Communicable Diseases Communiqué

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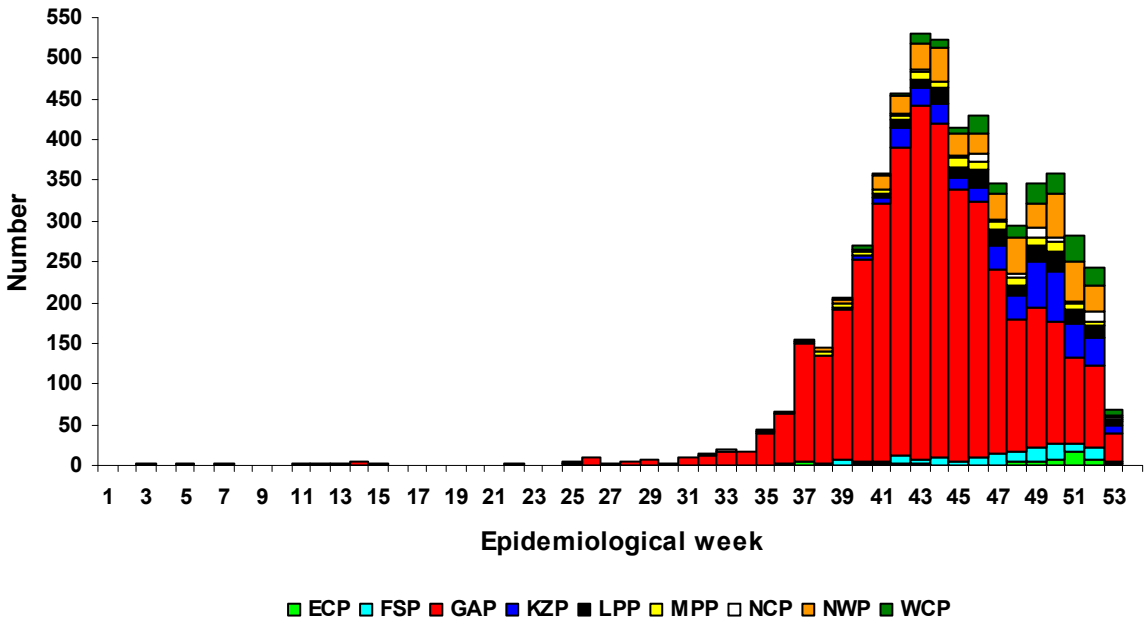
Measles outbreak

There have been 1 892 additional laboratory-confirmed measles cases since the last published Communiqué, bringing the total to 5 659 cases from the beginning of 2009 to 13 January 2010. Cases have been reported from all 9 provinces, with Gauteng (72%, 4 049/5 659) and KwaZulu-Natal (6%, 379/5 659) Provinces accounting for the highest proportions of the total. Children aged 6 to 11 months account for 25% (1 373/5 490) of cases. A general decline in the number of new cases reported each week has been observed (Figure), especially within Gauteng; however, it is important for healthcare workers to remain vigilant as incidence may rapidly increase again as the virus spreads to new susceptible populations.

Source: Divisions of Epidemiology and Virology, NICD; Communicable Diseases Directorate: Tshwane District and Gauteng Province.

Measles IgM positive results per province: South Africa 01-01-2009 to 13-01-2010



Pandemic influenza A(H1N1) 2009

As of 18 January 2010, a total of 12 636 laboratory-confirmed pandemic influenza A(H1N1) 2009 cases has been identified since the introduction of the novel strain in April 2009. Cases identified in the most recent months have all been associated with

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international travel. Furthermore, an additional laboratory-confirmed death associated with the current pandemic strain has been retrospectively identified, bringing the total number of deaths reported to the NICD to 93.

On 8 January 2010, the World Health Organization (WHO) reported that pandemic influenza transmission was currently most active in parts of Central, Eastern and Southeastern Europe, North Africa and South Asia. Elsewhere (e.g. within the Americas), northern hemisphere countries have reported a decline in the frequency of new cases observed, after experiencing substantial influenza activity during their autumn-winter period.

The pandemic influenza A(H1N1) strain is expected to be an important player during the coming 2010 influenza season in South Africa. It is important that all facets of the healthcare sector begin to prepare for the influenza season, as well as the upcoming vaccination campaign (scheduled to begin in March). The 2010 influenza vaccine will include pandemic influenza A(H1N1), influenza A(H3N2), and influenza B strains.

Source: NHLS: Epidemiology and Virology Divisions, NICD; Tygerberg Hospital; Groote Schuur Hospital; Universitas Hospital; Steve Biko Academic Hospital; Inkosi Albert Luthuli Central Hospital. Private laboratories: Ampath, Lancet, PathCare and Vermaak laboratories.

Rabies update

The majority of human exposures in South Africa, not different from what is observed in other developing countries, are linked to dogs. Rabies is endemic in domestic dogs in KwaZulu-Natal, Eastern Cape, Mpumalanga, Free State and Limpopo Provinces. Very few human cases are linked to wildlife exposure; although rabies is endemic in a number of wildlife species in South Africa, the major concern is exposure to mongooses.

Rabies prophylaxis should be considered for all animal exposure cases (bites, scratches, nicks, licks on broken skin and mucosa) in South Africa. A risk assessment should be conducted for each animal exposure case, and should include questions about the animal involved (i.e. stray or a kept pet), vaccination records of the animal, the health and behaviour of the animal and whether the attack was provoked or not. Animal exposures are classified into 3 risk groups, with risk group 1 constituting negligible risk (i.e. petting or licking of intact skin), group 2 low- to medium-risk (i.e. wounds without bleeding) and group 3 high risk (wounds that draw blood, licking of broken skin or mucosa) exposures. All cases considered to be at risk of rabies exposure should receive prompt wound care including copious washing of the wound with soap and water, the application of disinfectants (iodine-based), and administration of antibiotics and tetanus toxoid. Risk group 2 exposures require a series of five doses of rabies vaccine on days 0, 3, 7,14 and 28. Risk group 3 exposures should receive the same series of rabies vaccine as for risk group 2, as well as human rabies immunoglobulin (infiltrated into the wound as far as possible, with the remainder administered intramuscularly in the deltoid muscle). There are major obstacles to the proper and effective use of rabies prophylaxis: poor general public awareness regarding both the risk of rabies after an animal exposure and availability of rabies post-exposure prophylaxis, as well as inappropriate management of exposures by healthcare workers.

In 2009, a total of 15 human rabies cases in South Africa was confirmed by the NICD: cases were reported from Eastern Cape (n=8), KwaZulu-Natal (n=4), Mpumalanga (n=2) and Limpopo (n=1) Provinces. In addition, cases were confirmed from Namibia (n=7) and Swaziland (n=1). For 2010 to date a total of 2 human rabies cases has been confirmed, 1 case each from Limpopo and KwaZulu-Natal Provinces. A suspect rabies case from Mpumalanga could not be confirmed in the laboratory but had a compatible clinical presentation and exposure history. An additional case of rabies was confirmed from Swaziland.

It is noteworthy that few cases are reported and laboratory-confirmed, and these statistics do not reflect the true burden of the disease. Rabies is not always easily clinically diagnosed, with two forms of presentation: the encephalitic ('furious') and paralytic ('dumb') forms. The encephalitic form often pre-

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sents with hyperactivity, hallucinations and altered behaviour with periods of lucidity, as well as the classic hydrophobia and aerophobia. The paralytic form initially resembles Guillain-Barré syndrome with an ascending paralysis or a symmetric quadriparesis and normal sensorium, followed by confusion and ultimately coma.

The following tests are available for ante-mortem rabies confirmation in human patients: RT-PCR on saliva, cerebrospinal fluid and skin biopsies (dermatological punch-biopsy collected from the nape of the neck to include hair follicles); histology of skin biopsies is also informative. Serology is most often not helpful, as patients only seroconvert late during the illness or possibly not at all. The fluorescent antibody test performed on post-mortem brain smears is the gold standard for rabies diagnosis; however, brain specimens are often not available for testing due to lack of consent. Skin biopsies may also be collected post-mortem and tested by RT-PCR and histology in the absence of brain specimens. Please refer to the Appendix (Page 6) for rabies diagnostic tests offered by the NICD.

The rabies problem in South Africa should be addressed by intensified dog vaccination and targeted control programs. In addition, awareness within both the public and the medical fraternity is vital in preventing this deadly illness.

Source: Special Pathogens and Outbreak Response Units, NICD

Trypanosomiasis

The patient, a 54-year-old South African game conservation professional, had been working at the Nkhotakota Game Reserve in Malawi for the past 18 months. This is the oldest game reserve in the country and is located about 130 km north of Lilongwe. He became ill in Malawi and flew to South Africa on 17 December 2009 on the advice of his doctor, who had made the diagnosis of trypanosomiasis. He was a cigarette smoker and had a cardiac pacemaker. On admission he had several trypanosomal chancres on his legs and trunk; his temperature was 39ºC, blood pressure 110/66 mmHg, haemoglobin 12 g/dl, white cell count 3.4 x 10^9/l, platelets 13 x 10^9/l, AST 144 IU/l, ALT 95 IU/l, γGT 493 IU/l, and creatinine 114 µmol/l. Numerous trypanosomes were present on the blood film. As the supplier was out of stock, suramin was urgently acquired with the help of private hospital pharmacies and the WHO Neglected Tropical Diseases programme in Geneva. Test and therapeutic doses of suramin were well tolerated. He was given a platelet transfusion. He developed a florid, generalised rash the following day; this was thought to be a possible drug reaction, and resolved spontaneously. A lumbar puncture showed 11 lymphocytes, total protein of 0.37 g/l, and no trypanosomes in the CSF. He was discharged well on 23 December; the repeat lumbar puncture performed on 12 January 2010 showed 3 lymphocytes, protein 0.49 g/L and no trypanosomes; IgM level in the CSF was normal. The patient remains asymptomatic.

This is the third case of East African trypanosomiasis (EAT) that we have reported in 2009; the previous patients acquired the infection in Tanzania and Zimbabwe respectively (see Communicable Diseases Communique 2009; 8 (8): 6 and 8 (6): 6 - 7. The treatment of choice for the acute haemolymphatic stage of EAT is suramin (Bayer); pentamidine has some activity against *Trypanosoma brucei rhodesiense* and can be used in an emergency while suramin is sought, but it is also not readily available. Melarsoprol is restricted to treatment of laboratory-confirmed CNS involvement only, because of its high toxicity. In collaboration with Dr Pere Simarro of the WHO Neglected Tropical Diseases programme, the NICD has arranged a local supply of suramin and melarsoprol; the drugs can be accessed by consulting the NICD emergency service (082 883 9920).

Source: Department of Medicine, Chris Hani Baragwanath Hospital; Parasitology Reference Unit, and Epidemiology Division, NICD.

Cholera

In Zimbabwe, as at 13 December 2009, there were 146 cholera cases reported to the WHO since September 2009.

Despite high numbers of travellers returning from Zimbabwe after the festive season, there have been no travel-related cholera cases in South Africa to date. However, healthcare workers should remain vigilant and submit appropriate specimens with specific requests for cholera testing in patients presenting with diarrhoea and a relevant travel history or contact with a known cholera case.

Source: Outbreak Response Unit, NICD and School of Public Health, University of the Witwatersrand.

Malaria

In Limpopo Province, the number of malaria cases started to increase in December, in the usual malaria transmission areas of Vhembe and Mopane Districts, which border on the Kruger National Park. Mpumalanga Province has also experienced the usual seasonal increase in malaria cases. Although the numbers of cases are well below the alert and epidemic thresholds for this time of year, clinicians should take cognizance and advise travellers to use personal preventive measures for prevention of mosquito bites and take effective chemoprophylactics when visiting the area (either mefloquine, doxycycline or atovaquone-proguanil in accordance with the national guidelines). Any person presenting with a febrile illness and history of visiting a known malaria risk area should be promptly investigated for malaria.

Source: Outbreak Response Unit, NICD and Department of Health, Limpopo Province.

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 & dengue haemorrhagic fever (DHF): Tropical and subtropical regions	Since early 2009, an increased number of dengue cases has been reported from countries endemic for dengue (incl. regions throughout the tropics and subtropics within the South Pacific, Asia, Caribbean, the Americas, and Africa). • Australia: 12 confirmed cases in Queensland . • Africa: Cape Verde is experiencing its first recorded outbreak, with 16 744 suspected cases reported as of 18 November 2009. • Saudi Arabia: throughout 2009, dengue cases were reported from areas popular with travellers, including Jeddah and Mecca. • South Pacific: ongoing outbreaks in Malaysia, Vietnam and Philippines.	Dengue fever is the most common cause of fever in travellers returning from endemic areas. 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†.

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Disease & Countries	Comments	Advice to travellers
Yellow fever: Guinea and Côte d'Ivoire	As of 12 January 2010, one confirmed and six suspected cases have been identified in Guinea following an outbreak in neighbouring Côte d'Ivoire. As of 8 January 2010, Côte d'Ivoire reported 21 deaths due to yellow fever virus infection and has mounted a mass vaccination campaign to prevent further cases.	†Yellow fever is transmitted by mosquitoes. Vaccination is mandatory for travellers to endemic countries a minimum of 10 days prior to departure. Vaccine certificates are valid for 10 years.
Typhoid fever Nepal	40 Russian travellers returning from Nepal in early January 2010 were diagnosed with typhoid fever. The source of infection was likely a canteen in the city of Pokhara. Typhoid is an important consideration for travellers to endemic countries returning with a febrile illness.	Human infection occurs via faecal-oral transmission. Travellers should take precautions when consuming food and drink to prevent infection‡. Vaccination may be considered; however, effectiveness is limited and precautionary measures must still be reinforced.

†Prevention of vector-borne transmission by mosquitoes: 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.

‡Prevention of food and waterborne diseases: Drink water that is bottled or bring it to a rolling boil for 1 min. Bottled carbonated water is safer than uncarbonated water. Avoid ice and food products (e.g. ice cream) that made with contaminated water. Eat foods that have been thoroughly cooked and that are hot and steaming. Avoid raw vegetables and fruits that cannot be peeled. Peel the fruit and vegetables yourself after washing your hands with soap. Do not eat the peelings. Avoid foods and beverages from street vendors.

Source: Travel Health and Outbreak Response Units, NICD.
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 2010/01/14.

This communiqué is published by the National Institute for Communicable Diseases (NICD) 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.

Appendix: Laboratory diagnosis of rabies in humans at NICD-NHLS

SPECIMEN	TRANSPORT OF SPECIMEN*	LABORATORY PROCEDURE	SENSITIVITY / INTERPETATION OF RESULTS	COMMENTS
Saliva	Screw top specimen jar/tube (need at least 200 µl)	RT-PCR	Sensitive, but negative result does not exclude rabies virus infection	Only patients with suspected rabies disease. Saliva specimens are preferred for ante-mortem diagnosis
		Virus isolation	Sensitive, but time-consuming and may delay diagnosis	Isolation of rabies virus may confirm other diagnostic tests
CSF	Screw top specimen jar/tube (need at least 200 µl)	RT-PCR	Sensitive, but negative result does not exclude rabies virus infection	Only patients with suspected rabies disease. Saliva and skin biopsy specimens are preferred for ante-mortem diagnosis
		FAT	Sensitivity depends when the sample was collected (sero-conversion time differs from patient to patient; sequential samples must be sent and may only be positive after 5 days of disease). A negative result does not exclude rabies virus infection	Only patients with suspected rabies disease. Diagnostic since serum antibody induced upon vaccination does not cross the blood-brain barrier
Skin biopsy	Two dermatological punches collected from nape of neck: • 1 fresh on saline-wetted gauze in screw-top specimen jar • 1 in formalin	RT-PCR	Specimens are usually positive from day 1 of onset of clinical disease	Only patients with suspected rabies disease. Specimens may be collected ante-or post-mortem
		HISTOLOGY	Sensitive, but negative result does not exclude rabies virus infection	
Serum	Clotted or serum tubes (need at least 200 µl)	FAT	As for CSF	Diagnostic in unvaccinated patients. Or for determination of antibody titer upon vaccination
Brain	Half in 50% glycerol saline** and half in 10% neutral buffered formalin**. In screw top jars***	FAT	Gold standard for rabies diagnosis with a sensitivity of more than 99%	Entire brain (in two halves) or chunks of brain. Preferably brainstem or cerebellum specimens, but any section can be tested
		Virus isolation	99% agreement with FAT results	Confirmatory test for FAT

*Transportation: wrap specimen jar/tube in absorbent material and place in a sturdy container. Place in secondary container (i.e. courier boxes/bags) and transport at 4 ºC (cooler with frozen ice packs) to reach the laboratory as soon as possible. Apply necessary warnings for bio-hazardous/infectious materials to the package.

** 50% glycerol saline is prepared by adding an equal volume of glycerol to an equal volume of saline (for example 50 ml glycerol and 50 ml saline); 10% neutral buffered formalin is prepared by adding 1/10th volume of formalin to buffer (for example 10 ml formalin and 90 ml buffer).

*** If brain cannot be preserved in glycerol saline/formalin, the brain may be frozen fresh and shipped on dry ice (or as cold as possible) to reach the laboratory ASAP. Warning: sample may degrade and influence outcome of testing.

Laboratory contact details: Dr J Weyer 011 386 6376 or 011 386 6339 or NICD Clinical Hotline at 082 883 9920