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Update– novel influenza A/H1N1 global outbreak

The global situation

As of 26 May 2009, WHO has received 12 954 official reports of novel influenza A/H1N1("swine origin") infection globally from 46 countries, including 92 deaths. Mexico has reported 4 174 laboratory-confirmed cases including 80 deaths. The United States of America (USA) has reported 6 764 laboratory-confirmed cases including 10 deaths, while Canada has reported 921 cases and one death.

The following countries have reported laboratory-confirmed cases: Argentina (5), Australia (19), Austria (1), Belgium (7), Brazil (9), Chile (74), China (20), Colombia (16), Costa Rica (33), Cuba (4), Denmark (1), Ecuador (24), El Salvador (6), Finland (2), France (16), Germany (17), Greece (1), Guatemala (4), Honduras (1), Iceland (1), India (1), Ireland (1), Israel (8), Italy (19), Japan (350), Kuwait (18), Malaysia (2), Netherlands (3), New Zealand (9), Norway (4), Panama (76), Peru (27), Philippines (2), Poland (3), Portugal (1), Republic of Korea (21), Russia (2), Spain (136), Sweden (3), Switzerland (3), Thailand (2), Turkey (2), and the United Kingdom (137).

Secondary transmission has occurred in Spain, the UK, Belgium, Germany, Italy and Japan, following imported cases from Mexico and the USA. However there is no definite evidence to date of community-wide transmission in countries outside of North America.

Preliminary data from the three most affected countries to date - Mexico, USA and Canada suggest that the majority of cases have experienced a mild influenza-like illness (ILI) and have recovered without complications. Severe illness has been reported from Mexico and the USA. In Mexico, a mortality audit of 45 deaths due to novel influenza A/H1N1 virus has revealed the following: the median age was 31 years old (range 0-75 years), with a predominance of females (26/45; 58%). The main symptoms at the time of admission to hospital were: fever (42/45, 93%); cough (39/45, 87%), dyspnoea (36/45, 80%), and productive cough (27/45, 60%). Pre-existing conditions were present in 46% (20/43) of cases studied. The most frequent underlying conditions were morbid obesity, non-insulin-dependent diabetes, systemic hypertension, or a combination of the above, in 12/20 cases (60%). One of the fatal cases in the USA was 35 weeks pregnant with a history of mild asthma and psoriasis.

As compared to seasonal influenza, novel influenza A/H1N1 appears to be more transmissible, has a higher estimated secondary attack rate, and has caused more severe illness in otherwise healthy young persons.

Situation update: South Africa

As of 26 May 2009 there have been no laboratory-confirmed cases of novel influenza A/H1N1 in South Africa. Eight cases meeting the suspected case definition have been tested. Tests for novel influenza A/H1N1 infection were negative in all the cases, but one case had a sub-optimal specimen submitted and results are inconclusive. Three of these cases were confirmed to have infection with seasonal influenza A/H3N2.

In South Africa, specimens for influenza testing have been received from several sources. These include: the "Viral Watch" sentinel-site surveillance for seasonal influenza, the Severe Acute Respiratory-tract Infection (SARI) surveillance program, and routine specimens submitted to the NICD for investigation for respiratory viruses and active surveillance for novel influenza A/H1N1 cases. As

(Continued on page 2)

(Continued from page 1)
of 18 May 2009, 84 specimens were positive for seasonal influenza including influenza A/H3N2 (n=63) and influenza B (n=4) with 17 specimens awaiting further typing.

The WHO National Influenza Centre at the NICD is currently providing testing for all suspected cases of novel influenza A/H1N1 for South Africa and as required for the African continent. The current suspected case definition remains as follows:
An individual with recent onset of fever ≥38°C PLUS ONE OR MORE of the following acute symptoms (sore throat, rhinorrhoea/nasal congestion, cough or myalgia) AND gives one of the following histories: Travel within 7 days prior to onset of symptoms to Mexico, USA and Canada or other countries with confirmed community-wide outbreaks OR close contact with an individual who is a suspected/ confirmed case of novel influenza A/H1N1 in the 7 days prior to onset of symptoms.

Prevention and Control
Available data suggests the current seasonal influenza vaccine will offer limited, if any, protection from novel influenza A/H1N1 infection. However, individuals in whom seasonal influenza vaccine is routinely recommended should ensure they have been immunised in preparation for the South African influenza season.

Implementation of good respiratory hygiene measures and behaviour modification to reduce the risk of infection and transmission remains the most effective means of prevention currently.

Available data for the current novel influenza A/ H1N1 virus suggest it remains sensitive to the neuraminidase inhibitor antiviral medications zanamivir and oseltamivir.

References:

1. PAHO:http://new.paho.org/hq/index.php?option=com_content&task=blogcategory&id=805&Itemid=569&l Accessed 18 May 2009
2. European Centre for Disease Prevention and Controlhttp://www.ecdc.europa.eu/en/files/pdf/Health_topics/Situation_Report_090519_0800hrs.pdf Accessed 19 May 2009
3. WHO:http://www.who.int/csr/disease/swineflu/guidance/health_professionals/en/

Source: Epidemiology Division, Respiratory Virus Unit and Viral Diagnostics Units, NICD

Cholera update

There has been an ongoing outbreak of cholera in South Africa since November 2008. This outbreak was first recognised in Limpopo Province and subsequently affected all nine provinces. For the period 1 November 2008 to 26 May 2009, 12 741 cases of cholera including 69 deaths (CFR= 0.5%) have been reported nationally. Of these, 1 184 (9.3%) have been laboratory-confirmed. Cases have been reported from all 9 provinces with the majority from Mpumalanga (n=6 855, 54.0%) and Limpopo (n=5 495, 43.0%) provinces (Table).

The number of cholera cases had been gradually declining until the recent increase in the number of laboratory-confirmed cases in Limpopo Province during the epidemiological weeks 18 to 21 of 2009 (the early weeks of May), when 36 new laboratory-confirmed cases were reported (Figure). Thirty-five of these cases were from Limpopo Province, and one case from North West Province. Of the 35 confirmed cases from Limpopo Province, 32 presented to Jane Furse Hospital (Greater Sekhukhune District Municipality) over a period of 15 days. All cases were reported to be linked to a funeral of a person who died of a diarrhoeal disease. The cases either worked at, or attended the funeral. Additional cases meeting the suspected case definition were assessed at Jane Furse Hospital but specimens for laboratory testing were not collected in all patients. An investigation into the cluster is ongoing.

The occurrence of this relatively large cholera cluster indicates the outbreak is still ongoing within South Africa. It is important for clinicians to remain suspicious of cholera in patients presenting with acute watery diarrhoea. All patients meeting the case definition should have stool specimens collected and be notified immediately to health

(Continued on page 3)

(Continued from page 2)

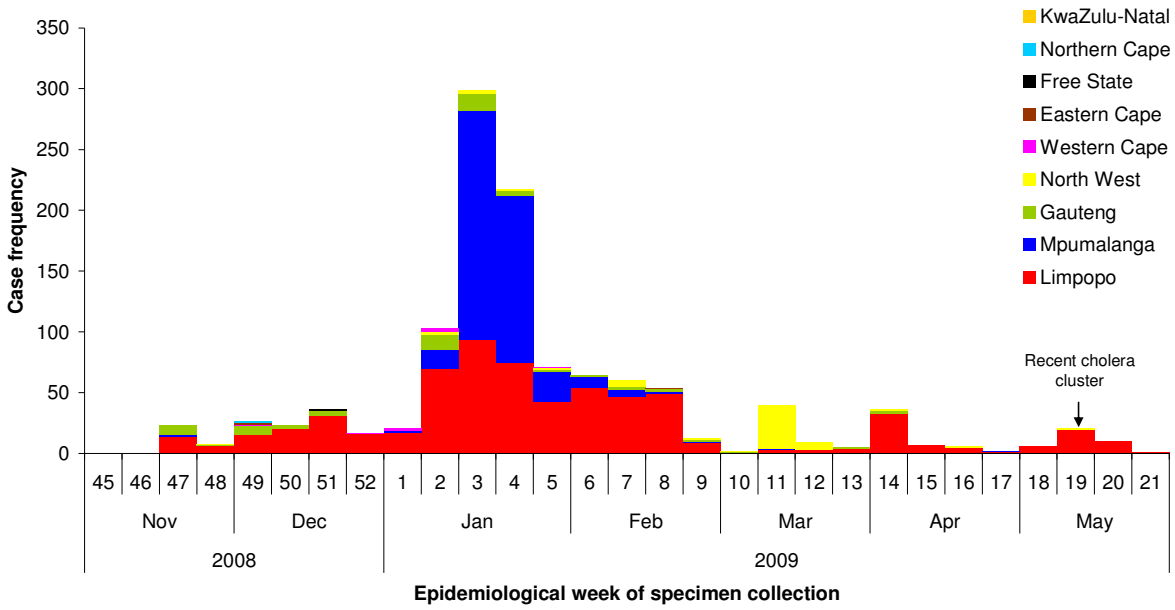
authorities. Furthermore, continued surveillance for clinical cases throughout the country is vital to minimize further morbidity and mortality; and to monitor the outbreak in order to declare the outbreak over. An outbreak is generally declared over after two incubation periods have passed since the last laboratory confirmed case was identified. In this instance the outbreak is considered to be ongoing as laboratory-confirmed cases continue to be reported.

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

Table: Reported cholera cases and deaths in South Africa by province, 1 November 2008 to 26 May 2009

Province	Total cases* No. (%)	Laboratory-confirmed cases No. (% of total cases)†	Deaths No. (CFR%)
Mpumalanga	6855 (53.8)	387 (5.6)	31 (0.4)
Limpopo	5495 (43.1)	651 (11.8)	29 (0,5)
Gauteng	286 (3.0)	71 (24.8)	4 (1.4)
North West	91 (0.7)	61 (67.0)	4 (4.4)
Western Cape	8 (0.1)	8 (100.0)	0 (0.0)
KwaZulu Natal	2 (<0.1)	2 (100.0)	1 (50.0)
Northern Cape	1 (<0.1)	1 (100.0)	0 (0.0)
Free State	1 (<0.1)	1 (100.0)	0 (0.0)
Eastern Cape	2 (<0.1)	2 (100.0)	0 (0.0)
Cumulative total	12741 (100.0)	1184 (9.3)	69 (0.5)

*This includes cases meeting the current clinical case definition for cholera (all individuals with acute onset of watery diarrhoea) as reported by the Department of Health, last updated 27 April 2009.
†This includes all laboratory-confirmed cholera cases reported to the NICD from NHLS and private laboratories, last updated 26 May 2009.



Epidemiological weeks run from Monday through Sunday. Figure includes cases received on or before Friday 26 May 2009. Laboratory testing strategies have varied significantly over time and between provinces.

Figure: Epidemic curve showing the frequency of laboratory-confirmed cholera cases by epidemiological week, 3 November 2008 to 26 May 2009, South Africa

Meningococcal disease

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 19, a total of 108 laboratory-confirmed cases was reported to the Respiratory and Meningeal Pathogens Reference Unit (RMPRU), NICD (Table). The increase in cases seen this year in KwaZulu-Natal Province may reflect improved reporting in response to the recent media reports and community fears. These cases showed diversity in serogroups, which is in keeping with sporadic endemic disease in the country.

Serogroup data were available for 83/108 (77%) of cases. The predominant serogroup nationally for 2009 to date was serogroup W135 (47%, 39/83). The remaining serogroups included: A (0%), B (30%, 25/83), C (18%, 15/83), and Y (5%, 4/83).

The winter 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.

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

Table. Number of laboratory-confirmed meningococcal disease cases reported by week 19, 2008 and 2009, by province

Province	2008	2009
Eastern Cape	6	8
Free State	6	3
Gauteng	58	51
KwaZulu-Natal	3	12
Limpopo	-*	-*
Mpumalanga	10	7
Northern Cape	2	2
North West	1	3
Western Cape	17	22
South Africa	**103**	**108**

*No cases reported

Crimean-Congo haemorrhagic fever (CCHF)

Crimean-Congo haemorrhagic fever (CCHF) was confirmed post-mortem by RT-PCR on a patient from Prieska, Northern Cape Province. The patient presented with an acute febrile illness with lower back pain, was admitted to hospital with bleeding from multiple sites and died shortly after admission. There was a significant history of alcohol consumption with a recent bleeding 'peptic ulcer' . Profound thrombocytopenia (platelet count 12 $x10^9$/L) and a transaminitis (AST 7143 IU/L, ALT 561 IU/L) were in keeping with a diagnosis of possible bacterial sepsis with underlying liver pathology secondary to chronic alcoholism. While the patient gave no history of contact with animals or exposure to ticks, residence in a rural town where CCHF is well documented raised concerns and it was therefore critical to conduct the appropriate laboratory tests and ensure an appropriate public health response. Contacts will remain under surveillance for a period of 14 days from last exposure. This is the first laboratory-confirmed case of CCHF in South Africa in 2009.

A previous example of confirmed dual pathology involving CCHF and chronic myeloid leukaemia was reported in the NICD Communique January 2007

(Continued on page 5)

(Continued from page 4)

Vol 6(1). Although the admission WCC was 72 x10^9/L and blasts were demonstrated on the peripheral blood smear in a patient with an acute febrile illness, the diagnosis of CCHF was pursued as there was a history of a tick bite and the patient was a farm worker in a well-recognised area for CCHF.

Source: Epidemiology Division and Special Pathogens Unit

Rabies update

Two cases of human rabies were confirmed during the past month from Limpopo and Eastern Cape provinces respectively. Both cases reported dog bites and did not receive appropriate rabies post-exposure prophylaxis. Both cases were confirmed on PCR performed on saliva specimens.

Two suspected cases from the Mpumalanga Province were also investigated but could not be confirmed yet. This province has been experiencing an increasing number of rabies cases in dogs, particularly in the districts of Ehlanzeni and Bushbuck Ridge, where it has been successfully controlled before.

A total of 8 human rabies cases has been laboratory-confirmed to date this year, with cases from the Eastern Cape (n=4); KwaZulu Natal (n=3) and Limpopo (n=1) provinces.

An increasing number of cases has also been confirmed from Namibia, with four cases confirmed in 2008, and an equal number of cases confirmed in the first five months of 2009 alone. These cases are reported from the northern region of Namibia bordering Angola.

Source: Epidemiology Division and Special Pathogens Unit

Burkholderia pseudomallei infection

A 48-year-old drill operator, originally from Melbourne, Australia, and working on a project in Madagascar, was medically evacuated to South Africa for treatment of severe pneumonia. He had been in Madagascar for three months, and was apparently previously well with no history of immunosuppression. At the time of admission, the patient had a positive antigen test but negative blood smear for falciparum malaria and was treated. It is not known what influence this may have had on the melioidosis. Despite intensive care, assisted ventilation and antibiotics (cefepime), he subsequently died. *Burkholderia pseudomallei* was isolated from two blood cultures and a tracheal aspirate using VITEK 2 identification. The diagnosis was confirmed by the Special Bacterial Pathogens Reference Unit at NICD using API identification. The isolate has been sent to Bangkok, Thailand for molecular characterization.

Burkholderia pseudomallei is an environmental organism in soil and water in many tropical and sub-tropical areas of Africa (including Madagascar), Asia, Australia and Pacific islands, India and the Middle East. It is the causative agent of melioidosis, a disease of highly variable incubation and clinical presentation. Its severe forms may manifest as necrotizing pneumonia, cutaneous or visceral abscesses, or a rapidly fatal septicaemia; however, mild or asymptomatic infection is common. About two-thirds of cases have a predisposing medical condition like diabetes, cirrhosis, alcoholism, or renal failure; there is typically a history of contact of damaged skin with soil or surface water. Recommended treatment is ceftazidime or imipenem acutely, followed by combination therapy with doxycycline, cotrimoxazole, and chloramphenicol for several months. Cephalosporins other than ceftazidime are not effective. There was nothing specific to this case either epidemiologically or clinically that suggested a diagnosis of melioidosis and hence an alternative choice of empiric antibiotic treatment.

Source: Epidemiology Division and Special Bacterial Pathogens Reference Unit, NICD; Ampath Laboratories, Johannesburg

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 16 April to 19 May 2009.

Disease	Countries	Comments	Advice to travellers
Avian Influenza	Egypt	A total of 70 human cases of avian influenza H5N1 reported in Egypt, of which 26 have been fatal.	Avian influenza A/H5N1 is transmitted to humans primarily by direct contact with sick or dead birds. Travellers to areas reporting outbreaks are advised to: avoid direct contact with birds (incl. poultry and wild birds), avoid touching surface with bird droppings or fluids, eat only thoroughly cooked poultry meat and products, and practice good hygiene (incl. hand washing at all times).
Dengue	Tropics and sub-tropics: Brazil, Bolivia, Argentina, Mexico, Malaysia, Viet Nam, Sri Lanka, Saudi Arabia	Dengue fever is an important consideration in the differential diagnosis of travellers returning with fever, myalgia and rash.	The mosquito vectors responsible for transmission commonly breed within households and are most active during the day. Travellers to tropical areas should take precautions to avoid being bitten by mosquitoes.* Dengue fever is the most common cause of fever in travellers returning from the Caribbean, Central America, and South Central Asia. Clinicians should consider dengue in the differential diagnosis of travellers presenting with fever.
Chikungunya	Malaysia and Thailand (incl Phuket)	1,609 and 15,240 cases reported to date this year, respectively. Chikungunya infection typically presents with fever, a maculo-papular rash of the trunk and occasionally the limbs, and arthralgia and arthritis affecting multiple joints.	Chikungunya fever is caused by a virus, which is transmitted through infected mosquitoes. Chikungunya mainly occurs in areas of West Africa and Asia. No medications or vaccines are available for prevention; however, travellers are reminded to protect against mosquito bites.* Clinicians should consider chikungunya in the differential diagnosis of travellers presenting with fever.
Yellow Fever	Brazil (Rio Grande do Sol and Sao Paolo)	43 human cases of yellow fever infection and 16 fatalities have been reported since the beginning of the year, showing intensified transmission in the southern and south-eastern regions of Brazil.	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 (HIV+ with CD4<200). These individuals still require a health certificate indicating the reason for non-compliance when travelling.
Cholera	Zimbabwe	98,294 cumulative cases and 4,283 cumulative deaths reported. Cumulative institutional case fatality rate is 1.7%. The numbers of new cases reported per week continue to decline.	To prevent acquiring 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; Public Health Registrars, University of Witwatersrand.

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 19 May 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.