Communicable Diseases Communiqué

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Measles outbreak

The current measles outbreak sweeping across Gauteng is a stern reminder of the might of this miniscule morbillivirus. The Persian physician Rhazes (9th Century) proclaimed it 'more to be dreaded than smallpox' as it swiftly decimated non-immune populations. However, we have a safe, effective vaccine to prevent and combat spread of this infection, and at present targeted vaccination campaigns are under way.

The majority of cases to date (1034/1135, 91%) have been reported from Gauteng Province, with Tshwane (619/1034, 55%), Johannesburg (239/1034, 21%) and Ekurhuleni (157/1034, 14%) regions experiencing the brunt of the outbreak. However, small numbers of cases have been reported from all provinces (Table). Different age distribution patterns have been observed in the affected regions with the most affected age group being adolescents aged 15 to 19 years (25% of cases) in Tshwane, whilst in Johannesburg and Ekurhuleni younger children aged 6 to 11 months (25% and 28% of cases respectively) accounted for most of the confirmed cases. Of concern is that almost 5% of cases have been infants younger than 6 months (Figure 1). The outbreak does not appear to be abating as yet, with over 150 confirmed cases reported last week alone (Figure 2).

In addition to the routine follow-up of reported cases with vaccination of susceptible contacts, the Department of Health has instituted a targeted vaccination campaign in the affected regions of Gauteng, taking into account the differing age profiles. In Tshwane, there was an initial campaign in May targeting children (9 months to 5 years). Since August this has been followed by the ongoing vaccination of children and adolescents aged 6 to 20 years (targeting learners in grades 0 to 12). In Johannesburg and Ekurhuleni, vaccination campaigns began on 12 October, targeting young children (9 months to 5 years) as well as older children and adolescents of school-going age (as for Tshwane). The Department of Health has also advised vaccination of all children over 6 months admitted to hospitals irrespective of vaccination history.

Table: Number of laboratory-confirmed measles cases by province, South Africa, 1 January to 11 October 2009 (n=1 135)

Province	Laboratory-confirmed cases	
	N	%
Eastern Cape	14	1
Free State	15	1
Gauteng	1 034	91
KwaZulu-Natal	15	1
Limpopo	5	0
Mpumalanga	23	2
Northern Cape	2	0
North West	19	2
Western Cape	8	1
Total	**1 135**	**100**

The case definition for suspected measles is as follows: fever ≥39^{0}C, rash, and one of the following: cough, coryza, conjunctivitis. All suspect cases should have a blood and urine (or throat swab) specimen taken, and the new measles case investigation form (Annexure 1) completed by the person diagnosing the patient. Both specimens (placed on ice) are to be sent to the NICD, where specimens are tested at no charge (including private sector specimens). SKYNET courier services have

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been contracted to collect and transport specimens to the NICD when required (contact them at 011-571-4500 or 011-586-1100 and quote account number P13011). Suspect cases are notifiable and should be reported to the local authority health services' Communicable Disease Control directorates, as required under the Health Act.

All close household contacts of the patient should receive a measles vaccination within 72 hours of contact – this may provide some protection against infection. This primary vaccination response should occur as soon as possible (prior to the availability of the results) in order to prevent spread.

The measles vaccine is extremely effective and safe. It is only contra-indicated in the following circumstances:

- History of an anaphylactic reaction to previous measles / MMR vaccine,
- Severely immunocompromised due to congenital immunodeficiency,
- Advanced leukaemia or lymphoma,
- Serious malignant disease,
- Treatment with high dose corticosteroids (>20 mg or >2mg/kg daily prednisone or equivalent), alkylating agents or antimetabolites (chemotherapeutic agents), and/or
- Radiation therapy.

Vaccination in pregnancy poses a theoretical risk, and should be avoided; however, in the second and third trimesters benefit may well outweigh risk of infection (high risk of severe maternal morbidity, foetal loss and prematurity, as well as perinatal infection). Measles infection in HIV-positive persons is associated with increased morbidity and mortality. HIV-infection per se is not a contra-indication for vaccination, but should be avoided when routine contra-indications exist.

The measles vaccine does not contain thiomersal or mercury, and there is no evidence that it is associated with Guillian-Barré syndrome, inflammatory bowel disease or autism.

Since measles is extremely contagious, strict adherence to infection control is paramount to prevent spread in the home, hospital or other institutions/facilities. Contact and respiratory precautions should be emphasized, and all health care workers and care givers should be educated regarding transmission of measles. Measles is infectious for 4 days before until 4 days after the rash appears. It is advised that patients stay away from crèche, school or work for 1 week after the onset of the rash.

Source: Epidemiology and Surveillance Unit, Outbreak Response Unit, Respiratory Virus and Viral Diagnostics Units, Molecular Measles Unit, NICD; Communicable Disease Directorate, Tshwane District and Gauteng Province

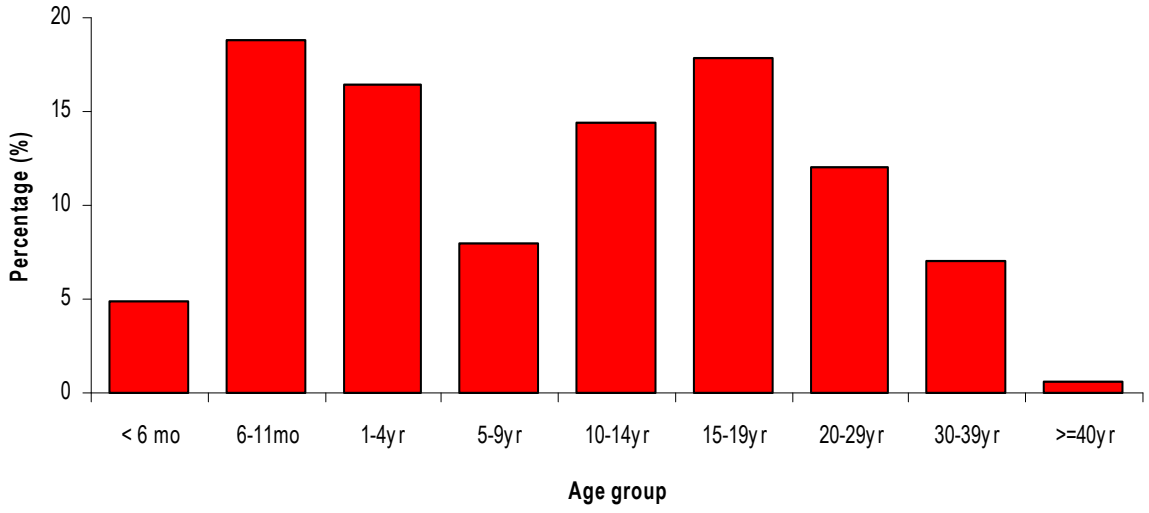

Figure 1: Percentage of laboratory-confirmed measles cases by age-group, South Africa, 1 January to 11 October 2009 (n=1 117, 18 unknown age)

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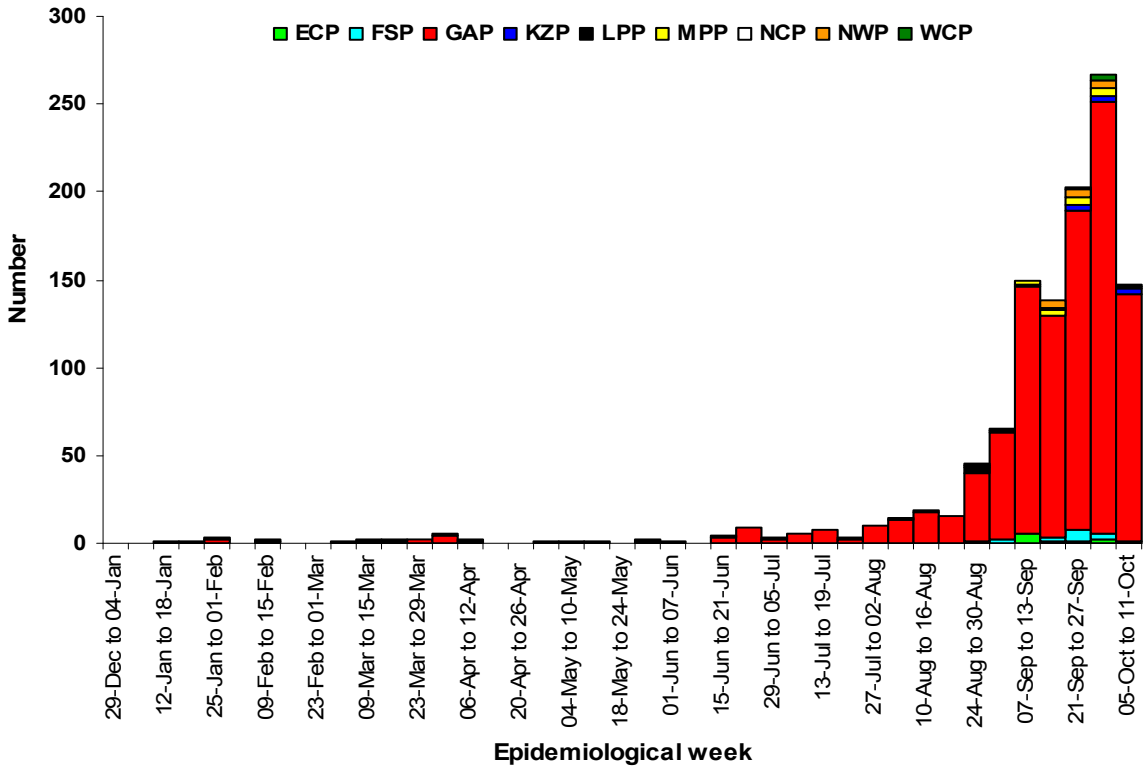

Figure 2: Epidemic curve illustrating the number of laboratory-confirmed measles cases by epidemiological week and province, South Africa, 1 January to 11 October 2009 (n=1 135)

Pandemic Influenza A(H1N1) 2009 update

The number of newly confirmed pandemic influenza A(H1N1) cases in South Africa continues to decrease. As of 12 October 2009, up to 12 331 laboratory-confirmed cases of pandemic influenza A (H1N1) 2009 infection have been recorded for the country. The majority of cases detected were from Gauteng (n=5 502, rate 52.2 per 100 000 population), Western Cape (n=2 014, rate 37.6 per 100 000 population) and KwaZulu-Natal (n=2 225, rate 21.3 per 100 000 population) Provinces. Males and females were equally affected, and ages range from an infant less than one month old to 90 years with a median of 15.5 years.

A total of 91 pandemic influenza A(H1N1) 2009 associated deaths have been laboratory-confirmed to date. Investigations into the factors contributing to fatal cases are ongoing. Further detail on the epidemiology of cases and factors associated with fatalities can be viewed within the weekly situation report published on the NICD website (www.nicd.ac.za).

Sporadic cases of pandemic influenza A(H1N1) cases continue to be reported throughout the country, and there is uncertainty around how the virus may behave during the coming summer months. Furthermore, many countries within the northern hemisphere are observing an increase in case frequencies as they move into their winter season, thus increasing the likelihood of continued importation of the virus in travelers. It is therefore important for clinicians to continue to suspect pandemic influenza in patients presenting with acute onset of influenza-like illness. Furthermore antiviral treatment for individuals with severe acute respiratory illness is advised, and this should not be withheld whilst laboratory results are awaited.

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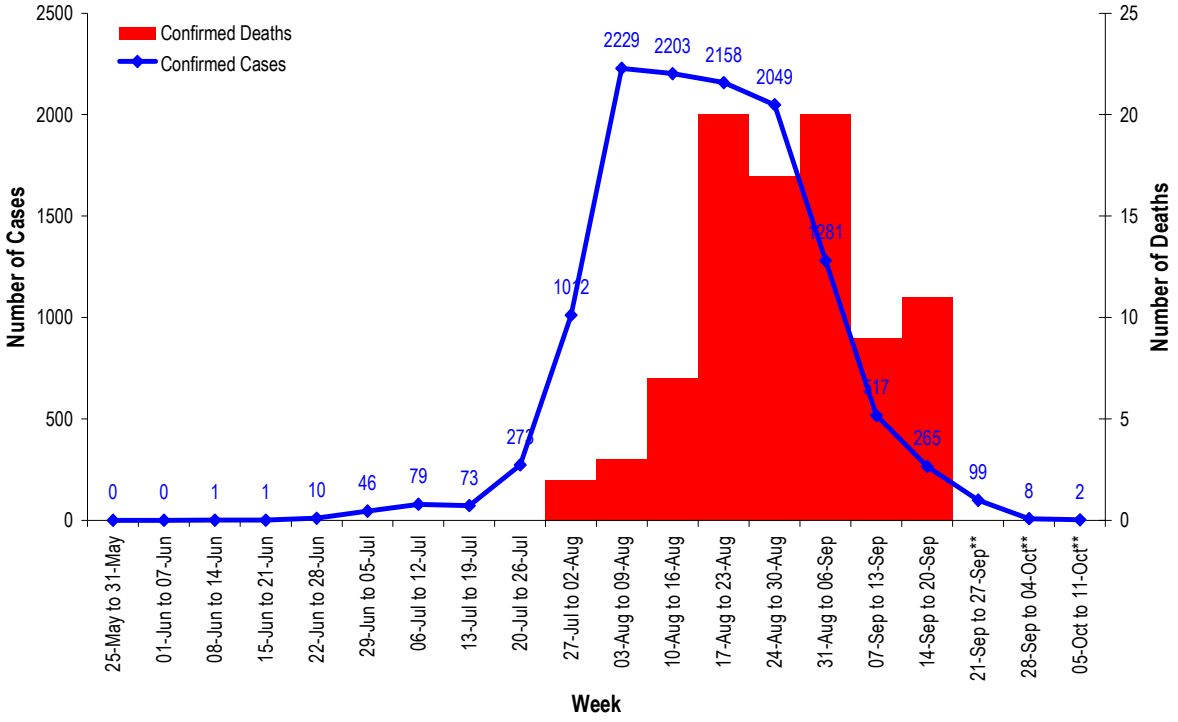
Source: NHLS: Epidemiology and Virology Divisions, NICD; Tygerberg Hospital; Groote Schuur Hospital; Universitas Hospital; Steve Biko Academic Hospital; Inkosi Albert Luthuli Central Hospital. Private laboratories: Ampath, Lancet, PathCare and Vermaak laboratories.



**Data is strictly preliminary. Laboratory-based surveillance is subject to time delays. Total case counts for the most recent weeks is likely incomplete and will increase with the reporting of new cases. Week calculated from date of onset or date of specimen collection if onset is unknown.

Figure: Epidemic curve illustrating the number of laboratory confirmed pandemic influenza A(H1N1) 2009 cases and deaths by week, South Africa, updated 6 October 2009 (n(cases)=12 331, 25 unknown date; n(deaths)=91, 2 unknown date)

Meningococcal disease update

Sporadic cases of meningococcal disease continued to be reported across the country in keeping with trends in previous years. By the end of epidemiological week 41, a total of 337 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 were available for 276/337 (82%) of cases. The predominant serogroup nationally for 2009 to date was serogroup W135 (58%, 160/276). Other serogroups included: A (1%, 3/276), B (22%, 60/276), C (11%, 30/276), and Y (8%, 21/276).

The winter and spring season is 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.

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Source: Respiratory and Meningeal Pathogens Reference Unit; and Outbreak Response Unit, NICD

Table. Number of laboratory-confirmed meningococcal disease cases reported by week 41, 2008 (n=368) and 2009 (n=337), by province

Province	2008	2009
Eastern Cape	22	21
Free State	18	10
Gauteng	186	160
KwaZulu-Natal	25	24
Limpopo	4	2
Mpumalanga	31	41
Northern Cape	8	7
North West	13	15
Western Cape	61	57
South Africa	**368**	**337**

Rabies update

Another case of rabies was confirmed in a three year old child from the Eastern Cape. Rabies was confirmed by fluorescent antibody test on a post-mortem brain specimen. This is the sixth confirmed case of rabies from the Eastern Cape Province. A total of 11 human rabies cases have been laboratory-confirmed in South Africa for 2009 to date. The other cases were reported from KwaZulu Natal (n=3), Limpopo (n=1) and Mpumalanga (n=1) Provinces.

A case of rabies in a child from Swaziland was also confirmed in the last month. The child was "grazed" by a stray dog and developed signs and symptoms of rabies one month later. The patient did not receive any medical attention after the animal exposure as the contact was considered to be minor. Initial rabies PCR testing on a cerebrospinal fluid specimen was negative. A presumptive diagnosis of tetanus was made; however, the diagnosis of rabies was confirmed after testing of saliva and blood specimens. Rabies PCR on the saliva, and a rabies antibody test on the blood, indicated the presence of rabies virus nucleic acid and antibodies respectively.

Although the clinical picture of tetanus and rabies may be similar there are some distinguishable differences. Tetanus patients do not have the typical signs of encephalitis as seen in patients with rabies. In addition, tetanus patients do not exhibit the hallucinations typical of rabies. Rabies patients do not experience the sustained rigidity of the axial jaw muscles (trismus) as seen in tetanus.

The exposure risk was likely assessed incorrectly in these cases and they could have benefited from appropriate post-exposure prophylaxis. A scratch or break in the skin, however minor, without bleeding should be classified as a category-2 exposure, requiring rabies vaccination. A scratch or break in the skin, however minor, with the presence of blood, should be classified as a category-3 exposure, requiring both rabies vaccine and rabies immunoglobulin.

Source: Special Pathogens Unit and Epidemiology Division, NICD

Viral haemorrhagic fever

No additional cases of viral haemorrhagic fever were confirmed in South Africa in the last month. A total of one case of Crimean-Congo haemorrhagic fever (CCHF) from the Northern Cape and three cases of Rift Valley fever (RVF) from KwaZulu Natal were confirmed for 2009 to date. A total of 11 CCHF and 17 RVF cases were reported for 2008.

Source: Special Pathogens Unit and Epidemiology Division, 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.

Disease	Countries	Comments	Advice to travellers
Cholera	Zimbabwe, Mozambique, Nigeria, Uganda, Tanzania, Kenya, Rwanda, Congo DR, Cameroon, and Pakistan	New outbreaks of cholera have begun to emerge with the increasing temperatures and rainfall on the African continent. Zimbabwe, which experienced an extensive outbreak over the summer of 2008/9, has confirmed 10 new cases in Masvingo Province to 30 September 2009. More extensive outbreaks have been reported among other African countries and in parts of Asia.	Travellers are advised to 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 (e.g. ice and ice-cream). Eat only foods that have been thoroughly cooked. Peel fruit and vegetables yourself after washing hands (do not eat peelings), and avoid those that cannot be peeled. Avoid food and beverages from street vendors.
Measles	Burkina Faso, United Kingdom, and Austria	Burkina Faso recently experienced its largest recorded measles outbreak in 10 years, where over 51 000 cases and 30 deaths were reported to 30 June 2009. Measles also continues to be problematic in countries with relatively high vaccination coverage, due to a growing susceptible pool of non-immune individuals, which includes those individuals who refuse vaccinations. UK (specifically within England and Wales) has reported 4 141 cases in 2009 to the end of July. An outbreak of measles has also been reported within an anthroposophic community in Austria where 33 cases were confirmed.	The measles virus is highly communicable and is 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 (received at least two vaccinations or known to have been infected). There is no specific antiviral therapy.

***Source:** Travel Health Unit, Outbreak Response Unit, Epidemiology Division; Epidemiology Division. **References:** ProMED-Mail (www.promedmail.org), World Health Organisation (www.who.int), The Centres of Disease Prevention and Control (www.cdc.gov), Europe Media Monitor (http://medusa.jrc.it/medisys/helsinkiedition/en/home.html); last accessed 13 October 2009.

This communiqué is published by the National Institute for Communicable Diseases (NICD) 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.

MEASLES CASE INVESTIGATION FORM

EPID NUMBER:_____

Name of person completing form:_____Signature:_____

Sources of Data: Caregiver ☐ Clinician ☐ Medical records ☐ No data obtained ☐

Name of Health Facility attended:_____ Name of attending clinician:_____

Health Facility street address:_____

_____Contact number:_____

PATIENT DETAILS

Full name: _____Gender: M ☐ F ☐ Unknown ☐

Date of birth: ____/____/____ If DOB unknown Age: ___ Unit: Days ☐ Wks ☐ Months ☐ Yrs☐; DOB and Age Unk ☐

Street address:_____

_____Town/ City:_____ Province:_____ Contact Number(s): _____

CURRENT PRESENTATION

Presenting symptoms/signs (Tick all applicable Boxes): Rash ☐ Fever ☐ Conjunctivitis ☐ Cough ☐

Coryza/Rhinitis/runny nose ☐ Other (Specify)_____

Date of onset of rash: _____/_____/_____	Date of Presentation at the health facility: _____/_____/_____

Complications (Tick where applicable): None ☐ Pneumonia ☐ Otitis Media ☐ Diarrhoea ☐ Febrile seizures ☐

Laryngotracheobronchitis (Croup) ☐ Corneal Ulceration ☐ Blindness ☐Encephalitis ☐

Clinical Management: Vitamin A given: Y ☐ N ☐

Final outcome (Tick where applicable): Patient admitted to Hospital: Y ☐ N ☐ Patient Died: Y ☐ N ☐

Specimens Collected (Tick where applicable): Blood/Serum ☐ Urine ☐ Nasopharyngeal/Saliva ☐

Dried Blood Spot ☐ Date of specimen collection: _____/_____/_____

MEDICAL AND CONTACT HISTORY

History of contact with a suspected measles case in the past 7 to 28 days: Y ☐ N ☐ Unknown ☐

History of contact with a laboratory confirmed measles case in the past 7 to 28 days: Y ☐ N ☐ Unknown ☐

History of travel in the past 7 to 28 days: Y ☐ N ☐; if yes, name of place or country travelled to _____

History of previous visit or admission to a healthcare facility in the past 7 to 28 days: Y ☐ N ☐ Unknown ☐ ;

If yes, Name of the Facility:_____ Diagnosis at the Facility:_____

Vaccination Information obtained from: Road to health card ☐ Self reported ☐ Not obtained ☐

Measles vaccination received: Y ☐ N ☐ Unknown ☐	If yes, number of doses: 1 ☐ 2 ☐ >2 ☐ Date of last measles vaccine: _____/_____/_____

RESPONSE TO CASE

Case Notified: Y ☐ N ☐ Unknown ☐ Date of Notification_____/_____/_____

Contacts follow-up	Number			Action Taken
	< 5 yrs	5-14 yrs	>=15 yrs	
Household				
School/Creche				
Other (Specify)_____				

Active Case Finding: Y ☐ N ☐ Number of suspected measles cases found: None ☐ or specify number_____

NB: Complete an additional case investigation form for each suspected measles case identified