory diseases and Meningitis and Division of Public Health Surveillance and Response, NICD-NHLS; State Veterinary Services, Department of Agriculture, Western Cape Government

Meningococcal disease

Sporadic cases of meningococcal disease continue to be reported across the country, but as yet there has been no noticeable seasonal increase of laboratory-confirmed cases as reported to the Centre for Respiratory Diseases and Meningitis (CRDM), National Institute for Communicable Diseases (NICD). Meningococcal cases are expected to increase during June and July, and to peak during the months of August to October.

By the end of epidemiological week 12 (week ending 24 March 2013), a total of 21 laboratory-confirmed cases was reported to the CRDM, NICD (Table). Seven cases have been reported in children <1 year of age this year so far; this is half the number of cases for the equivalent time period and age group compared to 2012 (n=14).

The reported cases have diverse serogroups, which is in keeping with sporadic endemic disease in the country. Serogroup data were available for 11/21 (52%) of cases. Serogroup B and W135 have been identified most commonly this year (4/11, 36% serogroup B and 6/11, 55% serogroup W135). The only other serogroup identified was serogroup C (1 case) and one case 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 12, 2012 and 2013, by province

	Year	
Province	**2012**	**2013**
Eastern Cape	5	4
Free State	0	1
Gauteng	14	4
KwaZulu-Natal	8	3
Limpopo	1	1
Mpumalanga	0	1
Northern Cape	0	1
North West	1	0
Western Cape	8	6
Total	**37**	**21**

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

Fatal fulminant herpes simplex virus hepatitis

A 45-year-old woman residing in Potchefstroom (North West Province), presented initially with fever and severe pharyngitis, followed by the onset of severe nausea and vomiting. She failed to respond to a number of empiric broad spectrum antibiotics (including ceftriaxone) and a single dose of corticosteroids. Over the following week, she developed progressive ARDS, renal failure, and severe hepatitis. She died ten days after the initial presentation with pharyngitis. She had been previously well, with no underlying illnesses or evidence of immunosuppression.

Findings of moderate leucopenia (3.0 x 10^9/L) and thrombocytopenia (52 x 10^9/L) together with markedly elevated hepatic transaminases (AST 3 975 IU/L, ALT 10 392 IU/L) and LDH (15 595 IU/L), raised the possibility of Crimean-Congo haemorrhagic fever (CCHF) as a cause of illness, since hepatitis A, hepatitis B and bacterial infections had been excluded. However, the absence of compatible exposures (recent travel, tick/animal exposure, occupation) together with the rapidly progressive multi-system pattern of illness suggested fulminant herpes simplex virus (HSV) hepatitis to be more likely than CCHF. All tests for CCHF were negative, and HSV PCR was positive. It is possible that the initial pharyngitis may have been due to HSV infection, although typical mucocutaneous herpetic lesions were not noted.

HSV hepatitis is a very rare but potentially life-threatening complication of a common human pathogen. Various host factors (e.g. immunodeficiency and pregnancy) and viral factors (e.g. primary infection, HSV superinfection, infection with a hepatovirulent HSV strain) are thought to initiate and/or perpetuate HSV hepatitis pathology. Although most patients who develop HSV hepatitis are immunosuppressed or pregnant, about 25% are immunocompetent, previously healthy persons. Typically, the initial symptoms are non-specific: fever and gastro-intestinal symptoms are common, and <50% of patients will have typical herpetic mucocutaneous lesions. Anicteric hepatitis develops, characterised by low/normal bilirubin but transaminase levels 100- to 1 000- fold above normal, in conjunction with leucopenia and thrombocytopenia; approximately 75% of HSV hepatitis cases rapidly progress to acute liver failure. Other complications of HSV sepsis may be evident, including pneumonia, encephalitis, oesophagitis, keratoconjunctivitis, coagulopathy, sepsis syndrome and ARDS. Mortality rates are high (50 – 90%), in part due to the fulminant nature of the disease, but also due to delayed diagnosis and antiviral treatment. Systemic aciclovir is the recommended treatment; since delayed therapy is associated with poor outcomes, IV aciclovir should be given as pre-emptive therapy whilst awaiting laboratory confirmation, if HSV hepatitis is suspected.

Despite its rarity, healthcare workers should consider HSV hepatitis in patients who present with non-specific constitutional symptoms and develop fulminant hepatitis or acute liver failure.

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

Update: novel coronavirus

Coronaviruses are a large family of viruses, some of which may cause respiratory infections in humans and animals. Such respiratory infections may range from mild upper respiratory tract illness (common cold) to severe lower respiratory disease. To date, the number of laboratory-confirmed cases of novel coronavirus (nCoV) worldwide remains at 17, including 11 deaths (case-fatality ratio 65%). There have been no new reported laboratory-confirmed cases since 26 March 2013. The cases were from five countries, with onset of illness between April 2012 and March 2013.

To date, the highest number of reported cases is from the Kingdom of Saudi Arabia (9 cases), followed by United Kingdom (3 cases), Qatar and Jordan (2 cases each), and United Arab Emirates (1 case) – see Table.

Among the 17 cases, 11 were fatal. Complications of nCoV infection have included severe pneumonia and acute respiratory distress syndrome (ARDS) requiring mechanical ventilation, multi-organ failure, renal failure requiring dialysis, and pericarditis. Two of the 17 cases experienced a mild respiratory illness and have fully recovered. In three instances, infections have occurred in a cluster. Although there is evidence of limited person-to-person transmission, to date there has been no sustained person-to-person transmission. There is no specific antiviral therapy for nCoV infection, and treatment is supportive.

Table: Laboratory confirmed cases of novel coronavirus infection, April 2012-March 2013

Case No	Date of onset	Age (years)	Gender	Most likely country of infection	Cluster	Outcome
1	April 2012	45	F	Jordan	Yes–Hospital*	Died
2	April 2012	25	M	Jordan	Yes–Hospital*	Died
3	June 2012	60	M	Kingdom of Saudi Arabia	No	Died
4	September 2012	49	M	Qatar/Kingdom of Saudi Arabia	No	Alive
5	October 2012	45	M	Kingdom of Saudi Arabia	No	Recovered
6	October 2012	45	M	Qatar	No	Recovered
7	November 2012	31	M	Kingdom of Saudi Arabia	Yes–Family A †	Recovered
8	October 2012	39	M	Kingdom of Saudi Arabia	Yes–Family A†	Died
9	October 2012	70	M	Kingdom of Saudi Arabia	Yes–Family A†	Died
10	January 2013	60	M	Pakistan, Kingdom of Saudi Arabia	Yes–Family B‡	Died
11	February 2013	38	M	UK	Yes–Family B‡	Died
12	February 2013	30	F	UK	Yes–Family B‡	Recovered, mild disease
13	January 2013	61	F	Egypt/Kingdom of Saudi Arabia	No	Died
14	February 2013	69	M	Kingdom of Saudi Arabia	No	Died
15	February 2013	39	M	Kingdom of Saudi Arabia	Yes–Case 16	Died
16	Unknown	Unknown	Unknown	Kingdom of Saudi Arabia	Yes–Case 15	Recovered, mild disease
17	March 2013	73	M	United Arab Emirates	No	Died

*Hospital cluster in Jordan
†Family cluster in Kingdom of Saudi Arabia
‡Family cluster in UK

Additional resources and updates

World Health Organization website: Global Alert and Response (GAR) 2013 Coronavirus infections.
CDC website: http://www.cdc.gov/coronavirus/index.html
NICD website: http://www.nicd.ac.za
HPAwebsite:http://www.hpa.org.uk/Topics/InfectiousDiseases/InfectionsAZ/NovelCoronavirus2012/General Information
Promedmail website: http://www.promedmail.org

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

Human infection with avian influenza A(H7N9) virus, China

Influenza A H7 viruses are a group of influenza viruses that normally circulate among birds. The influenza A(H7N9) virus is one subgroup among the larger group of H7 viruses. Although some H7 viruses (H7N2, H7N3 and H7N7) have occasionally been found to infect humans and are generally mild (causing conjunctivitis or mild respiratory symptoms), no human infections with H7N9 viruses had ever been reported until cases were detected in China on 29 March 2013 (http://www.who.int/csr/don/2013_04_01/en/index.html). The first case of human disease from avian influenza A(H7N9) virus was identified on 19 February 2013, in an 87-year-old man who developed a respiratory infection and died on 4 March 2013. As of 22 April 2013, a total of 91 human cases of laboratory-confirmed avian influenza A(H7N9) infection, including 17 deaths (case-fatality ratio =19%) has been reported from China. Four provinces and two municipalities have reported cases to date: Shanghai (n=32), Zhejiang (n=30), Jiangsu (n=22), Anhui (n=3), Henan (n=3) and Beijing (n=1). Cases have ranged in age from 4 - 87 years. On 24 April 2013 the first case of avian influenza A(H7N9) identified outside of China was reported in a Taiwanese national who had travelled to Jiangsu Province in China three days before onset of illness; the patient is currently in a critical condition.

Symptoms of avian influenza A(H7N9) virus infection appear to be influenza-like, including fever, cough and shortness of breath. Most cases have presented with respiratory tract infection that progressed to severe pneumonia associated with breathing difficulties. However, information is still limited about the full spectrum of disease that infection with avian influenza A(H7N9) virus might cause. To date, there have been few cases in children and they have presented with less severe disease, whereas the middle-aged and elderly are more frequently affected and have presented with more severe disease.

To date there is no evidence of person-to-person or healthcare-associated transmission. Over 1 000 close contacts of the confirmed cases are being closely monitored, but as yet none of them has tested positive for avian influenza A(H7N9) virus. No epidemiological link among cases has been identified to date.

The source of avian influenza A(H7N9) infection and its mode of transmission to humans has not yet been confirmed. A number of the human cases reported contact with domestic poultry. To gather further information, the Chinese authorities are conducting an extensive surveillance programme in domestic livestock in provinces where human cases have been detected; so far, they have reported detection of avian influenza A(H7N9) virus in samples collected from chickens, quails, ducks and pigeons at live bird markets. It is not yet known how persons became infected - the possibility of animal-to-human transmission and human-to-human transmission is being investigated. Genetic sequence comparison from the first three cases indicated that these cases were caused by a novel reassortant avian influenza virus with avian-origin genes from both A(H7N9) and A(H9N2).

Guidance on patients to be tested, sample collection and testing procedures is available on the NICD website, and can be accessed at http://nicd.ac.za/?page=alerts&id=5&rid=217.

No vaccine is currently available for avian influenza A(H7N9) virus. Preliminary test results provided by the WHO Collaborating Centre in China suggest that the virus is susceptible to neuraminidase inhibitors (oseltamivir and zanamivir). Antiviral treatment is most effective when started as soon as possible after influenza illness onset. Early initiation of treatment provides a more optimal clinical response, although treatment of moderate, severe, or progressive disease begun after 48 hours of symptoms may still provide benefit.

The World Health Organization (WHO) does not advise special screening at points of entry with regard to this event, nor does it recommend that any travel or trade restrictions be applied.

Additional information and resources:

Human infection with influenza A(H7N9) virus in China http://www.who.int/csr/don/2013_04_01/en/index.html

Frequently asked questions on human infection with influenza A(H7N9) virus, China accessed at: http://www.who.int/influenza/human_animal_interface/faq_H7N9/en/index.html

Interim guidance on case definitions to be used for novel influenza A (H7N9) case investigations in the United States http://www.cdc.gov/flu/avianflu/h7n9-case-definitions.htm

http://www.promedmail.org/

Alert on human infection with novel influenza A (H7N9) virus accessed at http://nicd.ac.za/?page=alerts&id=5&rid=217

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

Dengue fever in a patient from Angola

A South African national working on an offshore oil rig in Angolan waters was admitted to a South African hospital with an acute febrile illness. On his way back to South Africa for leave, he spent 24 hours in Luanda and experienced a number of mosquito bites. He did not report infectious contacts, animal or tick exposures. He was not taking antimalarial prophylaxis, and had previously received yellow fever and hepatitis A vaccinations. He developed symptoms 6 days after his visit to Luanda, including fever, arthralgia (main symptom), myalgia, and a single episode of diarrhoea. A fine macular rash was noted on examination. Malaria smears were negative and he was treated symptomatically. He developed drenching sweats, but otherwise was not particularly unwell. Laboratory tests revealed a moderate leucopenia (2.9×10^9/L) and thrombocytopenia (70×10^9/L); liver function tests were unremarkable.

Dengue was considered the most likely diagnosis based on the epidemiology (mosquito exposure), clinical (acute febrile illness with myalgia, arthralgia and erythematous rash) and laboratory findings (leucopenia and thrombocytopenia) and the reported outbreak of dengue in Luanda. Malaria was of course an important consideration in the differential diagnosis but malaria tests were negative. Initial laboratory tests for dengue included RT PCR (negative) and rapid lateral flow tests (negative for IgG but positive for IgM). The positive rapid lateral flow IgM result was confirmed by dengue IgM ELISA. The patient received symptomatic treatment and made an uneventful recovery.

Although dengue is well described in the tropical rain-forest regions of Africa, there is likely underdiagnosis of disease and misdiagnosis as malaria because of limited availability of dengue diagnostic tests and overlapping clinical syndromes. Although malaria must always be the first consideration in returning travellers with acute febrile illness, dengue should be considered in the differential diagnosis. Dengue fever is classically characterised by a sudden onset of fever with frontal headache, retro-orbital pain, myalgia, arthralgia and rash, although the latter two symptoms are variable. Dermatological manifestations occur in up to 50% of patients as facial flushing, erythematous mottling or a maculopapular rash. Thrombocytopenia is a common finding and is typically self-limiting; leukopenia may also be present. A small proportion of patients develop severe dengue, which manifests as dengue haemorrhagic fever or dengue shock syndrome; severe disease is more common amongst children and patients who are re-infected with a different dengue serotype. For further information on management of patients with dengue, refer to the World Health Organization guidelines for dengue diagnosis, treatment, prevention and control at http://apps.who.int/iris/bitstream/10665/44188/1/9789241547871_eng.pdf. Outbreaks of dengue are currently reported in Luanda (Angola) and Mombasa (Kenya). Dengue viruses are transmitted by *Aedes* spp. mosquitoes, which usually bite during daytime. Travellers to dengue-risk areas should be cautioned to use mosquito repellents containing DEET, wear long-sleeved pants and shirts during the day, and stay in wellventilated (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. There are no available vaccines.

Laboratory tests for dengue are available in the Centre for Emerging and Zoonotic Diseases, NICD-NHLS. Molecular diagnostic tests and virus isolation are useful in the first week of illness, and demonstration of seroconversion helps to confirm a diagnosis.

Source: Centre for Emerging and Zoonotic Diseases and Division of Public Health Surveillance and Response, NICD-NHLS; Division of Infectious Diseases and HIV Medicine, Groote Schuur Hospital, University of Cape Town; Department of Medicine, 2 Military Hospital, Cape Town.

National measles and polio mass immunisation campaign

The Department of Health will be conducting a countrywide mass immunisation campaign against polio and measles from 29 April to 17 May 2013, followed by a second round of polio immunisation from 17 to 28 June 2013. Measles and polio vaccines will be available free of charge at public health clinics and community health centres countrywide.

The theme of this year's campaign is: *"South Africa Immunise every child; give polio and measles the final push"* in line with the move towards eradication of these diseases.

During this campaign, all children between the ages of 9 months and 5 years will receive a measles vaccination. All children from birth to 5 years will be given two doses of polio drops (given four weeks apart), to boost their immunity. Children should receive these vaccinations irrespective of whether they have received all their routine polio and measles vaccinations. No Road to Health/Child Health Cards are necessary for this campaign.
A major measles outbreak affecting in excess of 17 000 people occurred in South Africa in 2009-2010 and resulted from a build-up of susceptible individuals. In order to prevent another measles outbreak, population immunity needs to be boosted; a coverage rate of 95% for measles needs to be achieved through the combination of routine vaccination programmes and supplementary mass immunisation.

Measles vaccine is a live virus vaccine and will be administered as a single formulation, i.e. not as MMR (measles, mumps and rubella), in the campaign. Measles vaccine does not contain egg protein. Only a history of previous severe allergic reaction to the measles vaccine is considered to be a contra-indication to vaccine administration.
The last wild type polio infection in South Africa was in 1989, but South Africa remains vulnerable to the introduction of polio and it is critical that high coverage rates are maintained.

The polio vaccine administered during the campaign will be the trivalent oral polio vaccine (a live virus vaccine). Contra-indications are rare: a history of a previous severe allergic reaction to oral polio vaccine, and patients with humoral antibody deficiencies. The vaccine is safe to administer to HIV-infected children.

Source: Centre for Vaccines and Immunology and Division of Public Health Surveillance and Response, NICD-NHLS; Expanded Programme on Immunisation, National Department of Health

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
Avian influenza A(H7N9) China	Refer to article in Communiqúe.
Novel coronavirus Jordan, Kingdom of Saudi Arabia, Qatar, United Arab Emirates, United Kingdom	Refer to article in Communiqúe.
Dengue Angola, Kenya	Refer to article in Communiqúe.

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 (www.phe.gov.uk)
Last accessed: 22 April 2013

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