

# Communicable Diseases Communiqué

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## Enteroviral meningitis outbreak - Mpumalanga Province

On 11 February 2011, the Mpumalanga Province Department of Health requested the NICD to support an investigation of a suspected viral meningitis outbreak in the Skukuza/Nelspruit area. Using a standard case definition, as of 11 March 2011, active case-finding identified 87 cases (10 confirmed, 49 probable and 28 suspected cases). The median age of cases was 8 years (4 months to 60 years), with the majority (n=62, 71%) of the cases  $\leq 15$  years of age. The earliest reported date of onset of symptoms was 26 January 2011 (Figure). The majority of the cases (n=60, 69%) were residents of Nelspruit and Skukuza. Eight family clusters ( $\geq 2$  cases in the same household) were identified. The only confirmed cluster associated with an institution was seven cases from a primary school in Skukuza.

Cases presented with headache (n=87, 100%), fever (n=77, 88%) and neck stiffness (n=49, 77%). A total of 57 (65%) cases was admitted to hospital. Cerebrospinal fluid (CSF) specimens were taken for 59 (68%) cases. Microscopy and Gram stain showed no abnormalities, and cytochemistry revealed pleocytosis in all cases; 80% (47/59) of these were lymphocyte predominant. Enterovirus PCR testing was done at the Specialized Molecular Diagnostic Unit (SMDU, NICD) on 17 CSF specimens, and was positive in 10/17 (59%). Further characterization of the enterovirus is currently underway. Illness was noted to be mild, with no complications reported and no deaths.

A detailed telephonic interview of a sample of cases identified no common risk exposures. Further analysis of the seven cases in the Skukuza primary school will be undertaken to identify risk factors in that setting. Apart from the clustering in time and geographical location, as well as the family and school clusters, no other common risk exposures could be identified. The public health response

included health promotion regarding hand hygiene and other basic infection prevention methods, since the virus is spread primarily by the faecal-oral route. It was also emphasized that healthcare workers should still investigate for other common and prevalent causes of febrile illness or meningitis, including malaria and bacterial meningitis. The Mpumalanga Province Department of Health circulated information pamphlets to both the general public (including schools and child care centers) as well as healthcare workers in both the public and private sectors, to reinforce these messages.

This is one of the largest outbreaks of enteroviral meningitis described in South Africa, alongside the 2001 outbreak of echovirus 3 in Western Cape Province involving 90 children who attended a summer camp. More recent, smaller outbreaks of enteroviral meningitis have been documented in the NICD Communiqués (most recently November 2009 - Western Cape Province, and February 2010 - Northern Cape Province). The incidence of enteroviral infections is highest in summer and autumn in temperate climates, but year-round in tropical climates. Enteroviruses are associated with a wide range of clinical syndromes, including asymptomatic infection (majority of cases), aseptic meningitis, encephalitis, myocarditis, myositis, acute haemorrhagic conjunctivitis, herpangina, hand-foot-and-mouth disease, and respiratory infections. Prevention of further cases in an outbreak is focused on providing health education and improving hygiene and sanitation.

**Source:** SA-FELTP, Outbreak Response and Specialized Molecular Diagnostics Units, NICD-NHLS; Mpumalanga Province Department of Health; Nelspruit Medi-Clinic, general practitioners and specialists in Skukuza and Nelspruit; Ampath and Lancet laboratories.

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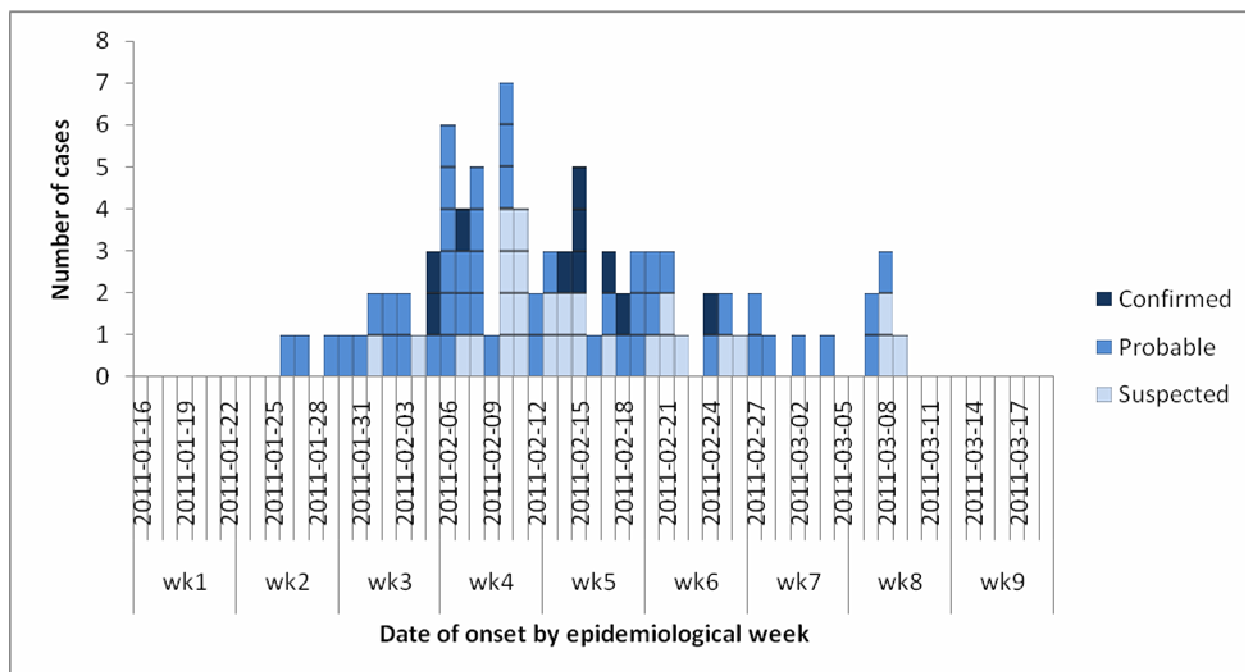


Figure: Epidemic curve illustrating the number of enteroviral meningitis cases by date of onset by epidemiological week, Mpumalanga Province, 26 January to 9 March 2011 (n=87)

## Rift Valley fever update

Between 1 January and 22 March 2011, a total of eight laboratory-confirmed Rift Valley fever (RVF) virus infections have been detected in South Africa — four additional cases since the February issue of the NICD Communiqué. Two of the four recent cases originate from Eastern Cape Province and one from Free State Province. These three patients are males who work in the farming industry and reported practices involving direct contact with animals prior to illness onset, including: slaughtering, assisting with births, vaccination and other daily animal husbandry practices. In addition, all three reported the presence of mosquitoes on the farms with the possibility of mosquito bites, and one case also reported drinking unpasteurised milk.

These three cases demonstrate the continued practice of high-risk behaviours associated with RVF transmission to humans. It is essential that healthcare workers and public health officials continue to educate individuals who are occupationally at risk of infection. This should include the limitation of high-risk behaviours wherever possible and the routine use of personal protective equipment when such practices are essential.

The fourth additional case is still under investigation. A female patient resident in Free State Province recently travelled to Mossel Bay, Western Cape Province, where she was hospitalised. This patient has subsequently developed a number of RVF-associated complications, including: retinitis, hepatitis, encephalitis and haemorrhage.

The Department of Agriculture, Forestry and Fisheries has confirmed eleven animal RVF outbreaks so far this year, involving the following areas: Mossel Bay and Beaufort West in Western Cape Province; Groot Kei and Graaff-Reinet in Eastern Cape Province; and Emijanjeni in Northern Cape Province. Further animal RVF outbreaks in previously affected areas are still possible following the heavy rainfall experienced throughout large parts of the country during recent months.

In addition to the confirmation of these 2011 cases, a diagnosis of RVF-associated retinitis (RVF serology positive but PCR negative) was recently made on a patient who presented to an ophthalmologist during February 2011, complaining of loss of vision. This patient experienced an acute febrile illness during September 2010 after

conducting a necropsy on a sheep on his farm, but did not seek healthcare. This case highlights the possibility of delayed development of RVF-associated retinitis or encephalitis, which may arise many weeks to months after infection and recovery from an acute-phase illness. Healthcare workers are reminded to be aware of RVF-associated complications and to obtain a thorough history including possible exposures/illness during 2010. Should a suspected human case of RVF be identified (including patients presenting with RVF-associated complications), please immediately notify

the Department of Health and submit a specimen together with a completed case investigation form to the NICD. Readers are encouraged to access the 2011 Healthcare Workers Handbook on RVF for further information about the illness, laboratory diagnosis and case management (available from the NICD-NHLS website, [www.nicd.ac.za](http://www.nicd.ac.za)).

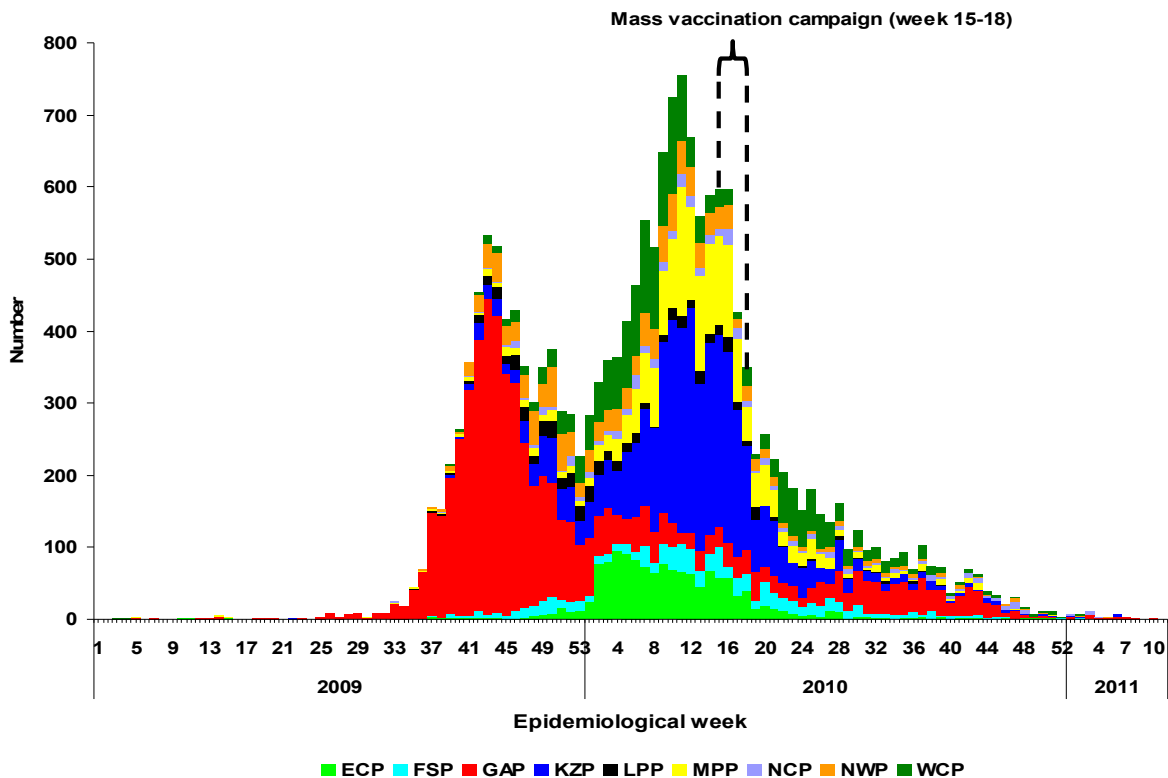
**Source:** Special Pathogens and Outbreak Response Units, NICD-NHLS; Department of Health; Department of Agriculture, Forestry and Fisheries.

## Measles update

There have been 9 additional laboratory-confirmed measles cases since the last published Communiqué, bringing the total to 18 405 cases from January 2009 to 9 March 2011. Cases have been reported from all nine provinces, with Gauteng (31%, 5 754/18 405), KwaZulu-Natal (23%, 4 267/18 405) and Western Cape (11%, 2 009/18 405) provinces accounting for the highest proportions of the cumulative total (Figure 1). Since January 2011 the number

of cases reported each week has declined to relatively low numbers bringing the total number of measles IgM-positive cases for the year 2011 to 46. These cases were reported from seven of the nine provinces; no cases were reported from Eastern Cape and Mpumalanga provinces.

**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: Measles IgM positive results per province: South Africa, January 2009 - 9 March 2011**

## Influenza

### Viral Watch Programme

During the first 11 weeks of 2011, 96 specimens have been received from Viral Watch sites, compared to 28 for the same period in 2010. Influenza virus has been detected in 13 of these specimens. Eight of these have been identified as influenza A (H1N1) 2009, one as A (H3N2) and four as influenza B virus. All the patients positive for influenza, except one with influenza B, had a history of travel to Europe or the USA shortly before the onset of symptoms.

### Severe Acute Respiratory Infections (SARI) Programme

For the period 01 January to 20 March 2011, 977 patients were enrolled in the SARI programme. Of these, 96% (935/977) have been tested for influenza and other respiratory viruses and five were positive for influenza virus. Of the five cases that tested positive for influenza, two were Influenza A (H1N1) 2009 and three influenza B. There was no travel history reported for any of the cases that tested positive for influenza.

The most frequently isolated respiratory virus in patients admitted with SARI was rhinovirus (28%,

263/935), followed by respiratory syncytial virus (14%, 127/935) and then adenovirus (13%, 118/935).

The Department of Health influenza vaccination campaign is already underway, and the trivalent vaccine is now available at private pharmacies.

The trivalent influenza vaccine for the 2011 season has the following formulation:

- A/California/7/2009 (H1N1)-like virus
- A/Perth/16/2009 (H3N2)-like virus
- B/Brisbane/60/2008-like virus

A document detailing the recommendations pertaining to the use of influenza vaccine for 2011 has been published in the February 2011 edition of the South African Medical Journal, and is available online at:

<http://www.samj.org.za/index.php/samj/article/viewFile/4647/3083>

**Source:** Divisions of Epidemiology and Virology, Outbreak Response Unit, NICD-NHLS.

## Foodborne illness outbreaks

Since January 2011, 14 suspected foodborne illness outbreaks have been reported to the Department of Health (DoH) and NICD. There seems to be an increase in the number of suspected foodborne illness outbreaks reported since the 2010 Football World Cup when reporting mechanisms were strengthened and awareness of this important entity increased. This trend is encouraging, and strengthens the need for vigorous health education and promotion around safe food handling and hygiene practices in the community.

The causative pathogen was identified in 5 of the 14 foodborne illness outbreaks. Three of these are briefly described below; the other two were described in the February Communiqué.

### Sisonke District, KwaZulu-Natal Province

On 15 February one case of diarrhoea was reported by a local clinic. On investigation, public health officials (Communicable Disease Control and

Environmental Health) were informed that the patient had eaten meat from a cow that had died from 'gall sickness' (anaplasmosis). On further investigation at the household, they were told that the cow died on 11 February and was slaughtered the same day; the meat was consumed over the following two days. On 12 February, 21 cases presented with symptoms including headache, diarrhoea and abdominal cramps. Unfortunately, no clinical samples were obtained. A sample of the meat was submitted for testing, and a non-typhoidal *Salmonella* sp. was isolated. In addition, *Clostridium perfringens*, and presumptive *Bacillus cereus* were also isolated from the sample. Unfortunately, the non-typhoidal *Salmonella* sp. was not referred for serotyping and it was not ascertained if *B. cereus* enterotoxin was present in the sample. The DoH provided health education to the community regarding safe food handling and hygiene practices.

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### **Boksburg, Gauteng Province**

On 15 February, 4 children developed nausea, vomiting, abdominal cramps and diarrhoea within 2½ hours of consuming milkshakes at a local restaurant. Two patrons (sisters) and their four children had eaten at the restaurant, but only the children (who all had the same flavour milkshakes) developed symptoms. Two of the 4 children were admitted to a private hospital, and discharged the following day. An Environmental Health Practitioner (EHP) collected samples of the available ingredients used in the milkshake: chocolate spread, sorbet and cream, which were submitted to the NHLS Infection Control Services Laboratory (ICSL), Johannesburg. No pathogens were detected from any of the food samples. A stool sample from one of the hospitalized children was sent from a private laboratory to the ICSL for bacterial toxin testing; *Staphylococcus aureus* enterotoxin was identified in the stool specimen. The restaurant was inspected by the EHP and found to be satisfactory. Precautionary measures actioned by the EHP included health education of restaurant staff regarding risk assessments, cleaning procedures and personal hygiene practices.

### **Ugu District, KwaZulu-Natal Province**

Approximately 100 people presented to a local clinic with symptoms including headache, diarrhoea, vomiting and abdominal cramps after attending an engagement party on 5 March. It was reported that a total of 200 people had attended the function. Two people were admitted to a local hospital. On investigation it was found that meat had been

purchased from a butchery on 4 March, but no provision was made for refrigeration and the meat was only cooked the following morning. The healthcare facility was able to obtain 3 stool specimens that were submitted to the laboratory. *Shigella flexneri* was isolated from one specimen and *Salmonella enteritidis* from the other two specimens. However, no food samples were available for testing. Health education regarding safe food handling practice was conducted in the community, and aimed especially at food handlers emphasizing food preservation practice and personal hygiene.

Numerous challenges persist in the investigation of foodborne illness outbreaks. Such outbreaks are notifiable; healthcare workers should notify the sub-district/district/provincial DoH immediately when a suspected outbreak is identified. Timely identification and investigation of foodborne illness outbreaks is critical in determining the cause of the outbreak and instituting control and preventive measures.

It is essential that clinical and environmental (food/water) samples are obtained for microbiological analysis wherever possible as soon as the outbreak is identified. EHPs will usually collect the food or water samples. Specialized testing for foodborne pathogens is not offered by all laboratories; bacterial toxin testing is currently only available at the NHLS ICSL, Johannesburg.

**Source:** Department of Health (KwaZulu-Natal and Gauteng); NHLS Infection Control Services Laboratory; Outbreak Response Unit, NICD-NHLS.

## **Rabies update**

No cases of human rabies have been confirmed for 2011 to date. In 2010, a total of 11 human rabies cases was confirmed in South Africa; the cases were reported from Northern Cape (n=1), Mpumalanga (n=1), Gauteng (n=1), KwaZulu-Natal (n=3), Eastern Cape (n=2) and Limpopo provinces (n=3).

Cases of rabies in domestic dogs have been confirmed from Witpoortjie and Lenasia (Gauteng Province) in recent weeks. Currently it is unclear if these cases are linked to the outbreak of rabies that was recognized in Johannesburg in 2010 or incidental

cases. From June to December 2010, 37 cases of animal rabies were confirmed in Gauteng Province, (specifically south-western Johannesburg). The outbreak was also associated with one human case - a two-year-old child with reported exposure to a rabid puppy. Molecular characterisation of the virus isolates indicate that the outbreak virus was originally introduced from KwaZulu-Natal Province, and homogeneity of the sequence identity of the outbreak-associated viruses suggests that local transmission was then established. Incidental cases of rabies

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have been reported from Gauteng Province previously, and are usually linked to contact with translocated pets or wildlife (typically mongoose or jackal) in the more rural areas. It is important that all dogs and cats are vaccinated so that susceptible

populations that are able to sustain rabies virus transmission are not created.

**Source:** Special Pathogens and Outbreak Response Units, NICD-NHLS; Rabies Unit, Agriculture Research Council of Onderstepoort Veterinary Institute.

## 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
<p><b><u>Ross River fever (RRF) &amp; Murray Valley encephalitis (MVE):</u></b> Australia (Victoria and New South Wales)</p>	<p>Health officials in Victoria and Western New South Wales (Australia) have issued warnings for residents and travellers to the area to protect themselves from mosquito bites. This was prompted by an outbreak of RRF and concerns over the possible re-emergence of MVE (a relatively more serious illness) following heavy rainfall and warm temperatures promoting mosquito breeding. Over 600 cases of RRF have been reported from Victoria State, the majority of infections being in close proximity to rivers, wetlands and other water bodies. Although RRF is considered to be endemic in parts of Australia, this outbreak is affecting areas that reported no cases last year. MVE was recently detected in sentinel chicken flocks. A suspected, fatal, human case of MVE was reported; however, laboratory tests for the virus were negative.</p>	<p>RRF and MVE are zoonotic viral infections, which are transmitted from their animal hosts to humans by mosquitoes. The majority of infections with both viruses are asymptomatic or result in a mild “influenza-like” illness. Among symptomatic patients, RRF may be characterised by polyarthritits (90% of cases) and less frequently a maculopapular rash (50% of cases). A small proportion of patients with MVE infection develop encephalitis, which may be fatal.</p> <p>Travellers should protect themselves from mosquito-bites when visiting these areas*.</p>
<p><b><u>Lassa fever</u></b> Sweden ex West Africa</p>	<p>A Swedish woman visiting West Africa (country not reported) was recently medically evacuated with a diagnosis of Lassa fever. She was working in West Africa for a humanitarian aid organisation.</p> <p>Lassa virus is endemic in parts of West Africa, where it is a significant cause of morbidity and mortality (100 000 to 300 000 cases and 5 000 deaths per year). While 80% of those infected are asymptomatic or develop a mild, subclinical illness, up to 20% experience multisystem failure.</p>	<p>Multimammate rats are the reservoir host for Lassa virus. Infected rodents do not experience disease, but shed the virus in urine and droppings. Humans may be infected through a number of routes:</p> <ul style="list-style-type: none"> <li>• Direct or indirect contact with rodent excreta</li> <li>• Eating foods contaminated by rodent excreta</li> <li>• Breathing aerosolised rodent excreta</li> <li>• Catching, preparation and consumption of the rodents as a food source</li> <li>• Direct person-to-person transmission through blood and other bodily fluids.</li> </ul> <p>Travellers to endemic regions should avoid contact with rodents, keep food in rodent-proof containers and maintain cleanliness in and around households so as not to attract rats. Furthermore, avoid contact with sick persons and their body fluids.</p>

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Disease & Countries	Comments	Advice to travellers
<u>Yellow fever:</u> Sierra Leone	WHO has reported two confirmed cases of yellow fever in Southern Province (Sierra Leone). This has prompted the local Ministry of Health to conduct a vaccination campaign targeting over 144 000 people in the affected district.	Under the International Health Regulations, South Africans travelling to endemic countries (incl. Brazil) must receive yellow fever vaccine at least ten days prior to departure. Yellow fever vaccination certificates are valid for 10 years. The vaccine is contraindicated in pregnant women, infants <9 months, individuals with egg allergies, and certain immunosuppressed individuals (incl. HIV+ with CD4<200). These individuals still require a health certificate indicating the reason for non-compliance when travelling. Travellers should still take precautionary measures to avoid being bitten by mosquitoes*.

\*Vector-borne transmission by mosquitoes. Travellers should take precautionary measures to avoid bites: use insect repellents (containing 30-50% DEET), wear loose-fitting light-coloured clothing, and use insecticide-treated bed nets.

**References:** ProMED-Mail ([www.promedmail.org](http://www.promedmail.org)), World Health Organization ([www.who.int](http://www.who.int)), Centers for Disease Control and Prevention ([www.cdc.gov](http://www.cdc.gov)), Europe Media Monitor (<http://medusa.jrc.it/medisys/helsinkiedition/en/home.html>); last accessed 2011/03/22

**Source:** Outbreak Response Unit, NICD-NHLS.

*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](mailto:outbreak@nicd.ac.za); Private Bag X4, Sandringham, 2131, South Africa*

