Communicable Diseases Communiqué

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2010 Football World Cup South Africa and post-2010

The 2010 Football World Cup took place in South Africa from 11 June to 11 July 2010. During the games a programme of enhanced surveillance was conducted by the National Institute for Communicable Diseases (NICD) and the Department of Health (both Provincial and National) through public and private health facilities. Other than a few foodborne illness outbreaks without serious effect, there were no major communicable disease incidents. During the tournament influenza activity was low to moderate and followed seasonal trends in the country, there was expected seasonal activity of meningococcal disease with sporadic cases in the local population, and expected low seasonal activity of typhoid fever. The measles outbreak continued in South Africa, and a small number of visitors was affected.

Post-travel advice is also important for returning travellers. Healthcare workers should be mindful of those diseases that are endemic to South Africa, as well as those diseases which are currently experiencing variable seasonal activity; this includes influenza, meningococcal disease, typhoid fever and measles. The risk to a traveller of developing Rift Valley fever is very low if there has been no direct contact with livestock or game animals; the outbreak has also been declining over the period of the World Cup. Infectious diseases endemic in South Africa include hepatitis A, malaria (winter is a low risk season, and malaria is not endemic in any of the host cities), tick bite fever, TB and HIV. Travellers may also have visited other countries in addition to South Africa, and healthcare workers should therefore obtain a thorough travel history when determining the differential diagnoses in ill returning travellers. A more detailed post-travel advisory can be accessed at www.nicd.ac.za .

Source: Travel Health and Outbreak Response Units, NICD

Influenza

Viral Watch Surveillance

The number of specimens submitted for respiratory virus detection has continued to increase. To date, specimens from 934 patients from Viral Watch sites throughout the country have been tested. One or more respiratory viruses have been detected in 278 of these specimens, 199 of which were influenza virus (97 influenza A and 102 influenza B). Of the influenza A viruses, 90 are subtype A(H3N2) and 7 are pandemic influenza A(H1N1). Of the influenza B viruses tested, the majority are B/Brisbane/60/2008-like. Other respiratory viruses detected include adenovirus, respiratory syncytial virus, parainfluenza virus and human metapneumovirus. There have been several reports of pharyngo-conjunctivis, and adenovirus has been detected in specimens from some of these patients.

SARI Surveillance

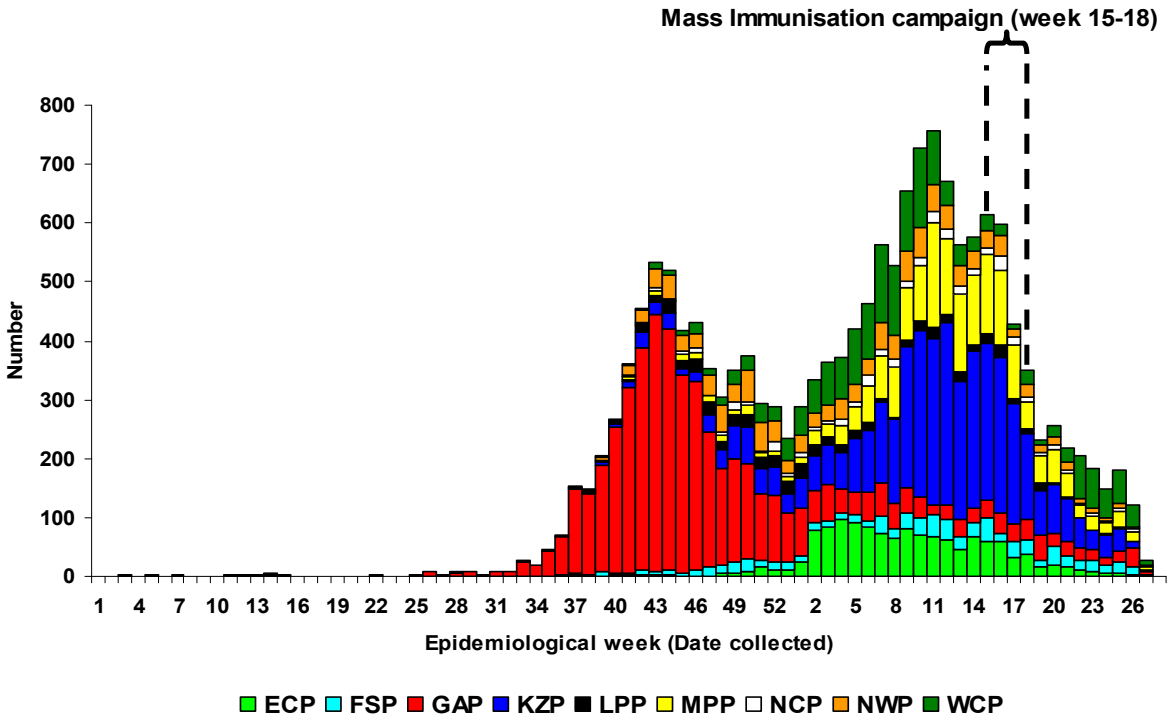
From 4 January 2010 to 16 July 2010, 2 502 patients were enrolled in the severe acute respiratory illness (SARI) surveillance programme. The majority of enrolled patients (52% , 1 301/2 502) were children under the age of 5 years. Influenza results are available for 95% (2 365/2 502) of enrolled patients. Of these, 83/2 365, (4%) are positive for influenza; the majority, 57/83 (69%) of the influenza detections were influenza B, and 31% (26/83) were influenza A (H3N2). No pandemic A(H1N1) influenza has been detected in 2010 to date.

Source: Surveillance and Epidemiology Division, Respiratory Virus and Virus Diagnostic Units, NICD

Measles outbreak update

There have been 743 additional laboratory-confirmed measles cases since the last published Communiqué, bringing the total to 16 771 cases since the beginning of 2009 to 6 July 2010. Cases have been reported from all nine provinces, with Gauteng (30%, 5 082/16 771), KwaZulu-Natal (24%, 4 040/16 771) and Mpumalanga (11%, 1 874/16 771) provinces accounting for the highest proportions of the total. Measles cases remain high but there is a general decrease in the number of new cases reported each week. Preliminary analysis suggests that there may be a shift in age distribution of new cases since the mass vaccination campaign. The proportion of measles cases among the targeted age group (1-14 years) decreased from 40% to 15% after the mass vaccination campaign, with an increase in those aged <1 year (34% to 47%) and >15 years (27% to 39%). The proportion of patients aged 6-11 months did not change substantially, being 26% in the pre-campaign period and 30% since the campaign.

Source: Divisions of Epidemiology and Virology, NICD



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 6 July 2010

Rift Valley fever update

Seven additional Rift Valley fever (RVF) infections have been identified since the last Communiqué, bringing the total to 228 laboratory-confirmed cases as of 16 July 2010. Of these, 26 cases were fatal.

Historically, the onset of cold weather in RVF-affected areas results in die-off of the mosquito vectors and often heralds the end of RVF outbreaks in animals and humans. However, healthcare workers should continue to suspect RVF in patients meeting the case definition and submit specimens to the NICD for laboratory testing. Additionally, it must be borne in mind that certain RVF complications often manifest a few weeks after the acute infection; meningoencephalitis may present up to 4 weeks later, and ocular complications (notably retinitis) may present weeks to months later. In such cases, the acute

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infection may have been extremely mild and not have been diagnosed initially. For detail on the RVF outbreak in South Africa, see the most recent interim report available on the NICD website (www.nicd.ac.za).

Source: SA-FELTP, Special Pathogens and Outbreak Response Units, NICD; Departments of Health, and Agriculture, Forestry and Fisheries

Foodborne disease outbreaks

Due to enhanced disease surveillance systems which were put in place during the 2010 Football World Cup period, a number of foodborne disease outbreaks were detected and reported to the Department of Health (DoH) and the National Institute for Communicable Diseases (NICD). Ten outbreaks of foodborne illness were reported from 4 June to 9 July: 2 from Mpumalanga Province, Mbombela district (4 and 18 June); 2 from KwaZulu-Natal Province, Umlazi and KwaMashu townships (21 and 22 June, respectively); 2 from Limpopo, Vhembe district (24 June and 2 July); 2 from Gauteng Province, Tshwane and City of Johannesburg districts (both on 17 June); one from Western Cape Province, Blaauwberg (8 July) and one from Free State Province, Bloemfontein (9 July).

Laboratory identification of causative pathogens was not possible in all of these outbreaks for a number of reasons: either specimens (clinical, environmental or both) were not available for laboratory testing, or were suboptimal (rectal swabs instead of stools, inappropriate specimen transport medium used etc.).

Selected outbreaks where causative organisms were identified included the following:

Limpopo, Vhembe district: on 24 June, 239 people reported diarrhoea, cramps, dizziness and muscle stiffness in the early evening, after attending a funeral and eating a common meal that morning. Donald Fraser Hospital attended to 212 patients (of which 37 were hospitalised), and an additional 17 were seen by local general practitioners. Food and cool drink (squash) served at the morning meal were sent to the NHLS Infection Control Services Laboratory in Johannesburg for testing. *Bacillus cereus* and *B. cereus* toxin were identified in both the salad and offal specimens.

Limpopo, Vhembe district: on 2 July, 66 people presented with abdominal cramps, vomiting and diarrhoea to their local clinic, one of whom collapsed suddenly and died whilst awaiting transfer to hospital. On the previous day, they had all participated in funeral preparations for a recently deceased fellow villager. Food and clinical specimens were collected, and processed at Elim Hospital NHLS and the NHLS Infection Control Services Laboratory in Johannesburg. *B. cereus*, *B. cereus* toxin, *S. aureus* and *S. aureus* toxin were detected from multiple food specimens (mageu, porridge and beer). *Clostridium perfringens* toxin was also detected in one of the stool specimens. This outbreak was complicated by a suspicion that both the deceased villager and the fatal case seen at the clinic may have taken traditional medicine, as well as the possibility that the foodborne outbreak may have been related to chemicals/toxins in the traditionally-brewed beer. Forensic investigation into the cause of the two deaths is underway.

The successful reporting and investigation of foodborne illness outbreaks during the World Cup period was thanks to increased awareness of foodborne disease, prompt recognition and timely reporting of suspected outbreaks, and greatly improved communication and co-operation between the role-players involved.

Numerous DoH directorates (including communicable diseases, food control, and environmental health), FELTP residents assisting the DoH, NHLS laboratories (including the OutNet representatives), NHLS Infection Control Services Laboratory, and the Outbreak Response Unit (NICD) worked together efficiently to ensure optimal outbreak response and investigation. However, foodborne illness outbreaks (defined as two or more cases) remain under-recognised in South Africa, and there are numerous challenges in the investigation of such outbreaks when they are reported.

It is essential that clinical and environmental

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specimens are obtained for microbiological analysis whenever possible. The nature of the clinical specimens should be guided by the presenting clinical features and may include, but are not limited to, stool/rectal swabs (for cases with diarrhoea) and/or vomitus (if vomiting is present). It should be noted that where stool samples cannot be readily obtained, rectal swabs should be taken and may be positive even if taken several days after illness onset (certain organisms may be excreted for prolonged periods). In addition, if patients are febrile, a blood culture may be useful, as well as serum for toxin testing. Food samples should always be collected, if possible, as soon as the outbreak is identified. In SA, food samples will usually be collected by the Environmental Health Practitioners (EHPs). It must be noted that specialized testing for foodborne pathogens is not offered by all laboratories. In many instances the organism itself is not present as the disease is toxin-mediated, and it is therefore essential to test for common foodborne bacterial toxins whenever possible. At present, bacterial toxin testing is only available at the NHLS Infection Control Services Laboratory, Johannesburg. Foodborne illness outbreaks are notifiable; as a category A notifiable condition, healthcare workers must immediately notify the district/provincial DoH (by telephone or fax) when a suspected outbreak is identified.

Source: Department of Health; NHLS Infection Control Services Laboratory; SA-FELTP and Outbreak Response Units, NICD

Rotavirus

Diarrhoeal disease is the most common cause of death in children under the age of 5 in South Africa, accounting for up to 24% of deaths (Stats SA 2005).

Rotavirus is ubiquitous, and has been reported as one of the main causes of acute gastroenteritis in childhood, accounting for 28% - 52% of all cases of acute gastroenteritis and 40% of diarrhoea-associated deaths in children less than 5 years of age. It is estimated that 95% of children have been infected with rotavirus by the age of three years. Rotavirus is a democratic virus, in that the prevalence of infection is similar in both developed and developing countries. However, the risk of severe disease and death is greater in developing countries.

The monovalent oral Rotarix® vaccine was introduced into the Expanded Programme on mmunisation (EPI) in August 2009, to be administered at 6 and 14 weeks of age. The Rotarix® vaccine was shown to have a 78% efficacy against severe rotavirus diarrhoea (requiring hospitalisation) in a clinical trial conducted in South Africa.

The NICD has conducted surveillance for rotavirus disease at five hospitals in four South African provinces since 2009. Children under the age of five years are enrolled when admitted with acute diarrhoea (of less than 7 days duration). Clinical details and stool samples are collected from each patient.

The 2009 rotavirus season started in week 16 (13 April) and reached a peak detection rate of 73% by week 21 (18 May). The 2010 season started in week 20 (17 May) and has not reached the same peak as 2009, the highest detection rate in 2010 to date being 59%. In 2009, May was the month with the highest number of samples testing positive, with a total of 123. For 2010 to date, the maximum number of positive samples has been 86 for June. These preliminary results suggest that the onset of the 2010 season has been delayed following introduction of the vaccine, but it is not yet clear whether the peak of the 2010 season has been reached as yet.

Source: Epidemiology and Surveillance, and Viral Gastroenteritis Units, NICD

Meningococcal disease

Sporadic cases of meningococcal disease continued to be reported across the country. We expect cases to increase during June and July, and to peak during the months of August to October. Laboratory-based reporting has inherent delays, so not all clinical

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cases may be reflected in our reports for this month.

By the end of epidemiological week 27, a total of 152 laboratory-confirmed cases was reported to the Respiratory and Meningeal Pathogens Reference Unit (RMPRU), NICD (Table).

These cases showed diversity in serogroups, which is in keeping with sporadic endemic disease in the country. Serogroup data are available for 119/152 (78%) of cases; serogroups B and W135 have been identified most commonly this year (42/119, 35% serogroup B and 51/119, 43% serogroup W135). Other serogroups included: A (2%, 2/119), C (9%, 11/119) and Y (11%, 13/119).

The winter and spring seasons are when we typically identify an increase in cases of meningococcal disease. As such, 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 27, 2009 and 2010, by province

Province	2009	2010
Eastern Cape	13	11
Free State	4	10
Gauteng	102	73
KwaZulu-Natal	14	6
Limpopo	2	3
Mpumalanga	15	9
Northern Cape	4	12
North West	8	5
Western Cape	34	23
South Africa	**196**	**152**

Tetanus

A 73-year-old man, resident in Mpumalanga Province, was clinically diagnosed with tetanus when he presented with typical generalized spasms 10 days after sustaining a penetrating injury to his foot from a rusted nail. He had last received tetanus vaccination as a young child, and since he did not seek medical attention for the injury a post-exposure booster had not been administered. The patient was managed in an intensive care unit but died several weeks later.

The clinical syndrome of tetanus is caused by tetanospasmin, a toxin produced by the Gram-positive bacterium *Clostridium tetani*. Infection is usually introduced through acute injuries (punctures/ lacerations). Person-to-person transmission does not occur. The incubation period is usually 3-21 days. The diagnosis is clinical, and laboratory testing is unhelpful. There are four clinical types of tetanus: generalized, neonatal, local, and cephalic. Generalised tetanus is the most common form, and often presents with a descending pattern; characteristic trismus (lockjaw) and risus sardonicus (facial spasms) are followed by generalized painful spasms, which may be associated with fever and other systemic symptoms. There may be a positive spatula test (spatula placed on the posterior pharyngeal wall results in biting down rather than the usual gag reflex). Onset is typically acute and case fatality rates range from 10% to 90% (highest in infants and the elderly).

Tetanus is a vaccine-preventable disease, and is included in the Expanded Programme on Immunisation (EPI). The diphtheria, acellular

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pertussis and tetanus vaccine (DTaP) is given at 6 weeks, 10 weeks, 14 weeks and 18 months of age. Tetanus and reduced-strength diphtheria (Td) vaccine is given at 6 and then 12 years of age. Adults should receive routine boosters of tetanus toxoid (TT) vaccine at 10-year intervals. Primary immunisation is indicated after recovery from tetanus, as disease does not necessarily result in immunity. Tetanus is fortunately uncommon in South Africa at present; however, this case illustrates the need for awareness regarding prevention of disease. Treatment for minor wounds should include cleaning and TT unless the individual is up to date with immunisations and has had their last TT booster within the past 5 years. Surgical debridement is required if there is much devitalized tissue. Tetanus immunoglobulin (TIG) should be given if the wound is high-risk and the immune status of the patient is not known, or if the patient has not completed a course of TT with a booster within the past five years.

Source: Outbreak Response Unit, NICD

Rabies

A total of 6 human rabies cases has been laboratory-confirmed for South Africa for 2010 to date. These cases originated from Mpumalanga (n=1); KwaZulu-Natal (n=1), Eastern Cape (n=1) and Limpopo (n=3) provinces.

Source: Special Pathogens and Outbreak Response Units, NICD

Viral haemorrhagic fevers

A case of Crimean-Congo haemorrhagic fever (CCHF) was confirmed in a 40-year-old farmer from Aroab, near Keetmanshoop in Namibia. The patient has frequent contact with sheep and cattle and did not report any tick bites. The patient was admitted to a hospital in Free State Province with a history of a few days of febrile illness. The patient developed epistaxis and a petechial rash over the lower limbs. Laboratory findings included thrombocytopenia (platelet count 10 x 10^9/L) and elevated aminotransferase levels (ALT 336 U/L and AST 660 U/L).

A total of 3 CCHF cases has been confirmed for South Africa for 2010 to date. The cases originated from Free State (n=1) and Northern Cape (n=2) provinces. The case reported here is the second case reported from Namibia for 2010.

Source: Special Pathogens and Outbreak Response Units, NICD

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 fever: Tropics and sub-tropics	Dengue is currently the most common cause of fever in travellers returning from the Caribbean, central America and south-central Asia.	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.[1]

Disease & Countries	Comments	Advice to travellers
Measles Eastern and southern Africa: Botswana, Ethiopia, Kenya, Lesotho, Mozambique, Namibia, Swaziland, Tanzania, Zambia, Zimbabwe	A steep increase in measles cases has been reported within southern African countries outside of South Africa. In mid-June 2010, 14 African countries reported outbreaks, primarily blamed on poor immunisation coverage in these regions. Healthcare workers should consider measles in the differential diagnosis of returning travellers with compatible symptoms, including those who have previously received measles vaccine.	Measles is an acute, highly communicable illness due to a virus transmitted by direct contact with infectious droplets or, less commonly, by airborne spread. Measles is vaccine-preventable and travellers should ensure that they are up to date with all routine immunisations. There is no specific antiviral therapy, and treatment consists of providing supportive therapy (hydration and antipyretics) and treating complications (e.g. pneumonia). Vitamin A supplementation may improve the outcome of measles in children.
Cholera: Asia: Cambodia, India, Papua New Guinea, Thailand, Myanmar, Viet Nam	Focal outbreaks of cholera have been reported in countries across the Asian continent. Thailand reported 982 cases between January and June 2010, of which 274 have been among migrant workers or refugees, mostly from Myanmar.	Cholera is transmitted through the faecal-oral route, and primarily through contaminated water. Travellers are urged to take precautions when consuming food and water,[2] utilise water purification tablets where needed, and practice good hand hygiene. Cholera vaccine is not routinely recommended for travellers.

1. Vector-borne transmission. Travellers should take precautionary measures to avoid mosquito bites: use insect repellents (containing 30-50% DEET), wear light-coloured clothing, and use insecticide-treated bed nets.
2. 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 ice and food products (e.g. ice cream) that may be 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, and 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 2010/07/16.

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