Communicable Diseases Communiqué

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Rabies

A 58-year-old farmer from Carnarvon, Northern Cape Province, was recently diagnosed with rabies. The farmer was bitten on the finger by a mongoose while intervening after his dog attacked the animal within his property. The patient did not seek medical treatment after the bite. Approximately three months after exposure the patient complained of headaches, and within two days experienced spasms and hydrophobia, and died. Rabies was confirmed as the cause of death by a fluorescent antibody test on a post-mortem brain specimen.

Since 1985 only five human confirmed rabies cases due to mongoose bites have been reported in South Africa. The majority of rabies exposures are due to rabid dogs, despite the occurrence of rabies in several wildlife species.

The previously-reported rabies outbreak in the greater Johannesburg area is ongoing. To date a total of 29 cases of animal rabies has been confirmed (26 dogs, 2 cows and 1 cat), with 1 associated fatal human case. Areas affected include: Sophiatown, Bushkoppies (Eldorado Estates), Meredale, Kibler Park, Dobsonville (Soweto), Eikenhof, Lenasia, Highlands North (dog purchased in Meredale), Honingklip and Fochville. In addition, two cases of rabies in dogs were confirmed in Tshwane in Danville (dog brought in from Limpopo) and Waverly (likely acquired rabies during visit to KwaZulu-Natal). Animal vaccination campaigns are ongoing and pet owners are strongly urged to take their animals to the nearest veterinary clinic if they have not received a rabies vaccine in the past year.

We continue to receive a large number of queries regarding prophylaxis following exposures to possible rabid animals. Healthcare workers are reminded to conduct a thorough exposure-risk assessment (as per national guidelines, www.nicd.ac.za/media/rabiesday/2010_08_03.jpg) prior to administering PEP as not all domestic pet bites present a rabies risk and stocks of rabies immunoglobulin are limited. However, rabies immunoglobulin must always be given in category 3 exposures if there is any risk of rabies related to an animal exposure. Rabies immunoglobulin should be given as soon as possible after exposure, but where not available can be given up to 7 days after the first vaccine, but not thereafter as it may suppress the vaccine response.

To date, a total of 11 human rabies cases has been confirmed for South Africa during 2010. These cases originate from Northern Cape (n=1); Mpumalanga (n=1); Gauteng (n=1); KwaZulu-Natal (n=3), Eastern Cape (n=2) and Limpopo provinces (n=3).

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

Trypanosomiasis

Trypanosomiasis was confirmed in a young woman transferred to Johannesburg for medical care from Lusaka, Zambia. She is resident in Lusaka, and presented with an acute febrile illness 4 days after returning from a 5 day visit to the Luangwa river area in eastern Zambia. She had multiple tsetse fly bites while hiking in the area, but did not travel into the National Park. The diagnosis of trypanosomiasis was not initially suspected and she received treatment with artemesinin combination therapy for suspected malaria, as well as doxycycline for

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suspected tick bite fever, based on the presence of an 'eschar' and maculopapular rash. The patient developed profound neutropenia, thrombocytopenia and transaminitis, before being transferred to Johannesburg. East African trypanosomiasis (EAT) was suspected given the presence of a typical trypanosomal chancre, history of exposure to tsetse flies in an area with well-documented trypanosomiasis, and compatible clinical features. Her illness has been complicated by acute respiratory distress syndrome (ARDS), DIC and hepatic dysfunction. The patient has responded very well to suramin treatment. A cerebrospinal fluid (CSF) examination will follow to determine involvement of the central nervous system.

A further patient with trypanosomiasis is being managed in a Tshwane hospital. This patient is an expatriate resident in Lusaka who travelled to Kasungu National Park in Malawi and presented with an acute febrile illness, again initially misdiagnosed as tick bite fever. The diagnosis of trypanosomiasis was made on a peripheral blood smear in Lusaka and the patient was transferred to South Africa for treatment. Suramin treatment has been commenced and disease course to date has been complicated by moderate thrombocytopenia and severe hepatic involvement.

The typical trypanosomal chancre lesion is a tender, erythematous and indurated swelling, 2 to 5 centimetres in diameter, which may be noted in a proportion of patients 5 to 15 days after the bite of a tsetse fly. Regional lymphadenopathy may be present. The lesion is frequently misdiagnosed as a spider bite, cellulits, or sometimes, a tick bite. A non-specific evanescent erythematous rash is noted in a small percentage of patients. Travel to a known trypansomiasis area and a history of a tsetse fly bite suggests the diagnosis. Tsetse fly bites are invariably painful. EAT is an uncommon but acute, often fulminant, and potentially fatal disease in travellers that is frequently missed or misdiagnosed as malaria.

The incubation period can vary from a few days to several weeks following the bite of an infected tsetse fly. Typically, fever and headache develop hours to days later. The haemolymphatic stage may be complicated by multi-organ involvement, notably myocarditis and arrythmias, acute meningo-encephalitis, coagulation disorder with profound thrombocytopenia, renal failure, hepatic dysfunction and ARDS. Examination of routine peripheral smears (as for malaria) may be negative, and examination of buffy coat preparations (wet and stained) is more sensitive.

Suramin, given as multiple doses over a period of several weeks, is the treatment for the haemolymphatic stage of EAT. All patients, irrespective of clinical status, should undergo examination of CSF, but only after the peripheral circulation has been cleared of trypanosomes by suramin. Melarsoprol is required for managing laboratory-confirmed central nervous system EAT (diagnosed by the presence of trypomastigotes, raised protein and/or the presence of lymphocytes in CSF), but may be associated with significant occurrence of drug-associated encephalopathy that has a high mortality.

Tourists visiting game reserves in central and east African countries should be alerted to the risks of this disease. No effective chemoprophylaxis is available and insect replants have limited effect; however, travellers should protect against tsetse fly bites by avoiding wearing very bright, dark, and blue colour clothing.

Source: Travel Health and Parasitology Reference Units, NICD-NHLS; AMPATH Private Laboratories; Private physicians (Pretoria and Johannesburg),

Plague

Human plague was last recorded in South Africa in 1982 near the small village and railway siding of Coega, located about 18 km north of Port Elizabeth, Eastern Cape Province. In this outbreak two patients, one of whom died, had *Yersinia pestis* isolated from blood cultures, and 5 seropositives were found in 17 suspected cases, amongst a population at risk of 100 persons.[1] In recent years the Coega area has become the centre of major industrial development, with the opening of a deep-water port. In view of these environmental changes and the tendency of plague to re-emerge after decades of quiescence, active surveillance for plague in rodents has been carried out in the area for a number of years. However, it is known that wild

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rodent sampling is usually an insensitive method for monitoring endemic plague, and dogs are appropriate and accessible sentinel animals.[1,2]

In August 2010 a wild rodent (possibly *Otomys irroratus*, the vlei rat) was trapped in the course of routine surveillance. Serological testing at the NICD showed antibodies to *Yersinia pestis*. This finding corroborates the impression among environmental health staff that a rodent die-off occurred in the Port of Ngqura since mid-2009. At this stage there is no evidence that spread to commensal rodents has occurred and therefore the general human population is probably not at high risk. However, heightened vigilance is needed and the following steps have been, or need to be, taken:

- Intensified efforts to trap and test wild rodents by local environmental health officials,
- Distribution of the National Department of Health's National Plague Control Guidelines[3] to provincial Communicable Disease Control Coordinators and health facilities,
- Refresher training of environmental health officers in rodent specimen collection will be done in December by the Special Bacterial Pathogens Unit of the NICD,
- Compilation of an information pamphlet for local distribution is in progress by the Directorate: Malaria and other Vector Borne Diseases of the National Department of Health, and
- Consideration needs to be given to the serological testing of dogs as sentinel animals.

1. Department of Health, Welfare and Pensions. Plague in Coega. Epidemiological Comments 1982; 9: 2-16.
2. Smego RA, Frean J, Koornhof HJ. Yersiniosis. I. Microbiological and clinico-epidemiological aspects of plague and non-plague *Yersinia* infections. European Journal of Clinical Microbiology and Infectious Diseases (1999); 12:1-15.
3. National Department of Health. National Plague Control Guidelines, 2009.

Source: Special Bacterial Pathogens Unit, NICD; Environmental Health Services, Nelson Mandela Metropolitan Municipality, Eastern Cape Province

Meningococcal disease

As in previous years, sporadic cases of meningococcal disease were reported across the country. A total of 329 cases was reported by the end of epidemiological week 44 (week ending 6 November) compared with 406 for the same time period in 2009. Serogroup diversity was evident, which is in keeping with sporadic endemic disease in South Africa.

Of the cases reported, serogroups are available for 274 (83%) of cases; serogroup W135 (49%, 133/274), serogroup A (1%, 2/274), serogroup B (30%, 83/274), serogroup C (7%, 19/274), serogroup Y (13%, 36/274) and serogroup X (0.5%, 1/274).

Although most cases are seen during winter and spring, there should be a high index of suspicion for meningococcal disease, which may present with nonspecific 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

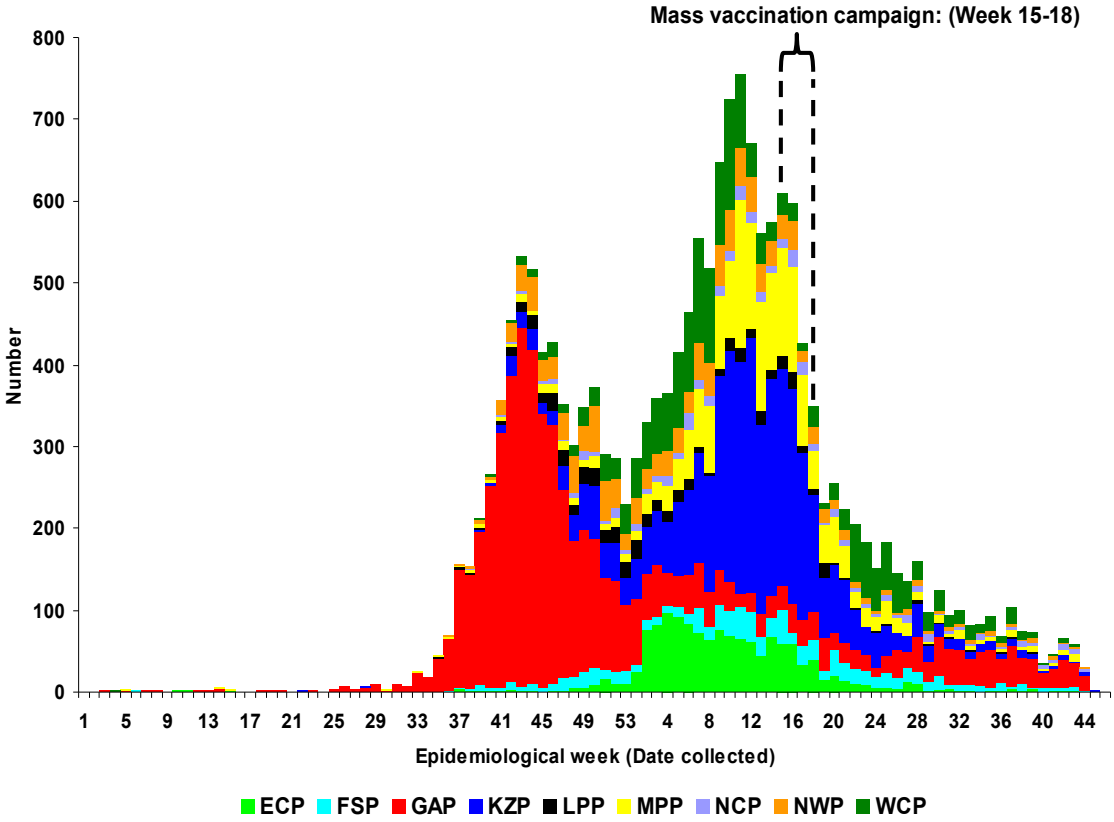
Table: Number of laboratory confirmed meningococcal disease cases reported by epidemiological week 44, 2009 and 2010, by province

Province	2009	2010
Eastern Cape	31	22
Free State	14	21
Gauteng	183	159
KwaZulu-Natal	27	19
Limpopo	2	8
Mpumalanga	58	20
Northern Cape	7	17
North West	18	10
Western Cape	66	53
South Africa	406	329

Measles

There have been 314 additional laboratory confirmed measles cases since the last published Communiqué, bringing the total to 18 208 cases from beginning of 2009 to 8 November 2010. Cases have been reported from all nine provinces, with Gauteng (31%, 5 668/18 208), KwaZulu-Natal (23%, 4 241/18 208) and Western Cape (11%, 1 991/18 208) provinces accounting for the highest proportions of the total (Figure). Of patients with known age, children <1 year account for 35% (6 021/17 318) of cases, with 26% occurring in those aged 6 to 11 months. The measles outbreak is ongoing; however, there is a general decrease in the number of new cases reported each week.

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 8 November 2010

Influenza

Viral Watch surveillance

A total of 2 288 samples has been received from Viral Watch sites country-wide and tested for influenza. Of these, 912 (40%) were positive for influenza. The majority, 467/912 (51%) were positive for influenza B, 238/912 (26%) were positive for influenza A H3N2 and 207/912 (23%) for influenza A H1N1 (2009). This year the season started in week 23 (week ending 13 June) when the detection rate rose above 10%. The detection rate fell below 10% in week 40 (the week ending 10 October 2010), and only sporadic cases have been detected since then. The highest detection rate of the season (64%) was in week 31 (week ending 8 August 2010), and the detection rate remained ≥60% for the following three weeks.

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Severe Acute Respiratory Illness (SARI) Surveillance

By end of epidemiologic week 45 (week ending 14 November 2010), 4 213 patients were enrolled in the SARI surveillance programme. Influenza results are available for 4 110 patients. Of these 308/4 110 (7%) were positive for influenza. The majority, 62% (192/308) were positive for influenza B, 26% (81/308) were positive for influenza A H3N2 and 11% (35/308) were positive for Influenza A H1N1 (2009). The number of patients admitted with SARI at the sentinel sites has decreased over the past few weeks. Similar to Viral Watch, the detection rate fell below 10% from week 41 (week ending 17 October 2010) to date (Figure).

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

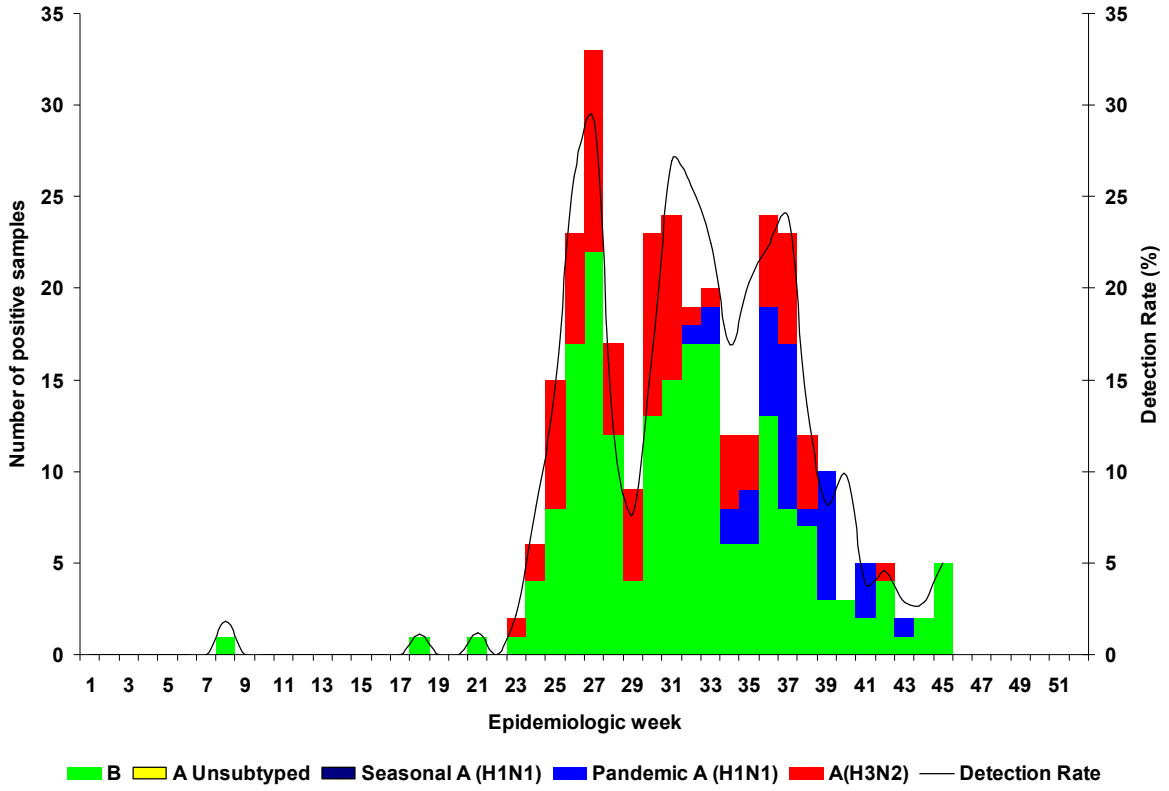

Figure: Number of positive samples by Influenza subtype and detection rate, SARI 2010.

Rift Valley fever (RVF)

We have confirmed one additional case of RVF (laboratory confirmation by serology) since our last update. The patient is a farmer from Free State Province who regularly handles sheep and cattle, and experienced onset of symptoms typical of RVF infection around mid-September 2010. As of 17 November 2010, a cumulative total of 238 laboratory confirmed human cases has been identified since the start of the epidemic in February 2010.

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 and submit specimens to the NICD for laboratory testing.

For detail 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

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: Republic of Congo; Central Asia and the Russian Federation	As of 9 November 2010, there have been 184 cases of acute flaccid paralysis (AFP) and 85 deaths reported from the Republic of Congo since the outbreak began in early October. Four cases have been confirmed as wild-type polio virus 1 (WPV-1), and laboratory testing is on-going. The outbreak is due to imported poliovirus, with genetic sequencing most closely resembling poliovirus circulating in Angola. In Central Asia, genetic sequencing of the poliovirus isolated from a child paralyzed in Kazakhstan in August 2010 has confirmed ongoing circulation of the virus which caused the Tajikistan outbreak that subsequently spread to the Russian Federation, Turkmenistan and possibly Uzbekistan. Tajikistan is the epicentre of the Central Asian outbreak with 458 WPV-1 cases reported as of 3 November 2010. There have been no new cases reported since 4 July 2010 following five mass immunisation campaigns with oral poliovirus vaccine. The Russian Federation has reported 14 cases, of which 8 are sporadic imported cases.	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; Saudi Arabia ex-Africa (Hajj pilgrim); Cameroon and other African countries	As of 16 November 2010, Haiti's Ministry of Health reported over 16 800 patients hospitalised and more than 1 000 deaths. The outbreak is widespread with the capital, Port-au-Prince, among the most recently affected; more than 1 million refugees live in sub-standard conditions following the earthquake earlier this year. Travellers are urged to avoid unnecessary travel to Haiti. Cholera was recently diagnosed in a Hajj pilgrim from Africa in Saudi Arabia, demonstrating the potential for the disease to cross borders and the necessity to gain a thorough travel history. Cameroon has reported the current outbreak, with nearly 10 000 cases and 597 deaths as of 8 November 2010, which is among the most severe in decades. The Far North Region of Cameroon is the most affected.	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]

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Disease & Countries	Comments	Advice to travellers
Hajj or Umrah pilgrimage: returning travellers Mecca, Kingdom of Saudi Arabia	The annual Hajj, or Umrah, pilgrimage hosts more than four million people from 160 countries. Communicable disease outbreaks of various infectious diseases have been reported repeatedly, during and following the pilgrimage. These include increased risks for: • Meningococcal disease—Pilgrims during 2010 were required to receive compulsory quadravalent vaccine to protect against *Neisseria meningitidis* serogroups A, C, Y and W135 within the 3 years prior to travel; • Respiratory tract infections including tuberculosis, viral infections (e.g. influenza) and community-acquired pneumonia; • Polio virus; • Blood-borne diseases; • Foodborne diseases; and, • Zoonotic diseases.	Clinicians are reminded to obtain a thorough history from all patients, including possible travel to the Hajj 2010. A differential diagnosis should include the suspicion of infection acquired abroad among returning travellers. Note that patient management and pathogen specific antimicrobial susceptibility may differ from that observed locally in South Africa. Despite the compulsory meningococcal vaccinations, clinicians should not exclude meningococcal diseases on this basis alone due to the possibility of infection due to non-protected serogroups (incl. B or X) and the possibility of vaccine failures.
Lassa Fever Sierra Leone	During October 2010, three individuals died of Lassa fever in northern Sierra Leon. Among these was a South African civil engineer working on a project in the Makeni area, where he was likely exposed to rodent excreta while cleaning out a facility. He was initially misdiagnosed as malaria. Lassa fever typically affects the southern areas of the Sierra Leon; however, this report indicates the disease is spreading to affect new areas.	Lassa virus is shed in the urine and droppings of it's rodent host, and is typically transmitted through direct contact with these materials, inhalation of excreta particles, touching objects or eating foot contaminated with excreta, or though cuts or sores. It may also be transmitted through body fluids from person-to-person. Travellers to affected areas are advised to avoid contact with rodents, put food away in rodent-proof containers, maintain cleanliness inside the residence to avoid attracting rodents, and to avoid direct contact with sick individuals.

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.

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 2010/11/116.

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