Communicable Diseases Communiqué

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Rabies

Rabies was confirmed as the cause of death in a 2-year-old child who died in a Johannesburg hospital recently, one month after being scratched by an unvaccinated domestic puppy in Soweto. Laboratory tests were conducted on post-mortem brain specimens at the National Institute for Communicable Diseases and the Department of Anatomical Pathology (NHLS and University of the Witwatersrand) and were positive by RT-PCR and the fluorescent antibody test, as well as RT-PCR on a nuchal biopsy.

This is the first confirmed human case of rabies resulting from an animal exposure in Gauteng Province. Since the injury was relatively minor and rabies awareness low in the area, a healthcare facility was not visited and consequently the child did not receive post- exposure prophylaxis (PEP). This human rabies case coincides with a serious outbreak of rabies in dogs in the province. As of October 13th 2010 there have been a total of 14 confirmed cases of rabies in dogs in the City of Johannesburg Metropolitan Municipality, predominantly in unvaccinated domestic pets. The rabid dogs were identified in the following suburbs: Witpoortjie, Eldorado Park, Sophiatown, Kibler Park, Meredale, Dobsonville, Lenasia and Highlands North (ex-Naturena). All isolates have been identified as a canid biotype, originating from KwaZulu-Natal Province; this canid strain has never been idenitified in Gauteng Province previously. Until this outbreak, the risk of rabies in this province was very low, resulting in limited awareness regarding the disease and appropriate PEP following exposures. Even though vaccination of domestic dogs and cats against rabies is a legal requirement in South Africa, the onus is on pet owners to comply and therefore coverage is variable.

An extensive ongoing animal vaccination campaign was launched in May 2010 when the first dog cases were identified. This has been coupled with an awareness campaign aimed at both the general public and healthcare professionals. Rabies vaccine (Verorab® or Rabipor®) and rabies immunoglobulin (Rabigam®) have been made available at many public and private healthcare facilities throughout Gauteng Province. However, there is limited availability of rabies immunoglobulin, and healthcare workers should conduct a thorough exposure-risk assessment prior to administering PEP as not all domestic pet bites present a rabies risk. Regarding administration of rabies immunoglobulin, it should be given as soon as possible after the exposure, and care should be taken to administer as much as possible INTO the wound/s; the remainder should be administered IM into the deltoid muscle (or anterior thigh for young children). Rabies immunoglobulin must NEVER be given IM into the gluteus muscle.

To date, a total of 10 human rabies cases has been laboratory-confirmed for South Africa for 2010. These cases originated from the Mpumalanga (n=1); KwaZulu-Natal (n=3), Eastern Cape (n=2), Limpopo (n=3) and Gauteng (n=1) Provinces.

Source: Special Pathogens and Outbreak Response Units, NICD; Rabies Laboratory, Onderstepoort Veterinary Institute; Gauteng Department of Agriculture and Rural Development

Rift Valley fever update

No new laboratory-confirmed Rift Valley fever (RVF) cases have been identified since our last update. The most recent case reported onset of illness on 26 August 2010. As of 8 October 2010, a cumulative total of 237 laboratory-confirmed human cases has

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been identified since the start of the epidemic in February 2010. Of the cases with known occupations, the majority (82%, 182/222) work within occupations where direct contact with animals frequently occurs. Furthermore, 94% (195/208) of the cases report direct contact with RVF-infected animals prior to the onset of their symptoms. Transmission through mosquito vectors and/or unpasteurised milk has been observed less frequently. There remains much concern over a possible re-emergence of the outbreak in previously affected areas accompanying the seasonal increase in temperature and rainfall. Clinicians should continue to suspect RVF in patients meeting the case definition (see guidelines at www.nicd.ac.za/outbreaks/rvf/rvf_outbreak.htm) and submit specimens to the NICD for laboratory testing.

For details on the RVF outbreak in South Africa, see the most recent interim report available via the NICD website.

Source: SA-FELTP, Special Pathogens and Outbreak Response Units, NICD; Departments of Health, and Agriculture, Forestry and Fisheries

Influenza

Viral Watch surveillance

The number of specimens collected from Viral Watch sites per week has continued to decline, with only 22 and 16 specimens collected for the epidemiologic weeks 38 (week ending 26th September 2010) and 39 (week ending 3rd October 2010), respectively. By the end of epidemiologic week 39, 1834 samples had been tested for influenza. Of these, 45.9% (842/1834) were positive for influenza. The majority, 52.9% (445/842), were positive for influenza B, 26.5% (223/842) were positive for influenza A H3N2 and 20.6% (174/842) for influenza A H1N1 (2009). The detection rate in epidemiologic week 39 had fallen to 33.3%.

Severe Acute Respiratory Illness (SARI) surveillance

By the end of epidemiologic week 38, 3437 patients were enrolled in the SARI surveillance programme. Influenza results were available for 3377 patients. Of these 280/3377(8.29%) were positive for influenza. Of these, the majority, 63 %(175/280), were positive for influenza B, 29% (81/280) were positive for influenza A H3N2 and 9% (24/280) were positive for influenza A H1N1 (2009). Although influenza is still circulating, there has been a decrease in the detection rate and the number of samples submitted for epidemiologic week 38 compared to week 37 (week ending 19th September 2010). The detection rate for epidemiologic week 37 was 32% from 87 samples collected, versus 15% from 70 samples collected at week 38.

Influenza-associated encephalopathy

Influenza can cause a wide spectrum of central nervous system complications, including influenza-associated encephalopathy/encephalitis (IAE), febrile seizures, Reye's syndrome, post-influenza encephalitic Parkinson's disease, encephalitis lethargica and acute necrotising encephalitis.

IAE is an uncommon but serious complication with high mortality and neurological sequelae, occurring most often in children younger than 5 years. It has been increasingly recognised worldwide in association with influenza A (both H3N2 and H1N1) as well as influenza B infection. IAE is a rapid progressive encephalopathy that usually presents within a few days of onset of typical influenza symptoms, and can manifest with diverse clinical symptoms including: seizures, altered/loss of consciousness, decreased cognitive processing including speech, motor paralysis (mimicking Guillain-Barré syndrome) or sensory loss, abnormal or delirious behaviour, and focal neurological syndromes. CSF findings are usually normal, and neuroimaging may be normal or abnormal (diffuse abnormalities or focal white matter lesions). The diagnosis of IAE rests on confirmation of influenza infection in the absence of other causes of encephalopathy/encephalitis.

A 26-month-old girl was admitted to a Western Cape Province hospital with a 3-day history of fever and cough as well as unsteady gait and refusal to walk or talk for 2 days. The clinical assessment was bronchopneumonia in the presence of upper motor neurone signs, and she required referral to an ICU for mechanical ventilation and critical care. She received intravenous ceftriaxone, dexamethasone and acyclovir, as well as empiric anti-tuberculous therapy. Clinical and MRI findings suggested a diag-

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nosis of ADEM (acute disseminated encephalomyelitis) and high dose methylprednisolone was initiated. The pneumonia worsened, and she continued to deteriorate. A tracheal aspirate specimen submitted on admission tested positive for influenza A(H1N1) 2009, and on receipt of the test result (day 5 of hospitalisation) oseltamivir therapy was initiated. Unfortunately, the patient died 4 days later. This was very likely a case of IAE, and illustrates the need for maintaining a high index of suspicion in children presenting with influenza-like illness and neurological abnormalities, as well as prompt and early administration of antiviral therapy when IAE is suspected.

Influenza Vaccine Recommendations 2011

The influenza vaccine strain recommendations for 2011 have been published by WHO and endorsed by AIVC and will be our recommendations for the 2011 season. These are:-

- A/California/7/2009 (H1N1)-like virus
- A/Perth/16/2009 (H3N2)-like virus*
- B/Brisbane/60/2008-like virus.

*A/Wisconsin/15/2009 and A/Victoria/210/2009 are A/Perth/16/2009-like viruses.

Source: Surveillance and Epidemiology Division, Outbreak Response, Respiratory Virus and Virus Diagnostic Units, NICD; Department of Health, Western Cape Province

Measles update

There have been 254 additional laboratory-confirmed measles cases since the last published Communiqué, bringing the total to 17, 894 cases from the beginning of 2009 to 29 September 2010. Cases have been reported from all nine provinces, with Gauteng (31%, 5 534/17 894), KwaZulu-Natal (23%, 4 196/17 894) and Western Cape (11%, 1961/17 894) provinces accounting for the highest proportions of the total (Figure). Children < 1 year account for 35% (5 897/17 008) of cases, with 26% occurring in those aged 6 to 11 months. Although the measles outbreak is ongoing, there is a general decrease in the number of new cases reported each week.

Subacute measles encephalitis

A 27-year-old HIV-positive woman was diagnosed with measles in the beginning of April 2010 after presenting with fever, morbilliform rash and shortness of breath. Her course was complicated by a measles pneumonitis for which she required admission to hospital. She was unable to recall measles vaccination in childhood and had received no vaccinations in recent years. After having made a full recovery, she was commenced on anti-retroviral treatment four weeks later at her community healthcare centre. Her CD4 nadir was 67 cells/µl and tuberculosis was excluded with 2 negative sputum cultures sent during her initial admission for measles pneumonitis. At the end of June 2010, she presented to Groote Schuur Hospital with a two-week history of persistent twitching and clumsiness of the right hand and two generalised seizures. She reported having no fever or headaches and she was adherent to her antiretroviral therapy and co-trimoxazole prophylaxis. She had not travelled and did not use any illicit substances. On examination she was noted to be alert and orientated with no fever and no meningism, but had continuous focal motor seizures with 'jerks' of the right hand and dystonic posturing of the left foot with intermittent left leg twitching. The rest of the examination was unremarkable.

Serum biochemistry including glucose was normal and her HIV viral load was undetectable with a CD4 count 286 cells/µl. The CSF examination was normal with negative cryptococcal antigen test and negative cultures for bacteria, fungi and tuberculosis. The following PCRs on CSF were negative: herpes simplex virus-1 and -2, cytomegalovirus, JC virus, Epstein-Barr virus, human herpes virus 6, panfungal, toxoplasma, enterovirus and measles. The EEG showed changes in keeping with focal status epilepticus. An initial MRI brain showed subtle frontal focal cortical abnormalities. She deteriorated rapidly over the course of three weeks to complete dependency and blindness. A repeat MRI brain showed progressive multifocal gray matter abnormalities. A stereotactic brain biopsy was performed, confirming measles on PCR and histology. She was started on oral

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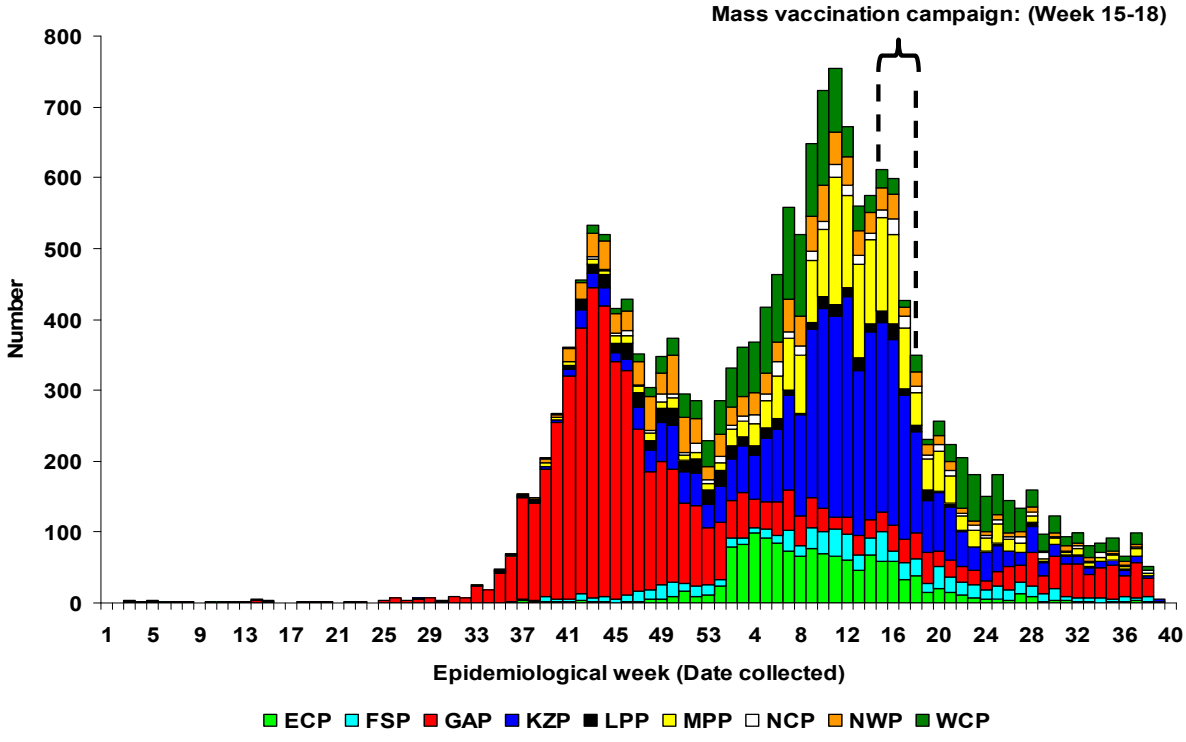
ribavirin with a brief improvement in vision and speech and cessation of focal seizures, but this was followed by a decline in level of consciousness, and she is residually mute and unresponsive to commands.

A further 8 HIV–positive patients at Groote Schuur and affiliated hospitals have subsequently been diagnosed with subacute measles encephalitis (also known as measles inclusion body encephalitis), a rare complication of measles occurring in immuno-compromised hosts. A period of clinical latency ranging from 1 to 7 months post-measles infection has been described, and patients may present with behavioural abnormalities progressing to myoclonus, focal motor seizures, confusion and coma. The seizures tend to be refractory to anticonvulsant therapy. Neuro-imaging is typically normal on CT brain, but grey matter abnormalities may be observed on MRI. The diagnosis is elusive, as CSF parameters are characteristically normal and the CSF measles PCR is only rarely positive; measles serology on CSF is usually unhelpful. Brain biopsy provides a definitive diagnosis where feasible/ available. The prognosis is poor with a reported mortality rate of 76%, and severe neurologic sequelae in survivors.

It is highly likely that given the magnitude of the current measles outbreak and the high burden of HIV there may be many cases of subacute measles encephalitis that are undiagnosed or misdiagnosed due to lack of awareness of this entity as well as the diagnostic difficulties. Healthcare workers need to be cognizant of this complication in immunosuppressed patients with recent measles infection who present with refractory focal seizures, normal CT brain and bland CSF.

Source: Divisions of Epidemiology and Virology, NICD; Divisions of Neurology, Infectious Diseases & HIV Medicine, NHLS Virology Laboratory, Groote Schuur Hospital



Province abbreviations: ECP=Eastern Cape; FSP=Free State; GAP=Gauteng; KZP=KwaZulu-Natal; LPP=Limpopo; MPP=Mpumalanga; NCP=Northern Cape; NWP=North West; WCP=Western Cape

Figure: Measles IgM positive results per province: South Africa, January 2009 to 29 September 2010

Meningococcal disease

Sporadic cases of meningococcal disease continue to be reported across the country. The numbers of cases are expected to increase during June and July, and to peak during the months of August to October. Laboratory-based reporting has inherent delays, so not all clinical cases may be reflected in the report for this month.

By the end of epidemiological week 39 (week ending 3rd October), a total of 282 laboratory-confirmed cases was reported to the Respiratory and Meningeal Pathogens Reference Unit (RMPRU), NICD (Table). These cases showed diversity in serogroups, which is in keeping with sporadic endemic disease in the country. Serogroup data are available for 227/282 (80%) of cases. Serogroup B and W135 have been identified most commonly this year (75/227, 33% serogroup B and 105/227, 46% serogroup W135). Other serogroups include: A (1%, 2/227), C (7%, 16/227) and Y (12%, 28/227).

The winter and spring seasons are when numbers of meningococcal disease cases typically increase. As such, there should be a high index of suspicion for meningococcal disease which may present with non-specific 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.

Source: Respiratory and Meningeal Pathogens Reference Unit, NICD

Table: Number of laboratory-confirmed meningococcal disease cases reported by epidemiological week 39, 2009 and 2010, by province

Province	2009	2010
Eastern Cape	24	18
Free State	12	16
Gauteng	167	142
KwaZulu-Natal	23	16
Limpopo	2	8
Mpumalanga	44	17
Northern Cape	7	16
North West	18	8
Western Cape	57	41
South Africa	**354**	**282**

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
Anthrax: Bangladesh	As of 30 September 2010, at least 605 people have contracted anthrax since the outbreak began in mid-August 2010. The frequency of new cases appears to be declining. The outbreak spread rapidly during September with most cases resulting from handling/ingestion of meat from infected cattle. In addition to the morbidity caused by anthrax, the outbreak has had a significant economic impact within the country with prices and demand for beef plummeting.	Anthrax is transmitted from animals to humans by ingestion, inhalation or handling of infected animal products. Travellers are advised to avoid contact with animals or animal products within high-risk areas. Vaccines are not available to the general public.

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Disease & Countries	Comments	Advice to travellers
Yellow fever: Senegal and Gambia	On 20 September 2010, a 27-year-old fisherman working in the Gambia presented with symptoms of fever and jaundice. Laboratory tests confirmed yellow fever; he had not been previously vaccinated. A second suspected case was also identified in the Thies region, Senegal. High rates of routine vaccinations are likely to avert a widespread outbreak.	Under the International Health Regulations, South Africans travelling to endemic countries must receive yellow fever vaccine at least ten days prior to departure. Yellow fever vaccination certificates are valid for 10 years. The 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). These individuals still require a health certificate indicating the reason for non-receipt of vaccine when travelling. Travellers should still take precautionary measures to avoid being bitten by mosquitoes even if they have received vaccine.[1]
Rabies: Bali	The human rabies death toll has risen to nearly 100 cases since the outbreak began during 2008. Although an island-wide mass dog vaccination campaign is to be launched, travellers should be aware that, at present, the dog vaccination programme has only included 2 of the 9 administrative regions of Bali.	Travellers are advised to avoid contact with all wild animals (incl. bats, mongooses, foxes, raccoons) and any domestic animal (e.g. dogs, cats) suspected of being rabid. If exposure to animals occurs, clean and disinfect the wound thoroughly and seek immediate medical attention. Pre-travel vaccination may be considered for travellers expecting to come into contact with potentially rabid animals.
Dengue fever: Topics and sub-tropics	Dengue is currently the most common cause of fever in travellers returning from the Caribbean, Central America and South Central Asia. Higher than average infection rates are being reported throughout Southeast Asia and South America. For example, Philippines has reported twice as many cases and deaths in 2010 compared to the same period last year.	The differential diagnosis of travellers returning with fever, myalgia and rash must include dengue fever. The mosquito vectors responsible for transmission commonly breed around households and are most active during the day. Travellers should take precautionary measures to avoid being bitten by mosquitoes.[1]

1. Vector-borne transmission. Travellers should take precautionary measures to avoid bites: use insect repellents (containing 30-50% DEET), wear light-coloured clothing, and use insecticide-treated bed nets.

References: ProMED-Mail (www.promedmail.org), World Health Organization (www.who.int), Centers for Disease Control and Prevention (www.cdc.gov), Europe Media Monitor (http://medusa.jrc.it/medisys/helsinkiedition/en/home.html); last accessed 2010/10/07.

Source: Travel Health and Outbreak Response Units, NICD

This communiqué is published by the National Institute for Communicable Diseases (NICD), a division of the National Health Laboratory Service (NHLS), on a monthly basis for the purpose of providing up-to-date information on communicable diseases in South Africa. Much of the information is therefore preliminary and should not be cited or utilised for publication. Questions and comments may be addressed to: The Outbreak Response Unit: outbreak@nicd.ac.za; Private Bag X4, Sandringham, 2131, South Africa