

## Cholera outbreak

A new outbreak of cholera has been identified in North West Province. The province has reported a total of 90 clinical cholera cases for the period 1 November 2008 to 22 March 2009. The majority of these cases (76/90, 84%) are linked to an outbreak in Brits which was recognised in early March. For the period 13 February to 19 March 2009, 44 laboratory-confirmed cases of cholera were reported from the outbreak area. The majority of these cases were linked to farms in the area with no formal sanitation. Water is supplied via boreholes which may have been the source of infection although investigations are continuing. Health promotion activities and provision of toilets and tanker water appear to have contained the outbreak but sustainable solutions and ongoing vigilance are required.

Clinical cases of cholera continue to decline in the most affected provinces of Limpopo and Mpumalanga. An intensive laboratory testing strategy has been re-introduced in these provinces and the situation is closely being monitored.

For the period 1 November 2008 to 22 March 2009, South Africa has reported 12 688 cases of cholera including 64 deaths (CFR=0.5%). Of these, 1086 (8.6%) have been laboratory-confirmed. Cases have been reported from all 9 provinces with the majority from Mpumalanga (n=6854, 54%) and Limpopo (n=5448, 43%) provinces (Table).

Of the 1086 laboratory-confirmed cholera cases, EDRU has further characterised 381 (35%). All

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Table. Reported cholera cases and deaths in South Africa by province, 1 November 2009 to 23 March 2009

Province	Total cases*	Laboratory-confirmed cases no.(% of total)†	Deaths no. (CFR%)
Mpumalanga	6854	385 (5.6)	30 (0.44)
Limpopo	5448	565 (10.4)	25 (0.5)
Gauteng	282	68 (24.1)	4 (1.4)
North West	90	54 (60)	4 (4.4)
Western Cape	8	8 (100)	0 (0)
KwaZulu Natal	2	2 (100)	1 (50)
Northern Cape	1	1 (100)	0 (0)
Free State	1	1 (100)	0 (0)
Eastern Cape	2	2 (100)	0 (0)
Cumulative total	12 688	1086 (8.6)	64 (0.5)

\*This includes both laboratory-confirmed cases and cases meeting the current clinical case definition for cholera (all individuals with acute onset of watery diarrhoea)

†This includes all laboratory-confirmed cholera cases reported to the NICD from NHLS and private laboratories

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isolates are confirmed as *Vibrio cholerae* O1, biotype El Tor and the presence of cholera toxin has been confirmed. The majority are *V. cholerae* O1 Ogawa. All isolates (100%) are resistant to nalidixic acid. Most isolates are susceptible to tetracycline 378/381 (99.2%), 233/376 (61.9%) are susceptible to erythromycin, but only 2/381 (0.5%) are susceptible to cotrimoxazole. Recommendations for antimicrobial management of disease are unchanged and it needs to be emphasised again that antimicrobials must only be used in severely ill

patients. Aggressive and appropriate rehydration therapy remains the treatment of choice.

Provinces should remain on high alert for cholera, particularly in view of the Easter holiday period. Clinical surveillance for acute watery diarrhoea at all facilities is essential in identifying outbreaks early.

**Source:** Outbreak Response Unit, Enteric Diseases Reference Unit, SA-FELTP, NICD; Limpopo local and provincial Departments of Health; NHLS; Mpumalanga SD: Communicable Disease Control; Communicable Disease Control Directorates in all provinces, National Department of Health Communicable Disease Control

## Seasonal influenza

Four cases of laboratory-confirmed influenza were reported from KwaZulu-Natal Province in March 2009. The first two cases (both influenza A H3N2) were a mother and her son, age 39 years and 14 years respectively. They had no travel history and had received the seasonal influenza vaccine in February 2009, approximately 3 weeks prior to illness onset. Both presented with typical features of influenza including acute onset of fever, myalgia and cough.

Vaccine failures do occur on occasion and further characterization of this H3N2 strain is under way.

The third case (influenza A-still to be typed) and fourth case (influenza B) were age 9 years and 42 years respectively and were not vaccinated.

Sporadic cases of influenza do occur throughout the year, and are reported through the viral watch network. The situation will continue to be monitored through this surveillance programme. The average onset of the influenza season over the past 24 years has been the first week of June ranging from the 2<sup>nd</sup> week of April to the 2<sup>nd</sup> week of July.

**Source:** Respiratory Virus Unit, Outbreak Response Unit, Epidemiology and Surveillance Unit, NICD; Dept. Virology IALCH; Viral Watch doctors KZN

## Food-borne disease outbreak

A food-borne disease outbreak was reported in North West Province in March 2009. It occurred in a boarding school near Mafikeng and primarily affected children (boarders and a few day scholars). Approximately 235 learners were affected and were referred to Mafikeng Provincial Hospital for treatment. The majority of cases presented with mild clinical symptoms and only 9/235 (4%) required hospital admission. All patients recovered.

Initial cases presented for care approximately 6 hours after they ate the implicated lunch-time meal which included a beef stew. The principal clinical symptoms were diarrhoea and abdominal cramps; some presented with vomiting, with or without fever. Some cases also presented following the evening meal where chicken gizzards were served. Ten clinical specimens (stools) and food samples (beef stew and chicken gizzards) were collected and sent to

NHLS Infection Control laboratory for analysis. Large quantities (too numerous to count) of *Bacillus cereus* and *Clostridium perfringens* were detected in both the beef and gizzard stew samples. Toxin testing was positive for *B. cereus* (diarrhoeal toxin) in the gizzard stew. *Clostridium perfringens* was isolated from 50% (5/10) of stool specimens.

Clinical features, estimated incubation periods and laboratory results suggest *Clostridium perfringens* and *Bacillus cereus* (diarrhoeal toxin) were the likely aetiological agents in this outbreak. Interventions to ensure knowledge and compliance with good food hygiene practices are essential in the prevention of such outbreaks.

**Source:** Outbreak Response Unit, NICD; North West Communicable Disease Directorate, Mafikeng NHLS and NHLS Infection Control Laboratory

## Meningococcal disease update

As reported recently in the Special NICD Communique (Vol. 8, 13 March 2009), sporadic cases of meningococcal disease continue to occur in Gauteng Province. For the period 1 January to 23 March 2009, a total of 27 cases of meningococcal disease (clinical and laboratory-confirmed) has been reported in the province.

As of 19 March (week 12), 23 laboratory-confirmed cases of meningococcal disease had been reported to the Respiratory and Meningeal Pathogens Unit (RMPRU), NICD, from Gauteng Province for 2009, compared to 35 cases reported for the same period in 2008. These cases have been reported from four of the six districts in Gauteng Province; the majority (13/23, 57%) are from the Johannesburg Metro District and Ekurhuleni (7/23, 30%). Of those with isolates for serogrouping (n=21), the majority (14/21, 67%) of isolates were serogroup W135. Serogroup B (4/21, 19%), serogroup C (n=1) and serogroup Y (n=1) have also been isolated with one isolate being non-A, B, C, Y or W135.

It is important to note that there is no outbreak in Gauteng Province at present. We routinely expect 10 to 20 laboratory-confirmed cases in the province per month during the summer months, and this increases to 30 to 50 cases per month in the winter months. An outbreak would be considered when the number of cases significantly exceeds the number expected for the same geographic area and time period from previous years.

There is always a need for a high index of suspicion for meningococcal disease because of the non-specific early signs and symptoms, typical rapid progression and a need to manage patients as a medical emergency in order to reduce morbidity and mortality. Young children under 5 years of age, and young adults are at highest risk of acquiring meningococcal disease. Military and police recruits, refugees, and young people who live in dormitories, such as first-year university and college students, may be considered at increased risk.

Typically there is rapid progression of symptoms with features of meningitis and/or sepsis. Early signs and symptoms may include a typical petechial rash or ecchymoses (which may appear first on the buttocks and/or conjunctiva) fever, intense headache, vomiting, joint and muscle pain, photophobia and

neck stiffness. In young children, fever, vomiting and irritability are common presenting features.

Meningococcal disease is potentially fatal and should always be viewed as a medical emergency. Admission to a hospital or health centre is necessary. Rapid empiric treatment with ceftriaxone should be given to all suspected cases. Ideally clinical specimens should be obtained prior to antibiotic therapy. However, lifesaving treatment should never be delayed in order to obtain specimens.

All cases of suspected meningococcal disease should be notified immediately by telephone to the Local/District Health Department to allow for rapid follow-up of close contacts and to facilitate provision of chemoprophylaxis. Clinical suspicion of meningococcal disease is sufficient for notification i.e.: laboratory confirmation is not required.

Post-exposure prophylaxis with ciprofloxacin (500 mg stat for adults and 10 mg/kg stat for children; ceftriaxone is an alternative option in pregnancy) should be provided to household and close contacts of meningococcal disease cases as soon as possible, but may be effective up to 10 days after exposure.

Close contacts include: household contacts, people living in the same house and/or sharing eating utensils with the case, and persons exposed to nasopharyngeal secretions of the patient. Close contacts in an educational setting will usually include close friends who may share eating utensils or meet the other criteria for a close contact. Usually this does not mean the whole class, but only selected individuals within the class. It may be more difficult to define a close contact amongst younger children in preschools/crèches but where possible post-exposure prophylaxis should be limited to those who meet these criteria. Healthcare workers are generally not considered close contacts unless they have been directly exposed to the patient's nasopharyngeal secretions. Mass chemoprophylaxis is not generally recommended for control of meningococcal disease outbreaks and vaccination should be considered in outbreak settings where appropriate and feasible.

**Source:** Outbreak Response Unit, Respiratory and Meningeal Pathogens Reference Unit, NICD; Gauteng Province Communicable Disease Control

## Hand, foot and mouth disease

Hand foot and mouth disease (HFMD) is a viral illness that primarily affects children. It presents clinically with fever and a rash with blister formation particularly of the palms of the hands and soles of the feet. On occasion the buttocks may also be affected. Painful sores develop in the mouth starting as red papules which blister and may ulcerate. These lesions are usually located on the tongue, inner cheeks and gums. These features of the disease are not all invariably present. HFMD is caused by viruses of the enterovirus genus – coxsackie A16 and enterovirus 71 (EV71) most frequently. EV71 has been reported to cause more severe disease and can be fatal in young children.<sup>1,2,3,4</sup>

During February 2009, Kwadukuza Municipality, Ilembe district, reported 393 suspected cases of HFMD (387 learners and six educators) from 16 schools (1 pre-primary school, 1 preparatory primary, 12 primary schools, and 2 secondary schools).

Control and prevention measures were initiated through health education by environmental health practitioners and the school health team. A total of 33 clinical specimens (throat/oral swabs, n= 26; stool specimens, n=7) were received by NICD from suspected cases at four different schools and analysed through culture and reverse transcriptase polymerase chain reaction within the Viral Diagnostic Unit. No enteroviruses were detected in any of these specimens; however, this may be due to deficiencies in specimen quality, timing of collection and conditions of transportation.

Further investigations into 15 cases reported at a single health facility in the area found that the majority were female (n=10, 67%) and ranged in age

between one month and 10 years. Of the many signs and symptoms associated with HFMD, vesicular lesions were most commonly reported on the following areas of the body: neck (n=6, 40%), hands (n=5, 33%), trunk (n=4, 27%), face (n=3, 20%) and arms (n=1, 7%). Further investigation into this outbreak was limited due to challenges in obtaining case details and line lists from both schools and medical practitioners. HFMD is a self-limiting disease, and as of 16 March 2009 there were no new cases reported. However, this outbreak highlighted the importance for districts to strengthen outbreak preparedness and response in preparation for more severe epidemics.

### References:

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**Source:** SA-FELTP Residet; Outbreak Response Unit, NICD; KwaZulu-Natal Communicable Disease Control Directorate; Viral Diagnostic Unit, NICD; Dept of Virology IALCH

## Rabies update

A total of 6 human rabies cases has been laboratory confirmed since January 2009 to date for South Africa. Three cases were reported each from KwaZuluNatal and the Eastern Cape provinces.

Rabies epizootics have been raging in both these provinces for a number of years; in KwaZulu-Natal

for almost 3 decades. The reservoir of rabies in these provinces is the domestic dog and control measures have not been adequate to contain the problem. Human rabies cases are often children, probably because children are most likely to approach and interact with animals, particularly

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dogs. Children might also have less supervision and may not report small scratches which are also important for rabies exposure. Human rabies is completely preventable if post-exposure prophylaxis is

applied promptly and according to prescribed guidelines.

**Source:** Special Pathogens Unit and Outbreak Response Unit, NICD

## Rift Valley fever

An outbreak of Rift Valley fever (RVF) was confirmed in KwaZulu-Natal Province in March 2009 affecting dairy herds on farms in the Ixopo and Underberg areas. Three human cases were confirmed by RT-PCR and virus isolation: two farmers and a veterinarian, all of whom presented with a febrile illness that was self-limiting. A vaccination programme for livestock has been instituted.

RVF was last reported in KwaZulu-Natal Province in 1981 affecting a small number of cattle in the Empangeni area. In 2008 there were sporadic outbreaks of RVF affecting buffalo in Limpopo and Mpumalanga provinces, and cattle in Gauteng, North West and Mpumalanga provinces. A total of

17 human cases was confirmed, all of whom had close contact with infected animals. Encephalitis complicated the disease course in 2 of these cases. Complications of hepatitis, haemorrhage, encephalitis and retinitis are reported in less than 1% of infected humans, and the majority of infected humans are either asymptomatic or have a self-limiting febrile illness with myalgia and photophobia. There is no specific treatment (see Communiqué Feb 2008 Volume 7 no. 2).

**Source:** Special Pathogens Unit and Outbreak Response Unit, NICD

## Focus on schistosomiasis

Schistosomiasis (also known as bilharzia) is a major public health problem in South Africa. Schistosomiasis is a parasitic disease caused by several species of fluke of the genus *Schistosoma*. It is endemic in six of the nine provinces of South Africa, with *S. haematobium* and *S. mansoni* being the commonest species.<sup>1</sup> Transmission occurs when the human skin comes into contact with contaminated water while wading, bathing, washing or swimming.

In South Africa there are over 5 million people infected and over 30 million at risk,<sup>2</sup> mainly children. As a result of this significant burden, schistosomiasis is proposed for addition to the new list of notifiable disease conditions in South Africa. Schistosomiasis is confined to geographic areas with conditions suitable for the intermediate snail hosts (*Bulinus africanus* group and *Biomphalaria pfeifferi*).<sup>3</sup> Such areas include mainly north and east of the Witwatersrand in Gauteng, Limpopo and Mpumalanga Provinces; the lower-altitude areas of KwaZulu-Natal Province; and extending along the coast into the Western Cape Province to around

Port Elizabeth. Apart from a few known foci, the Vaal/Orange river system is not affected. All neighbouring countries are affected, except Lesotho.

Schistosomiasis affects mainly children of the ages 10 -14 years, especially boys because of their unrivalled opportunities for water contact.

The eggs produced by schistosomes cause inflammatory damage mainly to lower colon and rectum, bladder and liver, but also sometimes the lungs, reproductive organs, and occasionally the brain and spinal cord. In persons living in endemic areas and exposed at an early age, infection may be asymptomatic unless complications occur later in life. Visitors exposed to heavy infections for the first time are more likely to get an itchy skin rash (cercarial dermatitis) followed a few weeks later by Katayama fever, and an acute, febrile illness. These persons are also at risk for central nervous system schistosomiasis.

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Chronic schistosomiasis, together with other helminth parasite infections, contributes significantly to long-term ill health, nutritional and growth deficiencies, and poor school performance in rural school children. Long-term sequelae of schistosomiasis include obstructive renal disease, bladder cancer, tubal infertility, hepatic fibrosis, cor pulmonale, and portal hypertension and its complications.

In a previously unexposed person, there is usually an early (3 to 6 weeks post-exposure) eosinophilia, followed by the appearance of antibodies (around 4 weeks); finally eggs appear 5 to 15 weeks after exposure. The 'first prize' in the diagnosis of schistosomiasis is finding eggs in urine, faeces or in tissue biopsies by microscopy. Maximum egg excretion occurs from late morning to early afternoon. Examination of rectal mucosal snips is more sensitive than faeces examination. Serological tests (for IgM, IgE, IgA, and IgG) can be useful if eggs are not found. A positive dipstick test for haematuria is a practical indicator of urinary schistosomiasis in an endemic setting. Current antigen detection assays are not reliable enough for routine diagnosis. Radiographic techniques (sonography, contrast studies) are useful to assess the late complications of schistosomiasis; CT or MRI is indicated for suspected cord or brain involvement.

The treatment for schistosomiasis in South Africa is praziquantel (Biltricide®; Essential Drug List). It is effective against both species of schistosomes. The usual dose is 40 mg/kg as a single dose or 2 divided doses, 4 to 6 hours apart. Eggs continue to be excreted for a while even after successful treatment,

so their presence does not necessarily indicate treatment failure; a laboratory report on the viability of eggs is required to assess response to treatment.<sup>4</sup>

The control of schistosomiasis is multifaceted, with environmental, sanitation, clinical and community health aspects. Ideally, chemotherapy should be just one of the tools in such multi-targeted control programmes, which are unfortunately rarely fully implemented. For wider public health benefit mass chemotherapy for schistosomiasis may usefully be combined with single-dose therapy for intestinal helminths (e.g. albendazole) when school-age children are the target group.

#### References:

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**Source:** , Parasitology Reference Unit and Outbreak Response Unit, NICD

## Beyond Our Borders: infectious disease risks for travellers

The "Beyond Our Borders" column focuses on selected and current international disease risks that may affect South Africans travelling abroad. This issue reflects selected disease events from 21 February 2009 to 20 March 2009.

Disease	Countries currently reporting outbreaks	Comments	Advice to travellers
Yellow Fever	Brazil	8 human cases of yellow fever infection have been reported since December 2008 in the state of Rio Grande Do Sul. 5 of these cases have died. Yellow fever is endemic in Brazil and vaccination is mandatory for all travellers.	Yellow fever is transmitted by mosquitoes*. Vaccination is mandatory for travellers to endemic countries a minimum of 10 days prior to departure; however is contraindicated in pregnancy, infants <9 months, egg allergies, and certain immunosuppressions (HIV+ with CD4<200). Vaccine certificates are valid for 10 years.
Rabies	Bali, Indonesia	A previously rabies-free country is now recording multiple animal cases with several human deaths.	Transmission of the rabies virus from animals to humans usually occurs through bites, but may also be spread when saliva gets directly into the eyes, nose, mouth, or broken skin (incl. scratches). Death occurs in nearly all patients once disease has developed; however, is preventable if appropriate and timely treatment is administered following an exposure. This is dependent on level of exposure, and may include vaccination and rabies immunoglobulin depending on the nature of exposure. Travellers are advised to avoid contact with all wild animals (incl. bats, mongooses, foxes, raccoons) and any domestic animal (e.g. dogs) suspected of being rabid. If exposure to animals occurs, travellers should clean and disinfect the wound thoroughly and seek immediate medical attention.
Dengue Fever	Tropics and sub-tropics	Bolivia is currently suffering one of its worst dengue fever epidemics in decades. 18 people have died and 31,000 are infected. Increased incidence of dengue fever has been reported in other sub-tropical and tropical areas within East and West Asia, Australia, South and Central America, and parts of West Africa.	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*.
Hepatitis E	Uganda	An outbreak of hepatitis E outbreak in Pader District, Uganda is ongoing. 12 new cases have been reported, bringing the total number of cases to 118 with 7 deaths since the outbreak started last year.	Hepatitis E virus is a waterborne disease that is transmitted through consumption of contaminated food or water. Symptoms develop 3-8 weeks after exposure. Disease presents with fever, weakness, fatigue, loss of appetite, nausea, vomiting and jaundice. Infection is more severe among pregnant women in the 3 <sup>rd</sup> trimester. Travellers are advised to take food and water precautions** and practice good personal hygiene.

\*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 minute. Bottled carbonated water is safer than uncarbonated water. Avoid products made from contaminated water (eg. ice and ice-cream). Eat foods that have been thoroughly cooked. 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, as these are common sources of infection

Source: Travel Health Unit, Outbreak Response Unit, SA-FELTP, Epidemiology Division.

References: ProMED-Mail ([www.promedmail.org](http://www.promedmail.org)), World Health Organization ([www.who.int](http://www.who.int)) and the Centres of Disease Prevention and Control ([www.cdc.gov](http://www.cdc.gov)); last accessed 2009/03/20.

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