



Rabies

Rabies was confirmed by RT-PCR on a post-mortem nuchal biopsy specimen from a 7-year-old male, from Zithulele Hospital in Eastern Cape Province. The child was bitten by a dog two months previously, medical attention was not sought and anti-rabies post-exposure prophylaxis (PEP) was therefore not administered. The dog was reported to have died a week after the incident. The patient presented with a one day history of anxiety, mental confusion, agitation and fever, and died a day after hospital admission.

An additional case of rabies has been confirmed from Prince Mshiyeni Memorial Hospital, KwaZulu-Natal Province. The patient, a 9-year-old male, was attacked by a dog on 11 November and sustained multiple wounds on the face below the eye, ear, chest and arm. The patient was taken the same day to the local clinic where a course of rabies vaccine was commenced. Full details on the administration of PEP are currently being investigated. The patient presented three weeks after the incident with mental confusion and hallucinations, and died two days later. Rabies was confirmed by immunofluorescence antigen detection on a post-mortem brain specimen.

When rabies develops after a facial injury, incubation periods can be as short as 7 days. Rabies immunoglobulin (RIG) administration must be infiltrated into all the wounds, and although this can be a very painful process in children with facial wounds, local anaesthetic must never be used to facilitate RIG administration in any exposures related to potentially

rabid animals. Suturing of wounds and use of local anaesthetic may facilitate the spread of the virus.

For 2011 to date, six human rabies cases have been laboratory-confirmed in South Africa. These cases originated from Limpopo (n=3), KwaZulu-Natal (n=2) and Eastern Cape (n=1) provinces. Each death is a public health failure and could have been prevented by timely and appropriate PEP, including:

- Prompt wound care: copious washing of the wound with soap and water, and application of antiseptic
- Administration of rabies vaccine: 4 or 5 doses administered intramuscularly in the deltoid muscle (NOT BUTTOCK) as per protocol
- Administration of RIG in category 3 exposures. In patients with multiple wounds, **RIG should be diluted with normal saline and infiltrated into all wounds.**

For more information refer to the rabies [poster](#) and [guidelines](#) available on the NICD website. Laboratory testing for human rabies disease is only offered at the Centre for Emerging and Zoonotic Diseases (formally the Special Pathogens Unit), NICD-NHLS and includes comprehensive ante-mortem and post-mortem testing of suspected cases.

Source: Division of Surveillance, Outbreak Response and Travel Health, and Centre for Emerging and Zoonotic Diseases, NICD-NHLS. Department of Health: Eastern Cape and KwaZulu-Natal provinces.

Beyond our borders: infectious disease risks for travellers

We dedicate part of the December 2011 issue of the NICD Communicable Diseases Communiqué to alerting the many festive season travellers about the infectious disease risks both locally and abroad, as well as reminding health-care professionals to be aware of travel-associated infections in patients presenting during and after this period. We limit these discussions to six communicable disease risks

currently reported in the international postings, namely: typhoid fever (specifically relating to an outbreak in Zimbabwe), cholera, yellow fever, malaria, dengue and influenza.

Typhoid fever: outbreak in Zimbabwe

The Zimbabwean Ministry of Health and Child Welfare recently reported an ongoing outbreak of typhoid fever in the city of Harare. In the

official report dated 20 November 2011, the Ministry documented a cumulative total of 356 cases from 32 suburbs of Harare; however, media reports suggest a larger outbreak. The outbreak has primarily been blamed on a shortage of water that has forced residents to seek drinking water from untreated sources. Travellers are urged to take precautions:

- Drink water that is bottled or bring it to a rolling boil for 1 minute. Bottled carbonated water is safer than uncarbonated water. Bleach may also be used to treat water for drinking/cooking; add one teaspoon of bleach to 20-25 litres of water, mix well and wait 1 hour before using.
- Eat foods that have been thoroughly cooked and that are hot and steaming. Avoid raw vegetables and fruits that cannot be peeled.

Vaccine (Typhim Vi[®] or Typherix[®]) may be considered for travellers to the outbreak-affected area. The vaccine become effective 2-3 weeks after injection and offers protection for 60-75% of recipients for a minimum of 3 years. Given this limited efficacy, it is important to emphasise scrupulous personal, food and water hygiene at all times during travel.

Cholera

In November 2011, cholera outbreaks were reported in Djibouti (Djibouti City), Kenya (North Eastern and Rift Valley provinces), Cameroon (Douala), DR Congo (all 11 provinces and the capital Kinshasa), Somalia (Middle Juba), Uganda (Kasese district), and Zambia (Mpulungu district in Northern Province). Travellers should practice strict food and water precautions, and hand hygiene when visiting these areas. Cholera vaccine is not routinely recommended for travellers.

Yellow fever

On 26 October, the Ministry of Health in Senegal reported three cases of yellow fever in

the south-eastern regions of the country (bordering Mali and Guinea). Travellers to and from the regulated countries (Box) must obtain a yellow fever vaccination from an accredited travel health clinic, at least 10 days prior to departure, and carry the original certificate with them. This includes passengers in transit, irrespective of whether they have left the airport or the time spent in that country. Vaccines are valid for 10 years, but are contraindicated in pregnant women, infants <9 months, individuals with egg allergies, and certain immunosuppressed individuals (including HIV-infected persons with CD4<200/mm³); however, these individuals still require an official vaccine waiver certificate. Vaccinated travellers should still take precautionary measures to avoid being bitten by mosquitoes due to the many other communicable disease risks transmitted by these vectors (e.g. malaria, dengue).

South African port authorities are strictly enforcing yellow fever vaccination policies. Travellers without a valid certificate upon presentation to the port will be refused entry and sent back to their originating country at their own expense. Returning South African residents without a valid certificate will be subjected to surveillance for up to 6 days.

Malaria

September to May of each year is malaria season in southern Africa. Healthcare professionals must maintain a high index of suspicion for malaria in returning travellers with an acute febrile illness. Urgent laboratory testing and prompt treatment are required. Travellers to malaria risk areas (including lowveld areas of South Africa bordering Zimbabwe and Mozambique) should be urged to take precautions, including an appropriate course of chemoprophylaxis (mefloquine, doxycycline, or atovaquone-proguanil -Malanil[®]). In addition, travellers should take preventive measures to

Box: Countries for which a yellow fever vaccination certificate is required for entry into South Africa, updated 1 October 2011

• Angola	• Colombia	• Gambia	• Nigeria	• Republic of Suriname
• Argentina	• Congo	• Ghana	• Panama	• Togo
• Benin	• Côte d'Ivoire	• Guinea	• Paraguay	• Trinidad and Tobago
• Bolivia	• Democratic Republic of the Congo	• Guyana	• Peru	• Uganda
• Brazil	• Ecuador	• Guinea-Bissau	• Rwanda	• United Republic of Tanzania
• Burkina Faso	• Equatorial Guinea	• Kenya	• Sao Tome and Principe	• Venezuela
• Burundi	• Ethiopia	• Liberia	• Senegal	• Zambia
• Cameroon	• French Guyana	• Mali	• Sierra Leone	
• Central African Republic	• Gabon	• Mauritania	• Somalia	
• Chad		• Niger	• Sudan	

reduce mosquito bites, including: wearing long sleeves and trousers during the afternoon, evening and early morning, use insect repellents (containing 30-50% DEET), sleep under an insecticide-treated bed net, keep windows and doors closed/screened, use insecticide aerosol and/or coil at night.

The transmission of malaria in the Laconia region of Greece is ongoing. Between 21 May and 15 November 2011, 63 cases of *Plasmodium vivax* infection were reported. Prophylaxis is also indicated for travellers visiting this region.

Dengue

Dengue is the most common cause of fever in travellers returning from the Caribbean, Central America and south-central Asia. Dengue is endemic in many tropical and sub-tropical countries, including parts of Africa. From January to 5 August 2011, more than 890 000 cases of dengue were reported to the Pan American Health Organization, including 10 840 cases of dengue hemorrhagic fever and/or dengue shock syndrome. Several countries across the region are reporting high incidence rates, including Brazil, Paraguay, Bolivia, the Bahamas, and Aruba. The mosquitoes responsible for transmission commonly breed within households and are most active during the day. Travellers should take precautionary measures to avoid mosquito bites.

Influenza

Influenza activity in the temperate regions of the northern hemisphere remains at low levels, with sporadic influenza activity reported in Canada and some European countries (primarily the Czech Republic, France, Ireland, Norway, the Russian Federation, Spain, and Sweden). Significant influenza activity was reported in only a few countries of the tropical zone including Nicaragua, Costa Rica, and

Brazil in the Americas, Cameroon in central Africa, and Cambodia and Lao People's Democratic Republic in southeast Asia. Transmission in the temperate countries of the southern hemisphere has returned to inter-seasonal levels, with some persistence of influenza A (H3N2) in Australia. In the United States of America limited human-to-human transmission of a novel influenza A(H3N2) virus was detected with no further reported spread to date.

The southern hemisphere 2011 influenza vaccine formulation remains effective for most strains currently circulating elsewhere in the world. Revaccination will be needed for those that received influenza vaccine more than nine months ago. We routinely advise annual influenza vaccination to prevent illness, both locally and in travellers, and especially for high-risk persons. There is currently limited vaccine remaining in South Africa for pre-travel vaccinations. All travellers (whether vaccinated or not) should additionally be advised to reduce their risk of exposure or spreading respiratory infections. These include:

- Avoiding close contact with symptomatic individuals and crowded conditions.
- Practising 'cough hygiene': sneezing or coughing into a tissue and promptly discarding it safely, and frequent hand washing.
- Avoiding travel if unwell with influenza-like symptoms.

References and additional reading: [ProMED-Mail](#), [European Centres for Disease Prevention and Control](#), [Centers for Disease Control and Prevention](#), [World Health Organization](#), [Zimbabwe Ministry of Health and Child Welfare](#). Last accessed: 2011/12/12

Source: Division of Surveillance, Outbreak Response and Travel Health, NICD-NHLS. Visiting registrars of the University of Pretoria and the UK Health Protection Agency.

Update on outbreaks/clusters of meningococcal disease

Two outbreaks/clusters of meningococcal disease, initially affecting overcrowded crèches with substandard facilities, were reported in Gauteng Province in recent months.

Olievenhoutbosch, Tshwane District Metropolitan Municipality: The last laboratory-confirmed case associated with this outbreak experienced illness onset on 27 October 2011.

Twelve cases of *Neisseria meningitidis* serogroup W135 infection, including 4 fatalities, were identified during this outbreak, which spanned a 2-month period – see the October and November 2011 issues of the NICD Communiqué for details. Numerous interventions were implemented, including the administration of both post-exposure chemoprophylaxis (PEP) and polysaccharide quadrivalent (A, C, W135

and Y) meningococcal vaccine to attendees of the two affected crèches, as well as their close household contacts. Most recently, the Department of Health completed a large-scale vaccination campaign in the community. Polysaccharide vaccine was administered to approximately 10 000 children, primarily aged between 2-10 years. This latest intervention was justified by the potential for the occurrence of new clusters of disease in this vulnerable community, especially following the identification of cases without close epidemiological links to the initial crèche clusters.

City of Johannesburg Metropolitan Municipality: A second, unrelated cluster of meningococcal disease was reported in a crèche, with similar overcrowded/substandard conditions, in the Johannesburg area during

November 2011. Following the report of an initial case, PEP was administered to close contacts of the case (as per standard protocol), as well as to the other crèche attendees. However, a child, absent on the day when PEP was given, subsequently developed laboratory-confirmed meningococcal disease. Given the previous experience in abovementioned outbreak, the Department of Health moved to administer a second round of PEP concurrently with polysaccharide vaccine to the attendees of the affected crèche. Following this, no further cases have been reported to date.

Source: Division of Surveillance, Outbreak Response and Travel Health, and Centre for Respiratory Diseases and Meningitis, NICD-NHLS. Department of Health: Gauteng Province, Tshwane District Metro and City of Johannesburg Metro.

Meningococcal disease surveillance

By the end of epidemiological week 48, a total of 292 laboratory-confirmed cases were reported to the NICD (Table).

These cases showed diversity in serogroups, which is in keeping with sporadic endemic disease in the country. Serogroup data were available for 238/292 (82%) of cases. Serogroup B (56/238, 24%) and W135 (121/238, 51%) were identified most commonly this year. Other serogroups included C (23/238, 10%) and Y (38/238, 16%).

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

Table: Number of laboratory-confirmed meningococcal disease cases reported by week 44 (ending 6 November), 2010 and 2011, by province

Province	2010	2011
Eastern Cape	28	40
Free State	24	24
Gauteng	175	126
KwaZulu-Natal	33	22
Limpopo	13	6
Mpumalanga	25	16
Northern Cape	20	6
North West	11	5
Western Cape	57	47
South Africa	386	292

Tick bite fever

There needs to be heightened awareness for cases of tick bite fever (TBF) at this time of year, and TBF must be considered in the differential diagnosis of acute febrile illness in urban and rural settings. The diagnosis is primarily a clinical one based on the findings of an eschar (usually with local lymphadenopathy) in a patient with acute febrile illness. The Weil-Felix test is neither sensitive nor specific, PCR is not well standardised and the rickettesial IFA serology test typically becomes positive only 7-10 days after the onset of illness. Doxycycline is optimal therapy in all age groups.

A number of cases of complicated disease were documented with multi-system involvement, including haemorrhagic disease with skin lesions, thrombocytopenia, liver dysfunction, pneumonitis and encephalopathy. Crimean-Congo haemorrhagic fever (CCHF) must also be considered in the differential diagnosis in persons exposed to ticks. The incubation period for tick transmitted CCHF is typically from 1-3 days, and for TBF usually from 5 to 7 days.

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

Rubella

Rubella surveillance forms part of the national measles case-based surveillance programme. Specimens from suspected measles cases (patients presenting with fever and rash, with at least one of cough, coryza or conjunctivitis) are submitted to the NICD for measles and rubella testing. Since January 2011, 7 755 suspected measles cases were tested. Of these, 36% (2 811/7 755) were rubella IgM-positive. Cases were reported from all nine provinces with Gauteng (24%, 681/2 811) and Limpopo (16%, 451/2 811) provinces accounting for the highest proportions of the total (Table). Age was reported in 97% (2 734/2 811) of the cases. Children aged <12 years accounted for 88% (2 414/2 734) of the cases with 61% (1 673/2 734) occurring in those aged 5-11 years. Where age and sex were recorded (n=2 665), females accounted for 48% (n=1 287) of the cases, with 13% (162/1 287) of these aged from 12-49 years. An increase in numbers of rubella IgM-positive cases was observed from August onwards with a peak occurring in September (Figure). This trend has been observed previously during late winter to early spring in South Africa. Several rubella outbreaks were reported in crèches and schools in various

provinces. Rubella is generally a mild disease affecting mainly children; however, infection is of greater concern if acquired during pregnancy and especially during the first trimester. Rubella infection in pregnancy may spread to the unborn baby and lead to congenital rubella syndrome, which is associated with severe birth defects.

Table: Frequency of rubella IgM-positive results per province, South Africa, January-November 2011

Province	n (%)
Eastern Cape	357 (13)
Free State	42 (1)
Gauteng	681 (24)
KwaZulu-Natal	334 (12)
Limpopo	451 (16)
Mpumalanga	391 (14)
Northern Cape	70 (2)
North West	329 (12)
Western Cape	156 (6)
South Africa	2 811

Source: Centre for Vaccines and Immunology, NICD-NHLS

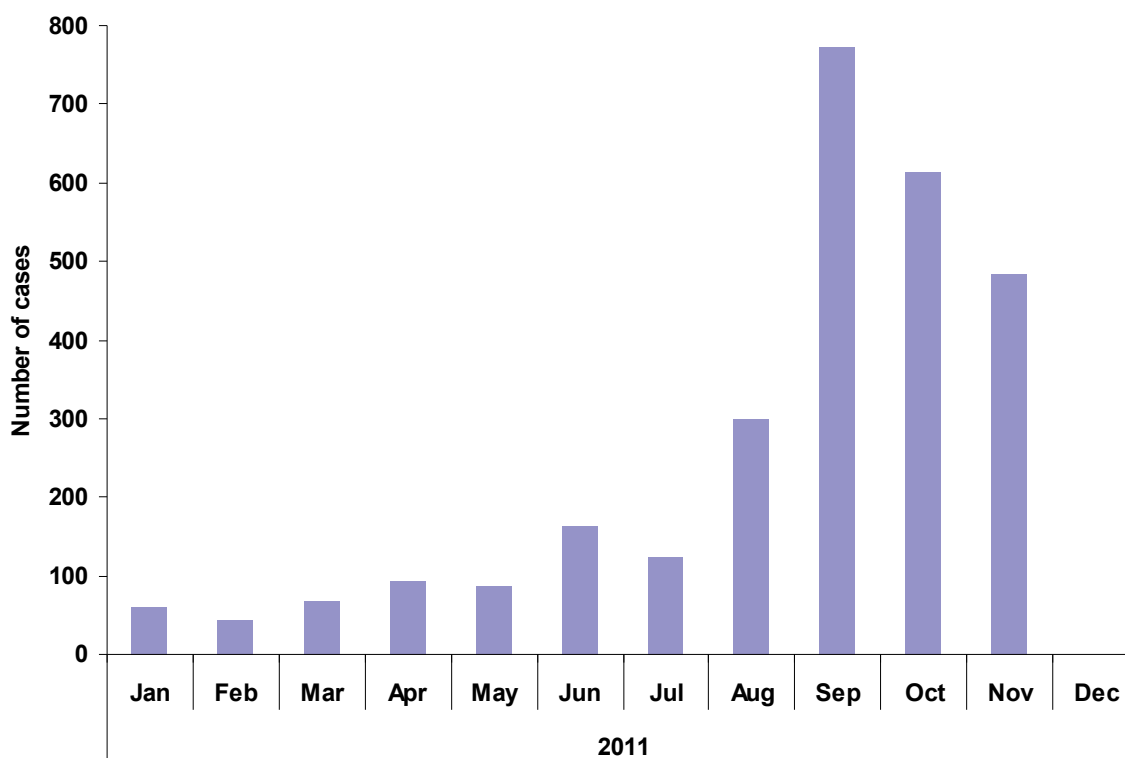


Figure: Number of rubella IgM positive cases by week specimens were collected, South Africa, 2011

Foodborne illness outbreaks

A total of 69 foodborne illness incidents was reported to the NICD from 1 January to 30 November 2011. Pathogens were identified in 25 (36%) foodborne illness incidents during this period. In the following article, we describe one of the seven foodborne illness incidents documented during November 2011 and give recommendations how to improve reporting and laboratory testing.

Polokwane, Limpopo Province

On 9 November, the NHLS Infection Control Services Laboratory, Johannesburg alerted the NICD of food samples received from a laboratory in Polokwane. On follow-up, it was found that approximately 50 children from a primary school were seen at a local hospital on 7 November, with symptoms that included abdominal cramps and diarrhoea. They were treated at the hospital and discharged on the same day. Stool and urine samples were collected and sent to the NHLS laboratory. Initially, bilharzia was suspected, as some cases had blood in their urine and there is a river nearby that the children frequently swim in. Detailed information on food items consumed was not obtained; however, beans and porridge samples were obtained from the school feeding scheme. *Bacillus cereus* enterotoxin, innumerable bacterial counts and *E. coli* was identified on the porridge sample; and high bacterial counts and *E. coli* was identified on the beans sample. Unfortunately, the stool specimens were discarded after routine microscopy and culture techniques, and were

not referred for specialised testing for foodborne illness pathogens and toxins.

How to improve on reporting and laboratory testing

Foodborne illness incidents reported in 2011 pose various challenges. These can be mitigated as follows:

- Healthcare workers are obliged to notify all suspected foodborne illness outbreaks (i.e. 2 or more cases) to the Department of Health/Local Authority for further investigation.
- Health officials/healthcare workers should indicate to NHLS laboratory staff when specimens are collected as part of a foodborne illness outbreak, and label them as "Foodborne Illness Outbreak", and request testing for foodborne illness pathogens and toxins. Standard MC&S techniques may fail to detect foodborne pathogens and do not detect toxin.
- Laboratory staff should ensure that both clinical (stool, rectal swabs, vomitus) and environmental (food, water, milk) specimens related to foodborne illness outbreaks are routinely transported to one of the four major public health laboratories to ensure the full range of testing for foodborne pathogens and toxins (Table).

Source: Division of Surveillance, Outbreak Response and Travel Health, NICD-NHLS; Limpopo Department of Health; NHLS Infection Control Services Laboratory.

Table: Designated NHLS Public Health laboratories: contact details and tests offered

1. NHLS Infection Control Service Laboratory (ICSL), Johannesburg	Wits Medical School, Room 3T09, 7 York Rd., Parktown, JHB, 2193. Tel. 011-489-8578/9 or 011-717-2496	Full range of foodborne pathogen tests offered
2. NHLS Public Health Laboratory, Durban	3 rd Floor, 149 Prince St., Durban, 4001. Tel: 031-327-6743 / 6752	
3. NHLS Public Health Laboratory, Green Point	Old City Hospital Complex, Portwood Rd., Greenpoint, 8000. Tel: 021-417-9354 / 9355	Foodborne pathogens. Testing for <i>E. coli</i> O157, <i>Campylobacter</i> spp., <i>Listeria monocytogenes</i> & bacterial toxins is referred to NHLS-ICSL.
4. NHLS Public Health Laboratory, Port Elizabeth	Cnr Buckingham & Eastborne Rd., Mount Croix, Port Elizabeth, 6000. Tel: 041-395-6174	