Communicable Diseases Communiqué

Volume 9, No. 12

December 2010

Update: rabies outbreak in Gauteng Province

The rabies outbreak in dogs in the South-east Johannesburg Metro is not yet under control, although the number of new cases seems to be decreasing. The most recent dog rabies cases were in Eldorado Park and Lenasia; the latest case was at the beginning of December in a dog from Comptonville. Rabies was confirmed last week in a dog from Randfontein (West Rand) but molecular typing is awaited to confirm if this case is related to the Johannesburg Metro outbreak. Vaccination campaigns will commence again in January 2011 and all pet owners must ensure that their animals are vaccinated according to the recommended schedules. All dogs and cats should receive rabies vaccine at the age of three months followed by a second vaccination within 12 months, at least 30 days after the first vaccination, and thereafter every three years. It is important to reach vaccine coverage rates of at least 70% to curtail a rabies outbreak. Any owners who will be taking their dogs/cats away on holiday with them this season must ensure that their pets have been vaccinated in the last year, or at least 30 days prior to travel. The recent incident of a rabid domestic dog from Pretoria that acquired rabies while travelling with its owner to KwaZulu-Natal and resulted in a number of human exposures highlights the importance of this advice.

A thorough risk assessment should be carried out on persons who have experienced animal exposures to enable appropriate rabies post-exposure prophylaxis where indicated.

A total of 11 human rabies cases has been confirmed in South Africa for 2010 to date. The cases have been reported from the Northern Cape (n=1); Mpumalanga (n=1); Gauteng (n=1); KwaZulu-Natal (n=3), Eastern Cape (n=2) and Limpopo Provinces (n=3).

Every year between 5 and 31 laboratory confirmed human rabies cases are reported in South Africa. The main foci of human rabies have historically been in KwaZulu-Natal Province due to the raging epizootic in dogs for the past 3 decades. In recent years Eastern Cape, Limpopo and Mpumalanga provinces have also become important, but clearly underreported, hotspots for rabies. In 2010, dog rabies was reported from Johannesburg for the first time, although cases of rabies in several wildlife species (mostly jackal and mongoose) have been reported from Gauteng Province previously. Rabies post-exposure prophylaxis should be considered for all animal bite victims in a rabies-endemic country such as South Africa.

Source: Special Pathogens and Outbreak Response Units, NICD-NHLS; Gauteng Department of Veterinary Services

Odyssean malaria in Gauteng Province

Odyssean malaria is the acquisition of malaria in a non-endemic area by the bite of an imported mosquito. This rare phenomenon has been given many names, including: airport-, baggage-, container-, port-, taxi-rank-, and minibus-malaria, all of which describe a variety of routes by which a mosquito may be imported to a non-endemic area and transmit infection. Such mosquitoes may survive up to three weeks depending on environmental conditions, and have the potential to transmit malaria to humans if infected. The malaria parasite is transmitted by the Anopheles mosquito, which is commonly found in the lowveld but isn't adapted to highveld

(Continued on page 2)

(Continued from page 1)

conditions and so does not naturally occur in the Johannesburg area. It can and does, however, travel from malarious areas by various means of transport. During November 2010, five confirmed cases and one probable case of *Plasmodium falciparum* malaria were reported from Slovo Park in Soweto, Gauteng Province. Five of six patients had no history of travel outside of the province in the months preceding infection.

The first confirmed case experienced the onset of symptoms on 13 November; approximately two weeks after travelling to Giyani (Limpopo Province). He was admitted to Chris Hani Baragwanath Hospital (CHBH) and required admission to the intensive care unit (ICU) for cerebral malaria. On 14 November, two siblings (aged 4 and 6 years) of a neighbouring household became ill and were later both admitted to CHBH with a decreased level of consciousness, initially suspected as toxin ingestion. Despite the absence of a travel history, an astute haematology technologist noted malaria parasites on peripheral blood films, and subsequent *P. falciparum* antigen tests and malaria smears were found to be positive. High parasitaemia counts of 7.4% and 5.1% were reported for the two siblings respectively. One child required admission to the intensive care unit (ICU), but both have since recovered well.

On 27 November, three family members of a household approximately 1km from the aforementioned cluster, with no recent travel history, became ill with fever and flu-like symptoms. The 53-year-old father and 14-year-old son of the household were admitted to CHBH and diagnosed with *P. falciparum* malaria. Both had high parasitaemia counts (5.9% and 8.6% respectively) and evidence of cerebral malaria, and were transferred to the ICU. The third ill family member, a 2-year-old daughter, died en route to hospital and no blood specimens were available for testing; however, the child's clinical presentation and the subsequent diagnosis of the other ill household members suggests that malaria was the most likely cause of her illness.

These recent cases highlight the need for healthcare workers to be vigilant, and malaria should always be considered in patients with unexplained fever even in the absence of a travel history. Road transport from malarious areas is a source of translocated vectors. Gauteng Province is a non-transmission area because of its altitude and climate. Within it, the Johannesburg-Pretoria metropole is the destination of a large volume of road passenger traffic from neighbouring countries, mainly Mozambique and Zimbabwe, as well as from other malaria risk regions within South Africa. Between 1996 and 2004, we identified 46 cases of malaria in residents who had not traveled to known risk areas (Box), as well as several cases subsequently. Note the high mortality rate of these cases compared with the national malaria mortality rate. Although there is a major international airport in the area, there was no clustering of cases in its vicinity, and we believe that most, if not all, patients were infected by vector mosquitoes transported by minibus taxis. During the period there were, in addition, 2 cases of induced malaria (one each of needle and transfusion malaria), which is a reminder that mechanical transmission of malaria is possible, although rare.

Box: Odyssean Malaria in Gauteng Province, South Africa, 1996 – 2004

- Total number of cases identified: 46
- Median time (range) to diagnosis after onset: 6 days (1 – 11 days)
- Most frequent initial clinical diagnoses: Influenza, viral hepatitis, septicaemia
- Proportion of patients with thrombocytopenia: 80%
- Malaria species involved: All *P. falciparum*
- Case fatality rate: 12%
- National malaria case fatality rate (1999 - 2005): 0.6 – 1%

The importance of odyssean malaria cases is related to the frequent delayed or missed diagnosis of the cause of illness in affected patients, with resulting high rates of complications and mortality. The absence of a history of travel to a malaria-endemic area is almost always responsible for this. In some cases, the diagnosis is only made at autopsy.

Malaria parasites should routinely be sought in one or more successive blood films of any febrile patient in whom a diagnosis is not readily apparent, especially if the platelet count is low. Clinicians should specifically request malaria examinations and should not assume that these will automatically be done when a full blood count is requested. Since thrombocytopenia is a very common (but not invariable) finding in patients with both uncomplicated and severe malaria, its unexplained presence in a febrile patient should alert one to the possibility of

(Continued on page 3)

(Continued from page 2)

malaria. Quantitative parasite counts should always be requested as these give an indication of the severity of illness and are useful in showing the response to treatment. The presence of falciparum gametocytes on blood films is indicative of the presence of malaria infection of at least 10 days' duration (but frequently 3 weeks or longer).

Reference:

Frean J, Blumberg L. Odyssean and Non-Mosquito-transmitted Forms of Malaria. In: Schlagenhauf-Lawlor P (ed). (2008) Travelers' Malaria (2nd ed). BC Decker, Hamilton, Ontario.

Source: Outbreak Response, Parasitology and Vector Control Reference Units, NICD-NHLS; Chris Hani Baragwanath Hospital; Chris Hani Baragwanath Hospital NHLS; Gauteng Department of Health

Salmonella Virchow foodborne illness outbreak

On Saturday 16 October, the Department of Health was informed of a possible foodborne illness outbreak amongst learners at a primary school in Bushbuckridge, Mpumalanga Province. On 15 October, a total of 188 learners aged between 5 and 12 years became ill with gastrointestinal symptoms, fifty of whom required admission to Tintswalo Hospital for rehydration and observation (including one admission to ICU). They had shared a meal of porridge and milk at the school earlier that day, which had been provided by a feeding scheme; unfortunately, no food samples were available for testing. Of fifteen stool specimens submitted to Tintswalo Hospital NHLS laboratory for testing, non-typhoidal *Salmonella* spp was isolated on twelve. The Enteric Diseases Reference Unit at the NICD further characterised the isolates; all were identified as *Salmonella* Virchow.

S. Virchow is an uncommon human-related serotype in South Africa. Worldwide, outbreaks due to this serotype are typically associated with contaminated poultry products or cross-contamination of other foodstuffs by foodhandlers. This serotype has been identified in poultry and swine in South Africa, albeit infrequently.[1] Since no food samples were available for testing, the direct cause of the outbreak could not be determined, but fortunately no further cases were reported thereafter. The only other foodborne outbreak of S. Virchow previously documented in South Africa occurred in White River (Mpumalanga Province) in December 2007, affecting schoolteachers who consumed a meal prepared in the school kitchen. However, on pulsed-field gel electrophoresis (PFGE) analysis, the strain responsible for the current outbreak is unrelated to the December 2007 outbreak strain.

Health education regarding food safety is critical to preventing foodborne illness outbreaks, and the WHO's 'Five keys to safer food' pamphlet[2] promotes practices that are easily implemented in most settings, namely: keep clean, separate raw and cooked, cook thoroughly, keep food at safe temperatures, and use safe water and raw materials. All healthcare practitioners should have knowledge of and promote food safety whenever the opportunity arises.

References:

1. Kidanemariam A, Engelbrecht M, Picard J. Retrospective study on the incidence of *Salmonella* isolations in animals in South Africa, 1996 to 2006. *J S Afr Vet Assoc* 2010 Mar; 81 (1):37-44.
2. WHO. Five Keys to safer food. Available online: www.who.int/foodsafety/publications/consumer/en/5keys_en.pdf

Source: Department of Health, Mpumalanga; Outbreak Response and Enteric Diseases Reference Units, NICD-NHLS

Measles update

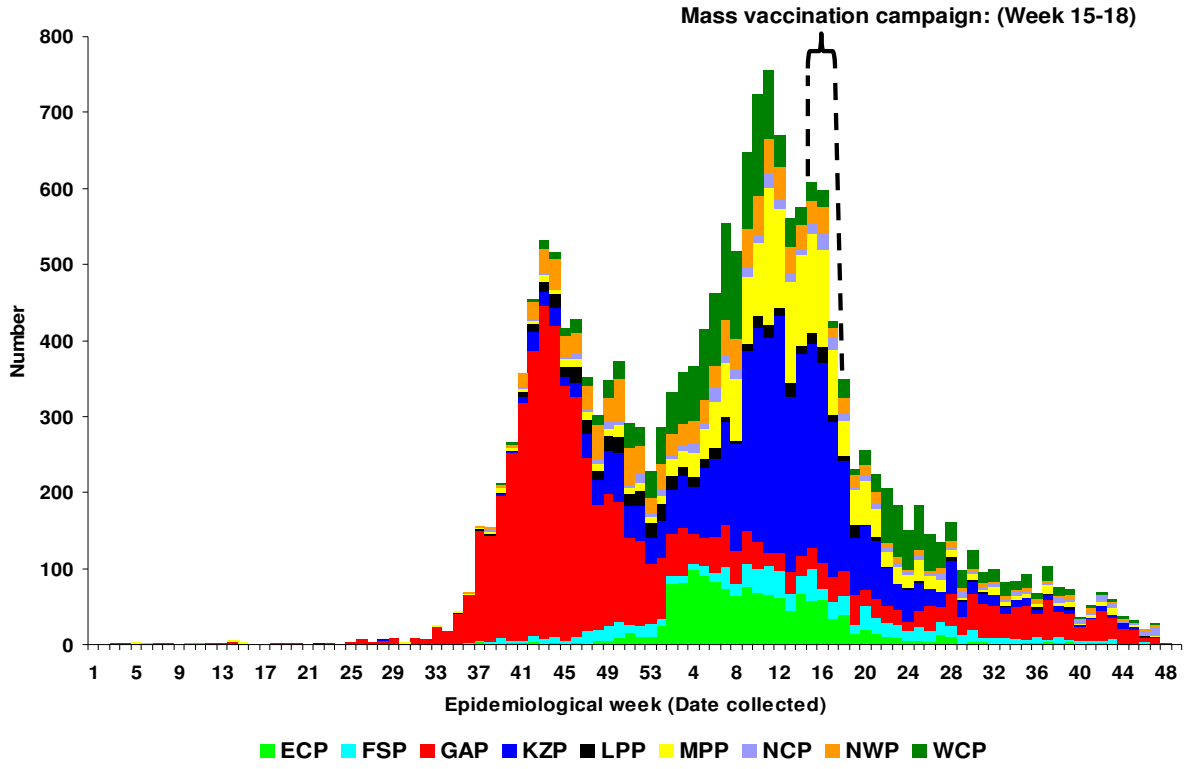
There have been 103 additional laboratory confirmed measles cases since the last published Communiqué, bringing the total to 18 311 cases from beginning of 2009 to 30 November 2010. Cases have been reported from all nine provinces, with Gauteng (31%, 5 714/18 311), KwaZulu-Natal (23%, 4 251/18 311) and Western Cape (11%, 2 000/18 311) provinces accounting for the highest proportions of the total (Figure 1). Of patients with known age (n=17 419), children <1 year account for 35% of cases, with 24% occurring in those aged <9 months. There has been a shift in the relative age distribution of measles cases since the mass

(Continued on page 4)

(Continued from page 3)

vaccination campaign. The proportion of measles cases among the targeted age group (1-14 years) decreased from 40% before to 17% after the mass vaccination campaign, with an increase in those aged <1 year (33% to 40%) and >15 years (27% to 43%) (Figure 2). Although the measles outbreak is ongoing, there is a trend towards decreasing numbers of new cases reported each week.

Source: Divisions of Epidemiology and Virology, NICD – NHLS



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 1: Measles IgM positive results per province: South Africa, January 2009-30 November 2010

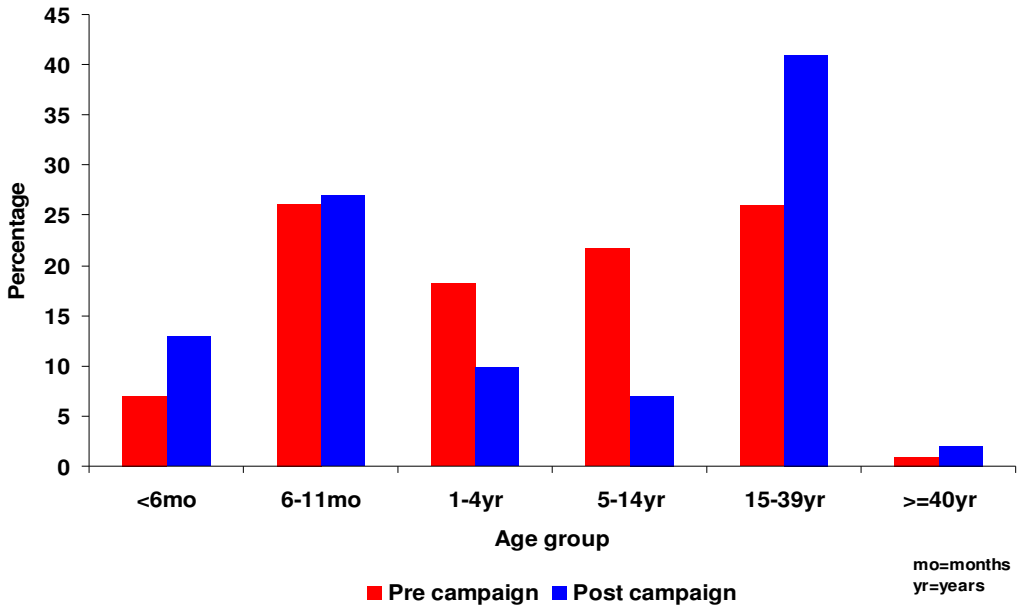


Figure 2: Age distribution of patients with measles, pre and post vaccination campaign: South Africa, 2009-2010

Crimean-Congo Haemorrhagic fever (CCHF)

A 67-year-old sheep farmer from Rouxville (Free State Province) presented with fever and myalgia 3 to 4 days after being bitten by a *Hyalomma* tick. He developed ecchymoses and oral mucosal bleeding 5 days later and was admitted to hospital. Based on this history of exposure and a very typical clinical progression of illness, CCHF was immediately suspected; he was isolated and appropriate infection prevention and control measures instituted, and ribavirin treatment was started. The diagnosis of CCHF was supported by the findings of a profound thrombocytopenia (21 x 10^9/ℓ), moderate leucopenia (3.25 x 10^9/ℓ) and a marked transaminasemia (AST 4907 IU/ℓ, ALT 2976 IU/ℓ). CCHF was confirmed by RT- PCR. The patient is responding well to treatment, and no secondary cases have been reported.

This brings to four the number of laboratory-confirmed cases of CCHF diagnosed for South Africa in 2010 (two each from Free State and Northern Cape provinces).

Source: Special Pathogens and Outbreak Response Units, NICD-NHLS

Beyond Our Borders: infectious disease risks for travellers

The "Beyond Our Borders" column focuses on selected and current international diseases that may affect South Africans travelling abroad.

Disease & Countries	Comments	Advice to travellers
Poliomyelitis: Democratic Republic of Congo (DRC) Republic of Congo, Central Asia and the Russian Federation	As at 2 December, there have been 11 new cases of polio reported from the DRC, making this the largest outbreak reported in the country for the last 10 years. Wild poliovirus type 1 (WPV1) was also confirmed in the neighbouring Republic of Congo. Over 400 "suspected polio cases" are being investigated in the outbreak area of Pointe Noire. The situation in central Africa, with the outbreaks' origin in neighbouring Angola, continues to be the highest risk to Africa's polio eradication effort. An outbreak of poliovirus (imported from India) is ongoing in the Republic of Tajikistan since 21 April 2010. As of 14 October 2010, there have been 706 cases of acute flaccid paralysis, of which 458 have been laboratory-confirmed as polio. Russia has reported 14 polio cases to date, 5 of which are linked to travellers. Turkmenistan has reported 3 confirmed cases of polio with Kazakhstan reporting 1 confirmed case.	Travellers who have previously received three or more doses of OPV or IPV should be offered a booster dose of polio vaccine before departure. Non-immunised individuals require a complete course of vaccine. It is also important to note that vaccination does not guarantee the travellers safety. Travellers are additionally advised to follow safe food and water practices, and practice good hand hygiene to prevent infection.[1] In addition to advising travellers, it is important for all countries in the region (incl. South Africa) to strengthen their surveillance for AFP in order to detect any imported cases.
Cholera: Haiti, Dominican Republic and the United States of America (USA)	As of 3 December 2010, the Haitian Ministry of Public Health and Population reported 91 770 cholera cases, of which 43 243 (47%) patients had been hospitalised and 2 071 (2.3%) had died. The neighbouring Dominican Republic has confirmed 2 imported cases and 18 locally acquired infections. Likewise the USA has reported 3 imported cases; this demonstrates the potential for cholera to cross borders and emphasises the necessity to gain a thorough travel history.	Cholera is transmitted through the faecal-oral route, and primarily through contaminated water. Travellers are urged to take precautions when consuming food and water, utilise water purification tablets where needed, and practice good hand hygiene. Vaccine is not routinely recommended for travellers.[1]

(Continued on page 6)

(Continued from page 5)

Disease & Countries	Comments	Advice to travellers
Undiagnosed Disease: Uganda	The death toll from an undiagnosed disease in northern Uganda has now reached 38 as of 5 December 2010. Another 91 people are also reported to be infected and suffering from the unknown disease, which scientists from the Uganda Virus Research Institute are investigating. Preliminary laboratory tests have tested negative for the Ebola, Marburg, Crimean-Congo fever, Rift Valley fever and typhoid. Further tests are being done. The affected patients complain of severe headache, dizziness, and a mild fever at the onset and then progress with abdominal pain together with diarrhoea and vomiting.	The general public has now been urged to avoid eating sick and dead domestic animals, to observe personal hygiene including hand washing, and to report suspected cases to the nearest health facility.
Dengue Fever: Tropics and sub-tropics	Dengue is currently the most common cause of fever in travellers returning from Caribbean, Central America and South Central Asia. Recent reports of increased activity include: • Venezuela: from January to 20 November 2010, the Ministry of Health reported a cumulative total of 144 855 cases. This is the highest figure reported in 21 years and more than double the number recorded in 2009. One in 11 cases have developed Dengue Haemorrhagic Fever (DHF). • Brazil: from January to 16 October 2010, the Ministry of Health reported a cumulative total of 936 260 cases, of which 592 were fatal and 14 342 were classified as severe.	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.[2]

1. 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 are potentially 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.
2. 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 2010/12/09

Source: Outbreak Response and Travel Health 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